



**ELECTROTECHNICAL TESTING INSTITUTE**  
**Pod Lisem 129**  
**171 02 Praha 8 - Troja**

No. of pages: 1  
No. of annexes/No. of an. pages: 2/38

No. of the Test Report: 701588-01/01

Issued: 31. 7. 2017



## TEST REPORT

**Name of product:** Luminaire for road and street lighting  
**Type of product:** URBINI LED, class I  
**Ratings:** 220-240 V, 50/60Hz, 21, 29, 38 W, IK 08, IP 66  
Class I  
**Serial number:** -  
**Manufacturer:** LUG Light Factory Sp. z o.o.,  
ul. Gorzowska 11, 65-127 Zielona Góra,  
Republic of Poland  
**Production site:** LUG Light Factory Sp. z o.o.,  
ul. Gorzowska 11, 65-127 Zielona Góra,  
Republic of Poland  
**Ordering firm:** LUG Light Factory Sp. z o.o.,  
ul. Gorzowska 11, 65-127 Zielona Góra,  
Republic of Poland  
**Number of tested samples:** 1  
**Samples submitted on:** 3. 7. 2017  
**Location of testing:** EZÚ  
**Tested from** 3. 7. 2017 **through** 31. 7. 2017  
**Other data:** -  
**The product was tested according to:** IEC 60598-1:2014,  
IEC 60598-2-3:02,  
EN 60598-1:15,  
EN 60598-2-3:03+A1:11,  
~~IEC 62471-2:2006~~ blue light hazard only

Compiled by: Lukáš Fér



Approved by: Zdeněk Dvořák  
Testing laboratory technical manager

Test results stated in the test report apply only to the tested subject and unless specified otherwise in the test report, the tests were performed using the method and under the conditions determined in the test regulations, technical norm, instructions for use and information provided by the manufacturer on the tested subject and using accessories required by the manufacturer.  
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Test Report issued under the responsibility of:



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

Report Number..... : 701588-01/01  
Date of issue ..... : 31. 07. 2017  
Total number of pages ..... 37 + 1 Atachements (one page)

Name of Testing Laboratory ..... **Elektrotechnický zkušební ústav (EZÚ)**  
preparing the Report ..... Pod Lisem 129, 171 02 Praha 71 – Troja, Czech Republic

Applicant's name ..... LUG Light Factory Sp.z o.o.  
Address ..... Ul. Grozowska 11, 65-127 Żilena Góra, Poland

**Test specification:**

Standard ..... : IEC 60598-1:2014,  
IEC 60598-2-3:2002 + A1:2011  
EN 60598-1:2015,  
EN 60598-2-3:2003+A1:2011

Test procedure ..... : CB, ENEC Scheme

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

Test Report Form No. .... : IEC60598\_2\_3J

Test Report Form(s) Originator .... : Intertek Semko AB

Master TRF ..... : 2014-09

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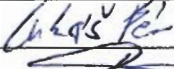
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|                                                                                                   |                                                                                                 |                                                                                     |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Test item description .....</b>                                                                | Luminaires for road and street lighting                                                         |                                                                                     |
| <b>Trade Mark .....</b>                                                                           |                |                                                                                     |
| <b>Manufacturer .....</b>                                                                         | LUG Light Factory Sp.z o.o.                                                                     |                                                                                     |
| <b>Model/Type reference .....</b>                                                                 | URBINI LED see page 4                                                                           |                                                                                     |
| <b>Ratings .....</b>                                                                              | 220-240 V, 50-60 Hz, 21, 29, 38 W LED, IP 66, IK08, class I                                     |                                                                                     |
| <b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b> |                                                                                                 |                                                                                     |
| <input checked="" type="checkbox"/> <b>CB Testing Laboratory:</b>                                 |                                                                                                 |                                                                                     |
| <b>Testing location/ address .....</b>                                                            | Elektrotechnický zkušební ústav (EZÚ)<br>Pod Lisem 129, 171 02 Praha 71 – Troja, Czech Republic |                                                                                     |
| <input type="checkbox"/> <b>Associated CB Testing Laboratory:</b>                                 |                                                                                                 |                                                                                     |
| <b>Testing location/ address .....</b>                                                            |                                                                                                 |                                                                                     |
| <b>Tested by (name, function, signature) .....</b>                                                | Lukáš Fér                                                                                       |  |
| <b>Approved by (name, function, signature) ...:</b>                                               | Zdeněk Dvořák                                                                                   |  |
| <input type="checkbox"/> <b>Testing procedure: TMP/CTF Stage 1:</b>                               |                                                                                                 |                                                                                     |
| <b>Testing location/ address .....</b>                                                            |                                                                                                 |                                                                                     |
| <b>Tested by (name, function, signature) .....</b>                                                |                                                                                                 |                                                                                     |
| <b>Approved by (name, function, signature) ...:</b>                                               |                                                                                                 |                                                                                     |
| <input type="checkbox"/> <b>Testing procedure: WMT/CTF Stage 2:</b>                               |                                                                                                 |                                                                                     |
| <b>Testing location/ address .....</b>                                                            |                                                                                                 |                                                                                     |
| <b>Tested by (name + signature) .....</b>                                                         |                                                                                                 |                                                                                     |
| <b>Witnessed by (name, function, signature) ...:</b>                                              |                                                                                                 |                                                                                     |
| <b>Approved by (name, function, signature) ...:</b>                                               |                                                                                                 |                                                                                     |
| <input type="checkbox"/> <b>Testing procedure: SMT/CTF Stage 3 or 4:</b>                          |                                                                                                 |                                                                                     |
| <b>Testing location/ address .....</b>                                                            |                                                                                                 |                                                                                     |
| <b>Tested by (name, function, signature) .....</b>                                                |                                                                                                 |                                                                                     |
| <b>Witnessed by (name, function, signature) ...:</b>                                              |                                                                                                 |                                                                                     |
| <b>Approved by (name, function, signature) ...:</b>                                               |                                                                                                 |                                                                                     |
| <b>Supervised by (name, function, signature) :</b>                                                |                                                                                                 |                                                                                     |

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

Annex 1: components (one page)  
 Annex 2: temperature measurements, thermal tests of Section 12 (one page)  
 Annex 3: photo (two pages)  
 Annex 4: instruction (two pages)  
 Attachment 1: Photobiological hazard ČSN EN 62471 blue light hazard only (one page)

**Summary of testing:**

**Tests performed (name of test and test clause): all required tests**

**Testing location: as above**

**Summary of compliance with National Differences: ---**

**List of countries addressed**

☐ 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 of marking plate:**

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



|                                                                                                                                                                                                                                                                                               |                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Test item particulars .....</b>                                                                                                                                                                                                                                                            |                                                                                    |
| <b>Classification of installation and use .....</b> : Luminaires for road and street lighting                                                                                                                                                                                                 |                                                                                    |
| <b>Supply Connection .....</b> : Wires                                                                                                                                                                                                                                                        |                                                                                    |
| <b>Possible test case verdicts:</b>                                                                                                                                                                                                                                                           |                                                                                    |
| - test case does not apply to the test object ..... : N/A (Not applicable)                                                                                                                                                                                                                    |                                                                                    |
| - test object does meet the requirement ..... : P (Pass)                                                                                                                                                                                                                                      |                                                                                    |
| - test object does not meet the requirement ..... : F (Fail)                                                                                                                                                                                                                                  |                                                                                    |
| <b>Testing .....</b>                                                                                                                                                                                                                                                                          |                                                                                    |
| <b>Date of receipt of test item .....</b> : 03. 07. 2017                                                                                                                                                                                                                                      |                                                                                    |
| <b>Date (s) of performance of tests .....</b> : 03. 07. 2017 - 31. 07. 2017                                                                                                                                                                                                                   |                                                                                    |
| <b>General remarks:</b>                                                                                                                                                                                                                                                                       |                                                                                    |
| "(See Enclosure #)" refers to additional information appended to the report.<br>"(See appended table)" refers to a table appended to the report.<br><br>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator. |                                                                                    |
| <b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC60598-1:</b>                                                                                                                                                                                                                         |                                                                                    |
| 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<br><input checked="" type="checkbox"/> Not applicable |
| <b>When differences exist; they shall be identified in the General product information section.</b>                                                                                                                                                                                           |                                                                                    |
| <b>Name and address of factory (ies) .....</b> : ---                                                                                                                                                                                                                                          |                                                                                    |
| <b>General product information:</b>                                                                                                                                                                                                                                                           |                                                                                    |
| The tested sample was selected in accordance with Annex S of ČSN EN 60958-1.<br><br>Tested type: LUG URBINI LED 130232.5L111.101<br>220-240 V, 50/60 Hz, IP 66, class I, ta 35 °C, IK 08                                                                                                      |                                                                                    |



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

|                |                                                   |                                                                                 |   |
|----------------|---------------------------------------------------|---------------------------------------------------------------------------------|---|
| <b>3.2 (0)</b> | <b>GENERAL TEST REQUIREMENTS</b>                  |                                                                                 |   |
| 3.2 (0.1)      | Information for luminaire design considered ..... | Standard<br>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | — |
| 3.2 (0.3)      | More sections applicable .....                    | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>             | — |

|                |                                                                             |                                                                     |   |
|----------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------|---|
| <b>3.4 (2)</b> | <b>CLASSIFICATION</b>                                                       |                                                                     |   |
| 3.4 (2.2)      | Type of protection .....                                                    | Class I                                                             | — |
| 3.4 (2.3)      | Degree of protection .....                                                  | IP66                                                                | — |
| 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 checked="" type="checkbox"/> No <input 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 checked="" type="checkbox"/> No <input type="checkbox"/> | — |

|                |                                       |  |     |
|----------------|---------------------------------------|--|-----|
| <b>3.5 (3)</b> | <b>MARKING</b>                        |  |     |
| 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                 |  | N/A |
| 3.5 (3.3.4)    | Symbol or warning notice              |  | N/A |
| 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 |
| 3.5 (3.3.9)    | Power factor and supply current       |  | N/A |

| IEC / EN 60598-2-3 |                                                                             |                 |         |
|--------------------|-----------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                          | Result - Remark | Verdict |
| 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                                                 |                 | N/A     |
| 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 |                 | N/A     |
|                    | Cautionary symbol                                                           |                 | N/A     |
| 3.5 (3.3.22)       | Controllable luminaires, classification of insulation 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                               |                 |         |
|                    | a) Design attitude                                                          |                 | P       |
|                    | b) Weight                                                                   |                 | P       |
|                    | c) Overall dimensions                                                       |                 | P       |
|                    | d) Maximum projected area if applicable                                     |                 | P       |
|                    | e) Cross-sectional area of wires if applicable                              |                 | P       |
|                    | f) Suitability for indoors use                                              |                 | N/A     |
|                    | g) Dimensions of the compartment                                            |                 | N/A     |
|                    | h) Torque setting to be applied to bolts or screws                          |                 | P       |
|                    | i) Maximum mounting height                                                  |                 | P       |

|                |                                           |   |
|----------------|-------------------------------------------|---|
| <b>3.6 (4)</b> | <b>CONSTRUCTION</b>                       |   |
| 3.6 (4.2)      | Components replaceable without difficulty | P |



| IEC / EN 60598-2-3 |                                                                                                                          |                 |         |
|--------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                                                                       | Result - Remark | Verdict |
| 3.6 (4.3)          | Wireways smooth and free from sharp edges                                                                                |                 | P       |
| <b>3.6 (4.4)</b>   | <b>Lampholders</b>                                                                                                       |                 |         |
| 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) .....                                                                                                |                 | —       |
|                    | 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) .....                                                                                                 |                 | —       |
|                    | 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     |
| <b>3.6 (4.5)</b>   | <b>Starter holders</b>                                                                                                   |                 |         |
|                    | Starter holder in luminaires other than class II                                                                         |                 | N/A     |
|                    | Starter holder class II construction                                                                                     |                 | N/A     |
| <b>3.6 (4.6)</b>   | <b>Terminal blocks</b>                                                                                                   |                 |         |
|                    | Tails                                                                                                                    |                 | P       |
|                    | Unsecured blocks                                                                                                         |                 | N/A     |
| <b>3.6 (4.7)</b>   | <b>Terminals and supply connections</b>                                                                                  |                 |         |
| 3.6 (4.7.1)        | Contact to metal parts                                                                                                   |                 | P       |
| 3.6 (4.7.2)        | Test 8 mm live conductor                                                                                                 |                 | P       |
|                    | Test 8 mm earth conductor                                                                                                |                 | P       |
| 3.6 (4.7.3)        | Terminals for supply conductors                                                                                          |                 | N/A     |
| 3.6 (4.7.3.1)      | Welded method and material                                                                                               |                 |         |
|                    | - stranded or solid conductor                                                                                            |                 | N/A     |
|                    | - spot welding                                                                                                           |                 | N/A     |

| IEC / EN 60598-2-3 |                                                                                    |                 |         |
|--------------------|------------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                                 | Result - Remark | Verdict |
|                    | - welding between wires                                                            |                 | N/A     |
|                    | - Type Z attachment                                                                |                 | N/A     |
|                    | - mechanical test according to 15.8.2                                              |                 | N/A     |
|                    | - electrical test according to 15.9                                                |                 | N/A     |
|                    | - heat test according to 15.9.2.3 and 15.9.2.4                                     |                 | 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     |
| <b>3.6 (4.8)</b>   | <b>Switches</b>                                                                    |                 |         |
|                    | - adequate rating                                                                  |                 | N/A     |
|                    | - adequate fixing                                                                  |                 | N/A     |
|                    | - polarized supply                                                                 |                 | N/A     |
|                    | - compliance with IEC 61058-1 for electronic switches                              |                 | N/A     |
| <b>3.6 (4.9)</b>   | <b>Insulating lining and sleeves</b>                                               |                 |         |
| 3.6 (4.9.1)        | Retainment                                                                         |                 | N/A     |
|                    | Method of fixing .....                                                             |                 | —       |
| 3.6 (4.9.2)        | Insulated linings and sleeves:                                                     |                 |         |
|                    | 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     |
| <b>3.6 (4.10)</b>  | <b>Double or reinforced insulation</b>                                             |                 |         |
| 3.6 (4.10.1)       | No contact, mounting surface – accessible metal parts – wiring of basic insulation |                 | P       |
|                    | Safe installation fixed luminaires                                                 |                 | P       |
|                    | Capacitors and switches                                                            |                 | N/A     |
|                    | Interference suppression capacitors according to IEC 60384-14                      |                 | N/A     |
| 3.6 (4.10.2)       | Assembly gaps:                                                                     |                 |         |
|                    | - not coincidental                                                                 |                 | N/A     |
|                    | - no straight access with test probe                                               |                 | N/A     |
| 3.6 (4.10.3)       | Retainment of insulation:                                                          |                 |         |
|                    | - fixed                                                                            |                 | N/A     |

| IEC / EN 60598-2-3 |                                                          |                         |         |
|--------------------|----------------------------------------------------------|-------------------------|---------|
| Clause             | Requirement + Test                                       | Result - Remark         | Verdict |
|                    | - unable to be replaced; luminaire inoperative           |                         | N/A     |
|                    | - sleeves retained in position                           |                         | N/A     |
|                    | - lining in lampholder                                   |                         | N/A     |
| <b>3.6 (4.11)</b>  | <b>Electrical connections and current-carrying parts</b> |                         |         |
| 3.6 (4.11.1)       | Contact pressure                                         |                         | N/A     |
| 3.6 (4.11.2)       | Screws:                                                  |                         |         |
|                    | - self-tapping screws                                    |                         | P       |
|                    | - thread-cutting screws                                  |                         | N/A     |
| 3.6 (4.11.3)       | Screw locking:                                           |                         |         |
|                    | - spring washer                                          |                         | P       |
|                    | - 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     |
| <b>3.6 (4.12)</b>  | <b>Screws and connections (mechanical) and glands</b>    |                         |         |
| 3.6 (4.12.1)       | Screws not made of soft metal                            |                         | P       |
|                    | Screws of insulating material                            |                         | N/A     |
|                    | Torque test: torque (Nm); part.....:                     | 1,2; Driver cover       | P       |
|                    | Torque test: torque (Nm); part.....:                     |                         | N/A     |
|                    | Torque test: torque (Nm); part.....:                     |                         | N/A     |
| 3.6 (4.12.2)       | Screws with diameter < 3 mm screwed into metal           |                         | N/A     |
| 3.6 (4.12.4)       | Locked connections:                                      |                         |         |
|                    | - 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) .....                         | 2,5                     | P       |
| <b>3.6 (4.13)</b>  | <b>Mechanical strength</b>                               |                         |         |
| 3.6 (4.13.1)       | Impact tests:                                            |                         |         |
|                    | - fragile parts; energy (Nm).....:                       | Optical part; 5 (IK 08) | P       |
|                    | - other parts; energy (Nm) .....                         | Body, covers; 5 (IK 08) | P       |
|                    | 1) live parts                                            |                         | P       |
|                    | 2) linings                                               |                         | N/A     |
|                    | 3) protection                                            |                         | P       |
|                    | 4) covers                                                |                         | P       |

| IEC / EN 60598-2-3 |                                                                     |                 |         |
|--------------------|---------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                  | Result - Remark | Verdict |
| 3.6 (4.13.3)       | Straight test finger                                                |                 | P       |
| 3.6 (4.13.4)       | Rough service luminaires                                            |                 |         |
|                    | - 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     |
| <b>3.6 (4.14)</b>  | <b>Suspensions, fixings and means of adjusting</b>                  |                 |         |
| 3.6 (4.14.1)       | Mechanical load:                                                    |                 |         |
|                    | A) four times the weight                                            |                 | N/A     |
|                    | B) torque 2,5 Nm                                                    |                 | N/A     |
|                    | 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                                             |                 |         |
|                    | Mass (kg) .....                                                     |                 | —       |
|                    | Stress in conductors (N/mm <sup>2</sup> ) .....                     |                 | N/A     |
|                    | Mass (kg) of semi-luminaire .....                                   |                 | —       |
|                    | Bending moment (Nm) of semi-luminaire .....                         |                 | N/A     |
| 3.6 (4.14.3)       | Adjusting devices:                                                  |                 |         |
|                    | - 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     |
| <b>3.6 (4.15)</b>  | <b>Flammable materials</b>                                          |                 |         |
|                    | - glow-wire test 650°C .....                                        |                 | N/A     |

| IEC / EN 60598-2-3 |                                                                  |                              |         |
|--------------------|------------------------------------------------------------------|------------------------------|---------|
| Clause             | Requirement + Test                                               | Result - Remark              | Verdict |
|                    | - spacing $\geq 30$ 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 |                              |         |
|                    | a) construction                                                  |                              | N/A     |
|                    | b) temperature sensing control                                   |                              | N/A     |
|                    | c) surface temperature                                           |                              | N/A     |
| <b>3.6 (4.16)</b>  | <b>Luminaires for mounting on normally flammable surfaces</b>    |                              |         |
|                    | No lamp control gear .....                                       | (compliance with Section 12) | N/A     |
| 3.6 (4.16.1)       | Lamp control gear spacing:                                       |                              |         |
|                    | - spacing 35 mm                                                  |                              | P       |
|                    | - spacing 10 mm                                                  |                              | N/A     |
| 3.6 (4.16.2)       | Thermal protection:                                              |                              |         |
|                    | - in lamp control gear                                           |                              | P       |
|                    | - external                                                       |                              | N/A     |
|                    | - fixed position                                                 |                              | N/A     |
|                    | - temperature marked lamp control gear                           |                              | P       |
| 3.6 (4.16.3)       | Design to satisfy the test of 12.6                               | (see clause 12.6)            | N/A     |
| <b>3.6 (4.17)</b>  | <b>Drain holes</b>                                               |                              |         |
|                    | Clearance at least 5 mm                                          |                              | N/A     |
| <b>3.6 (4.18)</b>  | <b>Resistance to corrosion</b>                                   |                              |         |
| 3.6 (4.18.1)       | - rust-resistance                                                |                              | N/A     |
| 3.6 (4.18.2)       | - season cracking in copper                                      |                              | N/A     |
| 3.6 (4.18.3)       | - corrosion of aluminium                                         |                              | N/A     |
| 3.6 (4.19)         | Igniters compatible with ballast                                 |                              | N/A     |
| 3.6 (4.20)         | Rough service vibration                                          |                              | N/A     |
| <b>3.6 (4.21)</b>  | <b>Protective shield</b>                                         |                              |         |
| 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     |

| IEC / EN 60598-2-3 |                                                                                                                                                    |                 |         |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                                                                                                 | Result - Remark | Verdict |
| 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.....:                                                                                                           |                 | 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     |
| <b>3.6 (4.24)</b>  | <b>Photobiological hazards</b>                                                                                                                     |                 |         |
| 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                                                                                                                          | Risk Group 1    |         |
|                    | Luminaires with $E_{thr}$ :                                                                                                                        |                 |         |
|                    | 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     |
| <b>3.6 (4.25)</b>  | <b>Mechanical hazard</b>                                                                                                                           |                 |         |
|                    | No sharp point or edges                                                                                                                            |                 | P       |
| <b>3.6 (4.26)</b>  | <b>Short-circuit protection</b>                                                                                                                    |                 |         |
| 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                                                                                                |                 |         |
|                    | Test chain not melt through                                                                                                                        |                 | N/A     |
|                    | Test sample not exceed values of Table 12.1 and 12.2                                                                                               |                 | N/A     |
| <b>3.6 (4.27)</b>  | <b>Terminal blocks with integrated screwless earthing contacts</b>                                                                                 |                 |         |
|                    | Test according Annex V                                                                                                                             |                 | N/A     |
|                    | Pull test of terminal fixing (20 N)                                                                                                                |                 | N/A     |
|                    | After test, resistance < 0,05 $\Omega$                                                                                                             |                 | N/A     |
|                    | Pull test of mechanical connection (50 N)                                                                                                          |                 | N/A     |
|                    | After test, resistance < 0,05 $\Omega$                                                                                                             |                 | N/A     |
|                    | Voltage drop test, resistance < 0,05 $\Omega$                                                                                                      |                 | N/A     |



| IEC / EN 60598-2-3  |                                                                                                                                                                                     |                 |         |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause              | Requirement + Test                                                                                                                                                                  | Result - Remark | Verdict |
| <b>3.6 (4.28)</b>   | <b>Fixing of thermal sensing control</b>                                                                                                                                            |                 |         |
|                     | 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:                                                                                                                                                            |                 |         |
|                     | Max. temperature on adhesive material (°C).....:                                                                                                                                    |                 | —       |
|                     | 100 cycles between t min and t max                                                                                                                                                  |                 | N/A     |
|                     | Temperature sensing control still in position                                                                                                                                       |                 | N/A     |
| <b>3.6 (4.29)</b>   | <b>Luminaires with non-replaceable light source</b>                                                                                                                                 |                 |         |
|                     | Not possible to replace light source                                                                                                                                                |                 | N/A     |
|                     | Live part not accessible after parts have been opened by hand or tools                                                                                                              |                 | N/A     |
| <b>3.6 (4.30)</b>   | <b>Luminaires with non-user replaceable light source</b>                                                                                                                            |                 |         |
|                     | If protective cover provide protection against electric shock and marked with "caution, electric shock risk" symbol:                                                                |                 |         |
|                     | Minimum two fixing means                                                                                                                                                            |                 | N/A     |
| <b>3.6 (4.31)</b>   | <b>Insulation between circuits</b>                                                                                                                                                  |                 |         |
|                     | Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3                                                                                                     |                 | P       |
|                     | 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 |                 | P       |
| <b>3.6 (4.31.1)</b> | <b>SELV circuits</b>                                                                                                                                                                |                 |         |
|                     | Used SELV source                                                                                                                                                                    |                 | P       |
|                     | Voltage ≤ ELV                                                                                                                                                                       |                 | P       |
|                     | Insulating of SELV circuits from LV supply                                                                                                                                          |                 | P       |
|                     | Insulating of SELV circuits from other non SELV circuits                                                                                                                            |                 | N/A     |
|                     | Insulating of SELV circuits from FELV                                                                                                                                               |                 | N/A     |
|                     | Insulating of SELV circuits from other SELV circuits                                                                                                                                |                 | N/A     |
|                     | SELV circuits insulated from accessible parts according Table X.1                                                                                                                   |                 | P       |
|                     | Plugs not able to enter socket-outlets of other voltage systems                                                                                                                     |                 | N/A     |

| IEC / EN 60598-2-3 |                                                                                                            |                 |         |
|--------------------|------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                                                         | Result - Remark | Verdict |
|                    | 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                                                                                              |                 |         |
|                    | 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 enter 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                                                                                             |                 |         |
|                    | Other circuits insulated from accessible parts according Table X.1                                         |                 | P       |
|                    | Class II construction with equipotential bonding for protection against indirect contacts with live parts: |                 |         |
|                    | - conductive parts are connected together                                                                  |                 | N/A     |
|                    | - test according 7.2.3 of above                                                                            |                 | N/A     |
|                    | - 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                                                                             |                 |         |
|                    | Comply with IEC 61643-11                                                                                   |                 | N/A     |
|                    | External to controlgear and connected to earth:                                                            |                 |         |
|                    | - only in fixed luminaires                                                                                 |                 | N/A     |
|                    | - only connected to protective earth                                                                       |                 | N/A     |
| 3.6.1 (-)          | At least IP X3 or X5 respectively. IP ..... :                                                              |                 | N/A     |
|                    | Column-integrated luminaires:                                                                              |                 |         |
|                    | - parts below 2,5 m. IP ..... :                                                                            |                 | N/A     |
|                    | - parts above 2,5 m. IP ..... :                                                                            | IP66            | P       |

| IEC / EN 60598-2-3 |                                                                                                                         |                 |         |
|--------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                                                                      | Result - Remark | Verdict |
| 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                                                                                                        |                 |         |
|                    | - drag coefficient .....                                                                                                | 1,2             | P       |
|                    | - loaded area (m²) .....                                                                                                | 0,03489         | P       |
|                    | - used load (N) .....                                                                                                   | 51              | P       |
|                    | - measured deformation (cm/m) .....                                                                                     | 0,1             | P       |
|                    | - no rotation                                                                                                           |                 | P       |
| 3.6.4 (-)          | Adjustable lampholders                                                                                                  |                 | N/A     |
| 3.6.5 (-)          | Luminaires installed above 5 m, glass covers shall be:                                                                  |                 |         |
|                    | a) glass that fractures into small pieces (test according to 3.6.5.1), or                                               |                 | N/A     |
|                    | b) glass having a high impact shock resistance (test according to 3.6.5.2), or                                          |                 | N/A     |
|                    | 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                                                         |                 |         |
|                    | - number of particles is more than 40 .....                                                                             |                 | N/A     |
| 3.6.5.2 (-)        | Protection by the use of high impact resistant glass                                                                    |                 |         |
| 3.6.5.2.1 (-)      | Glass covers have high mechanical strength                                                                              |                 | N/A     |
|                    | Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample |                 | N/A     |
| 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                                                                   |                 |         |
|                    | - 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:                                                                                  |                 |         |
|                    | - corrosion-resistant                                                                                                   |                 | N/A     |
|                    | - opening only possible for an authorized person                                                                        |                 | N/A     |

| IEC / EN 60598-2-3 |                                                                           |                 |         |
|--------------------|---------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                        | Result - Remark | Verdict |
|                    | - impact test 5 Nm                                                        |                 | N/A     |
|                    | - sample show no damage                                                   |                 | N/A     |
| 3.6.9 (-)          | Column-integrated luminaire:                                              |                 |         |
|                    | - 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     |

|                 |                                                                           |                                                                                           |   |
|-----------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---|
| <b>3.7 (11)</b> | <b>CREEPAGE DISTANCES AND CLEARANCES</b>                                  |                                                                                           |   |
| 3.7 (11.2)      | Creepage distances and clearances .....                                   | See Table 3.7 (11.2)                                                                      |   |
|                 | Working voltage (V) .....                                                 | 230                                                                                       | — |
|                 | Rated pulse voltage (kV) .....                                            |                                                                                           | — |
|                 | Voltage form .....                                                        | Sinusoidal <input checked="" type="checkbox"/><br>Non-sinusoidal <input type="checkbox"/> | — |
|                 | PTI .....                                                                 | < 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>                  | — |
|                 | Impulse withstand category (Normal category II)<br>(Category III Annex U) | Category II <input type="checkbox"/> Category III <input type="checkbox"/>                | — |

|                     |                                                                                      |      |     |
|---------------------|--------------------------------------------------------------------------------------|------|-----|
| <b>3.8 (7)</b>      | <b>PROVISION FOR EARTHING</b>                                                        |      |     |
| 3.8 (7.2.1 + 7.2.3) | Accessible metal parts                                                               |      | P   |
|                     | Metal parts in contact with supporting surface                                       |      | P   |
|                     | Resistance < 0,5 Ω .....                                                             | 0,07 | P   |
|                     | Self-tapping screws used                                                             |      | N/A |
|                     | Thread-forming screws                                                                |      | N/A |
|                     | Thread-forming screw used in a groove                                                |      | N/A |
|                     | Earth makes contact first                                                            |      | N/A |
|                     | Terminal blocks with integrated screwless 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) | Earth continuity in joints, etc.                                                     |      | N/A |
| 3.8 (7.2.4)         | Locking of clamping means                                                            |      | N/A |
|                     | Compliance with 4.7.3                                                                |      | N/A |

| IEC / EN 60598-2-3 |                                                                                      |                 |         |
|--------------------|--------------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                                   | Result - Remark | Verdict |
|                    | Terminal blocks with integrated screwless earthing contacts tested according Annex V |                 | N/A     |
| 3.8 (7.2.5)        | Earth terminal integral part of connector socket                                     |                 | N/A     |
| 3.8 (7.2.6)        | Earth terminal adjacent to mains terminals                                           |                 | N/A     |
| 3.8 (7.2.7)        | Electrolytic corrosion of the earth terminal                                         |                 | N/A     |
| 3.8 (7.2.8)        | Material of earth terminal                                                           |                 | P       |
|                    | 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)       | Earthing core coloured green-yellow                                                  |                 | N/A     |
|                    | Length of earth conductor                                                            |                 | N/A     |
| 3.8.1 (-)          | Attachment prevented from rotation                                                   |                 | P       |

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

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

|                   |                                                                                                                                                   |                |     |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|
| <b>3.10 (5)</b>   | <b>EXTERNAL AND INTERNAL WIRING</b>                                                                                                               |                |     |
| <b>3.10 (5.2)</b> | <b>Supply connection and external wiring</b>                                                                                                      |                |     |
| 3.10 (5.2.1)      | Means of connection .....                                                                                                                         | Prepared wires | P   |
|                   | Outdoor luminaire has not PVC insulated external wiring if not class III or SELV $\leq 25$ V a.c./60 V d.c. or protected from outdoor environment |                | P   |
| 3.10 (5.2.2)      | Type of cable .....                                                                                                                               | H03VV-F        | P   |
|                   | Nominal cross-sectional area (mm <sup>2</sup> ) .....                                                                                             | 0,75           | P   |
|                   | Cables equal to IEC 60227 or IEC 60245                                                                                                            |                | P   |
| 3.10 (5.2.3)      | Type of attachment, X, Y or Z                                                                                                                     | X              | P   |
| 3.10 (5.2.5)      | Type Z not connected to screws                                                                                                                    |                | N/A |
| 3.10 (5.2.6)      | Cable entries:                                                                                                                                    |                |     |
|                   | - suitable for introduction                                                                                                                       |                | N/A |
|                   | - adequate degree of protection                                                                                                                   |                | N/A |

| IEC / EN 60598-2-3 |                                                          |                 |         |
|--------------------|----------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                       | Result - Remark | Verdict |
| 3.10 (5.2.7)       | Cable entries through rigid material have rounded edges  |                 | P       |
| 3.10 (5.2.8)       | Insulating bushings:                                     |                 |         |
|                    | - 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:                                          |                 |         |
|                    | - covering protected from abrasion                       |                 | N/A     |
|                    | - clear how to be effective                              |                 | N/A     |
|                    | - no mechanical or thermal stress                        |                 | N/A     |
|                    | - no tying of cables into knots etc.                     |                 | N/A     |
|                    | - insulating material or lining                          |                 | N/A     |
| 3.10 (5.2.10.1)    | Cord anchorage for type X attachment:                    |                 |         |
|                    | a) at least one part fixed                               |                 | P       |
|                    | b) types of cable                                        |                 | P       |
|                    | c) no damaging of the cable                              |                 | P       |
|                    | d) whole cable can be mounted                            |                 | P       |
|                    | e) no touching of clamping screws                        |                 | P       |
|                    | f) metal screw not directly on cable                     |                 | P       |
|                    | g) replacement without special tool                      |                 | P       |
|                    | 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:                                                   |                 |         |
|                    | - impossible to push cable; unsafe                       |                 | P       |
|                    | - pull test: 25 times; pull (N) .....                    | 30              | P       |
|                    | - torque test: torque (Nm) .....                         | 0,08            | P       |
|                    | - displacement $\leq 2$ mm                               |                 | P       |
|                    | - no movement of conductors                              |                 | P       |
|                    | - no damage of cable or cord                             |                 | P       |



| IEC / EN 60598-2-3 |                                                                                |                 |         |
|--------------------|--------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                             | Result - Remark | Verdict |
|                    | - function independent of electrical connection                                |                 | N/A     |
| 3.10<br>(5.2.11)   | External wiring passing into luminaire                                         |                 | N/A     |
| 3.10<br>(5.2.12)   | Looping-in terminals                                                           |                 | N/A     |
| 3.10<br>(5.2.13)   | Wire ends not tinned                                                           |                 | P       |
|                    | Wire ends tinned: no cold flow                                                 |                 | N/A     |
| 3.10<br>(5.2.14)   | Mains plug same protection                                                     |                 | N/A     |
|                    | Class III luminaire plug                                                       |                 | N/A     |
|                    | No unsafe compatibility                                                        |                 | N/A     |
| 3.10<br>(5.2.16)   | Appliance inlets (IEC 60320)                                                   |                 | N/A     |
|                    | Installation couplers (IEC 61535)                                              |                 | N/A     |
|                    | Other appliance inlet or connector according relevant IEC standard             |                 | N/A     |
| 3.10<br>(5.2.17)   | No standardized interconnecting cables properly assembled                      |                 | N/A     |
| 3.10<br>(5.2.18)   | Used plug in accordance with                                                   |                 |         |
|                    | - IEC 60083                                                                    |                 | N/A     |
|                    | - other standard                                                               |                 | N/A     |
| <b>3.10 (5.3)</b>  | <b>Internal wiring</b>                                                         |                 |         |
| 3.10 (5.3.1)       | Internal wiring of suitable size and type                                      |                 | P       |
|                    | Through wiring                                                                 |                 |         |
|                    | - not delivered/ mounting instruction                                          |                 | N/A     |
|                    | - factory assembled                                                            |                 | P       |
|                    | - socket outlet loaded (A).....:                                               |                 | N/A     |
|                    | - temperatures .....:                                                          | (see Annex 2)   | N/A     |
|                    | Green-yellow for earth only                                                    |                 | N/A     |
| 3.10<br>(5.3.1.1)  | Internal wiring connected directly to fixed wiring                             |                 |         |
|                    | Cross-sectional area (mm <sup>2</sup> ) .....:                                 | 0,5             | P       |
|                    | Insulation thickness                                                           |                 | P       |
|                    | Extra insulation added where necessary                                         |                 | N/A     |
| 3.10<br>(5.3.1.2)  | Internal wiring connected to fixed wiring via internal current-limiting device |                 | N/A     |



| IEC / EN 60598-2-3 |                                                        |                 |         |
|--------------------|--------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                     | Result - Remark | Verdict |
|                    | Adequate cross-sectional area and insulation thickness |                 | N/A     |
| 3.10 (5.3.1.3)     | Double or reinforced insulation for class II           |                 | N/A     |
| 3.10 (5.3.1.4)     | Conductors without insulation                          |                 | N/A     |
| 3.10 (5.3.1.5)     | SELV 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.                       |                 | N/A     |
|                    | Joints, raising/lowering devices                       |                 | N/A     |
|                    | Telescopic tubes etc.                                  |                 | N/A     |
|                    | No twisting over 360°                                  |                 | N/A     |
| 3.10 (5.3.3)       | Insulating bushings:                                   |                 |         |
|                    | - 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                                          |                 | P       |
| 3.10 (5.3.7)       | Wire ends not tinned                                   |                 | P       |
|                    | Wire ends tinned: no cold flow                         |                 | N/A     |
| 3.10.1 (-)         | Cord anchorage if applicable                           |                 | N/A     |
|                    | - pull test: 25 times; pull (N) ..... :                |                 | N/A     |
|                    | - torque test: torque (Nm) ..... :                     |                 | N/A     |

|                     |                                                                                                                |  |   |
|---------------------|----------------------------------------------------------------------------------------------------------------|--|---|
| <b>3.11 (8)</b>     | <b>PROTECTION AGAINST ELECTRIC SHOCK</b>                                                                       |  |   |
| <b>3.11 (8.2.1)</b> | 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 |  | P |

| IEC / EN 60598-2-3 |                                                                                                                        |                 |         |
|--------------------|------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                                                                     | Result - Remark | Verdict |
|                    | 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                                                                                        |                 | P       |
|                    | 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:                                                                                                    |                 |         |
|                    | - basic insulated metal parts not accessible during starter or lamp replacement                                        |                 | N/A     |
|                    | - basic insulation not accessible other than during starter or lamp replacement                                        |                 | N/A     |
|                    | - glass protective shields not used as supplementary insulation                                                        |                 | N/A     |
| 3.11 (8.2.3.b)     | BC lampholder of metal in class I luminaires shall be earthed                                                          |                 | N/A     |
| 3.11 (8.2.3.c)     | SELV circuits with exposed current carrying parts:                                                                     |                 |         |
|                    | Ordinary luminaire:                                                                                                    |                 |         |
|                    | - touch current .....                                                                                                  |                 | N/A     |
|                    | - no-load voltage .....                                                                                                |                 | N/A     |
|                    | Other than ordinary luminaire:                                                                                         |                 |         |
|                    | - nominal voltage .....                                                                                                |                 | 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                                                             |                 | N/A     |
| 3.11 (8.2.6)       | Covers reliably secured                                                                                                |                 | P       |
| 3.11 (8.2.7)       | Discharging of capacitors $\geq 0,5 \mu\text{F}$                                                                       |                 | N/A     |
|                    | Portable plug connected luminaire with capacitor                                                                       |                 | N/A     |

| IEC / EN 60598-2-3 |                                               |                 |         |
|--------------------|-----------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                            | Result - Remark | Verdict |
|                    | Other plug connected luminaire with capacitor |                 | N/A     |
|                    | Discharge device on or within capacitor       |                 | N/A     |
|                    | Discharge device mounted separately           |                 | N/A     |

|                  |                                                                                                     |               |     |
|------------------|-----------------------------------------------------------------------------------------------------|---------------|-----|
| <b>3.12 (12)</b> | <b>ENDURANCE TEST AND THERMAL TEST</b>                                                              |               |     |
| 3.12.2 (-)       | If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 3.13 |               | —   |
| 3.12 (12.3)      | Endurance test:                                                                                     |               |     |
|                  | - mounting-position .....                                                                           | On pipe       | —   |
|                  | - test temperature (°C) .....                                                                       | 45            | —   |
|                  | - total duration (h) .....                                                                          | 240           | —   |
|                  | - supply voltage: Un factor; calculated voltage (V) ....                                            | 253           | —   |
|                  | - lamp used .....                                                                                   | LED module    | —   |
| 3.12 (12.3.2)    | After endurance test:                                                                               |               |     |
|                  | - 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):                                                  |               |     |
| 3.12 (12.6.1)    | Through wiring or looping-in wiring loaded by a current of (A) .....                                |               | —   |
|                  | - case of abnormal conditions.....                                                                  |               | —   |
|                  | - electronic lamp control gear                                                                      |               | N/A |
|                  | - measured winding temperature (°C): at 1,1 Un .....                                                |               | —   |
|                  | - measured mounting surface temperature (°C) at 1,1 Un .....                                        |               | N/A |
|                  | - calculated mounting surface temperature (°C) .....                                                |               | N/A |
|                  | - track-mounted luminaires                                                                          |               | N/A |
| 3.12 (12.6.2)    | Temperature sensing control                                                                         |               |     |
|                  | - case of abnormal conditions.....                                                                  |               | —   |

| IEC / EN 60598-2-3 |                                                                                 |                 |         |
|--------------------|---------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                              | Result - Remark | Verdict |
|                    | - 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):                  |                 |         |
| 3.12 (12.7.1)      | Luminaire without temperature sensing control                                   |                 | N/A     |
| 3.12 (12.7.1.1)    | Luminaire with fluorescent lamp $\leq 70W$                                      |                 | N/A     |
|                    | Test method 12.7.1.1 or Annex W .....                                           |                 | —       |
|                    | Test according to 12.7.1.1:                                                     |                 |         |
|                    | - case of abnormal conditions.....:                                             |                 | —       |
|                    | - Ballast failure at supply voltage (V) .....                                   |                 | —       |
|                    | - Components retained in place after the test                                   |                 | N/A     |
|                    | - Test with standard test finger after the test                                 |                 | N/A     |
|                    | Test according to Annex W:                                                      |                 |         |
|                    | - case of abnormal conditions.....:                                             |                 | —       |
|                    | - measured winding temperature (°C): at 1,1 Un .....                            |                 | —       |
|                    | - measured temperature of fixing point/exposed part (°C): at 1,1 Un.....:       |                 | —       |
|                    | - calculated temperature of fixing point/exposed part (°C) .....                |                 | —       |
|                    | Ball-pressure test.....:                                                        |                 | N/A     |
| 3.12 (12.7.1.2)    | Luminaire with discharge lamp, fluorescent lamp $> 70W$ , transformer $> 10 VA$ |                 |         |
|                    | - case of abnormal conditions.....:                                             |                 | —       |
|                    | - measured winding temperature (°C): at 1,1 Un .....                            |                 | —       |
|                    | - measured temperature of fixing point/exposed part (°C): at 1,1 Un.....:       |                 | —       |
|                    | - calculated temperature of fixing point/exposed part (°C) .....                |                 | —       |
|                    | Ball-pressure test.....:                                                        |                 | N/A     |
| 3.12 (12.7.1.3)    | Luminaire with short circuit proof transformers $\leq 10 VA$                    |                 | N/A     |
|                    | - case of abnormal conditions.....:                                             |                 | —       |

| IEC / EN 60598-2-3 |                                                                                   |                                                          |         |
|--------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------|---------|
| Clause             | Requirement + Test                                                                | Result - Remark                                          | Verdict |
|                    | - Components retained in place after the test                                     |                                                          | N/A     |
|                    | - Test with standard test finger after the test                                   |                                                          | N/A     |
| 3.12<br>(12.7.2)   | Luminaire with temperature sensing control                                        |                                                          |         |
|                    | - 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.....                                                |                                                          | —       |
|                    | - highest measured temperature of fixing point/<br>exposed part (°C): .....       |                                                          | —       |
|                    | Ball-pressure test:.....                                                          |                                                          | N/A     |
| 3.12.1 (-)         | Temperature reduction if for outdoor use only                                     |                                                          | N/A     |
| 3.12.2 (-)         | (See above)                                                                       |                                                          | —       |
| 3.12.3 (-)         | Glass covers used within the thermal limits declared<br>by the glass manufacturer |                                                          | N/A     |

|                 |                                                                                                   |              |     |
|-----------------|---------------------------------------------------------------------------------------------------|--------------|-----|
| <b>3.13 (9)</b> | <b>RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE</b>                                             |              |     |
| 3.13.1 (-)      | If IP > IP 20 the order of tests as specified in clause 3.12                                      |              |     |
| 3.13 (9.2)      | Tests for ingress of dust, solid objects and moisture:                                            |              | —   |
|                 | - classification according to IP .....                                                            | IP66         | —   |
|                 | - mounting position during test .....                                                             | On pipe      | —   |
|                 | - fixing screws tightened; torque (Nm).....                                                       |              | —   |
|                 | - 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                                                              |              | P   |
|                 | c) no trace of water on current-carrying parts or on<br>insulation where it could become a hazard |              | N/A |
|                 | d) i) For luminaires without drain holes – no water<br>entry                                      |              | N/A |
|                 | d) ii) For luminaires with drain holes – no hazardous<br>water entry                              |              | N/A |
|                 | e) no water in watertight luminaire                                                               |              | P   |
|                 | f) no contact with live parts (IP 2X)                                                             |              | N/A |
|                 | f) no entry into enclosure (IP 3X and IP 4X)                                                      |              | N/A |
|                 | f) no contact with live parts (IP3X and IP4X)                                                     |              | N/A |

| IEC / EN 60598-2-3 |                                                                                |                 |         |
|--------------------|--------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                             | Result - Remark | Verdict |
|                    | g) no trace of water on part of lamp requiring protection from splashing water |                 | P       |
|                    | h) no damage of protective shield or glass envelope                            |                 | P       |
| 3.13 (9.3)         | Humidity test 48 h                                                             |                 | P       |

|                  |                                                                                                                                  |         |     |
|------------------|----------------------------------------------------------------------------------------------------------------------------------|---------|-----|
| <b>3.14 (10)</b> | <b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>                                                                               |         |     |
| 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 .....                                                     |         | —   |
|                  | Insulation resistance (MΩ).....                                                                                                  |         | —   |
|                  | SELV                                                                                                                             |         |     |
|                  | - between current-carrying parts of different polarity :                                                                         |         | N/A |
|                  | - between current-carrying parts and mounting surface .....                                                                      | >110 MΩ | P   |
|                  | - between current-carrying parts and metal parts of the luminaire .....                                                          | >110 MΩ | P   |
|                  | - 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                                                                                                                  |         |     |
|                  | - between live parts of different polarity.....                                                                                  |         | N/A |
|                  | - between live parts and mounting surface.....                                                                                   | >550 MΩ | P   |
|                  | - between live parts and metal parts .....                                                                                       | >550 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 ..... | >550 MΩ | P   |
|                  | - Insulation bushings as described in Section 5 .....                                                                            |         | N/A |
| 3.14 (10.2.2)    | Electric strength test                                                                                                           |         | P   |
|                  | Dummy lamp                                                                                                                       |         | N/A |
|                  | Luminaires with ignitors after 24 h test                                                                                         |         | N/A |
|                  | Luminaires with manual ignitors                                                                                                  |         | N/A |
|                  | Test voltage (V) .....                                                                                                           |         | N/A |
|                  | SELV                                                                                                                             |         |     |



| IEC / EN 60598-2-3 |                                                                                                                                    |                 |         |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                                                                                 | Result - Remark | Verdict |
|                    | - between current-carrying parts of different polarity :                                                                           |                 | N/A     |
|                    | - between current-carrying parts and mounting surface ..... :                                                                      | 500 V           | P       |
|                    | - between current-carrying parts and metal parts of the luminaire ..... :                                                          | 500 V           | P       |
|                    | - 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                                                                                                                    |                 |         |
|                    | - between live parts of different polarity ..... :                                                                                 |                 | N/A     |
|                    | - between live parts and mounting surface ..... :                                                                                  | 1460 V          | P       |
|                    | - between live parts and metal parts ..... :                                                                                       | 1460 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 ..... : | 1460 V          | P       |
|                    | - Insulation bushings as described in Section 5 ..... :                                                                            |                 | N/A     |
| 3.14 (10.3)        | Touch current (mA) ..... :                                                                                                         | 0,0025          | P       |
|                    | Protective conductor current (mA) ..... :                                                                                          | 0,036           | P       |

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

| IEC / EN 60598-2-3                          |                                                                |     |     |                 |     |     |         |
|---------------------------------------------|----------------------------------------------------------------|-----|-----|-----------------|-----|-----|---------|
| Clause                                      | Requirement + Test                                             |     |     | Result - Remark |     |     | Verdict |
| 3.7 (11.2)                                  | TABLES: Creepage distances and clearances                      |     |     |                 |     |     |         |
| Table 11.1                                  | Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages |     |     |                 |     |     |         |
| RMS working voltage (V) not exceeding       |                                                                | 50  | 150 | 250             | 500 | 750 | 1000    |
| Creepage distances: see critical component  |                                                                |     |     |                 |     |     |         |
| Required basic insulation, PTI ≥ 600        |                                                                | 0,6 | 0,8 | 1,5             | 3   | 4   | 5,5     |
| Measured                                    |                                                                | -   | -   | ≥ 1,5           | -   | -   | -       |
| Required basic insulation, PTI < 600        |                                                                | 1,2 | 1,6 | 2,5             | 5   | 8   | 10      |
| Measured                                    |                                                                | -   | -   | -               | -   | -   | -       |
| Required supplementary insulation PTI ≥ 600 |                                                                | -   | 0,8 | 1,5             | 3   | 4   | 5,5     |
| Measured                                    |                                                                |     | -   | -               | -   | -   | -       |
| Required supplementary insulation PTI < 600 |                                                                | -   | 1,6 | 2,5             | 5   | 8   | 10      |
| Measured                                    |                                                                |     | -   | ≥ 2,5           | -   | -   | -       |
| Required reinforced insulation              |                                                                | -   | 3,2 | 5               | 6   | 8   | 11      |
| Measured                                    |                                                                |     | -   | -               | -   | -   | -       |
| Clearances                                  |                                                                |     |     |                 |     |     |         |
| Required basic insulation                   |                                                                | 0,2 | 0,8 | 1,5             | 3   | 4   | 5,5     |
| Measured                                    |                                                                | -   | -   | -               | -   | -   | -       |
| Required supplementary insulation           |                                                                | -   | 0,8 | 1,5             | 3   | 4   | 5,5     |
| Measured                                    |                                                                |     | -   | ≥ 1,5           | -   | -   | -       |
| Required reinforced insulation              |                                                                | -   | 1,6 | 3               | 6   | 8   | 11      |
| Measured                                    |                                                                |     | -   | -               | -   | -   | -       |
| Table 11.2                                  | Minimum distances (mm) for non-sinusoidal pulse voltages       |     |     |                 |     |     |         |
| Rated pulse voltage (peak kV)               |                                                                | 2,0 | 2,5 | 3,0             | 4,0 | 5,0 | 8,0     |
| Required clearances                         |                                                                | 1,0 | 1,5 | 2               | 3   | 4   | 5,5     |
| Measured                                    |                                                                | -   | -   | -               | -   | -   | -       |
| Rated pulse voltage (peak kV)               |                                                                | 10  | 12  | 15              | 20  | 25  | 30      |
| Required clearances                         |                                                                | 11  | 14  | 18              | 25  | 33  | 40      |
| Measured                                    |                                                                | -   | -   | -               | -   | -   | -       |
| Rated pulse voltage (peak kV)               |                                                                | 50  | 60  | 80              | 100 | -   | -       |
| Required clearances                         |                                                                | 75  | 90  | 130             | 170 | -   | -       |
| Measured                                    |                                                                | -   | -   | -               | -   |     |         |

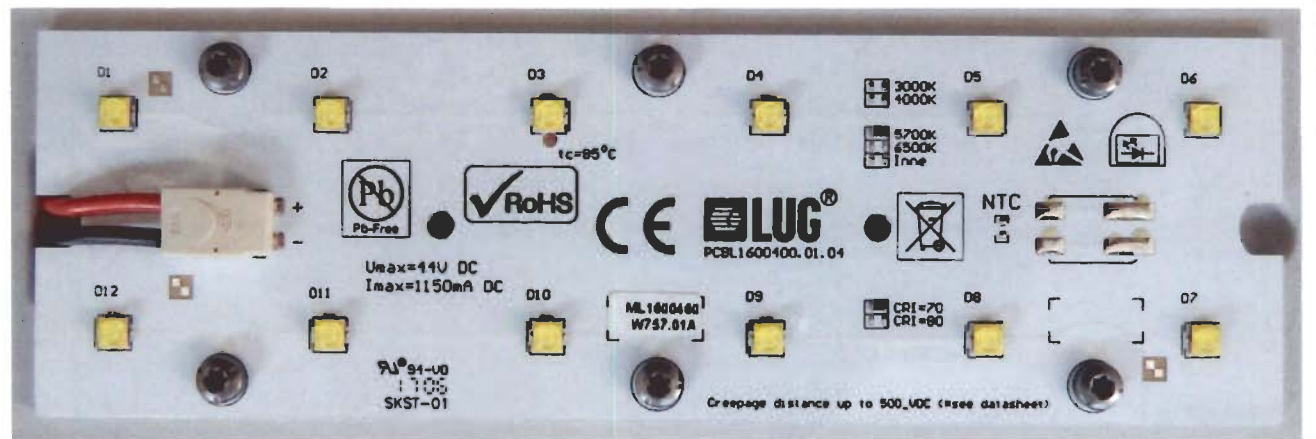
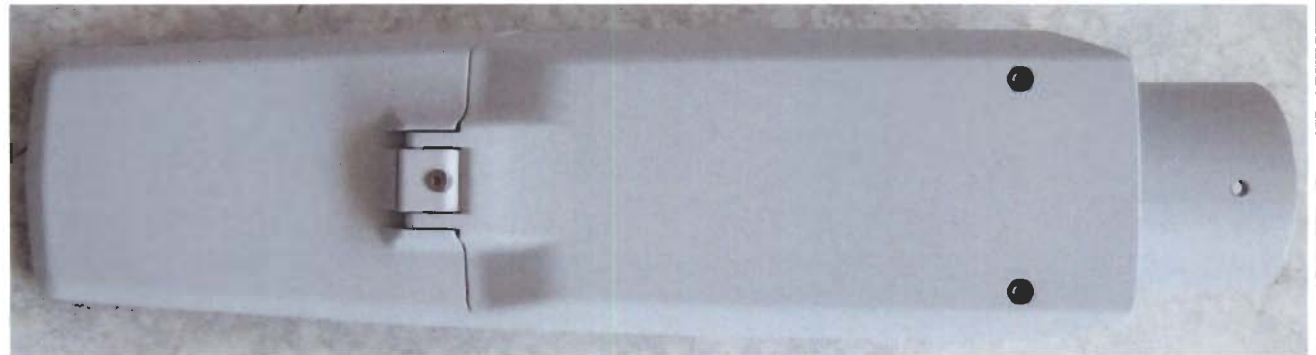
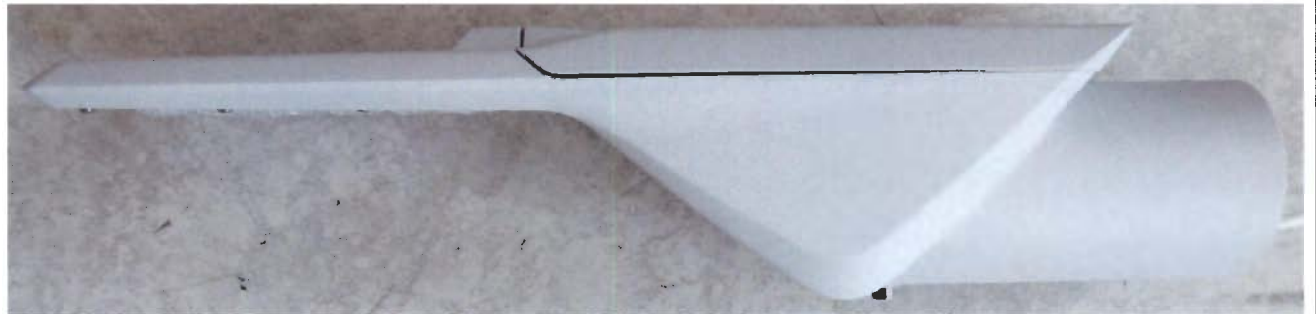
| IEC / EN 60598-2-3 |                                                    |                 |         |
|--------------------|----------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                 | Result - Remark | Verdict |
| 3.15<br>(13.2.1)   | <b>TABLE: Ball Pressure Test of Thermoplastics</b> |                 | N/A     |
| 3.15<br>(13.3.1)   | <b>TABLE: Needle-flame test (IEC 60695-11-5)</b>   |                 | N/A     |
| 3.15<br>(13.3.2)   | <b>TABLE: Glow-wire test (IEC 60695-2-11)</b>      |                 | N/A     |
| 3.15 (13.4)        | <b>TABLE: Proof tracking test (IEC 60112)</b>      |                 | N/A     |

| ANNEX 1                                                                                            |      | TABLE: Critical components information |                            |                                                                          |          |                                     |  |
|----------------------------------------------------------------------------------------------------|------|----------------------------------------|----------------------------|--------------------------------------------------------------------------|----------|-------------------------------------|--|
| Object / part No.                                                                                  | Code | Manufacturer/ trademark                | Type / model               | Technical data                                                           | Standard | Mark(s) of conformity <sup>1)</sup> |  |
| Description:                                                                                       |      | LUG URBINI LED 130232.5L111.101        |                            |                                                                          |          |                                     |  |
| LED module                                                                                         | B    | LUG                                    | ML180400<br>W757.01A       | U <sub>max</sub> 44 V, t <sub>c</sub> 85 °C,<br>I <sub>max</sub> 1150 mA | 62031    | Tested in equipment                 |  |
| Driver                                                                                             | B    | ELT                                    | LCM 42 /<br>350...1050 - E | 220-240 V,<br>50/60 Hz, t <sub>c</sub> 75 °C                             |          | ENEC 01                             |  |
| Wires LED                                                                                          | B    |                                        | LGY                        | 300/500 V, 0,5 mm <sup>2</sup>                                           | IEC227   |                                     |  |
| Ext. wires                                                                                         | B    | Nkt cable                              | H03VV-F                    | 3G0,75                                                                   | IEC227   |                                     |  |
| Supplementary information:                                                                         |      |                                        |                            |                                                                          |          |                                     |  |
| <sup>1)</sup> 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                                                                          |      |                                        |                            |                                                                          |          |                                     |  |

| ANNEX 2                                                            | TABLE: Temperature measurements, thermal tests of Section 12                                 |                                            |        |        |       |                        |       |
|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------|--------|--------|-------|------------------------|-------|
|                                                                    | Type reference.....:                                                                         | LUG URBINI LED<br>130232.5L111.101         | —      |        |       |                        |       |
|                                                                    | Lamp used .....                                                                              | LED module LUG                             | —      |        |       |                        |       |
|                                                                    | Lamp control gear used .....                                                                 | ELT LCM 42 / 350...1050 - E                | —      |        |       |                        |       |
|                                                                    | Mounting position of luminaire.....:                                                         | On pipe                                    | —      |        |       |                        |       |
|                                                                    | Supply wattage (W) .....                                                                     | 36,9                                       | —      |        |       |                        |       |
|                                                                    | Supply current (A).....:                                                                     | ---                                        | —      |        |       |                        |       |
|                                                                    | Calculated power factor .....                                                                | ---                                        | —      |        |       |                        |       |
|                                                                    | Table: measured temperatures corrected for ta = 35 °C:                                       |                                            |        |        |       |                        |       |
|                                                                    | - abnormal operating mode .....                                                              | Not used; see supplementary<br>information | —      |        |       |                        |       |
|                                                                    | - test 1: rated voltage .....                                                                | 230 V                                      | —      |        |       |                        |       |
|                                                                    | - test 2: 1,06 times rated voltage or 1,05 times rated<br>wattage .....                      | 243,8 V                                    | —      |        |       |                        |       |
|                                                                    | - test 3: Load on wiring to socket-outlet, 1,06 times<br>voltage or 1,05 times wattage.....: | ---                                        | —      |        |       |                        |       |
|                                                                    | - test 4: 1,1 times rated voltage or 1,05 times rated<br>wattage .....                       | ---                                        | —      |        |       |                        |       |
|                                                                    | Through wiring or looping-in wiring loaded by a<br>current of A during the test .....        | ---                                        | —      |        |       |                        |       |
| Temperature measurements, (°C)                                     |                                                                                              |                                            |        |        |       |                        |       |
| Part                                                               | Ambient                                                                                      | Clause 12.4 – normal                       |        |        |       | Clause 12.5 – abnormal |       |
|                                                                    |                                                                                              | test 1                                     | test 2 | test 3 | limit | test 4                 | limit |
| LED module tc                                                      | 35                                                                                           | 65                                         | ---    | ---    | 85    | ---                    | ---   |
| Driver tc                                                          | 35                                                                                           | 75                                         | ---    | ---    | 75    | ---                    | ---   |
| LED wires                                                          | 35                                                                                           | ---                                        | 59     | ---    | 90    | ---                    | ---   |
| Internal wires                                                     | 35                                                                                           | ---                                        | 54     | ---    | 90    | ---                    | ---   |
| Terminal block                                                     | 35                                                                                           | ---                                        | 35     | ---    | 85    | ---                    | ---   |
| External wires                                                     | 35                                                                                           | ---                                        | 35     | ---    | 90    | ---                    | ---   |
| Supplementary information: Temperature marked control gear 100 °C. |                                                                                              |                                            |        |        |       |                        |       |



## ANNEX 3 Photo







Unikajte bezposrednega pogleda na zročila svetla.  
Avoid direct looking at light source/light.  
Il faut éviter un regard direct sur les sources de lumière.  
Evite ohar direkto pans a fonte de luz led.  
Не смейте смотреть непосредственно на светодателныя источники света.  
Den direkten auzienpunkt in die led vermeiden.



Wymień uszkodzoną szybę.  
Replace broken glass.  
Remplacement du vitre cassé.  
Substituir o vidro quebrado.  
Zamena poskrobeno steklo.  
Austausch zerbrochenes Glas.



Niniejszą instrukcję należy zachować do przyszłego wykorzystania.  
Keep this instruction leaflet for any further reference.  
Conserve cette notice jusqu'à un emploi prochain.  
Este manual de de ser mantido para futuro uso.  
Настоящую инструкцию следует сохранять для будущего использования.  
Das vorliegende Bedienungsanleitung für zukünftigen Bedarf aufbewahren.

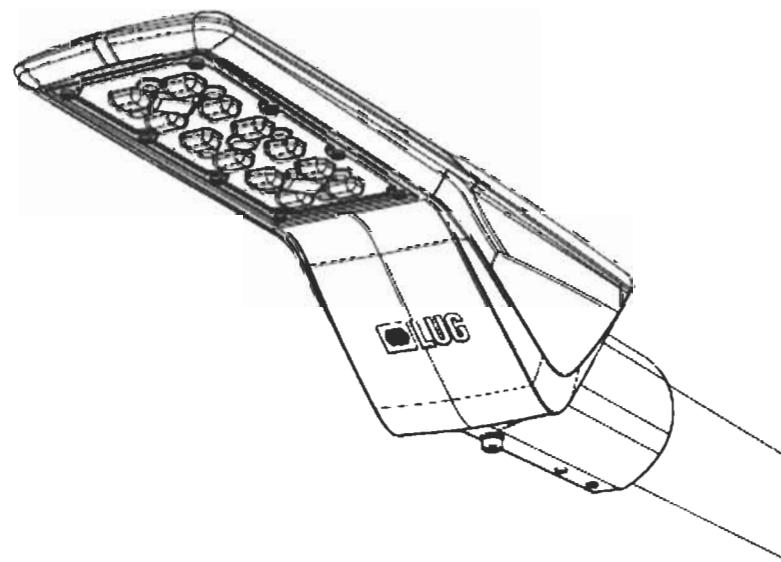
Reduktor 60/76mm  
Reducer 60/76mm  
Réducteur 60/76mm  
Redutor 60/76mm  
Pędykróp 60/76mm  
Mindener 60/76mm



## Version 07/2017/004

INSTRUKCJA MONTAŻU | INSTRUCTIONS FOR MOUNTING | MONTAGEBELEHRUNG | INSTRUCTIONS OF MONTAGE | NÁVOD K MONTÁŽI | ΣΕΒΕΙΛΕΣ ΣΤΑΘΕΡΑΣ  
MONTIERINGSANVISNINGAR | INSTRUCȚIUNES DE MONTAJE | MONTIERINGSVEZSÉLEK | INSTRUCȚIUNES DE MONTAJE | KÖRÖKÉPES | JA KINNET YSGHET  
MONTAGE-ANLEITUNG | INSTRUȚIUNI DE MONTAJ | INSTRUCTIUNER 3 MONTAJ | MONTAJ-ANLEITUNG | MONTAJ-ANLEITUNG

- |                                                                                                                                                   |                                                                                                                                                               |                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>⚠ MONTAJU POTRBA DOČINAC OSOBA POSJEDUJUĆA OPOSREDOVANJE UPOSREDOVANJE</p> <p>⚠ INSTALLATION MUST BE PERFORMED BY AN AUTHORIZED TECHNICIAN</p> | <p>⚠ BIKERAK VIKEN BAKS COBESAKI NERO JALU VIKENGE COBESAKI BIKERAKI FIKERAK</p> <p>⚠ BIKERAK FIKERAKI BIKERAKI COBESAKI NO BAKS VIKENGE VIKENGE BIKERAKI</p> | <p>⚠ DE MONTAGE KON EINE PERSONE, DE USER DIFFERENTIELLE NENNENSWEISSPURT GRAMONT NERO</p> <p>⚠ L'AMONTAGE DOIT FAIRE UNE PERSONNE QUI POSSÈDE LES EXPÉRIENCES COMPÉTENTES</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



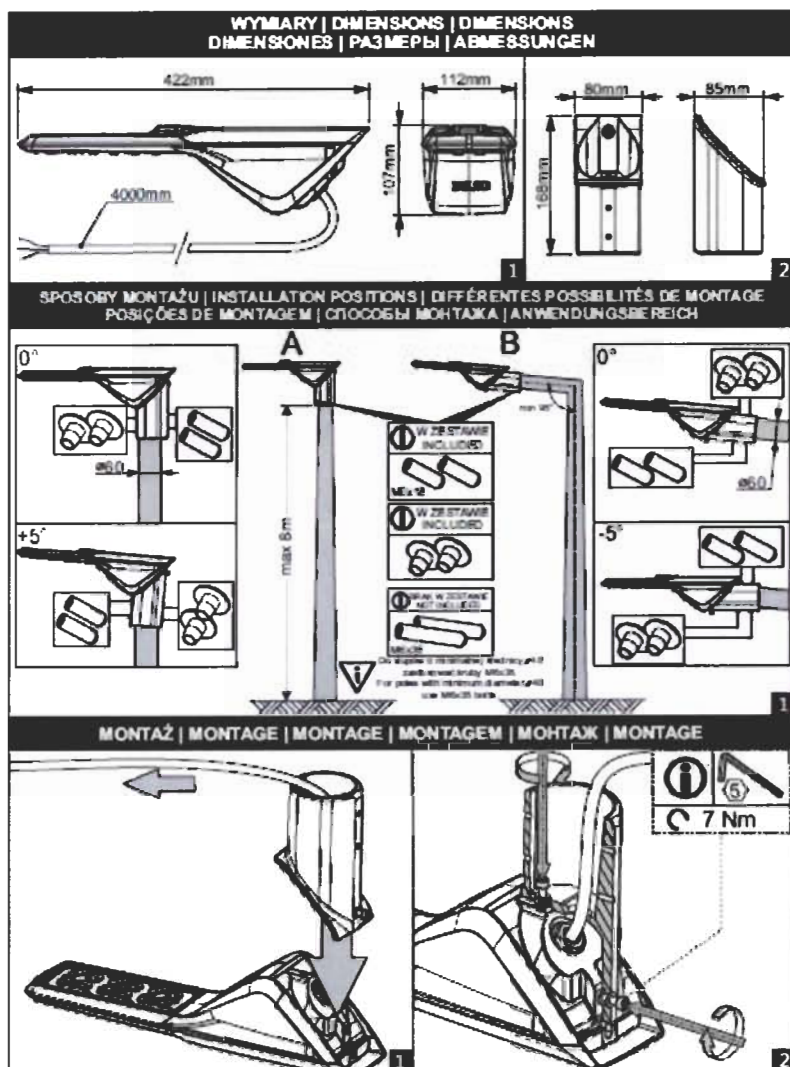
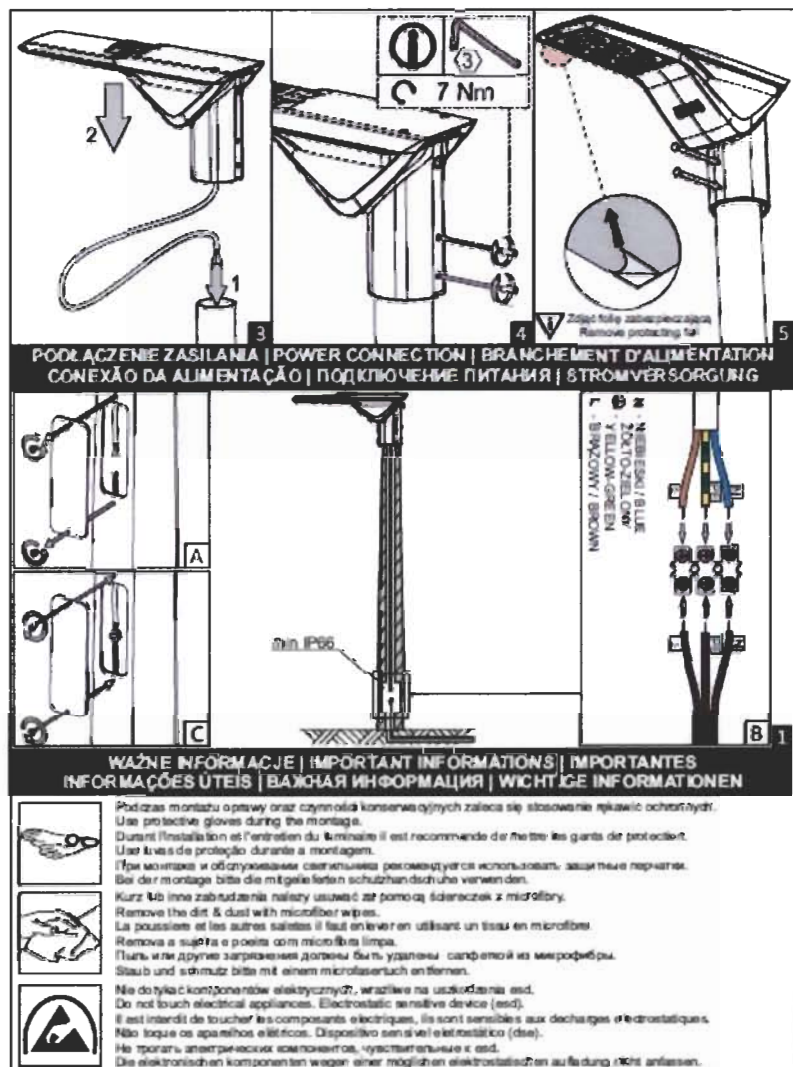
INSTRUCTION INDEX 1A 1308



**INFORMACJA REG**  
W sprawie możliwości zwalczania ognia w pomieszczeniach i obiektach technicznych, w  
i Organizacja Ochotników Sprawy Ochrony przeciwpożarowej i Ochrony Technicznej  
BUDYSEK SYSTEM ELEKTROTECHNICZNY I ELEKTROELEKTRYCZNY  
30-000 Wrocław, ul. Włocławska 4  
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NIP 000000000000000000  
www.budysystem.pl, biuro@budysystem.pl  
Biuro@budysystem.pl

Time LIE images were shown to workstations in the same sequence.

## ANNEX 4 Instructions



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

**ATTACHMENT TO TEST REPORT IEC 60598-2-1**  
**EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**  
 LUMINAIRES  
 PART 2: PARTICULAR REQUIREMENTS  
 SECTION 1: LUMINAIRES FOR ROAD AND STREET LIGHTING

**Differences according to** ..... : EN 60598-2-3:1989 used in conjunction with  
 EN 60598-1:2015

**Annex Form No.** ..... : EU\_GD\_IEC60598\_2\_3J

**Annex Form Originator** ..... : OVE

**Master Annex Form** ..... : 2015-04

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|  |                                          |  |
|--|------------------------------------------|--|
|  | <b>CENELEC COMMON MODIFICATIONS (EN)</b> |  |
|--|------------------------------------------|--|

|                |                                                                                     |     |
|----------------|-------------------------------------------------------------------------------------|-----|
| <b>1.5 (3)</b> | <b>MARKING</b>                                                                      |     |
| 1.5 (3.3.101)  | For luminaires not supplied with terminal block:<br>Adequate warning on the package | --- |

|                |                                    |     |
|----------------|------------------------------------|-----|
| <b>1.6 (4)</b> | <b>CONSTRUCTION</b>                |     |
| 1.6 (4.11.6)   | Electro-mechanical contact systems | --- |

|                 |                                                                          |     |
|-----------------|--------------------------------------------------------------------------|-----|
| <b>1.10 (5)</b> | <b>EXTERNAL AND INTERNAL WIRING</b>                                      |     |
| 1.10 (5.2.1)    | Connecting leads                                                         | --- |
|                 | - without a means for connection to the supply                           | --- |
|                 | - terminal block specified                                               | --- |
|                 | - relevant information provided                                          | --- |
|                 | - compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1 | --- |
| 1.10 (5.2.2)    | Cables equal to EN 50525                                                 | --- |
|                 | Replace table 5.1 – Supply cord                                          | --- |

|                  |                                                                                                       |     |
|------------------|-------------------------------------------------------------------------------------------------------|-----|
| <b>1.12 (12)</b> | <b>ENDURANCE TESTS AND THERMAL TESTS</b>                                                              |     |
| 1.12 (12.4.2c)   | Thermal test (normal operation)<br>see footnote c to table 12.2 relating to unsleeved<br>fixed wiring | --- |



| EN 60598-2-3 |                                                                                                                                                                                                                                                                                                                               |                 |         |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause       | Requirement + Test                                                                                                                                                                                                                                                                                                            | Result - Remark | Verdict |
| <b>ZB</b>    | <b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>                                                                                                                                                                                                                                                                             |                 |         |
| (3.3)        | DK: power supply cords of class I luminaires with label                                                                                                                                                                                                                                                                       |                 | ---     |
| (4.5.1)      | DK: socket-outlets                                                                                                                                                                                                                                                                                                            |                 | ---     |
| (5.2.1)      | CY, DK, FI, GB: type of plug                                                                                                                                                                                                                                                                                                  |                 | ---     |
| <b>ZC</b>    | <b>ANNEX ZC, NATIONAL DEVIATIONS (EN)</b>                                                                                                                                                                                                                                                                                     |                 |         |
| (4 & 5)      | FR: Shuttered socket-outlets 10/16A                                                                                                                                                                                                                                                                                           |                 | ---     |
|              | FR: Safety requirements for high buildings<br><br>(Arrêté du 30 décembre 2011 portant règlement de sécurité pour la construction des immeubles de grande hauteur et leur protection contre les risques d'incendie et de panique; Section VIII; Article GH 48, Eclairage)<br><br>Glow-wire test for outer parts of luminaires: |                 | ---     |
|              | - 850°C for luminaires in stairways and horizontal travel paths                                                                                                                                                                                                                                                               |                 | ---     |
|              | - 650°C for indoor luminaires                                                                                                                                                                                                                                                                                                 |                 | ---     |
|              | GB: Requirements according to United Kingdom Building Regulation                                                                                                                                                                                                                                                              |                 | ---     |

| ČSN EN 62471 |                    |                 |         |
|--------------|--------------------|-----------------|---------|
| Clause       | Requirement + Test | Result - Remark | Verdict |

**Measured values**

| Risk       | Symbol | Measured value                                       | Group |
|------------|--------|------------------------------------------------------|-------|
| Blue light | $L_B$  | $103 \text{ W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$ | RG1   |

Measured with supply voltage 230 V. Ambient temperature 25 °C.

Measured at 500 lx distance.

**Conclusion**

Light source can be considered as light source in Risk Group 1 (RG 1).

| Emission limits for risk groups of continuous wave lamps |                 |        |                                                 |                      |          |          |
|----------------------------------------------------------|-----------------|--------|-------------------------------------------------|----------------------|----------|----------|
| Risk                                                     | Action spectrum | Symbol | Units                                           | Emission Measurement |          |          |
|                                                          |                 |        |                                                 | Exempt               | Low risk | Mod risk |
|                                                          |                 |        |                                                 | Limit                | Limit    | Limit    |
| Blue light                                               | $B(\lambda)$    | $L_B$  | $\text{W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$ | 100                  | 10000    | 4000000  |

Measured by: Lukáš Fér

