

TEST REPORT

No. AI16S0648150-01Rev.1

SURGE IMMUNITY TEST

performed in accordance with

- ☐ IEC 61000-4-5:2005
☒ EN 61000-4-5:2006
☐ CEI EN 61000-4-5:2007

PRODUCT	LED Luminaire
MODEL TESTED	6999.036.A01
TRADE MARK	NERI
APPLICANT	NERI S.p.A. Via Emilia, 1622 - 47020 Longiano (FC) - Italy

Tested by	Painini P. <i>[Laboratory technician]</i>	
Approved by	Mastrodomenico G. <i>[Laboratory manager]</i>	

Revision Sheet

Release No.	Date	Revision Description
Rev. 0	2017-05-12	First edition Digital signed - AI16S0648150-01_TR EN61000-4-5_SURGE_NERI
Release No.	Date	Revision Description
Rev. 1	2017-06-07	First edition Digital signed - AI16S0648150-01_TR EN61000-4-5_SURGE_NERI_Rev.1 The Rev.1 of this test report has been issued on June 07, 2017 to cover different Performance Criteria (B instead of C) on page 9.

1. GENERAL DATA

SAMPLE		
Samples received on	2017-05-08	(item sent and sampling by applicant)
IMQ reference samples	BEM	86284
Samples tested No.	1	
Object under analysis recognition	Not carried out	
Remark:	Except where stated, characteristics of products were taken from client description and were not verified by the laboratory	
Date of acceptance of test item	2017-05-08	
TEST LOCATION		
Testing dates	2017-05-10 ÷ 2017-05-10	
Testing laboratory	IMQ S.p.A. - Via Quintiliano, 43 – I – 20138 Milano	
Testing site	Via Quintiliano, 43 – I – 20138 Milano	
ENVIRONMENTAL CONDITIONS		
Parameter	Range	
Ambient Temperature	20 ÷ 25 °C	
Relative Humidity	50 ÷ 60 %	
Atmospheric Pressure	900 ÷ 1000 mbar	
Remark: Our EMC laboratory is monitored by a continuous environmental conditions measurements system. Temperature and humidity data are recorded on a weekly basis and stored in local archive. Pressure is measured by a local sensor.		

2. REFERENCE DOCUMENT

DOCUMENT		DATE	TITLE
<input type="checkbox"/>	IEC 61000-4-5	2005	Electromagnetic Compatibility (EMC) Part 4-5: Testing and measurement techniques Surge immunity test
<input checked="" type="checkbox"/>	EN 61000-4-5	2006	Electromagnetic Compatibility (EMC) Part 4-5: Testing and measurement techniques Surge immunity test
<input type="checkbox"/>	CEI EN 61000-4-5	2 nd ed. 2007	Electromagnetic Compatibility (EMC) Part 4-5: Testing and measurement techniques Surge immunity test

3. EQUIPMENT UNDER TEST (EUT) DETAILS

MODEL (basic)	Description		
Art. 6999.036.A01	LED street lighting equipment 230V 73W Class II IP66		
	Light source	LED	LED Driver
	32 LED 3000 K	CREE XP-G3	Philip Xi LP 75W 0.3-1.0A S1 230V S240 sXt
VARIANTS (derived)	Description		
The samples mod. 6999.036.A01 have been selected for the tests as it represent the most onerous condition. The evaluation of the luminaires is extended to all the luminaires concerning the series:			
Art. 6999.036.B01	LED street lighting equipment 230V 54W Class II IP66		
	Light source	LED	LED Driver
	24 LED 3000 K	CREE XP-G3	Philip Xi LP 75W 0.3-1.0A S1 230V S240 sXt
Art. 6999.036.B02	LED street lighting equipment 230V 48W Class II IP66		
	Light source	LED	LED Driver
	24 LED 4000 K	CREE XP-G3	Philip Xi LP 75W 0.3-1.0A S1 230V S240 sXt

Art. 6999.030.Axx	LED street lighting equipment 230V 73W Class II IP66		
	<i>Light source</i>	<i>LED</i>	<i>LED Driver</i>
	32 LED 3000K or 4000 K	CREE XP-G3	Philip Xi LP 75W 0.3-1.0A S1 230V S240 sXt
xx:= progressive number to identifies different customization like "photometric distribution" or "CCT" or energy saving function not related to immunity of product			
Art. 6999.030.Bxx	LED street lighting equipment 230V 48W Class II IP66		
	<i>Light source</i>	<i>LED</i>	<i>LED Driver</i>
	20 LED 3000K or 4000 K	CREE XP-G3	Philip Xi LP 75W 0.3-1.0A S1 230V S240 sXt
xx:= progressive number to identifies different customization like "photometric distribution" or "CCT" or energy saving function not related to immunity of product			

MANUFACTURER	NERI S.p.A. Via Emilia, 1622 - 47020 Longiano (FC) - Italy
ASSEMBLY PLANT	NERI S.p.A. Via Emilia, 1622 - 47020 Longiano (FC) - Italy

EUT IDENTIFICATION

EUT type	Lighting equipment appliance
EUT description	Led Luminaire for road and street lighting
EUT classification	Insulation class II
EUT standing	Fixed, Pole mounting
EUT single or system	Single

EUT TECHNICAL DATA

Parameters	Value
Supply Voltage IN	1/N AC 230V
Supply Voltage OUT	/
Frequency	50/60 Hz
Power	73W (art.6999.036.A01)
Ambient rating	/

EUT CONFIGURATION

The following peripheral devices and interface cables were connected during the measurement: none

Port	Name	Type (*)	Cable max. >3m	Cable Shielded	Comments
0	Enclosure	N/E	—	—	None
1	AC Mains	AC	Yes	No	None
2	DC Mains	DC	—	—	None
3	Load	LP	—	—	None
4	Control	CP	—	—	None
(*) Note: AC = AC Power Port DC = DC Power Port N/E = Non-Electrical LP = Load ports (Not Involved in Process Control) CP = Control Ports					

MODE OF OPERATION DURING THE TESTS

Ref.	Mode	Description
<input checked="" type="checkbox"/> #1	Normal operation	LEDs ON

ELECTROMAGNETICALLY RELEVANT COMPONENTS: /

4. PERFORMANCE CRITERIA

Immunity performance criteria

The test results is classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance level defined by the manufacturer or the requestor of the test, or agreed between the manufacturer and the purchaser of the product.

- A. normal performance within limits specified by the manufacturer, requestor or purchaser;
- B. temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention;
- C. temporary loss of function or degradation of performance, the correction of which requires operator intervention;
- D. loss of function or degradation of performance which is not recoverable, owing to damage to hardware or software, or loss of data.

EUT PERFORMANCE ASSESSMENT

As declared by manufacturer:

Primary function	The EUT is a LED lighting equipment
Representative parameter	The EUT shall continue to perform as intended
Acceptable level of performance	As standard requirements

5. SUMMARY OF TEST RESULTS

POSSIBLE TEST CASE VERDICTS:	
Test object does meet the requirement	PASS
Test object does not meet the requirement	FAIL

PORT	ENVIRONMENTAL PHENOMENON	RESULT
AC mains	Surge immunity test	PASS

6. RESULTS

SURGE IMMUNITY TEST

TEST REQUIREMENT	
Reference standard	EN 61000-4-5
Test set-up	§ 7
IMQ operational instruction	FL-EM80-I08 + FL-EM80-I11
Test procedure	EN 61000-4-5 § 8.2
Deviation to test procedure	None
EUT operating condition	#1, during the test the EUT enclosure was connected to PE (Protective Earth), to simulate the real installation.

art. 6999.036.A01

Port under test	Mode	Test voltage (kV)	Repetition rate	Phase angle	Polarity		Perf. criteria	Results
					+	-		
AC mains	<input checked="" type="checkbox"/> Common L-PE and N-PE	10	1 per minute (5 pulse)	90°	x		B	PASS
				270°		x		
	<input checked="" type="checkbox"/> Differential N-L	6	1 per minute (5 pulse)	90°	x		B	PASS
				270°		x		

REMARKS

The tested sample complies with the performance criteria and continues to operate as intended during and after the test.

7. MEASUREMENTS AND TESTS UNCERTAINTY

The reported expanded uncertainty are in accordance with IMQ Internal procedure No. IO-80-U01.

The expanded uncertainty was calculated for all measurements and tests listed in this test report according to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements", with UKAS document LAB 34 and is documented in the quality system accordance to ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device

8. MEASUREMENT EQUIPMENT AND INSTRUMENTATION

Surge immunity test			
Instrument	Manufacturer	Model	IMQ Ref.
<input checked="" type="checkbox"/> Surge generator	EMC PARTNER	MIG 1206-1P	S-07044

9. PHOTOGRAPHIC DOCUMENTATION

EUT IDENTIFICATION

EUT



EUT (internal)



END OF TEST REPORT