

EMC TEST REPORT

Equipment	POE Injector
Trademark	N/A
Model No.	PSE302-XXX-YYY(XXX=30W-60W represent output power, YYY=24V-56V represent output voltage, step 1V, example 24V is 24V)
Applicant	Shenzhen Lianzhengda Technology Co., Ltd Floor 2, No. 10, Yuanhu Road, Zhangbei Community, Longgang Dist., Shenzhen
Manufacturer	Shenzhen Lianzhengda Technology Co., Ltd Floor 2, No. 10, Yuanhu Road, Zhangbei Community, Longgang Dist., Shenzhen
Prepared by	Shenzhen Youbest Testing Technology Co., Ltd. 2/F, No. 2 of Tongqing Road, Tongxin Community, Baolong Street, Longgang District, Shenzhen, China
Report No.	YB220550021XH-EMC-B1
Date of Test	Aug. 03 – May 9, 2022
Date of Issue	May 9, 2022
Test Standard(s)	EN 55032:2015+A11:2020, EN 55035:2017+A11:2020 EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019

In the configuration tested, the EUT complied with the standards specified above.

Tested : Cris Song
Cris Song / Engineer

Date : May 9, 2022

Tested : Eric Sang
Eric Sang / Manager

Date : May 9, 2022

Note:

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report shall not be reproduced except in full, without prior written approval of Youbest. This document may be altered or revised by Youbest, personnel only, and shall be noted in the revision of the document.

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
0	May 9, 2022	Initial Issue	All Page	Cris Song

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1. TEST SUMMARY

Emission			
Requirement - Test	Test Method	Limit	Result
Conducted Emission	EN 55032:2015+A11:2020	Class B	PASS
Radiated emissions at frequencies up to 1 GHz		Class B	PASS
Radiated emissions at frequencies above 1 GHz		Class B	N/A
Harmonic current emissions	EN IEC 61000-3-2:2019+A1:2021	Class A	PASS
Voltage changes, voltage fluctuations and flicker	EN 61000-3-3:2013+A1:2019	Clause 5	PASS
Immunity (EN 55035:2017+A11:2020)			
Requirement - Test	Test Method	Performance criteria	Result
Electrostatic discharges (ESD)	EN 61000-4-2:2009	B	PASS
Electromagnetic field	EN IEC 61000-4-3:2020	A	PASS
Electrical fast transients/burst (EFT/B)	EN 61000-4-4:2012	B	PASS
Surges	EN 61000-4-5:2014+A1:2017	B	PASS
Conducted RF	EN 61000-4-6:2014	A	PASS
Power frequency magnetic field	EN 61000-4-8:2010	A	N/A
Voltage dips and Short interruptions	EN IEC 61000-4-11:2020	B & C	PASS

Remark:

N/A is abbreviation for Not Applicable.

The test was carried out in all the test modes, only the worst data are list in report.

2. GENERAL INFORMATION

2.1. Description of EUT

Equipment	POE Injector
Trademark	N/A
Model Name	PSE302-XXX-YYY(XXX=30W-60W represent output power, YYY=24V-56V represent output voltage, step 1V, example 24V is 24V)
Serial No.	N/A
Model Difference	All models are the identical except for the difference in appearance.
Rated Power Supply	Input: 100-240V~, 50/60Hz, 1.0A Max. Output: 56V1.07A
Rated Power	60W
Normal Testing Voltage	230V~, 50Hz
Configuration	<input checked="" type="checkbox"/> Table-top <input type="checkbox"/> Floor-standing
Accessory Device	N/A
Cable Supplied	N/A

Note:

1. Other Accessory Device List and Details

Description	Manufacturer	Model	Note
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External I/O Cable

Cable Description	Shielded Type	Ferrite Core	Length(m)	Note
-	<input type="checkbox"/> Shielded <input type="checkbox"/> Non-shielded	<input type="checkbox"/> Yes <input type="checkbox"/> No		

2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.2. Operating condition of EUT

Test mode	Description
1	Working
2	
3	
4	

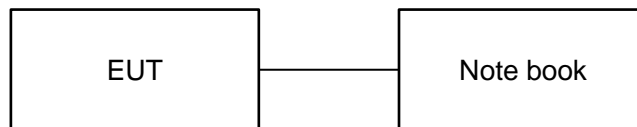
2.3. Test conditions

Temperature: 15-35℃

Relative Humidity: 30-60 %

Atmospheric pressure: 800hPa-1060hPa

2.4. Block diagram of EUT configuration



3. FACILITIES

3.1. Test Facility

Youbest-LAB

Floor 5, No. 11, Hebei Industrial Zone, Hualian Community, Longhua Street, Longhua District, Shenzhen, China.

3.2. Test Instruments

Radiated Emission Measurement (Test software: EZ-EMC Ver. FA-03A2 RE)

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA 9120D	1911	2022-11-02
2	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	869	2022-11-02
3	Amplifier	Agilent	8449B	3008A01838	2022-11-01
4	Amplifier	HP	8447E	2945A02747	2022-11-01
5	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESPI7	100362	2022-11-01
6	Coaxial cable	ETS	RFC-SNS-10 0-NMS-80 NI	/	2022-11-01
7	Coaxial cable	ETS	RFC-SNS-10 0-NMS-20 NI	/	2022-11-01
8	Coaxial cable	ETS	RFC-SNS-10 0-SMS-20 NI	/	2022-11-01
9	Coaxial cable	ETS	RFC-NNS-10 0-NMS-300 NI	/	2022-11-01

Electrostatic Discharge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	ESD Simulator	TESTQ	NSG437	329	2022-10-30

RF electromagnetic field Test

Item	Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Signal Generator	Agilent	N5182A	MY47420195	2022-10-30
2	Log-Bicon Antenna	Schwarzbeck	VULB9161	9128ES-128	2022-10-30
3	Power Amplifier	AR	150W1000M1	342526	2022-10-30
4	Microwave Horn Antenna	AR	AT4002A	322279	2022-10-30
5	Power Amplifier	AR	25S1G4A	321116	2022-10-30

Measurement uncertainty

The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4.

Test	Parameters	Expanded Uncertainty (U_{Lab})	Expanded Uncertainty (U_{Cispr})
Conducted Emission	Level Accuracy: 150kHz to 30MHz	± 1.22 dB	± 3.6 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	± 3.67 dB	± 5.2 dB
Radiated Emission	Level Accuracy: Above 1000MHz	± 4.79 dB	N/A

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

4. Emission

4.1. Conducted Emission

4.1.1. Limit

Requirements for conducted emissions from the AC mains power ports of Class A equipment

Frequency range MHz	Coupling device	Detector type / bandwidth	Class A limits dB(μV)
0,15 to 0,5	AMN	Quasi Peak / 9 kHz	79
0,5 to 30			73
0,15 to 0,5		Average / 9 kHz	66
0,5 to 30			60

Requirements for conducted emissions from the AC mains power ports of Class B equipment

Frequency range MHz	Coupling device	Detector type / bandwidth	Class B limits dB(μV)
0,15 to 0,5	AMN	Quasi Peak / 9 kHz	66 to 56
0,5 to 5			56
5 to 30			60
0,15 to 0,5		Average / 9 kHz	56 to 46
0,5 to 5			46
5 to 30			50

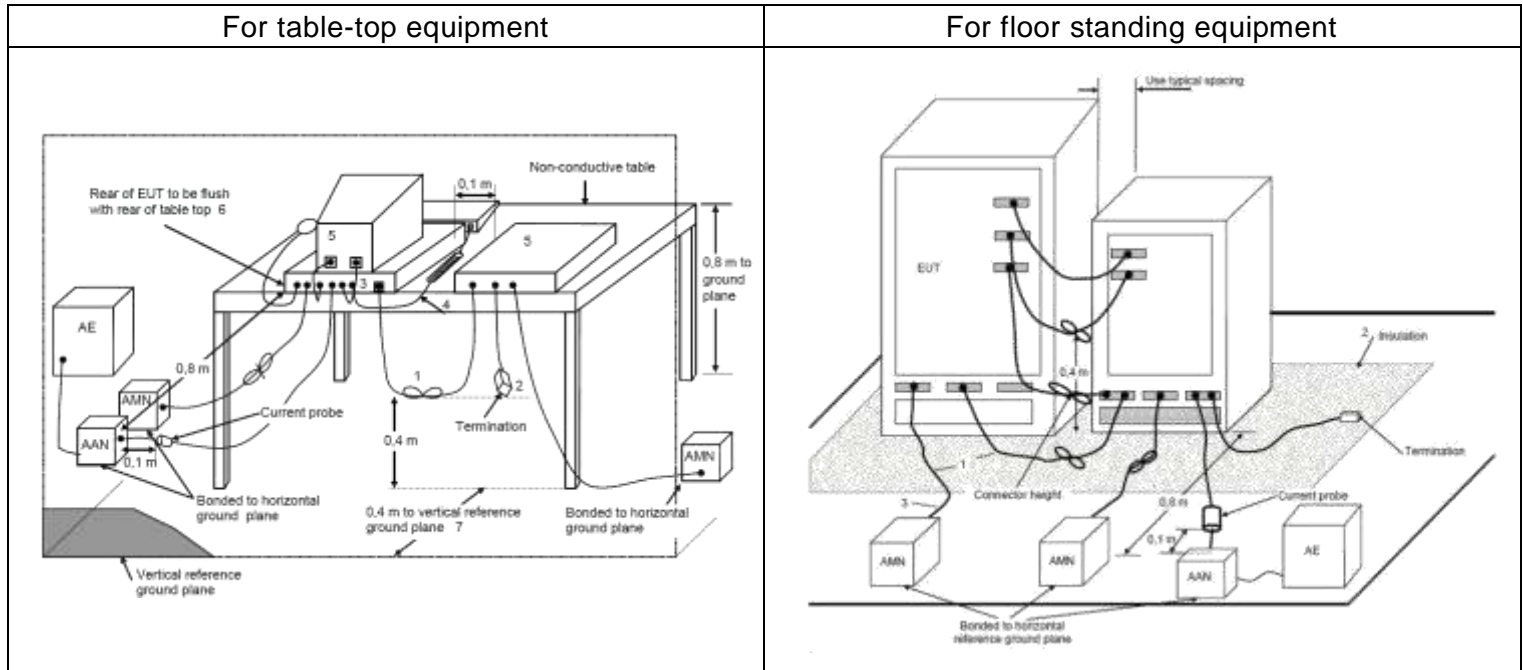
Requirements for asymmetric mode conducted emissions from Class A equipment

Frequency range MHz	Coupling device	Detector type / bandwidth	Class A limits dB(μV)
0,15 to 0,5	AAN	Quasi Peak / 9 kHz	97 to 87
0,5 to 30			87
0,15 to 0,5		Average / 9 kHz	84 to 74
0,5 to 30			74

Requirements for asymmetric mode conducted emissions from Class B equipment

Frequency range MHz	Coupling device	Detector type / bandwidth	Class B limits dB(μV)
0,15 to 0,5	AAN	Quasi Peak / 9 kHz	84 to 74
0,5 to 30			74
0,15 to 0,5		Average / 9 kHz	74 to 64
0,5 to 30			64

4.1.2. Test setup



4.1.3. Test procedure

Measurement was performed in shielded room, and instruments used were followed CISPR 16-2-1 clause 7.

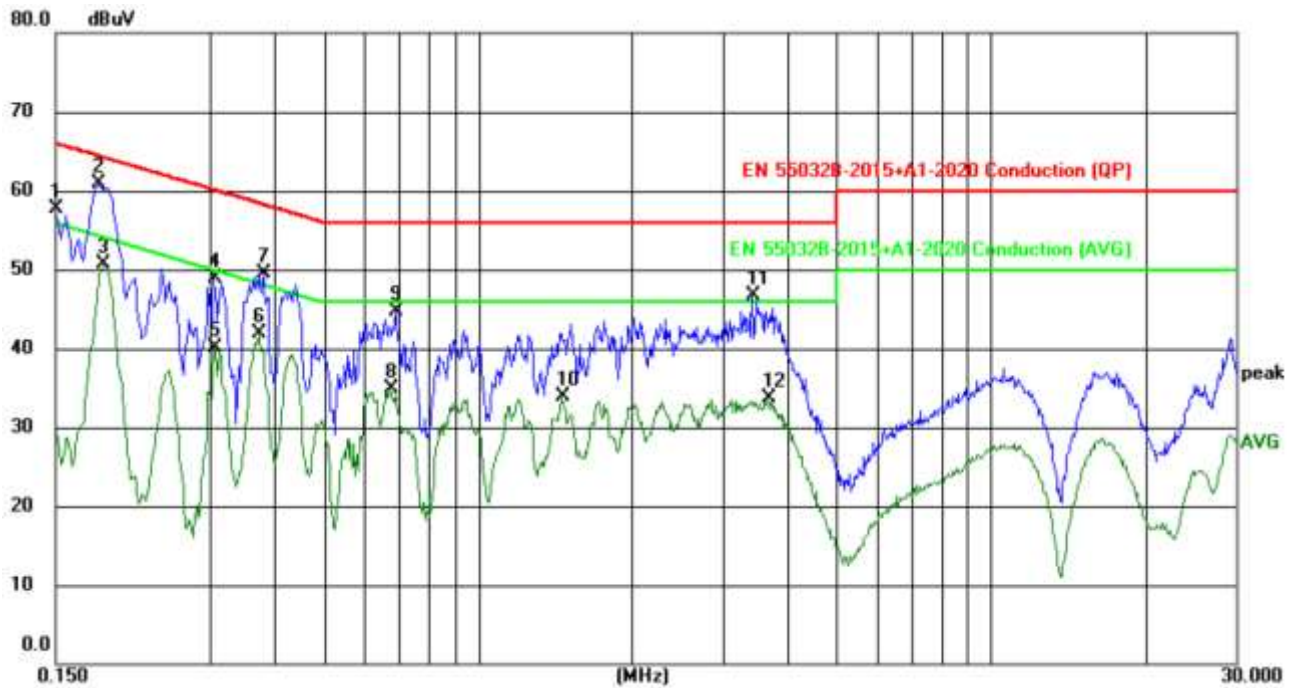
Detailed test procedure was following clause 7 of CISPR 16-2-1.

Frequency range 150kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 9 kHz.

4.1.4. Test results

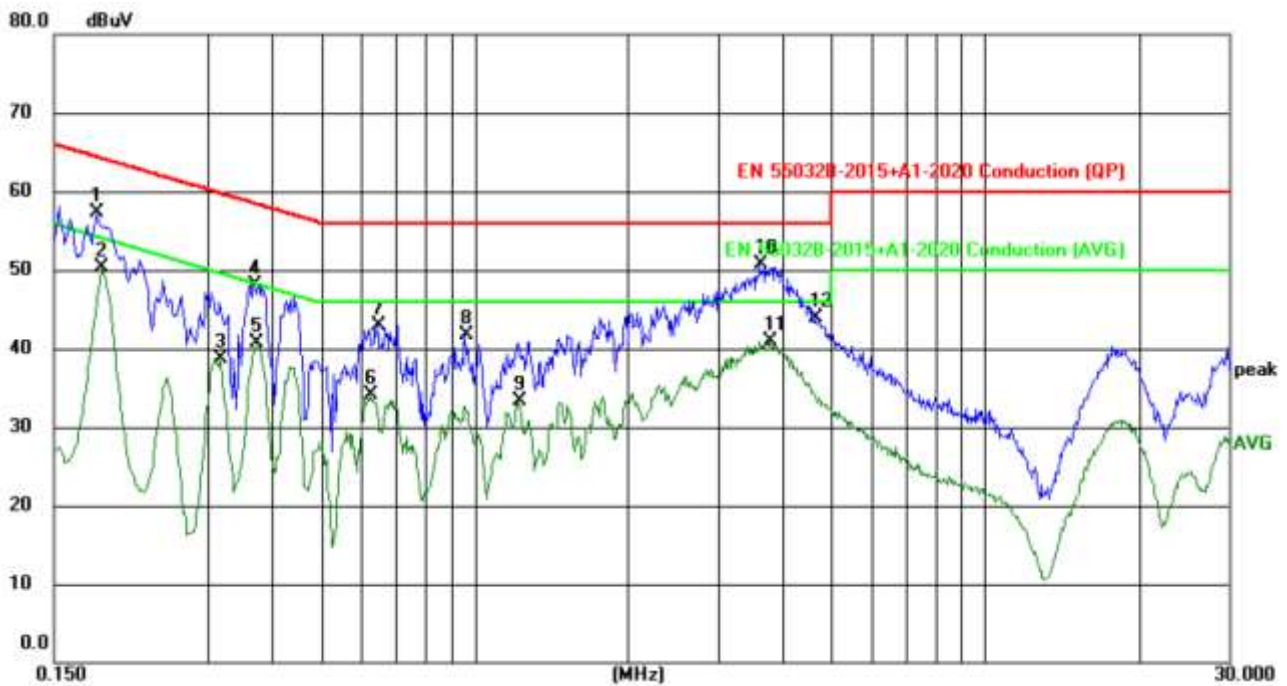
PASS

Please refer to the following page.



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1500	47.63	10.16	57.79	66.00	-8.21	peak	
2		0.1819	50.65	10.17	60.82	64.40	-3.58	peak	
3	*	0.1860	40.54	10.18	50.72	54.21	-3.49	AVG	
4		0.3060	38.58	10.25	48.83	60.08	-11.25	peak	
5		0.3060	29.78	10.25	40.03	50.08	-10.05	AVG	
6		0.3740	31.64	10.29	41.93	48.41	-6.48	AVG	
7		0.3820	39.23	10.29	49.52	58.24	-8.72	peak	
8		0.6740	24.55	10.40	34.95	46.00	-11.05	AVG	
9		0.6900	34.21	10.41	44.62	56.00	-11.38	peak	
10		1.4620	23.47	10.53	34.00	46.00	-12.00	AVG	
11		3.4180	36.09	10.66	46.75	56.00	-9.25	peak	
12		3.6780	22.95	10.67	33.62	46.00	-12.38	AVG	

Note: Result=Reading+Factor
Over Limit=Result-Limit



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1819	47.06	10.17	57.23	64.40	-7.17	peak	
2	*	0.1860	40.03	10.18	50.21	54.21	-4.00	AVG	
3		0.3180	28.40	10.26	38.66	49.76	-11.10	AVG	
4		0.3700	37.87	10.29	48.16	58.50	-10.34	peak	
5		0.3740	30.49	10.29	40.78	48.41	-7.63	AVG	
6		0.6260	23.67	10.38	34.05	46.00	-11.95	AVG	
7		0.6460	32.61	10.39	43.00	56.00	-13.00	peak	
8		0.9620	31.29	10.46	41.75	56.00	-14.25	peak	
9		1.2220	22.75	10.50	33.25	46.00	-12.75	AVG	
10		3.6300	39.97	10.67	50.64	56.00	-5.36	peak	
11		3.7860	30.27	10.68	40.95	46.00	-5.05	AVG	
12		4.6500	33.13	10.71	43.84	56.00	-12.16	peak	

Note: Result=Reading+Factor
Over Limit=Result-Limit

4.2. Radiated emissions

4.2.1. Limit

Requirements for radiated emissions at frequencies up to 1 GHz for class A equipment

Frequency range MHz	Measurement			Class B limits dB(μV/m)
	Facility	Distance m	Detector type / bandwidth	
30 to 230	SAC	3	Quasi Peak / 120 kHz	50
230 to 1 000				57

Requirements for radiated emissions at frequencies above 1 GHz for class A equipment

Frequency range MHz	Measurement			Class B limits dB(μV/m)
	Facility	Distance m	Detector type / bandwidth	
1 000 to 3 000	FSOATS	3	Average / 1MHz	56
3 000 to 6 000				60
1 000 to 3 000		3	Average / 1MHz	76
3 000 to 6 000				80

Requirements for radiated emissions at frequencies up to 1 GHz for class B equipment

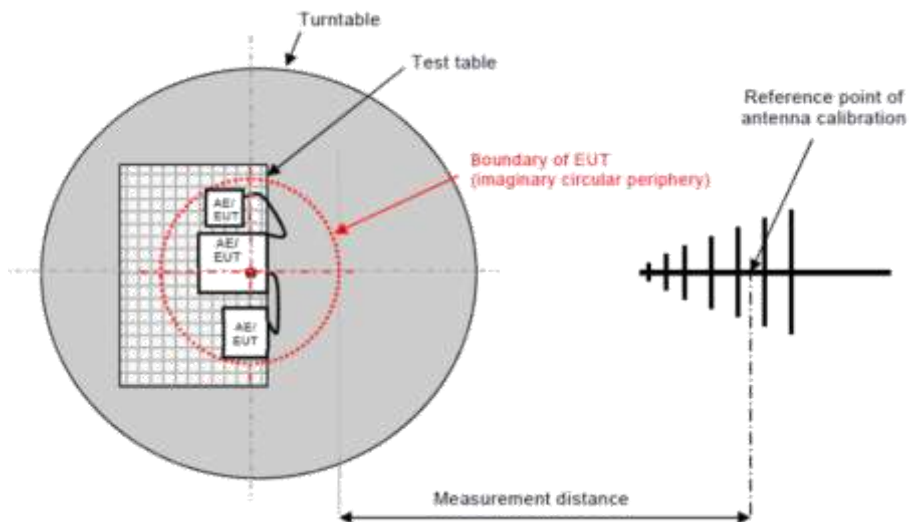
Frequency range MHz	Measurement			Class B limits dB(μV/m)
	Facility	Distance m	Detector type / bandwidth	
30 to 230	SAC	3	Quasi Peak / 120 kHz	40
230 to 1 000				47

Requirements for radiated emissions at frequencies above 1 GHz for class B equipment

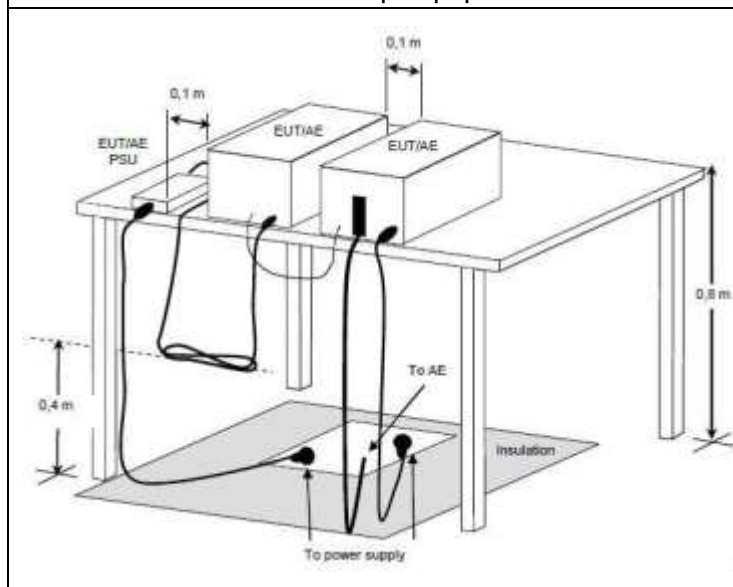
Frequency range MHz	Measurement			Class B limits dB(μV/m)
	Facility	Distance m	Detector type / bandwidth	
1 000 to 3 000	FSOATS	3	Average / 1MHz	50
3 000 to 6 000				54
1 000 to 3 000		3	Average / 1MHz	70
3 000 to 6 000				74

4.2.2. Block diagram of test setup

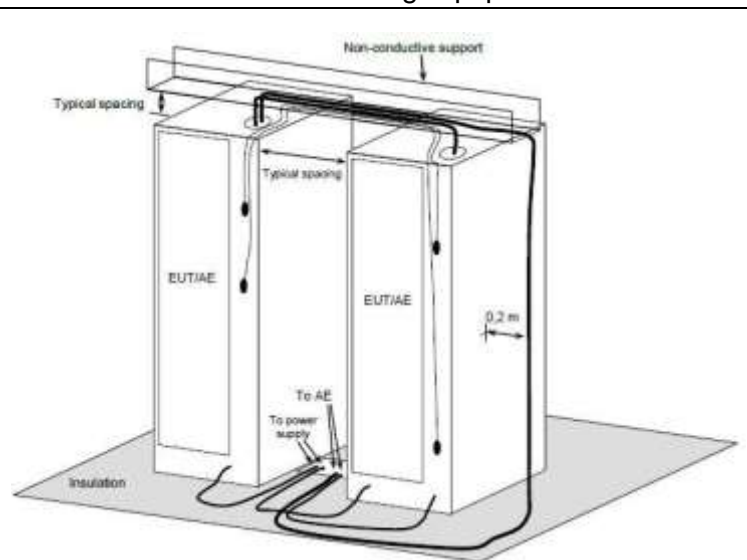
Measurement distance



For table-top equipment



For floor standing equipment



4.2.3. Test procedure

The measurement was performed in a semi-anechoic chamber.

The distance from EUT to receiving antenna is 3 meters.

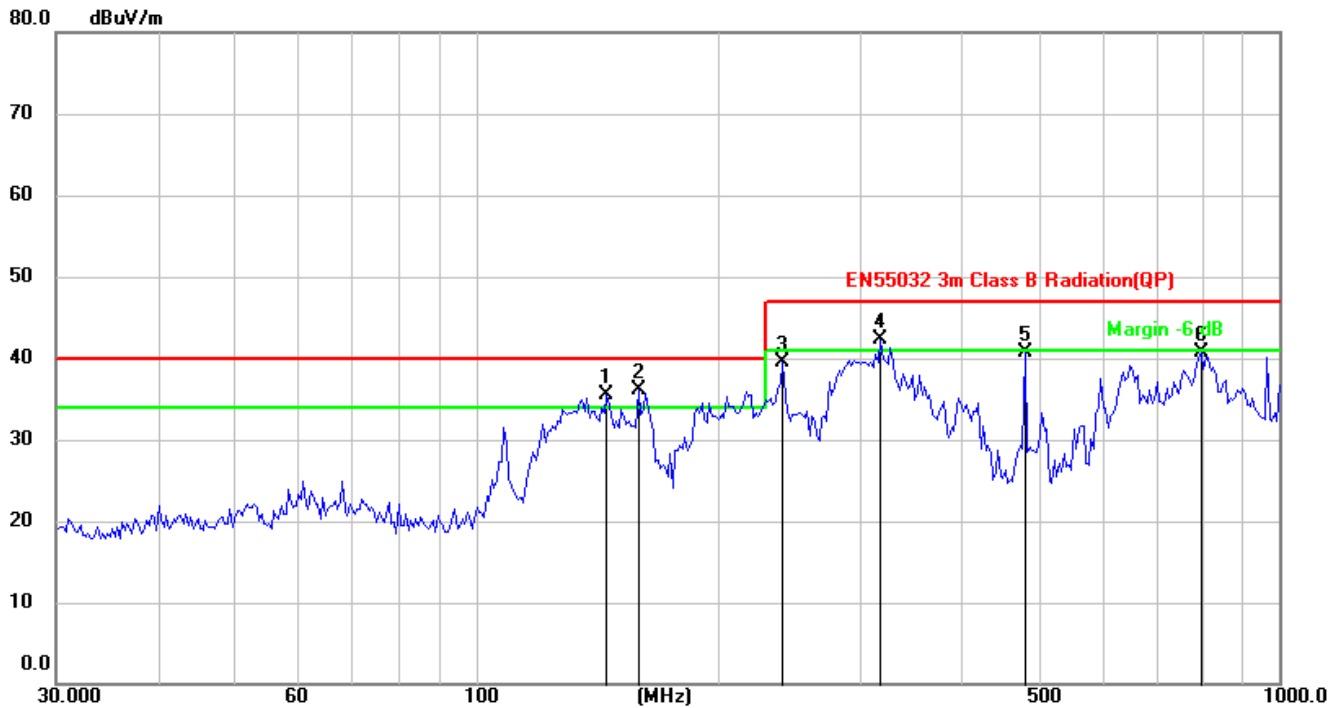
Measurement was performed according to clause 7.3 of CISPR 16-2-3.

4.2.4. Test results

PASS

Please refer to the following page.

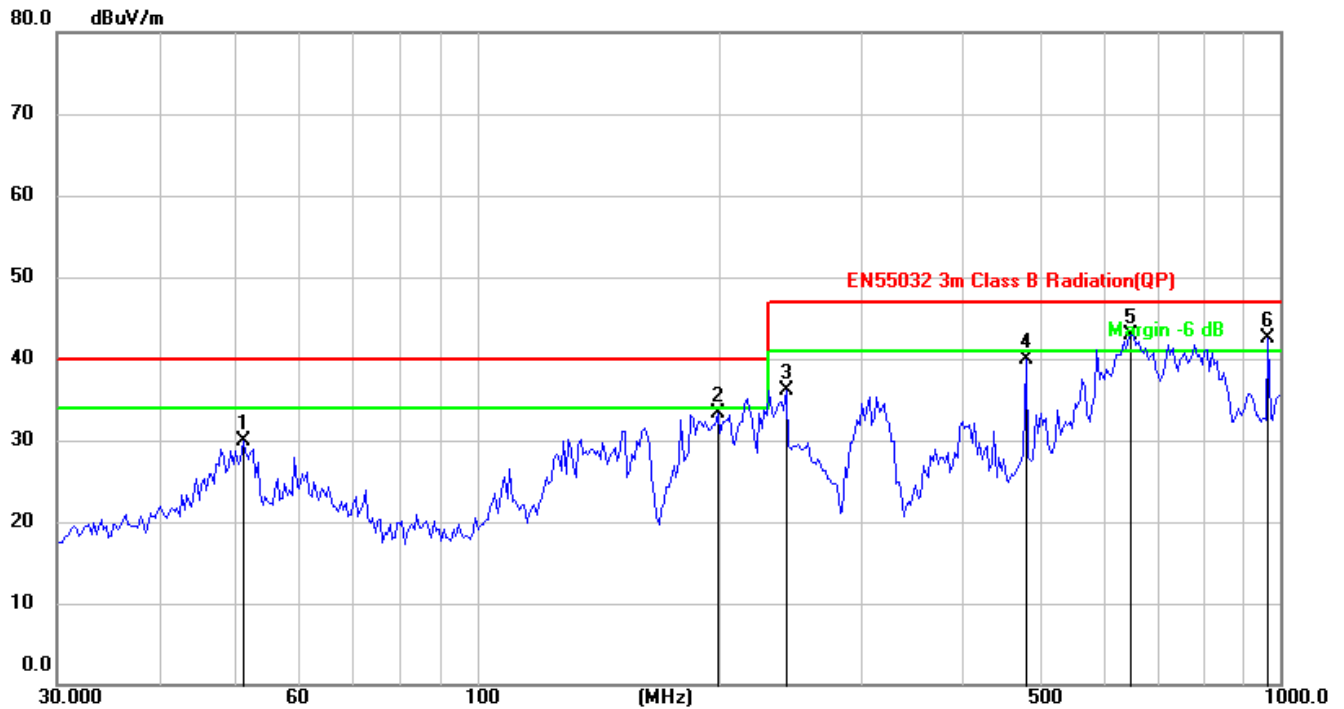
Polarization: H(Model: LZD-A17-5W-5V)



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1	!	145.3505	41.80	-6.39	35.41	40.00	-4.59	peak
2	*	159.2250	42.25	-6.24	36.01	40.00	-3.99	peak
3		240.8302	46.11	-6.69	39.42	47.00	-7.58	peak
4	!	318.8170	47.28	-4.97	42.31	47.00	-4.69	peak
5		482.2155	41.16	-0.39	40.77	47.00	-6.23	peak
6		798.9796	35.00	5.76	40.76	47.00	-6.24	peak

Note: Result=Reading+Factor
Over Limit=Result-Limit

Polarization: V(Model: LZD-A17-5W-5V)

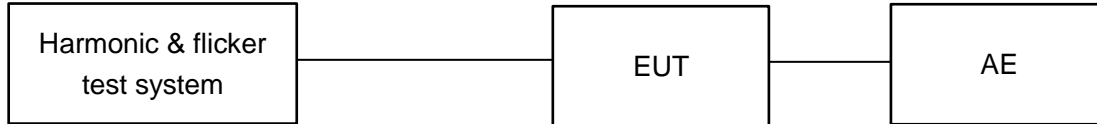


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1		51.1208	36.06	-6.18	29.88	40.00	-10.12	peak
2		199.2855	42.49	-9.28	33.21	40.00	-6.79	peak
3		242.5252	42.83	-6.74	36.09	47.00	-10.91	peak
4		482.2155	40.24	-0.39	39.85	47.00	-7.15	peak
5	*	651.9416	39.95	2.98	42.93	47.00	-4.07	peak
6	!	965.5420	34.71	7.77	42.48	47.00	-4.52	peak

Note: Result=Reading+Factor
Over Limit=Result-Limit

4.3. Harmonic current emissions

4.3.1. Test Setup



4.3.2. Test specifications

Basic Standard(s)	:	EN IEC 61000-3-2:2019+A1:2021
Measurement Equipment requirement	:	IEC 61000-4-7
Measured Harmonics	:	1 - 40
Equipment Class	:	<input checked="" type="checkbox"/> A <input type="checkbox"/> C
Limits	:	<input type="checkbox"/> Clause 7.1 Table 1 <input type="checkbox"/> Clause 7.3 Table 2

4.3.3. 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 analyzer which was integrated in the harmonic & flicker test system. The measurements were carried out under steady conditions.

- ☒ Active input power > 25 W
☐ Active input power ≤ 25 W

4.3.4. Test Result

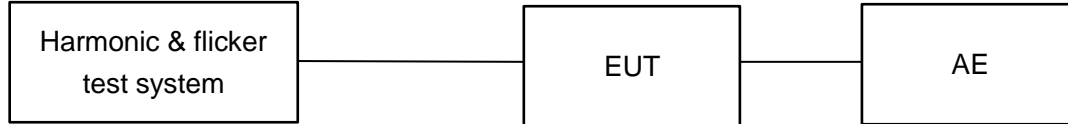
PASS

Please refer to the following page.

Fundamental	:	373.1				
2	:	1080.0	1.6	0.1	3.6	0.3
3	:	2300.0	352.6	15.3	354.6	15.4
4	:	430.0	1.8	0.4	3.4	0.8
5	:	1140.0	323.6	28.4	324.7	28.5
6	:	300.0	2.0	0.7	3.0	1.0
7	:	770.0	283.7	36.8	284.1	36.9
8	:	230.0	2.0	0.9	2.6	1.1
9	:	400.0	236.4	59.1	237.1	59.3
10	:	184.0	1.9	1.0	2.4	1.3
11	:	330.0	186.2	56.4	187.5	56.8
12	:	153.3	1.8	1.2	2.1	1.4
13	:	210.0	137.3	65.4	139.2	66.3
14	:	131.4	1.5	1.1	1.8	1.4
15	:	150.0	94.1	62.7	96.1	64.1
16	:	115.0	1.2	1.0	1.6	1.4
17	:	132.3	60.7	45.9	62.3	47.1
18	:	102.2	1.0	1.0	1.4	1.4
19	:	118.4	41.1	34.7	41.8	35.3
20	:	92.0	0.8	0.9	1.3	1.4
21	:	107.1	35.4	33.1	35.7	33.3
22	:	83.6	0.7	0.8	1.1	1.3
23	:	97.8	35.3	36.1	35.7	36.5
24	:	76.7	0.6	0.8	1.0	1.3
25	:	90.0	33.4	37.1	33.5	37.2
26	:	70.8	0.6	0.8	0.9	1.3
27	:	83.3	28.2	33.9	28.5	34.2
28	:	65.7	0.6	0.9	0.8	1.2
29	:	77.6	20.9	26.9	21.4	27.6
30	:	61.3	0.5	0.8	0.6	1.0
31	:	72.6	13.3	18.3	13.9	19.1
32	:	57.5	0.4	0.7	0.5	0.9
33	:	68.2	8.4	12.3	8.6	12.6
34	:	54.1	0.3	0.6	0.5	0.9
35	:	64.3	8.4	13.1	8.9	13.8
36	:	51.1	0.3	0.6	0.5	1.0
37	:	60.8	9.9	16.3	10.3	16.9
38	:	48.4	0.3	0.6	0.5	1.0
39	:	57.7	10.1	17.5	10.2	17.7
40	:	46.0	0.3	0.7	0.4	0.9
21 - 39	:	251.4	73.2	29.1	73.6	29.3
						-

4.4. Voltage changes, voltage fluctuations and flicker

4.4.1. Test Setup



4.4.2. Test Procedure

Basic Standard(s)	:	EN 61000-3-3:2013+A1:2019
Measurement Equipment requirement	:	IEC 61000-4-15
Limits	:	Clause 5

5.4.2.1 Definition

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

P_{st} : Short-term flicker indicator the flicker severity evaluated over a short period (in minutes);

$P_{st}=1$ is the conventional threshold of irritability

P_{lt} : long-term flicker indicator; the flicker severity evaluated over a long period (a few hours) using successive P_{st} values.

dc: the relative steady-state voltage change

d_{max} : the maximum relative voltage change

$d(t)$: the value during a voltage change

5.4.2.2 Test Procedure

The following limits apply

- " P_{lt} " shall not exceed 0.65.
- " P_{st} " shall not exceed 1.0.
- "dc" shall not exceed 3.3%.
- " $d(t)$ " shall not exceed 3.3% for more than 500ms.
- " d_{max} " shall not exceed:
 - ☐ 4% without additional conditions,
 - ☐ 6% switched manually or automatically more than twice per day,
 - ☐ 7% attended whilst in use or switched automatically for no more than twice per day or attended while in use.
 - ☐ For manual switch, d_{max} is measured in accordance with Annex B of standard, average d_{max} is calculated from 24 times measurement.
 - ☒ The EUT is unlikely to produce significant voltage fluctuations or flicker by technical analysis and evaluation. So it is deemed to fulfil the requirements without testing.

4.4.3. Test Result

N/A

5. Immunity

Performance criteria

Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Performance criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

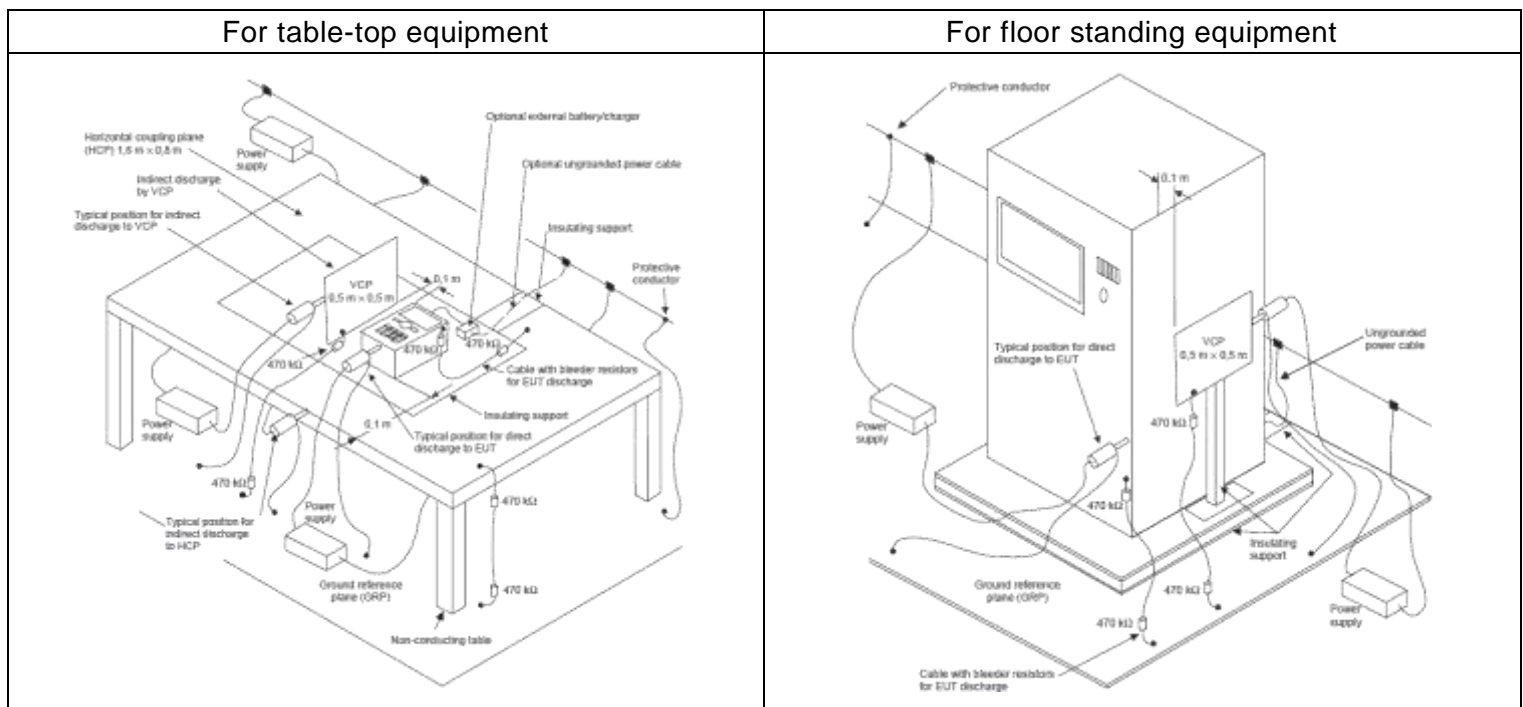
5.1. Electrostatic discharge

5.1.1. Test Levels and Performance Criterion

Characteristics	Test levels
Air discharge	±8 kV
Contact discharge	±4 kV

Performance criterion: **B**

5.1.2. Test setup



5.1.3. Test Procedure

Measurement was performed in shielded room.

Measurement procedure was applied according to EN 61000-4-2 clause 8.

The test method and equipment were specified by EN 61000-4-2.

5.1.4. Test Result

PASS

Please refer to the following page.

No.	Location of discharge	Polarity	Discharge	Number of discharges	Test level kV	Result
1	HCP top side	P&N	C	25	4	PASS
3	HCP bottom side	P&N	C	25	4	PASS
5	VCP right side	P&N	C	25	4	PASS
7	VCP left side	P&N	C	25	4	PASS
9	Points on conductive surface	P&N	C	25	4	PASS
10	Points on non-conductive surface	P&N	A	10	8	PASS
HCP = Horizontal coupling plate VCP = Vertical coupling plate N = Negative P = Positive A = Air discharge C = Contact discharge						

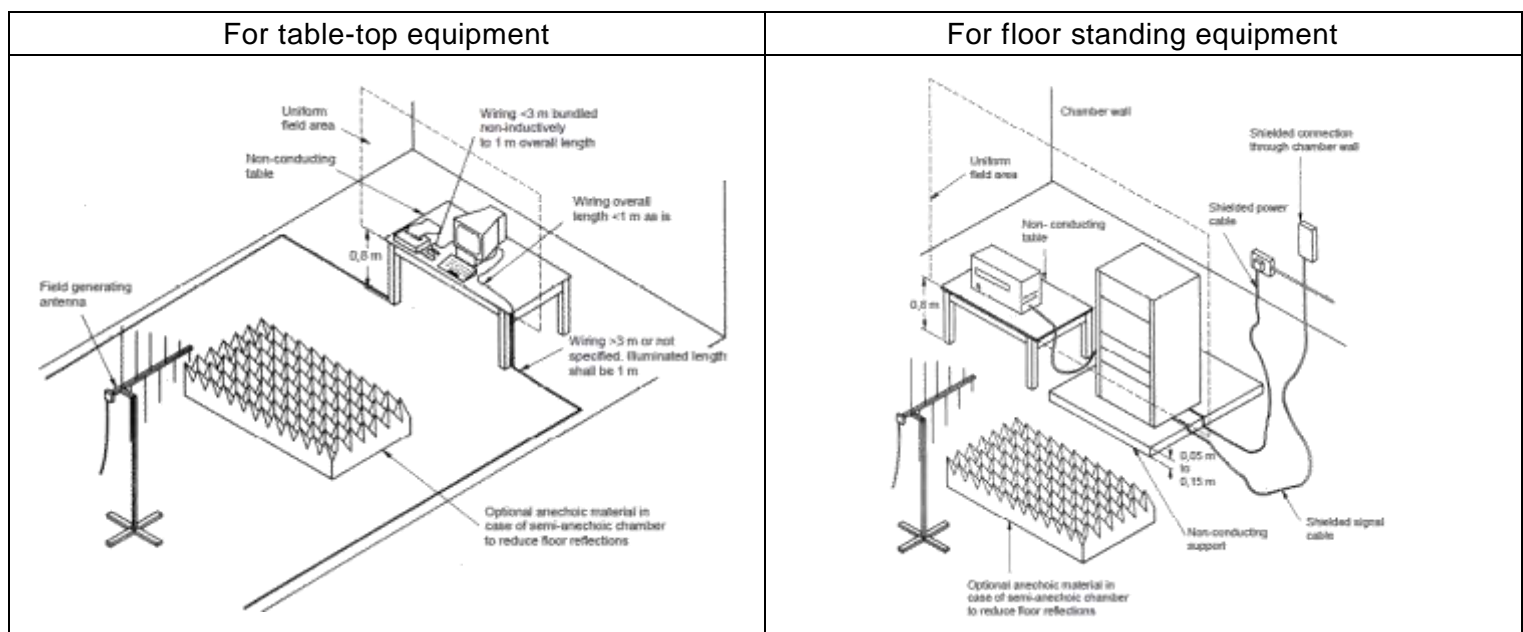
5.2. Radio-frequency electromagnetic field

5.2.1. Test Levels and Performance Criterion

Characteristics	Test levels
Frequency range	80 MHz to 1 000 MHz
Test level	3 V/m (unmodulated)
Modulation	1 kHz, 80 % AM, sine wave

Performance criterion: **A**

5.2.2. Test setup



5.2.3. Test Procedure

Measurement was performed in full-anechoic chamber.

Measurement procedure was applied according to EN 61000-4-3 clause 8.

The test method and equipment was specified by EN 61000-4-3.

5.2.4. Test Result

PASS

Enclosure	Horizontal	Vertical
Front	PASS	PASS
Right Side	PASS	PASS
Left Side	PASS	PASS
Rear	PASS	PASS

5.3. Fast transients

5.3.1. Test Levels and Performance Criterion

Test levels at ports for signal and control lines

Characteristics	Test levels
Test level	± 0.5 kV (peak)
Rise time/hold time	5/50 ns
Repetition frequency	5 kHz
NOTE 1 Only applicable to ports interfacing with cables whose total length, according to the manufacturer's specification, may exceed 3 m.	
NOTE 2 Change of state commands are not applied during the test.	

Test levels at input and output d.c. power ports

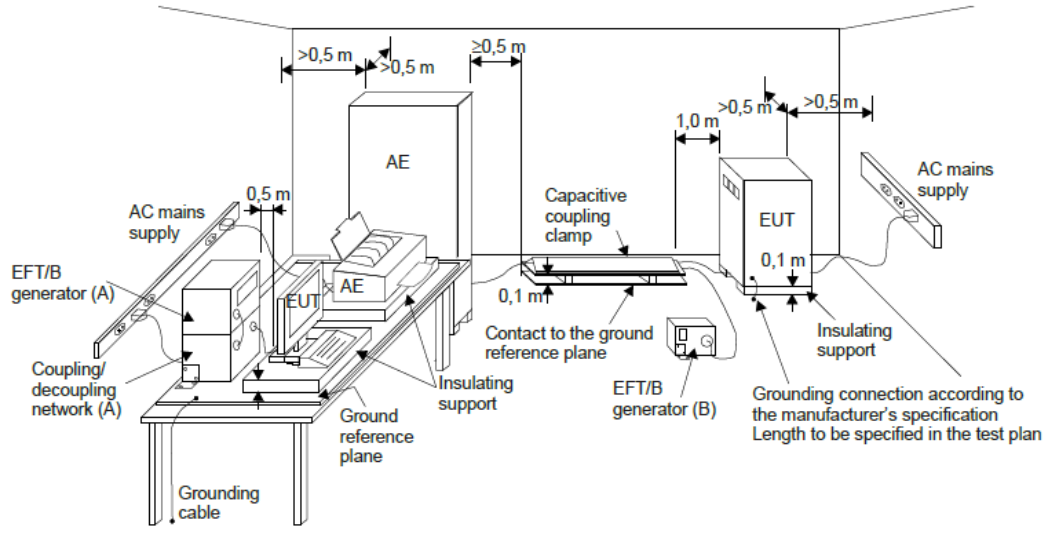
Characteristics	Test levels
Test level	± 0.5 kV (peak)
Rise time/hold time	5/50 ns
Repetition frequency	5 kHz
NOTE Not applicable to equipment not connected to the mains while in use.	

Test levels at input and output a.c. power ports

Characteristics	Test levels
Test level	± 1 kV (peak)
Rise time/hold time	5/50 ns
Repetition frequency	5 kHz

Performance criterion: **B**

5.3.2. Test setup



5.3.3. Test Procedure

Measurement was performed in shielded room.

Measurement procedure was applied according to EN 61000-4-4 clause 8.

The test method and equipment was specified by EN 61000-4-4.

5.3.4. Test Result

PASS

Location	Level (kV)	Polarity (P/N)	Result
AC power ports	1	P/N	Pass
DC power ports	0,5	P/N	N/A
Signal and control lines	0,5	P/N	N/A

5.4. Injected currents (radio-frequency common mode)

5.4.1. Test Levels and Performance Criterion

Test levels at ports for signal and control lines

Characteristics	Test levels
Frequency range	0.15 MHz to 80 MHz
Test level	3 V r.m.s. (unmodulated)
Modulation	1 kHz, 80 % AM, sine wave
Source impedance	150 Ω
NOTE Only applicable to ports interfacing with cables whose total length, according to the manufacturer's specification, may exceed 3 m.	

Test levels at input and output d.c. power ports

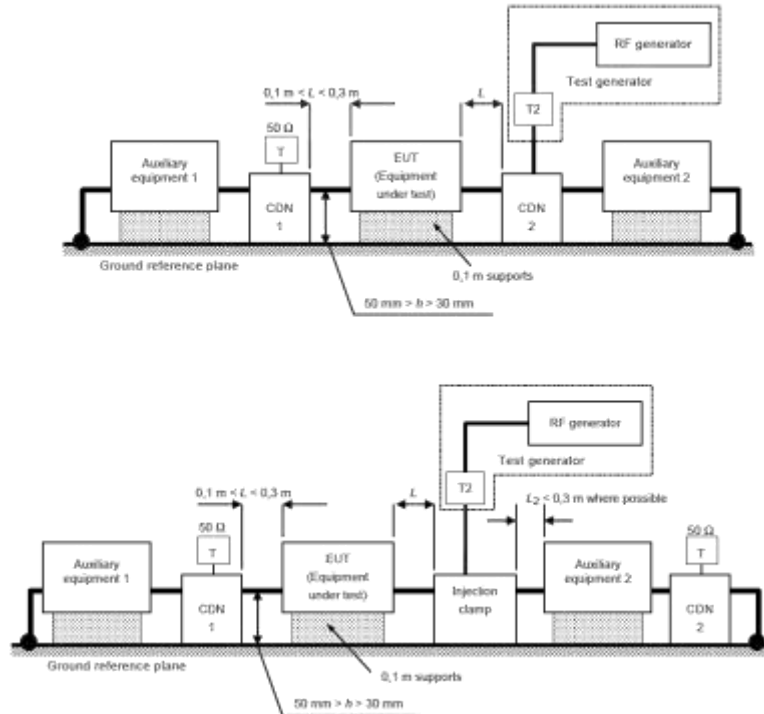
Characteristics	Test levels
Frequency range	0.15 MHz to 80 MHz
Test level	3 V r.m.s. (unmodulated)
Modulation	1 kHz, 80 % AM, sine wave
Source impedance	150 Ω
NOTE Only applicable to equipment that is connected to the mains while in use.	

Test levels at input and output a.c. power ports

Characteristics	Test levels
Frequency range	0.15 MHz to 80 MHz
Test level	3 V r.m.s. (unmodulated)
Modulation	1 kHz, 80 % AM, sine wave
Source impedance	150 Ω
NOTE Only applicable to ports interfacing with cables whose total length, according to the manufacturer's specification, may exceed 3 m.	

Performance criterion: **A**

5.4.2. Test setup



5.4.3. Test Procedure

Measurement procedure was applied according to EN 61000-4-6 clause 8.
The test method and equipment was specified by EN 61000-4-6.

5.4.4. Test Result

PASS

Injected point	Frequency (MHz)	Level (e.m.f)	Modulation	Result
AC power ports	0.15 to 80	3V	80%, 1 kHz, AM	PASS
DC power ports	0.15 to 80	3V	80%, 1 kHz, AM	N/A
Signal and control lines	0.15 to 80	3V	80%, 1 kHz, AM	N/A

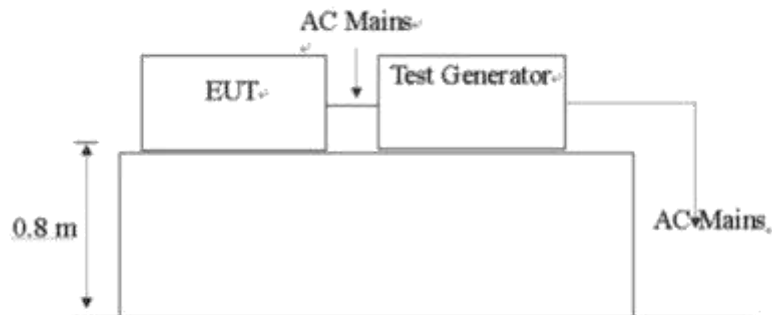
5.5. Surges

5.5.1. Test Levels and Performance Criterion

Characteristics		Test levels		
		Device		
		Self-ballasted lamps and semi-luminaires	Luminaires and independent auxiliaries	
			Input power	
			≤25 W	>25 W
Wave-shape data		1.2/50 μs	1.2/50 μs	1.2/50 μs
Test levels	line to line	±0.5 kV	±0.5 kV	±1.0 kV
	line to ground	±1.0 kV	±1.0 kV	±2.0 kV
NOTE In addition to the specified test level, all lower test levels as detailed in IEC 61000-4-5 should also be satisfied.				

Performance criterion: **B**

5.5.2. Test setup



5.5.3. Test Procedure

Measurement was performed in shielded room.

Measurement procedure was applied according to EN 61000-4-5 clause 8.

The test method and equipment was specified by EN 61000-4-5.

5.5.4. Test Result

PASS

Please refer to the following page.

Location	Level(kV)	Polarity(P/N)	Result
Luminaires and independent auxiliaries >25 W (line to line)	1	P/N	Pass
Luminaires and independent auxiliaries >25 W (line to ground)	2	P/N	N/A
Luminaires and independent auxiliaries ≤25 W (line to line)	0,5	P/N	N/A
Luminaires and independent auxiliaries ≤25 W (line to ground)	1.0	P/N	N/A
Self-ballasted lamps and semi-luminaires (line to line)	0,5	P/N	N/A
Self-ballasted lamps and semi-luminaires (line to ground)	1.0	P/N	N/A

5.6. Voltage dips and Short interruptions

5.6.1. Test Levels and Performance Criterion

Voltage dips – Test levels at input a.c. power ports

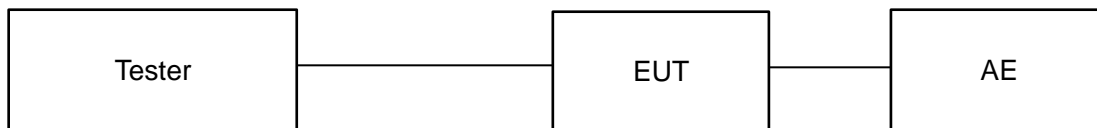
Characteristics	Test levels
Test voltage level	70 %
Number of periods	10

Voltage short interruptions – Test levels at input a.c. power ports

Characteristics	Test levels
Test voltage level	0 %
Number of periods	0.5

Performance criterion: C & B

5.6.2. Test setup



5.6.3. Test Procedure

Measurement was performed in shielded room.

Measurement procedure was applied according to EN 61000-4-11 clause 8.

The test method and equipment was specified by EN 61000-4-11.

5.6.4. Test Result

PASS

Test level %U _T	Voltage dips & short interruptions %U _T	Duration [Cycles]	Result
70	30	10	Pass
0	100	0.5	Pass
Remark: U _T is the rated voltage for the equipment.			

6. Photographs of EUT



Photographs of EUT

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