



A functionally optimised modern LED luminaire that complements the URBINO LED luminaire family in an environmentally responsible way with solutions for lower power and flux points.

- Possible illuminance control
- Modern design
- Simple one person mounting
- Reliability



Other pictures



| Code | Type of optics | Luminaire power [W] | Lumen luminaire [lm] | Efficacy [lm/W] | Colour temperature [K] | CRI/Ra | Operating temperature range [°C] |
|----------------------|----------------|---------------------|----------------------|-----------------|------------------------|--------|----------------------------------|
| 130782.7L122.110.049 | O11 | 30 | 4300 | 143 | 4000 | >70 | -35 ... +50 |
| 130782.7L122.130.006 | O13 | 30 | 4250 | 141 | 4000 | >70 | -35 ... +50 |
| 130782.7L122.140.017 | O14 | 26 | 4000 | 153 | 4000 | >70 | -35 ... +50 |
| 130782.7L122.110.050 | O11 | 39 | 5600 | 143 | 4000 | >70 | -35 ... +50 |
| 130782.7L122.120.005 | O12 | 39,5 | 5650 | 143 | 4000 | >70 | -35 ... +50 |
| 130782.7L242.130.010 | O13 | 50 | 7400 | 148 | 4000 | >70 | -35 ... +40 |

Technical data

Mounting

on pillar $\varnothing 60/40$ mm, on outriggers $\varnothing 60/40$ mm

Body colour

gray

Optimum operating temperature

25°C

RAL

7035

Body

high pressure die-cast aluminum

Lateral Surface Wind Exposed

0.035 m²

Electrical data

Power supply efficiency

$\geq 93\%$

Power

220-240V 50/60Hz
(permissible range 198-242 V)

Includes light source

yes

Type of equipment

D4i

Optical data

Way of lighting

direct

Type of optic

O11, O12, O13, O14

Diffuser

tempered glass

Colour temperature [K]

4000

CRI/Ra

> 70

MacAdam's steps

3

ULOR / DLOR

0% / 100%

Photobiological risk group

RG1

General data

Additional information

the standard version of the luminaire is corrosion resistant according to class C4, Tool-free access to the power supply, ZHAGA*, Corrosion protection, NTC, Power cable 2x1.5 mm² - 1.5m, 10kV surge protection, power supply with dimming function from 100% to 50% in 10% steps, power supply with protection against voltage fluctuations, overvoltage, temperature and overload, THD $< 8\%$, internal marking of the luminaire (manufacturer's name, model number, year of manufacture, rated voltage, rated frequency, luminaire power, colour temperature)

Other remarks

the pole and boom are not part of the luminaire

Lifetime LED L90

100 000 h

Warranty

10 years

*Pictures and dimensions of the standard luminaire (does not include the ZHAGA socket).

Changing the power supply model* does not affect the luminous flux behaviour tolerance (+/-10%) and luminaire power consumption +/-5% (*While maintaining the same current settings)

In order to apply the luminaire in an aggressive environment, for example with an increased concentration of sulfur, salt or other aggressive substances, a consultation with the LUG Technical Preparation of Production Branch is required.

Luminous flux tolerance +/- 10%.

Power tolerance +/- 5%.

Lighting beam, light intensity distribution and light efficiency were examined in accordance with the EN ISO 17025:2005 norm for EN13032 norm series and the LM-79 norm.

General Warranty Terms available on our website www.luglightfactory.com

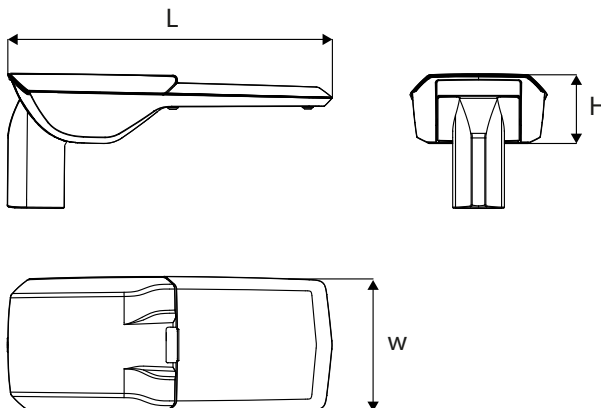
Detailed information on luminous fluxes and powers for individual indexes are indicated on the product data sheet.

The parameters in the data sheet are given for $T_a=25^\circ\text{C}$.

The operating temperature ranges apply only to luminaires used in the outdoor environment.

Colour temperature tolerance +/- 5%.

Dimensions

| Dimensions* [mm] LxWxH | Pallet quantity | Quantity in package | Net weight [kg] |  | |
|---------------------------|--------------------|------------------------|--------------------|--|--|
| 470x200x100 | 60 | 1 | 4.45 | | |

Accessories



770020.001 eBLOC-N Controller - Thread communication



770020.002 eBLOC-N Controller - Thread communication + GNSS location



770020.004 eBLOC-N Controller - LTE Cat M1/2G communication + GNSS location



770030.001 eBLOC-Z Controller - Thread communication



770030.002 eBLOC-Z Controller - Thread communication + GNSS location



770030.004 eBLOC-Z Controller - LTE Cat M1/2G communication + GNSS location



790013.001 HUBloT-1 EU pole mounted



790013.002 HUBloT-1 EU surface-mounted



790013.003 HUBloT-1 EU Ethernet pole mounted



790013.004 HUBloT-1 EU Ethernet surface-mounted



790013.101 HUBloT-1 Global pole mounted



790013.102 HUBloT-1 Global surface-mounted



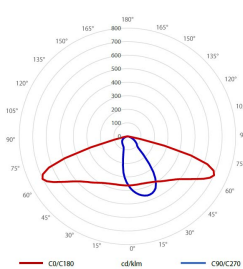
790013.103 HUBloT-1 Global Ethernet pole mounted



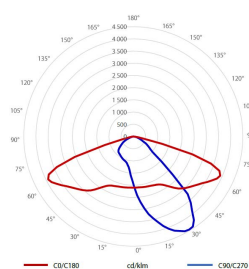
790013.104 HUBloT-1 Global Ethernet surface-mounted

Light beam curves

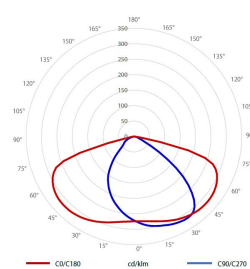
O11



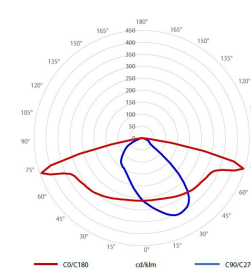
O12



O13



O14





AB 003



**TEST REPORT
IEC CISPR15**

Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

Report Number..... : B10-4/098/EMC/22

Date of issue : 2022-09-22

Total number of pages : 65

Name of Testing Laboratory preparing the Report : Łukasiewicz - IMiF PREDOM Division
02-255 Warszawa, ul. Krakowiaków 53, Poland

Applicant's name : LUG Light Factory Sp. z o.o.
Address : 65-127 Zielona Góra, ul. Gorzowska 11, Poland

Test specification:

Standard : PN-EN IEC 55015:2019-11+A11:2020-07, PN-EN 61547:2009,
PN-EN IEC 61000-3-2:2019-04+A1:2021-08
PN-EN 61000-3-3:2013-10+A1:2019-10
EN IEC 55015:2019+A11:2020, EN 61547:2009,
EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019,
CISPR 15:2018, IEC 61547:2009,
IEC 61000-3-2:2018+AMD1:2020, IEC 61000-3-3:2013+AMD1:2017

Test procedure..... : EMC

Non-standard test method..... : N/A

Test Report Form No. : PREDOM IEC CISPR15_ IEC 61547/21

Test Report Form(s) Originator.... : Łukasiewicz - IMiF PREDOM Division
02-255 Warszawa, ul. Krakowiaków 53, Poland





Master TRF : Dated 2022-01

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General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing Testing Laboratory.

| | | |
|---|---|--|
| Test item description | Luminaire for road and street lighting | |
| Trade Mark(s) |  | |
| Original Product/Equipment Manufacturer | LUG Light Factory Sp. z o.o. 65-127 Zielona Góra, ul. Gorzowska 11, Poland | |
| Branding Manufacturer(s) | LUG | |
| Model/Type reference | 130772.3L231.010 URBINO LED S ED DALI 8950lm/730 IP66 O1 szary I kl. | |
| Ratings | 220-240 V 50/60 Hz 1 x max 74 W IP66 cl. I | |
| Responsible Testing Laboratory (as applicable), testing procedure and testing location(s): | | |
| <input checked="" type="checkbox"/> | Testing Laboratory: | Łukasiewicz - IMiF PREDOM Division |
| Testing location/ address | | 02-255 Warszawa, ul. Krakowiaków 53, Poland |
| Tested by (name, function, signature) | | Marek Gabryszewski  |
| Approved by (name, function, signature) .. | | Tomasz Małyska  |
| Supervised by (name, function, signature): | | Filip Walczak  |
| <input type="checkbox"/> | Testing procedure: CTF Stage 1: | |
| Testing location/ address | | |
| Tested by (name, function, signature) | | |
| Approved by (name, function, signature) .. | | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 2: | |
| Testing location/ address | | |
| Tested by (name + signature) | | |
| Witnessed by (name, function, signature) . | | |
| Approved by (name, function, signature) .. | | |

| | | |
|---|---------------------------------|---|
| <input type="checkbox"/> | Testing procedure: CTF Stage 3: | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 4: | |
| Testing location/ address | | : |
| Tested by (name, function, signature) | | : |
| Witnessed by (name, function, signature) .. | | : |
| Approved by (name, function, signature) .. | | : |
| Supervised by (name, function, signature) : | | : |

| | |
|---|---|
| List of Attachments (including a total number of pages in each attachment): N/A | |
| Summary of testing: Tests results - Positive | |
| <i>According to ISO / IEC Guide 98-4 for the assessment of compliance of the measurement result with the requirements, criterion B was chosen. 50% risk of incorrect assessment decision belongs to the customer and 50% risk of incorrect assessment belongs to the laboratory.</i> | |
| Tests performed (name of test and test clause): Conducted EMISSIONS (4.3) Radiated electromagnetic disturbances (4.5.2) Radiated EMISSIONS (4.5.3) Harmonic Currents (7) Voltage Fluctuations and Flicker (5) Electrostatic Discharges (5.2) RF Electromagnetic Fields (5.3) Power frequency magnetic fields (5.4) Electrical Fast Transients (5.5) Conducted Disturbances Induced by RF Fields (5.6) Surge (5.7) Voltage Dips and short Interruptions (5.8) | Testing location: Łukasiewicz - IMiF PREDOM Division 02-255 Warszawa, ul. Krakowiaków 53, Poland |
| Summary of compliance with National Differences (List of countries addressed): N/A | |
| Statement concerning the uncertainty of the measurement systems used for the tests no required (N/A) | |
| <input checked="" type="checkbox"/> Internal procedure used for type testing through which traceability of the measuring uncertainty has been established: Procedure number, issue date and title: General concept of methodologies for determining uncertainty of measurement, dated: October 2013 Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing. | |
| <input type="checkbox"/> Statement not required by the standard used for type testing | |

Copy of marking plate:



| | |
|---|--|
| Test item particulars : For test item particulars refer to item 1 | |
| Classification of installation and use : Luminaire for road and street lighting | |
| Supply Connection : Power connector | |
| Possible test case verdicts: | |
| - test case does not apply to the test object..... : N/A | |
| - test object does meet the requirement..... : P (Pass) | |
| - test object does not meet the requirement..... : F (Fail) | |
| Testing: | |
| Date of receipt of test item : 2022-09-07 | |
| Date (s) of performance of tests : 2022-09-07 ÷ 2022-09-20 | |
| General remarks: | |
| "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. | |
| Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator. | |
| Manufacturer's Declaration per sub-clause 4.2.5 of IEC 61010-2: | |
| The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable |
| When differences exist; they shall be identified in the General product information section. | |
| Name and address of factory (ies) : LUG Light Factory Sp. z o.o. 65-127 Zielona Góra, ul. Gorzowska 11, Poland | |
| General product information (GPI) and other remarks: | |
| The results in this report reflect the results for that specific model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the requirements detailed in this report. According to the information from our Applicant, the tests were done on 230 V / 50 Hz supply. | |

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1 General description of test item(s)

| | | | | | |
|---|---|---|---|--|--|
| Description | Luminaire for road and street lighting | | | | |
| Model number | 130772.3L231.010 URBINO LED S | | | | |
| Serial number | N/A | | | | |
| Brand name | LUG | | | | |
| Ports | Port name and description | Cable | | | |
| | | Specified length [m] | Attached during test | Shielded | |
| Local wired ports | Mains, Supply Connection: power cord | 0.8 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| Wired network ports | N/A | | <input type="checkbox"/> | <input type="checkbox"/> | |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| Supplemental information to the ports | N/A | | | | |
| Rated power supply | | Voltage and frequency | 1 ph/ PE | 2 ph/N/PE | 3 ph/N/PE |
| | <input checked="" type="checkbox"/> | AC: 230 V / 50 Hz | <input checked="" type="checkbox"/> / <input checked="" type="checkbox"/> | <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> | <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> |
| | <input type="checkbox"/> | DC: | | | |
| Rated power | 1 x max 74 W | | | | |
| Protection class | cl. I | | | | |
| Clock frequencies | No available data for these selection criteria | | | | |
| Other parameters | See page 4 | | | | |
| Software version | of 08_2022 | | | | |
| Hardware version | of 08_2022 | | | | |
| Dimensions in mm (W x H x D): | 475 x 105 x 195 | | | | |
| Mounting position | <input type="checkbox"/> | Table top equipment | | | |
| | <input type="checkbox"/> | Wall/Ceiling mounted equipment | | | |
| | <input type="checkbox"/> | Floor standing equipment | | | |
| | <input type="checkbox"/> | Hand-held equipment | | | |
| | <input checked="" type="checkbox"/> | Other: In accordance with the manufacturer's instructions | | | |
| Modules / parts | Module / parts of test item | Type | | Manufacturer | |
| | <i>See section Annex A</i> <i>Supplementary information: See section Annex B</i> | | | | |

| | | | | |
|---|--------------------|--|-------------------------------------|-------------------------------------|
| Operating modes | No. | Operating mode of test item | Applied for testing | |
| | | | Emission | Immunity |
| | 1 | Powered by 230 VAC 50 Hz, in accordance with the manufacturer's instructions | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| | 2 | Powered by 120 VAC 60 Hz, in accordance with the manufacturer's instructions | <input type="checkbox"/> | <input type="checkbox"/> |
| | 3 | EUT with battery power Powered by ...VDC (built-in battery), in accordance with the manufacturer's instructions | <input type="checkbox"/> | <input type="checkbox"/> |
| Supplemental information to the operating modes | N/A | | | |
| Accessories (not part of the test item) AE | Accessory | Type | Manufacturer | |
| | N/A | N/A | N/A | |
| | | | | |
| | | | | |
| Documents as provided by the applicant | Description | File name | Issue date | |
| | N/A | N/A | N/A | |
| | | | | |
| | | | | |
| | | | | |
| Modifications to the test item during testing | N/A | | | |

1.1 Description of test item(s) according to CISPR 15 and IEC 61000-3-2

| | | |
|------------------------------------|-------------------------------------|---|
| Description of the test item | <input checked="" type="checkbox"/> | Luminaire |
| | <input type="checkbox"/> | Rope light (6.3) |
| | <input type="checkbox"/> | Internal Module (6.4.3) |
| | <input type="checkbox"/> | External module (6.4.4) |
| | <input type="checkbox"/> | Module having multiple applications (6.4.2) |
| | <input type="checkbox"/> | Single capped self-ballasted lamp (6.4.5) |
| | <input type="checkbox"/> | Double-capped self-ballasted lamps, double-capped lamp adapters, double-capped semi-luminaires and double-capped retrofit lamps used in fluorescent lamp luminaires (6.4.6) |
| | <input type="checkbox"/> | ELV lamps (6.4.7) |
| | <input type="checkbox"/> | Single-capped semi-luminaires (6.4.8) |
| | <input type="checkbox"/> | Independent igniter (6.4.9) |
| | <input type="checkbox"/> | Replaceable starters for fluorescent lamps (6.4.10) |
| | <input type="checkbox"/> | Others: LED converter |
| Lamp technology used | <input checked="" type="checkbox"/> | Light emitting diode (LED/OLED) |
| | <input type="checkbox"/> | High pressure discharge lamp (HID) |
| | <input type="checkbox"/> | Fluorescent lamp |
| | <input type="checkbox"/> | Tungsten halogen lamp |
| | <input type="checkbox"/> | Incandescent lamp |
| | <input type="checkbox"/> | Others: --- |
| Control Gear | <input checked="" type="checkbox"/> | Electronic control gear |
| | <input type="checkbox"/> | Magnetic control gear / transformer |
| | <input type="checkbox"/> | Others: --- |

| | | |
|----------------|-------------------------------------|--|
| Dimming..... : | <input checked="" type="checkbox"/> | Test item has NO dimming functions |
| | <input type="checkbox"/> | Test item includes dimming functions other than phase control |
| | <input type="checkbox"/> | Test item has phase control dimming functions with the following characteristic(s): |
| | <input type="checkbox"/> | rated power less than or equal to 1 kW when operating incandescent lamps |
| | <input type="checkbox"/> | rated power less than or equal to 200 W for trailing edge dimmers, and universal phase control dimmers with the default mode set to trailing edge, when operating lighting equipment other than incandescent lamps |
| | <input type="checkbox"/> | rated power less than or equal to 100 W for leading edge dimmers, and universal phase control dimmers without default mode set to trailing edge, when operating lighting equipment other than incandescent lamps |
| | <input type="checkbox"/> | Other: --- |

| | | |
|--------------------------|-------------------------------------|--------------------------|
| Type of equipment..... : | <input checked="" type="checkbox"/> | Not for professional use |
| | <input type="checkbox"/> | For professional use |
| | <input type="checkbox"/> | Others: Supply power |

1.2 Photos of the test item

Photo of test item:



Photo of test item:



Photo of test item:



2 Verdict summary section

| CISPR15 | | | |
|---|--|--|----------------|
| Clause | Requirement – Test case | Basic standard | Verdict |
| 4.3 | Assessment of wired network ports Table 1, Table 2, Table 3 | CISPR 16-1-1:2019 CISPR 16-1-2:2014+AMD1:2017 | Pass |
| 4.4 | Assessment of local wired ports Table 4, Table 5, Table 6 | CISPR 16-2-1:2014+AMD1:2017 CISPR 32:2015+AMD1:2019 | N/A |
| 4.5 | Assessment of the enclosure port | --- | --- |
| 4.5.2 | Frequency range 9 kHz to 30 MHz Table 8, Table 9 | CISPR 16-1-4:2019+AMD1:2020 CISPR 15:2018 | Pass |
| 4.5.3 | Frequency range 30 MHz to 1 GHz Table 10 | CISPR 16-2-3:2016+AMD1:2019 | Pass |
| IEC 61000-3-2 | | | |
| Clause | Requirement – Test case | Basic standard | Verdict |
| 6.2 6.3 | Harmonic current emissions | IEC 61000-3-2:2018+AMD1:2020 IEC 61000-4-7:2002+AMD1:2008 | Pass |
| IEC 61000-3-3 | | | |
| Clause | Requirement – Test case | Basic standard | Verdict |
| 4 | Voltage changes, voltage fluctuations and flicker | IEC 61000-3-3:2013+AMD1:2017 IEC 61000-4-15:2010 | Pass |
| IEC 61547 | | | |
| Clause | Requirement – Test case | Basic standard | Verdict |
| 5.2 | Electrostatic discharge | IEC 61000-4-2:2008 | Pass |
| 5.3 | Radio-frequency electromagnetic fields | IEC 61000-4-3:2020 | Pass |
| 5.4 | Power frequency magnetic fields | IEC 61000-4-8:2009 | Pass |
| 5.5 | Fast transients | IEC 61000-4-4:2012 | Pass |
| 5.6 | Injected currents (radio-frequency common mode) | IEC 61000-4-6:2013 | Pass |
| 5.7 | Surges | IEC 61000-4-5:2014+AMD1:2017 | Pass |
| 5.8 | Voltage dips and short interruptions | IEC 61000-4-11:2020 | Pass |
| Supplementary information: | | | |
| According to ISO / IEC Guide 98-4 for the assessment of compliance of the measurement result with the requirements, criterion B was chosen. 50% risk of incorrect assessment decision belongs to the customer and 50% risk of incorrect assessment belongs to the laboratory. | | | |

3 Test conditions

3.1 General

| | | | |
|--|---|-----------------|-----------------------------|
| Environmental reference conditions | The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits: | | |
| | Temperature | Humidity | Atmospheric pressure |
| | 15°C – 35°C | 30% – 60% | 860 hPa – 1060 hPa |
| | If explicitly required in the basic standard or applied product standard the climatic values are recorded and documented separately in this test report. | | |
| Measurement uncertainties | For all measurements where guidance for the calculation of the instrumentation uncertainty of a measurement is specified in CISPR 16-4-2 , IEC 61000-4 series or a product standard, the measurement instrumentation uncertainty has been calculated an applied in accordance with these standards. In all cases if the test laboratory uncertainty is larger than the value for UCISPR given in CISPR 16-4-2 the uncertainty are included in the test report annex. In case the standards in the IEC 61000-4 series or the product standard requires the indication of the uncertainty in the report these uncertainty values are included in the annex. | | |

3.2 Specific test conditions for CISPR 15

| | | |
|--|-------------------------------------|---|
| Test set up | <input checked="" type="checkbox"/> | CISPR 15 |
| | <input type="checkbox"/> | CISPR 30 technical report applied for built-in appliances |
| Type of test item (Clause 6.2 of CISPR 15)..... | <input checked="" type="checkbox"/> | Active EUT |
| | <input type="checkbox"/> | Passive EUT (Deemed to comply without further testing) |
| | <input type="checkbox"/> | Others: --- |
| Maximum clock frequency (Clause 3.2.2)..... *No available data for these selection criteria | <input type="checkbox"/> | ≤ 30 MHz → Measurement of radiated emissions up to 300 MHz is sufficient. |
| | <input checked="" type="checkbox"/> | > 30 MHz → Measurement of radiated emissions up to 1000 MHz is required. |

4 Emission

4.1 Conducted disturbances

| | | |
|---|---|---|
| Tested by | Marek Gabryszewski | |
| Test date | 2022-09-07 | |
| Test Location (stand) | Disturbance voltage stand Faraday Cage U-11 | |
| Test set-up description | <input type="checkbox"/> | Set-up Type A (40 cm distance to vertical ground plane, 80 cm o ground plane) |
| | <input checked="" type="checkbox"/> | Set-up Type B (40 cm distance to horizontal ground plane) |
| | <input type="checkbox"/> | Floor standing equipment set-up (10 cm over ground plane) |
| | <input type="checkbox"/> | Other: --- |
| | <input type="checkbox"/> | Artificial hand applied (See photo) |
| Supplementary Test set-up description | Operating mode: 1 | |
| Test method applied | <input checked="" type="checkbox"/> | Voltage disturbance measurement (Table 1, Table 2, Table 4, Table 5) |
| | <input type="checkbox"/> | Current disturbance measurement (Table 3, Table 6) |
| | <input type="checkbox"/> | Other: --- |
| Supplementary information..... | --- | |

Test set-up photo:



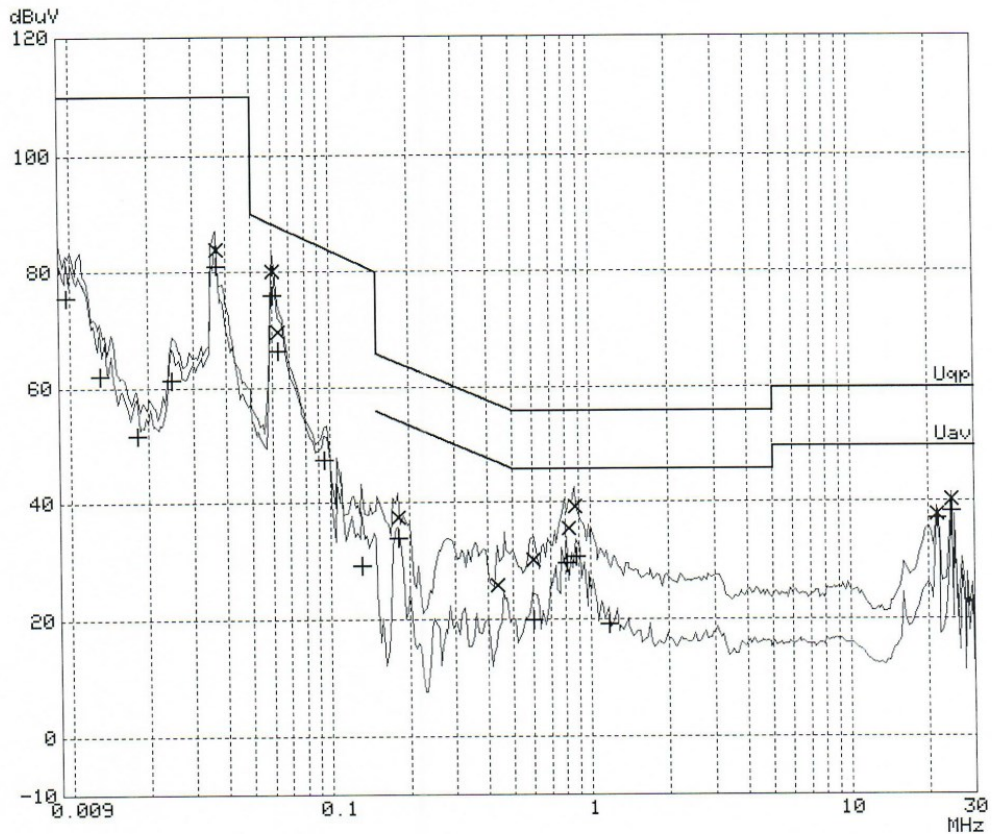
IMiF PREDOM Division Disturbance Voltage Measurement

EUT: URBINO LED S
 Manuf: LUG Light Factory Sp.z o.o.
 Test Spec: EN 55015
 Comment: phase L1
 File name: _55015_.RES
 Date: 07. Sep 22 12:01

Overview Scan Settings (2 Ranges)

| Frequencies | | | Receiver Settings | | | | |
|-------------|------|--------|-------------------|----------|--------|--------|--------|
| Start | Stop | Step | IF BW | Detector | M-Time | Atten | Preamp |
| 9k | 150k | 61.0Hz | 200Hz | PK+AV | 10ms | 60dBLN | OFF |
| 150k | 30M | 3.9k | 9k | PK+AV | 10ms | 15dBLN | OFF |

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 25dB



IMiF PREDOM Division Disturbance Voltage Measurement

EUT: URBINO LED S
 Manuf: LUG Light Factory Sp.z o.o.
 Test Spec: EN 55015
 Comment: phase L1
 File name: _55015_.RES
 Date: 07. Sep 22 12:01

Final Measurement Results:

Indicated Phase/PE shows Configuration of max. Emission

| Frequency MHz | QP Level dBuV | Delta Limit dB | Phase - | PE - |
|------------------|------------------|-------------------|------------|---------|
| 0.0365269 | 83.9 | -26.0 | N | gnd |
| 0.06015 | 80.2 | -8.2 | N | gnd |
| 0.06308 | 69.6 | -18.2 | L1 | gnd |
| 0.18125 | 37.5 | -26.9 | L1 | gnd |
| 0.43516 | 25.9 | -31.2 | N | gnd |
| 0.59922 | 30.1 | -25.9 | L1 | gnd |
| 0.82188 | 35.6 | -20.3 | N | gnd |
| 0.86484 | 39.4 | -16.6 | N | gnd |
| 21.50547 | 37.9 | -22.0 | L1 | gnd |
| 24.57578 | 40.4 | -19.5 | L1 | gnd |

| Frequency MHz | AV Level dBuV | Delta Limit dB | Phase - | PE - |
|------------------|------------------|-------------------|------------|---------|
| 0.0096714 | 75.6 | | L1 | gnd |
| 0.0129673 | 62.1 | | L1 | gnd |
| 0.0179722 | 52.0 | | N | gnd |
| 0.0245029 | 61.5 | | L1 | gnd |
| 0.0365269 | 81.1 | | N | gnd |
| 0.06015 | 76.0 | | N | gnd |
| 0.06308 | 66.5 | | L1 | gnd |
| 0.09439 | 47.7 | | L1 | gnd |
| 0.13089 | 29.2 | | N | gnd |
| 0.18125 | 33.9 | -20.5 | L1 | gnd |
| 0.59531 | 19.9 | -26.0 | L1 | gnd |
| 0.80234 | 29.6 | -16.3 | N | gnd |
| 0.87656 | 30.7 | -15.2 | N | gnd |
| 1.16953 | 19.2 | -26.7 | N | gnd |
| 21.50547 | 37.2 | -12.7 | L1 | gnd |
| 24.57578 | 38.4 | -11.5 | L1 | gnd |

* limit exceeded

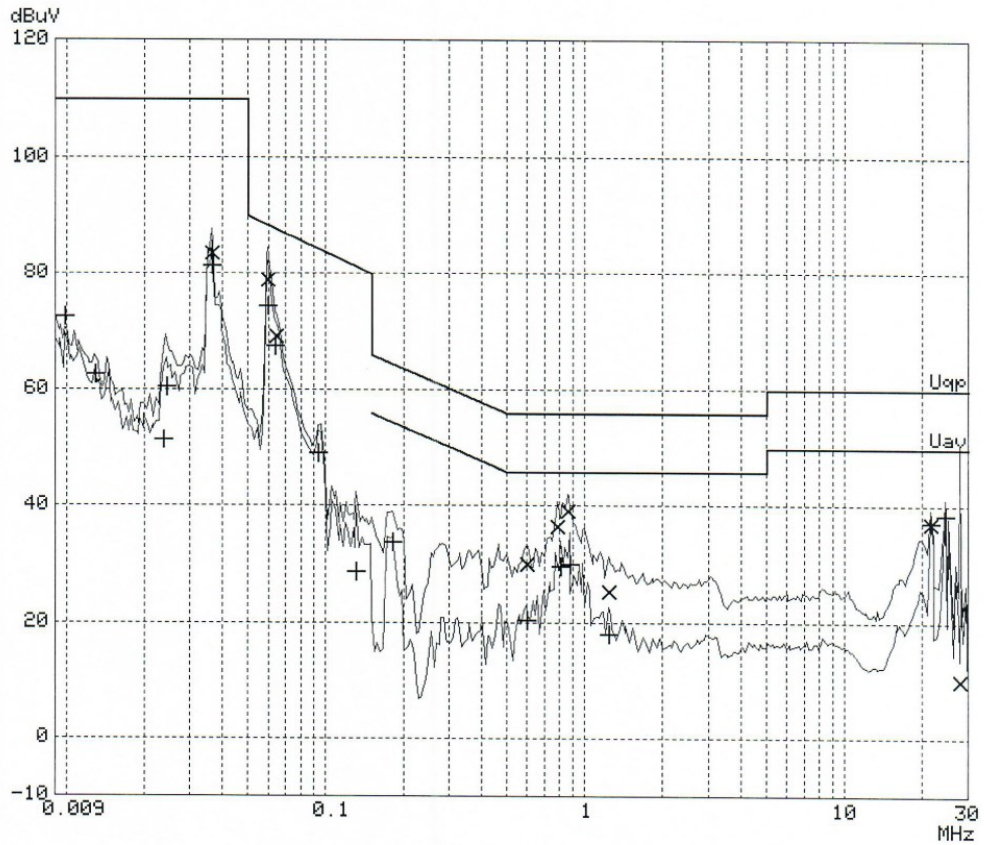
IMiF PREDOM Division Disturbance Voltage Measurement

EUT: URBINO LED S
 Manuf: LUG Light Factory Sp.z o.o.
 Test Spec: EN 55015
 Comment: phase N
 File name: _55015_.RES
 Date: 07. Sep 22 11:49

Overview Scan Settings (2 Ranges)

| Frequencies | | | Receiver Settings | | | | |
|-------------|------|--------|-------------------|----------|--------|---------|--------|
| Start | Stop | Step | IF BW | Detector | M-Time | Atten | Preamp |
| 9k | 150k | 61.0Hz | 200Hz | PK+AV | 10ms | 60dB LN | OFF |
| 150k | 30M | 3.9k | 9k | PK+AV | 10ms | 15dB LN | OFF |

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 25dB



IMiF PREDOM Division Disturbance Voltage Measurement

EUT: URBINO LED S
 Manuf: LUG Light Factory Sp.z o.o.
 Test Spec: EN 55015
 Comment: phase N
 File name: _55015_.RES
 Date: 07. Sep 22 11:49

Final Measurement Results:

Indicated Phase/PE shows Configuration of max. Emission

| Frequency MHz | QP Level dBuV | Delta Limit dB | Phase - | PE - |
|------------------|------------------|-------------------|------------|---------|
| 0.0363438 | 83.5 | -26.4 | N | gnd |
| 0.05972 | 78.8 | -9.5 | N | gnd |
| 0.06436 | 69.2 | -18.4 | N | gnd |
| 0.59531 | 29.9 | -26.0 | L1 | gnd |
| 0.78672 | 36.5 | -19.4 | N | gnd |
| 0.86094 | 39.1 | -16.8 | L1 | gnd |
| 1.23984 | 25.3 | -30.6 | N | gnd |
| 21.50156 | 37.0 | -22.9 | L1 | gnd |
| 27.94688 | 10.0 | -49.9 | L1 | gnd |

| Frequency MHz | AV Level dBuV | Delta Limit dB | Phase - | PE - |
|------------------|------------------|-------------------|------------|---------|
| 0.0098545 | 72.5 | | L1 | gnd |
| 0.0129063 | 62.7 | | L1 | gnd |
| 0.0235874 | 51.6 | | L1 | gnd |
| 0.0242588 | 60.6 | | L1 | gnd |
| 0.0364048 | 81.4 | | N | gnd |
| 0.05966 | 74.4 | | N | gnd |
| 0.06344 | 67.5 | | L1 | gnd |
| 0.09366 | 49.2 | | L1 | gnd |
| 0.13089 | 28.8 | | L1 | gnd |
| 0.18125 | 33.8 | -20.5 | L1 | gnd |
| 0.59531 | 20.5 | -25.4 | L1 | gnd |
| 0.80234 | 29.6 | -16.3 | N | gnd |
| 0.87266 | 29.9 | -16.0 | N | gnd |
| 1.23984 | 18.1 | -27.8 | L1 | gnd |
| 21.50547 | 37.1 | -12.8 | L1 | gnd |
| 24.57578 | 38.3 | -11.6 | L1 | gnd |

* limit exceeded

4.2 Radiated electromagnetic disturbances (9 kHz to 30 MHz)

| | | |
|--|---|---|
| Tested by | Marek Gabryszewski | |
| Test date | 2022-09-15 | |
| Test Location (stand) | Radiated electromagnetic disturbances (9 kHz to 30 MHz) stand | |
| Applied Limit for antenna measurement (Table 9) | <input type="checkbox"/> | Loop antenna radiated disturbance limit 9 kHz – 30 MHz for equipment with a dimension > 1.6 m |
| Applied limit according to LLAS diameter (Table 8) | <input checked="" type="checkbox"/> | 2 m for equipment length not exceeding 1.6 m |
| | <input type="checkbox"/> | 3 m for equipment length between 1.6 m and 2.6 m |
| | <input type="checkbox"/> | 4 m for equipment length between 2.6 m and 3.6 m |
| Test set-up description | <input checked="" type="checkbox"/> | Equipment placed in the centre of the LLAS |
| | <input type="checkbox"/> | Equipment on a table 80 cm height |
| | <input type="checkbox"/> | Equipment on the floor (isolated from ground plane) |
| | <input type="checkbox"/> | Other: --- |
| Supplementary test set-up description | Position: Vertical and Horizontal Operating mode: 1 | |
| Supplementary information | --- | |

Test set-up photo:



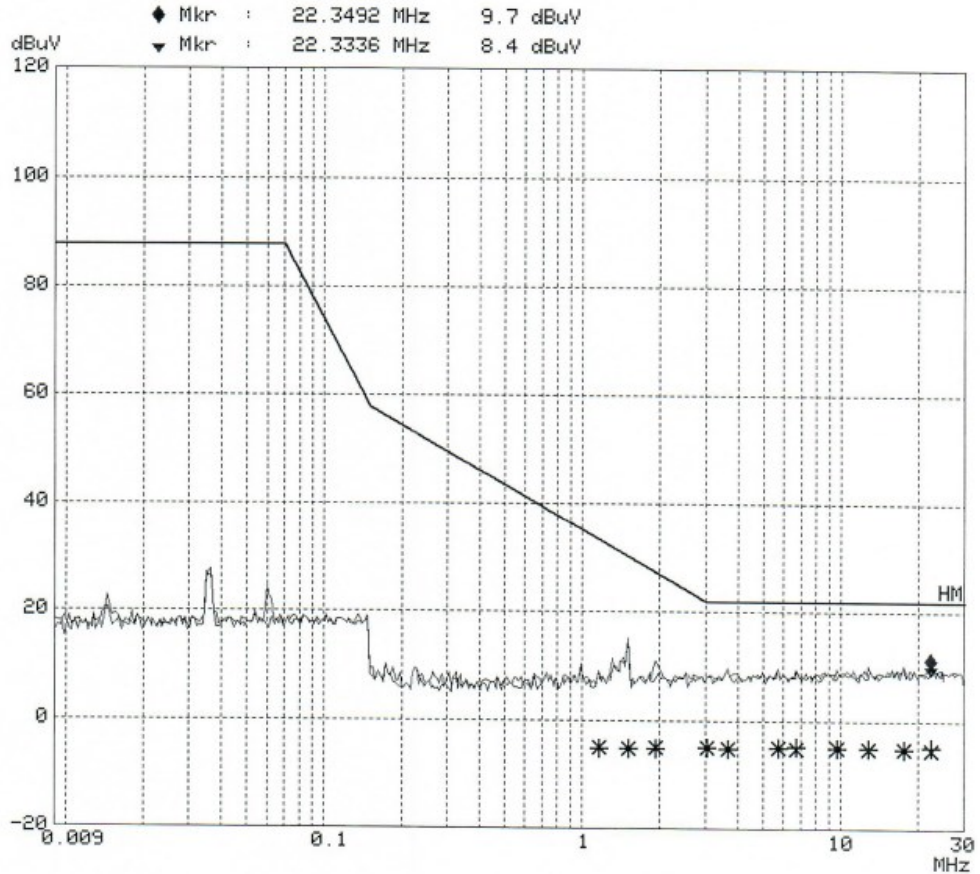
IMiF PREDOM Division Measurement of Radiation Disturbances

EUT: URBINO LED S
 Manuf: LUG Light Factory Sp. z o.o.
 Test Spec: EN 55015
 Comment: Vertical
 File name: 55015_V.RES
 Date: 15. Sep 22 07:35

Overview Scan Settings (2 Ranges)

| ----- Frequencies ----- | | | ----- Receiver Settings ----- | | | | |
|-------------------------|------|--------|-------------------------------|----------|--------|-------|---------|
| Start | Stop | Step | IF BW | Detector | M-Time | Atten | Preamp |
| 9k | 150k | 61.0Hz | 200Hz | PK | 10ms | 35dB | BLN OFF |
| 150k | 30M | 3.9k | 9k | PK | 10ms | 5dB | BLN OFF |

Final Measurement: x Hor-Max / + Vert-Max
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 25dB



IMiF PREDOM Division Measurement of Radiation Disturbances

EUT: URBINO LED S
 Manuf: LUG Light Factory Sp. z o.o.
 Test Spec: EN 55015
 Comment: Vertical
 File name: 55015_V.RES
 Date: 15. Sep 22 07:35

Final Measurement Results:

| Frequency MHz | QP Level hor. dBuV | QP Level vert. dBuV | Delta Limit dB |
|------------------|-----------------------|------------------------|-------------------|
| 1.16172 | -4.7 | -5.0 | -38.3 |
| 1.50938 | -4.9 | -5.0 | -35.3 |
| 1.91953 | -4.8 | -4.9 | -32.3 |
| 3.02109 | -4.8 | -4.8 | -26.8 |
| 3.64609 | -5.0 | -4.9 | -26.9 |
| 5.69688 | -4.8 | -4.8 | -26.8 |
| 6.70469 | -4.9 | -4.7 | -26.7 |
| 9.68125 | -4.8 | -4.8 | -26.8 |
| 12.81797 | -4.9 | -4.8 | -26.8 |
| 17.50938 | -5.0 | -5.0 | -27.0 |
| 22.34922 | -5.1 | -4.6 | -26.6 |

* limit exceeded

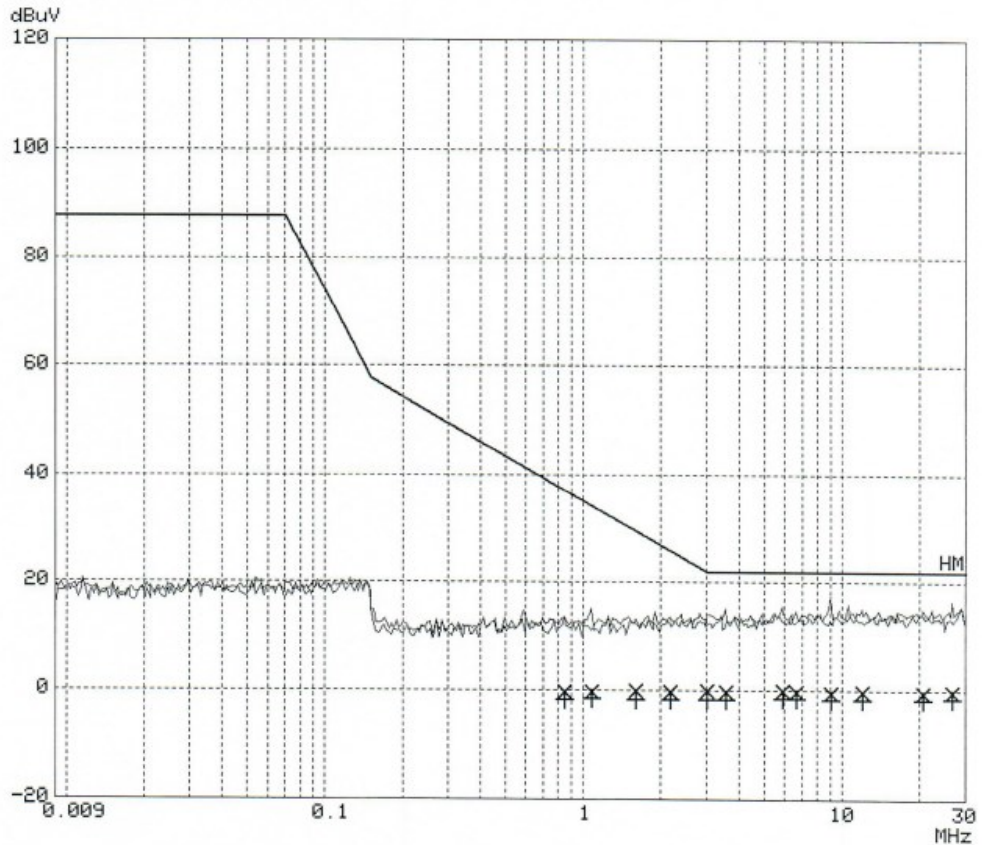
IMiF PREDOM Division Measurement of Radiation Disturbances

EUT: URBINO LED S
 Manuf: LUG Light Factory Sp. z o.o.
 Test Spec: EN 55015
 Comment: Horizontal
 File name: 55015_H.RES
 Date: 15. Sep 22 07:51

Overview Scan Settings (2 Ranges)

| Frequencies | | | Receiver Settings | | | | |
|-------------|------|--------|-------------------|----------|--------|--------|--------|
| Start | Stop | Step | IF BW | Detector | M-Time | Atten | Preamp |
| 9k | 150k | 61.0Hz | 200Hz | PK | 10ms | 35dBLN | OFF |
| 150k | 30M | 3.9k | 9k | PK | 10ms | 10dBLN | OFF |

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 25dB



IMiF PREDOM Division Measurement of Radiation Disturbances

EUT: URBINO LED S
 Manuf: LUG Light Factory Sp. z o.o.
 Test Spec: EN 55015
 Comment: Horizontal
 File name: 55015_H.RES
 Date: 15. Sep 22 07:51

Final Measurement Results:

| Frequency MHz | QP Level dBuV | Delta Limit dB |
|------------------|------------------|-------------------|
| 0.84531 | -0.1 | -37.6 |
| 1.07578 | -0.0 | -34.6 |
| 1.59141 | 0.0 | -29.6 |
| 2.16563 | -0.2 | -26.2 |
| 3.00938 | 0.1 | -21.8 |
| 3.55625 | -0.2 | -22.2 |
| 5.86094 | 0.0 | -21.9 |
| 6.65000 | -0.2 | -22.2 |
| 9.04844 | -0.3 | -22.3 |
| 11.92344 | -0.1 | -22.1 |
| 20.61094 | -0.2 | -22.2 |
| 26.67734 | -0.0 | -22.0 |

| Frequency MHz | AV Level dBuV | Delta Limit dB |
|------------------|------------------|-------------------|
| 0.84531 | -1.4 | |
| 1.07578 | -1.3 | |
| 1.59141 | -1.4 | |
| 2.16563 | -1.4 | |
| 3.00938 | -1.4 | |
| 3.55625 | -1.4 | |
| 5.86094 | -1.3 | |
| 6.65000 | -1.2 | |
| 9.04844 | -1.4 | |
| 11.92344 | -1.4 | |
| 20.61094 | -1.4 | |
| 26.67734 | -1.3 | |

* limit exceeded

4.3 Radiated electromagnetic disturbances (30 MHz to 1000 MHz)

| | | |
|---|--|--|
| Tested by | Marek Gabryszewski | |
| Test date | 2022-09-08 | |
| Test Location (stand) | Radiated electromagnetic disturbances stand Semi- anechoic chamber U-86 | |
| Applied limit class | <input checked="" type="checkbox"/> | Table 10 Radiated disturbance limits |
| | <input type="checkbox"/> | Other: --- |
| Test set-up description | <input checked="" type="checkbox"/> | Equipment on a table of 80 cm height |
| | <input type="checkbox"/> | Equipment on the floor (insulated from ground plane) |
| | <input type="checkbox"/> | Equipment located approximately in the middle of the validated test volume (FAR) |
| | <input type="checkbox"/> | Equipment on a 10 cm support over the ground plane according CDNE-Method |
| | <input type="checkbox"/> | Other: --- |
| Supplementary test set-up description | Operating mode: 1 | |
| Test method applied | <input type="checkbox"/> | CDN(E) |
| | <input checked="" type="checkbox"/> | OATS or SAC with measurement distance [m]: 10 |
| | <input type="checkbox"/> | FAR with measurement distance [m]: --- |
| | <input type="checkbox"/> | TEM Waveguide (test item without cables and max. 300 mm dimension) |
| | <input type="checkbox"/> | Other: --- |
| Supplementary information | --- | |

Test set-up photo:



EMC32 Report

EMI Auto Test Template: 55015 EMI Test Auto 30MHz-1000MHz - 10m

Hardware Setup: HL562 EMI
Measurement Type: Open-Area-Test-Site
Frequency Range: 30 MHz - 1 GHz
Graphics Level Range: 0 dB μ V/m - 60 dB μ V/m

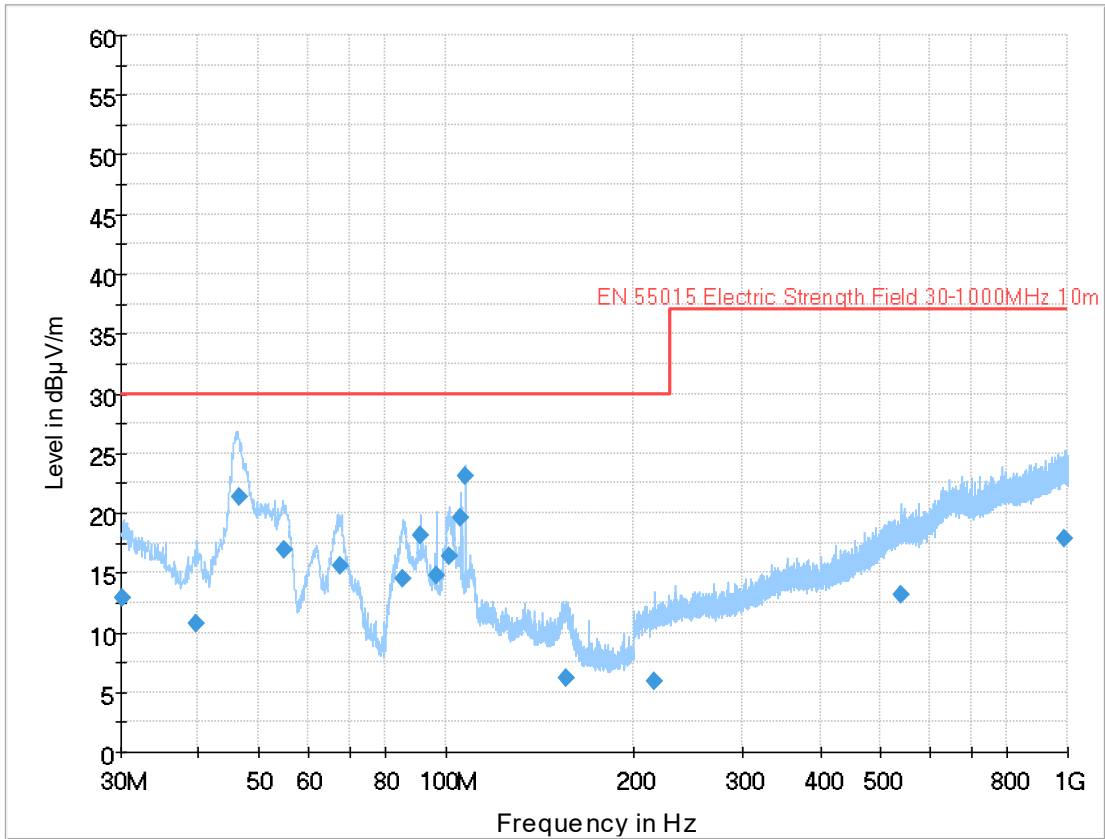
Preview Measurements:
Scan Test Template: EMI Prescan auto

Frequency Zoom:
Zoom Scan Template: EMI Zoom auto

Maximization Measurements:
Template for Single Meas.: EMI Prescan auto

Final Measurements:
Template for Single Meas.: EMI Final auto

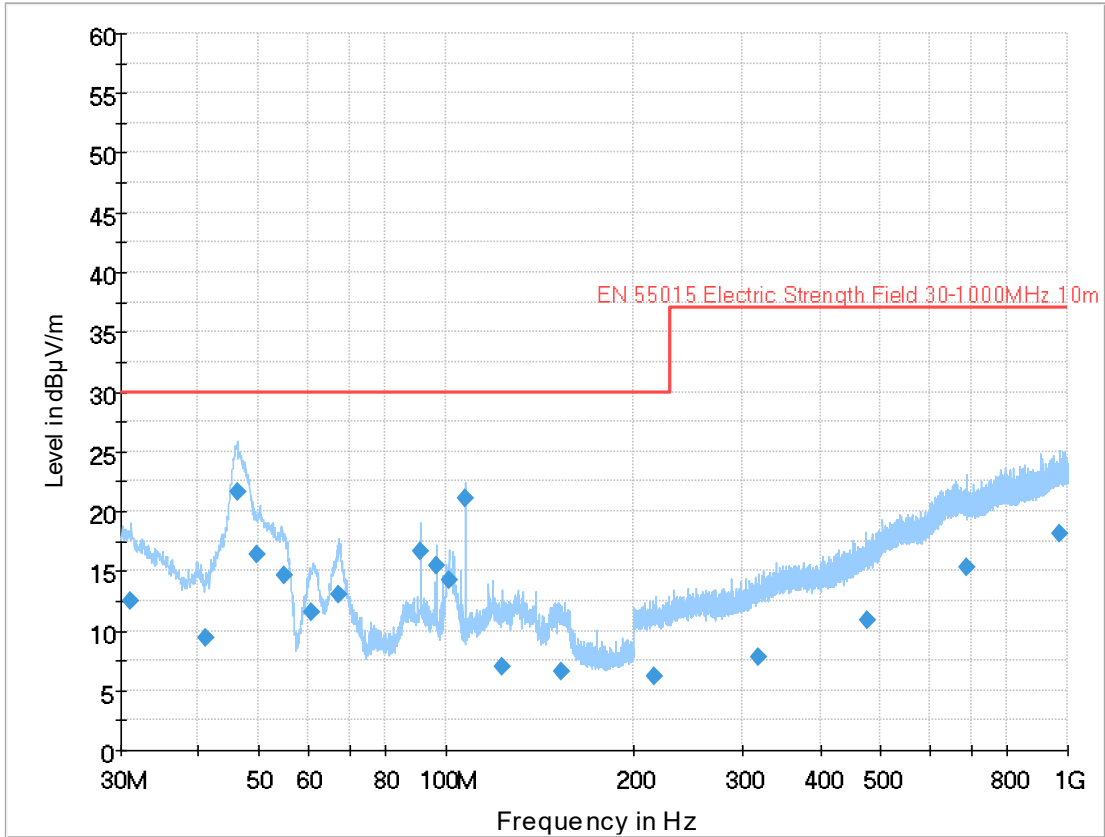
EMC32 Report 0deg



Final Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|--------------|
| 30.240000 | 12.89 | 30.00 | 17.11 | 1000.0 | 120.000 | 400.0 | H | 0.0 | 22 |
| 39.720000 | 10.79 | 30.00 | 19.21 | 1000.0 | 120.000 | 100.0 | V | 0.0 | 17 |
| 46.458700 | 21.38 | 30.00 | 8.62 | 1000.0 | 120.000 | 100.0 | V | 0.0 | 13 |
| 54.960000 | 16.85 | 30.00 | 13.15 | 1000.0 | 120.000 | 100.0 | V | 0.0 | 10 |
| 67.493700 | 15.53 | 30.00 | 14.47 | 1000.0 | 120.000 | 200.0 | V | 0.0 | 10 |
| 85.020000 | 14.56 | 30.00 | 15.44 | 1000.0 | 120.000 | 300.0 | V | 0.0 | 12 |
| 91.034900 | 18.08 | 30.00 | 11.92 | 1000.0 | 120.000 | 400.0 | V | 0.0 | 11 |
| 96.497300 | 14.72 | 30.00 | 15.28 | 1000.0 | 120.000 | 300.0 | V | 0.0 | 11 |
| 101.035000 | 16.38 | 30.00 | 13.62 | 1000.0 | 120.000 | 400.0 | V | 0.0 | 11 |
| 105.601000 | 19.55 | 30.00 | 10.45 | 1000.0 | 120.000 | 100.0 | V | 0.0 | 11 |
| 107.512000 | 23.05 | 30.00 | 6.95 | 1000.0 | 120.000 | 200.0 | V | 0.0 | 11 |
| 156.360000 | 6.21 | 30.00 | 23.79 | 1000.0 | 120.000 | 100.0 | V | 0.0 | 11 |
| 216.187000 | 5.95 | 30.00 | 24.05 | 1000.0 | 120.000 | 100.0 | H | 0.0 | 12 |
| 538.020000 | 13.11 | 37.00 | 23.89 | 1000.0 | 120.000 | 300.0 | V | 0.0 | 19 |
| 989.610000 | 17.88 | 37.00 | 19.12 | 1000.0 | 120.000 | 200.0 | V | 0.0 | 26 |

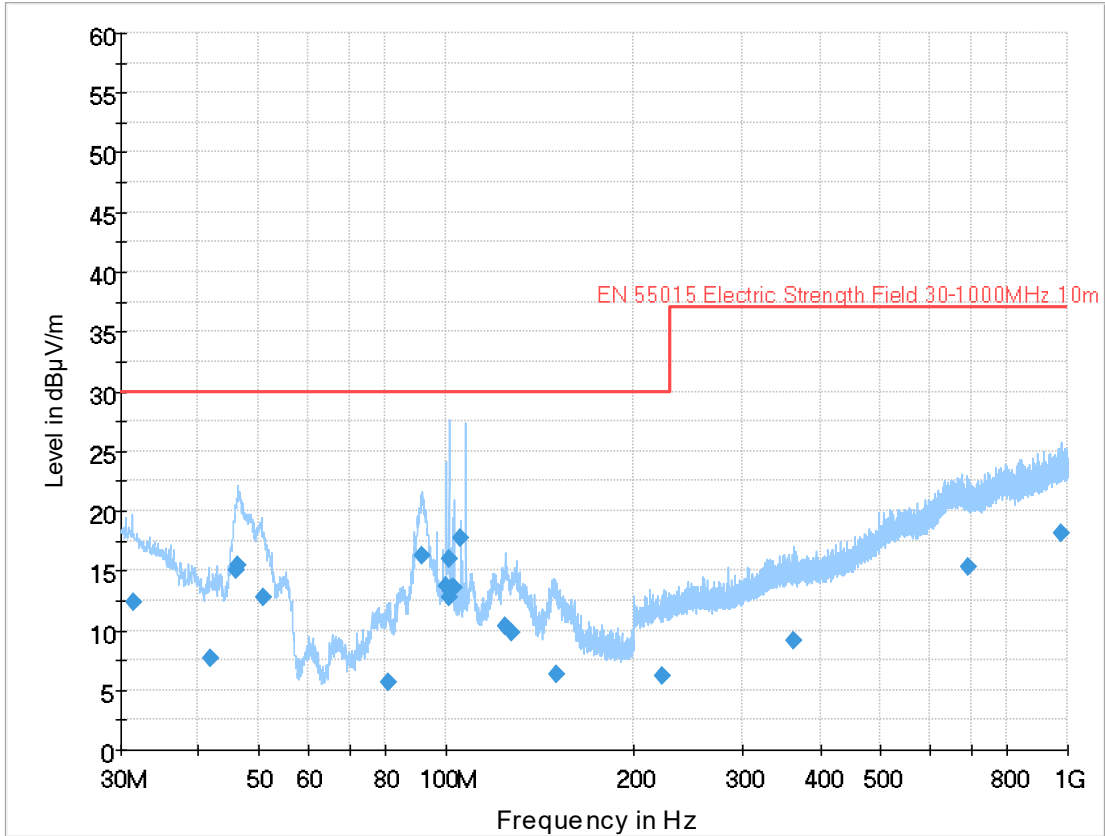
EMC32 Report 90deg



Final Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|--------------|
| 31.140000 | 12.54 | 30.00 | 17.46 | 1000.0 | 120.000 | 200.0 | H | 90.0 | 22 |
| 41.040000 | 9.41 | 30.00 | 20.59 | 1000.0 | 120.000 | 100.0 | V | 90.0 | 16 |
| 46.149300 | 21.62 | 30.00 | 8.38 | 1000.0 | 120.000 | 100.0 | V | 90.0 | 13 |
| 49.620000 | 16.41 | 30.00 | 13.59 | 1000.0 | 120.000 | 100.0 | V | 90.0 | 11 |
| 54.900000 | 14.67 | 30.00 | 15.33 | 1000.0 | 120.000 | 100.0 | V | 90.0 | 10 |
| 60.780000 | 11.49 | 30.00 | 18.51 | 1000.0 | 120.000 | 100.0 | V | 90.0 | 8 |
| 67.354000 | 13.02 | 30.00 | 16.98 | 1000.0 | 120.000 | 200.0 | V | 90.0 | 10 |
| 91.014900 | 16.69 | 30.00 | 13.31 | 1000.0 | 120.000 | 200.0 | H | 90.0 | 11 |
| 96.507300 | 15.49 | 30.00 | 14.51 | 1000.0 | 120.000 | 300.0 | V | 90.0 | 11 |
| 101.025000 | 14.21 | 30.00 | 15.79 | 1000.0 | 120.000 | 100.0 | H | 90.0 | 12 |
| 107.512500 | 21.02 | 30.00 | 8.98 | 1000.0 | 120.000 | 100.0 | V | 90.0 | 11 |
| 123.420000 | 6.98 | 30.00 | 23.02 | 1000.0 | 120.000 | 400.0 | H | 90.0 | 13 |
| 153.120000 | 6.52 | 30.00 | 23.48 | 1000.0 | 120.000 | 200.0 | V | 90.0 | 11 |
| 216.244500 | 6.12 | 30.00 | 23.88 | 1000.0 | 120.000 | 200.0 | H | 90.0 | 12 |
| 317.340000 | 7.76 | 37.00 | 29.24 | 1000.0 | 120.000 | 200.0 | H | 90.0 | 14 |
| 476.040000 | 10.87 | 37.00 | 26.13 | 1000.0 | 120.000 | 400.0 | H | 90.0 | 17 |
| 688.860000 | 15.29 | 37.00 | 21.71 | 1000.0 | 120.000 | 400.0 | H | 90.0 | 22 |
| 972.984500 | 18.09 | 37.00 | 18.91 | 1000.0 | 120.000 | 300.0 | H | 90.0 | 26 |

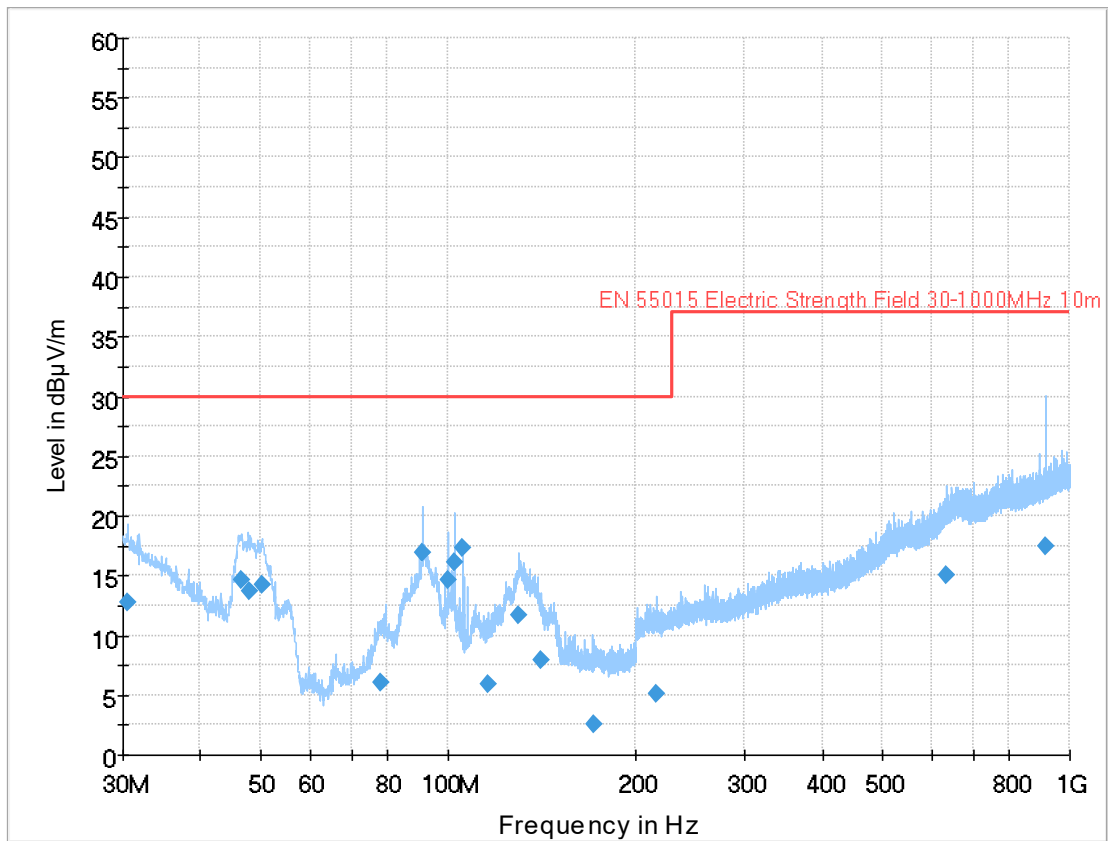
EMC32 Report 180deg



Final Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|--------------|
| 31.403700 | 12.40 | 30.00 | 17.60 | 1000.0 | 120.000 | 300.0 | H | 180.0 | 22 |
| 41.700000 | 7.69 | 30.00 | 22.31 | 1000.0 | 120.000 | 100.0 | V | 180.0 | 16 |
| 46.019000 | 15.08 | 30.00 | 14.92 | 1000.0 | 120.000 | 100.0 | V | 180.0 | 13 |
| 46.200000 | 15.38 | 30.00 | 14.62 | 1000.0 | 120.000 | 100.0 | V | 180.0 | 13 |
| 50.760000 | 12.81 | 30.00 | 17.19 | 1000.0 | 120.000 | 100.0 | V | 180.0 | 11 |
| 81.000000 | 5.61 | 30.00 | 24.39 | 1000.0 | 120.000 | 200.0 | V | 180.0 | 12 |
| 91.323100 | 16.29 | 30.00 | 13.71 | 1000.0 | 120.000 | 300.0 | V | 180.0 | 11 |
| 100.129500 | 13.68 | 30.00 | 16.32 | 1000.0 | 120.000 | 400.0 | V | 180.0 | 11 |
| 101.055000 | 15.98 | 30.00 | 14.02 | 1000.0 | 120.000 | 100.0 | V | 180.0 | 11 |
| 101.100000 | 12.82 | 30.00 | 17.18 | 1000.0 | 120.000 | 100.0 | V | 180.0 | 11 |
| 102.408000 | 13.62 | 30.00 | 16.38 | 1000.0 | 120.000 | 400.0 | V | 180.0 | 11 |
| 103.024500 | 13.56 | 30.00 | 16.44 | 1000.0 | 120.000 | 400.0 | V | 180.0 | 11 |
| 105.651500 | 17.69 | 30.00 | 12.31 | 1000.0 | 120.000 | 100.0 | V | 180.0 | 11 |
| 124.380000 | 10.27 | 30.00 | 19.73 | 1000.0 | 120.000 | 200.0 | V | 180.0 | 12 |
| 127.800000 | 9.84 | 30.00 | 20.16 | 1000.0 | 120.000 | 400.0 | V | 180.0 | 12 |
| 150.240000 | 6.35 | 30.00 | 23.65 | 1000.0 | 120.000 | 100.0 | V | 180.0 | 11 |
| 223.010500 | 6.15 | 30.00 | 23.85 | 1000.0 | 120.000 | 300.0 | H | 180.0 | 12 |
| 363.060000 | 9.08 | 37.00 | 27.92 | 1000.0 | 120.000 | 100.0 | V | 180.0 | 15 |
| 692.700000 | 15.26 | 37.00 | 21.74 | 1000.0 | 120.000 | 300.0 | H | 180.0 | 22 |
| 977.991500 | 18.13 | 37.00 | 18.87 | 1000.0 | 120.000 | 200.0 | H | 180.0 | 26 |

EMC32 Report 270deg



Final Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|--------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|--------------|
| 30.517300 | 12.74 | 30.00 | 17.26 | 1000.0 | 120.000 | 400.0 | H | 270.0 | 22 |
| 46.560000 | 14.63 | 30.00 | 15.37 | 1000.0 | 120.000 | 100.0 | V | 270.0 | 13 |
| 47.851200 | 13.69 | 30.00 | 16.31 | 1000.0 | 120.000 | 100.0 | V | 270.0 | 12 |
| 50.160000 | 14.28 | 30.00 | 15.72 | 1000.0 | 120.000 | 100.0 | V | 270.0 | 11 |
| 78.120000 | 6.01 | 30.00 | 23.99 | 1000.0 | 120.000 | 300.0 | V | 270.0 | 12 |
| 91.014900 | 16.92 | 30.00 | 13.08 | 1000.0 | 120.000 | 300.0 | H | 270.0 | 11 |
| 100.149500 | 14.62 | 30.00 | 15.38 | 1000.0 | 120.000 | 100.0 | V | 270.0 | 11 |
| 102.408000 | 16.09 | 30.00 | 13.91 | 1000.0 | 120.000 | 100.0 | V | 270.0 | 11 |
| 105.562000 | 17.37 | 30.00 | 12.63 | 1000.0 | 120.000 | 100.0 | V | 270.0 | 11 |
| 115.800000 | 5.85 | 30.00 | 24.15 | 1000.0 | 120.000 | 400.0 | H | 270.0 | 13 |
| 130.070000 | 11.67 | 30.00 | 18.33 | 1000.0 | 120.000 | 200.0 | V | 270.0 | 12 |
| 141.000000 | 7.91 | 30.00 | 22.09 | 1000.0 | 120.000 | 200.0 | V | 270.0 | 11 |
| 172.080000 | 2.54 | 30.00 | 27.46 | 1000.0 | 120.000 | 400.0 | V | 270.0 | 11 |
| 215.860500 | 5.14 | 30.00 | 24.86 | 1000.0 | 120.000 | 400.0 | V | 270.0 | 11 |
| 634.440000 | 14.99 | 37.00 | 22.01 | 1000.0 | 120.000 | 300.0 | V | 270.0 | 21 |
| 912.309000 | 17.46 | 37.00 | 19.54 | 1000.0 | 120.000 | 100.0 | V | 270.0 | 25 |

5 Harmonic current emissions according to IEC 61000-3-2

| | | | |
|--|-------------------------------------|--|--|
| Tested by | Marek Gabryszewski | | |
| Test date | 2022-09-09 | | |
| Test Location (stand) | U-84 | | |
| Version of measurement instrument standard used IEC 61000-4-7 (Clause 7) | <input type="checkbox"/> | IEC 61000-4-7:1991 | |
| | <input checked="" type="checkbox"/> | IEC 61000-4-7:2002 + AMD1:2008 | |
| Test set-up description | --- | | |
| Operating modes of EUT | 1 | | |
| Limit classification in accordance with the standard | <input type="checkbox"/> | Class A | |
| | <input type="checkbox"/> | Class B | |
| | <input checked="" type="checkbox"/> | Class C with rated power > 25 W (Table 2) | |
| | <input type="checkbox"/> | Class C with rated power ≥ 5 and ≤ 25 W (First requirement, Table 3 column 2) | |
| | | <input type="checkbox"/> | Table 3, column 2 (Power related limits) |
| | <input type="checkbox"/> | 3 rd harmonic ≤ 86 %, 5 th harmonic ≤ 61 % and waveform conditions | |
| | <input type="checkbox"/> | THD ≤ 70 %, Harmonics: 3 rd ≤ 35 %, 5 th ≤ 25 %, 7 th ≤ 30 %, 9 th and 11 th ≤ 20 %, 2 nd ≤ 5 % | |
| | <input type="checkbox"/> | Other: Lighting equipment having a rated power-less to 5 W - test not required. | |
| <input type="checkbox"/> | Class D | | |
| Observation period | Description | | |
| | <input checked="" type="checkbox"/> | Quasi stationary | |
| | <input type="checkbox"/> | Short cyclic | |
| | <input type="checkbox"/> | Random | |
| | <input type="checkbox"/> | Long cyclic | |
| | | Period selected T_{obs} | |
| | | 2.5 min | |
| | | $T_{obs} \geq 10$ cycles = | |
| | | $T_{obs} =$ | |
| | | Full program cycle or 2.5 min. with highest THC $T_{obs} =$ | |
| Control method used in the sample according clause 6.2 of the standard | <input checked="" type="checkbox"/> | The EUT does not utilize half-wave rectification or any other method to control the active input power. Such equipment is in conformity with the standard if the measured values comply with the applicable limit. | |
| | <input type="checkbox"/> | The EUT uses half-wave rectification directly on the mains supply, or it uses symmetrical or asymmetrical methods to control the active input power. Such equipment is permitted under conditions only. An evaluation on the control method is required. However, the equipment shall still comply with the harmonic requirements of the standard. | |
| Supplementary information | --- | | |

Test set-up photo:



Tabulated/Graphical Results for Harmonic Current Emissions:

| | | | |
|-----------------|----------------------|------------------|------------|
| Name: | | Serial no: | |
| Department: | | Operating modes: | |
| Company: | IMiF PREDOM Division | Comment1: | |
| Test report no: | B10-4/098/EMC/22 | Comment2: | |
| Device: | URBINO LED S | Comment3: | |
| Specimen: | | Comment4: | |
| Manufacturer: | LUG Light Factory | Date: | 09.09.2022 |
| Type: | | Test date: | 09.09.2022 |

Maximum RMS current and corresponding values in timewindow 1:

| | | | | | |
|---------------|-------------|----------------|-------------|--------------|--------------|
| Voltage: | 230.20 Vrms | THD=0.00 % | THV=0.010 V | POHV=0.004 V | PWHD=0.01 % |
| Current: | 0.337 Arms | -0.453 Apk | THD=8.02 % | THC=0.027 A | POHC=0.003 A |
| Power: | 76.8 W | P1=76.8 W | 77.5 VA | | |
| Power factor: | 0.991 | CosPhi1: 0.995 | | | |

Test conditions: EN IEC 61000-3-2:2019/FprA1:2020, f=50 Hz, Phase=L1, Range=0.80 A
 Time window=16, Grouping (>2nd harm.)=off, Rated I1=3.0 A
 No Ztest selected
 Time window=16, Grouping (>2nd harm.)=off, Rated I1=3.0 A

HARMONIC ANALYSIS: Test PASS

Tobs = worst 2.5 min: tw 1..469; POHC (C.2): avg=0.00 A, limit=0.03 A
 Iavg=0.335 Arms; Rated I1 exceeded, changed to 0.335 A

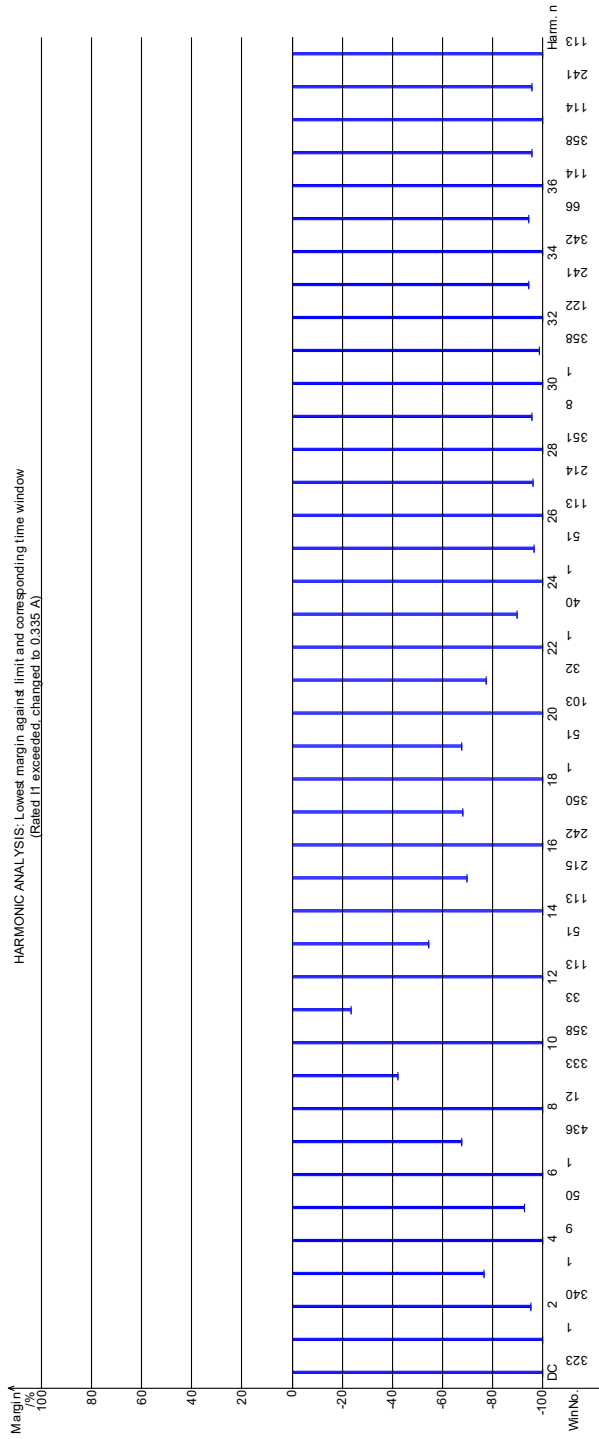
| Ha | Entire measurement (2.5 min = 469 time windows) | | | | | | Worst 2.5 min | | Worst 2.5 min avg | | P A S S | F A I L |
|----|---|--------|----------------------------|---------------------|----------------|---------------|----------------|---------------|-------------------|---------------|------------------|------------------|
| | Maximum | Window | EN61000-3-2 Class C>25W | Margin in MaxWin | 100 to 150% | Ex- ceeded | 100 to 150% | Ex- ceeded | Value | Ex- ceeded | | |
| DC | -0.0006 A | 340 | ----- | ----- | 0 | 0 | 0 | 0 | -0.0005 A | 0 | X | |
| 1 | 0.3354 A | 1 | ----- | ----- | 0 | 0 | 0 | 0 | 0.3344 A | 0 | X | |
| 2 | 0.0003 A | 340 | 0.0067 A | -95.5 % | 0 | 0 | 0 | 0 | 0.0003 A | 0 | X | |
| 3 | 0.0213 A | 1 | 0.0906 A | -76.5 % | 0 | 0 | 0 | 0 | 0.0211 A | 0 | X | |
| 4 | 0.0001 A | 182 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0001 A | 0 | X | |
| 5 | 0.0024 A | 50 | 0.0335 A | -92.9 % | 0 | 0 | 0 | 0 | 0.0023 A | 0 | X | |
| 6 | 0.0001 A | 121 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 7 | 0.0076 A | 436 | 0.0235 A | -67.8 % | 0 | 0 | 0 | 0 | 0.0075 A | 0 | X | |
| 8 | 0.0001 A | 121 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 9 | 0.0097 A | 333 | 0.0168 A | -42.4 % | 0 | 0 | 0 | 0 | 0.0096 A | 0 | X | |
| 10 | 0.0000 A | 358 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 11 | 0.0077 A | 33 | 0.0101 A | -23.5 % | 0 | 0 | 0 | 0 | 0.0077 A | 0 | X | |
| 12 | 0.0000 A | 124 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 13 | 0.0046 A | 51 | 0.0101 A | -54.8 % | 0 | 0 | 0 | 0 | 0.0045 A | 0 | X | |
| 14 | 0.0000 A | 375 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 15 | 0.0030 A | 215 | 0.0101 A | -69.8 % | 0 | 0 | 0 | 0 | 0.0030 A | 0 | X | |
| 16 | 0.0000 A | 255 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 17 | 0.0032 A | 350 | 0.0101 A | -68.3 % | 0 | 0 | 0 | 0 | 0.0032 A | 0 | X | |
| 18 | 0.0000 A | 125 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 19 | 0.0032 A | 51 | 0.0101 A | -67.9 % | 0 | 0 | 0 | 0 | 0.0032 A | 0 | X | |
| 20 | 0.0000 A | 115 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 21 | 0.0023 A | 32 | 0.0101 A | -77.6 % | 0 | 0 | 0 | 0 | 0.0022 A | 0 | X | |
| 22 | 0.0000 A | 113 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 23 | 0.0010 A | 40 | 0.0101 A | -89.9 % | 0 | 0 | 0 | 0 | 0.0010 A | 0 | X | |
| 24 | 0.0000 A | 226 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 25 | 0.0003 A | 51 | 0.0101 A | -96.5 % | 0 | 0 | 0 | 0 | 0.0003 A | 0 | X | |
| 26 | 0.0000 A | 124 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 27 | 0.0004 A | 214 | 0.0101 A | -96.3 % | 0 | 0 | 0 | 0 | 0.0003 A | 0 | X | |
| 28 | 0.0000 A | 351 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 29 | 0.0004 A | 8 | 0.0101 A | -95.8 % | 0 | 0 | 0 | 0 | 0.0004 A | 0 | X | |
| 30 | 0.0000 A | 255 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 31 | 0.0001 A | 358 | 0.0101 A | -98.6 % | 0 | 0 | 0 | 0 | 0.0001 A | 0 | X | |
| 32 | 0.0000 A | 377 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 33 | 0.0006 A | 241 | 0.0101 A | -94.5 % | 0 | 0 | 0 | 0 | 0.0005 A | 0 | X | |
| 34 | 0.0000 A | 351 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 35 | 0.0006 A | 66 | 0.0101 A | -94.3 % | 0 | 0 | 0 | 0 | 0.0006 A | 0 | X | |
| 36 | 0.0000 A | 114 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 37 | 0.0004 A | 358 | 0.0101 A | -95.6 % | 0 | 0 | 0 | 0 | 0.0004 A | 0 | X | |
| 38 | 0.0000 A | 375 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |
| 39 | 0.0004 A | 241 | 0.0101 A | -95.6 % | 0 | 0 | 0 | 0 | 0.0004 A | 0 | X | |
| 40 | 0.0001 A | 365 | ----- | ----- | 0 | 0 | 0 | 0 | 0.0000 A | 0 | X | |

average value < 0.6 % of Iavg or < 5 mA

Tested with SPSEMC4.5.1/PAS000 by Spitzberger & Spies GmbH & Co. KG, Schmidstr. 32-34, 94234 Viechtach, Germany, 09/09/2022

Graphical Harmonic Overview - EN61000-3-2 Class C<25W

HARMONIC ANALYSIS: Lowest margin against limit and corresponding time window
 (Rated II exceeded, changed to 0.335 A)



Tested on: PREDOM 1.5 / PRE2000 / Schwanau 650e / GEM/CO - 65 / Simulink 22.04 / MATLAB / WinWin / Vermin / 01.05.2012

6 Voltage changes, voltage fluctuations and flicker according to IEC 61000-3-3

| | | |
|-----------------------------------|-------------------------------------|--|
| Tested by | Marek Gabryszewski | |
| Test date | 2022-09-09 | |
| Test Location (stand) | U-84 | |
| Test set-up description | --- | |
| Test method | <input checked="" type="checkbox"/> | 4.2.2 Flicker meter according IEC 61000-4-15 |
| | <input type="checkbox"/> | 4.2.3 Simulation |
| | <input type="checkbox"/> | 4.2.4 Analytical method |
| | <input type="checkbox"/> | 4.2.5 Use of $P_{st} = 1$ curve |
| Observation time selected | <input checked="" type="checkbox"/> | 10 Minutes |
| | <input type="checkbox"/> | 120 Minutes |
| | <input type="checkbox"/> | 24 times switching according to Annex B |
| Limit for d_{max} applied | <input type="checkbox"/> | 4 % |
| | <input checked="" type="checkbox"/> | 6 % |
| | <input type="checkbox"/> | 7 % |
| Supplementary information | --- | |

Test set-up photo:



Tabulated Results for Voltage Fluctuations and Flicker:

| | | | |
|-----------------|----------------------|------------------|------------|
| Name: | | Serial no: | |
| Department: | | Operating modes: | |
| Company: | IMiF PREDOM Division | Comment1: | |
| Test report no: | B10-4/098/EMC/22 | Comment2: | |
| Device: | URBINO LED S | Comment3: | |
| Specimen: | | Comment4: | |
| Manufacturer: | LUG Light Factory | Date: | 09.09.2022 |
| Type: | | Test date: | 09.09.2022 |

Test conditions: EN 61000-3-3:2013 + A1:2019 / 230 V / 50 Hz / Phase L1
 EN 61000-4-15:2011 / d(t) = 3.3 % / Obs 1 x 10 min / Ztest (0.400+j0.250) Ohm
 Ra+jXa (0.2400+j0.1500) Ohm / Rn+jXn (0.1600+j0.1000) Ohm

FLICKER: Test PASS!

| Time | Pmax | Pst | Sliding Plt | Tmax [s] | dmax [%] | dc [%] | PASS | FAIL | |
|--------------------------------|-------|--------|-------------|----------|-----------|-----------|------|------|--|
| 12:18:54 | 0.000 | 0.0100 | - . - - - - | 0.000 | 0.000 | - . - - - | X | | |
| Limits: | | 1.000 | 0.650 | 0.500 | 6.000 | 3.300 | | | |
| Plt: 0.010000 | | | | | | | | | |
| Evaluated: PST, dc, dmax, Tmax | | | | | | | | | |

FLICKER: Source test PASS!

| Time | Pmax | Pst | Sliding Plt | Tmax [s] | dmax [%] | dc [%] | PASS | FAIL | |
|--|-------|--------|-------------|----------|-----------|-----------|------|------|--|
| 12:18:54 | 0.000 | 0.0100 | - . - - - - | 0.000 | 0.000 | - . - - - | X | | |
| Plt: 0.010000 | | | | | | | | | |
| Evaluated: PST <= 0.4 dmax < 20 % dmax1 | | | | | | | | | |

Tested with SPSEMC4.5.1 / PAS5000 by Spitz enberger & Spies GmbH & Co. KG, Schmidts tr. 32-34, 94234 Viechtach, Germany, 09.09.2022

7 Immunity

7.1 General information

| Performance criteria as defined by the standard | |
|---|---|
| Criterion | Description from standard |
| 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. |
| 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. |
| 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. |
| Other: | --- |

| | | |
|---|--|--|
| Manufacturer defined performance criteria | Criterion | Description |
| | A | Manufacturer defined performance criteria- not specified. |
| | B | Apply performance criteria as defined by the standard. |
| | C | See above: Performance criteria as defined by the standard |
| D | | |
| Monitoring during the tests | Radio-frequency electromagnetic fields: visual EUT observation using a camera. | |
| Mains voltage applied during the testing if not otherwise specified.... | AC: 230 V / 50 Hz | |

7.2 Electrostatic discharges



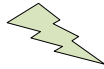
| | | |
|--|---|--|
| Tested by | Marek Gabryszewski | |
| Test date | 2022-09-15 | |
| Test Location(Stand) | ESD stand | |
| Test set-up | <input checked="" type="checkbox"/> | Table top equipment |
| | <input type="checkbox"/> | Floor standing equipment |
| | <input type="checkbox"/> | Wall or ceiling mounted equipment (Treated as table top) |
| Supplementary test set-up description | Operating mode: 1 | |
| Size of horizontal coupling plate.. | 1.6 x 0.8 m | |
| Size of vertical coupling plate: | 0.5 x 0.5 m | |
| Number of discharges for each test point | 10 positive / 10 negative | |
| Discharge interval | 1/s | |
| Performance criterion | B | |
| Supplementary information..... | --- | |
| Symbols identifying discharge applied |  | Contact discharge |
| |  | Air discharge |
| |  | Air discharge, discharge did not occur |



Photo of selected test points:

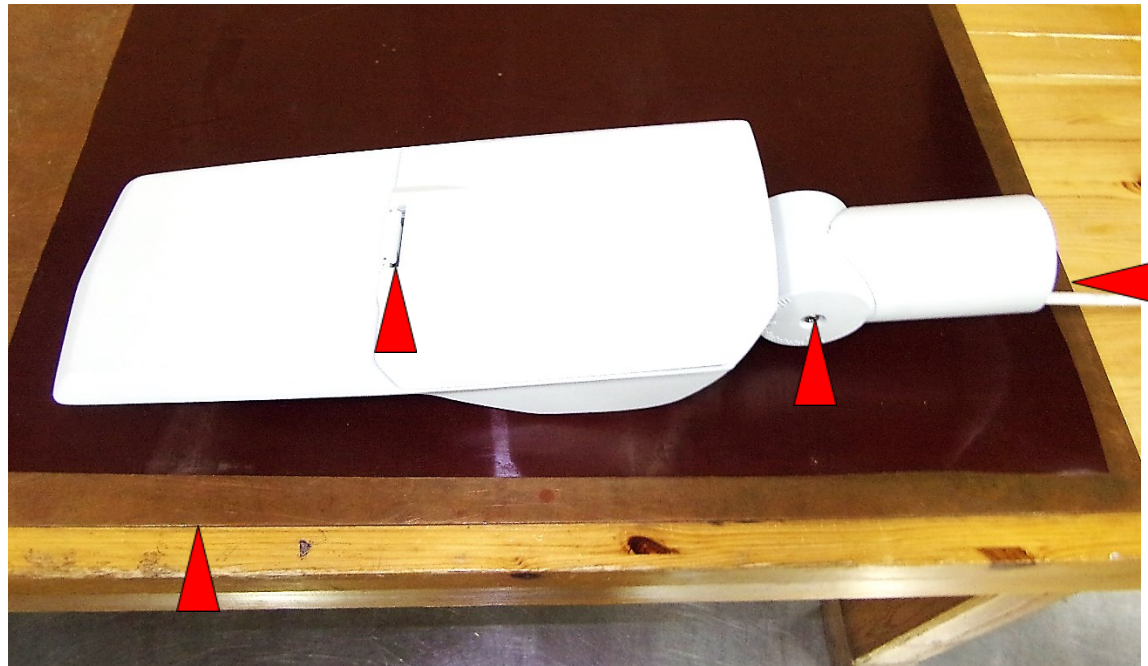
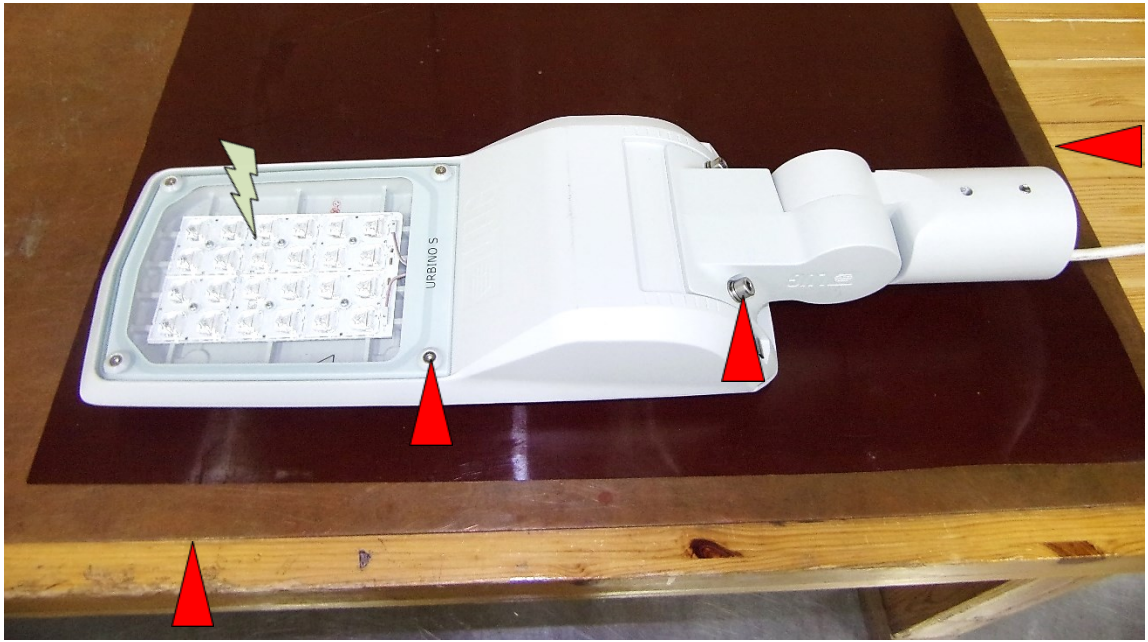


Photo of selected test points:

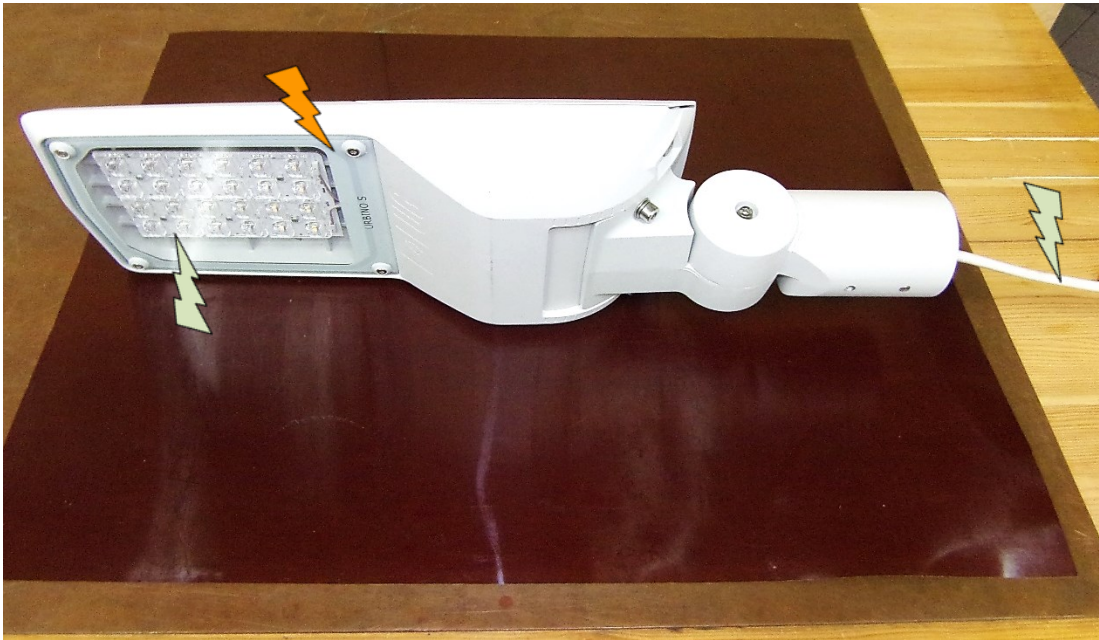


Table: Test results for electrostatic discharges

| No. | Location of discharge | Polarity | Discharge | Number of discharges | Test level [kV] | Operating mode | Observations |
|-----|--|----------|-----------|----------------------|-----------------|----------------|--------------|
| 1 | HCP | P | C | 10 | 4 | 1 | Pass |
| 2 | VCP | P | C | 10 | 4 | 1 | Pass |
| 3 | Points on conductive surface as indicated in the picture above | P | C | 10 | 4 | 1 | Pass |
| 4 | Points on conductive surface as indicated in the picture above | N | C | 10 | 4 | 1 | Pass |
| 5 | Points on non-conductive surface as indicated in the picture above | P | A | 10 | 8 | 1 | Pass |
| 6 | Points on non-conductive surface as indicated in the picture above | N | A | 10 | 8 | 1 | Pass |

HCP = Horizontal coupling plate
VCP = Vertical coupling plate

N = Negative
P = Positive

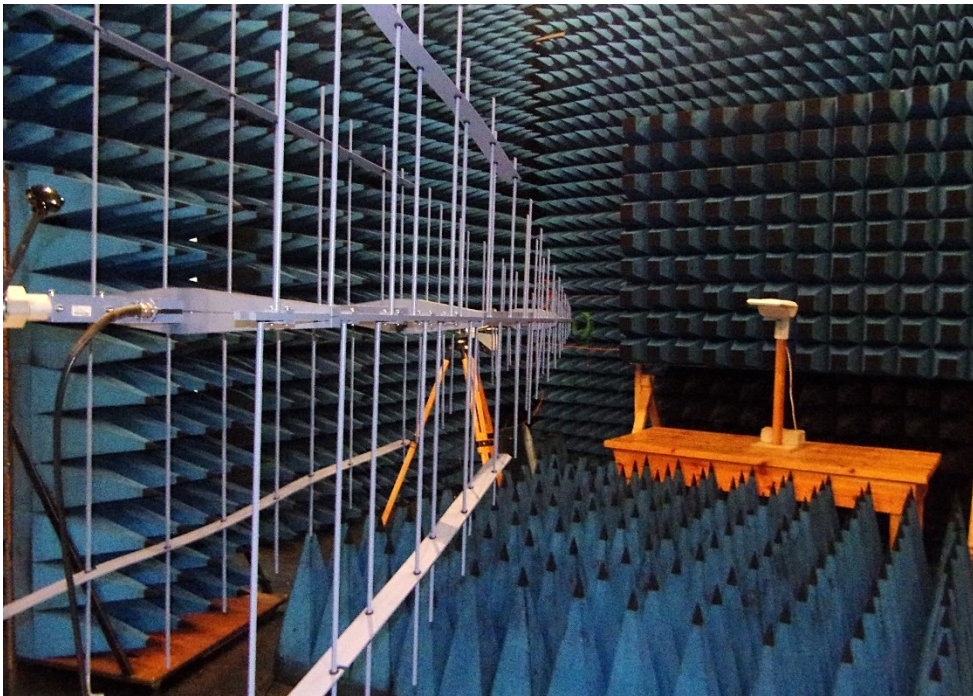
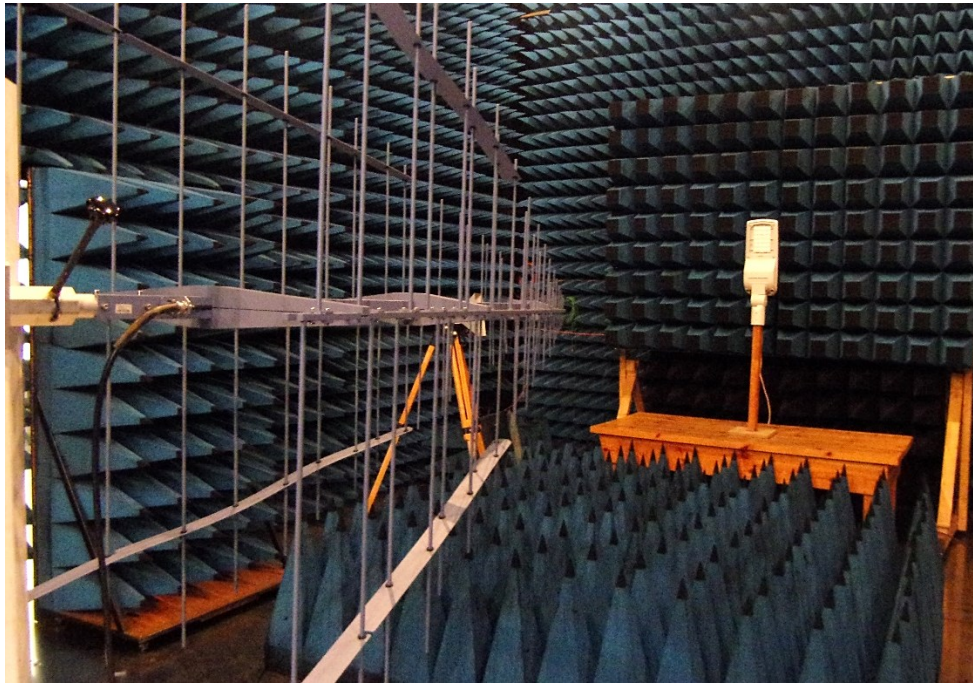
A = Air discharge
C = Contact discharge
X = Not performed nor required

Supplementary information: No observed response from EUT.

7.3 Radio-frequency electromagnetic fields

| | | | |
|---|--|--|--|
| Tested by | Marek Gabryszewski | | |
| Test date | 2022-09-14 | | |
| Test location (stand) | Radio-frequency electromagnetic fields stand Semi-anechoic chamber U-86 | | |
| Test set-up | <input checked="" type="checkbox"/> | Equipment on the table (see photos below) | |
| | <input type="checkbox"/> | Equipment standing on floor (0.05 – 0.15 m height) | |
| Supplementary test set up description | Operating mode: 1 | | |
| Exposed side of EUT | <input checked="" type="checkbox"/> | 0° (Front) | |
| | <input checked="" type="checkbox"/> | 90 ° | |
| | <input checked="" type="checkbox"/> | 180 ° (Rear) | |
| | <input checked="" type="checkbox"/> | 270 ° | |
| | <input checked="" type="checkbox"/> | Top side | |
| | <input checked="" type="checkbox"/> | Bottom side | |
| Reason for not exposing a side ... : | As a result of the analysis, it was found that the EUT (front) side is the most susceptible to radiation, see below photos, next page. | | |
| Distance Antenna to EUT | 3 m | | |
| Step size [%] | 1 | | |
| Performance criterion | A | | |
| Supplementary information | --- | | |

Test set-up photo:



| Test results for radiated electromagnetic field | | | | | | |
|--|-------------------------|---------------------|---------------------|-----------------------|-----------------------|---------------------|
| Frequency range | Test Level [V/m] | Polarization | Modulation | Operating mode | Dwell time [s] | Observations |
| 80 MHz ÷ 1 GHz | 3.0 | V | AM: 80.0 %; 1.0 kHz | 1 | 3.0 | Pass |
| 80 MHz ÷ 1 GHz | 3.0 | H | AM: 80.0 %; 1.0 kHz | 1 | 3.0 | Pass |
| H = Horizontal V = Vertical X = Not performed nor required | | | | | | |
| Supplementary information: No observed response from EUT. | | | | | | |

EMC32 Report position antenna: V

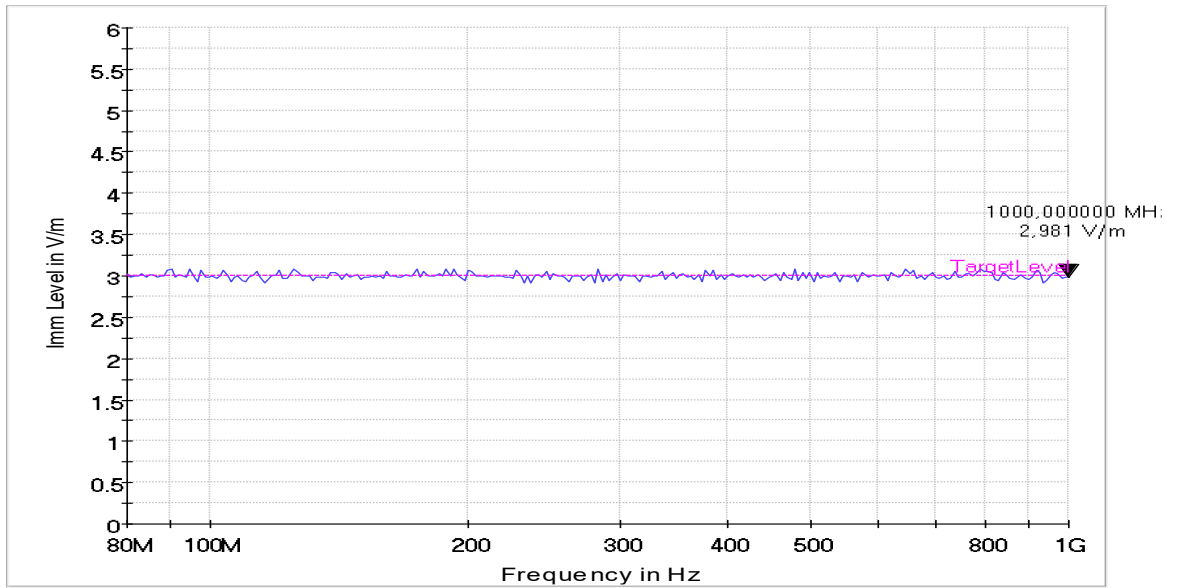
EMS Scan Template: EMS Scan 3Vm 80-1000MHz [EMS Radiated]

Hardware Setup: EMS radiated\Copy of Hardware Setup 80-1000MHz_SMBV100A

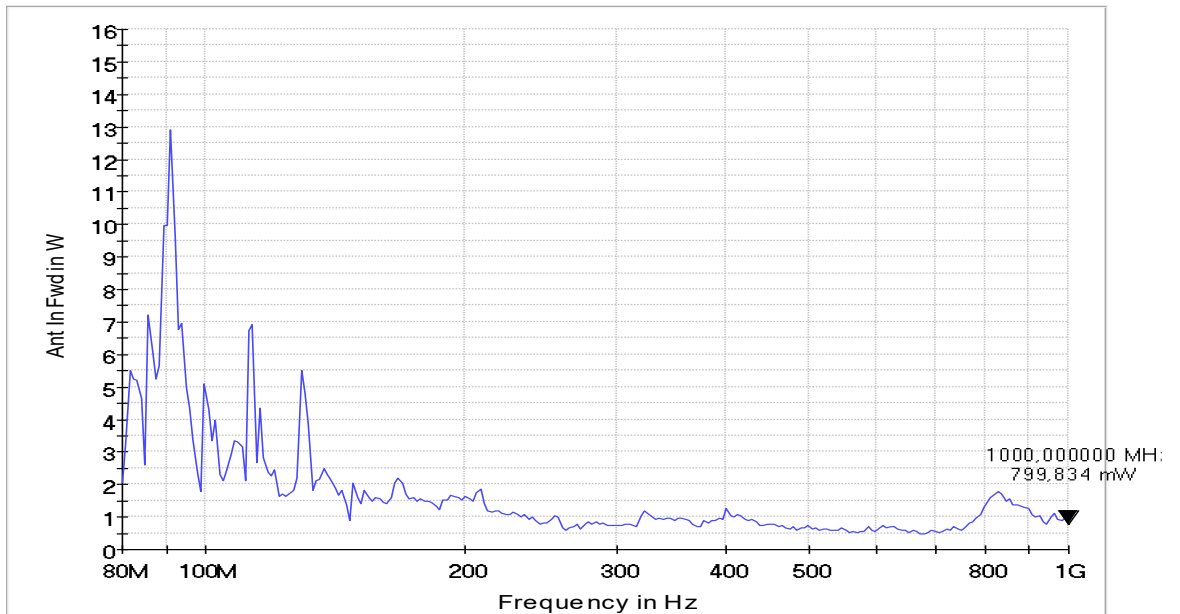
Level On: Substitution Method: EMS radiated\.Kalibracija pola
EMS\C28Vm_80-1000

| Subrange | Step Width | Level | Modulation | Dwell Time |
|--------------|------------|-------|-------------------|------------|
| 80MHz - 1GHz | 1% LOG | 3V/m | AM: 80.0%; 1.0kHz | 3s |

Imm Level



Ant In Fwd



EMC32 Report position antenna: H

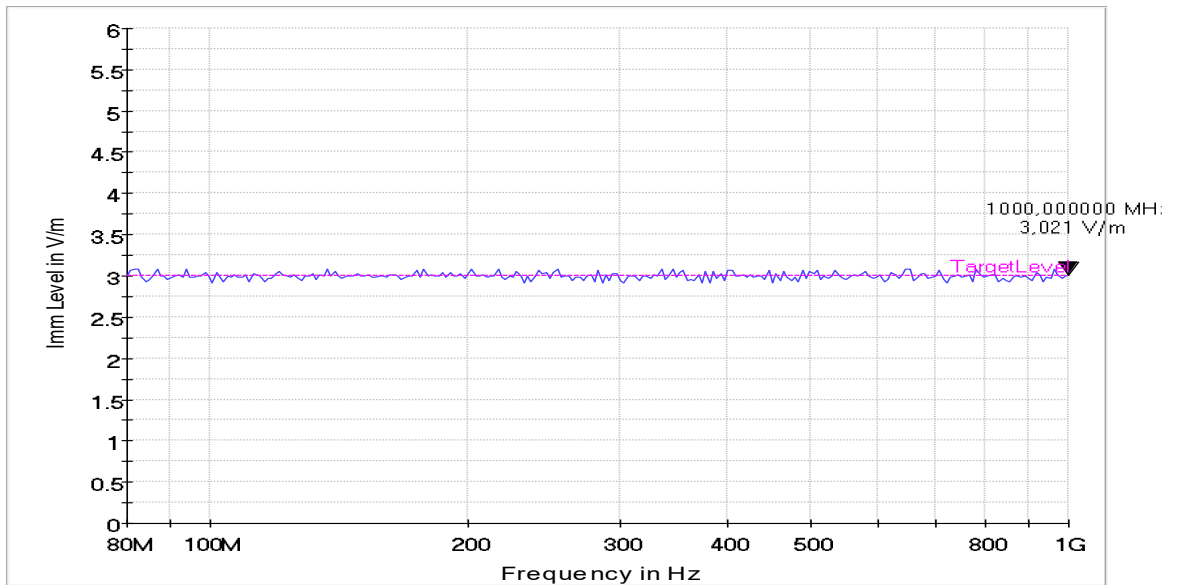
EMS Scan Template: EMS Scan 3Vm 80-1000MHz [EMS Radiated]

Hardware Setup: EMS radiated\Copy of Hardware Setup 80-1000MHz_SMBV100A

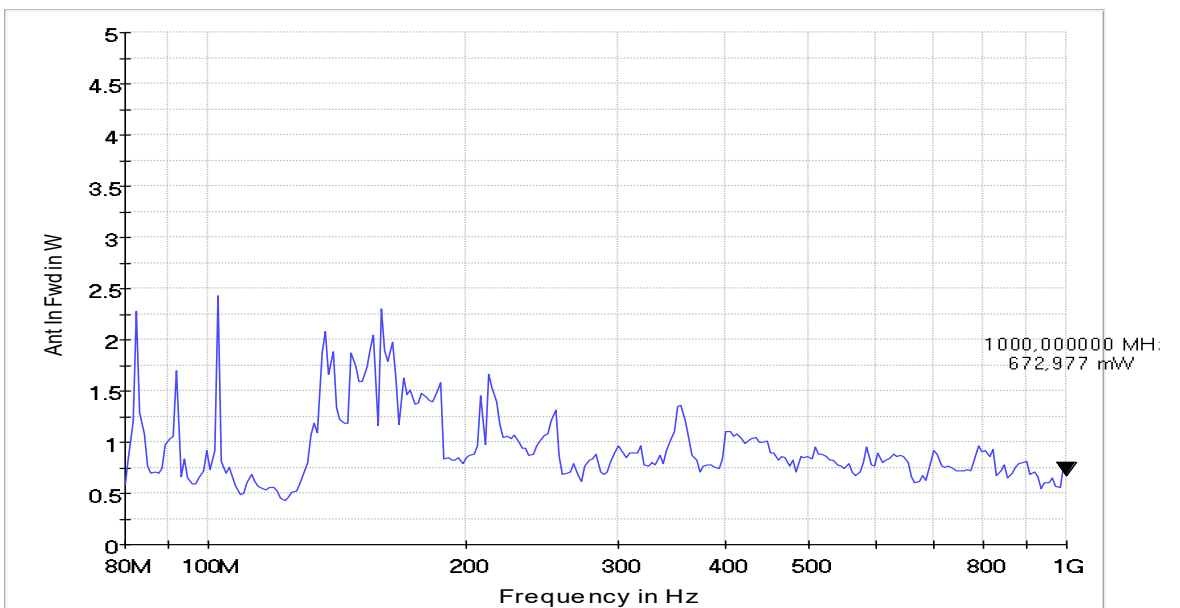
Level On: Substitution Method: EMS radiated\.Kalibracija pola
EMS\C28Vm_80-1000

| Subrange | Step Width | Level | Modulation | Dwell Time |
|--------------|------------|-------|-------------------|------------|
| 80MHz - 1GHz | 1% LOG | 3V/m | AM: 80.0%; 1.0kHz | 3s |

Imm Level



Ant In Fwd



7.4 Power frequency magnetic fields

| | | |
|---------------------------------|-------------------------------------|--|
| Tested by | Marek Gabryszewski | |
| Test date | 2022-09-16 | |
| Test location (Stand) | PMM 1008 | |
| Applicability | <input checked="" type="checkbox"/> | The test was performed |
| | <input type="checkbox"/> | The test was not performed |
| | | Reason: According to the manufacturers information there are no magnetic sensitive components in the product. |
| Test set-up | <input type="checkbox"/> | 0.1 m above metal surface |
| | <input type="checkbox"/> | Homogeneous field (Helmholtz coil). Dimensions: --- |
| | <input checked="" type="checkbox"/> | Single Coil. Dimensions: 1 x 1 m |
| | <input type="checkbox"/> | Single Coil. Dimensions: 1 x 2.6 m |
| Performance criterion | A | |
| Supplementary information | --- | |

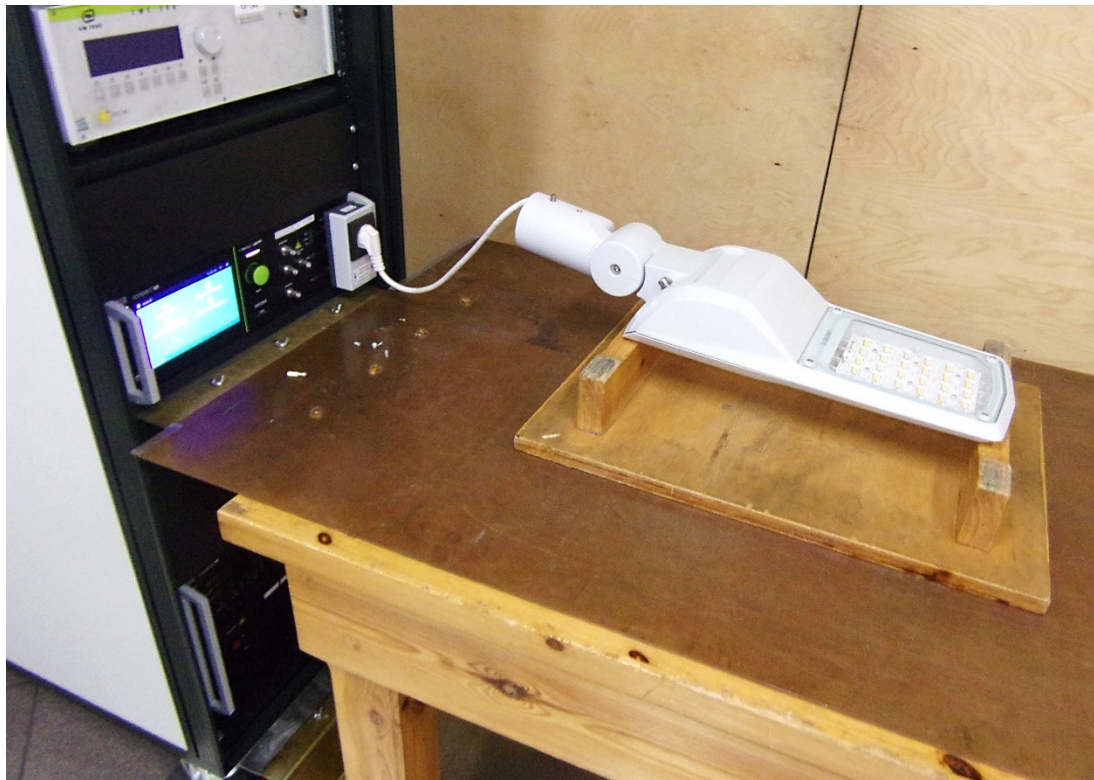


| Test results for power frequency magnetic field immunity test | | | | | | | |
|--|-------------------------|----------------------|-----------------------|-------------|-----------------------|--------------------------------------|---------------------|
| Test frequency | Test Level [A/m] | Test time [s] | Coil size/type | Axis | Operating mode | Mains voltage/frequency (PMM) | Observations |
| 50 Hz | 3.0 | 180 | 1 m x 1 m | X | 1 | 230 V / 50 Hz | Pass |
| 50 Hz | 3.0 | 180 | 1 m x 1 m | Y | 1 | 230 V / 50 Hz | Pass |
| 50 Hz | 3.0 | 180 | 1 m x 1 m | Z | 1 | 230 V / 50 Hz | Pass |
| X = Not performed nor required | | | | | | | |
| Supplementary information: No observed response from EUT. | | | | | | | |

7.5 Fast transients

| | |
|---|--|
| Tested by | Marek Gabryszewski |
| Test date | 2022-09-13 |
| Test location (stand) | Fast transient stand |
| Test set-up | <input checked="" type="checkbox"/> Equipment on the table (0.1 ± 0.01) m above ground plane |
| | <input type="checkbox"/> Equipment standing on floor at (0.1 ± 0.01) m above ground plane |
| | <input type="checkbox"/> Artificial hand applied. Location see photo. |
| Supplementary test set-up description | Operating mode: 1 |
| Repetition frequency | 5 kHz |
| Test time | 4 min |
| Performance criterion | B |
| Supplementary information | --- |

Test set-up photo:



| Test results fast transients | | | | | | |
|---|-----------------|-------------------|-----------------|-----------------------|--------------------------------|--------------------|
| Port | Coupling | Level [kV] | Polarity | Operating mode | Mains voltage/frequency | Observation |
| AC power port | L1 N | 1 | Positive | --- | --- | X |
| AC power port | L1 N | 1 | Negative | --- | --- | X |
| AC power port | L1 N PE | 1 | Positive | 1 | 230 V / 50 Hz | Pass |
| AC power port | L1 N PE | 1 | Negative | 1 | 230 V / 50 Hz | Pass |
| SIP/SOP | Clamp | 0.5 | Positive | --- | --- | X |
| SIP/SOP | Clamp | 0.5 | Negative | --- | --- | X |
| X = Not performed nor required | | | | | | |
| Supplementary information: No observed response from EUT. | | | | | | |

7.6 Injected currents (radio-frequency common mode)

| | | |
|---|-------------------------------------|---|
| Tested by | Marek Gabryszewski | |
| Test date | 2022-09-13 | |
| Test location (Stand) | Injected currents stand | |
| Test set-up | <input checked="" type="checkbox"/> | Equipment located (0.1 ± 0.05) m above ground plane |
| | <input type="checkbox"/> | Elevated ground plane according to Annex F |
| | <input type="checkbox"/> | Artificial hand applied. Location see photo |
| Supplementary test set-up description | Operating mode: 1 | |
| Modulation | <input checked="" type="checkbox"/> | 80 % AM with 1 kHz |
| | <input type="checkbox"/> | Other: --- |
| Step size | 1 % | |
| Performance criterion | A | |
| Supplementary information..... | --- | |

Test set-up photo:



| Test results for conducted disturbances, induced by radio-frequency fields | | | | | | | |
|---|-----------------------|------------------------|-----------------|---------------------------------|-----------------------|-----------------------|---------------------|
| Frequency range | Test Level [V] | Port under test | CDN type | Port with terminated CDN | Operating mode | Dwell time [s] | Observations |
| 0.15 ÷ 80 MHz | 3.0 | AC power port | CDN-M2 | --- | --- | --- | X |
| 0.15 ÷ 80 MHz | 3.0 | AC power port | CDN-M3 | ATT 6 | 1 | 1.0 | Pass |
| 0.15 ÷ 80 MHz | 3.0 | AC power port | CDN-M5 | --- | --- | --- | X |
| X = Not performed nor required | | | | | | | |
| Supplementary information: No observed response from EUT. | | | | | | | |

7.7 Surges

| | |
|--|--------------------|
| Tested by | Marek Gabryszewski |
| Test date | 2022-09-13 |
| Test location(Stand) | Surge stand |
| Test set-up description | Operating mode: 1 |
| Repetition rate | 1 / min |
| Number of pulses for each coupling | 5 |
| Performance criterion | B |
| Supplementary information..... | --- |

Test set-up photo:



| Test results for surges | | | | | | | | |
|--|----------|-----|-------------------------------------|--|------------------|----------------|-------------------------|-------------|
| Port | Coupling | CDN | Level [kV] | Polarity | Phase angles [°] | Operating mode | Mains voltage/frequency | Observation |
| AC power port | L1-N | MCN | 1 | Positive | 90 | 1 | 230 V / 50 Hz | Pass |
| AC power port | L1-N | MCN | 1 | Negative | 270 | 1 | 230 V / 50 Hz | Pass |
| AC power port | N-PE | MCN | 2 | Positive | 90 | 1 | 230 V / 50 Hz | Pass |
| AC power port | N-PE | MCN | 2 | Negative | 270 | 1 | 230 V / 50 Hz | Pass |
| AC power port | L1-PE | MCN | 2 | Positive | 90 | 1 | 230 V / 50 Hz | Pass |
| AC power port | L1-PE | MCN | 2 | Negative | 270 | 1 | 230 V / 50 Hz | Pass |
| Lower test levels: | | | <input type="checkbox"/> | Tested | | | | |
| | | | <input checked="" type="checkbox"/> | Not tested | | | | |
| P = Positive N = Negative X = Not performed nor required | | | | MCN = Mains Coupling Network ICN = Coupling Network for interconnection lines D = Direct Coupling (shielded lines) | | | | |
| Supplementary information: No observed response from EUT. | | | | | | | | |

7.8 Voltage dips and short interruptions

| | |
|---------------------------------------|--|
| Tested by | Marek Gabryszewski |
| Test date | 2022-09-09 |
| Test Location (Stand) | U-84 |
| Test set-up description | Operating mode: 1 |
| Repetition rate | 10 s |
| Number of dips or interruptions ... : | 3 |
| Performance criterion | B (Voltage dips) C (Short interruptions $U_N=0\%$) |
| Supplementary information..... | --- |

| Test results voltage dips | | | | | | |
|---|--------------------|--------------------------------|----------------|----------------------|-------------------|--------------|
| U_N [V] | Frequency in Hz | Test Level [% of U_N] | Phase angle | Duration [Cycles] | Operating mode | Observations |
| 230 | 50 | 70 | 0° | 12 | 1 | Pass |
| Supplementary information: No observed response from EUT. | | | | | | |

| Test results voltage interruptions | | | | | | |
|---|-------------------|--------------------------------|----------------|----------------------|-------------------|---------------|
| U_N [V] | Frequency [Hz] | Test Level [% of U_N] | Phase angle | Duration [Cycles] | Operating mode | Observations* |
| 230 | 50 | 0 | 0° | 0.5 | 1 | Pass |
| Supplementary information: *Observed response from EUT. During the test, the luminous intensity change, dimming, flashing light. 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. Consistent with the evaluation criterion. | | | | | | |

Test set-up photo:



Tabulated Results for Voltage Dips and Interruptions:

Name: Serial no:
 Department: Operating modes:
 Company: IMiF PREDOM Division Comment1:
 Test report no: B10-4/098/EMC/22 Comment2:
 Device: URBINO LED S Comment3:
 Specimen: Comment4:
 Manufacturer: LUG Light Factory Date: 09.09.2022
 Type: Test date: 09.09.2022

Test conditions EN 61000-4-11 voltage dips, short interruptions and variations test
 Voltage / frequency: 230.0 V / 50.0 Hz
 Test phase: Single phase / L1-N
 Executed test: 61547 dips
 Test description: --
 Disturbances per step: 3 (per phase angle) / 10.5 sec delay between

| Step | Disturbance | Test level | Duration | Phase angle(s) (Ref. L1) |
|------|----------------------------------|------------|------------|--------------------------|
| 1 | Voltage dip / short interruption | 70 % | 10 periods | 0° L1 |

Test results:

- Normal performance within limits specified by manufacturer, requestor or purchaser
- 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
- Temporary loss of function or degradation of performance, the correction of which requires operator intervention
- Loss of function or degradation of performance which is not recoverable, owing to damage to hardware or software, or loss of data

Comments:

Pass

Tested with SPSEMC 4.1.3 /PASS000 by Spitzenberger & Spies GmbH & Co. KG, Schmidst. 32-34, 94234 Weichsch, Germany, 09/09/2022

Name: Serial no:
 Department: Operating modes:
 Company: IMiF PREDOM Division Comment1:
 Test report no: B10-4/098/EMC/22 Comment2:
 Device: URBINO LED S Comment3:
 Specimen: Comment4:
 Manufacturer: LUG Light Factory Date: 09.09.2022
 Type: Test date: 09.09.2022

Test conditions EN 61000-4-11 voltage dips, short interruptions and variations test
 Voltage / frequency: 230.0 V / 50.0 Hz
 Test phase: Single phase / L1-N
 Executed test: 61547 short
 Test description: --
 Disturbances per step: 3 (per phase angle) / 10.5 sec delay between

| Step | Disturbance | Test level | Duration | Phase angle(s) (Ref. L1) |
|------|----------------------------------|------------|-------------|--------------------------|
| 1 | Voltage dip / short interruption | 0 % | 0.5 periods | 0° L1 |

Test results:

- Normal performance within limits specified by manufacturer, requestor or purchaser
- 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
- Temporary loss of function or degradation of performance, the correction of which requires operator intervention
- Loss of function or degradation of performance which is not recoverable, owing to damage to hardware or software, or loss of data

Comments:

Pass, (B)

Tested with SPSEMC 4.1.3 /PASS000 by Spitzenberger & Spies GmbH & Co. KG, Schmidst. 32-34, 94234 Weichsch, Germany, 09/09/2022

8 List of test equipment

| Equipment | Type | Inventory number | Manufacturer |
|---|---|------------------|--------------------------|
| Test Stand: | Disturbance voltages | | |
| EMI Test Receiver | ESCS 30 | U-57 | Rohde & Schwarz |
| Artificial Mains Network | ESH 2-Z5 | U-57/A | Rohde & Schwarz |
| Artificial hand | RC | Pp-416 | PREDOM-OBR |
| Faraday Cage | EK-1 | U-11 | Unitra Unima Olsztyn |
| Test Stand: | Disturbance powerstand | | |
| EMI Test Receiver | ESCS 30 | U-57 | Rohde & Schwarz |
| Absorbing clamp | MDS-21 | P-395/A | Rohde & Schwarz |
| Faraday Cage | EK-1 | U-11 | UnitraUnima Olsztyn |
| Test Stand: | Harmonic current emissions, Voltage changes, voltage fluctuations and flicker | | |
| Test System | EMV D 15000/PAS | U-84 | Spitzenberger+Spies GmbH |
| Test Stand: | Electrostatic discharges | | |
| Simulator ESD | NSG 435 | P-396 | Schaffner |
| Test Stand: | Fast Transients / Surges | | |
| Multifunctional Test Generator | COMPACT NX5 | U-117A | EM TEST |
| Combined 3-Phase Coupling/ Decoupling Networks | COUPLING NX5 | U-117B | EM TEST |
| Test Stand: | Conducted Disturbances Immunity | | |
| Continuous Wave Simulator | CWS 500 | U-56 | EM TEST |
| Coupling-Decoupling Network | CDN-M5,M3,M2 | U-56/D,C,B | EM TEST |
| Attenuator | ATT 6 | U-56/F | EM TEST |
| Test Stand: | Radiated electromagnetic disturbances stand Semi-anechoic chamber U-86 | | |
| EMI Test Receiver | ESIB 26 | P-377 | Rohde & Schwarz |
| Antenna | HL 562 | P-382 | Rohde & Schwarz |
| Test Stand: | Radiated, radio-frequency, electromagnetic field stand Semi-anechoic chamber U-86 | | |
| Vector Signal Generator | SMBV100A | P-601 | Rohde & Schwarz |
| Power Amplifier | BLWA 0810-250/75D | P-370 | BONN Elektronik |
| Power Amplifier | BLMA 0830-40 | P-369 | BONN Elektronik |
| Power Amplifier | BLMA 4060-10 | P-467 | BONN Elektronik |
| Power Meter | NRVD | P-375 | Rohde & Schwarz |
| Power Sensor | NRP-Z211 | P-468/469 | Rohde & Schwarz |
| Power Sensor | URV5-Z2 | P-373/374 | Rohde & Schwarz |
| Ultra log antenna | HL 046 | P-434 | Rohde & Schwarz |
| Horn antenna | HF 907 | P-447 | Rohde & Schwarz |
| Test Stand: | Power frequency magnetic fields | | |
| Magnetic field generator | 1008 | P-326 | PMM |

9 Measurement instrumentation uncertainties

| Type of disturbance test method | Used test equipment (only main instruments, no details) | Calculated uncertainty | U_{CISPR} |
|--|--|---|--------------------|
| Disturbance voltage Mains terminals 9 kHz ... 150 kHz 150 kHz ... 30 MHz | EMI Test Receiver Artificial Mains Network | 3.6 dB | 4.0 dB 3.6 dB |
| Electric field strength Horiz. 30 MHz ... 200 MHz Horiz. 200 MHz ... 1000 MHz Vert. 30 MHz ... 130 MHz Vert. 130 MHz ... 200 MHz Vert. 200 MHz ... 1000 MHz | EMI Test Receiver Antenna | Horiz. 30 MHz ... 200 MHz 4.9 dB Horiz. 200 MHz ... 300 MHz 5.2 dB Vert. 30 MHz ... 200 MHz 5.1 dB Vert. 30 MHz ... 200 MHz 5.2 dB Vert. 200 MHz ... 300 MHz 5.2 dB | 5.2 dB |

10 Annex

10.1 Annex A:

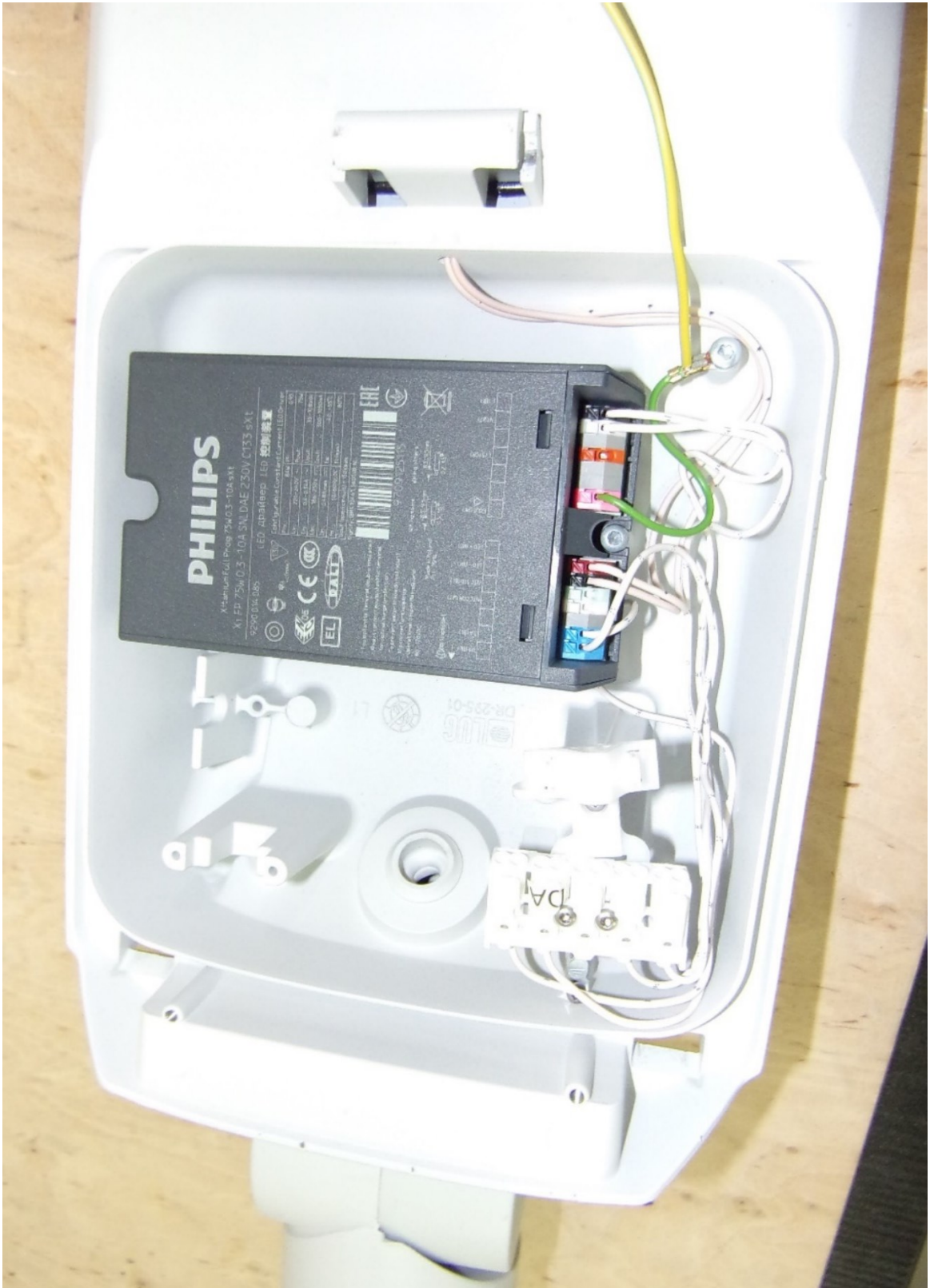
| Critical components information | | | |
|---------------------------------|----------------------------|--|-------------|
| Object | Manufacturer/ Trademark | Type/Model | Remark |
| Power supply | PHILIPS | Xitanium Full Prog 75W 0.3-1.0A sXt Xi FP 75W 0.3-1.0A SNLDAE 230V C133 sXt | See page 64 |

See Technical documentation and photos Annex B.

10.2 Annex B:

| TABLE: Photography of the components | |
|--------------------------------------|-------------|
| Component/ Part No. | Photography |

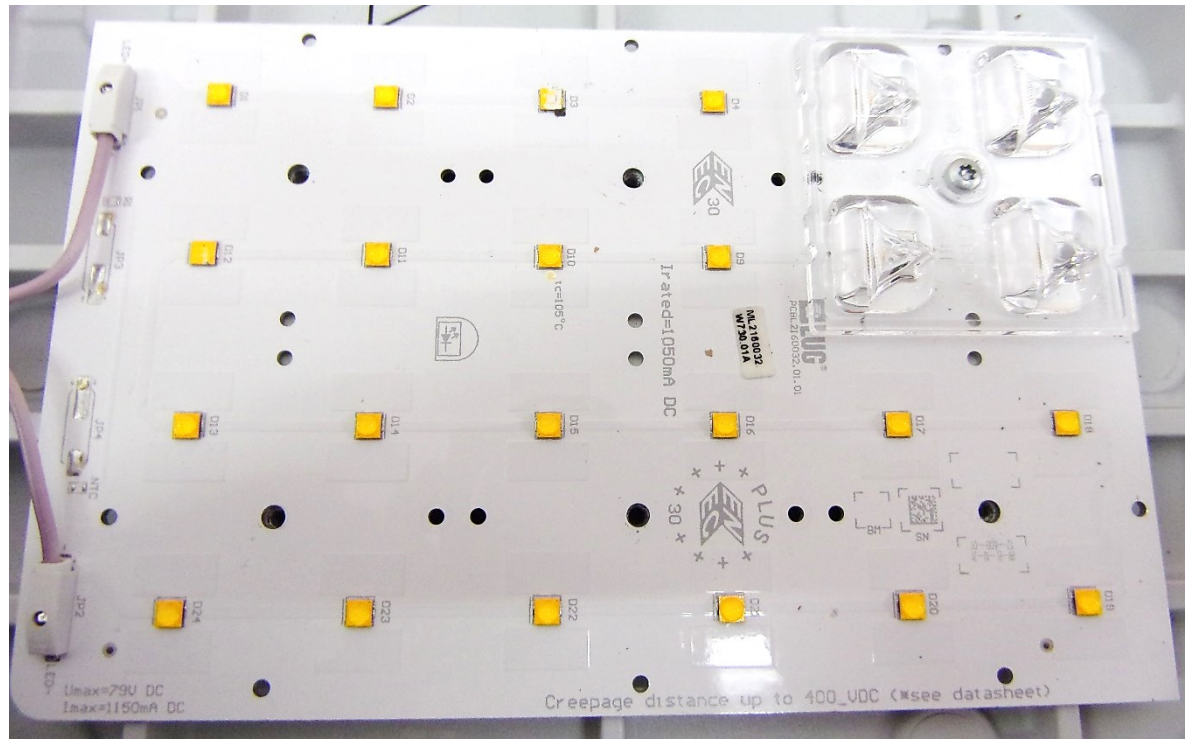




Power supply



LED module



End of the Report



EU DECLARATION OF CONFORMITY

CLS/2024/03/131



We

LUG Light Factory Ltd.
Gorzowska 11
65-127 Zielona Góra, Poland

declare under our sole responsibility that the product

| | |
|----------------|---------------------------------|
| Name | URBINO LED S |
| Group | Infrastructural lighting |
| Factory number | Attachment |

is in conformity with the provisions of the following acts:

Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility

Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits


Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products

Commission regulation (EU) 2019/2020 of 1 October 2019 laying down ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012

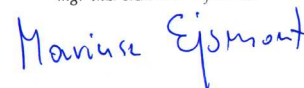
and the following harmonized standards:

| | |
|---|---------------------------------------|
| PN-EN 60598-1:2015-04 | PN-EN IEC 63000:2019-01 |
| PN-EN IEC 55015:2019-11 | PN-EN 62471:2010 |
| PN-EN IEC 55015:2019-11/A11:2020-07 | PN-EN 60598-2-3:2006/A1:2012 |
| PN-EN 61547:2009 | PN-EN 60598-2-3:2006/A1:2012 |
| PN-EN IEC 61000-3-2:2019-04 | PN-EN 62722-1:2016-07 |
| PN-EN IEC 61000-3-2:2019-04/A1:2021-08 | PN-EN 62722-2-1:2016-07 |
| PN-EN 61000-3-3:2013-10 | PN-EN 62717:2017-11 |
| PN-EN 61000-3-3:2013-10/A1:2019-10 | PN-EN 62717:2017-11/A2:2019-07 |
| PN-EN 62493:2015-11 | |


LUG Light Factory Sp. z o. o.
Kierownik Laboratorium/Laboratory Manager
mgr inż. Marcin Białas

Issued by

DYREKTOR
DS. TECHNICZNYCH
mgr inż. Mariusz Ejsmont



Authorized person signature



EU DECLARATION OF CONFORMITY

CLS/2024/03/131



ATTACHMENT

Factory number

130782.7L122.110.049

130782.7L122.140.017

130782.7L122.120.005

130782.7L122.130.006

130782.7L122.110.050

130782.7L242.130.010

This declaration applies to all serial numbers produced under the given factory symbol.



TEST REPORT
EN 62262
Degree of protection provided
by enclosures for electrical equipment
against external mechanical impacts (IK code)

Report Number.: **B10-3/096/B/22**

Date of issue: **2022-07-08**

Total number of pages..... 14

Name of Testing Laboratory: **Łukasiewicz - IMiF PREDOM Division**
preparing the Report.....: **02-255 Warszawa, ul. Krakowiaków 53, Poland**

Applicant's name.....: **LUG Light Factory Sp. z.o.o.**
Address: **65-127 Zielona Góra, ul. Gorzowska 11, Poland**

Test specification:

Standard: EN 62262:2002 (in conjunction with IEC/TR 62696:2011)

Test procedure: ENEC CCA NTR Other: _____

Non-standard test method.....: N/A

Test Report Form No.....: EN_EN62262A

Test Report Form(s) Originator: Łukasiewicz - IMiF PREDOM Division

Master TRF: Dated 2021-11-22

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If this Test Report Form is used by non-ETICS members, the ECS logo and the reference to the ENEC/CCA Scheme procedure shall be removed.

General disclaimer:

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing ECS Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

| | | |
|---|--|--|
| Test item description | Luminaires for road and street lighting | |
| Trade Mark | LUG | |
| Manufacturer | LUG Light Factory Sp. z.o.o. ul. Gorzowska 11, 65-127 Zielona Góra, Poland | |
| Model/Type reference | URBINO LED S family – see also “General product information” | |
| Ratings | 220-240 V, 50/60 Hz, IP66, IK10, cl. I or II (see details – pages 3 - 7) | |
| Responsible Testing Laboratory (as applicable), testing procedure and testing location(s): | | |
| <input checked="" type="checkbox"/> | ECS Testing Laboratory: | Łukasiewicz - IMiF PREDOM Division |
| Testing location/ address | 02-255 Warszawa, ul. Krakowiaków 53, Poland | |
| Tested by (name, function, signature) | J. Śmigrodzki |  |
| Approved by (name, function, signature) .. | T. Małycka |  |
| Supervised by (name, function, signature) : | F. Walczak |  |
| <input type="checkbox"/> | Testing procedure: TMP/CTF Stage 1: | |
| Testing location/ address | | |
| Tested by (name, function, signature) | | |
| Approved by (name, function, signature) .. | | |
| <input type="checkbox"/> | Testing procedure: WMT/CTF Stage 2: | |
| Testing location/ address | | |
| Tested by (name + signature)..... | | |
| Witnessed by (name, function, signature) . : | | |
| Approved by (name, function, signature) .. : | | |

List of Attachments (including a total number of pages in each attachment): N/A

Summary of testing: Positive

According to ISO / IEC Guide 98-4 for the assessment of compliance of the measurement result with the requirements, criterion B was chosen. 50% risk of incorrect assessment decision belongs to the customer and 50% risk of incorrect assessment belongs to the laboratory.

Tests performed (name of test and test clause):

EN 62262:2002 (in conjunction with IEC/TR 62696:2011) - all clauses.

Testing location:

Łukasiewicz- IMiF PREDOM Division
02-255 Warszawa, ul. Krakowiaków 53, Poland

Summary of compliance with National Differences (List of countries addressed): N/A

The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis, leave it blank or delete the whole sentence, if not applicable)

Copy marking plate:



| | |
|--|---|
| Test item particulars | Luminaire for road and street lighting |
| Classification of installation and use | Normal |
| Supply Connection | Connector |
| | : |
| Possible test case verdicts: | |
| - test case does not apply to the test object | : N/A |
| - test object does meet the requirement | : P (Pass) |
| - test object does not meet the requirement | : F (Fail) |
| Testing | : |
| Date of receipt of test item | : 2022-06-08 |
| Date (s) of performance of tests | : 2022-06-08 - 2022-07-08 |
| General remarks: | |
| <p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</p> | |
| Name and address of factory (ies) | LUG Light Factory Sp. z.o.o. ul. Gorzowska 11; 65-127 Zielona Góra, Poland |

General product information and other remarks:

| | | |
|--|--|--|
| Name and address of the license holder: | LUG Light Factory Sp. z o.o. ul. Gorzowska 11, 65-127 Zielona Góra - Poland | |
| Address of the factory: | LUG Light Factory Sp. z o.o. ul. Gorzowska 11, 65-127 Zielona Góra - Poland | |
| Name of product: | Luminaires for road and street lighting | |
| Type (model): | URBINO LED S family - series (see bellow) | |
| Trade mark : | LUG | |
| Technical data: | | |
| rated voltage | 220 - 240V | |
| rated frequency | 50 / 60Hz | |
| protection against electric shock | class I or II | |
| degree of protection | IP 66; IK10 | |
| ta | 4,5W - 36W | Ta= -40°C / -35°C* / -30°C** ... +55°C |
| | 37W - 51W | Ta= -40°C / -35°C* / -30°C**/-25°*** ... +50°C |
| | 52W - 74W | Ta= -40°C / -35°C* / -30°C**/-25°*** ... +40°C |

- * - For luminaires equipped with:
 ▪ Vossloh Schwabe SP/230/10K/i
- ** - For luminaires equipped with:
 ▪ SPD Vossloh Schwabe SP/230/10K
 ▪ Xi FP 110W 0.3-0.1A NLP C150 230V
 ▪ Tridonic LCA 120W 300-1050mA
- *** - For luminaires equipped with:
 ▪ LACROIX DL-PAK 70


Choice sheet of the luminaires URBINO LED S version, CL I- series:**Example of symbol:**

130772.7LR7B40S895.101.N.P

1 2 3 4 5 6 7 8 9

Designations used on the marking of luminaries (some designation may not appear in the name) :

- | | |
|---------------------------------|---|
| 1. 13077 13078 | - Code of the series URBINO LED S - XPG3 SERIES Code of the series URBINO LED S - LUXEON SERIES |
| 2. 2 | - Color: 2: grey 5: graphite 0: another |
| 3. 7L | - Type of power supply: 2L - DIMM 1-10V 3L – DALI 5L – on-off 6L – on-off / DALI 7L – ZHAGA D4i PL – programmable |
| 4. R7 | - CRI: R7 = 70-79 R8 = 80-89 |
| 5. B40 | - Color temperature: |

| | |
|--|--|
| | B22 = 2200K B27 = 2700K B30 = 3000K B40 = 4000K B57 = 5700K B65 = 6500K |
| 6. S895 | - Luminous flux (S895 = 8950lm) |
| 7. 1 | - Safety Class I |
| 8. 01 | - Optic type – for road lighting 01 O1 - for road lighting type O1 02 O2 - for road lighting type O2 99 O99 - for road lighting type O99 |
| 9. N.P | - Additional equipment A - additional corrosion protection B - Tool-free access to the LED Driver U - ø76mm pole N - NEMA Socket Z - ZHAGA Socket T - NTC Sensor W - Twilight Sensor V - Surge Device Protector 10kV P- Anti pressure vent I- iBloc (“URBAN” smart city system) K- Knife switch connector |
| Choice sheet of the luminaires URBINO LED S version, CL II- series: | |
| Example of symbol: | |
| 130772.7LR7B40S895.201.N.P  | |
| Designations used on the marking of luminaries (some designation may not appear in the name) : | |
| 1. 13077 13078 | - Code of the series URBINO LED S - XPG3 SERIES Code of the series URBINO LED S - LUXEON SERIES |
| 2. 2 | - Color: 2: grey 5: graphite 0: another |
| 3. 7L | - Type of power supply: 2L - DIMM 1-10V 3L – DALI 5L – on-off 6L – on-off / DALI 7L – ZHAGA D4i PL – programmable |
| 4. R7 | - CRI: R7 = 70-79 |

| | |
|---|--|
| <p>5. B40</p> <p>6. S895</p> <p>7. 2</p> <p>8. 01</p> <p>9. N.P</p> | <p>R8 = 80-89</p> <p>- Color temperature: B22 = 2200K B27 = 2700K B30 = 3000K B40 = 4000K B57 = 5700K B65 = 6500K</p> <p>- Luminous flux (S895 = 8950lm)</p> <p>- Safety Class II</p> <p>- Optic type – for road lighting 01 O1 - for road lighting type O1 02 O2 - for road lighting type O2 99 O99 - for road lighting type O99</p> <p>- Additional equipment A - additional corrosion protection B - Tool-free access to the LED Driver U - ø76mm pole N - NEMA Socket Z - ZHAGA Socket T - NTC Sensor W - Twilight Sensor V - Surge Device Protector 10kV P- Anti pressure vent I- iBloc (“URBAN” smart city system) K- Knife switch connector</p> |
| <p>After review of technical documentation, model series, characteristic of particular models, technical parameters, and components, etc., the luminaire 130772.5LR7B22S45.101.B has been tested as the representative of all models of luminaires.</p> | |

| EN 62262 | | | |
|------------|---|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4. | DESTIGNATION | | P |
| 4.1 | Arrangement of the IK code | | P |
| | Codes letters (international mechanical protection) ——— IK ——— 05 Characteristic group numeral (0 to 10) ——— | IK10 | P |
| 4.2 | Characteristic group numerals of the IK code and their meanings | Each characteristic group numeral, represents an impact energy value as shown in Table1. See table 1 of EN62262, IK10 Impact energy: 20 J | P |
| 4.3 | Application of the IK code | | N/A |
| | In general the degree of protection applies to the complete enclosure. If parts of the enclosure have differing degrees of protection, the latter shall be separately indicated | | N/A |
| 4.4 | Marking | | P |
| | In case where the relevant product committee decides that marking of the IK-code shall be required, the marking requirements shall be detailed in the relevant product standard | | P |
| | Where appropriate, such a standard should also specify the method of marking which is to be used when: | | N/A |
| | — one part of an enclosure has different degree of protection to that of another part of the same enclosure; | | N/A |
| | — the mounting position has an influence on the degree of protection | | N/A |
| 5. | GENERAL REQUIREMENTS FOR TESTS | | P |
| 5.1 | Atmospheric conditions for tests | | P |
| | Unless otherwise specified in the relevant product standard, the test shall be carried out under the standard atmospheric conditions for tests described in IEC60068-1 as: | | P |
| | Temperature range 15°C to 35°C | 24°C | P |
| | Air pressure 86 kPa to 106 kPa (860mbar to 1060 mbar) | 100,7 kPa | P |
| | When the altitude at which the test is performed is higher than 2000 m the height of fall shall be adjusted where necessary to result in the specified impact energy. | | N/A |
| 5.2 | Enclosures under test | | P |
| | each enclosure under test shall be in a clean and new condition, complete with all their parts in place unless otherwise specified in the relevant product standard | | P |
| 5.3 | Specifications to be given in the relevant product standard | | P |
| | The relevant product standard shall specify: | | |

| EN 62262 | | | |
|----------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | — the definition of “enclosure” as it applies to the particular type of equipment; | | P |
| | — the test equipment (e.g. pendulum hammer, spring hammer or vertical hammer, see Clause7); | | P |
| | — the number of samples to be tested; | | P |
| | — the conditions for mounting, assembling and positioning the samples, e.g. by the use of an artificial surface(ceiling, floor or wall), in order to stimulate intended service conditions as far as possible; | | P |
| | — the pre-conditioning, if any, which is to be used; | | P |
| | — whether to be tested energized; No energized | | P |
| | — whether to be tested with any moving parts in motion; No moving parts | No moving parts | P |
| | — the number of impacts and their points of application (see 6.3). | | P |
| | In the absence of such specifications in the relevant product standard, conditions of this standard shall apply. | | P |
| XXX | IEC TR 62696 Requirements | | P |
| XXX 3 | Conditions of testing (IEC TR 62696) | | P |
| XXX 3.1 | In general, testing is conducted in accordance with IEG 62262, having regard to the general test conditions specified by IEG 60598-1, Subclause 4.13, and the following conditions which are specific for the 1K testing and rating of luminaires, (IEC TR 62696) | | P |
| XXX3.2 | Impacts should not be applied through openings in the luminaire enclosure with an area less than 64 cm ² . NOTE For example, no impact should be applied through the individual openings in optical controls (louvers) if their size is less than 64 cm ² . (IEC TR 62696) | | P |
| XXX3.3 | Luminaires should be tested fully assembled and installed for use. (IEC TR 62696) | | P |
| | Luminaires for ceiling or wall mounting should be mounted on a rigid wooden board. (IEC TR 62696) | | N/A |
| | Suspended luminaires should be tested as in normal use, with the minimum suspension length detailed by the manufacturer’s instructions. (IEC TR 62696) | | N/A |

| EN 62262 | | | |
|----------|---|-----------------|----------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Luminaires to be installed on a pole, with or without a mast arm, should be installed on a rigid portion of the pole. (IEC TR 62696) | | P |
| | Floor mounted luminaires should be tested in a suitable rigid structure to simulate normal use. (IEC TR 62696) | | N/A |
| XXX3.4 | Luminaires should not be energised during test and no preconditioning of the luminaire sample is required. (IEC TR 62696) | | P |
| XXX3.5 | Testing should be conducted on a single luminaire sample unless the results of impact testing of other areas of the luminaire could influence assessment of the result. Three impact blows should be applied to the point(s) of the luminaire considered to be the weakest. (IEC TR 62696) | | P |
| XXX3.6 | Impact testing should be conducted using striking elements with head radius and material type as specified by IEC 60068-2-75. Spring hammer apparatus should be used for ratings up to and including 1K06. For ratings IK07 and above, the use of pendulum or vertical hammer apparatus is acceptable, as most appropriate for the luminaire design and its intended installation (IEC TR 62696) | | P |
| XXX3.7 | Impact testing should be conducted with the luminaire in its intended mounting orientation whenever this is possible, and when this could affect the outcome of the test (e.g. for assessment of mounting surface fixing security). (IEC TR 62696) | | P |
| | When impact testing of a ceiling-mounted luminaire is required from below the luminaire, and this is impractical, the luminaire may be rotated 90° (to a wall mounted position) for the purposes of this testing. (IEC TR 62696) | | N/A |
| XXX3.8 | In cases where it may be impossible to carry out the impact test due to the luminaire construction, it is acceptable to use a specially-prepared luminaire to perform the test- For this situation, the modification should not impair the mechanical strength characteristics of the luminaire. (IEC TR 62696) | | N/A |
| 6 | TEST TO VERIFY THE PROTECTION AGAINST MECHANICAL IMPACTS | | P |
| 6.1 | The tests specified in this standard are type tests | | P |

| EN 62262 | | | |
|-----------------|---|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | 6.2 In order to verify the protection against mechanical impacts blows shall be applied to the enclosure to be tested. The device to be used for this test are described in Clause 7 | | P |
| 6.3 | During the test the enclosure shall be mounted, according to the manufacturer instructions for use, on a rigid support. A support is considered to be sufficiently rigid if its displacement is less than or equal to 0,1mm under the effect of an impact directly applied and whose energy corresponds to the degree of protection. Alternative mounting and support, suitable for the product, may be specified in the relevant product standard | Displacement is less than or equal to 0,1 mm | P |
| 6.4 | The number of impacts shall be five on each exposed face unless otherwise specified in the relevant product standard. The impacts shall be evenly distributed on the faces of the enclosure (s) under test. In no case shall more than three impacts be applied in the surroundings of the same 5 points | 3 times per point | P |
| 6.5 | Test evaluation | | P |
| | The relevant product standard shall specify the criteria upon which the acceptance or rejection of the enclosure is to be based on particularly: | | P |
| | —admissible damages; | | P |
| | —verification criteria relative to the continuity of the safety and reliability of the equipment | | P |
| XXX4 | Conditions of acceptance (IEC TR 62696) | | P |
| XXX4.1 | Safety of the luminaire is to be maintained as per the criteria given in IEG 60598-1, Subclause 4.13. Furthermore, the fixings of the luminaire to the mounting surface should remain secure. Non safety critical damage to the luminaire enclosure and optics is accepted, but no parts of the luminaire should become detached. Acceptance is checked by visual inspection, and test/measurement where required. (IEC TR 62696) | | P |
| XXX4.2 | Protection of the light source should be provided and basic functioning of the luminaire should be maintained. Acceptance is checked by visual inspection and by operation of the luminaire following the test. (IEC TR 62696) | | P |
| 7. | TEST APPARATUS | | P |
| | The test shall be done by using one of the test apparatus as described in EN 60068-2-75 | | P |

| EN 62262 | | | |
|----------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | The striking surface shall be visually examined before each impact in order to ensure that there is no damage that might affect the result of the test | | P |
| 7.1 | Test Ehc: Vertical hammer | | P |
| 7.2 | The hammer consists basically of a striking element which falls freely from rest through a vertical height, selected from table2, on to the specimen surface held in a horizontal plane. The characteristics of the striking element shall comply with table 1. The fall of the striking element shall be along a guide way, for example a tube, with negligible braking. This guide way shall not rest on the specimen and the striking element shall be free of the guide way on striking the specimen. In order to reduce the friction, the length l of the striking element shall not be smaller than its diameter D, and a small gap (for example 1 mm) shall be provided between the striking element and the guide way. | | P |
| 7.3 | Height of fall | | P |
| | The height of fall shall be as given in table2, the equivalent mass stated therein being equal to the actual mass of the striking element | | P |

Note (XXX – requirements of IEC/TR 62696:2011)

| TABLE: Critical components information | | | | | P |
|--|-------------------------|--------------|----------------|----------|-------------------------------------|
| Object / part No. | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹⁾ |
| see the list of components in the TR B10-3/093/B/22 dated 2022-07-08 and TR B10-3/094/B/22 dated 2022-07-08 | | | | | |
| Supplementary information: ¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039. | | | | | |

List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Manufacturer Testing Laboratory according to TMP/CTF stage 1 or TMP/CTF stage 2 procedure has been used.

Note: This page may be removed when CTF stage 1 CTF stage 2 are not used.

| Clause | Measurement / testing | Testing / measuring equipment / material used, (Equipment ID) | Range used | Last Calibration date | Calibration due date |
|--------|-----------------------|---|------------|-----------------------|----------------------|
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Photos 130772.5LR7B22S45.101.B





Test Report issued under the responsibility of:
Łukasiewicz - IMiF PREDOM Division

| TEST REPORT IEC 62471 Photobiological safety of lamps and lamp systems | |
|--|---|
| Report Reference No. | B10-3/095/B/22 |
| Date of issue | 2022-07-22 |
| Total number of pages | 22 |
| Name of Testing Laboratory preparing the Report | Łukasiewicz - IMiF PREDOM Division 02-255 Warszawa, ul. Krakowiaków 53, Poland |
| Applicant's name | LUG Light Factory Sp z.o.o. |
| Address | 65-127 Zielona Góra, ul. Gorzowska 11, Poland |
| Test specification: | |
| Standard | IEC 62471:2006 |
| Test procedure | CB |
| Non-standard test method | N/A |
| Test Report Form No. | IEC62471B |
| TRF Originator | VDE Testing and Certification Institute |
| Master TRF | Dated 2018-08-16 |
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| If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed. | |
| This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02. | |
| General disclaimer: | |
| The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report. | |

| | | |
|---|--|---|
| Test item description | Luminaires for road and street lighting | |
| Trade Mark | LUG | |
| Manufacturer | LUG Light Factory Sp z o.o. ul. Gorzowska 11; 65-127 Zielona Góra, Poland | |
| Model/Type reference | URBINO LED S family – series | |
| Ratings | 220-240V 50/60Hz, 74W, IP66, cl. I | |
| Responsible Testing Laboratory (as applicable), testing procedure and testing location(s): | | |
| <input checked="" type="checkbox"/> | CB Testing Laboratory: | Łukasiewicz - IMiF PREDOM Division |
| Testing location/ address | | 02-255 Warszawa, ul. Krakowiaków 53, Poland |
| Tested by (name, function, signature) | | J. Śmigrodzki  |
| Approved by (name, function, signature) .. | | T. Małyska  |
| Supervised by (+ signature) | | F. Walczak  |
| <input type="checkbox"/> | Testing procedure: CTF Stage 1: | |
| Testing location/ address | | |
| Tested by (name, function, signature) | | |
| Approved by (name, function, signature) .. | | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 2: | |
| Testing location/ address | | |
| Tested by (name + signature) | | |
| Witnessed by (name, function, signature) .: | | |
| Approved by (name, function, signature) .. | | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 3: | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 4: | |
| Testing location/ address | | |
| Tested by (name, function, signature) | | |
| Witnessed by (name, function, signature) .: | | |
| Approved by (name, function, signature) .. | | |
| Supervised by (name, function, signature) : | | |

List of Attachments (including a total number of pages in each attachment):

See Attachment No.1 to this test report (Report No. B10-3/095/B/1/22) 2 pages

Summary of testing: Tests Result – Positive

According to ISO / IEC Guide 98-4 for the assessment of compliance of the measurement result with the requirements, criterion B was chosen. 50% risk of incorrect assessment decision belongs to the customer and 50% risk of incorrect assessment belongs to the laboratory

Tests performed (name of test and test clause):

IEC 62471:2006

Testing location:

Łukasiewicz - IMiF PREDOM Division
02-255 Warszawa, ul. Krakowiaków 53, Poland

Summary of compliance with National Differences (List of countries addressed):

See Attachment No.1 to this test report (Report No. B10-3/095/B/1/22)

The product fulfils the requirements of EN 62471:2008

Copy of marking plate:



| | |
|---|--|
| Test item particulars: | |
| Tested lamp | <input checked="" type="checkbox"/> continuous wave lamps <input type="checkbox"/> pulsed lamps |
| Tested lamp system..... | 130772.3LR7B30S895.101.B |
| Lamp classification group | <input checked="" type="checkbox"/> exempt <input type="checkbox"/> risk 1 <input type="checkbox"/> risk 2 <input type="checkbox"/> risk 3 |
| Lamp cap | N/A |
| Bulb | ML2160032.W730.01A |
| Rated of the lamp..... | 74 W, 220 – 240 V |
| Furthermore marking on the lamp..... | N/A |
| Seasoning of lamps according IEC standard | IEC 60589-1 |
| Used measurement instrument | StellarNet UVN-50, IC2 Integrating cube |
| Temperature by measurement..... | 25 °C |
| Information for safety use | N/A |
| Possible test case verdicts: | |
| – test case does not apply to the test object..... | N/A |
| – test object does meet the requirement | P (Pass) |
| – test object does not meet the requirement..... | F (Fail) |
| Testing: | |
| Date of receipt of test item | 2022-06-08 |
| Date (s) of performance of tests | 2022-06-08 - 2022-07-22 |
| General remarks: | |
| "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. | |
| Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator. | |
| Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60589-1: | |
| The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable |
| When differences exist; they shall be identified in the General product information section. | |
| Name and address of factory (ies)..... | LUG Light Factory Sp. z o.o. ul. Gorzowska 11 65-127 Zielona Góra Poland |

General product information and other remarks:

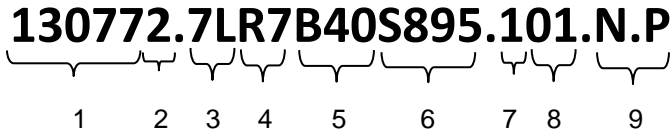
| | | |
|--|--|---|
| Name and address of the license holder: | LUG Light Factory Sp. z o.o. ul. Gorzowska 11, 65-127 Zielona Góra - Poland | |
| Address of the factory: | LUG Light Factory Sp. z o.o. ul. Gorzowska 11, 65-127 Zielona Góra - Poland | |
| Name of product: | Luminaires for road and street lighting | |
| Type (model): | URBINO LED S family - series (see bellow) | |
| Trade mark : | LUG | |
| Technical data: | | |
| rated voltage | 220 - 240V | |
| rated frequency | 50 / 60Hz | |
| protection against electric shock | class I or II | |
| degree of protection | IP 66; IK10 | |
| ta | 4,5W - 36W | Ta= -40°C / -35°C* / -30°C** ... +55°C |
| | 37W - 51W | Ta= -40°C / -35°C* / -30°C**/-25°C*** ... +50°C |
| | 52W - 74W | Ta= -40°C / -35°C* / -30°C**/-25°C*** ... +40°C |

- * - For luminaires equipped with:
 ▪ Vossloh Schwabe SP/230/10K/i
- ** - For luminaires equipped with:
 ▪ SPD Vossloh Schwabe SP/230/10K
 ▪ Xi FP 110W 0.3-0.1A NLP C150 230V
 ▪ Tridonic LCA 120W 300-1050mA
- *** - For luminaires equipped with:
 ▪ LACROIX DL-PAK 70

Choice sheet of the luminaires URBINO LED S version, CL I- series:

Example of symbol:

130772.7LR7B40S895.101.N.P



1 2 3 4 5 6 7 8 9


Designations used on the marking of luminaires (some designation may not appear in the name) :

- | | |
|---------------------------|---|
| 1. 13077 13078 | <ul style="list-style-type: none"> - Code of the series URBINO LED S - XPG3 SERIES Code of the series URBINO LED S - LUXEON SERIES |
| 2. 2 | <ul style="list-style-type: none"> - Color: 2: grey 5: graphite 0: another |
| 3. 7L | <ul style="list-style-type: none"> - Type of power supply: 2L - DIMM 1-10V 3L – DALI 5L – on-off 6L – on-off / DALI 7L – ZHAGA D4i PL – programmable |
| 4. R7 | <ul style="list-style-type: none"> - CRI: R7 = 70-79 R8 = 80-89 |
| 5. B40 | <ul style="list-style-type: none"> - Color temperature: B22 = 2200K B27 = 2700K B30 = 3000K B40 = 4000K B57 = 5700K B65 = 6500K |
| 6. S895 | <ul style="list-style-type: none"> - Luminous flux (S895 = 8950lm) |
| 7. 1 | <ul style="list-style-type: none"> - Safety Class I |
| 8. 01 | <ul style="list-style-type: none"> - Optic type – for road lighting 01 O1 - for road lighting type O1 02 O2 - for road lighting type O2 99 O99 - for road lighting type O99 |
| 9. N.P | <ul style="list-style-type: none"> - Additional equipment A - additional corrosion protection |

B - Tool-free access to the LED Driver
 U - ø76mm pole
 N - NEMA Socket
 Z - ZHAGA Socket
 T - NTC Sensor
 W - Twilight Sensor
 V - Surge Device Protector 10kV
 P- Anti pressure vent
 I- iBloc ("URBAN" smart city system)
 K- Knife switch connector

Choice sheet of the luminaires URBINO LED S version, CL II- series:

Example of symbol:

130772.7LR7B40S895.201.N.P

 1 2 3 4 5 6 7 8 9

Designations used on the marking of luminaires (some designation may not appear in the name) :

- | | |
|---------------------------------|---|
| 1. 13077 13078 | <ul style="list-style-type: none"> - Code of the series URBINO LED S - XPG3 SERIES Code of the series URBINO LED S - LUXEON SERIES |
| 2. 2 | <ul style="list-style-type: none"> - Color: 2: grey 5: graphite 0: another |
| 3. 7L | <ul style="list-style-type: none"> - Type of power supply: 2L - DIMM 1-10V 3L – DALI 5L – on-off 6L – on-off / DALI 7L – ZHAGA D4i PL – programmable |
| 4. R7 | <ul style="list-style-type: none"> - CRI: R7 = 70-79 R8 = 80-89 |
| 5. B40 | <ul style="list-style-type: none"> - Color temperature: B22 = 2200K B27 = 2700K B30 = 3000K B40 = 4000K B57 = 5700K |

| | |
|--|--|
| | B65 = 6500K |
| 6. S895 | - Luminous flux (S895 = 8950lm) |
| 7. 2 | - Safety Class II |
| 8. 01 | - Optic type – for road lighting 01 O1 - for road lighting type O1 02 O2 - for road lighting type O2 99 O99 - for road lighting type O99 |
| 9. N.P | - Additional equipment A - additional corrosion protection B - Tool-free access to the LED Driver U - ø76mm pole N - NEMA Socket Z - ZHAGA Socket T - NTC Sensor W - Twilight Sensor V - Surge Device Protector 10kV P- Anti pressure vent I- iBloc (“URBAN” smart city system) K- Knife switch connector |
| After review of technical documentation, model series, characteristic of particular models, technical parameters, and components, etc., the luminaire 130772.3LR7B30S895.101.B has been tested as the representative of all models of luminaires | |

| IEC 62471 | | | |
|-----------|--|-----------------------------|------------------------------------|
| Clause | Requirement + Test | Result – Remark | Verdict |
| 4 | EXPOSURE LIMITS | | P |
| 4.1 | General | | P |
| | The exposure limits in this standard is not less than 0,01 ms and not more than any 8-hour period and should be used as guides in the control of exposure | | P |
| | Detailed spectral data of a light source are generally required only if the luminance of the source exceeds $10^4 \text{ cd}\cdot\text{m}^{-2}$ | see clause 4.3 | P |
| 4.3 | Hazard exposure limits | | P |
| 4.3.1 | Actinic UV hazard exposure limit for the skin and eye | | P |
| | The exposure limit for effective radiant exposure is $30 \text{ J}\cdot\text{m}^{-2}$ within any 8-hour period | | P |
| | To protect against injury of the eye or skin from ultraviolet radiation exposure produced by a broad-band source, the effective integrated spectral irradiance, E_s , of the light source shall not exceed the levels defined by: | | P |
| | $E_s \cdot t = \sum_{200}^{400} \sum_t E_\lambda(\lambda, t) \cdot S_{UV}(\lambda) \cdot \Delta t \cdot \Delta \lambda \leq 30 \quad \text{J}\cdot\text{m}^{-2}$ | | P |
| | The permissible time for exposure to ultraviolet radiation incident upon the unprotected eye or skin shall be computed by: | | P |
| | $t_{\max} = \frac{30}{E_s} \quad \text{s}$ | | P |
| 4.3.2 | Near-UV hazard exposure limit for eye | | P |
| | For the spectral region 315 nm to 400 nm (UV-A) the total radiant exposure to the eye shall not exceed $10000 \text{ J}\cdot\text{m}^{-2}$ for exposure times less than 1000 s. For exposure times greater than 1000 s (approximately 16 minutes) the UV-A irradiance for the unprotected eye, E_{UVA} , shall not exceed $10 \text{ W}\cdot\text{m}^{-2}$. | | P |
| | The permissible time for exposure to ultraviolet radiation incident upon the unprotected eye for time less than 1000 s, shall be computed by: | | P |
| | $t_{\max} \leq \frac{10\,000}{E_{UVA}} \quad \text{s}$ | | P |
| 4.3.3 | Retinal blue light hazard exposure limit | | P |
| | To protect against retinal photochemical injury from chronic blue-light exposure, the integrated spectral radiance of the light source weighted against the blue-light hazard function, $B(\lambda)$, i.e., the blue-light weighted radiance, L_B , shall not exceed the levels defined by: | | P |
| | $L_B \cdot t = \sum_{300}^{700} \sum_t L_\lambda(\lambda, t) \cdot B(\lambda) \cdot \Delta t \cdot \Delta \lambda \leq 10^6 \quad \text{J} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$ | for $t \leq 10^4 \text{ s}$ | $t_{\max} = \frac{10^6}{L_B}$ P |

| IEC 62471 | | | |
|-----------|--|--------------------------------|---------|
| Clause | Requirement + Test | Result – Remark | Verdict |
| | $L_B = \sum_{300}^{700} L_\lambda \cdot B(\lambda) \cdot \Delta\lambda \leq 100 \quad W \cdot m^{-2} \cdot sr^{-1}$ | for $t > 10^4$ s | P |
| 4.3.4 | Retinal blue light hazard exposure limit - small source | | N/A |
| | Thus the spectral irradiance at the eye E_λ , weighted against the blue-light hazard function $B(\lambda)$ shall not exceed the levels defined by: | see table 4.2 | N/A |
| | $E_B \cdot t = \sum_{300}^{700} \sum_t E_\lambda(\lambda, t) \cdot B(\lambda) \cdot \Delta\lambda \leq 100 \quad J \cdot m^{-2}$ | for $t \leq 100$ s | N/A |
| | $E_B = \sum_{300}^{700} E_\lambda \cdot B(\lambda) \cdot \Delta\lambda \leq 1 \quad W \cdot m^{-2}$ | for $t > 100$ s | N/A |
| 4.3.5 | Retinal thermal hazard exposure limit | | P |
| | To protect against retinal thermal injury, the integrated spectral radiance of the light source, L_λ , weighted by the burn hazard weighting function $R(\lambda)$ (from Figure 4.2 and Table 4.2), i.e., the burn hazard weighted radiance, shall not exceed the levels defined by: | | P |
| | $L_R = \sum_{380}^{1400} L_\lambda \cdot R(\lambda) \cdot \Delta\lambda \leq \frac{50\,000}{\alpha \cdot t^{0,25}} \quad W \cdot m^{-2} \cdot sr^{-1}$ | ($10 \mu s \leq t \leq 10$ s) | P |
| 4.3.6 | Retinal thermal hazard exposure limit – weak visual stimulus | | N/A |
| | For an infrared heat lamp or any near-infrared source where a weak visual stimulus is inadequate to activate the aversion response, the near infrared (780 nm to 1400 nm) radiance, L_{IR} , as viewed by the eye for exposure times greater than 10 s shall be limited to: | | N/A |
| | $L_{IR} = \sum_{780}^{1400} L_\lambda \cdot R(\lambda) \cdot \Delta\lambda \leq \frac{6\,000}{\alpha} \quad W \cdot m^{-2} \cdot sr^{-1}$ | $t > 10$ s | N/A |
| 4.3.7 | Infrared radiation hazard exposure limits for the eye | | P |
| | The avoid thermal injury of the cornea and possible delayed effects upon the lens of the eye (cataractogenesis), ocular exposure to infrared radiation, E_{IR} , over the wavelength range 780 nm to 3000 nm, for times less than 1000 s, shall not exceed: | | P |
| | $E_{IR} = \sum_{780}^{3000} E_\lambda \cdot \Delta\lambda \leq 18\,000 \cdot t^{-0,75} \quad W \cdot m^{-2}$ | $t \leq 1000$ s | P |
| | For times greater than 1000 s the limit becomes: | | |
| | $E_{IR} = \sum_{780}^{3000} E_\lambda \cdot \Delta\lambda \leq 100 \quad W \cdot m^{-2}$ | $t > 1000$ s | P |
| 4.3.8 | Thermal hazard exposure limit for the skin | | P |
| | Visible and infrared radiant exposure (380 nm to 3000 nm) of the skin shall be limited to: | | |

| IEC 62471 | | | |
|-----------|--|-----------------|---------|
| Clause | Requirement + Test | Result – Remark | Verdict |
| | $E_H \cdot t = \sum_{380}^{3000} \sum_t E_\lambda(\lambda, t) \cdot \Delta t \cdot \Delta \lambda \leq 20\,000 \cdot t^{0,25} \quad \text{J} \cdot \text{m}^{-2}$ | | P |
| 5 | MEASUREMENT OF LAMPS AND LAMP SYSTEMS | | P |
| 5.1 | Measurement conditions | | P |
| | Measurement conditions shall be reported as part of the evaluation against the exposure limits and the assignment of risk classification. | | P |
| 5.1.1 | Lamp ageing (seasoning) | | P |
| | Seasoning of lamps shall be done as stated in the appropriate IEC lamp standard. | | P |
| 5.1.2 | Test environment | | P |
| | For specific test conditions, see the appropriate IEC lamp standard or in absence of such standards, the appropriate national standards or manufacturer's recommendations. | | P |
| 5.1.3 | Extraneous radiation | | P |
| | Careful checks should be made to ensure that extraneous sources of radiation and reflections do not add significantly to the measurement results. | | P |
| 5.1.4 | Lamp operation | | P |
| | Operation of the test lamp shall be provided in accordance with: | | P |
| | – the appropriate IEC lamp standard, or | | N/A |
| | – the manufacturer's recommendation | | P |
| 5.1.5 | Lamp system operation | | P |
| | The power source for operation of the test lamp shall be provided in accordance with: | | P |
| | – the appropriate IEC standard, or | | N/A |
| | – the manufacturer's recommendation | | P |
| 5.2 | Measurement procedure | | P |
| 5.2.1 | Irradiance measurements | | P |
| | Minimum aperture diameter 7mm. | | P |
| | Maximum aperture diameter 50 mm. | | P |
| | The measurement shall be made in that position of the beam giving the maximum reading. | | P |
| | The measurement instrument is adequate calibrated. | | P |
| 5.2.2 | Radiance measurements | | P |
| 5.2.2.1 | Standard method | | N/A |
| | The measurements made with an optical system. | | N/A |
| | The instrument shall be calibrated to read in absolute radiant power per unit receiving area and per unit solid angle to acceptance averaged over the | | N/A |

| IEC 62471 | | | |
|-----------|---|-------------------------|---------|
| Clause | Requirement + Test | Result – Remark | Verdict |
| | field of view of the instrument. | | |
| 5.2.2.2 | Alternative method | | P |
| | Alternatively to an imaging radiance set-up, an irradiance measurement set-up with a circular field stop placed at the source can be used to perform radiance measurements. | | P |
| 5.2.3 | Measurement of source size | | P |
| | The determination of α , the angle subtended by a source, requires the determination of the 50% emission points of the source. | | P |
| 5.2.4 | Pulse width measurement for pulsed sources | | N/A |
| | The determination of Δt , the nominal pulse duration of a source, requires the determination of the time during which the emission is > 50% of its peak value. | | N/A |
| 5.3 | Analysis methods | | P |
| 5.3.1 | Weighting curve interpolations | | P |
| | To standardize interpolated values, use linear interpolation on the log of given values to obtain intermediate points at the wavelength intervals desired. | see table 4.1 | P |
| 5.3.2 | Calculations | | P |
| | The calculation of source hazard values shall be performed by weighting the spectral scan by the appropriate function and calculating the total weighted energy. | | P |
| 5.3.3 | Measurement uncertainty | | P |
| | The quality of all measurement results must be quantified by an analysis of the uncertainty. | see Annex C in the norm | P |
| 6 | LAMP CLASSIFICATION | | P |
| | For the purposes of this standard it was decided that the values shall be reported as follows: | | P |
| | – for lamps intended for general lighting service, the hazard values shall be reported as either irradiance or radiance values at a distance which produces an illuminance of 500 lux, but not at a distance less than 200 mm | | P |
| | – for all other light sources, including pulsed lamp sources, the hazard values shall be reported at a distance of 200 mm | | N/A |
| 6.1 | Continuous wave lamps | | P |
| 6.1.1 | Except Group | | P |
| | In the except group are lamps, which does not pose any photobiological hazard. The requirement is met by any lamp that does not pose: | | P |
| | – an actinic ultraviolet hazard (E_s) within 8-hours exposure (30000 s), nor | | P |

| IEC 62471 | | | |
|-----------|--|-----------------|---------|
| Clause | Requirement + Test | Result – Remark | Verdict |
| | – a near-UV hazard (E_{UVA}) within 1000 s, (about 16 min), nor | | P |
| | – a retinal blue-light hazard (L_B) within 10000 s (about 2,8 h), nor | | P |
| | – a retinal thermal hazard (L_R) within 10 s, nor | | P |
| | – an infrared radiation hazard for the eye (E_{IR}) within 1000 s | | P |
| 6.1.2 | Risk Group 1 (Low-Risk) | | N/A |
| | In this group are lamps, which exceeds the limits for the except group but that does not pose: | | N/A |
| | – an actinic ultraviolet hazard (E_S) within 10000 s, nor | | N/A |
| | – a near ultraviolet hazard (E_{UVA}) within 300 s, nor | | N/A |
| | – a retinal blue-light hazard (L_B) within 100 s, nor | | N/A |
| | – a retinal thermal hazard (L_R) within 10 s, nor | | N/A |
| | – an infrared radiation hazard for the eye (E_{IR}) within 100 s | | N/A |
| | Lamps that emit infrared radiation without a strong visual stimulus and do not pose a near-infrared retinal hazard (L_{IR}), within 100 s are in Risk Group 1. | | N/A |
| 6.1.3 | Risk Group 2 (Moderate-Risk) | | N/A |
| | This requirement is met by any lamp that exceeds the limits for Risk Group 1, but that does not pose: | | N/A |
| | – an actinic ultraviolet hazard (E_S) within 1000 s exposure, nor | | N/A |
| | – a near ultraviolet hazard (E_{UVA}) within 100 s, nor | | N/A |
| | – a retinal blue-light hazard (L_B) within 0,25 s (aversion response), nor | | N/A |
| | – a retinal thermal hazard (L_R) within 0,25 s (aversion response), nor | | N/A |
| | – an infrared radiation hazard for the eye (E_{IR}) within 10 s | | N/A |
| | Lamps that emit infrared radiation without a strong visual stimulus and do not pose a near-infrared retinal hazard (L_{IR}), within 10 s are in Risk Group 2. | | N/A |
| 6.1.4 | Risk Group 3 (High-Risk) | | N/A |
| | Lamps which exceed the limits for Risk Group 2 are in Group 3. | | N/A |
| 6.2 | Pulsed lamps | | N/A |
| | Pulse lamp criteria shall apply to a single pulse and to any group of pulses within 0,25 s. | | N/A |
| | A pulsed lamp shall be evaluated at the highest nominal energy loading as specified by the manufacturer. | | N/A |

| IEC 62471 | | | |
|-----------|--|-----------------|---------|
| Clause | Requirement + Test | Result – Remark | Verdict |
| | The risk group determination of the lamp being tested shall be made as follows: | | N/A |
| | – a lamp that exceeds the exposure limit shall be classified as belonging to Risk Group 3 (High-Risk) | | N/A |
| | – for single pulsed lamps, a lamp whose weighted radiant exposure or weighted radiance does is below the EL shall be classified as belonging to the Exempt Group | | N/A |
| | – for repetitively pulsed lamps, a lamp whose weighted radiant exposure or weighted radiance dose is below the EL, shall be evaluated using the continuous wave risk criteria discussed in clause 6.1, using time averaged values of the pulsed emission | | N/A |

| IEC 62471 | | | |
|-----------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result – Remark | Verdict |

| Table 4.1 | Spectral weighting function for assessing ultraviolet hazards for skin and eye | | | P |
|---|--|------------------------------|---|---|
| Wavelength ¹ λ , nm | UV hazard function $S_{uv}(\lambda)$ | Wavelength λ , nm | UV hazard function $S_{uv}(\lambda)$ | |
| 200 | 0,030 | 313* | 0,006 | |
| 205 | 0,051 | 315 | 0,003 | |
| 210 | 0,075 | 316 | 0,0024 | |
| 215 | 0,095 | 317 | 0,0020 | |
| 220 | 0,120 | 318 | 0,0016 | |
| 225 | 0,150 | 319 | 0,0012 | |
| 230 | 0,190 | 320 | 0,0010 | |
| 235 | 0,240 | 322 | 0,00067 | |
| 240 | 0,300 | 323 | 0,00054 | |
| 245 | 0,360 | 325 | 0,00050 | |
| 250 | 0,430 | 328 | 0,00044 | |
| 254* | 0,500 | 330 | 0,00041 | |
| 255 | 0,520 | 333* | 0,00037 | |
| 260 | 0,650 | 335 | 0,00034 | |
| 265 | 0,810 | 340 | 0,00028 | |
| 270 | 1,000 | 345 | 0,00024 | |
| 275 | 0,960 | 350 | 0,00020 | |
| 280* | 0,880 | 355 | 0,00016 | |
| 285 | 0,770 | 360 | 0,00013 | |
| 290 | 0,640 | 365* | 0,00011 | |
| 295 | 0,540 | 370 | 0,000093 | |
| 297* | 0,460 | 375 | 0,000077 | |
| 300 | 0,300 | 380 | 0,000064 | |
| 303* | 0,120 | 385 | 0,000053 | |
| 305 | 0,060 | 390 | 0,000044 | |
| 308 | 0,026 | 395 | 0,000036 | |
| 310 | 0,015 | 400 | 0,000030 | |

¹ Wavelengths chosen are representative: other values should be obtained by logarithmic interpolation at intermediate wavelengths.

* Emission lines of a mercury discharge spectrum.

| IEC 62471 | | | |
|-----------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result – Remark | Verdict |

| Table 4.2 | Spectral weighting functions for assessing retinal hazards from broadband optical sources | P |
|---------------|---|--------------------------------------|
| Wavelength nm | Blue-light hazard function B (λ) | Burn hazard function R (λ) |
| 300 | 0,01 | |
| 305 | 0,01 | |
| 310 | 0,01 | |
| 315 | 0,01 | |
| 320 | 0,01 | |
| 325 | 0,01 | |
| 330 | 0,01 | |
| 335 | 0,01 | |
| 340 | 0,01 | |
| 345 | 0,01 | |
| 350 | 0,01 | |
| 355 | 0,01 | |
| 360 | 0,01 | |
| 365 | 0,01 | |
| 370 | 0,01 | |
| 375 | 0,01 | |
| 380 | 0,01 | 0,1 |
| 385 | 0,013 | 0,13 |
| 390 | 0,025 | 0,25 |
| 395 | 0,05 | 0,5 |
| 400 | 0,10 | 1,0 |
| 405 | 0,20 | 2,0 |
| 410 | 0,40 | 4,0 |
| 415 | 0,80 | 8,0 |
| 420 | 0,90 | 9,0 |
| 425 | 0,95 | 9,5 |
| 430 | 0,98 | 9,8 |
| 435 | 1,00 | 10,0 |
| 440 | 1,00 | 10,0 |
| 445 | 0,97 | 9,7 |
| 450 | 0,94 | 9,4 |
| 455 | 0,90 | 9,0 |
| 460 | 0,80 | 8,0 |
| 465 | 0,70 | 7,0 |
| 470 | 0,62 | 6,2 |
| 475 | 0,55 | 5,5 |
| 480 | 0,45 | 4,5 |
| 485 | 0,40 | 4,0 |
| 490 | 0,22 | 2,2 |
| 495 | 0,16 | 1,6 |
| 500-600 | $10^{[(450-\lambda)/50]}$ | 1,0 |
| 600-700 | 0,001 | 1,0 |
| 700-1050 | | $10^{[(700-\lambda)/500]}$ |
| 1050-1150 | | 0,2 |
| 1150-1200 | | $0,2 \cdot 10^{0,02(1150-\lambda)}$ |
| 1200-1400 | | 0,02 |

| IEC 62471 | | | |
|-----------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result – Remark | Verdict |

| Table 5.4 Summary of the ELs for the surface of the skin or cornea (irradiance based values) | | | | | | P |
|--|---|---------------------|-------------------------|-----------------------------|---|---|
| Hazard Name | Relevant equation | Wavelength range nm | Exposure duration sec | Limiting aperture rad (deg) | EL in terms of constant irradiance $W \cdot m^{-2}$ | |
| Actinic UV skin & eye | $E_S = \sum E_\lambda \cdot S(\lambda) \cdot \Delta\lambda$ | 200 – 400 | < 30000 | 1,4 (80) | 30/t | |
| Eye UV-A | $E_{UVA} = \sum E_\lambda \cdot \Delta\lambda$ | 315 – 400 | ≤ 1000 > 1000 | 1,4 (80) | 10000/t 10 | |
| Blue-light small source | $E_B = \sum E_\lambda \cdot B(\lambda) \cdot \Delta\lambda$ | 300 – 700 | ≤ 100 > 100 | < 0,011 | 100/t 1,0 | |
| Eye IR | $E_{IR} = \sum E_\lambda \cdot \Delta\lambda$ | 780 – 3000 | ≤ 1000 > 1000 | 1,4 (80) | 18000/t ^{0,75} 100 | |
| Skin thermal | $E_H = \sum E_\lambda \cdot \Delta\lambda$ | 380 – 3000 | < 10 | 2π sr | 20000/t ^{0,75} | |

| Table 5.5 Summary of the ELs for the retina (radiance based values) | | | | | | P |
|---|--|---------------------|--|--|--|---|
| Hazard Name | Relevant equation | Wavelength range nm | Exposure duration sec | Field of view radians | EL in terms of constant radiance $W \cdot m^{-2} \cdot sr^{-1}$ | |
| Blue light | $L_B = \sum L_\lambda \cdot B(\lambda) \cdot \Delta\lambda$ | 300 – 700 | 0,25 – 10 10-100 100-10000 ≥ 10000 | $0,011 \cdot \sqrt{(t/10)}$ 0,011 $0,0011 \cdot \sqrt{t}$ 0,1 | 10 ⁶ /t 10 ⁶ /t 10 ⁶ /t 100 | |
| Retinal thermal | $L_R = \sum L_\lambda \cdot R(\lambda) \cdot \Delta\lambda$ | 380 – 1400 | < 0,25 0,25 – 10 | 0,0017 $0,011 \cdot \sqrt{(t/10)}$ | 50000/($\alpha \cdot t^{0,25}$) 50000/($\alpha \cdot t^{0,25}$) | |
| Retinal thermal (weak visual stimulus) | $L_{IR} = \sum L_\lambda \cdot R(\lambda) \cdot \Delta\lambda$ | 780 – 1400 | > 10 | 0,011 | 6000/ α | |

| IEC 62471 | | | |
|-----------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result – Remark | Verdict |

| Table 6.1 Emission limits for risk groups of continuous wave lamps | | | | | | | | | P |
|--|-------------------|-----------|--------------------------------|----------------------|--------|----------------|--------|----------------|--------|
| Risk | Action spectrum | Symbol | Units | Emission Measurement | | | | | |
| | | | | Exempt | | Low risk | | Mod risk | |
| | | | | Limit | Result | Limit | Result | Limit | Result |
| Actinic UV | $S_{UV}(\lambda)$ | E_s | $W \cdot m^{-2}$ | 0,001 | N/A | 0,003 | N/A | 0,03 | N/A |
| Near UV | | E_{UVA} | $W \cdot m^{-2}$ | 10 | 0 | 33 | N/A | 100 | N/A |
| Blue light | $B(\lambda)$ | L_B | $W \cdot m^{-2} \cdot sr^{-1}$ | 100 | 86 | 10000 | N/A | 4000000 | N/A |
| Blue light, small source | $B(\lambda)$ | E_B | $W \cdot m^{-2}$ | 1,0* | N/A | 1,0 | N/A | 400 | N/A |
| Retinal thermal | $R(\lambda)$ | L_R | $W \cdot m^{-2} \cdot sr^{-1}$ | $28000/\alpha$ | N/A | $28000/\alpha$ | N/A | $71000/\alpha$ | N/A |
| Retinal thermal, weak visual stimulus** | $R(\lambda)$ | L_{IR} | $W \cdot m^{-2} \cdot sr^{-1}$ | $6000/\alpha$ | N/A | $6000/\alpha$ | N/A | $6000/\alpha$ | N/A |
| IR radiation, eye | | E_{IR} | $W \cdot m^{-2}$ | 100 | 0 | 570 | N/A | 3200 | N/A |

* Small source defined as one with $\alpha < 0,011$ radian. Averaging field of view at 10000 s is 0,1 radian.
 ** Involves evaluation of non-GLS source

List of test equipment used:

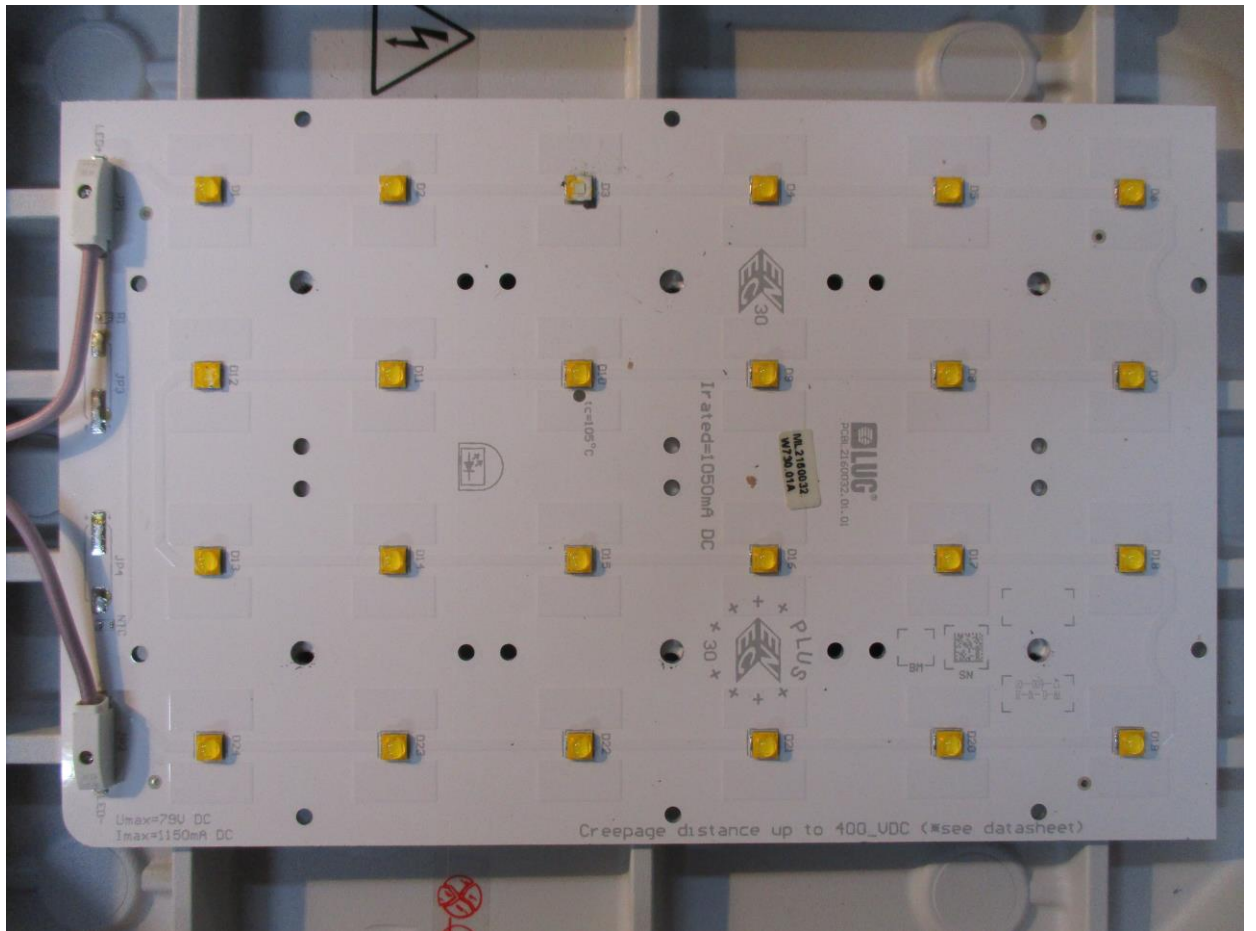
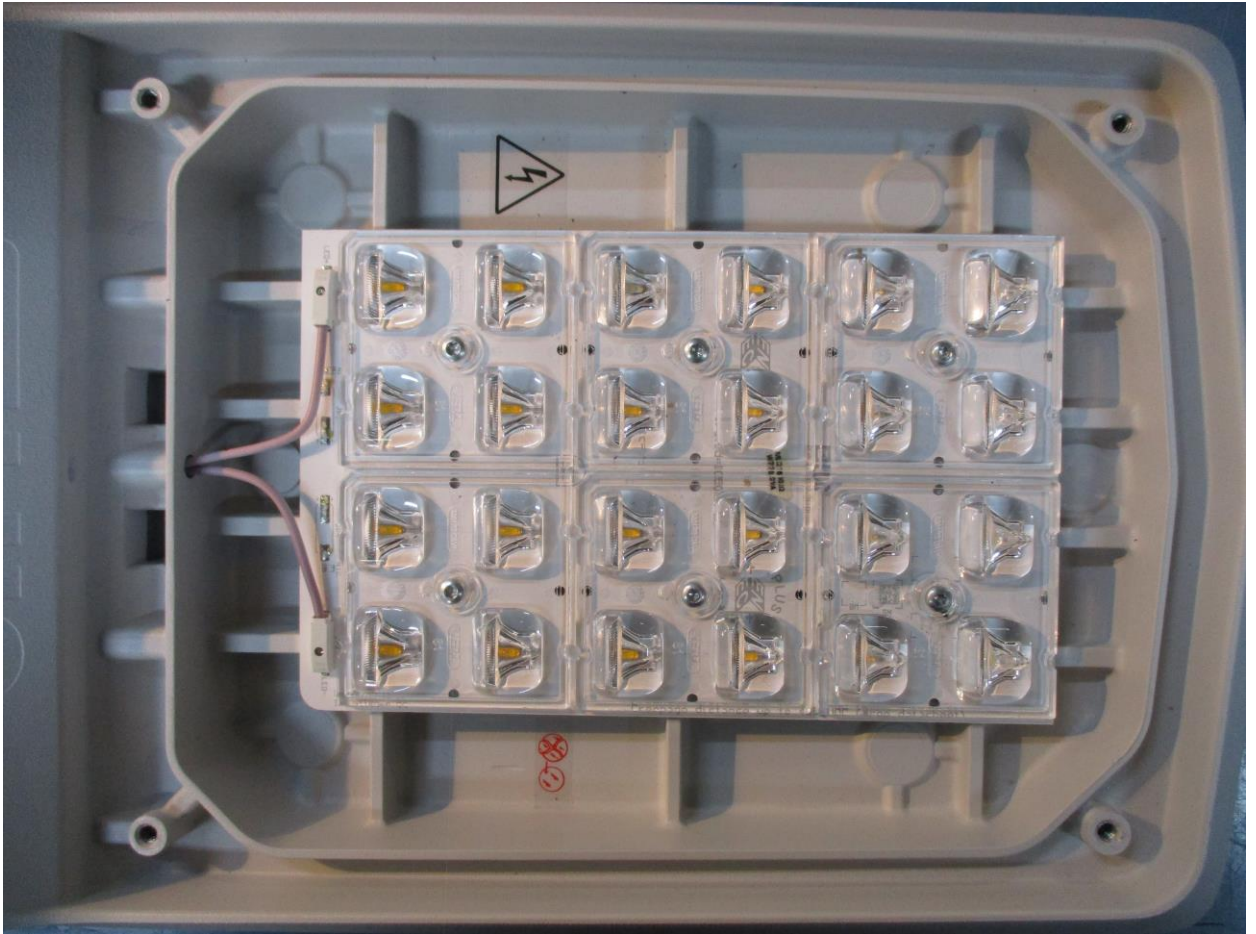
A completed list of used test equipment shall be provided in the Test Reports when a Customer's Testing Facility according to CTF stage 1 or CTF stage 2 procedure has been used.

Note: This page may be removed when CTF stage 1 or CTF stage 2 are not used. See also clause 4.8 in OD 2020 for more details.

| Clause | Measurement / testing | Testing / measuring equipment / material used, (Equipment ID) | Range used | Last Calibration date | Calibration due date |
|--------|-----------------------|---|------------|-----------------------|----------------------|
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Photos: 130772.3LR7B30S895.101.B





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|--|--------------------|------------------------------|---------|
| Page 1 of 2 | | Report No.: B10-3/095/B/1/22 | |
| IEC62471B ATTACHMENT | | | |
| Clause | Requirement + Test | Result - Remark | Verdict |
| ATTACHMENT No.1 TO TEST REPORT IEC 62471 Report Ref. No B10-3/095/B/22 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Photobiological safety of lamps and lamps systems | | | |
| Differences according to EN 62471:2008 | | | |
| Annex Form No EU_GD_IEC62471B | | | |
| Annex Form Originator OVE | | | |
| Master Annex Form 2019-01-24 | | | |
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| | | |
|----------|--|----------|
| | CENELEC COMMON MODIFICATIONS (EN) | P |
| 4 | EXPOSURE LIMITS | P |
| | Contents of the whole Clause 4 of IEC 62471:2006 moved into a new informative Annex ZB | — |
| | Clause 4 replaced by the following: | |
| | Limits of the Artificial Optical Radiation Directive (2006/25/EC) have been applied instead of those fixed in IEC 62471:2006 | P |
| 4.1 | General | P |
| | First paragraph deleted | — |

| Table 6.1 | | Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC) | | | | | | | P | |
|--|-------------------|---|--------------------------------|--|--------|-----------------|--------|-----------------|--------|--|
| Risk | Action spectrum | Symbol | Units | Emission Measurement | | | | | | |
| | | | | Exempt | | Low risk | | Mod risk | | |
| | | | | Limit | Result | Limit | Result | Limit | Result | |
| Actinic UV | $S_{UV}(\lambda)$ | E_s | $W \cdot m^{-2}$ | 0,001 | N/A | - | - | - | - | |
| Near UV | | E_{UVA} | $W \cdot m^{-2}$ | 0,33 | 0 | - | - | - | - | |
| Blue light | $B(\lambda)$ | L_B | $W \cdot m^{-2} \cdot sr^{-1}$ | 100 | 86 | 10000 | N/A | 4000000 | N/A | |
| Blue light, small source | $B(\lambda)$ | E_B | $W \cdot m^{-2}$ | 0,01* | N/A | 1,0 | N/A | 400 | N/A | |
| Retinal thermal | $R(\lambda)$ | L_R | $W \cdot m^{-2} \cdot sr^{-1}$ | 28000/ α | N/A | 28000/ α | N/A | 71000/ α | N/A | |
| Retinal thermal, weak visual stimulus** | $R(\lambda)$ | L_{IR} | $W \cdot m^{-2} \cdot sr^{-1}$ | 545000 $0,0017 \leq \alpha \leq 0,011$ | N/A | | | | | |
| | | | | 6000/ α $0,011 \leq \alpha \leq 0,1$ | N/A | | | | | |
| IR radiation, eye | | E_{IR} | $W \cdot m^{-2}$ | 100 | 0 | 570 | N/A | 3200 | N/A | |
| <p>* Small source defined as one with $\alpha < 0,011$ radian. Averaging field of view at 10000 s is 0,1 radian.</p> <p>** Involves evaluation of non-GLS source</p> <p>NOTE The action functions: see Table 4.1 and Table 4.2 The applicable aperture diameters: see 4.2.1 The limitations for the angular subtenses: see 4.2.2 The related measurement condition 5.2.3 and the range of acceptance angles: see Table 5.5.</p> | | | | | | | | | | |



Test Report issued under the responsibility of:
Łukasiewicz - IMiF PREDOM Division

TEST REPORT
IEC 60598-2-3
Luminaires
Part 2: Particular requirements
Section 3: Luminaires for road and street lighting

Report Number..... : B10-3/094/B/22
Date of issue..... : 2022-07-08
Total number of pages 55 + Appendix No.1 – Summary LED modules - Control gears – on CD

Name of Testing Laboratory preparing the Report Łukasiewicz - IMiF PREDOM Division
02-255 Warszawa, ul. Krakowiaków 53, Poland




Applicant's name LUG Light Factory Sp z.o.o.
Address..... : 65-127 Zielona Góra, ul. Gorzowska 11, Poland

Test specification:
Standard IEC 60598-2-3:2002, IEC 60598-2-3:2002/AMD1:2011 used in conjunction with IEC 60598-1:2020
Test procedure CB Scheme
Non-standard test method N/A

TRF template used..... : IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. : IEC60598_2_3M
Test Report Form(s) Originator : Intertek Semko AB
Master TRF 2021-11-11

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This report is not valid as a CB Test Report unless signed by an approved IECEE Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:
The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

| | | |
|---|---|---|
| Test item description : | Luminaires for road and street lighting | |
| Trade Mark(s) | LUG | |
| Manufacturer | LUG Light Factory Sp z.o.o. Gorzowska 11; 65-127 Zielona Góra - Poland | |
| Model/Type reference | URBINO LED S family cl II – series – see also “General product information | |
| Ratings : | 220-240V, 50/60Hz, IP66, IK10, cl.II – details see pages 4-10 | |
| Responsible Testing Laboratory (as applicable), testing procedure and testing location(s): | | |
| <input type="checkbox"/> | CB Testing Laboratory: | Łukasiewicz - IMiF PREDOM Division |
| Testing location/ address : | | 02-255 Warszawa, ul. Krakowiaków 53, Poland |
| Tested by (name, function, signature) : | | K. Lisowski  |
| Approved by (name, function, signature) ...: | | T. Małyska  |
| Supervised by (+ signature) | | F. Walczak  |
| <input type="checkbox"/> | Testing procedure: CTF Stage 1: | |
| Testing location/ address : | | |
| Tested by (name, function, signature) : | | |
| Approved by (name, function, signature) ...: | | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 2: | |
| Testing location/ address : | | |
| Tested by (name + signature) | | |
| Witnessed by (name, function, signature) .: | | |
| Approved by (name, function, signature) ...: | | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 3: | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 4: | |
| Testing location/ address : | | |
| Tested by (name, function, signature) : | | |
| Witnessed by (name, function, signature) .: | | |
| Approved by (name, function, signature) ...: | | |
| Supervised by (name, function, signature) : | | |

| | |
|---|---|
| List of Attachments (including a total number of pages in each attachment): | |
| – Attachment No. 1 (Report Reference No. B10-3/094/B/22- 2 pages) | |
| Summary of testing: Positive | |
| <i>According to ISO / IEC Guide 98-4 for the assessment of compliance of the measurement result with the requirements, criterion B was chosen. 50% risk of incorrect assessment decision belongs to the customer and 50% risk of incorrect assessment belongs to the laboratory</i> | |
| Tests performed (name of test and test clause): | Testing location: |
| IEC 60598-2-3:2002, IEC 60598-2-3:2002/AMD1:2011 used in conjunction with IEC 60598-1:2020 - all clauses | Łukasiewicz - IMiF PREDOM Division 02-255 Warszawa, ul. Krakowiaków 53, Poland |
| Summary of compliance with National Differences (List of countries addressed): | |
| See Attachment No. 1 to this Test Report (Report Reference No. B10-3/094/B/22 - 2 pages) | |
| <input checked="" type="checkbox"/> The product fulfils the requirements of EN 60598-2-3:2003 + A1:2011 used in conjunction with EN IEC 60598-1:2021 + A11:2022 | |
| Use of uncertainty of measurement for decisions on conformity (decision rule) : | |
| <input checked="" type="checkbox"/> No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method"). | |
| <input type="checkbox"/> Other:... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply) | |
| Information on uncertainty of measurement: | |
| The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE. | |
| IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer. | |
| Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing. | |

Copy of marking plate:



| | |
|---|--|
| Test item particulars: Luminaire for road and street lighting | |
| Classification of installation and use: Normal use | |
| Supply Connection: Connector | |
| Possible test case verdicts: - test case does not apply to the test object.....: N/A - test object does meet the requirement.....: P (Pass) - test object does not meet the requirement.....: F (Fail) | |
| Testing: | |
| Date of receipt of test item: 2022-06-06 | |
| Date (s) of performance of tests: 2022-06-06 - 2022-07-08 | |
| General remarks: "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator. Clause numbers between brackets refer to clauses in IEC 60598-1 | |
| Manufacturer's Declaration per sub-clause 4.2.5 of IEC 02: | |
| The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable |
| When differences exist; they shall be identified in the General product information section. | |
| Name and address of factory (ies) | LUG Light Factory Sp. z o.o. ul. Gorzowska 11 65-127 Zielona Góra Poland |

General product information and other remarks:

| | | |
|--|--|--|
| Name and address of the license holder: | LUG Light Factory Sp. z o.o. ul. Gorzowska 11, 65-127 Zielona Góra - Poland | |
| Address of the factory: | LUG Light Factory Sp. z o.o. ul. Gorzowska 11, 65-127 Zielona Góra - Poland | |
| Name of product: | URBINO LED S | |
| Trade mark : | LUG | |
| Technical data: | | |
| Rated voltage | 220-240V | |
| Rated frequency: | 50/60Hz | |
| Max Power | 74W | |
| Protection against electric shock: | Class II | |
| Degree of protection: | IP66; IK10 | |
| ta | 4,5W - 36W | Ta= -40°C / -35°C* / -30°C** ... +55°C |
| | 37W - 51W | Ta= -40°C / -35°C* / -30°C**/-25°*** ... +50°C |
| | 52W - 74W | Ta= -40°C / -35°C* / -30°C**/-25°*** ... +40°C |

* - For luminaires equipped with:

- Vossloh Schwabe SP/230/10K/i

** - For luminaires equipped with:

- SPD Vossloh Schwabe SP/230/10K
- Xi FP 110W 0.3-0.1A NLP C150 230V
- Tridonic LCA 120W 300-1050mA

*** - For luminaires equipped with:

- LACROIX DL-PAK 70

Choice sheet of the luminaires URBINO LED S family cl II – series:**Example of symbol:**

130772.7LR7B40S895.201.N.P

1
2
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8
9

Designations used on the marking of luminaires (some designation may not appear in the name) :

| | | | |
|----------|------------------------------|---|---|
| 1 | 13077 13078 | - | Code of the series URBINO LED S - XPG3 SERIES Code of the series URBINO LED S - LUXEON SERIES |
| 2 | 2 | - | Color: 2: grey 5: graphite 0: another |
| 3 | 7L | - | Type of power supply: 2L - DIMM 1-10V 3L – DALI 5L – on-off 6L – on-off / DALI 7L - ZHAGA D4i PL – programmable |
| 4 | R7 | - | CRI: R7 = 70-79 R8 = 80-89 |

| | | | |
|----------|-------------|---|--|
| 5 | B40 | - | Color temperature: B22 = 2200 B27 = 2700 B30 = 3000 B40 = 4000 B57 = 5700 B65 = 6500 |
| 6 | S895 | - | Max. luminous flux (e.g. S895 = 8950lm) |
| 7 | 2 | - | Safety Class II |
| 8 | 01 | - | Optic: 01 O1 - for road lighting type O1 02 O2 - for road lighting type O2 ... 99 O99 - for road lighting type O99 |
| 9 | N.P | - | Additional equipment A - additional corrosion protection B - Tool-free access to the LED Driver U - ϕ 76mm pole N - NEMA Socket Z - ZHAGA Socket T - NTC Sensor W - Twilight Sensor V - Surge Device Protector 10kV P- Anti pressure vent I- iBloc ("URBAN" smart city system) K- Knife switch connector |

List of LED's and electronic led driver's system:

| Control gear's | P [W] | U min [V] | U compatible [V] | I compatible [mA] | Module's* |
|--|-------|-----------|------------------|-------------------|---|
| Osram OT 165/170-240/1A0 4DIMLT2 E | 165 | 90 | 285 | 1050 | <p>Choice sheet of the URBINO LED S series modules:</p> <p>Example of symbol:</p> <p>ML21XXXYY.WQQQ.UUV</p> <p style="text-align: center;"> 1 2 3 4 5 6 7 8 </p> <p>Designations used on the marking of LED boards:</p> <p>1. ML - PCB designation (ML – LED module):</p> <p>2. 21 - Year of the project:</p> <p>3. XXX - Number of the project: Luxeon modules: 660, 661, 663, 670, 671, 672, 673, 680, 681, 682, 683, 690, 691, 692, 693 Cree modules: 600, 601, 610, 611</p> <p>4. YY - Project variant (PCB design, milling, dimensions, soldermask color, laminate thickness, LED configuration): 00...99 Light color: W: White</p> <p>6. QQQ - CRI and CCT: 722: CRI 70 and 2200K 727: CRI 70 and 2700K 730: CRI 70 and 3000K 735: CRI 70 and 3500K 740: CRI 70 and 4000K 750: CRI 70 and 5000K 757: CRI 70 and 5700K 765: CRI 70 and 6500K 822: CRI 80 and 2200K 827: CRI 80 and 2700K 830: CRI 80 and 3000K 835: CRI 80 and 3500K 840: CRI 80 and 4000K 850: CRI 80 and 5000K 857: CRI 80 and 5700K 865: CRI 80 and 6500K</p> <p>7. UU - Assembly variant (selected components not mounted): 01...99</p> <p>8. V - NTC Thermistor type: A - none B – 10K C – 47K</p> |
| Osram OT 60/170-240/1A0 4DIMLT2 E | 60 | 30 | 115 | 1050 | |
| OT180W/UNV/800C/2DIMLT2/P6 | 180 | 82 | 280 | 800 | |
| OT100W/UNV/800C/2DIMLT2/P6 | 100 | 50 | 185 | 800 | |
| OT 110/170...240/1A0 1DIMLT2 G1 CE | 110 | 80 | 220 | 1050 | |
| OT 20/170-240/1A0 1DIM LT2 G1 CE | 22 | 10 | 38 | 1050 | |
| OT 75/170...240/1A0 1DIMLT2 G1 CE | 75 | 35 | 115 | 1050 | |
| Philips Xi LP 150W 0.3-1.0A S1 230V S240 sXt | 150 | 70 | 214 | 1050 | |
| Tridonic LCA 120W 300-1050mA 1-10V ADV | 120 | 40 | 114 | 1050 | |
| Tridonic LCA 75W 250-750mA one4all C | 75 | 45 | 130 | 750 | |
| Tridonic LCA 120W 350-1050mA o | 120 | 105 | 320 | 1050 | |
| Tridonic LCA 160W 350-1050mA o | 160 | 105 | 320 | 1050 | |
| OT DX 40/220...240/1A0 DIMA LT2 E | 40 | 15 | 56 | 1050 | |
| OT DX 75/220...240/1A0 DIMA LT2 E | 75 | 35 | 115 | 1050 | |
| OT DX 110/220...240/1A0 DIMA LT2 E | 110 | 75 | 220 | 1050 | |
| OT 20/170...240/1A0 4DIMLT2 G2 CE | 20 | 10 | 38 | 1050 | |
| OT 40/170...240/1A0 4DIMLT2 G2 CE | 40 | 15 | 56 | 1050 | |
| OT 75/170...240/1A0 4DIMLT2 G2 CE | 75 | 35 | 115 | 1050 | |
| OT 110/170...240/1A0 4DIMLT2 G2 CE | 110 | 80 | 220 | 1050 | |
| OT 20/170...240/1A0 1DIMLT2 G1 CE | 20 | 10 | 38 | 1050 | |
| OT 40/170...240/1A0 1DIMLT2 G1 CE | 40 | 15 | 56 | 1050 | |
| OT 40/120...277/1A0 4DIMLT2 E | 40 | 15 | 56 | 1050 | |
| OT 60/170...240/1A0 4DIMLT2 E | 60 | 30 | 115 | 1050 | |
| OT 90/170...240/1A0 4DIMLT2 E | 90 | 57 | 186 | 1050 | |
| OT 165/170...240/1A0 4DIMLT2 E | 165 | 90 | 285 | 1050 | |
| OT 50/120...277/800 2DIMLT2 P | 50 | 30 | 115 | 800 | |
| OT 50/120...277/1A2 2DIMLT2 P | 50 | 20 | 55 | 1250 | |
| OT 100/120...277/800 2DIMLT2 P | 100 | 50 | 186 | 800 | |
| OT 110/120...277/1A4 2DIMLT2 P | 110 | 35 | 85 | 1400 | |
| OT 60/220...240/1A4 1DIMA P7 | 60 | 43 | 86 | 1400 | |
| OT 100/220...240/1A4 1DIMA P7 | 100 | 72 | 144 | 1400 | |
| OT 150/220...240/1A4 1DIMA P7 | 150 | 91 | 350 | 1400 | |
| Xitanium 40W 0.7A Prog+ GL-J sXt | 40 | 29 | 57 | 700 | |
| Xitanium 75W 0.35-0.70A GL Prog+ sXt | 75 | 80 | 152 | 700 | |
| Xitanium 75W 0.1-1.05A Prog GL F sXt | 75 | 36 | 75 | 1050 | |
| Xitanium 100W 0.7A Prog+ GL-Z sXt | 100 | 71 | 143 | 700 | |
| Xitanium 150W 0.1-1.05A Prog+ GL F sXt | 150 | 70 | 148 | 1050 | |
| Xitanium 300W 1.5A Prog+ GL-R sXt | 300 | 80 | 280 | 1050 | |
| Xi BP 12W 0.1-0.5A S 230V C100 | 12 | 13 | 39 | 500 | |
| Xi BP 22W 0.2-0.7A S 230V C123 | 22 | 16 | 48 | 700 | |
| Xi BP 40W 0.2-0.7A S 230V C123 | 40 | 25 | 77 | 700 | |
| Xi BP 40W 0.3-1.0A S 230V C123 | 40 | 20 | 54 | 1000 | |
| Xi LP 22W 0.2-0.7A S1 230V C123 sXt | 22 | 16 | 48 | 700 | |
| Xi LP 22W 0.3-1.0A S1 230V C123 sXt | 22 | 8 | 32 | 1000 | |
| Xi LP 40W 0.2-0.7A S1 230V C123 sXt | 40 | 25 | 77 | 700 | |
| Xi LP 40W 0.3-1.0A S1 230V C123 sXt | 40 | 20 | 54 | 1000 | |
| Xi LP 75W 0.2-0.7A S1 230V C133 sXt | 75 | 50 | 150 | 700 | |
| Xi LP 75W 0.3-1.0A S1 230V C133 sXt | 75 | 35 | 108 | 1000 | |
| Xi LP 75W 0.5-1.5A S1 230V C133 sXt | 75 | 25 | 75 | 1500 | |
| Xi LP 110W 0.2-0.7A S1 230V C133 sXt | 110 | 70 | 220 | 700 | |
| Xi LP 110W 0.3-1.0A S1 230V C133 sXt | 110 | 50 | 160 | 1000 | |
| Xi LP 165W 0.2-0.7A S1 230V C170 sXt | 165 | 100 | 300 | 700 | |
| Xi LP 165W 0.3-1.0A S1 230V C170 sXt | 165 | 80 | 235 | 1000 | |
| Xi LP 165W 0.5-1.5A S1 230V C170 sXt | 165 | 54 | 157 | 1500 | |
| Xi LP 22W 0.2-0.7A S1 230V S175 sXt | 22 | 16 | 48 | 700 | |
| Xi LP 22W 0.3-1.0A S1 230V S175 sXt | 22 | 8 | 32 | 1000 | |
| Xi LP 40W 0.2 -0.7A S1 230V S175 sXt | 40 | 23 | 77 | 700 | |
| Xi LP 40W 0.2-0.7A SL 230V S175 sXt | 40 | 25 | 77 | 700 | |
| Xi LP 40W 0.3-1.0A S1 230V S175 sXt | 40 | 20 | 54 | 1000 | |
| Xi LP 40W 0.3-1.0A SL 230V S175 sXt | 40 | 20 | 54 | 1000 | |
| Xi LP 40W 0.2-0.7A SN 230V S175 sXt | 40 | 25 | 77 | 700 | |
| Xi LP 75W 0.2-0.7A S1 230V S240 sXt | 75 | 50 | 150 | 700 | |
| Xi LP 75W 0.2-0.7A SL 230V S240 sXt | 75 | 50 | 150 | 700 | |
| Xi LP 75W 0.3-1.0A S1 230V S240 sXt | 75 | 35 | 108 | 1000 | |
| Xi LP 75W 0.3-1.0A SL 230V S240 sXt | 75 | 35 | 108 | 1000 | |
| Xi LP 75W 0.2-0.7A SN 230V S240 sXt | 75 | 50 | 150 | 700 | |
| Xi LP 75W 0.5-1.5A S1 230V S240 sXt | 75 | 25 | 75 | 1500 | |
| Xi LP 150W 0.2-0.7A S1 230V S240 sXt | 150 | 90 | 283 | 700 | |
| Xi LP 150W 0.2-0.7A SL 230V S240 sXt | 150 | 90 | 283 | 700 | |
| Xi LP 150W 0.3-1.0A SL 230V S240 sXt | 150 | 70 | 214 | 1000 | |
| Xi LP 150W 0.5-1.5A S1 230V S240 sXt | 150 | 50 | 142 | 1500 | |
| Xi LP 150W 0.2-0.7A SN 230V S240 sXt | 150 | 90 | 283 | 700 | |
| Xi FP 22W 0.2-0.7A SNLDAE 230V C123 sXt | 22 | 16 | 48 | 700 | |
| Xi FP 22W 0.3-1.0A SNLDAE 230V C123 sXt | 22 | 8 | 32 | 1000 | |
| Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt | 40 | 25 | 77 | 700 | |
| Xi FP 40W 0.3-1.0A SNLDAE 230V C123 sXt | 40 | 20 | 54 | 1000 | |
| Xi FP 70W 0.3-1.0A NLD C150 230V sXt | 70 | 30 | 100 | 1000 | |

| Control gear's | P [W] | U min [V] | U compatible [V] | I compatible [mA] | Module's* |
|--|-------|-----------|------------------|-------------------|-----------|
| Xi FP 75W 0.2-0.7A SNLDAE 230V C133 sXt | 75 | 50 | 150 | 700 | |
| Xi FP 75W 0.3-1.0A SNLDAE 230V C133 sXt | 75 | 35 | 108 | 1000 | |
| Xi FP 75W 0.5-1.5A SNLDAE 230V C133 sXt | 75 | 25 | 71 | 1500 | |
| Xi FP 100W 0.2-0.7A SNLDAE 230V C165 sXt | 100 | 50 | 150 | 700 | |
| Xi FP 110W 0.2-0.7A SNLDAE 230V C133 sXt | 110 | 70 | 220 | 700 | |
| Xi FP 110W 0.3-1.0A NLD C150 230V sXt | 110 | 60 | 200 | 1000 | |
| Xi FP 110W 0.3-1.0A SNLDAE 230V C133 sXt | 110 | 50 | 160 | 1000 | |
| Xi FP 165W 0.3-1.0A SNLDAE 230V C170 sXt | 165 | 80 | 235 | 1000 | |
| Xi FP 165W 0.2-0.7A SNLDAE 230V C170 sXt | 165 | 100 | 300 | 700 | |
| Xi FP 330W 0.2-0.75A SNDAE 230V C240 sXt | 330 | 100 | 300 | 750 | |
| Xi FP 22W 0.2-0.7A SNLDAE 230V S175 sXt | 22 | 16 | 48 | 700 | |
| Xi FP 22W 0.3-1.0A SNLDAE 230V S175 sXt | 22 | 8 | 32 | 1000 | |
| Xi FP 40W 0.2-7.0A SNLDAE 230V S175 sXt | 40 | 25 | 77 | 700 | |
| Xi FP 40W 0.3-1.0A SNLDAE 230V S175 sXt | 40 | 20 | 54 | 1000 | |
| Xi FP 75W 0.2-0.7A SNLDAE 230V S240 sXt | 75 | 50 | 150 | 700 | |
| Xi FP 75W 0.3-1.0A SNLDAE 230V S240 sXt | 75 | 35 | 108 | 1000 | |
| Xi FP 150W 0.2-0.7A SNLDAE 230V S240 sXt | 150 | 90 | 283 | 700 | |
| Xi FP 150W 0.3-1.0A SNLDAE 230V S240 sXt | 150 | 70 | 214 | 1000 | |
| Xi SR 12W 0.2-0.7A SNEMP 230V C133 sXt | 12 | 8 | 32 | 700 | |
| Xi SR 22W 0.2-0.7A SNEMP 230V C133 sXt | 22 | 16 | 48 | 700 | |
| Xi SR 40W 0.2-0.7A SNEMP 230V C133 sXt | 40 | 25 | 77 | 700 | |
| Xi SR 75W 0.2-0.7A SNEMP 230V C150 sXt | 75 | 50 | 150 | 700 | |
| Xi SR 75W 0.2-0.7A SNEMP 230V S240 sXt | 75 | 50 | 150 | 700 | |
| Xi SR 110W 0.2-0.7A SNEMP 230V C150 sXt | 110 | 70 | 220 | 700 | |
| Xi SR 150W 0.2-0.7A SNEMP 230V S240 sXt | 150 | 90 | 283 | 700 | |
| Xitanium 100W 2.1-4.2A AOC 230V I220 | 100 | 12 | 48 | 4200 | |
| Xitanium 150W 2.5-4.9A AOC 230V I220 | 150 | 15 | 61 | 4900 | |
| Xitanium 200W 2.8-5.6A AOC 230V I250 | 200 | 18 | 71 | 5600 | |
| Xi LP 100W 0.3-1.05A S1 230V I175 | 100 | 46 | 143 | 1000 | |
| Xi LP 150W 0.3-1.05A S1 230V I175 | 150 | 72 | 214 | 1000 | |
| Xi LP 220W 0.3-1.05A S1 230V I230 | 220 | 104 | 314 | 1000 | |
| Xi LP 220W 0.5-1.5A S1 230V I230 | 220 | 73 | 210 | 1500 | |
| Xitanium Dim 35W 0.7A 1-10V TWE I175 | 35 | 18 | 50 | 700 | |
| Xitanium Dim 100W 0.7A 1-10V TWE I220 | 100 | 71 | 143 | 700 | |
| Xitanium Dim 150W 0.7A 1-10V TWE I220 | 150 | 90 | 214 | 700 | |
| Xitanium 75W 0.7A TWE I175 | 75 | 40 | 117 | 700 | |
| Xitanium 150W 0.7A TWE I220 | 150 | 90 | 214 | 700 | |
| Xitanium 75W 1.05A 1-10V 230V C165 sXt | 75 | 36 | 75 | 1000 | |
| Xitanium 75W 0.70A 1-10V 230V C165 sXt | 75 | 52 | 107 | 700 | |
| Xitanium 150W 0.70A 1-10V 230V S240 sXt | 150 | 100 | 214 | 700 | |
| Xitanium 150W 1.05A 1-10V 230V S240 sXt | 150 | 72 | 150 | 1000 | |
| Xitanium Dim 75W 0.70A 1-10V 230V I220 | 75 | 52 | 107 | 700 | |
| Xitanium Dim 150W 0.70A 1-10V 230V I220 | 150 | 90 | 214 | 700 | |
| Xitanium 75W 1-10V 230V C165 | 75 | 52 | 107 | 700 | |
| LCO 14/100-500/38 NF C ADV3 | 14 | 12 | 38 | 500 | |
| LCO 24/200-1050/39 NF C ADV3 | 24 | 11 | 39 | 1050 | |
| LCO 40/200-1050/64 NF C ADV3 | 40 | 18 | 64 | 1050 | |
| LCO 60/200-1050/100 NF C ADV3 | 60 | 28 | 100 | 1050 | |
| LCO 90/200-1050/165 NF C ADV3 | 90 | 46 | 165 | 1050 | |
| LCO 135/200-1050/220 NF C ADV3 | 135 | 62 | 220 | 1050 | |
| LCO 200/200-1050/355 NF C ADV3 | 200 | 100 | 355 | 1050 | |
| LCO 14/100-500/38 o4a NF C EXC3 | 14 | 12 | 38 | 500 | |
| LCO 24/200-1050/39 o4a NF C EXC3 | 24 | 11 | 39 | 1050 | |
| LCO 40/200-1050/64 o4a NF C EXC3 | 40 | 18 | 64 | 1050 | |
| LCO 60/200-1050/100 o4a NF C EXC3 | 60 | 28 | 100 | 1050 | |
| LCO 90/200-1050/165 o4a NF C EXC3 | 90 | 46 | 165 | 1050 | |
| LCO 135/200-1050/220 o4a NF C EXC3 | 135 | 62 | 220 | 1050 | |
| LCO 200/200-1050/355 o4a NF C EXC3 | 200 | 100 | 355 | 1050 | |
| LCO 100/1050/95 fixC L SNC2 | 100 | 29 | 95 | 1050 | |
| LCO 100/1400/71 fixC L SNC2 | 100 | 21 | 71 | 1400 | |
| LCO 100/500/200 fixC L SNC2 | 100 | 60 | 200 | 500 | |
| LCO 100/700/143 fixC L SNC2 | 100 | 43 | 143 | 700 | |
| LCO 150/1050/142 fixC L SNC2 | 150 | 43 | 142 | 1050 | |
| LCO 150/1400/107 fixC L SNC2 | 150 | 32 | 107 | 1400 | |
| LCO 150/500/300 fixC L SNC2 | 150 | 90 | 300 | 500 | |
| LCO 150/700/214 fixC L SNC2 | 150 | 64 | 214 | 700 | |
| LCO 200/1050/190 fixC L SNC2 | 200 | 63 | 190 | 1050 | |
| LCO 200/1400/142 fixC L SNC2 | 200 | 47 | 142 | 1400 | |
| LCO 200/700/285 fixC L SNC2 | 200 | 95 | 285 | 700 | |
| LCO 75/1050/72 fixC L SNC2 | 75 | 22 | 72 | 1050 | |
| LCO 75/1400/53 fixC L SNC2 | 75 | 16 | 53 | 1400 | |
| LCO 75/500/150 fixC L SNC2 | 75 | 45 | 150 | 500 | |
| LCO 75/700/108 fixC L SNC2 | 75 | 32 | 108 | 700 | |
| LCO 135W 200-1050mA 220V pD+ NFC C PRE3 | 135 | 104 | 220 | 1050 | |
| LCO 90W 200-1050mA 165V pD+ NFC C PRE3 | 90 | 78 | 165 | 1050 | |
| OT 100/UNV/1A0 2DIM P7 | 100 | 75 | 150 | 1050 | |
| OT 150/UNV/1A0 2DIM P7 | 150 | 107 | 214 | 1050 | |
| OT 100/220-240/1A4 2DIM P7 | 100 | 61 | 144 | 1400 | |

| Control gear's | P [W] | U min [V] | U compatible [V] | I compatible [mA] | Module's* |
|---------------------------------|----------|--------------|---------------------|----------------------|-----------|
| OT 150/ 220-240/1A4 2DIM P7 | 150 | 91 | 214 | 1400 | |
| EBS-040S105BT2 | 40 | 19 | 57 | 1050 | |
| EUM-075S | 75 | 18 | 54 | 2100 | |
| EBS-080S105BT2 | 80 | 38 | 114 | 700 | |
| EBS-040S070BT2 | 40 | 28 | 89 | 700 | |
| EBS-080S070BT2 | 80 | 57 | 178 | 530 | |
| EUM – 100S | 100 | 17 | 143 | 2100 | |
| EUM – 150S | 150 | 18 | 214 | 3150 | |
| EUM – 200S | 200 | 18 | 286 | 4200 | |
| EUM – 240S | 240 | 18 | 453 | 4900 | |
| IT DALI 20/220...240/1A0 E | 20 | 1 | 60 | 1050 | |
| IT DALI 40/220...240/1A0 E | 40 | 1 | 60 | 1050 | |
| IT DALI 75/220...240/1A0 E | 75 | 1 | 120 | 1050 | |
| IT DALI 110/220...240/1A0 E | 110 | 1 | 200 | 1050 | |
| IT DALI 150/220...240/1A0 E | 150 | 1 | 310 | 1050 | |
| DL-PAK 70 | 70 | 18 | 115 | 700 | |
| EUCI-040105GLA | 40 | 28 | 77 | 1050 | |
| EUCI-075105GLA | 75 | 54 | 110 | 1050 | |
| EUCI-130105GLA | 130 | 60 | 200 | 1050 | |
| EUCI-170105GLA | 170 | 80 | 340 | 1050 | |
| OT 75 /220...240/1A0 1DIM G2 CE | 75 | 1 | 150 | 1050 | |
| EUCI-022105GLB | 22 | 8 | 48 | 1050 | |
| EUCI-040105GLB | 40 | 20 | 77 | 1050 | |

* - Detailed data about the compatibility of control gear and led modules - see the Appendix No.1 – Summary LED modules - control gears – on CD

After review of technical documentation, model series, characteristic of particular models, differences between models, technical parameters, class of luminaires, IP code, light sources, components, etc., luminaire 130782.7LR7B27S950.201.B.Z.V has been tested as the representative of all models of luminaires

| IEC 60598-2-3 | | | |
|------------------|--|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2 (0) | GENERAL TEST REQUIREMENTS | | P |
| 3.2 (0.3) | More sections applicable..... : | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Section/s: | — |
| 3.2 (0.5) | Components | (see Annex 1) | — |
| 3.2 (0.7) | Information for luminaire design in light sources standards | | — |
| 3.2 (0.7.2) | Light source safety standard | EN62031 | — |
| | Luminaire design in the light source safety standard | | P |

| | | | |
|----------------|---|---|---|
| 3.4 (2) | CLASSIFICATION OF LUMINAIRES | | P |
| 3.4 (2.2) | Type of protection | Class II | P |
| 3.4 (2.3) | Degree of protection | IP66 | P |
| 3.4 (2.4) | Luminaire suitable for direct mounting on normally flammable surfaces | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | — |
| 3.4 (2.5) | Luminaire for normal use | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | — |
| | Luminaire for rough service | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | — |
| 3.4 (-) | Modes of installation of road or street lighting | | — |
| | a) on a pipe | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | — |
| | b) on a mast arm | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | — |
| | c) on a post top | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | — |
| | d) on span or suspension wires | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | — |
| | e) on a wall | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | — |

| | | | |
|----------------|---------------------------------------|--|-----|
| 3.5 (3) | MARKING | | P |
| 3.5 (3.2) | Mandatory markings | | P |
| | Position of the marking | | P |
| | Format of symbols/text | | P |
| 3.5 (3.3) | Additional information | | P |
| | Language of instructions | | P |
| 3.5 (3.3.1) | Combination luminaires | | N/A |
| 3.5 (3.3.2) | Nominal frequency in Hz | | P |
| 3.5 (3.3.3) | Operating temperature | | P |
| 3.5 (3.3.5) | Wiring diagram | | P |
| 3.5 (3.3.6) | Special conditions | | N/A |
| 3.5 (3.3.7) | Metal halide lamp luminaire – warning | | N/A |
| 3.5 (3.3.8) | Limitation for semi-luminaires | | N/A |

| IEC 60598-2-3 | | | |
|----------------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.5 (3.3.9) | Power factor and supply current | | P |
| 3.5 (3.3.10) | Suitability for use indoors | | N/A |
| 3.5 (3.3.11) | Luminaires with remote control | | N/A |
| 3.5 (3.3.12) | Clip-mounted luminaire – warning | | N/A |
| 3.5 (3.3.13) | Specifications of protective shields | | N/A |
| 3.5 (3.3.14) | Symbol for nature of supply | | P |
| 3.5 (3.3.15) | Rated current of socket outlet | | N/A |
| 3.5 (3.3.16) | Rough service luminaire | | N/A |
| 3.5 (3.3.17) | Mounting instruction for type Y, type Z and some type X attachments | | N/A |
| 3.5 (3.3.18) | Non-ordinary luminaires with PVC cable | | N/A |
| 3.5 (3.3.19) | Protective conductor current in instruction if applicable | | N/A |
| 3.5 (3.3.20) | Provided with information if not intended to be mounted within arm's reach | | N/A |
| 3.5 (3.3.21) | Non replaceable and non-user replaceable light sources information provided | | P |
| 3.5 (3.3.22) | Controllable luminaires, classification of insulation provided | | N/A |
| 3.5 (3.3.23) | Luminaires without control gear provided with necessary information for selection of appropriate component | | N/A |
| 3.5 (3.3.24) | If not supplied with terminal block, information on the packaging | | N/A |
| 3.5 (3.3.25) | Luminaires employing light sources emitting UV on mains wiring, information provided | | N/A |
| 3.5 (3.3.26) | Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided | | N/A |
| 3.5 (3.4) | Test with water | | P |
| | Test with hexane | | P |
| | Legible after test | | P |
| | Label attached | | P |
| 3.5 (-) | Additional information in instruction leaflet | | P |
| | a) Design attitude | | P |
| | b) Weight | | P |
| | c) Overall dimensions | | P |
| | d) Maximum projected area if applicable | | N/A |
| | e) Cross-sectional area of wires if applicable | | N/A |
| | f) Suitability for indoors use | | N/A |

| IEC 60598-2-3 | | | |
|---------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | g) Dimensions of the compartment | | N/A |
| | h) Torque setting to be applied to bolts or screws | | P |
| | i) Maximum mounting height | | P |

| | | | |
|------------------|--|-----|------------|
| 3.6 (4) | CONSTRUCTION | | P |
| 3.6 (4.2) | Components replaceable without difficulty | | P |
| 3.6 (4.3) | Wireways smooth and free from sharp edges | | P |
| 3.6 (4.4) | Lampholders | | N/A |
| 3.6 (4.4.1) | Integral lampholder | | N/A |
| 3.6 (4.4.2) | Wiring connection | | N/A |
| 3.6 (4.4.3) | Lampholder for end-to-end mounting | | N/A |
| 3.6 (4.4.4) | Positioning | | N/A |
| | - pressure test (N) | N/A | — |
| | After test the lampholder comply with relevant standard sheets and show no damage | | N/A |
| | After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation | | N/A |
| | - bending test (N) | N/A | — |
| | After test the lampholder have not moved from its position and show no permanent deformation | | N/A |
| 3.6 (4.4.5) | Peak pulse voltage | | N/A |
| 3.6 (4.4.6) | Centre contact | | N/A |
| 3.6 (4.4.7) | Parts in rough service luminaires resistant to tracking | | N/A |
| 3.6 (4.4.8) | Lamp connectors | | N/A |
| 3.6 (4.4.9) | Caps and bases correctly used | | N/A |
| 3.6 (4.4.10) | Light source for lampholder or connection according IEC 60061 not connected another way | | N/A |
| 3.6 (4.5) | Starter holders | | N/A |
| | Starter holder in luminaires other than class II | | N/A |
| | Starter holder class II construction | | N/A |
| 3.6 (4.6) | Terminal blocks | | N/A |
| | Tails | | N/A |
| | Unsecured blocks | | N/A |
| 3.6 (4.7) | Terminals and supply connections | | P |
| 3.6 (4.7.1) | Contact to metal parts | | N/A |

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|----------------------|--|-----------------|------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.6 (4.7.2) | Test 8 mm live conductor | | P |
| | Test 8 mm earth conductor | | N/A |
| 3.6 (4.7.3) | Terminals for supply conductors | | P |
| 3.6 (4.7.3.1) | Welded method and material | | N/A |
| | - stranded or solid conductor | | N/A |
| | - spot welding | | N/A |
| | - welding between wires | | N/A |
| | - Type Z attachment | | N/A |
| | - mechanical test according to 15.6.2 | | N/A |
| | - electrical test according to 15.6.3 | | N/A |
| | - heat test according to 15.6.3.2.3 and 15.6.3.2.4 | | N/A |
| 3.6 (4.7.4) | Terminals other than supply connection | | N/A |
| 3.6 (4.7.5) | Heat-resistant wiring/sleeves | | N/A |
| 3.6 (4.7.6) | Multi-pole plug | | N/A |
| | - test at 30 N | | N/A |
| 3.6 (4.8) | Switches | | N/A |
| | - adequate rating | | N/A |
| | - adequate fixing | | N/A |
| | - polarized supply | | N/A |
| | - compliance with IEC 61058-1 for electronic switches | | N/A |
| 3.6 (4.9) | Insulating lining and sleeves | | N/A |
| 3.6 (4.9.1) | Retainment | | N/A |
| | Method of fixing | | N/A |
| 3.6 (4.9.2) | Insulated linings and sleeves: | | N/A |
| | Resistant to a temperature > 20 °C to the wire temperature or | | N/A |
| | a) & c) Insulation resistance and electric strength | | N/A |
| | b) Ageing test. Temperature (°C) | | N/A |
| 3.6 (4.10) | Double or reinforced insulation | | P |
| 3.6 (4.10.1) | No contact, mounting surface – accessible metal parts – wiring of basic insulation | | P |
| | Safe installation fixed luminaires | | N/A |
| | Capacitors and switches | | N/A |
| 3.6 (4.10.2) | Assembly gaps: | | N/A |
| | - not coincidental | | N/A |

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|----------------------|--|-----------------|------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - no straight access with test probe | | N/A |
| 3.6 (4.10.3) | Retention of insulation: | | P |
| | - fixed | | P |
| | - unable to be replaced; luminaire inoperative | | P |
| | - sleeves retained in position | | P |
| | - lining in lampholder | | N/A |
| 3.6 (4.10.4) | Protective impedance device | | N/A |
| | Basic and supplementary insulation bridged by resistor(s) or appropriate capacitor | | N/A |
| | Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor | | N/A |
| | Capacitors comply with IEC 60384-14 | | N/A |
| | Resistors comply with test (a) in 14.1 of IEC 60065 | | N/A |
| 3.6 (4.11) | Electrical connections and current-carrying parts | | P |
| 3.6 (4.11.1) | Contact pressure | | P |
| 3.6 (4.11.2) | Screws: | | N/A |
| | - self-tapping screws | | N/A |
| | - thread-cutting screws | | N/A |
| 3.6 (4.11.3) | Screw locking: | | N/A |
| | - spring washer | | N/A |
| | - rivets | | N/A |
| 3.6 (4.11.4) | Material of current-carrying parts | | P |
| 3.6 (4.11.5) | No contact to wood or mounting surface | | P |
| 3.6 (4.11.6) | Electro-mechanical contact systems | | N/A |
| 3.6 (4.12) | Screws and connections (mechanical) and glands | | N/A |
| 3.6 (4.12.1) | Screws not made of soft metal | | P |
| | Screws of insulating material | | N/A |
| | Torque test: torque (Nm); part..... : control gear, screws: 1,2 Nm glass: 1,2 Nm | | P |
| | Torque test: torque (Nm); part..... : connector: 0,5 Nm led module: 0,5 Nm | | P |
| | Torque test: torque (Nm); part..... : spigot: 20 Nm | | P |
| 3.6 (4.12.2) | Screws with diameter < 3 mm screwed into metal | | N/A |
| 3.6 (4.12.4) | Locked connections: | | N/A |

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|-------------------|---|-----------------|----------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - fixed arms; torque (Nm) | | N/A |
| | - lampholder; torque (Nm) | | N/A |
| | - push-button switches; torque 0,8 Nm | | N/A |
| 3.6 (4.12.5) | Screwed glands; force (Nm)..... | | N/A |
| 3.6 (4.13) | Mechanical strength | | P |
| 3.6 (4.13.1) | Impact tests: | | P |
| | - fragile parts; energy (Nm) | 0,5 Nm | P |
| | - other parts; energy (Nm) | 0,7 Nm | P |
| | 1) live parts | | P |
| | 2) linings | | N/A |
| | 3) protection | | P |
| | 4) covers | | P |
| 3.6 (4.13.2) | Metal parts have adequate mechanical strength | | N/A |
| 3.6 (4.13.3) | Straight test finger | | P |
| 3.6 (4.13.4) | Rough service luminaires | | N/A |
| | - IP54 or higher | | N/A |
| | a) fixed | | N/A |
| | b) hand-held | | N/A |
| | c) delivered with a stand | | N/A |
| | d) for temporary installations and suitable for mounting on a stand | | N/A |
| 3.6 (4.13.6) | Tumbling barrel | | N/A |
| 3.6 (4.14) | Suspensions, fixings and means of adjusting | | P |
| 3.6 (4.14.1) | Mechanical load: | | P |
| | A) four times the weight | | P |
| | B) torque 2,5 Nm | | P |
| | C) bracket arm; bending moment (Nm)..... | | N/A |
| | D) load track-mounted luminaires | | N/A |
| | E) clip-mounted luminaires, glass-shelve. Thickness (mm) | | N/A |
| | Metal rod. diameter (mm) | | N/A |
| | Fixed luminaire or independent control gear without fixing devices | | N/A |
| 3.6 (4.14.2) | Load to flexible cables | | N/A |
| | Mass (kg) | N/A | — |
| | Stress in conductors (N/mm ²) | | N/A |

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|-------------------|--|------------------------------|------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Mass (kg) of semi-luminaire | | N/A |
| | Bending moment (Nm) of semi-luminaire | | N/A |
| 3.6 (4.14.3) | Adjusting devices: | | N/A |
| | - flexing test; number of cycles..... | | N/A |
| | - strands broken | | N/A |
| | - electric strength test afterwards | | N/A |
| 3.6 (4.14.4) | Telescopic tubes: cords not fixed to tube; no strain on conductors | | N/A |
| 3.6 (4.14.5) | Guide pulleys | | N/A |
| 3.6 (4.14.6) | Strain on socket-outlets | | N/A |
| 3.6 (4.15) | Flammable materials | | N/A |
| | - glow-wire test 650°C | See Test Table 3.15 (13.3.2) | N/A |
| | - spacing ≥ 30 mm | | N/A |
| | - screen withstanding test of 13.3.1 | | N/A |
| | - screen dimensions | | N/A |
| | - no fiercely burning material | | N/A |
| | - thermal protection | | N/A |
| | - electronic circuits exempted | | N/A |
| 3.6 (4.15.2) | Luminaires made of thermoplastic material with lamp control gear | | N/A |
| | a) construction | | N/A |
| | b) temperature sensing control | | N/A |
| | c) surface temperature | | N/A |
| 3.6 (4.16) | Luminaires for mounting on normally flammable surfaces | | P |
| | No lamp control gear | (compliance with Section 12) | N/A |
| | Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces | | N/A |
| 3.6 (4.16.1) | Lamp control gear spacing: | | N/A |
| | - spacing 35 mm | | N/A |
| | - spacing 10 mm | | N/A |
| 3.6 (4.16.2) | Thermal protection: | | P |
| | - in lamp control gear | | P |
| | - external | | N/A |
| | - fixed position | | N/A |
| | - temperature marked lamp control gear | 130°C | P |
| 3.6 (4.16.3) | Design to satisfy the test of 12.6 | (see clause 12.6) | N/A |

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|----------------------|--|--|------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.6 (4.17) | Drain holes | | N/A |
| | Clearance at least 5 mm | | N/A |
| 3.6 (4.18) | Resistance to corrosion | | P |
| 3.6 (4.18.1) | - rust-resistance | | N/A |
| 3.6 (4.18.2) | - season cracking in copper | | P |
| 3.6 (4.18.3) | - corrosion of aluminium | | P |
| 3.6 (4.19) | Igniters compatible with ballast | | N/A |
| 3.6 (4.20) | Rough service vibration | | N/A |
| 3.6 (4.21) | Protective shield | | N/A |
| 3.6 (4.21.1) | Shield fitted if tungsten halogen lamps or metal halide lamps | | N/A |
| | Shield of glass if tungsten halogen lamps | | N/A |
| 3.6 (4.21.2) | Particles from a shattering lamp not impair safety | | N/A |
| 3.6 (4.21.3) | No direct path | | N/A |
| 3.6 (4.21.4) | Impact test on shield | | N/A |
| | Glow-wire test on lamp compartment..... : | See Test Table 3.15 (13.3.2) | N/A |
| 3.6 (4.22) | Attachments to lamps not cause overheating or damage | | N/A |
| 3.6 (4.23) | Semi-luminaires comply Class II | | N/A |
| 3.6 (4.24) | Photobiological hazards | | P |
| 3.6 (4.24.1) | No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P) | | N/A |
| 3.6 (4.24.2) | Retinal blue light hazard | | P |
| | Class of risk group assessed according to IEC/TR 62778 | Risk Group 0 for distances $\geq 2,45$ m Risk Group 1 Unlimited | — |
| | Luminaires with E_{thr} : | | N/A |
| | a) Fixed luminaires | | N/A |
| | - distance x m, borderline between RG1 and RG2 .. : | | N/A |
| | - marking and instruction according 3.2.23 | | N/A |
| | b) Portable and handheld luminaires | | N/A |
| | - marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778 | | N/A |
| | Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778 | | N/A |
| 3.6 (4.25) | Mechanical hazard | | P |
| | No sharp point or edges | | P |

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|-------------------|--|-----------------|------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.6 (4.26) | Short-circuit protection | | N/A |
| 3.6 (4.26.1) | Adequate means of uninsulated accessible SELV parts | | N/A |
| 3.6 (4.26.2) | Short-circuit test with test chain according 4.26.3 | | N/A |
| | Supply source ES1 PSE | | N/A |
| | Test chain not melt through | | N/A |
| | Test sample not exceed values of Table 12.1 and 12.2 | | N/A |
| 3.6 (4.27) | Terminal blocks with integrated screwless earthing contacts | | N/A |
| | Test according Annex V | | N/A |
| | Pull test of terminal fixing (20 N) | | N/A |
| | After test, resistance < 0,05 Ω | | N/A |
| | Pull test of mechanical connection (50 N) | | N/A |
| | After test, resistance < 0,05 Ω | | N/A |
| | Voltage drop test, resistance < 0,05 Ω | | N/A |
| 3.6 (4.28) | Fixing of thermal sensing control | | N/A |
| | Not plug-in or easily replaceable type | | N/A |
| | Reliably kept in position | | N/A |
| | No adhesive fixing if UV radiations from a lamp can degrade the fixing | | N/A |
| | Not outside the luminaire enclosure | | N/A |
| | Test of adhesive fixing: | | N/A |
| | Max. temperature on adhesive material (°C) : | N/A | — |
| | 100 cycles between t min and t max | | N/A |
| | Temperature sensing control still in position | | N/A |
| 3.6 (4.29) | Luminaires with non-replaceable light source | | N/A |
| | Not possible to replace light source | | N/A |
| | Live part not accessible after parts have been opened by hand or tools | | N/A |
| 3.6 (4.30) | Luminaires with non-user replaceable light source | | P |
| | If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol: | | P |
| | At least one fixing means requiring use of tool | | P |
| 3.6 (4.31) | Insulation between circuits | | N/A |
| | Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3 | | N/A |

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|---------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3 | | N/A |
| 3.6 (4.31.1) | SELV or PELV circuits | | N/A |
| | Used SELV/PELV source | | N/A |
| | Voltage \leq ELV | | N/A |
| | Insulating of SELV/PELV circuits from LV supply | | N/A |
| | Insulating of SELV/PELV circuits from other non SELV/PELV circuits | | N/A |
| | Insulating of SELV/PELV circuits from FELV | | N/A |
| | Insulating of SELV/PELV circuits from other SELV/PELV circuits | | N/A |
| | SELV/PELV circuits insulated from accessible parts according Table X.1 | | N/A |
| | Plugs not able to make any electrical contact with socket-outlets of other voltage systems | | N/A |
| | Socket outlets does not admit plugs of other voltage systems | | N/A |
| | Plugs and socket-outlets does not have protective conductor contact | | N/A |
| 3.6 (4.31.2) | FELV circuits | | N/A |
| | Used FELV source | | N/A |
| | Voltage \leq ELV | | N/A |
| | Insulating of FELV circuits from LV supply | | N/A |
| | FELV circuits insulated from accessible parts according Table X.1 | | N/A |
| | Plugs not able to make any electrical contact with socket-outlets of other voltage systems | | N/A |
| | Socket outlets does not admit plugs of other voltage systems | | N/A |
| | Socket-outlets does not have protective conductor contact | | N/A |
| 3.6 (4.31.3) | Other circuits | | P |
| | Other circuits insulated from accessible parts according Table X.1 | | N/A |
| | Class II construction with equipotential bonding for protection against indirect contacts with live parts: | | P |
| | - conductive parts are connected together | | P |
| | - test according 7.2.3 | | N/A |

| IEC 60598-2-3 | | | |
|----------------------|---|-----------------|------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - conductive part not cause an electric shock in case of an insulation fault | | N/A |
| | - equipotential bonding in master/slave applications | | N/A |
| | - master luminaire provided with terminal for accessible conductive parts of slave luminaires | | N/A |
| | - slave luminaire constructed as class I | | N/A |
| 3.6 (4.32) | Overvoltage protective devices | | N/A |
| | Comply with IEC 61643-11 | | N/A |
| | External to controlgear and connected to earth: | | N/A |
| | - only in fixed luminaires | | N/A |
| | - only connected to protective earth | | N/A |
| 3.6 (4.33) | Luminaire powered via information technology communication cabling | | N/A |
| | Requirements for Class III luminaire | | N/A |
| | Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector | | N/A |
| | Luminaire does not create any hazard from overvoltage | (see Annex 2) | N/A |
| 3.6 (4.34) | Electromagnetic fields (EMF) | | N/A |
| | No harmful electromagnetic fields | | N/A |
| 3.6 (4.35) | Protection against moving fan blades | | N/A |
| | Test with a standard test finger | | N/A |
| | Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire | | N/A |
| | -hardness less than D60 Shore | | N/A |
| | -peripheral speed less than 15 m/s | | N/A |
| | -input power of fan ≤ 2 W at rated voltage | | N/A |
| 3.6 (4.36) | Track-mounted luminaires | | N/A |
| | Test in accordance with Annex A of IEC60570:2003/AMD2:2019 | | N/A |
| 3.6.1 (-) | At least IP X3 or X5 respectively. IP | IP66 | P |
| | Column-integrated luminaires: | | N/A |
| | - parts below 2,5 m. IP | | N/A |
| | - parts above 2,5 m. IP | | N/A |
| 3.6.2 (-) | Suspension on span wires | | N/A |
| 3.6.3 (-) | Means for attaching the luminaire or external parts to its support appropriate to the weight | | N/A |
| 3.6.3.1 (-) | Static load test | | P |

| IEC 60598-2-3 | | | |
|---------------|---|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - drag coefficient.....: | 1,2 | P |
| | - loaded area (m ²).....: | 0,09 m ² | P |
| | - used load (N).....: | 179 N | P |
| | - measured deformation (cm/m) | < 1 cm/m | P |
| | - no rotation | | P |
| 3.6.4 (-) | Adjustable lampholders | | N/A |
| 3.6.5 (-) | Luminaires installed above 5 m, glass covers shall be: | | P |
| | a) glass that fractures into small pieces (test according to 3.6.5.1), or | Side glass | N/A |
| | b) glass having a high impact shock resistance (test according to 3.6.5.2), or | | P |
| | c) protected by any means to retain glass fragments | | N/A |
| | For tunnel luminaires 3.6.5.1 apply | | N/A |
| | Method of protection declared by the manufacturer | | N/A |
| 3.6.5.1 (-) | Protection by the use of glass that fractures into small pieces | | N/A |
| | - number of particles is more than 40.....: | | N/A |
| 3.6.5.2 (-) | Protection by the use of high impact resistant glass | | P |
| 3.6.5.2.1 (-) | Glass covers have high mechanical strength | | P |
| | Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample | IK10 (see the Test Report No. B10-3/096/B/22 dated 08.07.2022 carried out by Łukasiewicz-IMIIF PREDOM Division) | P |
| 3.6.5.2.2 (-) | Glass covers not break into large pieces | | N/A |
| | - test according 3.6.5.1, number of particles is more than 20 | | N/A |
| 3.6.6 (-) | Connection compartment of column-integrated luminaire | | N/A |
| | - provides adequate space | | N/A |
| | - means for attachment | | N/A |
| | - means for attachment of metal corrosion-resistant | | N/A |
| 3.6.7 (-) | Compliance with ISO standard or other | | N/A |
| 3.6.8 (-) | Doors of column-integrated luminaires: | | N/A |
| | - corrosion-resistant | | N/A |
| | - opening only possible for an authorized person | | N/A |
| | - impact test 5 Nm | | N/A |
| | - sample show no damage | | N/A |
| 3.6.9 (-) | Column-integrated luminaire: | | N/A |

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|---------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - dimension of the cable entry slot (mm) | | N/A |
| | - cable path from the slot to the connection compartment (mm) | | N/A |
| | - cable path free from obstruction that might cause abrasion of the cable | | N/A |

| 3.7 (11) | CREEPAGE DISTANCES AND CLEARANCES | | P |
|--------------|--|---|-----|
| 3.7 (11.2) | Creepage distances and clearances | See Table 3.7 (11.2) | P |
| | Impulse withstand category (Normal category II) (Category III Annex U, Table U.1) | Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/> | — |
| | Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1 | | N/A |
| 3.7 (11.2.2) | Creepage distances for frequency up to 30 kHz | See Test Table 3.7 (11.2) I | P |
| | Creepage distances for frequency over 30 kHz: | | N/A |
| | - Controlgear marked with \hat{U}_{OUT} and f_{UOUT} according IEC 61347-1, clause 7.1, item w | See Test Table 3.7 (11.2) II | N/A |
| | - Requirements according IEC 60664-4 for controlgear not covered by IEC 61347 | See Test Table 3.7 (11.2) II | N/A |
| 3.7 (11.2.3) | Clearances for frequency up to 30 kHz | See Test Table 3.7 (11.2) I | N/A |
| | Clearances distances for frequency over 30 kHz: | | N/A |
| | - Controlgear marked with U_P | See Test Table 3.7 (11.2) II | N/A |
| | - Requirements according IEC 60664-4 for controlgear not covered by IEC 61347 | See Test Table 3.7 (11.2) II | N/A |

| 3.8 (7) | PROVISION FOR EARTHING | | N/A |
|---------------------|---|--|-----|
| 3.8 (7.2.1 + 7.2.3) | Accessible metal parts | | N/A |
| | Metal parts in contact with supporting surface | | N/A |
| | Resistance < 0,5 Ω | | N/A |
| | Self-tapping screws used | | N/A |
| | Thread-forming screws | | N/A |
| | Thread-forming screw used in a groove | | N/A |
| | Protective earth makes contact first | | N/A |
| | Terminal blocks with integrated screwless protective earthing contacts tested according Annex V | | N/A |
| | Protective earthing of the luminaire not via built-in control gear | | N/A |
| 3.8 (7.2.2 + 7.2.3) | Protective earth continuity in joints, etc. | | N/A |

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|---------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.8 (7.2.4) | Locking of clamping means | | N/A |
| | Compliance with 4.7.3 | | N/A |
| 3.8 (7.2.5) | Protective earth terminal integral part of connector socket | | N/A |
| 3.8 (7.2.6) | Protective earth terminal adjacent to mains terminals | | N/A |
| 3.8 (7.2.7) | Electrolytic corrosion of the protective earth terminal | | N/A |
| 3.8 (7.2.8) | Material of protective earth terminal | | N/A |
| | Contact surface bare metal | | N/A |
| 3.8 (7.2.10) | Class II luminaire for looping-in | | N/A |
| | Double or reinforced insulation to functional earth | | N/A |
| 3.8 (7.2.11) | Protective earthing core coloured green-yellow | | N/A |
| | Length of earth conductor | | N/A |
| 3.8 (7.2.12) | PELV circuit connected to protective earth for functional purpose | | N/A |

| | | | |
|-----------------|-------------------------------------|---------------|-----|
| 3.9 (14) | SCREW TERMINALS | | N/A |
| | Separately approved; component list | (see Annex 1) | N/A |
| | Part of the luminaire | (see Annex 3) | N/A |

| | | | |
|-----------------|---|---------------|-----|
| 3.9 (15) | SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS | | P |
| | Separately approved; component list..... : | (see Annex 1) | P |
| | Part of the luminaire | (see Annex 4) | N/A |

| | | | |
|-------------------|---|----------------------|----------|
| 3.10 (5) | EXTERNAL AND INTERNAL WIRING | | P |
| 3.10 (5.2) | Supply connection and external wiring | | P |
| 3.10 (5.2.1) | Means of connection | Connector BJB 46.412 | P |
| | Outdoor luminaire has not PVC insulated external wiring if not Class III or SELV/PELV circuits ≤ 25 V AC/60 V DC/25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment | | N/A |
| 3.10 (5.2.2) | Type of cable | | N/A |
| | Nominal cross-sectional area (mm ²) | | N/A |
| | Cables equal to IEC 60227 or IEC 60245 | | N/A |
| 3.10 (5.2.3) | Type of attachment, X, Y or Z | | N/A |
| 3.10 (5.2.5) | Type Z not connected to screws | | N/A |
| 3.10 (5.2.6) | Cable entries: | | P |

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|-----------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - suitable for introduction | | P |
| | - adequate degree of protection | | P |
| 3.10 (5.2.7) | Cable entries through rigid material have rounded edges | | P |
| 3.10 (5.2.8) | Insulating bushings: | | N/A |
| | - suitably fixed | | N/A |
| | - material in bushings | | N/A |
| | - material not likely to deteriorate | | N/A |
| | - tubes or guards made of insulating material | | N/A |
| 3.10 (5.2.9) | Locking of screwed bushings | | N/A |
| 3.10 (5.2.10) | Cord anchorage: | | P |
| | - covering protected from abrasion | | P |
| | - clear how to be effective | | P |
| | - no mechanical or thermal stress | | P |
| | - no tying of cables into knots etc. | | P |
| | - insulating material or lining | | P |
| 3.10 (5.2.10.1) | Cord anchorage for type X attachment: | | N/A |
| | a) at least one part fixed | | N/A |
| | b) types of cable | | N/A |
| | c) no damaging of the cable | | N/A |
| | d) whole cable can be mounted | | N/A |
| | e) no touching of clamping screws | | N/A |
| | f) metal screw not directly on cable | | N/A |
| | g) replacement without special tool | | N/A |
| | Glands not used as anchorage | | N/A |
| | Labyrinth type anchorages | | N/A |
| 3.10 (5.2.10.2) | Adequate cord anchorage for type Y and type Z attachment | | N/A |
| 3.10 (5.2.10.3) | Tests: | | N/A |
| | - impossible to push cable; unsafe | | N/A |
| | - pull test: 25 times; pull (N) | | N/A |
| | - torque test: torque (Nm) | | N/A |
| | - displacement ≤ 2 mm | | N/A |

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|--------------------|--|-----------------|----------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - no movement of conductors | | N/A |
| | - no damage of cable or cord | | N/A |
| | - function independent of electrical connection | | N/A |
| 3.10 (5.2.10.4) | Luminaire with/ designed for use with supply cord with maximum current of 2A: | | N/A |
| | - Ordinary Class III luminaire supplied with SELV ≤ 25V RMS/60V DC | | N/A |
| | - Ordinary Class III luminaire supplied with PELV ≤12V RMS/30V DC | | N/A |
| | - Other than ordinary Class III luminaire supplied with voltage ≤12V RMS/30V DC | | N/A |
| | Pull test of 30N | | N/A |
| 3.10 (5.2.11) | External wiring passing into luminaire | | N/A |
| 3.10 (5.2.12) | Looping-in terminals | | N/A |
| 3.10 (5.2.13) | Wire ends not tinned | | N/A |
| | Wire ends tinned: no cold flow | | N/A |
| 3.10 (5.2.14) | Mains plug same protection | | N/A |
| | Class III luminaire plug | | N/A |
| | No unsafe compatibility | | N/A |
| 3.10 (5.2.15) | Connectors for Class III luminaires (IEC 60603 or IEC 62680) | | N/A |
| 3.10 (5.2.16) | Appliance inlets (IEC 60320) | | N/A |
| | Installation couplers (IEC 61535) | | N/A |
| | Appliance inlet or connector systems (IEC 61984) | | N/A |
| 3.10 (5.2.17) | No standardized interconnecting cables properly assembled | | N/A |
| 3.10 (5.2.18) | Used plug in accordance with | | N/A |
| | - IEC 60083 | | N/A |
| | - other standard | | N/A |
| 3.10 (5.3) | Internal wiring | | P |
| 3.10 (5.3.1) | Internal wiring of suitable size and type | | P |
| | Through wiring | | N/A |
| | - not delivered/ mounting instruction | | N/A |

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|-------------------|--|---------------------|------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - factory assembled | | N/A |
| | - socket outlet loaded (A) | | N/A |
| | - temperatures | (see Annex 2) | N/A |
| | Green-yellow for protective earth only | | N/A |
| 3.10 (5.3.1.1) | Internal wiring connected directly to fixed wiring | | P |
| | Cross-sectional area (mm ²)..... | 0,5 mm ² | P |
| | Insulation thickness | 0.6 mm | P |
| | Extra insulation added where necessary | | P |
| 3.10 (5.3.1.2) | Internal wiring connected to fixed wiring via internal current-limiting device | | N/A |
| | Cross-sectional area (mm ²)..... | | N/A |
| 3.10 (5.3.1.3) | Double or reinforced insulation for class II | | P |
| 3.10 (5.3.1.4) | Conductors without insulation | | N/A |
| 3.10 (5.3.1.5) | SELV/PELV current-carrying parts | | N/A |
| 3.10 (5.3.1.6) | Insulation thickness other than PVC or rubber | | N/A |
| 3.10 (5.3.2) | Sharp edges etc. | | P |
| | No moving parts of switches etc. | | P |
| | Joints, raising/lowering devices | | N/A |
| | Telescopic tubes etc. | | N/A |
| | No twisting over 360° | | P |
| 3.10 (5.3.3) | Insulating bushings: | | N/A |
| | - suitable fixed | | N/A |
| | - material in bushings | | N/A |
| | - material not likely to deteriorate | | N/A |
| | - cables with protective sheath | | N/A |
| 3.10 (5.3.4) | Joints and junctions effectively insulated | | N/A |
| 3.10 (5.3.5) | Strain on internal wiring | | N/A |
| 3.10 (5.3.6) | Wire carriers | | N/A |
| 3.10 (5.3.7) | Wire ends not tinned | | N/A |
| | Wire ends tinned: no cold flow | | N/A |
| 3.10 (5.4) | Test to determine suitability of conductors having a reduced cross-sectional area | | N/A |

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|---------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2 | (see Annex 2) | N/A |
| | No damage to luminaire wiring after test | | N/A |
| 3.10.1 (-) | Cord anchorage if applicable | | P |
| | - pull test: 25 times; pull (N) | 60 N | P |
| | - torque test: torque (Nm) | 0,25 Nm | P |

| | | | |
|-----------------|--|--|-----|
| 3.11 (8) | PROTECTION AGAINST ELECTRIC SHOCK | | P |
| 3.11 (8.2.1) | Live parts not accessible | | P |
| | Basic insulated parts not used on the outer surface without appropriate protection | | P |
| | Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires | | N/A |
| | Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires | | N/A |
| | Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements | | N/A |
| | Basic insulation only accessible under lamp or starter replacement | | N/A |
| | Protection in any position | | P |
| | Double-ended tungsten filament lamp | | N/A |
| | Insulation lacquer not reliable | | N/A |
| | Double-ended high pressure discharge lamp | | N/A |
| | Relevant warning according to 3.2.18 fitted to the luminaire | | N/A |
| 3.11 (8.2.2) | Portable luminaire adjusted in most unfavourable position | | N/A |
| 3.11 (8.2.3.a) | Class II luminaire: | | P |
| | - basic insulated metal parts not accessible during starter or lamp replacement | | P |
| | - basic insulation not accessible other than during starter or lamp replacement | | P |
| | - glass protective shields not used as supplementary insulation | | P |
| 3.11 (8.2.3.b) | BC lamp holder of metal in class I luminaires shall be connected to protective earth | | N/A |

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|-------------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.11 (8.2.3.c) | SELV circuits with exposed current carrying parts: | | N/A |
| | Ordinary luminaire: | | N/A |
| | - voltage under load/ no-load AC (V)..... : | | N/A |
| | - voltage under load/ no-load DC (V)..... : | | N/A |
| | - interrupted DC voltage (V) | | N/A |
| | - touch current if applicable (mA) | | N/A |
| | One conductive part insulated if required | | N/A |
| | Other than ordinary luminaire: | | N/A |
| | - voltage under load/ no-load AC (V)..... : | | N/A |
| | - voltage under load/ no-load DC (V)..... : | | N/A |
| | - interrupted DC voltage (V) | | N/A |
| | Class III luminaire only for connection to SELV | | N/A |
| | Class III luminaire not provided with means for protective earthing | | N/A |
| 3.11 (8.2.3.d) | PELV circuits with exposed current carrying parts: | | N/A |
| | Ordinary luminaire: | | N/A |
| | - voltage under load/ no-load AC (V)..... : | | N/A |
| | - voltage under load/ no-load DC (V)..... : | | N/A |
| | Other than ordinary luminaire: | | N/A |
| | - voltage under load/ no-load AC (V)..... : | | N/A |
| | - voltage under load/ no-load DC (V)..... : | | N/A |
| | One pole insulated if required | | N/A |
| 3.11 (8.2.4) | Portable luminaire have protection independent of supporting surface | | N/A |
| 3.11 (8.2.5) | Compliance with the standard test finger or relevant probe | | P |
| 3.11 (8.2.6) | Covers reliably secured | | P |
| 3.11 (8.2.7) | Luminaire other than below with capacitor > 0,5 μ F not exceed 50 V 1 min after disconnection | | N/A |
| | Portable luminaire with capacitor > 0,1 μ F (0.25) not exceed 34 V 1 s after disconnection | | N/A |
| | Other luminaires with capacitor > 0,1 μ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection | | N/A |

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|--------------------|--|---------------------------------|----------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.12 (12) | ENDURANCE TEST AND THERMAL TEST | | P |
| 3.12 (-) | If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) before (9.3) as specified in 3.13 | | — |
| 3.12 (12.2) | Selection of lamps and ballasts | | — |
| | Lamp used according Annex B | (Lamp used see Annex 2) | — |
| | Control gear if separate and not supplied | (Control gear used see Annex 2) | — |
| 3.12 (12.3) | Endurance test: | | P |
| | a) mounting-position | as normal use | — |
| | b) test temperature (°C) | 40 + 10°C | — |
| | c) total duration (h) | 240 | — |
| | d) supply voltage (V) | 264 | — |
| | d) if not equipped with control gear, constant voltage/current (V) or (A) | N/A | — |
| 3.12 (12.3.1d) | d) Class III luminaires powered via information technology communication cable: | | N/A |
| | - voltage under normal operation (V)..... | N/A | — |
| | - voltage under abnormal operation (V)..... | N/A | — |
| | e) luminaire ceases to operate | N/A | — |
| | f) luminaire with constant light output function | | N/A |
| 3.12 (12.3.2) | After endurance test: | | P |
| | - no part unserviceable | | P |
| | - luminaire not unsafe | | P |
| | - no damage to track system | | N/A |
| | - marking legible | | P |
| | - no cracks, deformation etc. | | P |
| 3.12 (12.4) | Thermal test (normal operation) | (see Annex 2) | P |
| 3.12 (12.5) | Thermal test (abnormal operation) | (see Annex 2) | N/A |
| 3.12 (12.6) | Thermal test (failed lamp control gear condition): | | N/A |
| 3.12 (12.6.1) | Through wiring or looping-in wiring loaded by a current of (A) | N/A | — |
| | - case of abnormal conditions | N/A | — |
| | - electronic lamp control gear | | N/A |
| | - measured winding temperature (°C): at 1,1 Un | N/A | — |
| | - measured mounting surface temperature (°C) at 1,1 Un | | N/A |

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|--------------------|--|-------------------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - calculated mounting surface temperature (°C) | | N/A |
| | - track-mounted luminaires | | N/A |
| 3.12 (12.6.2) | Temperature sensing control | | N/A |
| | - case of abnormal conditions | N/A | — |
| | - thermal link | | N/A |
| | - manual reset cut-out | | N/A |
| | - auto reset cut-out | | N/A |
| | - measured mounting surface temperature (°C) | | N/A |
| | - track-mounted luminaires | | N/A |
| 3.12 (12.7) | Thermal test (failed lamp control gear in plastic luminaires): | | N/A |
| 3.12 (12.7.1) | Luminaire without temperature sensing control | | N/A |
| 3.12 (12.7.1.1) | Luminaire with fluorescent lamp ≤ 70W | | N/A |
| | Test method 12.7.1.1 or Annex W | N/A | — |
| | Test according to 12.7.1.1: | | N/A |
| | - case of abnormal conditions | N/A | — |
| | - Ballast failure at supply voltage (V) | N/A | — |
| | - Components retained in place after the test | | N/A |
| | - Test with standard test finger after the test | | N/A |
| | Test according to Annex W: | | N/A |
| | - case of abnormal conditions | N/A | — |
| | - measured winding temperature (°C): at 1,1 Un | N/A | — |
| | - measured temperature of fixing point/exposed part (°C): at 1,1 Un | N/A | — |
| | - calculated temperature of fixing point/exposed part (°C) | N/A | — |
| | Ball-pressure test | See Table 3.15 (13.2.1) | N/A |
| 3.12 (12.7.1.2) | Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA | | N/A |
| | - case of abnormal conditions | N/A | — |
| | - measured winding temperature (°C): at 1,1 Un | N/A | — |
| | - measured temperature of fixing point/exposed part (°C): at 1,1 Un | N/A | — |
| | - calculated temperature of fixing point/exposed part (°C) | N/A | — |

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|--------------------|---|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Ball-pressure test | See Table 3.15 (13.2.1) | N/A |
| 3.12 (12.7.1.3) | Luminaire with short circuit proof transformers ≤ 10 VA | | N/A |
| | - case of abnormal conditions | N/A | — |
| | - Components retained in place after the test | | N/A |
| | - Test with standard test finger after the test | | N/A |
| 3.12 (12.7.2) | Luminaire with temperature sensing control | | N/A |
| | - thermal link | Yes <input type="checkbox"/> No <input type="checkbox"/> | — |
| | - manual reset cut-out | Yes <input type="checkbox"/> No <input type="checkbox"/> | — |
| | - auto reset cut-out | Yes <input type="checkbox"/> No <input type="checkbox"/> | — |
| | - case of abnormal conditions | N/A | — |
| | - highest measured temperature of fixing point/ exposed part (°C): | N/A | — |
| | Ball-pressure test: | See Table 3.15 (13.2.1) | N/A |
| 3.12.1 (-) | Temperature reduction if for outdoor use only | | P |
| 3.12.2 (-) | (See above) | | — |
| 3.12.3 (-) | Glass covers used within the thermal limits declared by the glass manufacturer | | N/A |

| | | | |
|-----------------|---|--------------------------|----------|
| 3.13 (9) | RESISTANCE TO DUST AND MOISTURE | | P |
| 3.13.1 (-) | If IP > IP 20 the order of tests as specified in clause 3.12 | | P |
| 3.13 (9.2) | Tests for ingress of dust, solid objects and moisture: | | P |
| | - classification according to IP | IP66 | — |
| | - mounting position during test | down-lighting | — |
| | - fixing screws tightened; torque (Nm) | See mounting instruction | — |
| | - tests according to clauses | 9.2.2, 9.2.7 | — |
| | - electric strength test afterwards | | P |
| | a) no deposit in dust-proof luminaire | | N/A |
| | b) no talcum in dust-tight luminaire | IP6X | P |
| | c) no trace of water on current-carrying parts or on insulation where it could become a hazard | IPX6 | P |
| | c.1) For luminaires without drain holes – no water entry | IPX6 | P |
| | c.2) For luminaires with drain holes – no hazardous water entry | | N/A |

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|---------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | d) no water in watertight, pressure watertight, high pressure and temperature water jet-proof or high pressure and cold water jet-proof luminaire | | N/A |
| | e) no contact with live parts (IP 2X) | | N/A |
| | e) no entry into enclosure (IP 3X and IP 4X) | | N/A |
| | e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X) | | N/A |
| | f) no trace of water on part of lamp requiring protection from splashing water | | N/A |
| | g) no damage of protective shield or glass envelope | | P |
| 3.13 (9.3) | Humidity test 48 h | | P |

| 3.14 (10) | INSULATION RESISTANCE AND ELECTRIC STRENGTH | | P |
|---------------|---|---------|-----|
| 3.14 (10.2.1) | Insulation resistance test | | P |
| | Cable or cord covered by metal foil or replaced by a metal rod of mm Ø | 12 | — |
| | Insulation resistance (MΩ) | > 10 MΩ | — |
| | SELV/PELV: | | N/A |
| | - between current-carrying parts of different polarity : | | N/A |
| | - between current-carrying parts and mounting surface..... : | | N/A |
| | - between current-carrying parts and metal parts of the luminaire..... : | | N/A |
| | - between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... : | | N/A |
| | - Insulation bushings as described in Section 5 | | N/A |
| | Other than SELV/PELV: | | P |
| | - between live parts of different polarity | > 10 MΩ | P |
| | - between live parts and mounting surface | > 10 MΩ | P |
| | - between live parts and metal parts | > 10 MΩ | P |
| | - between live parts of different polarity through action of a switch..... : | | N/A |
| | - between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... : | | N/A |
| | - Insulation bushings as described in Section 5 | > 10 MΩ | P |
| 3.14 (10.2.2) | Electric strength test | | P |

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|---------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Dummy lamp | | N/A |
| | Luminaires with ignitors after 24 h test | | N/A |
| | Luminaires with manual ignitors | | N/A |
| | Test voltage (V) | See below | P |
| | SELV/PELV: | | N/A |
| | - between current-carrying parts of different polarity : | | N/A |
| | - between current-carrying parts and mounting surface | | N/A |
| | - between current-carrying parts and metal parts of the luminaire | | N/A |
| | - between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts | | N/A |
| | - Insulation bushings as described in Section 5 | | N/A |
| | Other than SELV/PELV: | | P |
| | - between live parts of different polarity | 1480 V | P |
| | - between live parts and mounting surface | 2960 V | P |
| | - between live parts and metal parts | 2960 V | P |
| | - between live parts of different polarity through action of a switch | | N/A |
| | - between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts | | N/A |
| | - Insulation bushings as described in Section 5 | 1480 V | P |
| 3.14 (10.3) | Touch current (mA)..... | 0,37 mA | P |
| | Protective conductor current (mA)..... | | N/A |

| | | | |
|------------------|--|------------------------------|----------|
| 3.15 (13) | RESISTANCE TO HEAT, FIRE AND TRACKING | | P |
| 3.15 (13.2.1) | Ball-pressure test | See Test Table 3.15 (13.2.1) | N/A |
| 3.15 (13.3.1) | Needle-flame test (10 s) | See Test Table 3.15 (13.3.1) | P |
| 3.15 (13.3.2) | Glow-wire test (650°C) | See Test Table 3.15 (13.3.2) | N/A |
| 3.15 (13.4) | Proof tracking test (IEC 60112) | See Test Table 3.15 (13.4) | N/A |

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|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 3.7 (11.2) | TABLE I: Creepage distances and clearances | | | | | | P |
|---|--|--------------------|--------------------------------|--------|--|----------|--------|
| | Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages | | | | | | P |
| | Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2* | | | | | | P |
| | Insulation type ** | Measured clearance | Required | | Measured creepage | Required | |
| | | | clearance | *Table | | creepage | *Table |
| Distance 1: | R | 7,5 | 220V - 4,4 mm 240V - 4,8 mm | 11.1.B | 13,5 | 3mm | 11.1.A |
| Working voltage (V) | | | | | 220-240 | | — |
| PTI | | | | | < 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/> | | — |
| Pulse voltage or U_p if applicable (kV) | | | | | | | — |
| Supplementary information: | | | | | | | |
| Distance 2: | | | | | | | |
| Working voltage (V) | | | | | | | — |
| PTI | | | | | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/> | | — |
| Pulse voltage or U_p if applicable (kV) | | | | | | | — |
| Supplementary information: | | | | | | | |
| Distance 3: | | | | | | | |
| Working voltage (V) | | | | | | | — |
| PTI | | | | | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/> | | — |
| Pulse voltage or U_p if applicable (kV) | | | | | | | — |
| Supplementary information: | | | | | | | |

** Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.

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|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 3.7 (11.2) | TABLE II: Creepage distances and clearances | | | | | | N/A |
|--|---|--------------------|-----------|--------|---|----------|--------|
| Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages | | | | | | | |
| Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2 | | | | | | | |
| Distances | Insulation type ** | Measured clearance | Required | | Measured creepage | Required | |
| | | | clearance | *Table | | creepage | *Table |
| Distance 1: | | | | | | | |
| Working voltage (V) | | | | | | | — |
| Frequency if applicable (kHz) | | | | | | | — |
| PTI | | | | | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/> | | — |
| Peak value of the working voltage \hat{U}_{out} if applicable (kV) | | | | | | | — |
| Supplementary information: | | | | | | | |
| Distance 2: | | | | | | | |
| Working voltage (V) | | | | | | | — |
| Frequency if applicable (kHz) | | | | | | | — |
| PTI | | | | | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/> | | — |
| Peak value of the working voltage \hat{U}_{out} if applicable (kV) | | | | | | | — |
| Supplementary information: | | | | | | | |
| Distance 3: | | | | | | | |
| Working voltage (V) | | | | | | | — |
| Frequency if applicable (kHz) | | | | | | | — |
| PTI | | | | | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/> | | — |
| Peak value of the working voltage \hat{U}_{out} if applicable (kV) | | | | | | | — |
| Supplementary information: | | | | | | | |

** Insulation type: B – Basic; S – Supplementary; R – Reinforced.

| IEC 60598-2-3 | | | |
|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 3.15 (13.2.1) | TABLE: Ball Pressure Test of Thermoplastics | | | N/A |
|--|---|-----------------------|--------------------------|-----|
| Allowed impression diameter (mm) | 2 | | | — |
| Object/ Part No./ Material | Manufacturer/ trademark | Test temperature (°C) | Impression diameter (mm) | |
| | | | | |
| | | | | |
| | | | | |
| Supplementary information: | | | | |

| 3.15 (13.3.1) | TABLE: Needle-flame test | | | | P |
|----------------------------|--------------------------|---|------------------------------------|------------------------------|---------|
| Object/ Part No./ Material | Manufacturer/ trademark | Duration of application of test flame (ta); (s) | Ignition of specified layer Yes/No | Duration of burning (tb) (s) | Verdict |
| Connector | BJB (46.412) | 10 | No | - | P |
| | | | | | |
| | | | | | |
| Supplementary information: | | | | | |

| 3.15 (13.3.2) | TABLE: Resistance to heat and fire - Glow wire tests | | | | | N/A | |
|---|--|---------------------|----|-----|----|---------|-----|
| Object/ Part No./ Material | Manufacturer/ trademark | Glow wire test (°C) | | | | Verdict | |
| | | 650 | | 750 | | | 850 |
| | | te | ti | te | ti | | |
| | | | | | | | |
| Ignition of the specified layer placed underneath the test specimen (Yes/No)..... : | | | | | | | |
| Supplementary information: | | | | | | | |

| 3.15 (13.4) | TABLE: Proof tracking test | | | N/A |
|----------------------------|----------------------------|--|--|---------|
| Test voltage PTI | 175 V | | | — |
| Object/ Part No./ Material | Manufacturer/ trademark | Withstand 50 drops without failure on three places or on three specimens | | Verdict |
| | | | | |
| Supplementary information: | | | | |

| IEC 60598-2-3 | | | |
|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| ANNEX 1 | TABLE: Critical components information | | | | | | P |
|--|--|-------------------------|--|-------------------|----------|--|---|
| Object / part No. | Code | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹⁾ | |
| LED Module | A | LUG | ML21XXYY.WQQQ.UUV (LUXEON 5050 modules) (choice sheet below) | Tc -40°C to +85°C | EN 62031 | ENEC | |
| <p>ML21XXYY.WQQQ.UUV</p> <p>1 2 3 4 5 6 7 8</p> <p>Designations used on the marking of LED boards:</p> <p>1. ML - PCB designation (ML – LED module):</p> <p>2. 21 - Year of the project:</p> <p>3. XXX - Number of the project: <u>Luxeon modules</u>: 660, 661, 663, 670, 671, 672, 673, 680, 681, 682, 683, 690, 691, 692, 693</p> <p>4. YY - Project variant (PCB design, milling, dimensions, soldermask color, laminate thickness, LED configuration): 00...99</p> <p>5. W - Light color: W: White</p> <p>6. QQQ - CRI and CCT: 722: CRI 70 and 2200K 727: CRI 70 and 2700K 730: CRI 70 and 3000K 735: CRI 70 and 3500K 740: CRI 70 and 4000K 750: CRI 70 and 5000K 757: CRI 70 and 5700K 765: CRI 70 and 6500K 822: CRI 80 and 2200K 827: CRI 80 and 2700K 830: CRI 80 and 3000K 835: CRI 80 and 3500K 840: CRI 80 and 4000K 850: CRI 80 and 5000K 857: CRI 80 and 5700K 865: CRI 80 and 6500K</p> <p>7. UU - Assembly variant (selected components not mounted): 01...99</p> <p>8. V - NTC Thermistor type: A - none B - 10K C - 47K</p> | | | | | | | |
| LED Module | B | LUG | ML21XXYY.WQQQ.UUV (CREE XPG3 modules) (choice sheet below) | Tc -40°C to +85°C | EN 62031 | Tested and accepted by PREDOM Division TR No. B10-3/089/B/22 | |
| <p>ML21XXYY.WQQQ.UUV</p> <p>1 2 3 4 5 6 7 8</p> <p>Designations used on the marking of LED boards:</p> <p>1. ML - PCB designation (ML – LED module):</p> <p>2. 21 - Year of the project:</p> <p>3. XXX - Number of the project: <u>Cree modules</u>: 600, 601, 610, 611</p> <p>4. YY - Project variant (PCB design, milling, dimensions, soldermask color, laminate thickness, LED configuration): 00...99</p> <p>5. W - Light color: W: White</p> <p>6. QQQ - CRI and CCT: 722: CRI 70 and 2200K 727: CRI 70 and 2700K 730: CRI 70 and 3000K 735: CRI 70 and 3500K 740: CRI 70 and 4000K 750: CRI 70 and 5000K 757: CRI 70 and 5700K 765: CRI 70 and 6500K 822: CRI 80 and 2200K 827: CRI 80 and 2700K 830: CRI 80 and 3000K 835: CRI 80 and 3500K 840: CRI 80 and 4000K 850: CRI 80 and 5000K 857: CRI 80 and 5700K 865: CRI 80 and 6500K</p> <p>7. UU - Assembly variant (selected components not mounted): 01...99</p> <p>8. V - NTC Thermistor type: A - none B - 10K C - 47K</p> | | | | | | | |

| IEC 60598-2-3 | | | |
|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| ANNEX 1 | TABLE: Critical components information | | | | | | P |
|-------------------|--|-------------------------|--|--|-----------------------------|-------------------------------------|---|
| Object / part No. | Code | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹⁾ | |
| Control gear | A | OSRAM | OT 165/170-240/1A0 4DIMLT2 E | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 60/170-240/1A0 4DIMLT2 E | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT180W/UNV/800C/2DIMLT 2/P6 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT100W/UNV/800C/2DIMLT 2/P6 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 110/170...240/1A0 1DIMLT2 G1 CE | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 20/170-240/1A0 1DIM LT2 G1 CE | 220..240V, 50-60Hz, ta= -40...+60°C, tc max=75°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 75/170...240/1A0 1DIMLT2 G1 CE | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Philips Xi LP 150W 0.3-1.0A S1 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 165W 0.3-1.0A S1 230V C170 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | Tridonic LCA 120W 300-1050mA | 220..240V, 50-60Hz, ta= -30...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | Tridonic LCA 75W 250-750mA one | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | Tridonic LCA 120W 350-1050mA o | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | Tridonic LCA 160W 350-1050mA o | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT DX 40/220...240/1A0 DIMA LT2 E | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT DX 75/220...240/1A0 DIMA LT2 E | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT DX 110/220...240/1A0 DIMA LT2 E | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 20/170...240/1A0 4DIMLT2 G2 CE | 220..240V, 50-60Hz, ta= -40...+60°C, tc max=75°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 40/170...240/1A0 4DIMLT2 G2 CE | 220..240V, 50-60Hz, ta= -40...+60°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 75/170...240/1A0 4DIMLT2 G2 CE | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |

| IEC 60598-2-3 | | | |
|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| ANNEX 1 | TABLE: Critical components information | | | | | | P |
|-------------------|--|--------------------------|---|--|-----------------------------|-------------------------------------|---|
| Object / part No. | Code | Manufacturer / trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹⁾ | |
| Control gear | A | OSRAM | OT 110/170...240/1A0 4DIMLT2 G2 CE | 220..240V, 50-60Hz, ta= -40...+60°C, tc max=75°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 20/170...240/1A0 1DIMLT2 G1 CE | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 40/170...240/1A0 1DIMLT2 G1 CE | 220..240V, 50-60Hz, ta= -40...+60°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 40/120...277/1A0 4DIMLT2 E | 220..240V, 50-60Hz, ta= -40...+60°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 60/170...240/1A0 4DIMLT2 E | 220..240V, 50-60Hz, ta= -40...+60°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 90/170...240/1A0 4DIMLT2 E | 220..240V, 50-60Hz, ta= -40...55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 165/170...240/1A0 4DIMLT2 E | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 50/120...277/800 2DIMLT2 P | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 50/120...277/1A2 2DIMLT2 P | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 100/120...277/800 2DIMLT2 P | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 110/120...277/1A4 2DIMLT2 P | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 60/220...240/1A4 1DIMA P7 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 100/220...240/1A4 1DIMA P7 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 150/220...240/1A4 1DIMA P7 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 40W 0.7A Prog+ GL-J sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 75W 0.35-0.70A GL Prog+ sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 75W 0.1-1.05A Prog GL F sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 100W 0.7A Prog+ GL-Z sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 150W 0.1-1.05A Prog+ GL F sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 300W 1.5A Prog+ GL-R sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi BP 12W 0.1-0.5A S 230V C100 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi BP 22W 0.2-0.7A S 230V C123 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi BP 40W 0.2-0.7A S 230V C123 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi BP 40W 0.3-1.0A S 230V C123 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 22W 0.2-0.7A S1 230V C123 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |

| IEC 60598-2-3 | | | |
|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| ANNEX 1 | TABLE: Critical components information | | | | | | P |
|-------------------|--|--------------------------|--------------------------------------|--|-----------------------------|-------------------------------------|---|
| Object / part No. | Code | Manufacturer / trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹⁾ | |
| Control gear | A | Philips | Xi LP 22W 0.3-1.0A S1 230V C123 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 40W 0.2-0.7A S1 230V C123 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 40W 0.3-1.0A S1 230V C123 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 75W 0.2-0.7A S1 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 75W 0.3-1.0A S1 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 75W 0.5-1.5A S1 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 110W 0.2-0.7A S1 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 110W 0.3-1.0A S1 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 165W 0.2-0.7A S1 230V C170 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 165W 0.5-1.5A S1 230V C170 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 22W 0.2-0.7A S1 230V S175 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 22W 0.3-1.0A S1 230V S175 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 40W 0.2-0.7A S1 230V S175 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 40W 0.2-0.7A SL 230V S175 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 40W 0.3-1.0A S1 230V S175 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 40W 0.3-1.0A SL 230V S175 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 40W 0.2-0.7A SN 230V S175 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 75W 0.2-0.7A S1 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 75W 0.2-0.7A SL 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 75W 0.3-1.0A S1 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 75W 0.3-1.0A SL 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 75W 0.2-0.7A SN 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 75W 0.5-1.5A S1 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 150W 0.2-0.7A S1 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 150W 0.2-0.7A SL 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |

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|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| ANNEX 1 | TABLE: Critical components information | | | | | | P |
|-------------------|--|--------------------------|---|--|-----------------------------|-------------------------------------|---|
| Object / part No. | Code | Manufacturer / trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹⁾ | |
| Control gear | A | Philips | Xi LP 150W 0.3-1.0A SL 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 150W 0.5-1.5A S1 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 150W 0.2-0.7A SN 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 22W 0.2-0.7A SNLDAE 230V C123 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 22W 0.3-1.0A SNLDAE 230V C123 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 40W 0.3-1.0A SNLDAE 230V C123 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 70W 0.3-1.0A NLD C150 230V sXt | 220..240V, 50-60Hz, ta= -30...+60°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 75W 0.2-0.7A SNLDAE 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 75W 0.3-1.0A SNLDAE 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 75W 0.5-1.5A SNLDAE 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 100W 0.2-0.7A SNLDAE 230V C165 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 110W 0.2-0.7A SNLDAE 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 110W 0.3-1.0A NLD C150 230V sXt | 220..240V, 50-60Hz, ta= -30...+60°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 110W 0.3-1.0A SNLDAE 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 165W 0.3-1.0A SNLDAE 230V C170 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 165W 0.2-0.7A SNLDAE 230V C170 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 330W 0.2-0.75A SNDAE 230V C240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 22W 0.2-0.7A SNLDAE 230V S175 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 22W 0.3-1.0A SNLDAE 230V S175 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 40W 0.2-7.0A SNLDAE 230V S175 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 40W 0.3-1.0A SNLDAE 230V S175 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 75W 0.2-0.7A SNLDAE 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 75W 0.3-1.0A SNLDAE 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi FP 150W 0.2-0.7A SNLDAE 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |

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|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| ANNEX 1 | TABLE: Critical components information | | | | | | P |
|-------------------|--|--------------------------|--|--|-----------------------------|-------------------------------------|---|
| Object / part No. | Code | Manufacturer / trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹⁾ | |
| Control gear | A | Philips | Xi FP 150W 0.3-1.0A SNLDAE 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi SR 12W 0.2-0.7A SNEMP 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi SR 22W 0.2-0.7A SNEMP 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi SR 40W 0.2-0.7A SNEMP 230V C133 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi SR 75W 0.2-0.7A SNEMP 230V C150 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi SR 75W 0.2-0.7A SNEMP 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi SR 110W 0.2-0.7A SNEMP 230V C150 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi SR 150W 0.2-0.7A SNEMP 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 100W 2.1-4.2A AOC 230V I220 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 150W 2.5-4.9A AOC 230V I220 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 200W 2.8-5.6A AOC 230V I250 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 100W 0.3-1.05A S1 230V I175 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 150W 0.3-1.05A S1 230V I175 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 220W 0.3-1.05A S1 230V I230 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xi LP 220W 0.5-1.5A S1 230V I230 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium Dim 35W 0.7A 1-10V TWE I175 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium Dim 100W 0.7A 1-10V TWE I220 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium Dim 150W 0.7A 1-10V TWE I220 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 75W 0.7A TWE I175 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 150W 0.7A TWE I220 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 75W 1.05A 1-10V 230V C165 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 75W 0.70A 1-10V 230V C165 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 150W 0.70A 1-10V 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium Dim 75W 0.70A 1-10V 230V I220 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium Dim 150W 0.70A 1-10V 230V I220 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |

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|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| ANNEX 1 | TABLE: Critical components information | | | | | | P |
|-------------------|--|-------------------------|---|---|-----------------------------|-------------------------------------|---|
| Object / part No. | Code | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹⁾ | |
| Control gear | A | Philips | Xitanium 75W 1-10V 230V C165 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Philips | Xitanium 150W 1.05A 1-10V 230V S240 sXt | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 14/100-500/38 NF C ADV3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 24/200-1050/39 NF C ADV3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 40/200-1050/64 NF C ADV3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 60/200-1050/100 NF C ADV3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 90/200-1050/165 NF C ADV3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=100°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 135/200-1050/220 NF C ADV3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=100°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 200/200-1050/355 NF C ADV3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 14/100-500/38 o4a NF C EXC3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 24/200-1050/39 o4a NF C EXC3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 40/200-1050/64 o4a NF C EXC3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 60/200-1050/100 o4a NF C EXC3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=95°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 90/200-1050/165 o4a NF C EXC3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=100°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 135/200-1050/220 o4a NF C EXC3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=100°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 200/200-1050/355 o4a NF C EXC3 | 220..240V, 50-60Hz, ta= -40...+70°C, tc max=100°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 100/1050/95 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 100/1400/71 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 100/500/200 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 100/700/143 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 150/1050/142 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 150/1400/107 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 150/500/300 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 150/700/214 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 200/1050/190 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |

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|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| ANNEX 1 | TABLE: Critical components information | | | | | | P |
|-------------------|--|--------------------------|---|--|-----------------------------|-------------------------------------|---|
| Object / part No. | Code | Manufacturer / trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹⁾ | |
| Control gear | A | Tridonic | LCO 200/1400/142 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 200/700/285 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 75/1050/72 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 75/1400/53 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 75/500/150 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 75/700/108 fixC L SNC2 | 220..240V, 50-60Hz, ta= -40...+65°C, tc max=80°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 135W 200-1050mA 220V pD+ NFC C PRE3 | 220..240V, 50-60Hz, ta= -40...+700C, tc max=950C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Tridonic | LCO 90W 200-1050mA 165V pD+ NFC C PRE3 | 220..240V, 50-60Hz, ta= -40...+700C, tc max=850C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 100/UNV/1A0 2DIM P7 | 120..277V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 150/UNV/1A0 2DIM P7 | 120..277V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 100/ 220-240/1A4 2DIM P7 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | OT 150/ 220-240/1A4 2DIM P7 | 220..240V, 50-60Hz, ta= -40...+55°C, tc max=85°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Inventronics | EBS-040S105BT2 | 176..305V, 50-60Hz, ta= -40...+75°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Inventronics | EBS-080S070BT2 | 176..305V, 50-60Hz, ta= -40...+75°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Inventronics | EBS-080S105BT2 | 176..305V, 50-60Hz, ta= -40...+75°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Inventronics | EBS-040S070BT2 | 176..305V, 50-60Hz, ta= -40...+75°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Inventronics | EUM-075S | 90..305V, 50-60Hz, ta= -40...+80°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Inventronics | EUM - 100S | 100..277V, 50-60Hz, ta= -40...+75°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Inventronics | EUM - 150S | 100..277V, 50-60Hz, ta= -40...+75°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Inventronics | EUM - 200S | 100..277V, 50-60Hz, ta= -40...+75°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |

| IEC 60598-2-3 | | | |
|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| ANNEX 1 | TABLE: Critical components information | | | | | | P |
|--|--|-------------------------|---------------------------------|---|------------------------------------|-------------------------------------|---|
| Object / part No. | Code | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹⁾ | |
| Control gear | A | Inventronics | EUM – 240S | 100..277V, 50-60Hz, ta= -40...+75°C, tc max=90°C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | IT DALI 20/220...240/1A0 E | 220...240 V/50/60Hz, Ta =-40...+60 °C, Tc max =75 °C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | IT DALI 40/220...240/1A0 E | 220...240 V/50/60Hz, Ta =-40...+60 °C, Tc max =85 °C | EN 61347-2-13, EN 61347-1 | ENEC | |
| Control gear | A | OSRAM | IT DALI 75/220...240/1A0 E | 220...240 V/50/60Hz, Ta =-40...+60 °C, Tc max =100 °C | EN 61347-2-13 | ENEC | |
| Control gear | A | OSRAM | IT DALI 110/220...240/1A0 E | 220...240 V/50/60Hz, Ta =-40...+60 °C, Tc max =90 °C | EN 61347-2-13, EN 61347-1 | ENEC | |
| Control gear | A | OSRAM | IT DALI 150/220...240/1A0 E | 220...240, 50/60Hz, Ta =-40...+55 °C, Tc max =85 °C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | LACROIX | DL-PAK 70 | 220...240 50/60Hz, Ta =-25...+60 °C, Tc max =90 °C | EN 61347-2-13, EN 61347-1 | ENEC | |
| Control gear | A | DELTA | EUCI-040105GLA | 220...240 V/50/60Hz, Ta =-40...+60 °C, Tc max =85 °C | EN 61347-2-13, EN 61347-1 | ENEC | |
| Control gear | A | DELTA | EUCI-075105GLA | 220...240 V/50/60Hz, Ta =-40...+55 °C, Tc max =85 °C | EN 61347-2-13, EN 61347-1 | ENEC | |
| Control gear | A | DELTA | EUCI-130105GLA | 220...240 V/50/60Hz, Ta =-40...+55 °C, Tc max =85 °C | EN 61347-2-13, EN 61347-1 | ENEC | |
| Control gear | A | DELTA | EUCI-170105GLA | 220...240 V/50/60Hz, Ta =-40...+55 °C, Tc max =90 °C | EN 61347-2-13, EN 61347-1 | ENEC | |
| Control gear | A | Osram | OT 75 /220...240/1A0 1DIM G2 CE | 220...240V, 50/60Hz, Ta =-40...+55 °C, Tc max =85 °C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Delta | EUCI-022105GLB | 220...240V, 50/60Hz, Ta =-40...+55 °C, Tc max =85 °C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Control gear | A | Delta | EUCI-040105GLB | 198...264V, 50/60Hz, Ta =-40...+55 °C, Tc max =90 °C | EN 61347-1 EN 61347-2-13 | ENEC | |
| Wires LED | B | Mrowiec | H05V-U | 500 V; 0,5 mm2 | EN 50525 | BBJ | |
| Internal wires | B | Mrowiec | H05V-K | 500 V; 0,5 mm2 | EN 50525 | BBJ | |
| Internal wires | B | E.M.C. Colosio | RD10-B | 300/500 V; 0,5 mm2 | EN 50525 | IMQ | |
| Silicon Fiberglass Insulating Sleeving | B | Isolcavi | GVES 1500 | min. 1500 Volt, Temp -60...+250°C | IEC 60684-3-400 IEC 60684-3-402 | UL | |
| Terminal block | B | Stucchi | 651/652 | 16A; 400 V | EN-61984 | IMQ | |
| Terminal block | B | Stucchi | 661/662 | 6A; 400 V | EN-61984 | IMQ | |
| Connector | B | BJB | 48.281 | 16A; 400 V | EN 60998-2-2 | VDE | |
| Connector | B | BJB | 46.412 | 16A; 450 V | EN 60998-2-2 | VDE | |
| Connector | B | BJB | 46.413 | 16A; 450 V | EN 60998-2-2 | VDE | |

| IEC 60598-2-3 | | | |
|---------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| ANNEX 1 | TABLE: Critical components information | | | | | | P |
|--------------------------|--|---------------------------------|---|---|--|---|---|
| Object / part No. | Code | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹⁾ | |
| Connector | B | BJB | 46.414 | 16A; 450 V | EN 60998-2-2 | VDE | |
| Connector | B | BJB | 46.415 | 16A; 450 V | EN 60998-2-2 | VDE | |
| Connector | B | BJB | 46.455 | 16A; 450 V | EN 60998-2-2 | VDE | |
| Connector | B | WAGO | 224-101 | 24A; 400 V | EN 60998-2-2 | VDE | |
| Connector | B | WAGO | 224-112 | 24A; 400 V | EN 60998-2-2 | VDE | |
| Terminal block | B | Wieland | GST1814S | 20A; 400 V | EN 61535 | VDE | |
| Terminal block | B | Wieland | GST 15I2 | 16A; 250 V | EN 61535 | VDE | |
| Connector | B | EMC Colosio | M26B | 17A; 300 V | EN 60598-1 | IMQ | |
| Knife switch (connector) | B | Longran | M29 M29 mini | 16A; 450 V 16A; 250 V | EN 61984 EN 60998-2-1 EN 60998-1 | TUV | |
| Connector | B | LONGJOING | JL-700 | 1.5A, 30V | EN 61984 | DEKRA | |
| Connector system | B | Tyco Electronics Corp. | 2213795, 2213831, 2213837, 2213858, 2328823, 2329013 | 30V AC/DC 50/60Hz, 1.5A | EN 61984 | UL | |
| Connector system | B | Tyco Electronics Corp. | 1-2213871-1, 1-2213871-2, 2213871-1, 2213871-2, X-2213362-X, X-2213627-X | t= -40...+80°C, tc max=80°C 150/240/300VAC, 50/60Hz, 15/7.5/6 A, Signal Contacts: 30VDC, 1.5A | EN 61984 | UL | |
| Connector system | B | LUG | iBlock | 230V, 50Hz, Ta = -40°C do 70°C | EN61347-2-11 | Tested and accepted by PREDOM Division TR No. Z7-2/016/B/20 | |
| Connector system | B | LONGJOING Nema | JL-240XA | t= -40...+700C, 480VAC, 50/60Hz, Signal Contacts: 30VDC, 0,25A | EN 61984 | DEKRA | |
| Luminaire protection | B | Vossloh schwabe | SP / 230 / 10K | 220-240V, 50/60Hz, Ta = -30°C do 80°C | EN 61643-11 | VDE | |
| Luminaire protection | B | Inventronics | PU-20KX10KTXX | 320Vac, 8A, 47-63Hz, Ta = -40°C do 85°C | EN 61643-11, EN 61643-21 | CE, VDE | |
| Luminaire protection | B | Inventronics | PU-20Kx10KBx | 320Vac, 15A, 47-63Hz, Ta = -40°C do 85°C | EN 61643-11, EN 61643-21 | CE, VDE | |
| Luminaire protection | B | Inventronics | PU-10Kx05KBx | 320Vac, 8A, 47-63Hz, Ta = -40°C do 85°C | EN 61643-11, EN 61643-21 | CE, VDE | |
| Luminaire protection | B | Linoya Electronic Technology | LYSPD10D | 300Vac, 50Hz, IP67 | EN 61643-11 | TUV | |

Supplementary information:

¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.

The codes above have the following meaning:

- A - The component is replaceable with another one, also certified, with equivalent characteristics
- B - The component is replaceable if authorised by the test house
- C - Integrated component tested together with the appliance
- D - Alternative component

| IEC 60598-2-3 | | | | | | | |
|---|--|------------------------------------|--------|--------|-------|---------------------|----------|
| Clause | Requirement + Test | Result - Remark | | | | Verdict | |
| ANNEX 2 | TABLE: Thermal tests of Section 12 | | | | | | P |
| | Type reference | 130782.7LR7B27S950.201.B.Z. V | | | | — | |
| | Lamp used..... | ML2167232.W727.01A | | | | — | |
| | Lamp control gear used | OT DX 75/220-240/1A0 DIMA LT2 E | | | | — | |
| | Mounting position of luminaire | as normal use | | | | — | |
| | Supply wattage (W) | 74,6 | | | | — | |
| | Supply current (A) | 0,329 | | | | — | |
| | Temperatures in test 1 - 4 below are corrected for ta (°C) | 40 °C | | | | — | |
| | - abnormal operating mode | N/A | | | | — | |
| 3.12 (12.4) | - test 1: rated voltage | N/A | | | | — | |
| | - test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current | 254,4 V; 50 Hz | | | | — | |
| | - test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage | N/A | | | | — | |
| | Through wiring or looping-in wiring loaded by a current of A during the test | N/A | | | | — | |
| 3.12 (12.5) | - test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current or 130/150% of rated input voltage | N/A | | | | — | |
| Temperature measurements (°C) | | | | | | | |
| Part | Ambient | Cl. 12.4 – normal | | | | Cl. 12.5 – abnormal | |
| | | test 1 | test 2 | test 3 | limit | test 4 | limit |
| LED Module ML2167232.W727.01A | 40 | N/A | 77,8 | N/A | 85 | N/A | N/A |
| Control gear OT DX 75/220-240/1A0 DIMA LT2 E | 40 | N/A | 78,2 | N/A | 85 | N/A | N/A |
| Connector 46.412 | 40 | N/A | 70,3 | N/A | 85 | N/A | N/A |
| Luminaire protection SP / 230 / 10K | 40 | N/A | 71 | N/A | 80 | N/A | N/A |
| Internal wires H05V-K | 40 | N/A | 74,4 | N/A | 90 | N/A | N/A |
| Supplementary information: The luminaire has been tested on 50 and 60 Hz. The table chose the worst case. | | | | | | | |

| IEC 60598-2-3 | | | |
|----------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| ANNEX 3 | Screw terminals (part of the luminaire) | | N/A |
| (14) | SCREW TERMINALS | | |
| (14.2) | Type of terminal..... : | N/A | — |
| | Rated current (A)..... : | N/A | — |
| (14.3.2.1) | One or more conductors | | N/A |
| (14.3.2.2) | Special preparation | | N/A |
| (14.3.2.3) | Terminal size | | N/A |
| | Cross-sectional area (mm ²)..... : | N/A | — |
| (14.3.3) | Conductor space (mm)..... : | | N/A |
| (14.4) | Mechanical tests | | |
| (14.4.1) | Minimum distance | | N/A |
| (14.4.2) | Cannot slip out | | N/A |
| (14.4.3) | Special preparation | | N/A |
| (14.4.4) | Nominal diameter of thread (metric ISO thread) : | M | N/A |
| | External wiring | | N/A |
| | No soft metal | | N/A |
| (14.4.5) | Corrosion | | N/A |
| (14.4.6) | Nominal diameter of thread (mm) : | | N/A |
| | Torque (Nm)..... : | | N/A |
| (14.4.7) | Between metal surfaces | | N/A |
| | Lug terminal | | N/A |
| | Mantle terminal | | N/A |
| | Pull test; pull (N)..... : | | N/A |
| (14.4.8) | Without undue damage | | N/A |

| IEC 60598-2-3 | | | |
|----------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| ANNEX 4 | Screwless terminals (part of the luminaire) | | N/A |
| (15) | SCREWLESS TERMINALS | | N/A |
| (15.2) | Type of terminal..... : | N/A | — |
| | Rated current (A)..... : | N/A | — |
| (15.3.1) | Material | | N/A |
| (15.3.2) | Clamping | | N/A |
| (15.3.3) | Stop | | N/A |
| (15.3.4) | Unprepared conductors | | N/A |
| (15.3.5) | Pressure on insulating material | | N/A |
| (15.3.6) | Clear connection method | | N/A |
| (15.3.7) | Clamping independently | | N/A |
| (15.3.8) | Fixed in position | | N/A |
| (15.3.10) | Conductor size | | N/A |
| | Type of conductor | | N/A |
| (15.5) | Terminals and connections for internal wiring | | N/A |
| (15.5.1) | Mechanical tests | | N/A |
| (15.5.1.1.1) | Pull test spring-type terminals (4 N, 4 samples) | | N/A |
| (15.5.1.1.2) | Pull test pin or tab terminals (4 N, 4 samples) | | N/A |
| | Insertion force not exceeding 50 N | | N/A |
| (15.5.1.2) | Permanent connections: pull-off test (20 N) | | N/A |
| (15.5.2) | Electrical tests | | N/A |
| | Voltage drop (mV) after 1 h (4 samples)..... : | | N/A |
| | Voltage drop of two inseparable joints | | N/A |
| | Number of cycles: | | — |
| | Voltage drop (mV) after 10th alt. 25th cycle (4 samples)..... : | | N/A |
| | Voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... : | | N/A |
| | After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) | | N/A |
| | After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) | | N/A |
| (15.6) | Terminals and connections for external wiring | | N/A |
| (15.6.1) | Conductors | | N/A |
| | Terminal size and rating | | N/A |

IEC 60598-2-3

| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|---|-----------------|---------|
| 15.6.2 | Mechanical tests | | N/A |
| (15.6.2.1) | Pull test spring-type terminals or welded connections (4 samples); pull (N) | | N/A |
| (15.6.2.2) | Pull test pin or tab terminals (4 samples); pull (N) | | N/A |
| (15.6.3) | Electrical tests | | N/A |
| | Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1 | | N/A |

| | | | | | | | | | | | |
|--|--|---|---|---|---|---|---|---|---|----|-----|
| (15.6.3.1) (15.6.3.2) | TABLE: Contact resistance test / Heating tests | | | | | | | | | | N/A |
| | Voltage drop (mV) after 1 h | | | | | | | | | | — |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | | | | | | | | | | | |
| | Voltage drop of two inseparable joints | | | | | | | | | | |
| | Voltage drop after 10th alt. 25th cycle | | | | | | | | | | |
| | Max. allowed voltage drop (mV) | | | | | | | | | | — |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | | | | | | | | | | | |
| | Voltage drop after 50th alt. 100th cycle | | | | | | | | | | |
| | Max. allowed voltage drop (mV) | | | | | | | | | | — |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | | | | | | | | | | | |
| | Continued ageing: voltage drop after 10th alt. 25th cycle | | | | | | | | | | |
| | Max. allowed voltage drop (mV) | | | | | | | | | | — |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | | | | | | | | | | | |
| | Continued ageing: voltage drop after 50th alt. 100th cycle | | | | | | | | | | |
| | Max. allowed voltage drop (mV) | | | | | | | | | | — |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| voltage drop (mV) | | | | | | | | | | | |
| Supplementary information: | | | | | | | | | | | |

List of test equipment used:

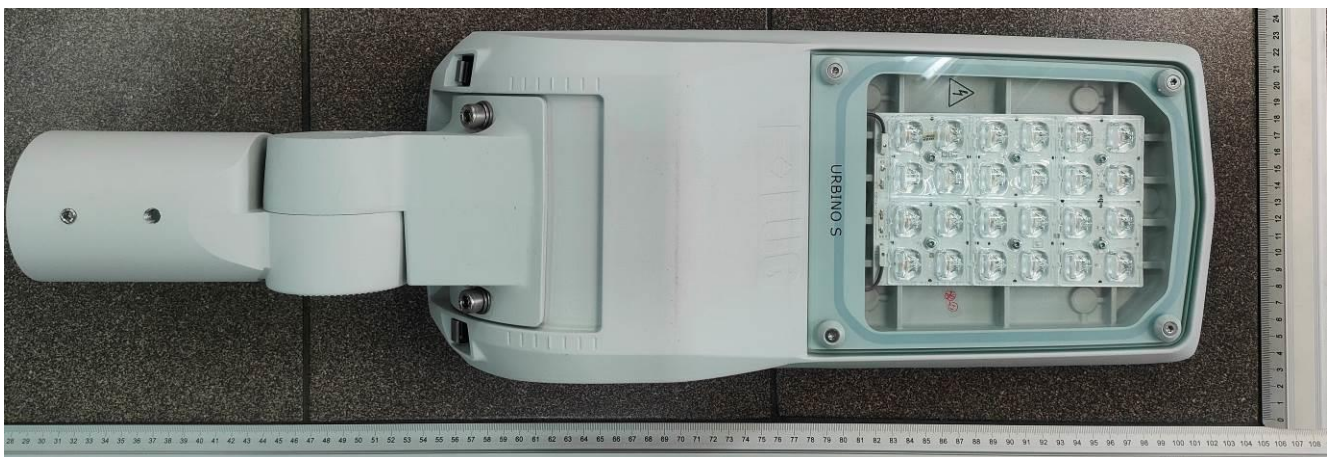
A completed list of used test equipment shall be provided in the Test Reports when a Customer's Testing Facility according to CTF stage 1 or CTF stage 2 procedure has been used.

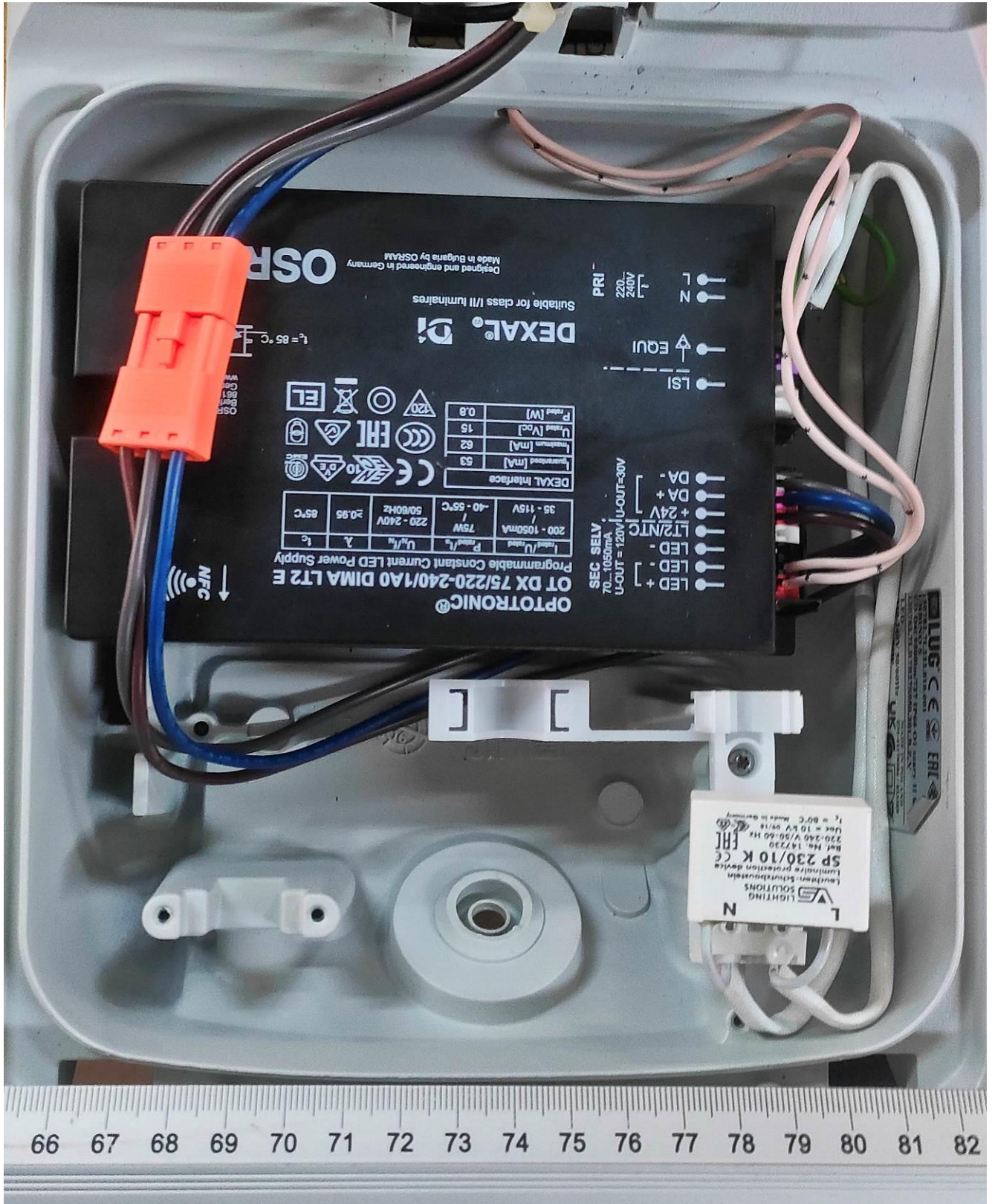
Note: This page may be removed when CTF stage 1 or CTF stage 2 are not used. See also clause 4.8 in OD 2020 for more details.

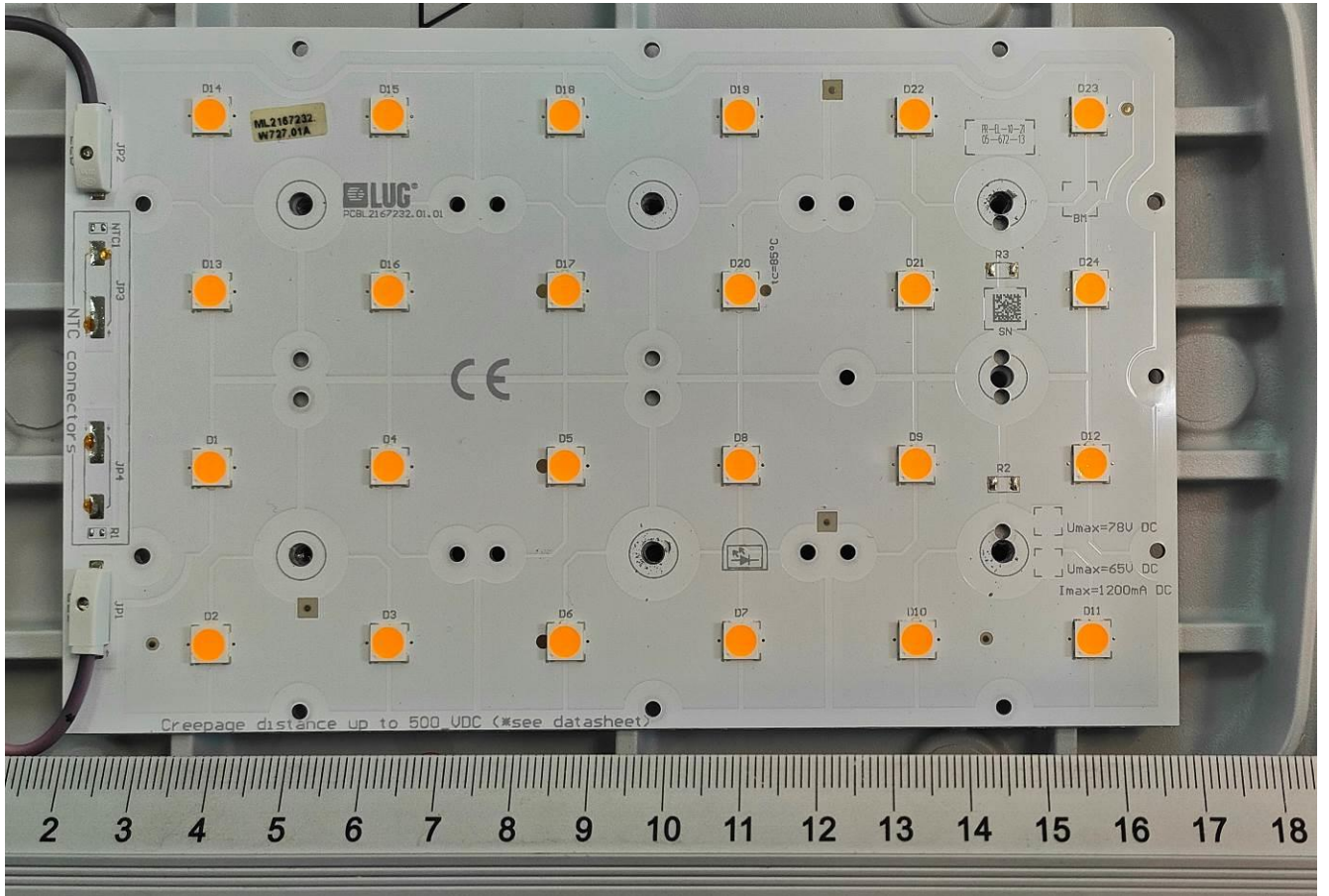
| Clause | Measurement / testing | Testing / measuring equipment / material used, (Equipment ID) | Range used | Last Calibration date | Calibration due date |
|---------------|------------------------------|--|-------------------|------------------------------|-----------------------------|
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Photos

130782.7LR7B27S950.201.B.Z.V







| IEC60598_2_3M ATTACHMENT | | | |
|--|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| ATTACHMENT TO TEST REPORT B10-3/094/B/22 IEC 60598-2-3 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Luminaires Part 2: Particular requirements Section 3: Luminaires for road and street lighting | | | |
| Differences according to | | EN 60598-2-3:2003 + A1:2011 used in conjunction with EN IEC 60598-1:2021 + A11:2022 | |
| TRF template used | | IECEE OD-2020-F2:2020, Ed. 1.1 | |
| Attachment Form No. | | EU_GD_IEC60598_2_3M | |
| Attachment Originator | | UL(Demko) | |
| Master Attachment | | 2022-05-24 | |
| Copyright © 2022 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved. | | | |
| | CENELEC COMMON MODIFICATIONS (EN) | | P |
| 3.5 (3) | MARKING | | N/A |
| 3.5 (3.2.12) | Note 4 deleted | | N/A |
| 3.6 (4) | CONSTRUCTION | | N/A |
| 4.7 (4.11.6) | Electro-mechanical contact systems: electric strength test at 1 500 V | | N/A |
| 3.10 (5) | EXTERNAL AND INTERNAL WIRING | | P |
| 3.10 (5.2.2) | Cables equal to EN 50525 (all parts) | | P |
| | Paragraph 2 deleted | | P |
| | Replace table 5.1 – Supply cord | | N/A |
| 3.12 (12) | ENDURANCE TESTS AND THERMAL TESTS | | N/A |
| 3.12 (12.4.2c) | Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring | | N/A |
| ZB | ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN) | | N/A |
| (3.3) | DK: power supply cords of class I luminaires with label | | N/A |
| (5.2.1) | CY, DK, FI, UK: type of plug | | N/A |

| IEC60598_2_3M ATTACHMENT | | | |
|--------------------------|---|-----------------|------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| (5.2.18) | DK: socket-outlets | | N/A |
| ZC | ANNEX ZC, NATIONAL DEVIATIONS (EN) | | N/A |
| (4 & 5) | FR: Shuttered socket-outlets 10/16A | | N/A |
| | FR: Safety requirements for high buildings <i>(Decree of 30 December 2011 on safety regulations for the construction of high-rise buildings and their protection against fire and panic risks; Section VIII; Article GH 48, Lighting)</i> Glow-wire test for outer parts of luminaires: | | N/A |
| | - 850°C for luminaires in stairways and horizontal travel paths | | N/A |
| | - 650°C for indoor luminaires | | N/A |
| | UK: Requirements according to United Kingdom Building Regulation | | N/A |



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For the products: Dla wyrobów:

Luminaires for road and street lighting Oprawy oświetleniowe drogowe i uliczne

Manufacturing place: Miejsce Produkcji

LUG Light Factory Sp. z o.o.

ul. Gorzowska 11, 65-127 Zielona Góra, Polska / Poland

Trade name: Znak towarowy:



Type(s)/Model(s): Typ(y), model(e):

URBINO LED S family

Technical data/ Dane Techniczne: 220 - 240V, 50/60Hz, IP66, IK10, cl. II – details in the Appendix/Szczegóły w Załączniku

Complying with the following European Standards: Zgodnymi z następującymi normami europejskimi

EN 60598-2-3:2003; EN 60598-2-3:2003/A1:2011

EN 60598-1:2015; EN 60598-1:2015/A1:2018, EN 62262:2002

(the test reports/ raporty z badań: B10-3/094/B/22 + Att.(EU GD and ND ref No. B10-3/094/B/1/22) dated 08-07-2022; B10-3/096/B/22 dated 08-07-2022 performed by the Testing Laboratory Łukasiewicz-IMiF PREDOM Division (Accreditation PCA AB 003).

Date:Data 15-07-2022

Signatures:

Name:

Józef Foks

Filip Walczak

Position:

Certification Office
Łukasiewicz- IMiF PREDOM

Leader of the Łukasiewicz- IMiF
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Additional information – see the Appendix.

Dodatkowe informacje – patrz Załącznik.