

Rapporto di prova / Test report

Rif./Ref.No. 0526_2_21_EMCTR-0	Data / Date: 28/09/2021	Pagine / Pages: 28
Scopo delle prove / <i>Test object:</i>	Prove di tipo in accordo alle Norme armonizzate / <i>Type test according to Harmonized standards</i> EN IEC 55015:2019 EN 61547:2009 EN IEC 61000-3-2:2019; EN 61000-3-3:2013 + A1:2019	
Richiedente / <i>Applicant:</i>	Neri s.p.a. Via Emilia, 1622 - 47020 – Longiano (FC) Italy	
Persona di riferimento / <i>Applicant's reference:</i>	--	
Marchio commerciale / <i>Trade mark:</i>		
Fabbricante / <i>Manufacturer:</i>	Neri s.p.a.	
Prodotto / <i>Product:</i>	LED Street Lighting Luminaire	
Modello testato / <i>Tested Model:</i>	Lyra 32	
Data verifiche / <i>Testing date:</i>	17-21/09/2021	
Campioni verificati / <i>No. of tested samples:</i>	1	
Data ricevimento campioni / <i>Test samples receipt date:</i>	14/09/2021	
Sito di prova / <i>Testing site:</i>	Radiomotive s.r.l.	
Esito delle valutazioni / <i>Assessment results:</i>	CONFORME / COMPLIANT	
Verifiche effettuate da / <i>Verifications carried out by:</i>	Ing. Enrico BANFI Laboratory manager	
Approvato da / <i>Approved by:</i>	Ing. Vincenzo La Fragola Managing director	

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0 Release Control Record

Test Report Number	Reason of Chan	Date of Issue
0526_2_21_EMCTR-0	Original release	28/09/2021

1 Equipment under test (EUT)

1.1 EUT Identification

Description	LED Street Lighting Luminaire
Model name or No.	Lyra 32
Part number / Serial No.	 <p>NERI Lyra 32 cl I Made in Italy LULYR0000K000024</p> <p>220V-240V~ 50/60Hz 55W -35°C / +50°C IP66 IK09</p> <p>Type II 32 LED 722</p> <p>Batch: 6613 Date: 36/21 Serial: 00004</p> <p>CE EN 15</p> <p>66132100004</p> <p>Made in Italy Neri S.p.A. Via Emilia, 1622 47020 Longiano (FC) Italy</p>
Manufacturer	Neri s.p.a.
Country of manufacturer	Italy

1.2 EUT environment description

Note

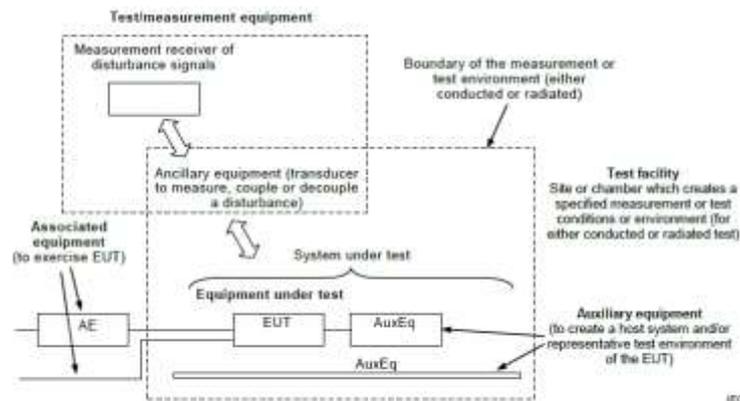


Figure 2 – Generic depiction of the definitions of test-, ancillary-, auxiliary- and associated equipment w.r.t. EUT and the test/measurement environment (definitions given in CISPR 16-2-3)

System under test	EUT	Lyra32
	AuxEq ¹	---
Associated Equipment	AE ²	---

¹ Auxiliary Equipment: peripheral equipment that is part of the system under test

² Associated Equipment: apparatus, that is not part of the system under test, but needed to help exercise the EUT

1.3 EUT Classification

Generic Lighting Equipment	<input checked="" type="checkbox"/>	Led Light		
Specific Lighting Equipment	<input type="checkbox"/>	Passive EUT ¹		
	<input type="checkbox"/>	Rope light		
	<input type="checkbox"/>	Module ²	<input type="checkbox"/>	replaceable
			<input type="checkbox"/>	external
			<input type="checkbox"/>	internal
			<input type="checkbox"/>	mounted
			<input type="checkbox"/>	Single capped self-ballasted lamps
			<input type="checkbox"/>	Double-capped self-ballasted lamps used in fluorescent lamp luminaires
			<input type="checkbox"/>	double-capped lamp adapters used in fluorescent lamp luminaires
			<input type="checkbox"/>	double-capped semi-luminaires used in fluorescent lamp luminaires
			<input type="checkbox"/>	double-capped retrofit lamps used in fluorescent lamp luminaires
			<input type="checkbox"/>	ELV lamps
			<input type="checkbox"/>	Single-capped semi-luminaires
<input type="checkbox"/>	Independent igniters			
<input type="checkbox"/>	Replaceable starters for fluorescent lamps			
Intended Installation	<input type="checkbox"/> Table Top <input checked="" type="checkbox"/> Wall Mounted <input type="checkbox"/> Ceiling mounted <input checked="" type="checkbox"/> Pole mounted <input type="checkbox"/> Floor standing			

¹ equipment which, by its inherent nature and physical characteristics such as absence of active and fast variation or switching of currents or voltages, is incapable of generating or contributing to electromagnetic emissions which exceed a level allowing radio reception to happen as intended

² electronic or electrical part which serves a specific function or functions of a lighting application and may contain radio-frequency sources, which is intended for application in a luminaire or in an installation by an end user and which is intended to be marketed and/or sold separately from a lighting apparatus or system

1.4 Modifications incorporated in E.U.T.

The following items are the modifications introduced in the equipment under test :

- None

1.5 EUT interface (port) identification

According to EN 55015:2019

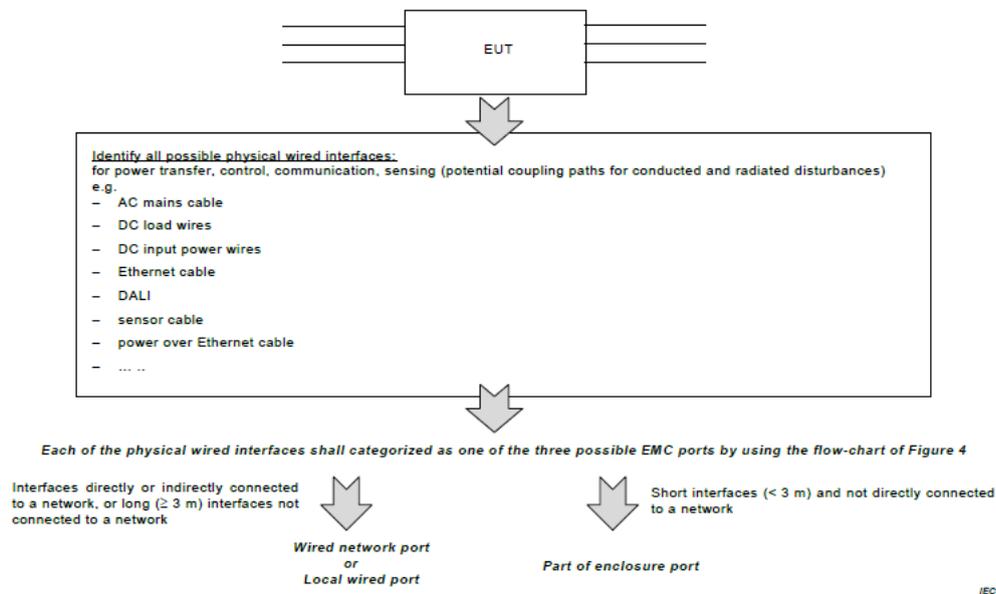
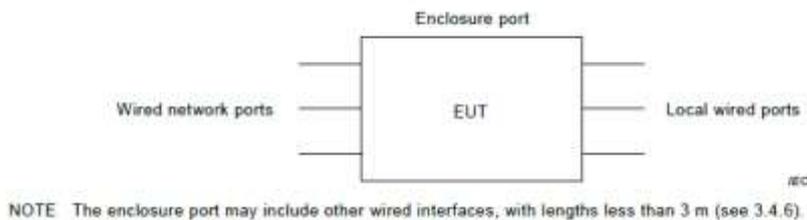


Figure 3 – EUT and its physical interfaces



NOTE The enclosure port may include other wired interfaces, with lengths less than 3 m (see 3.4.6).

Port	Type	Description	Cable Length (m)	Type of connector
Enclosure ¹	Case	Plastic/Metallic	--	---
	---	---	---	---
Wired network port ²	AC Mains input	230 V 50 Hz	>3m	connector
Local wired port ³	Port not present ⁴	---	---	---

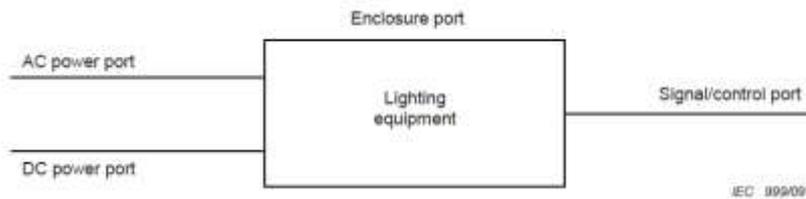
¹ artificial non-intentional wireless interface of the lighting equipment through which electromagnetic disturbances can radiate into the environment. The artificial interface can consist of for instance seams and apertures in the physical metallic enclosure, but also limited lengths of each of its wired interfaces. In the frequency range above 30 MHz typically one third of a wavelength of the length of the wired interfaces can contribute to radiated disturbances. Therefore, also included are wired interfaces to auxiliary equipment which are intended to be connected with cables of less than 3 m length.

² wired interface of the lighting equipment which connects to cables that are directly connected to a network and through which conducted electromagnetic disturbances may be coupled to that network

³ interface of the lighting equipment which directly connects to cables that are not connected to a network and have a length greater than or equal to 3 m, or that are indirectly connected to a network via auxiliary equipment

⁷ see notes 1 and 3, EUT output cables length <3m

According to EN 61547:2009



Port	Type	Cable Length (m)	Type of connector
Enclosure	Metallic/Plastic	--	Screw
AC power port	Mains: 230 V 50 Hz	--	Connector
DC power port	Port not present	---	---
Signal/control port	Port not present	---	---

1.6 Primary functions of the EUT

The following table describes the primary functions and the representative parameter of the equipment under test according to the manufacturer specifications:

Primary function	Representative parameter
LED Luminaire	Operating status

1.7 Performance of equipment under test

With reference to the above specified primary functions, the following table defines the acceptable level of the performance or permissible loss of function and the observation mode for each representative parameter of the equipment under test according to the technical instructions by the manufacturer.

Representative parameter	Acceptable level of performance	Observation mode		
		Acquisition	Test equipment	Test n.
Operating status	No change of status	Operator	Visual inspection	All immunity test

1.8 Performance criteria

A functional description of performance criteria, during or as a consequence of the immunity testing, shall be provided by the manufacturer and noted in the test report. The performance of lighting equipment shall be assessed by monitoring:

- the luminous intensity of the luminaire or of the lamp(s);
- the functioning of the control in the case of equipment which includes a regulating control or concerns the regulating control itself;
- the functioning of the starting device, if any.

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.

2 Applications of EN 55015 test specifications

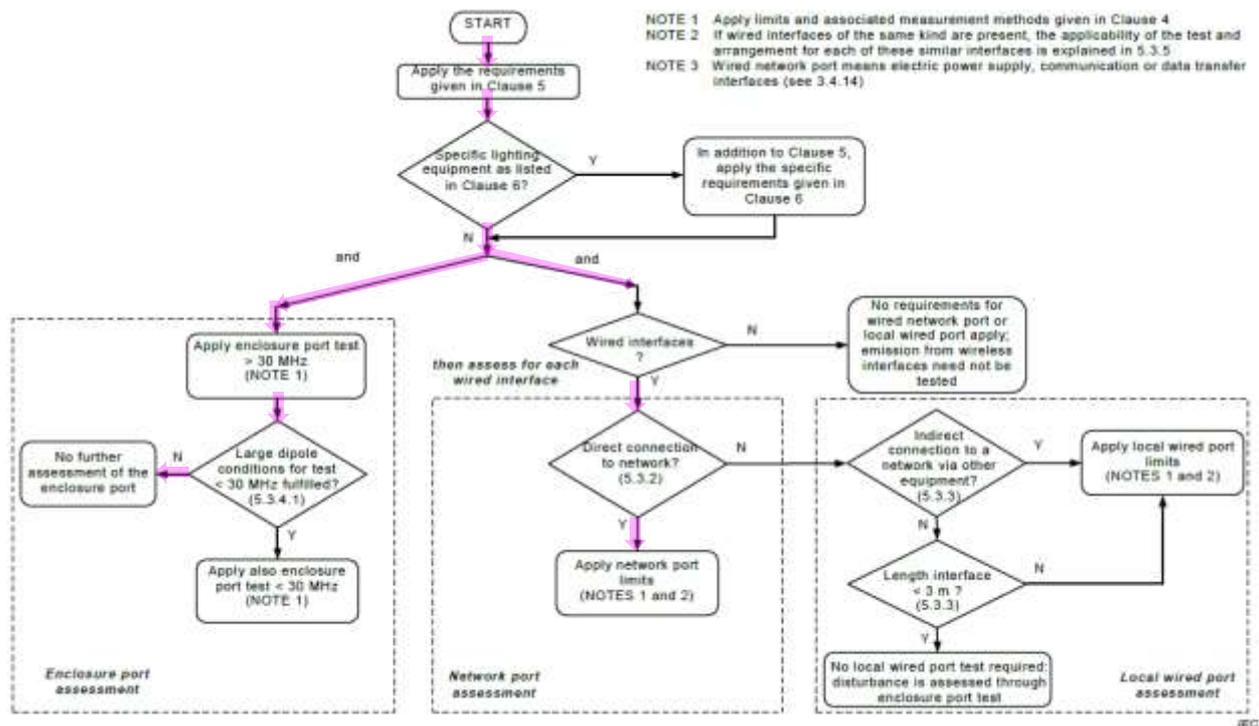


Figure 4 – Decision process on the application of limits to the EUT

Note:

According to par 5.3.4.1 of EN 55015: “Radiated-field disturbance limits in the frequency range of 9 kHz to 30 MHz apply to the enclosure port of the EUT. However, the EUT needs to be tested for radiated emissions within 9 kHz to 30 MHz only if the application, construction or technology of the EUT can cause large magnetic dipole moments. A large dipole moment is obtained if a substantial disturbance current is running in a loop that encompasses a large surface, such as (but not limited to) the following cases:

- the manufacturer allows external wired interfaces connected to the EUT by single conductor cables;
- the EUT applies internal single-conductor and separated interconnect wiring (or PCBs tracks) that cause loops and an associated magnetic dipole;
- EUTs that apply technologies with inductive power transfer.

If the EUT is incapable of generating a large magnetic dipole moment, then no test is required and the EUT is deemed to comply with the radiated-field disturbance limits in the frequency range of 9 kHz to 30 MHz.

3 Applications of EN 61547 test specifications

3.1 General

The test requirements apply to the following lighting equipment:

- self-ballasted lamps and semi-luminaires;
- independent auxiliaries;
- luminaires or equivalent appliances.

Immunity requirements do not apply to lamps other than self-ballasted lamps, nor to auxiliaries incorporated in luminaires, in self-ballasted lamps or in semi-luminaires. However, if separate tests have proven that built-in auxiliaries such as ballasts or convertors comply with the requirements set for independent auxiliaries, the luminaire is deemed to comply and need not be tested.

3.2 Non-electronic lighting equipment

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

3.3 Electronic lighting equipment

3.3.1 General

For lighting equipment containing active electronic components which, for example, convert or regulate the operating voltage and/or the frequency of the light source, the requirements are given in the following subclauses:

3.3.2 Self-ballasted lamps

Electronic self-ballasted lamps shall be tested in accordance with Clause 5 and comply with the performance criteria of Table 13.

Table 13 – Application of tests for self-ballasted lamps							
Test and performance criterion							
Electrostatic Discharge	RF electromagnetic fields	Power Frequency Magnetic Fields	Fast Transients	Injected currents	Surges	Voltage dips	Voltage short interruptions
B	A	A	B	A	C	C	B

3.3.3 Independent auxiliaries

Those auxiliaries which are independent as defined in their relevant product standard shall be tested in accordance with Clause 5 and comply with the performance criteria of Table 14.

Table 14 – Application of tests for self-ballasted lamps							
Test and performance criterion							
Electrostatic Discharge	RF electromagnetic fields	Power Frequency Magnetic Fields	Fast Transients	Injected currents	Surges	Voltage dips	Voltage short interruptions
B	A	A	B	A	C	C	B ^(a)
^(a) For ballasts where the lamp is not able to restart within 1 min, due to the physical constraints of the lamp, performance criterion C applies.							

3.3.4 Luminaires

Luminaires shall be tested in accordance with Clause 5 and comply with the performance criteria of Table 15.

Table 15 – Application of tests for self-ballasted lamps								
	Test and performance criterion							
	Electrostatic Discharge	RF electromagnetic fields	Power Frequency Magnetic Fields	Fast Transients	Injected currents	Surges	Voltage dips	Voltage short interruptions
Luminaire including active electronic components	B	A	A	B	A	C	C	B ^(a)
Luminaire for emergency Lighting ^(c)	B ^(b)	A	A	B ^(b)	A	B ^(b)	^(d)	^(d)
^(a) 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. ^(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 0,5 s. ^(c) Luminaires for emergency lighting shall be tested in both the normal and emergency mode of operation. ^(d) These tests do not apply as they are covered by the test in IEC 60598-2-22.								

4 Reference Standards

REFERENCE EUROPEAN STANDARDS	
EN IEC 55015:2019	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	Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
EN 61000-3-3:2013 + A1:2019	Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection (IEC 61000-3-3:2013+A1:2017)

5 Operating test modes and test conditions

In the following table there are the operating conditions adopted during tests identified by an indicator (#..) at which has been referred the item "Operating condition of the equipment under test".

Operating condition	Description
#1	luminaire on

6 Summary of test results

6.1 Emission tests

Port	Type	Test	Reference standard	Operating condition ¹	Results
Enclosure	Case	Radiated electromagnetic disturbances	EN 55015	#1	WITHIN THE LIMITS
Wired network port	AC input power wires	Disturbance voltage	EN 55015	#1	WITHIN THE LIMITS
		Harmonic currents	EN 61000-3-2	#1	WITHIN THE LIMITS
		Voltage fluctuations and flicker	EN 61000-3-3	#1	WITHIN THE LIMITS
Local wired port ²	---	---	EN 55015	---	---

¹ Ref. Tab. of Section 4

² Port not present

6.2 Immunity tests

Port	Phenomena	Reference standard	Operating condition ¹	Result
Enclosure	RF electromagnetic field	EN 61000-4-3	---	COMPLIANT ²
	Electrostatic Discharge	EN 61000-4-2	---	COMPLIANT ²
	Power frequency magnetic fields	EN 61000-4-8	Not Applicable ³	
AC Input/Output power ports	Fast transients	EN 61000-4-4	---	COMPLIANT ²
	Injected currents RF common mode	EN 61000-4-6	---	COMPLIANT ²
	Surge	EN 61000-4-5	---	COMPLIANT ²
	Voltage Dips / Interruptions	EN 61000-4-11	---	COMPLIANT ²
DC Input/Output power ports	Fast transients	EN 61000-4-4	Not Applicable ⁴	
	Injected currents RF common mode	EN 61000-4-6		
Signal / Control Terminal	Fast transients	EN 61000-4-4	Not Applicable ⁴	
	Injected currents RF common mode	EN 61000-4-6		

¹ Ref. Tab. of Section 4

² Immunity requirements do not apply to lamps other than self-ballasted lamps, nor to auxiliaries incorporated in luminaires, in self-ballasted lamps or in semi-luminaires. However, if separate tests have proven that built-in auxiliaries such as ballasts or convertors comply with the requirements set for independent auxiliaries, the luminaire is deemed to comply and need not be tested. As declared by the applicant the AC mains power driver, and the power supply for battery recharge are already compliant to EN 61547:2009 prescriptions, so the luminaire is deemed to comply and need not be tested

³ In the EUT there aren't significant elements susceptible to power frequency magnetic fields

⁴ Port not present

TEST

Radiated electromagnetic disturbances

Reference Document: EN 55015

Test Setup:	In acc. to ref. doc.
Test Equipment used for test:	EMC.019 EMI RECEIVER R&S ESW8 EMC.048 BICOLOG ANTENNA AARONIA BicoLOG30100E LLAS LAPLACE INSTRUMENTS RF300 EMC.023 FAC-3 170032
Measurement Uncertainty:	4.83dB

Test conditions:	Measured
Ambient temperature: 23°C ±5°C	24 °C
Ambient humidity: 25 – 75 %Rh	45 %
Pressure: 85 – 106 kPa – (860 mbar – 1060 mbar)	960 mbar
Voltage	230 V 50 Hz

Operating Condition (Rif. Section 4): #1

Test results: **WITHIN THE LIMITS**

Frequency Range 9kHz - 30 MHz

According to par 5.3.4.1 of EN 55015: “Radiated-field disturbance limits in the frequency range of 9 kHz to 30 MHz apply to the enclosure port of the EUT. However, the EUT needs to be tested for radiated emissions within 9 kHz to 30 MHz only if the application, construction or technology of the EUT can cause large magnetic dipole moments. A large dipole moment is obtained if a substantial disturbance current is running in a loop that encompasses a large surface, such as (but not limited to) the following cases:

- the manufacturer allows external wired interfaces connected to the EUT by single conductor cables;
- the EUT applies internal single-conductor and separated interconnect wiring (or PCBs tracks) that cause loops and an associated magnetic dipole;
- EUTs that apply technologies with inductive power transfer.

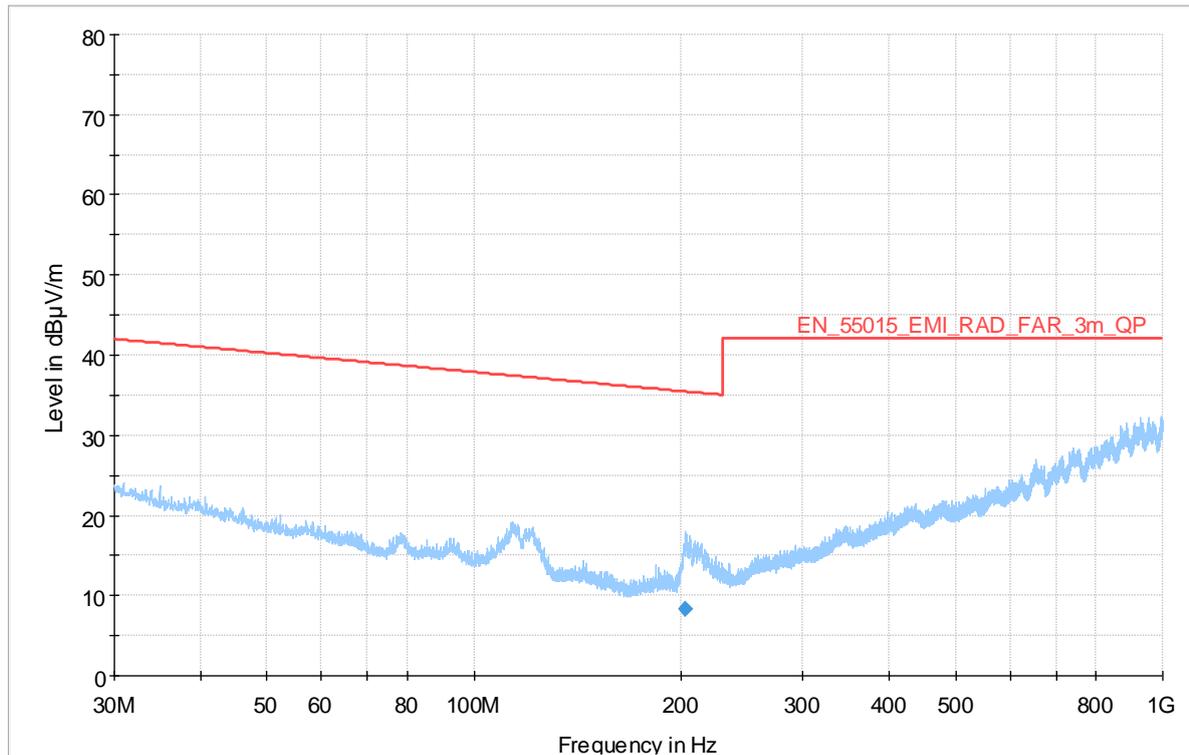
If the EUT is incapable of generating a large magnetic dipole moment, then no test is required and the EUT is deemed to comply with the radiated-field disturbance limits in the frequency range of 9 kHz to 30 MHz.

Inside the EUT no large loop current is present, and the wires of the power supply cable run together

The EUT is incapable of generating a large magnetic dipole moment, then no test is required and the EUT is deemed to comply with the radiated-field disturbance limits in the frequency range of 9 kHz to 30 MHz.

Operating Condition: #1

Frequency Range 30 MHz – 1 GHz



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol
202.470000	8.28	---	35.44	27.16	15000.0	120.000	175.0	V

TEST

Voltage Disturbances

Reference Document: EN 55015

Test Setup:	In acc. to ref. doc.
Test Equipment used for test:	EMC.019 EMI RECEIVER R&S ESW8 EMC.023 LISN R&S HM6050-2
Measurement Uncertainty:	2.68dB

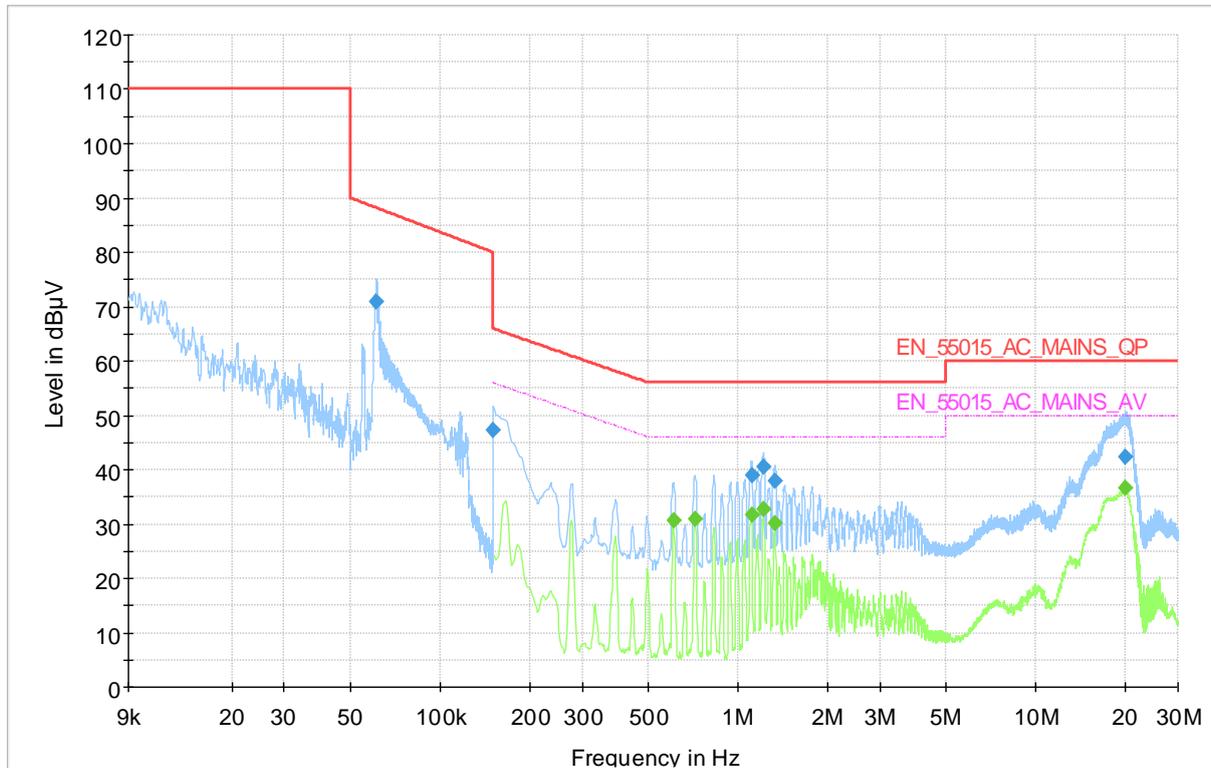
Test conditions:	Measured
Ambient temperature: 23°C ±5°C	24 °C
Ambient humidity: 25 – 75 %rH	45 %
Pressure: 85 – 106 kPa – (860 mbar – 1060 mbar)	960 mbar
Voltage	230 V 50 Hz

Operating Condition (Rif. Section 4): #1

Test results: **WITHIN THE LIMITS**

Operating Condition: #1

Line: AC Mains - Phase (L1)

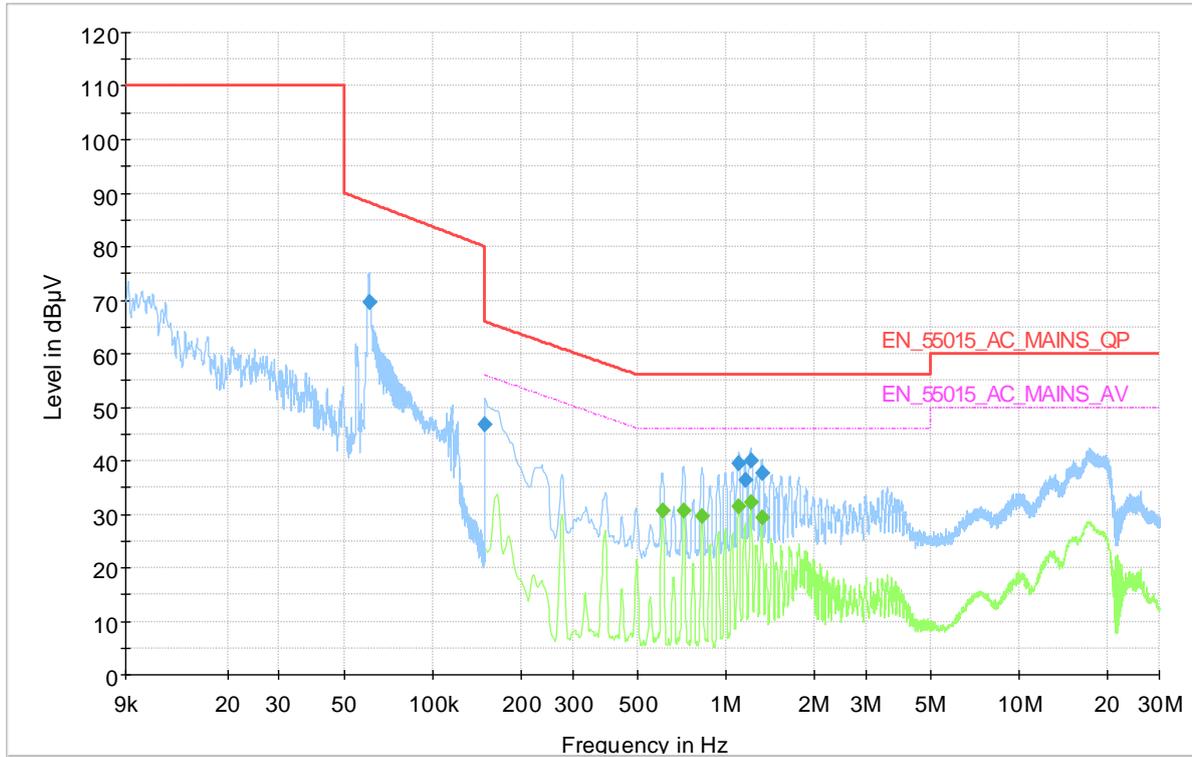


Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.061350	70.80	---	88.14	17.34	5000.0	0.200	L1	GND	10.1
0.150000	47.32	---	66.00	18.68	1000.0	9.000	L1	GND	10.1
0.606750	---	30.77	46.00	15.23	1000.0	9.000	L1	GND	10.1
0.717000	---	30.87	46.00	15.13	1000.0	9.000	L1	GND	10.2
1.110750	---	31.80	46.00	14.20	1000.0	9.000	L1	GND	10.2
1.110750	39.01	---	56.00	16.99	1000.0	9.000	L1	GND	10.2
1.221000	40.53	---	56.00	15.47	1000.0	9.000	L1	GND	10.2
1.221000	---	32.86	46.00	13.14	1000.0	9.000	L1	GND	10.2
1.333500	37.91	---	56.00	18.09	1000.0	9.000	L1	GND	10.2
1.333500	---	30.09	46.00	15.91	1000.0	9.000	L1	GND	10.2
19.860000	---	36.52	50.00	13.48	1000.0	9.000	L1	GND	10.7
20.069250	42.31	---	60.00	17.69	1000.0	9.000	L1	GND	10.7

Operating Condition: #1

Line: AC Mains - Neutral (N)



Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.060900	69.53	---	88.21	18.68	5000.0	0.200	N	GND	10.1
0.150000	46.78	---	66.00	19.22	1000.0	9.000	N	GND	10.1
0.606750	---	30.63	46.00	15.37	1000.0	9.000	N	GND	10.2
0.717000	---	30.76	46.00	15.24	1000.0	9.000	N	GND	10.2
0.829500	---	29.66	46.00	16.34	1000.0	9.000	N	GND	10.2
1.106250	39.47	---	56.00	16.53	1000.0	9.000	N	GND	10.2
1.108500	---	31.39	46.00	14.61	1000.0	9.000	N	GND	10.2
1.167000	36.24	---	56.00	19.76	1000.0	9.000	N	GND	10.2
1.218750	40.12	---	56.00	15.88	1000.0	9.000	N	GND	10.2
1.221000	---	32.19	46.00	13.81	1000.0	9.000	N	GND	10.2
1.329000	37.74	---	56.00	18.26	1000.0	9.000	N	GND	10.2
1.331250	---	29.27	46.00	16.73	1000.0	9.000	N	GND	10.2

TEST

Harmonics Current Emissions

Reference Document: IEC 61000-3-2

Test Setup:	In acc. to ref. doc.
Test Location:	RadioMotive s.r.l.
Test Equipment used for test:	EMC.060 Digital Power Analyzer DPA 500N EMC.116 Power Supply ELETTRATEST TPS/M 6000
Measurement Uncertainty	2,681dB

Test conditions:	Measured
Ambient temperature: 23°C ±5°C	24 °C
Ambient humidity: 25 – 75 %rH	45 %
Pressure: 85 – 106 kPa – (860 mbar – 1060 mbar)	960 mbar
Voltage	230V ~ 50Hz

Operating Condition (Rif. Section 4): #1

Test results: **WITHIN THE LIMITS**

LINE: AC MAINS

Check Harmonics 2..40	
<i>First detected harmonic order > 150 %</i>	
Line 1:	None
<i>Harmonics orders > 150 %</i>	
Line 1:	None
<i>Harmonics orders with average > 100 %</i>	
Line 1:	None

Measured values	
<i>Fundamental Current</i>	
Line 1:	0,253 A
<i>Active input Power</i>	
Line 1:	56,546 W *
<i>Circuit power factor</i>	
Line 1:	0,965 *

* Absolute value.

Current Test Result

Average and Maximum harmonic current results									
Hn	Average				Maximum				Harmonic Result
	I _{eff} [%]	of Limit [%]	Limit [%]	Result	I _{eff} [%]	of Limit [%]	Limit [%]	Result	
1	99,784				99,955				
2	0,113	5,649	2,000	n/a	0,132	4,398	3,000	n/a	PASS
3	7,984	29,570	27,000	PASS	8,007	19,770	40,500	PASS	PASS
4	0,100				0,113				
5	6,027	60,270	10,000	PASS	6,054	40,361	15,000	PASS	PASS
6	0,095				0,107				
7	4,384	62,633	7,000	PASS	4,407	41,975	10,500	PASS	PASS
8	0,091				0,100				
9	2,865	57,307	5,000	PASS	2,892	38,565	7,500	PASS	PASS
10	0,089				0,099				
11	1,551	51,705	3,000	n/a	1,577	35,040	4,500	n/a	PASS
12	0,089				0,098				
13	0,536	17,872	3,000	n/a	0,551	12,234	4,500	n/a	PASS
14	0,088				0,097				

15	0,183	6,092	3,000	n/a	0,202	4,490	4,500	n/a	PASS
16	0,087				0,098				
17	0,471	15,704	3,000	n/a	0,497	11,051	4,500	n/a	PASS
18	0,087				0,098				
19	0,640	21,330	3,000	n/a	0,653	14,519	4,500	n/a	PASS
20	0,088				0,100				
21	0,591	19,686	3,000	n/a	0,617	13,706	4,500	n/a	PASS
22	0,089				0,101				
23	0,461	15,367	3,000	n/a	0,472	10,489	4,500	n/a	PASS
24	0,095				0,108				
25	0,341	11,353	3,000	n/a	0,355	7,890	4,500	n/a	PASS
26	0,096				0,106				
27	0,186	6,208	3,000	n/a	0,200	4,441	4,500	n/a	PASS
28	0,090				0,098				
29	0,153	5,092	3,000	n/a	0,176	3,908	4,500	n/a	PASS
30	0,090				0,098				
31	0,274	9,125	3,000	n/a	0,289	6,422	4,500	n/a	PASS
32	0,095				0,106				
33	0,301	10,034	3,000	n/a	0,320	7,115	4,500	n/a	PASS
34	0,092				0,105				
35	0,241	8,031	3,000	n/a	0,256	5,680	4,500	n/a	PASS
36	0,093				0,103				
37	0,236	7,882	3,000	n/a	0,258	5,723	4,500	n/a	PASS
38	0,094				0,105				
39	0,251	8,369	3,000	n/a	0,268	5,954	4,500	n/a	PASS
40	0,093				0,105				

Note: Harmonic currents less than 0.6 % of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

TEST

Limit Voltage Fluctuations and Flicker Emissions

Reference Document: IEC 61000-3-3

Test Setup:

Test Location:

Test Equipment used for test:

Measurement Uncertainty

In acc. to ref. doc.

RadioMotive s.r.l.

Digital Power Analyzer DPA 500N

Elettrotres TPS/M

2,681dB

Test conditions:	Measured
Ambient temperature: 23°C ±5°C	24 °C
Ambient humidity: 25 – 75 %rH	45 %
Pressure: 85 – 106 kPa – (860 mbar – 1060 mbar)	960 mbar
Voltage	230V ~ 50Hz

Operating Condition (Rif. Section 4): #1

Test results: WITHIN THE LIMITS

LINE: AC MAINS

Flicker Measurements Settings	
Main Line:	230V, 50Hz
Flicker Meter:	230V / 50Hz
Flicker Impedance:	Zref
Observation Time:	1 × 10 min
Measurements:	1

Flicker Measurements					
	P _{st}	Max P _{st}	Max d _c	Max d _{max}	Max T _{max}
Line 1:	0,063	0,144	0,01	0,324	0
Limits:	0,65	1	3,3	4	0,5
Results:	PASS	PASS	PASS	PASS	PASS

Flicker Individual Measurements												
Measurement	P _{st} []			d _c [%]			d _{max} [%]			T _{max} [s]		
	Value	Limit	Result	Value	Limit	Result	Value	Limit	Result	Value	Limit	Result
#1	0,14	1,00	PASS	0,01	3,30	PASS	0,32	4,00	PASS	0,00	0,50	PASS

7 Photographic documentation

PHOTO 1 – EUT IDENTIFICATION



PHOTO 2 – CONDUCTED RADIO DISTURBANCES



PHOTO 3 – RADIATED EMISSIONS DISTURBANCES

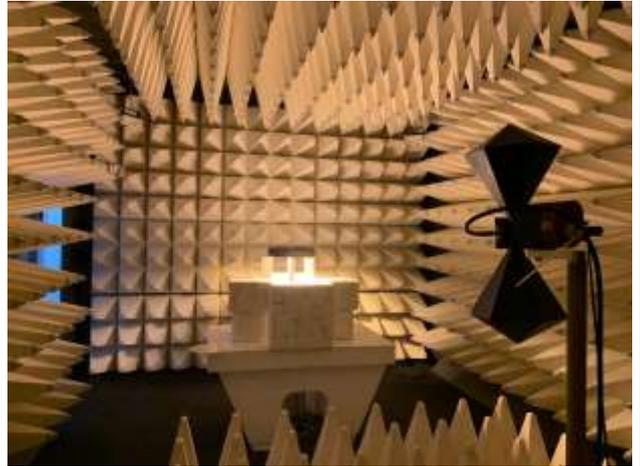


PHOTO 4– HARMONIC/Flicker DISTURBANCES





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