intertek
Total Quality. Assured.

Deqing Dalang Electronics Co., Ltd.

TEST REPORT

SCOPE OF WORK:
EMC report

Model:
E40-rainbow
More details refer to page 8

REPORT NUMBER
240300674HAN-001

ISSUE DATE
April 13, 2024

DOCUMENT CONTROL NUMBER
TTRF55015_V1
© 2021 Intertek



Intertek Testing Services Zhejiang Ltd.,
Building No. 2, Juanhu Science and Technology Innovation Park,
No. 500 Shuiyueting East Road, Haining City,
Zhejiang Province, China

Telephone: +86 573 8713 7201
www.intertek.com

Report no. 240300674HAN-001

Applicant	:	**Deqing Dalang Electronics Co., Ltd.** **No.338 Xinyuan Street, Economic Development Zone, Qianyuan Town, Deqing County, Huzhou City, Zhejiang Province 313201, P. R. China**
Manufacturer	:	**Same as applicant**
Factory	:	**Same as applicant**

Summary

The equipment complies with the requirements according to the following standard(s) or Specification:

EN IEC 55015:2019+A11:2020: 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 IEC 61000-3-2:2019+A1:2021: Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16A per phase)

EN 61000-3-3:2013+A1:2019+A2:2021: 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 ≤ 16A per phase and not subject to conditional connection

PREPARED BY:	**REVIEWED BY:**
Reggie Yuan	Offa Zhou
Project Engineer	Reviewer

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Contents

REVISION HISTORY **6**

MEASUREMENT RESULT SUMMARY **7**

1. GENERAL INFORMATION **8**

1.1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT) 8
1.2 DESCRIPTION OF TEST FACILITY 9

2. TEST SPECIFICATIONS **10**

2.1 NORMATIVE STANDARDS 10
2.2 MODE OF OPERATION DURING THE TEST 11
2.3 TEST PERIPHERALS USED 11
2.4 RECORD OF CLIMATIC CONDITIONS 11
2.5 INSTRUMENT LIST 12
2.6 MEASUREMENT UNCERTAINTY 14

EMISSION TEST **15**

3. ASSESSMENT OF WIRED NETWORK PORTS **15**

3.1 LIMITS 15
3.1.1 Disturbance voltage limits at the electric power supply interface 15
3.1.2 Disturbance voltage limits at wired network interfaces other than power supply 15
3.1.3 Disturbance current limits at wired network interfaces other than power supply 16
3.2 BLOCK DIAGRAM OF TEST SETUP 17
3.3 TEST SETUP AND TEST PROCEDURE 18
3.4 TEST PROTOCOL 19

4. ASSESSMENT OF LOCAL WIRED PORTS **21**

4.1 LIMITS 21
4.1.1 Disturbance voltage limits of local wired ports: electrical power supply interface of non-restricted ELV lamps 21
4.1.2 Disturbance voltage limits at local wired ports: local wired ports other than electrical power supply interface of ELV lamp 21
4.1.3 Disturbance current limits at local wired ports: local wired ports other than electrical power supply interface of ELV lamp 22
4.2 BLOCK DIAGRAM OF TEST SETUP 23
4.3 TEST SETUP AND TEST PROCEDURE 24
4.4 TEST PROTOCOL 25

5. ASSESSMENT OF THE ENCLOSURE PORT (FREQUENCY RANGE 9 KHZ TO 30 MHZ) **26**

5.1 LIMITS 26
5.2 BLOCK DIAGRAM OF TEST SETUP 27
5.3 TEST PROTOCOL 28

6. ASSESSMENT OF THE ENCLOSURE PORT (FREQUENCY RANGE 30 MHZ TO 1GHZ) **30**

6.1 LIMIT 30
6.2 BLOCK DIAGRAM AND TEST SET UP 31
6.3 TEST PROTOCOL 32

7. HARMONICS **34**

7.1 BLOCK DIAGRAM OF TEST SETUP 34
7.2 TEST SETUP AND TEST PROCEDURE 34
7.3 TEST PROTOCOL 34

8. VOLTAGE FLUCTUATIONS-FLICKER **35**

8.1 BLOCK DIAGRAM OF TEST SETUP 35
8.2 TEST SETUP AND TEST PROCEDURE 35
8.2.1 Definition 35
8.2.2 Test condition 35
8.3 TEST PROTOCOL 36

IMMUNITY TEST 37

9. ELECTROSTATIC DISCHARGE (ESD) 38

9.1 SEVERITY LEVEL AND PERFORMANCE CRITERION 38
9.1.1 Test level 38
9.1.2 Performance Criterion 38
9.2 BLOCK DIAGRAM OF TEST SETUP 39
9.3 TEST SETUP AND TEST PROCEDURE 40
9.4 TEST PROTOCOL 41

10. ELECTROMAGNETIC FIELD SUSCEPTIBILITY 42

10.1 SEVERITY LEVEL AND PERFORMANCE CRITERION 42
10.1.1 Test level 42
10.1.2 Performance Criterion 42
10.2 BLOCK DIAGRAM OF TEST SETUP 43
10.3 TEST SETUP AND TEST PROCEDURE 43
10.4 TEST PROTOCOL 44

11. ELECTRIC FAST TRANSIENT/BURST IMMUNITY TEST 45

11.1 SEVERITY LEVEL AND PERFORMANCE CRITERION 45
11.1.1 Test level 45
11.1.2 Performance Criterion 45
11.2 BLOCK DIAGRAM OF TEST SETUP 46
11.2.1 Block Diagram for input a.c./d.c. power line 46
11.2.2 Block Diagram for output a.c./d.c. power line or signal/control lines 47
11.3 TEST SETUP AND TEST PROCEDURE 47
11.4 TEST PROTOCOL 48

12. SURGE IMMUNITY TEST 49

12.1 SEVERITY LEVEL AND PERFORMANCE CRITERION 49
12.1.1 Test level 49
12.1.2 Performance Criterion 49
12.2 BLOCK DIAGRAM OF TEST SETUP 50
12.3 TEST SETUP AND TEST PROCEDURE 50
12.4 TEST PROTOCOL 51

13. IMMUNITY TO CONDUCTED DISTURBANCES, INDUCED BY RADIO-FREQUENCY FIELDS 52

13.1 SEVERITY LEVEL AND PERFORMANCE CRITERION 52
13.1.1 Test level 52
13.1.2 Performance Criterion 52
13.2 BLOCK DIAGRAM OF TEST SETUP 52
13.3 TEST SETUP AND TEST PROCEDURE 53
13.4 TEST PROTOCOL 54

14. VOLTAGE DIPS, SHORT INTERRUPTIONS AND VOLTAGE VARIATIONS IMMUNITY TEST 55

14.1 SEVERITY LEVEL AND PERFORMANCE CRITERION 55
14.1.1 Test level 55
14.1.2 Performance Criterion 55
14.2 BLOCK DIAGRAM OF TEST SETUP 56
14.3 TEST SETUP AND TEST PROCEDURE 56

14.4 TEST PROTOCOL 56

APPENDIX I: PHOTOGRAPH OF EQUIPMENT UNDER TEST 57

Revision History

Report No.	Version	Description	Issued Date
240300674HAN-001	Rev. 01	Initial issue of report	April 13, 2024

Measurement result summary

TEST ITEM	TEST RESULT	NOTE
Assessment of wired network ports	Pass	
Assessment of local wired ports	NA	
Assessment of the enclosure port	Pass	
Harmonics	Pass	
Voltage fluctuation-Flicker	Pass	
Electrostatic Discharge (ESD)	Pass	
RF electromagnetic field susceptibility	Pass	
Electric Fast Transient /Burst (EFT/B)	Pass	
Surge	Pass	
Injected Current	Pass	
Voltage dips and interruption	Pass	

Notes:

1. NA =Not Applicable
2. Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.
3. Additions, Deviations and Exclusions from Standards: None.

1. GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name	:	DC Lamp
Type/Model	:	E40-rainbow, E40-Warm yellow moon, E40-enjoy, E40-Warm yellow star, E40-Red flowers, E40-Warm yellow love, E40-Warm yellow HOME, E40-Pink X, E40-Green Christmas tree, E40-One arrow through the heart, E40-Blue flowers, E40-Pink butterflies, E40-Pink hearts, E40-Warm yellow smiley, W40-Pink COOL, E40-Warm yellow love, E40-Warm yellow bells, E40-Warm yellow Smile, E40-Warm yellow dad, E40-Warm yellow butterfly, E40-light blue Dream, E40-Blue Moon, E40-warm yellow rings, E40-Warm yellow hi, E40-Warm yellow sun, E40-Blue Dream, E40-Warm yellow hello, E40-red love, E40-Yellow Dream, E40-two-color mushrooms, CH35790
Description of EUT	:	The EUT covered in the report is DC lamp powered by rechargeable battery. All models are the same except for the appearance of LED. Model CH35790 is the same as model E40-rainbow except for the model name. Therefore, model E40-rainbow was tested as representative.
Rating	:	DC5V, 0.5W
Brand name	:	Dalang
Mains lead	:	None
Data cable	:	None
EUT type	:	☒ Table-top ☐ Floor standing
Sample received date	:	March 20, 2024
Sample Identification No.	:	1240319-12-001
Date of test	:	March 28, 2024 ~ March 29, 2024

z

1.2 Description of Test Facility

Name	:	Intertek Testing Services Zhejiang Ltd.
Address	:	Building No. 2, Juanhu Science and Technology Innovation Park, No. 500 Shuiyueting East Road, Haining City, Zhejiang Province, China
Telephone	:	+86 573 8713 7201
The test facility is recognized, certified, or accredited by these organizations	:	CNAS Accreditation Lab Registration No. CNAS L13980

2. TEST SPECIFICATIONS

2.1 Normative Standards

CISPR 32:2015: Electromagnetic compatibility of multimedia equipment - Emission Requirements

IEC 61000-4-2:2008: Electromagnetic Compatibility (EMC) – Part 4-2: testing and measurement techniques – electrostatic discharge immunity test

IEC 61000-4-3:2006+A1:2007: Electromagnetic Compatibility (EMC) – Part 4-3: testing and measurement techniques – radiated, radio frequency, electromagnetic field immunity test

IEC 61000-4-4:2004: Electromagnetic Compatibility (EMC) – Part 4-4: testing and measurement techniques – electric fast transient/burst immunity test

IEC 61000-4-5:2005: Electromagnetic Compatibility (EMC) – Part 4-5: testing and measurement techniques – section 5: surge immunity test

IEC 61000-4-6:2008: Electromagnetic Compatibility (EMC) – Part 4-6: testing and measurement techniques – section 6: immunity to conducted disturbance, induced by radio frequency field

IEC 61000-4-8:1993+A1:2000: Electromagnetic compatibility (EMC) — Part 4-8: Testing and measurement techniques —Power frequency magnetic field immunity test.

IEC 61000-4-11:2004: Electromagnetic Compatibility (EMC) – Part 4-11: testing and measurement techniques –voltage dips, short interruption and voltage variations immunity test

Note: there are no magnetic sensitive components included in this EUT and magnetic field immunity test according to EN 61000-4-8 is therefore not required.

2.2 Mode of operation during the test

Within this test report, EUT was tested under all available operation modes and tested under its rating voltage and frequency. Other voltage and frequency is specified if used.

2.3 Test Peripherals used

Item No	Description	Band and Model	S/No
1	Adaptor	Apple A1443	-

2.4 Record of climatic conditions

Test Item	Temperature (°C)	Relative Humidity (%)	Pressure (Kpa)
Assessment of wired network ports	24	50	NA
Assessment of local wired ports	NA	NA	NA
Assessment of the enclosure port (Radio frequency magnetic field emission)	24	50	NA
Assessment of the enclosure port (Radiated Emission)	24	50	NA
Harmonics	NA	NA	NA
Voltage fluctuation-Flicker	NA	NA	NA
Electrostatic Discharge (ESD)	24	50	101
RF electromagnetic field susceptibility	25	47	NA
Electric Fast Transient /Burst (EFT/B)	24	50	NA
Surge	24	50	NA
Injected Current	24	50	NA
Voltage dips and interruption	24	50	NA

Notes: NA =Not Applicable

2.5 Instrument list

Conducted Emission / Tri-loop Test					
Used	Equipment	Manufacturer	Type	Internal No.	Due Date
☑	EMI Test Receiver	R&S	ESR7	EZ6547	2024-08-16
☑	Pulse Limiter	SHX	TS5-10dB-6G-B	EZ6560	2024-10-22
☑	A.M.N.	R&S	ESH2-Z5	EZ6378	2024-5-24
☑	Tri-loop	Schwarzbeck	HXYZ 9170	EZ6401	2024-5-24
Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal No.	Due Date
☑	EMI Test Receiver	Rohde&Schwarz	ESR7	EZ6331-1	2025-02-18
☑	Bilog Antenna	ETS-Lindgren	3143B	EZ6331-4	2024-07-13
ESD					
Used	Equipment	Manufacturer	Type	Internal No.	Due Date
☑	ESD generator	NoiseKen	ESS-B3011A	EZ6568	2024-11-12
EFT / Surge / Voltage Dips					
Used	Equipment	Manufacturer	Type	Internal No.	Due Date
☑	Compact NX Generator	EM TEST	Compact NX5	EZ6334-1	2025-02-18
☑	Automatic Transformer	EM TEST	Variac NX1-260-16	EZ6334-1	2025-02-18
Conducted Immunity					
Used	Equipment	Manufacturer	Type	Internal No.	Due Date
☑	Conducted Disturbance Test System	SCHLÖDER	CDG-7000-75	EZ6333-1	2025-02-18
☑	CDN	SCHLÖDER	CDN-M2+3	EZ6333-2	2025-02-18
☑	Attenuator	SCHLÖDER	CDG 6050-100	EZ6333-3	2025-02-18
Radiated Immunity					
Used	Equipment	Manufacturer	Type	Internal No.	Due Date
☑	Signal Generator	Keysight	N5171B	EZ6332-1	2024-04-02
☑	Power Amplifier	Hanrui Microwave	HRCPA-0008010-54GA	EZ6332-2	2025-02-18
☑	Log-period Antenna	Schwarzbeck	STLP 9129	EZ6332-4	2024-07-27
☑	Power Meter	Keysight	N1914A	EZ6332-5	2024-04-02
☑	Power Sensor	Keysight	E9301A	EZ6332-6	2024-04-02
☑	Power Sensor	Keysight	E9301A	EZ6332-7	2024-04-02
☑	Field Probe	PMM	EP-600	EZ6332-8	2024-07-16
☑	RF Matrix	CTE	CUS2035	EZ6332-9	2025-02-18
Tet Site					
Used	Equipment	Manufacturer	Type	Internal No.	Due Date
☑	Shielded Room	SAEMC	MSR953	EZ6441	2027-07-27

☑	Shielded Room	SAEMC	PSAC318-M	EZ6442	2027-07-27
☑	Semi-anechoic Chamber	SAEMC	FSAC318	EZ6439	2025-11-21
☑	Fully Anechoic Chamber	SAEMC	PSAC318	EZ6440	2027-09-29
Additional Instrument					
Used	Equipment	Manufacturer	Type	Internal No.	Due Date
☑	Digital Therom-Hygrograph	TESTO	175H1	EZ6660	2024-10-06
☑	Digital Therom-Hygrograph	TESTO	175H1	EZ6659	2024-10-06
☑	Digital Therom-Hygrograph	TESTO	175H1	EZ1056	2024-10-06
☑	Digital Therom-Hygrograph	TESTO	175H1	EZ1057	2024-10-06
☑	Pressure Meter	Shanghai Fengyun	FYP-1	EZ6422	2024-04-12
☑	Luxmeter	Hangzhou Xinye	XYI-III	EZ6423	2024-08-17

2.6 Measurement Uncertainty

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted emission at mains ports	9kHz ~ 150kHz	3.5 dB
	150kHz ~ 30MHz	3.2 dB
Continuous disturbance voltage at load terminal	150kHz ~ 30MHz	2.6 dB
Continuous disturbance voltage at control terminal	150kHz ~ 30MHz	3.7 dB
Mains terminal discontinuous disturbance voltage/click	-	3.8 dB
Continuous disturbance power	30MHz ~ 300MHz	4.2 dB
Radiated emissions up to 1 GHz	30MHz ~ 1GHz	5.0 dB
Radiated emissions above 1 GHz	1GHz ~ 6GHz	4.4 dB
	6GHz ~ 18GHz	5.2 dB
Harmonic current emission	-	3.1 %
Voltage fluctuations and flicker	-	11.7 %
ESD	-	6.7 %
Radiated susceptibility	80MHz ~ 1GHz	3.2 dB
	1GHz ~ 6GHz	3.3 dB
EFT test at main terminal	-	12.5 %
EFT test at signal/telecom terminal	-	12.5 %
Surge test at main terminal	-	11.6 %
Injected current test at main terminal	-	2.8 dB
Injected current test at unshielded signal terminal	-	2.8 dB
Voltage dips and interruption	-	6.1 %

Emission Test

3. Assessment of wired network ports

Test result: **PASS**

3.1 Limits

3.1.1 Disturbance voltage limits at the electric power supply interface

Frequency range (MHz)	Limits dB(μV)[1] Quasi-peak	Average
0.009 ~ 0.05	110	-
0.05 ~ 0.15	90 ~ 80 [2]	-
0.15 ~ 0.5	66 ~ 56 [2]	56 ~ 46[2]
0.5 ~ 5.0	56[3]	46[3]
5.0 ~ 30	60	50

Notes:

1. At the transition frequency, the lower limit applies.
2. The limit decreases linearly with the logarithm of the frequency in the ranges 50 kHz to 150 kHz and 150 kHz to 0,5 MHz.
3. For lighting equipment incorporating exclusively electrodeless lamps, the limit in the frequency range of 2,2 MHz to 3,0 MHz is 73 dB(μV) quasi-peak and 63 dB(μV) average.
4. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

3.1.2 Disturbance voltage limits at wired network interfaces other than power supply

Frequency range (MHz)	Limits dB(μV) Quasi-peak	Average
0.15 ~ 0.5	80 to 74	70 to 64
0.5 ~ 30	74	64

Note:

1. The limits decrease linearly with the logarithm of the frequency in the range 0,15 MHz to 0,5 MHz.
2. The disturbance voltage limits are derived for use with an artificial asymmetrical network (AAN) which presents a common mode (asymmetric mode) impedance of 150 Ω to the measured interface.
3. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

3.1.3 Disturbance current limits at wired network interfaces other than power supply

Frequency range (MHz)	Limits dB(μA)	
	Quasi-peak	Average
0.15 ~ 0.5	40 to 30	30 to 20
0.5 ~ 30	30	20

Note:

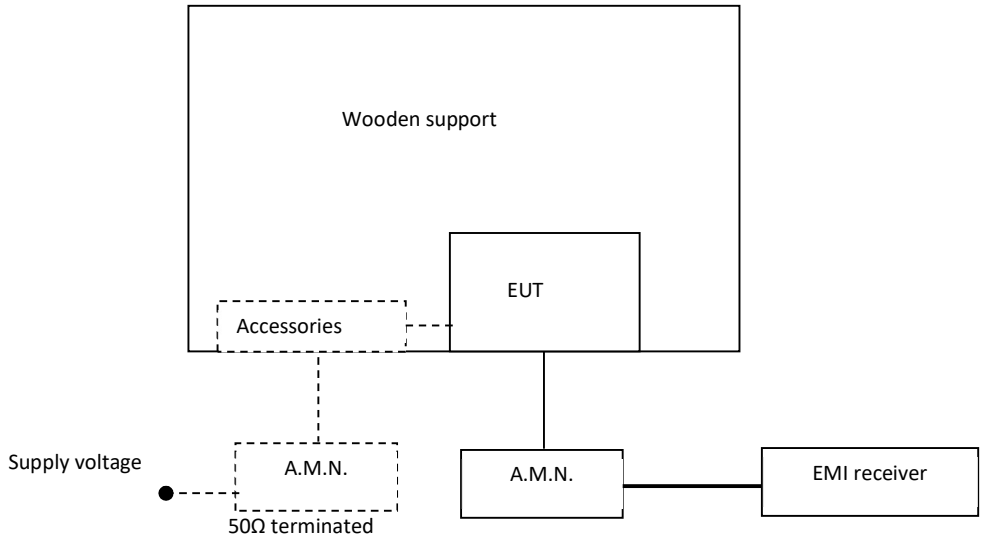
1. The limits decrease linearly with the logarithm of the frequency in the range 0,15 MHz to 0,5 MHz.

2. The disturbance current limits are derived for use of a common mode (asymmetric mode) impedance of 150 Ω. Hence the conversion factor applied is 20 log(150) = 44 dBΩ.

3. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

3.2 Block Diagram of Test Setup

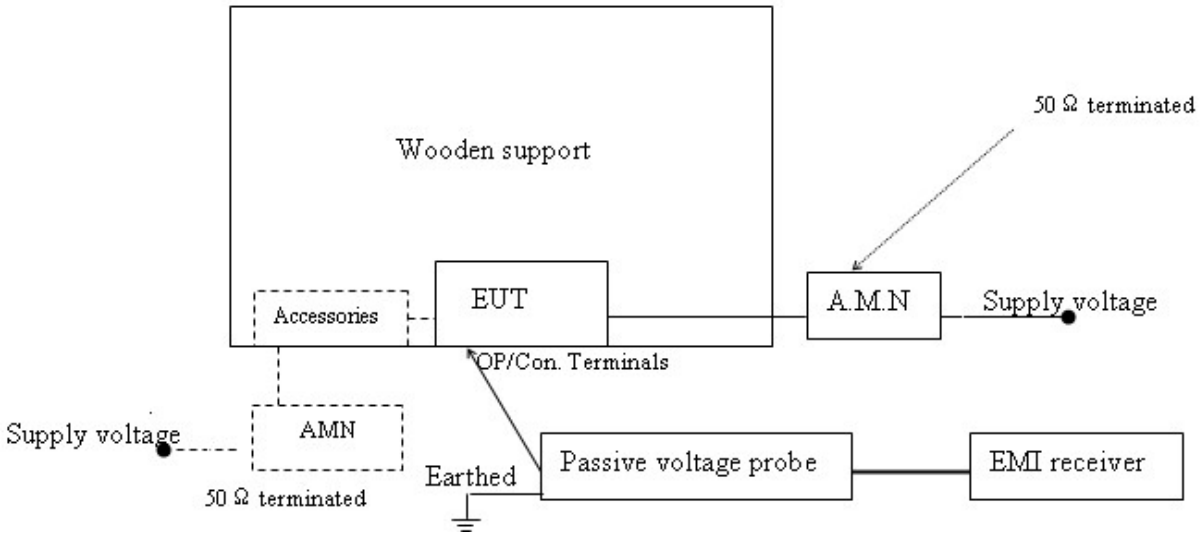
☒ At electric power supply interface



☒ For table top equipment, wooden support is 0.8m height table

☐ For floor standing equipment, wooden support is 0.1m height rack.

☐ At wired network interfaces other than power supply



Note: ——— : power line
——— : signal line
- - - - - - - - : means the test setup while available

3.3 Test Setup and Test Procedure

Detailed test procedure and arrangement was following EN IEC 55015 clause 8 & Annex B.
Operation conditions of EUT were according to EN IEC 55015 clause 7 & Annex A.
Measurement was carried out with lamps which have been in operation for:

2 h for incandescent technologies;
100 h for discharge technologies.

Prior to a measurement, the lamps were operated until stabilization has been reached, and the following stabilization time was observed:

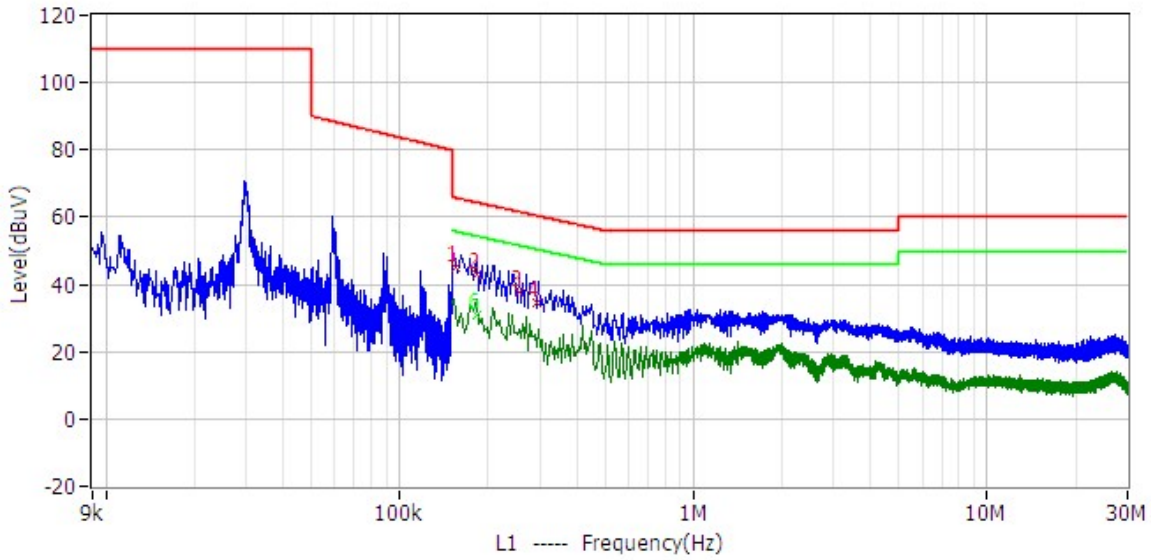
15 min for EUTs that do not include gas discharge technologies;
30 min for EUTs that include gas discharge technologies.

The frequency from 9kHz to 30MHz was checked.
The bandwidth of test receiver was set on 200Hz (from 9kHz to 150kHz) and 9kHz (from 150kHz to 30MHz).

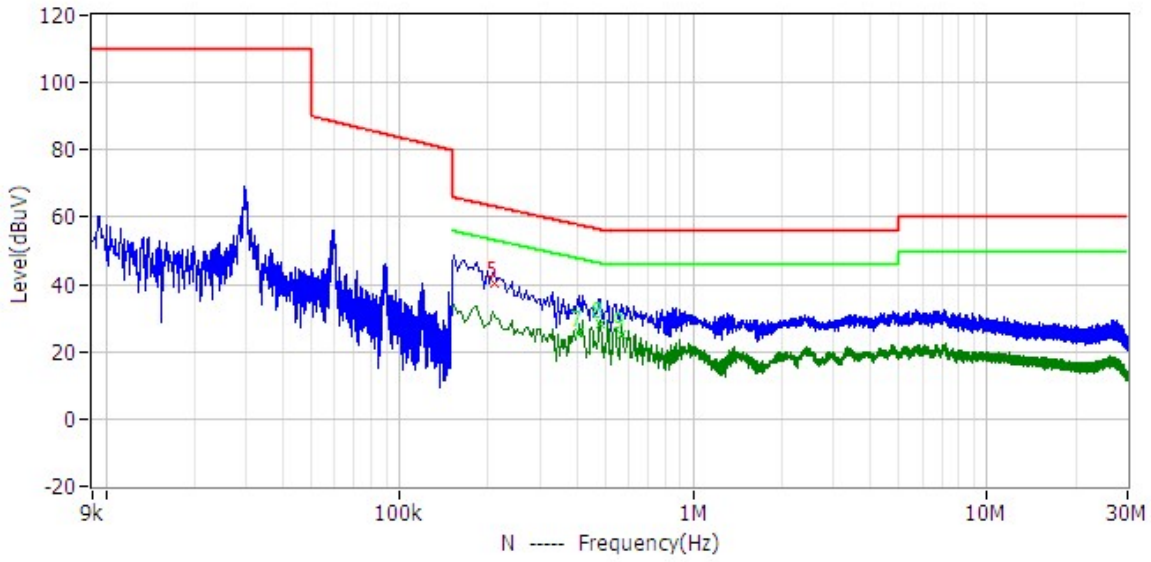
3.4 Test Protocol

For electric power supply interface: Pass

L-Line



N-Line



No.	Frequency	Limit dBμV	Level dBμV	Delta dB	Factor dB	Detector	Phase
1	154.500kHz	65.8	45.0	-20.8	10.2	QP	L1
2	182.500kHz	64.4	43.1	-21.3	10.2	QP	L1
3	254.500kHz	61.6	37.7	-23.9	10.2	QP	L1
4	294.000kHz	60.4	34.6	-25.8	10.2	QP	L1
5	210.500kHz	63.2	40.5	-22.7	10.2	QP	N
6	182.500kHz	54.4	30.6	-23.8	10.2	CAV	L1
7	406.500kHz	47.7	25.5	-22.2	10.2	CAV	N
8	478.500kHz	46.4	28.3	-18.1	10.2	CAV	N
9	566.500kHz	46.0	25.3	-20.7	10.2	CAV	N

For wired network interfaces other than power supply: NA

☐ Disturbance voltage

☐ Disturbance current

Frequency (MHz)	Quasi-peak			Average		
	Corrected Reading (dBμV)	Limit (dBμV)	Margin (dB)	Corrected Reading (dBμV)	Limit (dBμV)	Margin (dB)
Note: * means the emission level 20dB below the relevant limit.						

Remark: 1. Correct Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming LISN Factor = 10.00dB, Cable Loss = 2.00dB,
Original Receiver Reading = 10.00dBμV, Limit = 66.00dBμV.
Then Correct Factor = 10.00 + 2.00 = 12.00dB;
Corrected Reading = 10dBμV + 12.00dB = 22.00dBμV;
Margin = 66.00dBμV – 22.00dBμV = 44.00dB.

4. Assessment of local wired ports

Test result: **NA**

4.1 Limits

4.1.1 Disturbance voltage limits of local wired ports: electrical power supply interface of non-restricted ELV lamps

Frequency range (MHz)	Limits dB(μV)[134] Quasi-peak	Average
0.009 ~ 0.05	136	-
0.05 ~ 0.15	116 ~ 106 [2]	-
0.15 ~ 0.5	92 ~ 82 [2]	82 ~ 72[2]
0.5 ~ 5.0	82	72
5.0 ~ 30	86	76

Notes:

1. At the transition frequency, the lower limit applies.
2. The limit decreases linearly with the logarithm of the frequency in the ranges 50 kHz to 150 kHz and 150 kHz to 0,5 MHz.
3. The limits in this table apply if no 26 dB attenuator is applied.
4. Disturbance voltage limits for restricted ELV lamps are given in 3.1.1.
5. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

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

Frequency range (MHz)	Limits dB(μV) Quasi-peak	Average
0.15 ~ 0.5	80	70
0.5 ~ 30	74	64

Note:

1. At the transition frequency, the lower limit applies.
2. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

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

Frequency range (MHz)	Limits dB(μA) Quasi-peak	Average
0.15 ~ 0.5	40 to 30	30 to 20
0.5 ~ 30	30	20

Note:

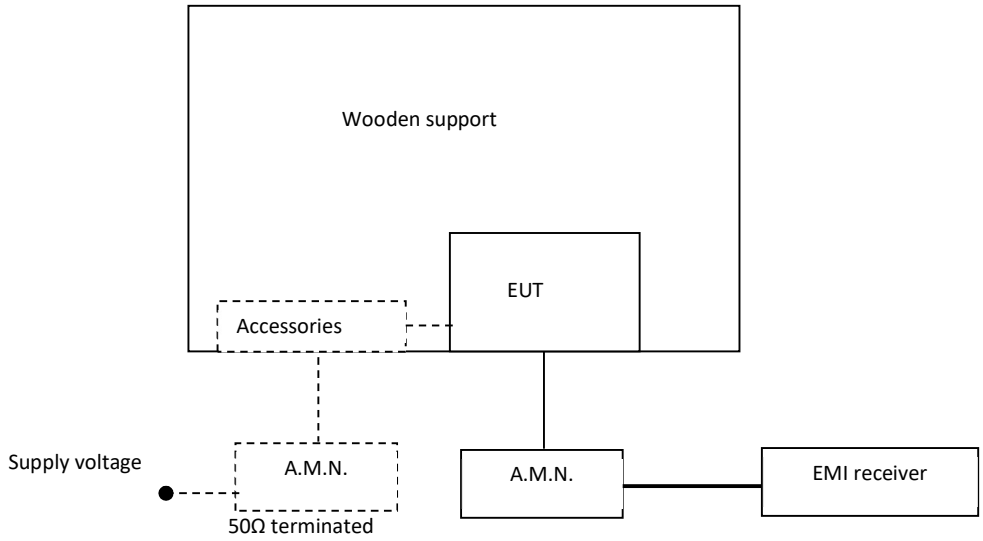
1. The limits decrease linearly with the logarithm of the frequency in the range 0,15 MHz to 0,5 MHz.

2. The disturbance current limits are derived for use of a common mode (asymmetric mode) impedance of 150 Ω. Hence the conversion factor applied is 20 log(150) = 44 dBΩ.

3. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

4.2 Block Diagram of Test Setup

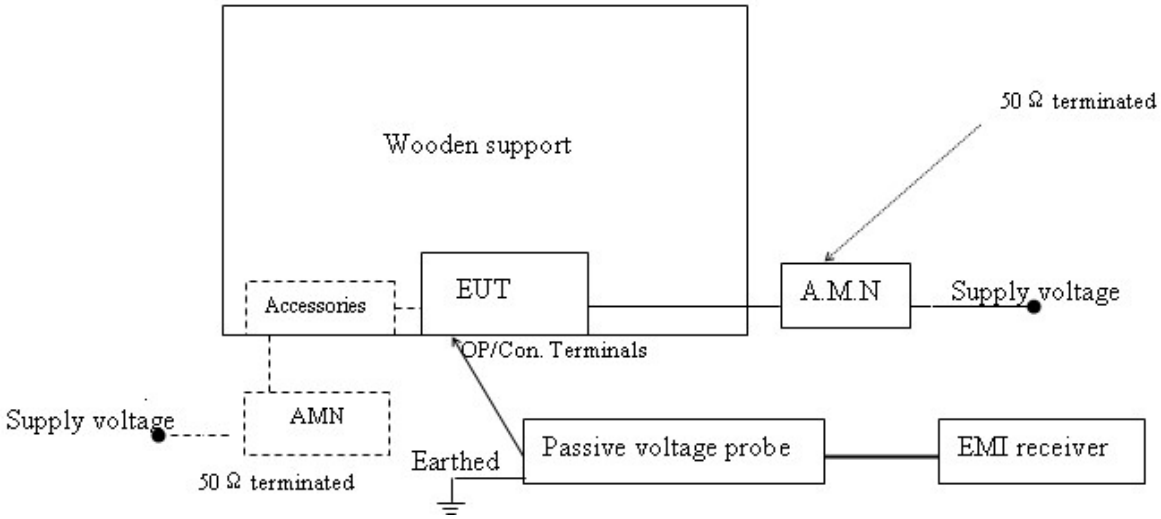
☒ At electric power supply interface of non-restricted ELV lamps



☒ For table top equipment, wooden support is 0.8m height table

☐ For floor standing equipment, wooden support is 0.1m height rack.

☐ At wired network interfaces other than electrical power supply of ELV lamp



Note: ——— : power line
——— : signal line
- - - - - - - : means the test setup while available

4.3 Test Setup and Test Procedure

Detailed test procedure and arrangement was following EN IEC 55015 clause 8 & Annex B.
Operation conditions of EUT were according to EN IEC 55015 clause 7 & Annex A.
Measurement was carried out with lamps which have been in operation for:

2 h for incandescent technologies;
100 h for discharge technologies.

Prior to a measurement, the lamps were operated until stabilization has been reached, and the following stabilization time was observed:

15 min for EUTs that do not include gas discharge technologies;
30 min for EUTs that include gas discharge technologies.

The frequency from 9kHz to 30MHz was checked.
The bandwidth of test receiver was set on 200Hz (from 9kHz to 150kHz) and 9kHz (from 150kHz to 30MHz).

4.4 Test Protocol

For electrical power supply interface of non-restricted ELV lamps: NA

L-Line

N-Line

For local wired ports other than electrical power supply interface of ELV lamp: NA

☐ Disturbance voltage
☐ Disturbance current

5. Assessment of the enclosure port (Frequency range 9 kHz to 30 MHz)

Test result: **PASS**

5.1 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)		
	2m	3m	4m
9kHz ~ 70kHz	88	81	75
70kHz ~ 150kHz	88 ~ 58[1]	81 ~ 51[1]	75 ~ 45[1]
150kHz ~ 3.0MHz	58 ~ 22[12]	51 ~ 15[12]	45 ~ 9[12]
3.0MHz ~ 30MHz	22	15 ~ 16[3]	9 ~ 12[3]

Notes:
1. Decreasing linearly with the logarithm of the frequency.
2. For lighting equipment incorporating exclusively electrodeless lamps, the limit in the frequency range of 2,2 MHz to 3,0 MHz is 58 dB(μA) for 2 m, 51 dB(μA) for 3 m and 45 dB(μA) for 4 m loop diameter.
3. Increasing linearly with the logarithm of the frequency.

Maximum EUT dimension that can be used for testing using LLAS with different diameters

Maximum dimension of the EUT, D m	Loop antenna diameter m
D ⩽ 1,6	2
D ⩽ 2,6	3
D ⩽ 3,6	4

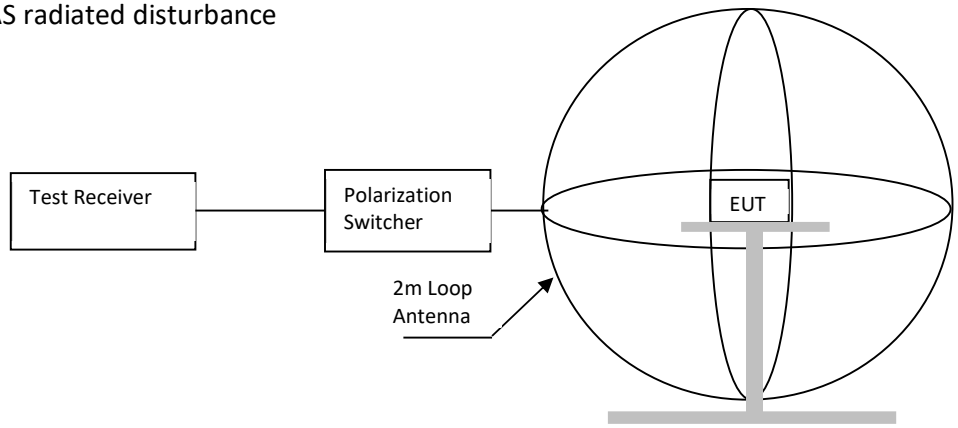
☐ Loop antenna radiated disturbance limits in the frequency range 9 kHz to30 MHz for equipment with a dimension > 1,6 m

Frequency range MHz	Limits at 3 m distance Quasi-peak dB(μA/m)
0,009 to 0,070	69
0,070 to 0,150	69 to 39[2]
0,150 to 4,0	39 to 3[12]
4,0 to 30	3

Notes:
1. For lighting equipment incorporating exclusively electrodeless lamps, the limit in the frequency range of 2,2 MHz to 3,0 MHz is 39 dB(μA/m).
2. Decreasing linearly with logarithm of frequency.

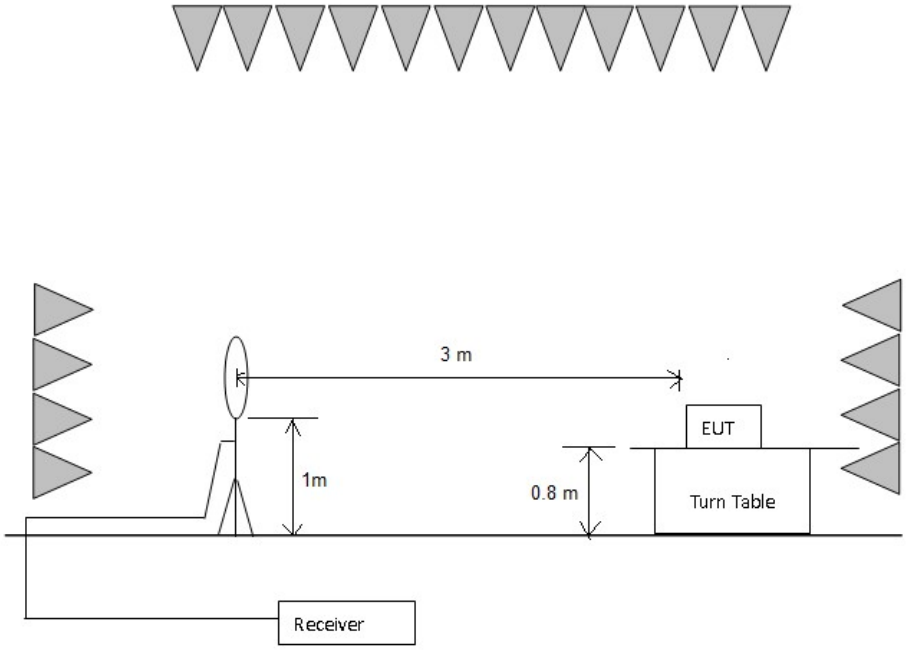
5.2 Block Diagram of Test Setup

☒ LLAS radiated disturbance



Measurement was performed in shielded room, and instruments used were following EN IEC 55015 clause 9.
Detailed test procedure and arrangement was following EN IEC 55015 clause 9 & Annex C.
Frequency range 9kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 200Hz (from 9kHz to 150kHz) and 9kHz (from 150kHz to 30MHz).

☐ Loop antenna radiated disturbance



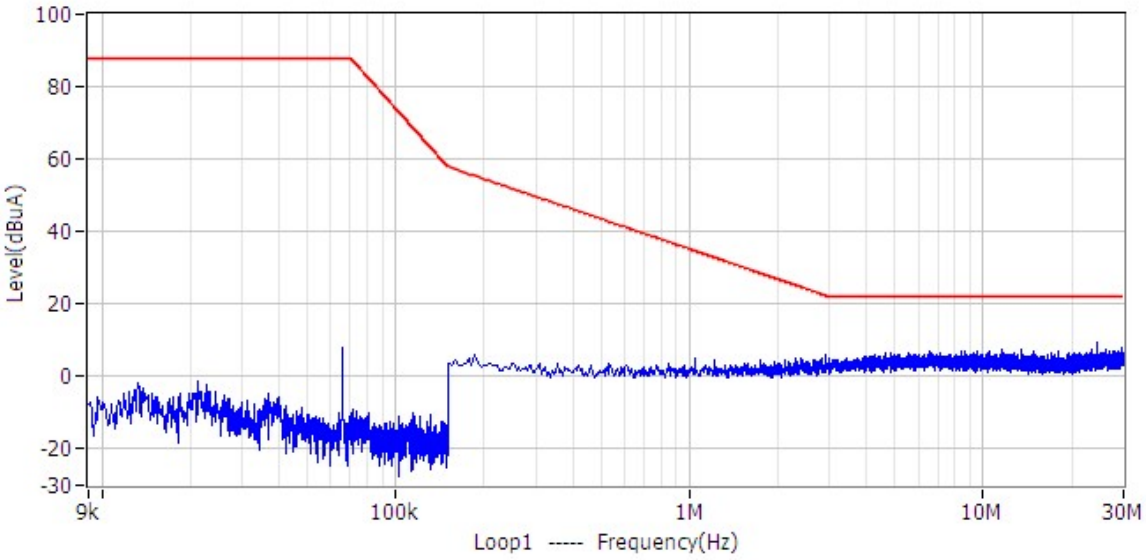
The measurement was applied in a semi-anechoic chamber.
Measurement was performed according to CISPR 32 Annex C.
Setting of EUT is according to EN IEC 55015 clause 9 & Annex C.
Frequency range 9kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 200Hz (from 9kHz to 150kHz) and 9kHz (from 150kHz to 30MHz).

5.3 Test Protocol

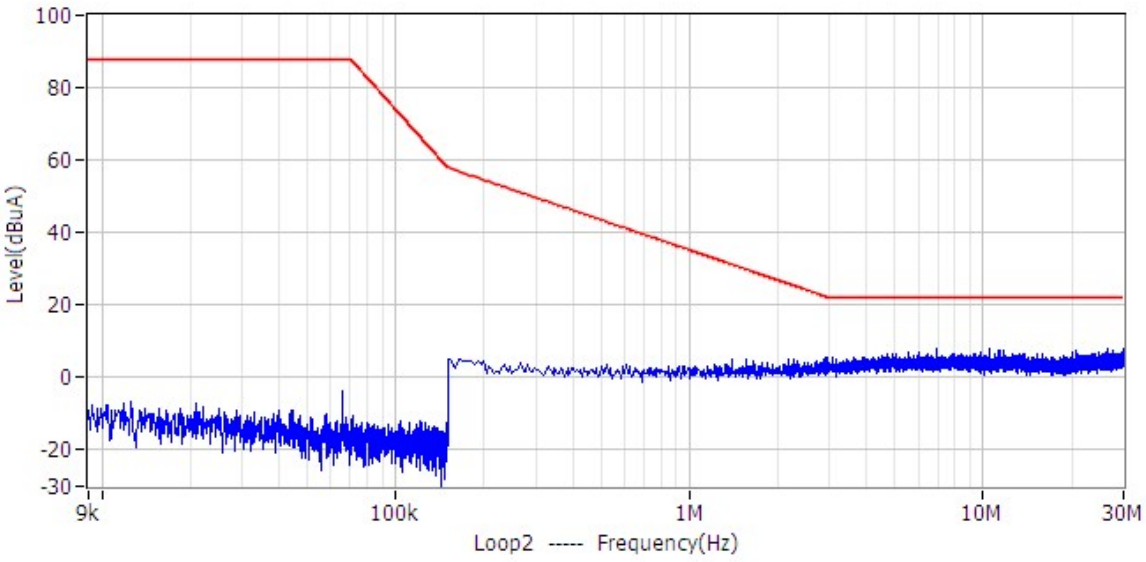
☒ LLAS radiated disturbance (EN IEC 55015 clause 9.3.2)

☐ Loop antenna radiated disturbance (EN IEC 55015 clause 9.3.3)

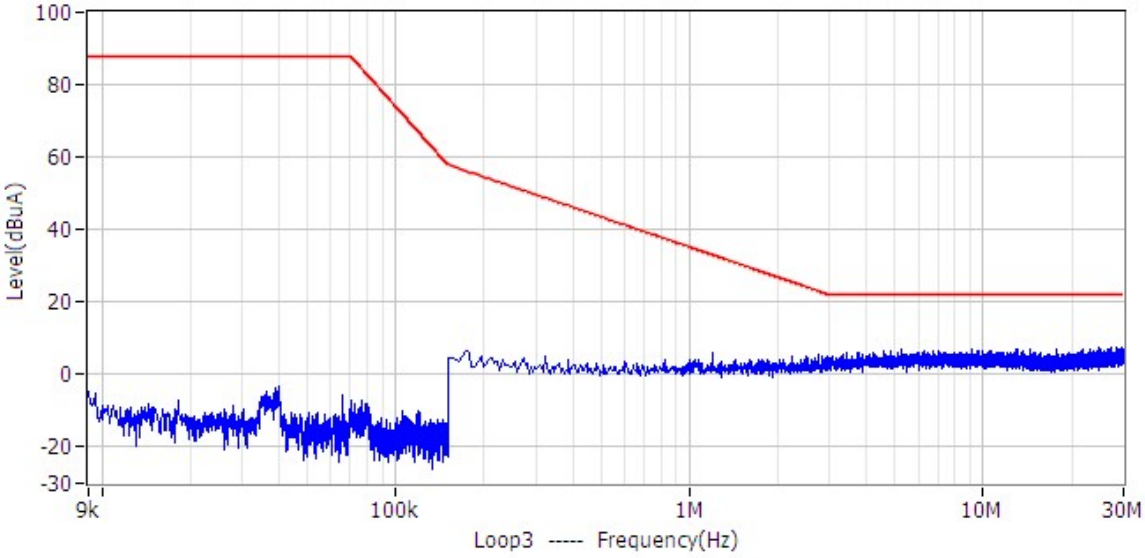
X direction



Y direction



Z direction



Frequency /MHz	Quasi-peak (dBμA) Disturbance level X direction	Y direction	Z direction	Permitted limit
0.009	*	*	*	88.00
0.05	*	*	*	88.00
0.10	*	*	*	73.96
0.24	*	*	*	52.40
0.55	*	*	*	42.52
1.00	*	*	*	35.39
1.40	*	*	*	31.39
2.00	*	*	*	27.14
3.50	*	*	*	22.00
6.00	*	*	*	22.00
10.00	*	*	*	22.00
22.00	*	*	*	22.00
30.00	*	*	*	22.00
Notes: * means the radiated electromagnetic disturbance level 10dB lower than the relevant limit.				

6. Assessment of the enclosure port (Frequency range 30 MHz to 1GHz)

Test result: **PASS**

6.1 Limit

☒ SAC method limits from frequency range 30MHz – 1000MHz

Frequency (MHz)	Permitted limit in dBµV/m (Quasi-peak) of Measurement Distance 3m	Permitted limit in dBµV/m (Quasi-peak) of Measurement Distance 10m
30 ~ 230	40	30
230 ~ 1000	47	37

Notes:
1. At the transition frequency, the lower limit applies.
2. The gray rows are selected items.

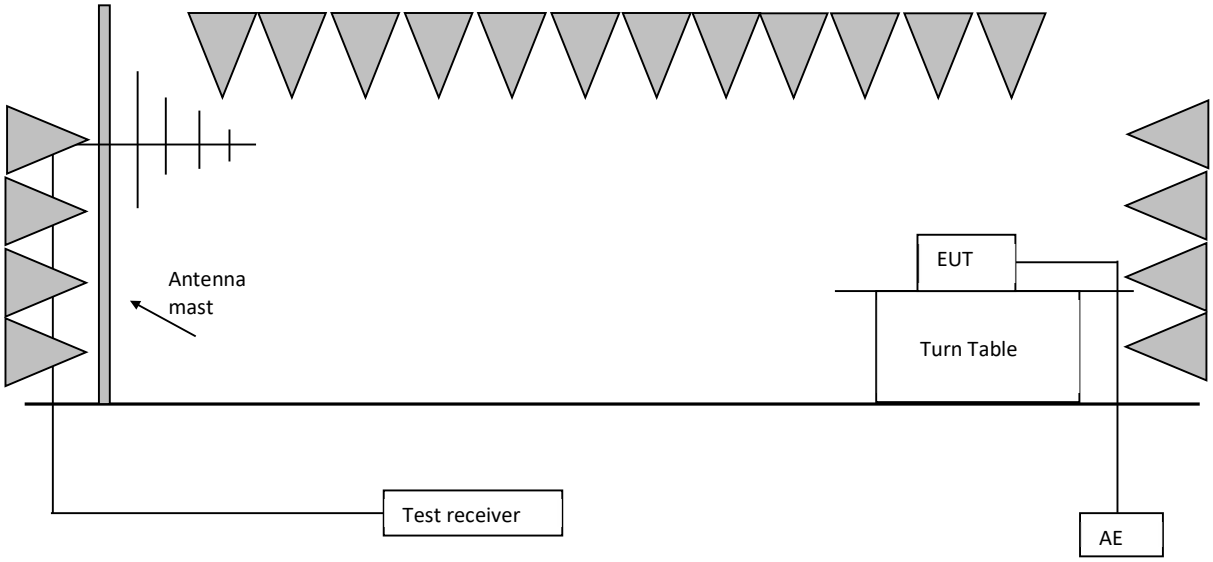
☐ CDNE method limits 30MHz – 300MHz

Frequency (MHz)	Quasi-peak limits dB(µV)
30 ~ 100	64 ~ 45[2]
100 ~ 200	54
200 ~ 300	54 to 51[2]

Notes:
1. At the transition frequency, the lower limit applies.
2. The limit decreases linearly with the logarithm of the frequency.
3. The CDNE method and the associated limits up to 300 MHz can be only applied for EUTs with clock frequencies below or equal to 30 MHz. In such a case, the product is deemed to comply with the requirements between 300 MHz and 1 000 MHz. If the CDNE test fails, then any of the other methods and associated limits can still be applied.
4. The EUT size limitation of CISPR 16-2-1 does not apply. For the CDNE method, the largest dimensions of the EUT are 3 m x 1 m x 1 m (l x w x h). The CDNE restrictions apply to the EUT only, and not the wiring or the total dimension of the system under test.

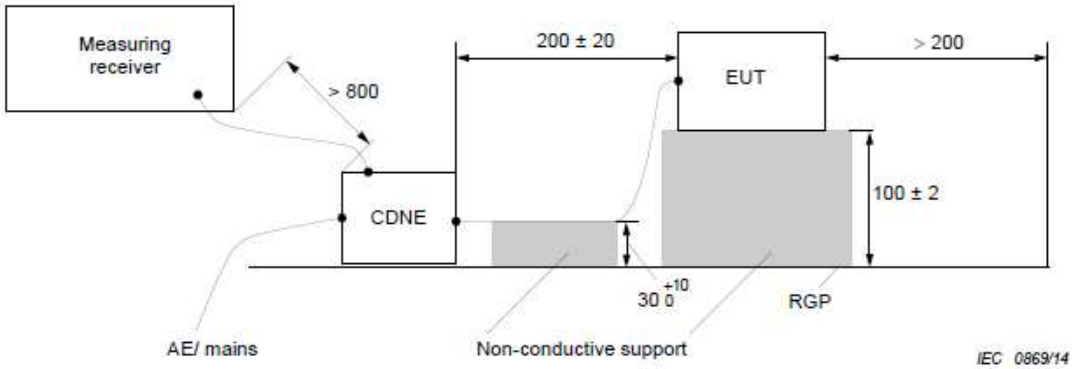
6.2 Block diagram and test set up

☒ For SAC method



The measurement was applied in a semi-anechoic chamber.
Measurement was performed according to CISPR 32 Annex C.
Setting of EUT is according to EN IEC 55015 clause 9 & Annex C.
The bandwidth setting on test receiver was 120kHz.
The frequency range from 30MHz to 1000MHz was checked.

☐ For CDNE method



"AE/mains" may include AC mains, DC supply as well as control/communication lines.

NOTE All dimensions are in mm.

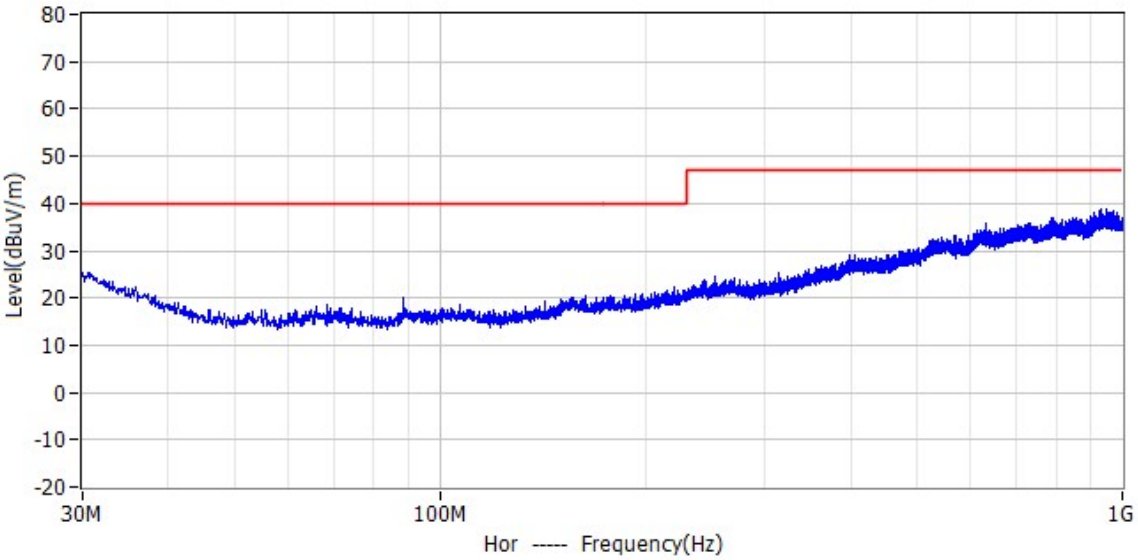
Measurement and setting of EUT were performed according to EN IEC 55015 clause 9 & Annex C.
The frequency range from 30MHz to 300MHz was checked.

6.3 Test Protocol

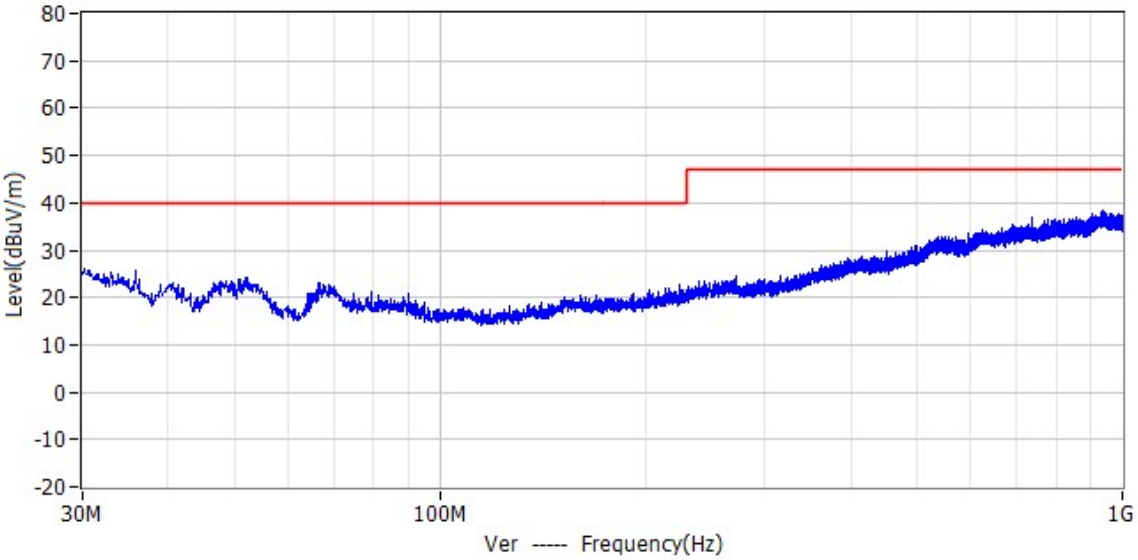
Test is performed while employing:

☒ SAC method (EN IEC 55015 clause 9.3.4.1)
☐ CDNE method (EN IEC 55015 clause 9.3.4.4)

Horizontal



Vertical

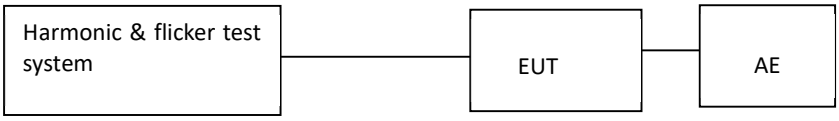


No.	Frequency	Limit dBμV/m	Level dBμV/m	Delta dB	Factor dB/m	Detector	Polar
1*	30.776MHz	40.0	25.4	-14.6	16.3	PK	Hor
2*	503.263MHz	47.0	30.7	-16.3	20.2	PK	Hor
3*	595.025MHz	47.0	33.2	-13.8	21.9	PK	Hor
4*	631.206MHz	47.0	35.7	-11.3	23.8	PK	Hor
5*	855.373MHz	47.0	37.1	-9.9	25.4	PK	Hor
6*	931.712MHz	47.0	38.7	-8.3	27.1	PK	Hor
7*	30.097MHz	40.0	25.9	-14.1	16.8	PK	Ver
8*	52.213MHz	40.0	24.1	-15.9	7.1	PK	Ver
9*	498.995MHz	47.0	30.9	-16.1	20.2	PK	Ver
10*	664.768MHz	47.0	34.6	-12.4	23.6	PK	Ver
11*	737.130MHz	47.0	36.9	-10.1	24.5	PK	Ver
12*	935.495MHz	47.0	38.5	-8.5	27.2	PK	Ver

7. Harmonics

Test result: **PASS**

7.1 Block Diagram of Test Setup



7.2 Test Setup and Test Procedure

Harmonics of the fundamental current were measured up to 40 order harmonics using a digital power meter with an analogue output and frequency analyser which was integrated in the harmonic & flicker test system. The measurements were carried out under steady conditions.

7.3 Test Protocol

☒ The EUT is lighting equipment with a rated power less than but not equal to 5 W. Therefore, no limits are defined according to EN IEC 61000-3-2 on the EUT.

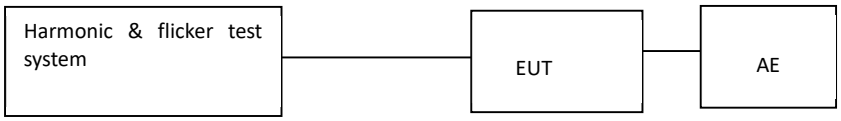
☐ Rated power ≥ 5 W and ≤ 25 W

☐ Rated power > 25 W

8. Voltage Fluctuations-Flicker

Test result: **PASS**

8.1 Block Diagram of Test Setup



8.2 Test Setup and Test Procedure

8.2.1 Definition

Flicker: impression of unsteadiness of visual sensation induced by a light stimulus whose luminance or spectral distribution fluctuates with time.

Pst: Short-term flicker severity.

Plt: long-term flicker severity.

dc: maximum steady state voltage change during an observation period.

dmax: maximum absolute voltage change during an observation period.

d(t): time function of the relative r.m.s. voltage change evaluated as a single value for each successive half period between zero-crossings of the source voltage, except during time interval in which the voltage is a steady-state condition for at least 1s.

8.2.2 Test condition

The EUT was set to produce the most unfavorable sequence of voltage changes.

8.3 Test Protocol

The tested object operated under the operating condition specified in EN 61000-3-3
The following limits apply

- the value of Pst shall not be greater than 1,0.
- the value of Plt shall not be greater than 0,65.
- Tmax, the accumulated time value of d(t) with a deviation exceeding 3,3 % during a single voltage change at the EUT terminals, shall not exceed 500 ms.
- the maximum relative steady-state voltage change, dc, shall not exceed 3,3 %.
- the maximum relative voltage change dmax, shall not exceed:

☐ 4% without additional conditions.

☐ 6 % for equipment which is:
– switched manually, or
– switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

☐ 7 % for equipment which is:
– attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
– switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

☐ for manual switch, dmax is measured in accordance with Annex B of standard, average dmax is calculated from 24 times measurement.

☐ No Limits shall apply to individual lamps.

☒ Incandescent lamp luminaries with ratings less than or equal to 1000W and LED lamp luminaires with with ratings less than or equal to 600W, are deemed to comply with the d_c, d_{max} and T_{max} limits in the standard EN 61000-3-3 and are not required to be tested.

☐ Ballasts are deemed to be part of luminaries and are not required to be tested.

Immunity Test

Performance criteria

The performance criteria are based on the general criteria of the standard and derived from the product specification

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.
Additional requirement for lighting equipment incorporating a starting device: After the test, the lighting equipment is switched off. After half an hour it is switched on again. The lighting equipment shall start and operate as intended.

9. Electrostatic Discharge (ESD)

Test result: **PASS**

9.1 Severity Level and Performance Criterion

9.1.1 Test level

1a – Contact discharge		1b – Air discharge	
Level	Test voltage kV	Level	Test voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15
X	Special	X	Special

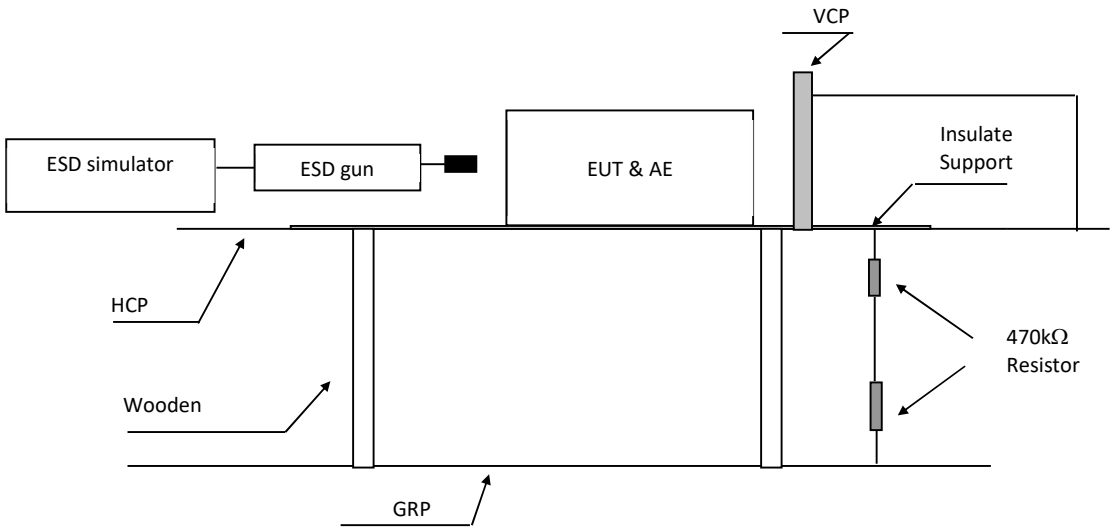
Notes:
1."X" is an open level. The level has to be specified in the dedicated equipment specification. If higher voltages than those shown are specified, special test equipment may be needed.
2. The gray rows were the selected test level.

9.1.2 Performance Criterion

Performance criterion: **B (**For emergency luminaires designed to operate in high-risk task areas, after the test, the luminous intensity shall be restored to its initial value within 0.5s.)

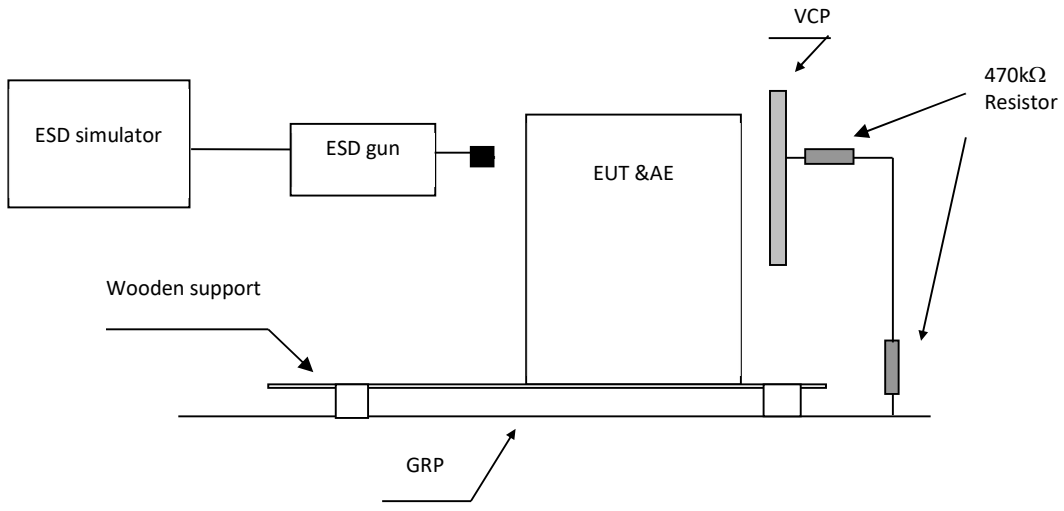
9.2 Block Diagram of Test Setup

☒ For table-top equipment



Note: HCP means Horizontal Coupling Plane
VCP means Vertical Coupling Plane
GRP means Ground Reference Plane
Wooden support is a 0.8m height table

☐ For floor standing equipment



Note: VCP means Vertical Coupling Plane
GRP means Ground Reference Plane
Wooden support is a 0.1m height rack

9.3 Test Setup and Test Procedure

Measurement was performed in shielded room.
Measurement and setting of EUT was applied according to IEC 61000-4-2 Clasuse 7.
The test method and equipment was specified by IEC 61000-4-2 with the modifications by EN 61547 clause 5.2.

9.4 Test Protocol

Direct discharges were applied at the following selected points:

Test point #	Test level [kV]	Air/ Contact	Polarity (+/-)	Pass/Fail/NA	Comment
A	2/4	Contact	+/-	Pass	All touchable screws of enclosure
B	2/4	Contact	+/-	Pass	Accessible metal parts of the EUT
C	2/4/8	Air	+/-	Pass	Air gap of the switch, button
D	2/4/8	Air	+/-	Pass	The air in-taking opening
E	2/4/8	Air	+/-	Pass	Slots around the EUT

Indirect contact discharges were applied to the VCP and the HCP at the following selected points:

☒ For table top equipment

Point	Description	Point	Pass/Fail/NA
HCP f	0,1m from the front of the EUT	Edge of centre, corner on HCP	Pass
HCP b	0,1m from the back of the EUT	Edge of centre, corner on HCP	Pass
HCP r	0,1m from the right side of the EUT	Edge of centre, corner on HCP	Pass
HCP l	0,1m from the left side of the EUT	Edge of centre, corner on HCP	Pass
VCP f	0,1m from the front of the EUT	Edge of centre, corner on VCP	Pass
VCP b	0,1m from the back of the EUT	Edge of centre, corner on VCP	Pass
VCP r	0,1m from the right of the EUT	Edge of centre, corner on VCP	Pass
VCP l	0,1m from the left of the EUT	Edge of centre, corner on VCP	Pass

☐ For floor standing equipment

Point	Description	Point	Pass/Fail/NA
VCP f	0,1m from the front of the EUT	Edge of centre, corner on VCP	-
VCP b	0,1m from the back of the EUT	Edge of centre, corner on VCP	-
VCP r	0,1m from the right of the EUT	Edge of centre, corner on VCP	-
VCP l	0,1m from the left of the EUT	Edge of centre, corner on VCP	-

Observation: At test, the EUT worked unsteadily. Once the interference is removed, it recovered its normal mode at once.
Conclusion: The EUT met the requirements of Performance Criterion B.

10. Electromagnetic field susceptibility

Test result: **PASS**

10.1 Severity Level and Performance Criterion

10.1.1 Test level

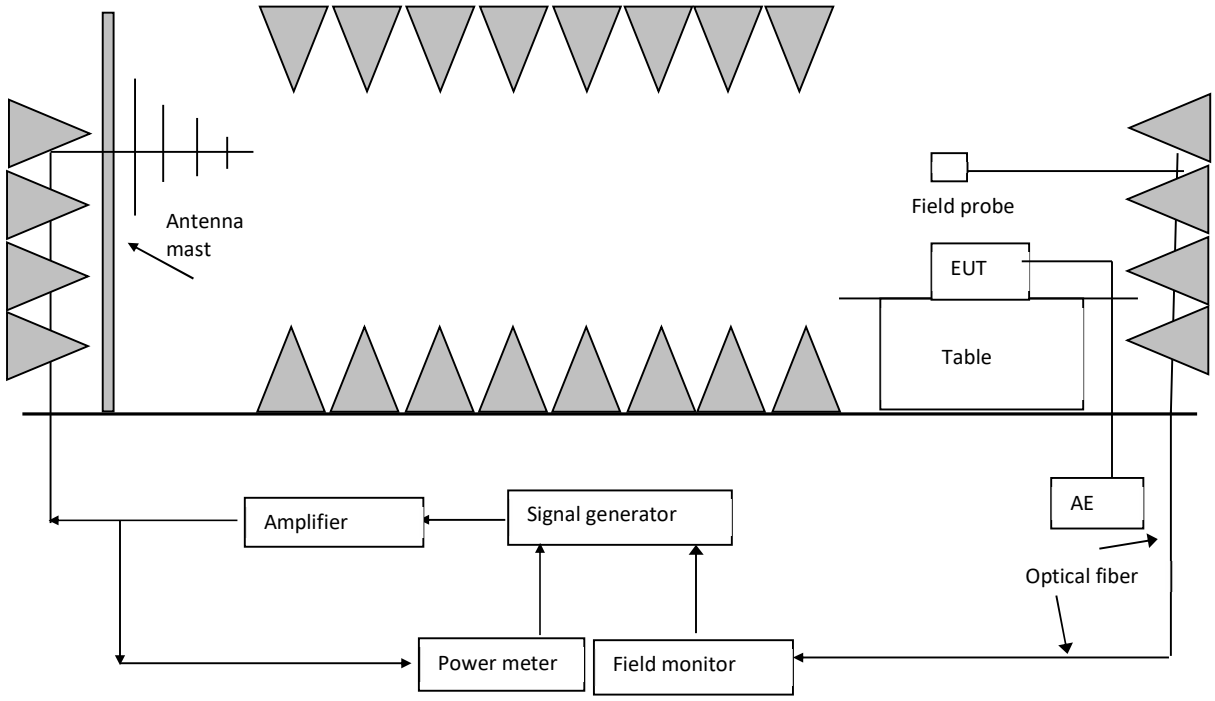
Level	Test field strength V/m
1	1
2	3
3	10
X	Special

Notes:
1. X is an open test level. This level may be given in the product specification.
2. The gray row is the selected test level.

10.1.2 Performance Criterion

Performance criterion: **A**

10.2 Block diagram of test setup



10.3 Test Setup and Test Procedure

Measurement was performed in full-anechoic chamber.
Measurement and setting of EUT was applied according to IEC 61000-4-3 clause 7.
The test method and equipment was specified by IEC 61000-4-3 with additions and modifications by EN 61547 clause 5.3.

10.4 Test Protocol

Test no.:	Frequency (MHz)	Polarization	Test level V/m	Modulation	Exposed location	Pass/Fail/NA	Comment
1	80-1000	H & V	3	1kHz, 80%, SW, AM, 1% step size	All sides	Pass	-

Observation: All the functions were operated as normal during and after test, and there is no change in brightness.
Conclusion: The EUT met the requirements of Performance Criterion A.

11. Electric Fast Transient/Burst Immunity Test

Test result: **PASS**

11.1 Severity Level and Performance Criterion

11.1.1 Test level

Open circuit output test voltage (±10%) and repetition rate of the impulses (±20%)				
Level	On power port, PE		On I/O (input & output) signal, data and control ports	
	Voltage peak kV	Repetition rate kHz	Voltage peak kV	Repetition rate kHz
1	0.5	5 or 100	0.25	5 or 100
2	1	5 or 100	0.5	5 or 100
3	2	5 or 100	1	5 or 100
4	4	5 or 100	2	5 or 100
X	Special	Special	Special	Special

Notes :

1. “X” is an open level. The level has to be specified in the dedicated equipment specification.
2. The gray rows were the selected test level.

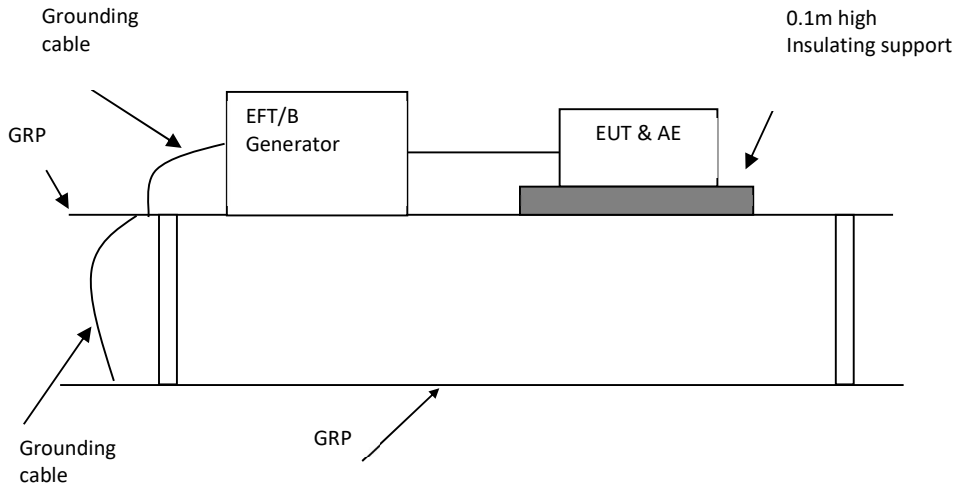
11.1.2 Performance Criterion

Performance criterion B (For emergency luminaires designed to operate in high-risk task areas, after the test, the luminous intensity shall be restored to its initial value within 0.5s.)

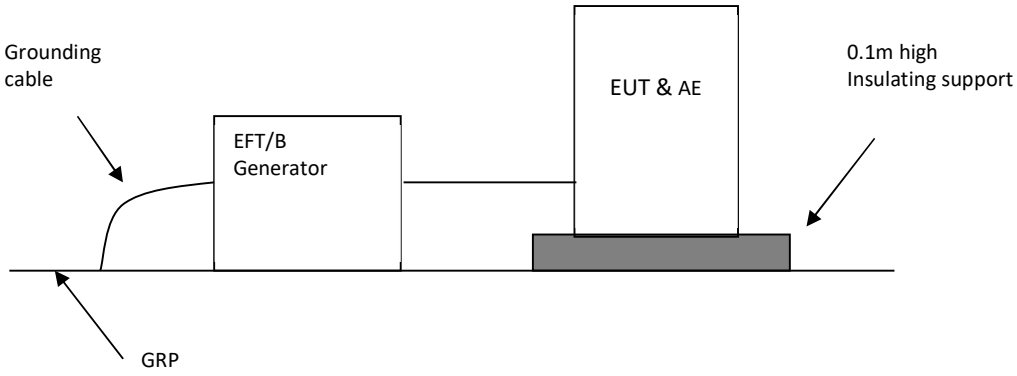
11.2 Block Diagram of Test Setup

11.2.1 Block Diagram for input a.c./d.c. power line

☒ For table-top equipment

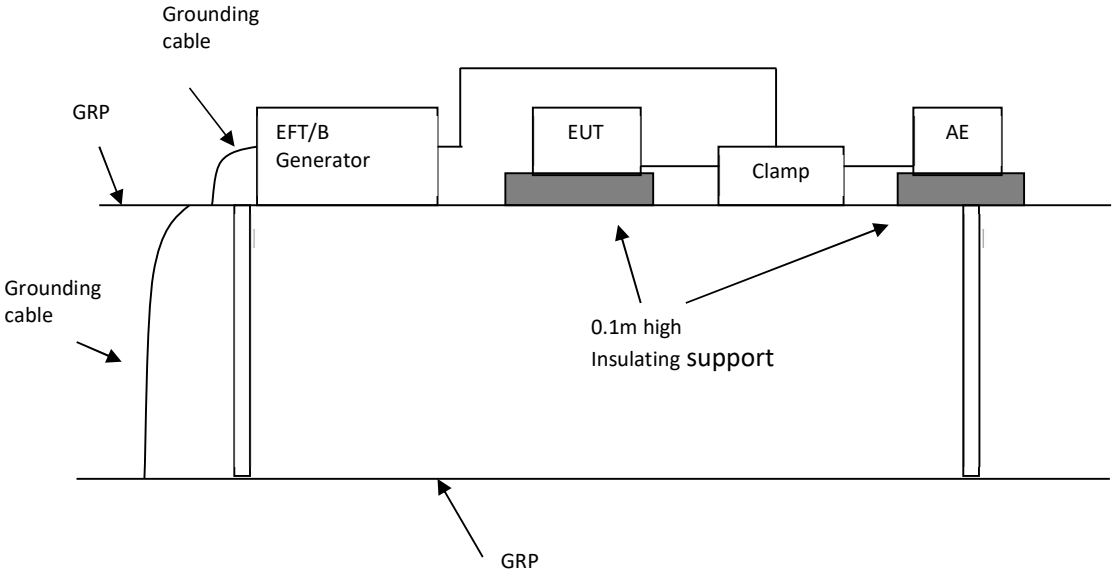


☐ For floor standing equipment

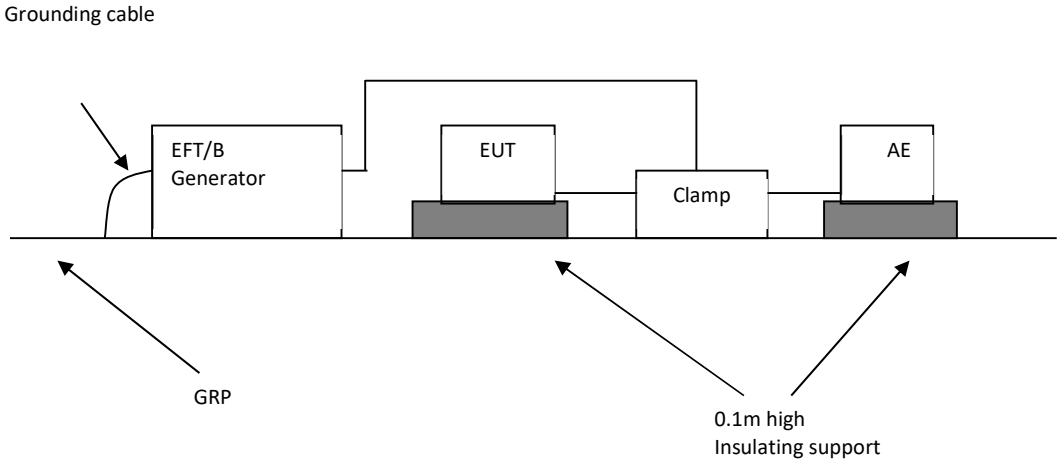


11.2.2 Block Diagram for output a.c./d.c. power line or signal/control lines

☐ For table-top equipment



☐ For floor standing equipment



11.3 Test Setup and Test Procedure

Measurement was performed in shielded room.
Measurement and setting of EUT was applied according to IEC 61000-4-4 clause 7.
The test method and equipment was specified by IEC 61000-4-4 with additions and modifications by EN 61547 clause 5.5.

11.4 Test Protocol

Test No.	Level [kV]	Polarity +/-	Repetition rate kHz	Line for test	Pass/Fail/NA
1	1	+/-	5	a.c. power ports	Pass
2	0.5	+/-	5	d.c. power ports	NA
3	0.5	+/-	5	Signal lines and control lines	NA

Observation: All the functions were operated as normal during and after test, and there is no change in brightness.
Conclusion: The EUT met the requirements of Performance Criterion B.

12. Surge Immunity Test

Test result: **PASS**

12.1 Severity Level and Performance Criterion

12.1.1 Test level

Level	Open-circuit test voltage ±10% kV
1	0.5
2	1.0
3	2.0
4	4.0
X*	Special

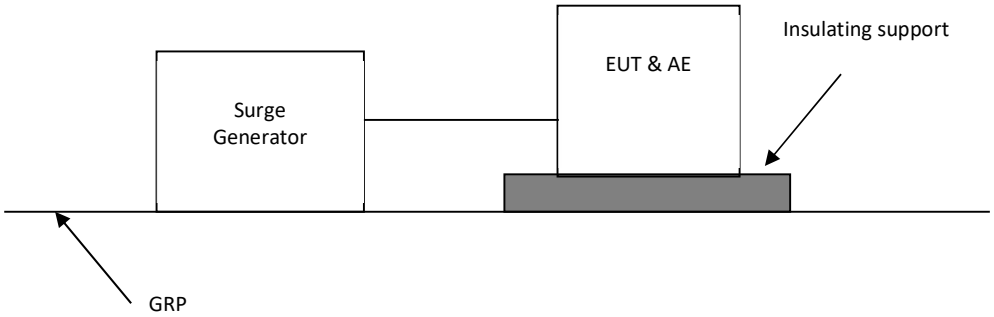
Notes:
1."X" is an open class. This level can be specified in the product Specification
2. The gray rows are the selected level.

12.1.2 Performance Criterion

Performance criterion **B:** Luminaires for emergency lighting**(**For emergency luminaires designed to operate in high-risk task areas, after the test, the luminous intensity shall be restored to its initial value within 0.5s.).

Performance criterion **C:** Others.

12.2 Block Diagram of Test Setup



12.3 Test Setup and Test Procedure

Measurement was performed in shielded room.
Measurement and setting of EUT was applied according to IEC 61000-4-5 clause 7.
The test method and equipment was specified by IEC 61000-4-5 with modifications by EN 61547 clause 5.7.

12.4 Test Protocol

Test No.	Level [kV]	Polarity +/-	Angle	Line for test	Pass/Fail/NA
1	0.5	+	90^0	a.c. Mains (line to line)	Pass
2	0.5	-	270^0	a.c. Mains (line to line)	Pass
3	1	+	90^0	a.c. Mains (line to earth)	NA
4	1	-	270^0	a.c. Mains (line to earth)	NA
5	1	+	90^0	a.c. Mains (line to line)	Pass
6	1	-	270^0	a.c. Mains (line to line)	Pass
7	2	+	90^0	a.c. Mains (line to earth)	NA
8	2	-	270^0	a.c. Mains (line to earth)	NA

Observation: At test, the EUT worked unsteadily. Once the interference is removed, it recovered its normal mode at once.
Conclusion: The EUT met the requirements of Performance Criterion B.

13. Immunity to Conducted Disturbances, Induced by Radio-frequency Fields

Test result: **PASS**

13.1 Severity Level and Performance Criterion

13.1.1 Test level

Frequency range 150kHz – 80MHz		
Level	Voltage level (e.m.f.)	
	U_0 [dB(uV)]	U_0 (V)
1	120	1
2	130	3
3	140	10
X	Special	Special
Notes: 1. "X" is an open level. 2. The gray row is the selected test level.		

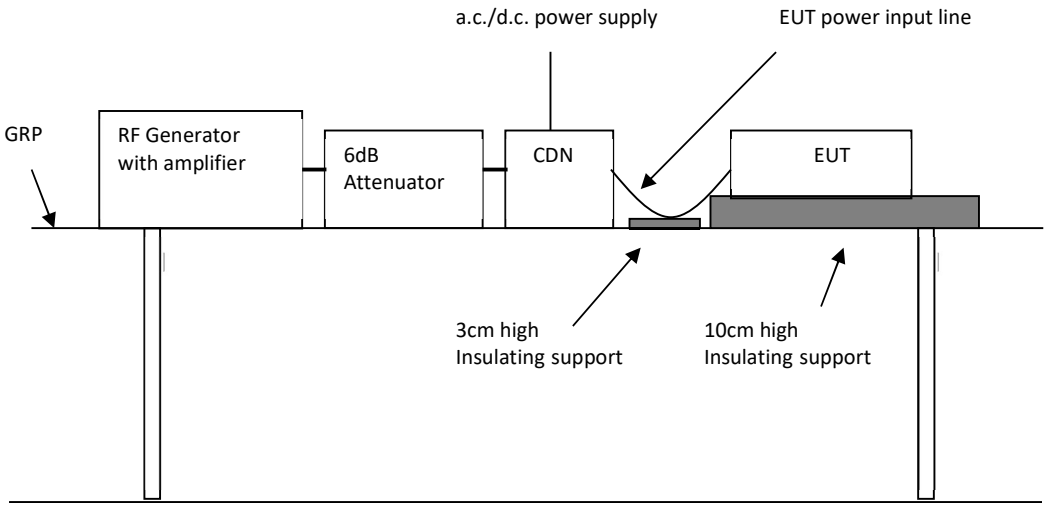
13.1.2 Performance Criterion

Performance criterion: **A**

13.2 Block Diagram of Test Setup

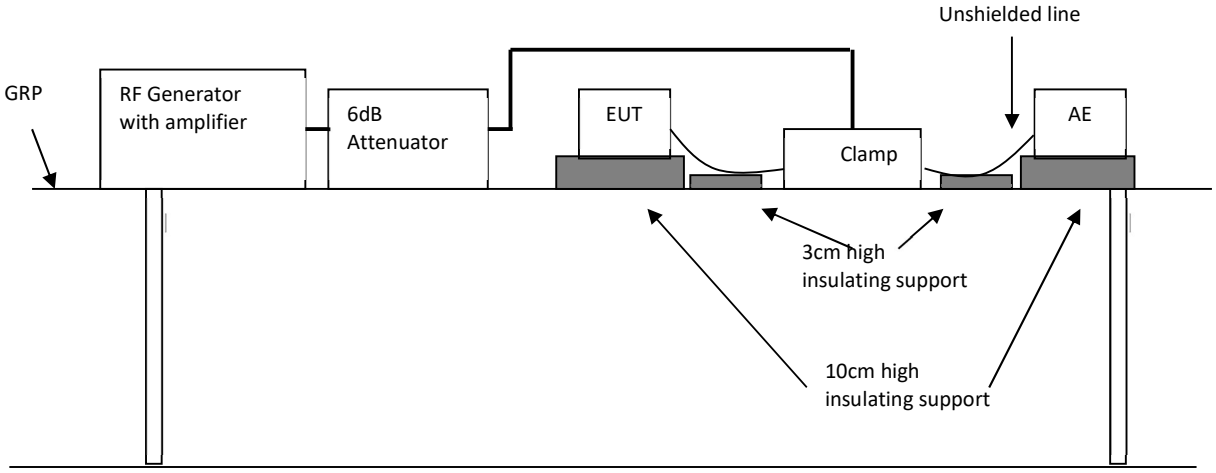
13.2.1 Block Diagram for a.c./d.c input power line

☒ Block Diagram for a.c./d.c input power line

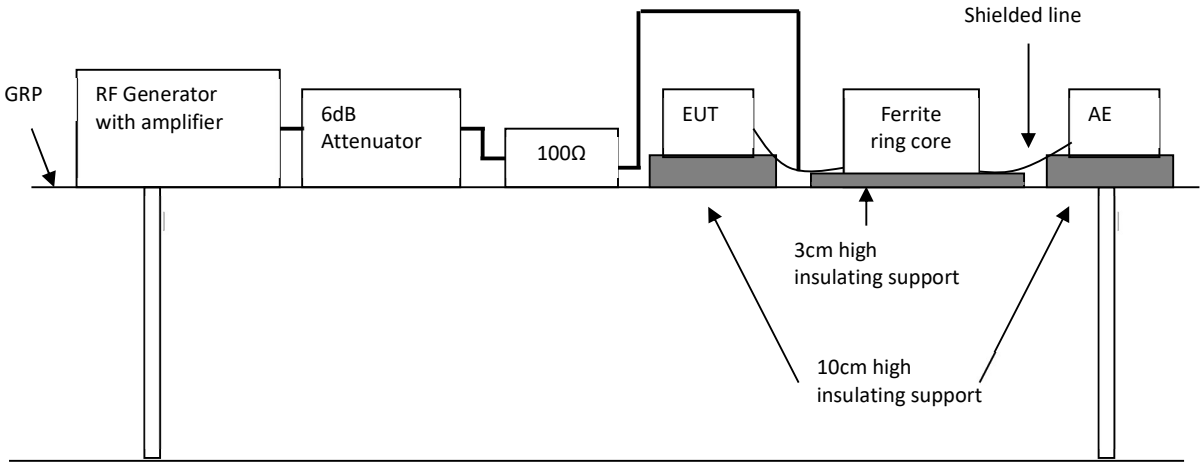


13.2.2 Block Diagram for output a.c./d.c. power line or signal/control lines

☐ Unshielded line



☐ Shielded line



13.3 Test Setup and Test Procedure

Measurement was performed in shielded room.
Measurement and setting of EUT was applied according to IEC 61000-4-6 clause 7.
The test method and equipment was specified by IEC 61000-4-6 with additions and modifications by EN 61547 clause 5.6.

13.4 Test Protocol

Test No.	Frequency (MHz)	Level V (r.m.s.)	Modulation	Injected point	Pass/Fail/NA
1	0.15~80	3	1kHz, 80%, SW, AM, 1% step size	a.c. Mains	Pass
2	0.15~80	3	1kHz, 80%, SW, AM, 1% step size	d.c. power ports	-
3	0.15~80	3	1kHz, 80%, SW, AM, 1% step size	signal lines and control lines	-

Observation: All the functions were operated as normal during and after test, and there is no change in brightness.
Conclusion: The EUT met the requirements of Performance Criterion A.

14. Voltage Dips, Short Interruptions and Voltage Variations Immunity Test

Test result: **PASS**

14.1 Severity Level and Performance Criterion

14.1.1 Test level

Test level % U_T	Voltage dip and short interruptions % U_T	Duration (in period)
0	100	0,5
70	30	10

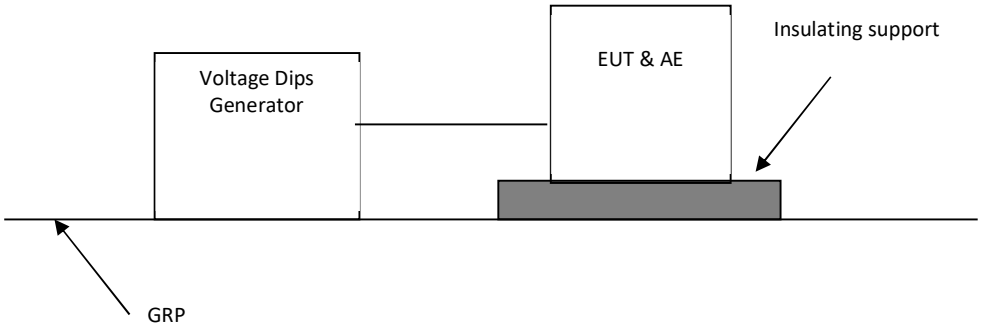
Notes:
1. U_T is the rated voltage of the equipment under test.
2. The gray rows are selected test level.

14.1.2 Performance Criterion

Performance criterion: C at the test level 70%.

Performance criterion: B at the test level 0% (For ballasts where the lamp is not able to restart within 1 min, due to the physical constrains of the lamp performance criterion C applies. For luminaires where the lamp is not able to restart within 1 min, due to the physical constraints of the lamp, performance criterion C applies.).

14.2 Block diagram of test setup



14.3 Test Setup and Test Procedure

Measurement was performed in shielded room.
Measurement and setting of EUT was applied according to IEC 61000-4-11 clause 7.
The test method and equipment was specified by IEC 61000-4-11 with additions and modifications by EN 61547 clause 5.8.

14.4 Test Protocol

Test no.	% U_T	Voltage dip and short interruptions % U_T	Duration (in periods)	Pass/Fail/NA
1	70	30%	10	Pass
2	0	100% pos half cycle	0,5	Pass
3	0	100% neg half cycle	0,5	Pass

Observation: During the test, the EUT worked unsteadily. Once the interference is removed, it recovered its normal mode at once. After the test, the luminous intensity is restored to its initial value within 1 min.
Conclusion: The EUT met the requirements of Performance Criterion B.

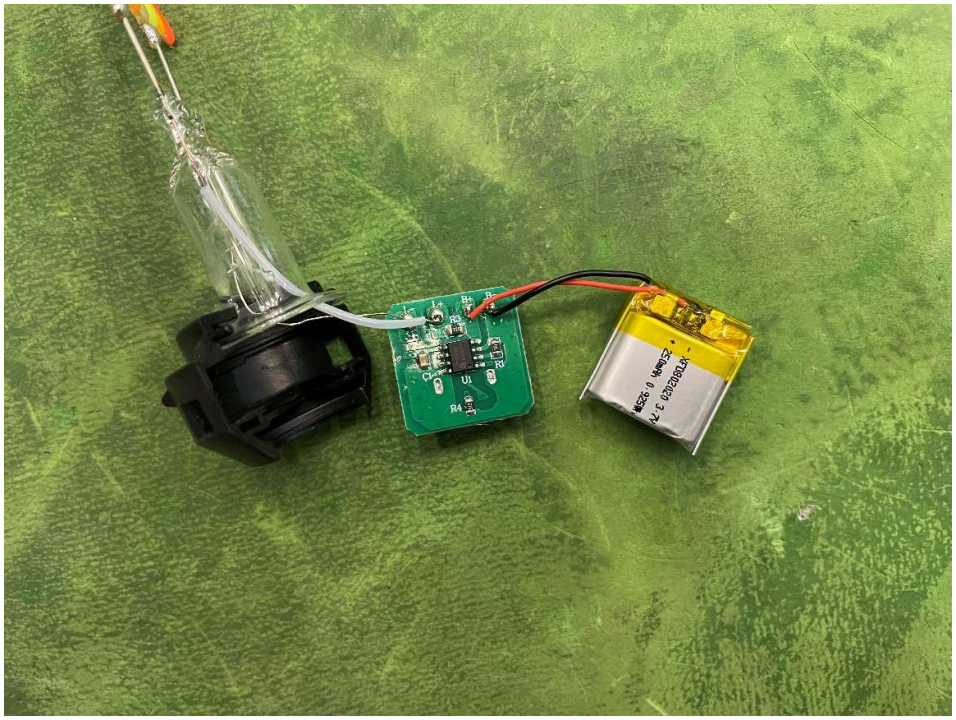
Appendix I: Photograph of equipment under test

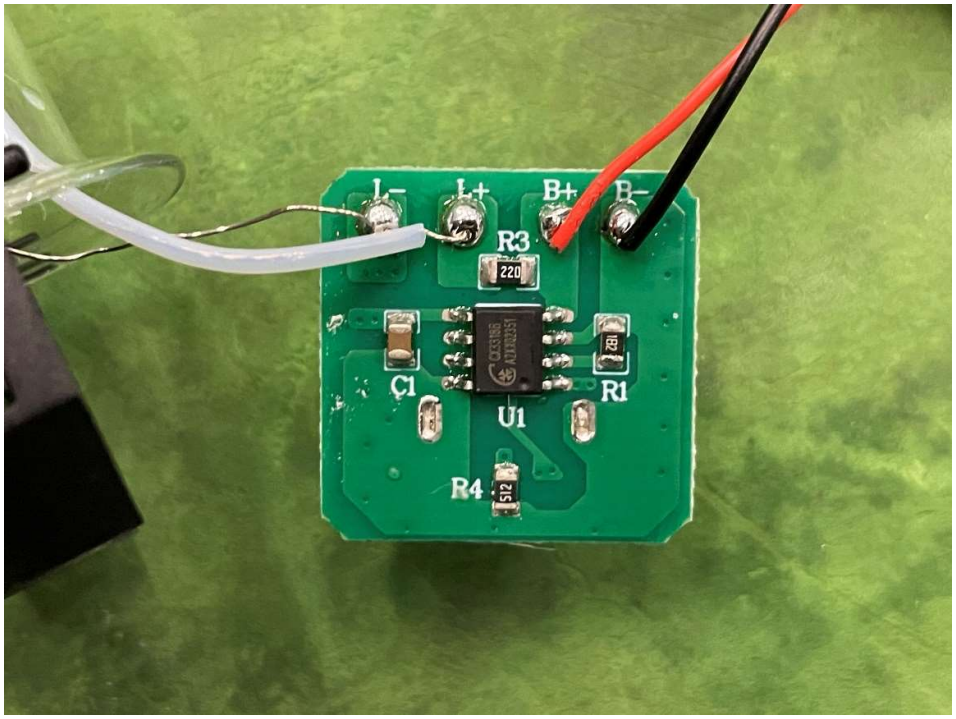
E40-rainbow



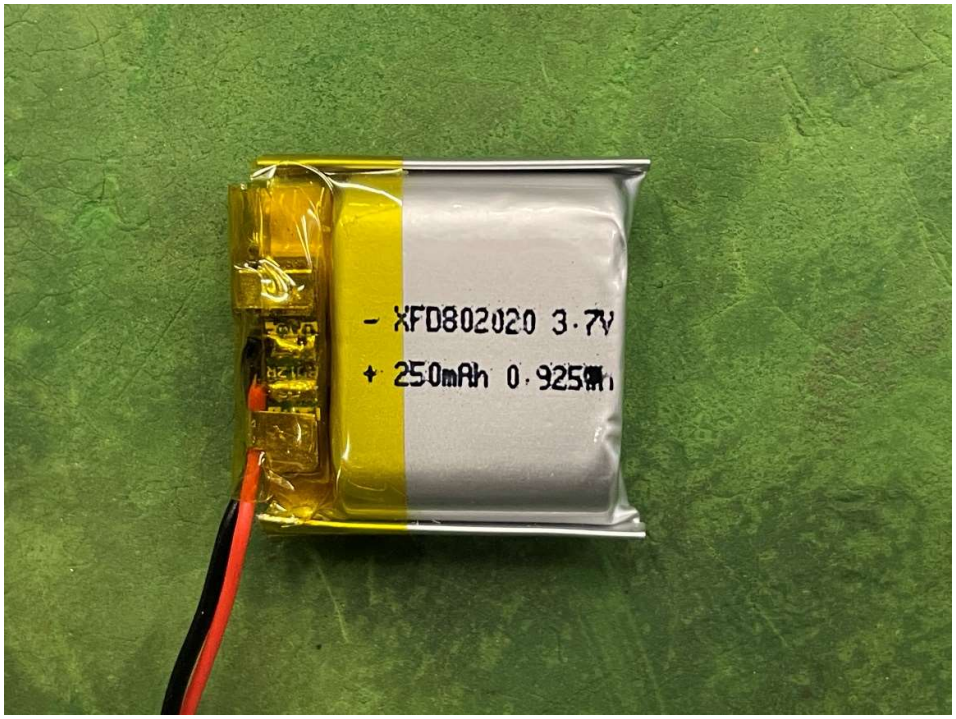




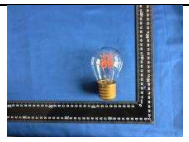
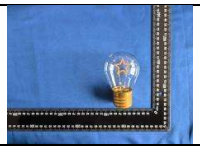
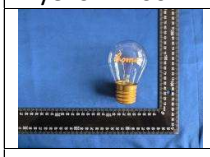
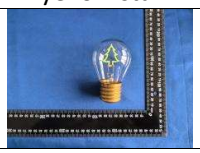
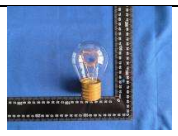
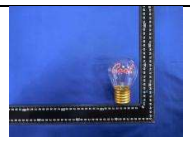
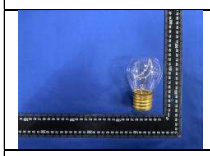
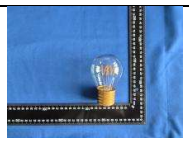



L-
L+
B+
B-
R3
220
C1
U1
R1
R4
512


E40-A68
231125
K1
COM1
R5
LEDR
LEDG
R2


- XFD802020 3.7V
+ 250mAh 0.925Wh

Other models

				
E40-Warm yellow moon	E40-enjoy	E40-Warm yellow star	E40-Red flowers	E40-Warm yellow love
				
E40-Warm yellow HOME	E40-Pink X	E40-Green Christmas tree	E40-One arrow through the heart	E40-Blue flowers
				
E40-Pink butterflies	E40-Pink hearts	E40-Warm yellow smiley	W40-Pink COOL	E40-Warm yellow love
				
E40-Warm yellow bells	E40-Warm yellow Smile	E40-Warm yellow dad	E40-Warm yellow butterfly	E40-light blue Dream
				
E40-Blue Moon	E40-warm yellow rings	E40-Warm yellow hi	E40-Warm yellow sun	E40-Blue Dream
				
E40-Warm yellow hello	E40-red love	E40-Yellow Dream	E40-two-color mushrooms	

END of the report