



Test Report issued under the responsibility of:



**TEST REPORT**  
**IEC 60598-2-1**  
**Luminaires**  
**Part 2: Particular requirements**  
**Section 1: Fixed general purpose luminaires**

**Report Number.** .....: GZES210301327901

**Date of issue** .....: 2021-05-18

**Total number of pages** .....: 38

**Name of Testing Laboratory preparing the Report**.....: SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

**Applicant's name**.....: Blueview Elec-optic Tech Co., Ltd.

**Address** .....: 1000, Section 2, 2<sup>nd</sup> Konggang Road, Southwest Aviation Industrial Development Zone, Chengdu, Sichuan, China

**Test specification:**

**Standard**.....: IEC 60598-2-1:2020 used in conjunction with IEC 60598-1:2014, AMD1:2017

**Test procedure** .....: CB Scheme

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

**Test Report Form No.**.....: IEC60598\_2\_1G

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

**Master TRF** .....: Dated 2020-06-02

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|                                                                                                   |                                                                                                  |                                                                                                      |
|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Test item description .....</b>                                                                | Fixed luminaire                                                                                  |                                                                                                      |
| <b>Trade Mark(s) .....</b>                                                                        | <b>Blueview</b>                                                                                  |                                                                                                      |
| <b>Manufacturer .....</b>                                                                         | Same as applicant                                                                                |                                                                                                      |
| <b>Model/Type reference .....</b>                                                                 | See "General Product Information"                                                                |                                                                                                      |
| <b>Ratings .....</b>                                                                              | Input: 12 Vdc; IP65; Class III; ta=60 °C;<br>Other information see "General Product Information" |                                                                                                      |
| <b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b> |                                                                                                  |                                                                                                      |
| <input checked="" type="checkbox"/>                                                               | <b>CB Testing Laboratory:</b>                                                                    | SGS-CSTC Standards Technical Services Co., Ltd.<br>Guangzhou Branch                                  |
| <b>Testing location/ address .....</b>                                                            |                                                                                                  | 198 Kezhu Road, Science City, Economic & Technology<br>Development Area, Guangzhou, Guangdong, China |
| <b>Tested by (name, function, signature) .....</b>                                                |                                                                                                  | Ivan Zhang / Project Engineer <i>Ivan Zhang</i>                                                      |
| <b>Approved by (name, function, signature) ...:</b>                                               |                                                                                                  | Mon Liang / Reviewer <i>Mon Liang</i>                                                                |
| <input type="checkbox"/>                                                                          | <b>Testing procedure: 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: 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: CTF Stage 3:</b>                                                           |                                                                                                      |
| <input type="checkbox"/>                                                                          | <b>Testing procedure: CTF Stage 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):**

Attachment 1: Additional test for IEC 62031: 2018 (Total: 4 pages)

Attachment 2: Photo documentations (Total: 6 pages)

**Summary of testing:**

1. The submitted sample was found to be in compliance with the standard IEC 60589-2-1: 2020 and IEC 60598-1: 2014 + A1: 2017.
2. The LED module was tested according to the standard IEC 62031: 2018, and the test result was positive.
3. Retinal blue light hazard measurements have been tested according to Technical report IEC/TR 62778: 2014 (Ed 2). According to the test results, the product belongs to RG1 and therefore no markings are required on the product or in the instructions.
4. The model M8-C was selected to perform the full tests, as it has maximum power consumption. The model ZC-C, QYDC-C, BP2-W were performed retinal blue light hazard, as they have different LEDs and LED lens. Other models were performed the construction check.

**Tests performed (name of test and test clause):**

- 1.5 Marking
- 1.6 Construction
- 1.7 Creepage distances and clearance
- 1.8 Provision for earthing
- 1.9 Terminals
- 1.10 External and internal wiring
- 1.11 Protection against electric shock
- 1.12 Endurance tests and thermal tests
- 1.13 Resistance to dust and moisture
- 1.14 Insulation resistance and electric strength
- 1.15 Resistance to heat, fire and tracking

**Testing location:**

198 Kezhu Road, Science City, Economic & Technology Development Area, Guangzhou, Guangdong, China

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

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**Statement concerning the uncertainty of the measurement systems used for the tests**

(may be required by the product standard or client)

☐ **Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:**

**Procedure number, issue date and title:**

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

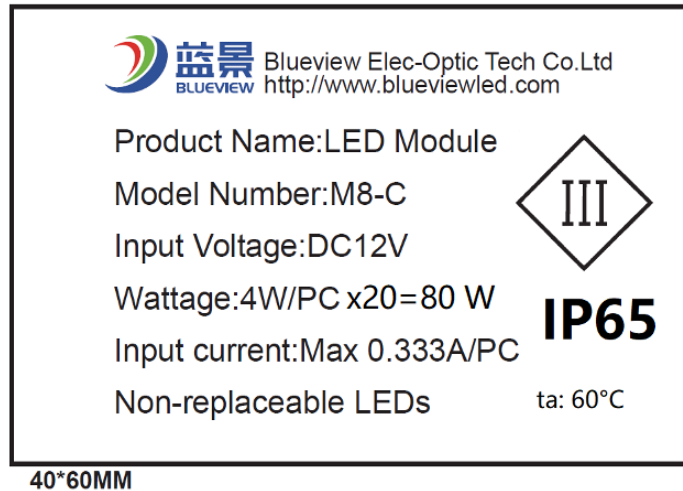
☒ **Statement not required by the standard used for type testing**

(Note: When IEC or ISO standard requires a statement concerning the uncertainty of the measurement systems used for tests, this should be reported above. The informative text in parenthesis should be delete in both cases after selecting the applicable option)

**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.

Representative:

**Remark:**

1. The height of graphical symbols and CE logo are not less than 5 mm;
2. The height of letters and numerals is not less than 2 mm;
3. The height of WEEE symbol is not less than 7 mm;
4. According to the standard, warning and text required by the standard should be written in the official language(s) of the country in which the appliance is to be sold. The applicant should ensure that the samples in future production fulfill the requirement;
7. Other models have similar label as above, just different in model No. and wattage consumption.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Test item particulars .....</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                    |
| <b>Classification of installation and use .....</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Fixed                                                                              |
| <b>Supply Connection .....</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Input wire                                                                         |
| <b>Possible test case verdicts:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                    |
| - test case does not apply to the test object .....: N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                    |
| - test object does meet the requirement.....: P (Pass)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                    |
| - test object does not meet the requirement .....: F (Fail)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                    |
| <b>Testing .....</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                    |
| <b>Date of receipt of test item .....</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2021-03-12                                                                         |
| <b>Date (s) of performance of tests .....</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2021-03-12 to 2021-04-09                                                           |
| <b>General remarks:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                    |
| <p>"(See Enclosure #)" refers to additional information appended to the report.<br/>         "(See appended table)" refers to a table appended to the report.</p> <p><b>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</b></p> <p>Clause numbers between brackets refer to clauses in IEC 60598-1.</p> <p>This document is issued by the Company subject to its General Conditions of Service, available on request or accessible at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.</p> <p>Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.</p> <p>Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.</p> |                                                                                    |
| <b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60598-1:</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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                    |

**Name and address of factory (ies) .....**: Same as applicant

**General product information:**

The fixed luminaire, via input wire connected to an independent LED driver, may be interconnected, Class III, IP65, non-user replaceable LEDs.

The submitted luminaire should be used with LED driver which certified with standard EN 61347-2-13 and with suitable output ratings.

All the models have the same electrical connecting and mechanical construction, only different in LED, LED lens, appearance and rated power.

Model list:

| No. | Model         | CCT (k) | LED  | LED lens angel (°) | Maximum Wattage (W)  |
|-----|---------------|---------|------|--------------------|----------------------|
| 1   | ST2E          | ≅ 10000 | 2835 | 150                | 1,2 W x 20 = 24 W    |
| 2   | Z18           | ≅ 10000 | 3030 | 10*45              | 2,0 W x 20 = 20 W    |
| 3   | STX-X         | ≅ 10000 | 2835 | 170                | 2,0 W x 30 = 60 W    |
| 4   | SMX-X         | ≅ 10000 | 2835 | 160                | 1,0 W x 50 = 50 W    |
| 5   | SGXX          | ≅ 10000 | 2835 | 160                | 1,0 W x 50 = 50 W    |
| 6   | PT8-X-X       | ≅ 10000 | 2835 | 170                | 1,32 W x 50 = 66 W   |
| 7   | KPT8-X-X      | ≅ 10000 | 2835 | 170                | 1,32 W x 50 = 66 W   |
| 8   | PJX-X         | ≅ 10000 | 2835 | 120                | 0,3 W x 20 = 6 W     |
| 9   | 9PCX-X        | ≅ 10000 | 2835 | 120                | 0,72 W x 20 = 14,4 W |
| 10  | PSX-X         | ≅ 10000 | 3030 | 170                | 0,72 W x 50 = 36 W   |
| 11  | ZX-X          | ≅ 10000 | 2835 | 10*45              | 3,0 W x 20 = 60 W    |
| 12  | CSX           | ≅ 10000 | 2835 | 130                | 0,3 W x 50 = 15 W    |
| 13  | CSX-X         | ≅ 10000 | 2835 | 130                | 0,3 W x 50 = 15 W    |
| 14  | BV-AL-3030-24 | ≅ 10000 | 3030 | 160                | 1,5 W x 30 = 45 W    |
| 15  | SSX           | ≅ 10000 | 2835 | 150                | 0,36 W x 50 = 18 W   |
| 16  | PQX-X         | ≅ 10000 | 3030 | 170                | 1,0 W x 50 = 50 W    |
| 17  | MZ18-X        | ≅ 10000 | 2835 | 20*30              | 1,5 W x 30 = 45 W    |
| 18  | M6-X          | ≅ 10000 | 2835 | 175                | 1,08 W x 50 = 54 W   |
| 19  | M8-X          | ≅ 10000 | 2835 | 175                | 4,0 W x 20 = 80 W    |
| 20  | STLH-X        | ≅ 10000 | 2835 | 170                | 1,44 W x 50 = 72 W   |
| 21  | BTH-X         | ≅ 10000 | 2835 | 170                | 1,2 W x 50 = 60 W    |
| 22  | K2S-X         | ≅ 10000 | 3030 | 160                | 2,0 W x 30 = 60 W    |
| 23  | JSS2-X        | ≅ 10000 | 2835 | 160                | 1,0 W x 30 = 30 W    |
| 24  | QGX           | ≅ 10000 | 2835 | 180                | 1,2 W x 50 = 60 W    |
| 25  | PQX           | ≅ 10000 | 2835 | 170                | 1,0 W x 30 = 30 W    |
| 26  | DX            | ≅ 10000 | 2835 | 170                | 3,6 W x 12 = 43,2 W  |
| 27  | GBPSX-X-X     | ≅ 10000 | 2835 | 7*30               | 1,6 W x 12 = 19,2 W  |
| 28  | BPS2-X        | ≅ 10000 | 3030 | 10*28              | 2,0 W x 12 = 24 W    |
| 29  | YZX           | ≅ 10000 | 3030 | 7*30               | 1,6 W x 12 = 19,2 W  |
| 30  | BPS300        | ≅ 10000 | 3030 | 8*15               | 1,6 W x 12 = 19,2 W  |
| 31  | BPSX-X        | ≅ 10000 | 3030 | 7*30               | 1,6 W x 12 = 19,2 W  |
| 32  | QYDX-X        | ≅ 10000 | 3030 | 160                | 2,0 W x 12 = 24 W    |
| 33  | XYDX-X        | ≅ 10000 | 3030 | 160                | 1,2 W x 12 = 14,4 W  |

| No. | Model    | CCT (k)       | LED  | LED  | Wattage (W)           |
|-----|----------|---------------|------|------|-----------------------|
| 34  | WN-YDX-X | $\cong 10000$ | 2835 | 160  | 1,92 W x 12 = 23,04 W |
| 35  | YDX      | $\cong 10000$ | 2835 | 160  | 1,92 W x 12 = 23,04 W |
| 36  | YDX-X    | $\cong 10000$ | 3030 | 160  | 2,0 W x 12 = 24 W     |
| 37  | JYDX-X   | $\cong 10000$ | 2835 | 170  | 1,92 W x 12 = 23,04 W |
| 38  | FYDX-X   | $\cong 10000$ | 2835 | 170  | 1,92 W x 12 = 23,04 W |
| 39  | JFYDX-X  | $\cong 10000$ | 2835 | 170  | 1,92 W x 12 = 23,04 W |
| 40  | YLX-X    | $\cong 10000$ | 2835 | 120  | 1,35 W x 12 = 16,2 W  |
| 41  | BP2-W    | $\cong 10000$ | 3030 | 12*2 | 2,0 W x 12 = 24 W     |
| 42  | RGBW-YDX | $\cong 10000$ | 3030 | 160  | 1,2 W x 12 = 14,4 W   |
| 43  | BQX-X    | $\cong 10000$ | 2835 | 165  | 3,6 W x 12 = 43,2 W   |
| 44  | JY LX    | $\cong 10000$ | 2835 | 120  | 1,35 W x 12 = 16,2 W  |
| 45  | JYLDX    | $\cong 10000$ | 2835 | 120  | 1,35 W x 12 = 16,2 W  |

Remark: X=0-9 or X=A-Z means different model No..

| IEC 60598-2-1    |                                                                    |                                                                                   |         |
|------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------|
| Clause           | Requirement + Test                                                 | Result - Remark                                                                   | Verdict |
| <b>1.2 (0)</b>   | <b>GENERAL TEST REQUIREMENTS</b>                                   |                                                                                   |         |
| 1.2 (0.3)        | More sections applicable.....:                                     | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/><br>Section/s: | —       |
| 1.2 (0.5)        | Components                                                         | (see Annex 1)                                                                     | —       |
| <b>1.2 (0.7)</b> | <b>Information for luminaire design in light sources standards</b> |                                                                                   | —       |
| 1.2 (0.7.2)      | Light source safety standard .....                                 | IEC 62031: 2018                                                                   | —       |
|                  | Luminaire design in the light source safety standard               |                                                                                   | P       |

|                |                                                                             |                                                                     |   |
|----------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------|---|
| <b>1.4 (2)</b> | <b>CLASSIFICATION OF LUMINAIRES</b>                                         |                                                                     |   |
| 1.4 (2.2)      | Type of protection .....                                                    | Class III                                                           | P |
| 1.4 (2.3)      | Degree of protection .....                                                  | IP65                                                                | — |
| 1.4 (2.4)      | Luminaire suitable for direct mounting on normally flammable surfaces ..... | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | — |
| 1.4 (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"/> | — |

|                |                                       |         |     |
|----------------|---------------------------------------|---------|-----|
| <b>1.5 (3)</b> | <b>MARKING</b>                        |         |     |
| 1.5 (3.2)      | Mandatory markings                    |         | P   |
|                | Position of the marking               |         | P   |
|                | Format of symbols/text                |         | P   |
| 1.5 (3.3)      | Additional information                |         | P   |
|                | Language of instructions              | English | P   |
| 1.5 (3.3.1)    | Combination luminaires                |         | N/A |
| 1.5 (3.3.2)    | Nominal frequency in Hz               |         | N/A |
| 1.5 (3.3.3)    | Operating temperature                 |         | N/A |
| 1.5 (3.3.5)    | Wiring diagram                        |         | N/A |
| 1.5 (3.3.6)    | Special conditions                    |         | N/A |
| 1.5 (3.3.7)    | Metal halide lamp luminaire – warning |         | N/A |
| 1.5 (3.3.8)    | Limitation for semi-luminaires        |         | N/A |
| 1.5 (3.3.9)    | Power factor and supply current       |         | N/A |
| 1.5 (3.3.10)   | Suitability for use indoors           |         | N/A |
| 1.5 (3.3.11)   | Luminaires with remote control        |         | N/A |
| 1.5 (3.3.12)   | Clip-mounted luminaire – warning      |         | N/A |
| 1.5 (3.3.13)   | Specifications of protective shields  |         | N/A |

| IEC 60598-2-1 |                                                                                                          |                      |         |
|---------------|----------------------------------------------------------------------------------------------------------|----------------------|---------|
| Clause        | Requirement + Test                                                                                       | Result - Remark      | Verdict |
| 1.5 (3.3.14)  | Symbol for nature of supply                                                                              |                      | N/A     |
| 1.5 (3.3.15)  | Rated current of socket outlet                                                                           |                      | N/A     |
| 1.5 (3.3.16)  | Rough service luminaire                                                                                  |                      | N/A     |
| 1.5 (3.3.17)  | Mounting instruction for type Y, type Z and some type X attachments                                      |                      | N/A     |
| 1.5 (3.3.18)  | Non-ordinary luminaires with PVC cable                                                                   |                      | N/A     |
| 1.5 (3.3.19)  | Protective conductor current in instruction if applicable                                                |                      | N/A     |
| 1.5 (3.3.20)  | Provided with information if not intended to be mounted within arm's reach                               |                      | N/A     |
| 1.5 (3.3.21)  | Non replaceable and non-user replaceable light sources information provided                              | Non-replaceable LEDs | P       |
| 1.5 (3.3.22)  | Controllable luminaires, classification of insulation provided                                           |                      | N/A     |
| 1.5 (3.3.23)  | Luminaire without controlgear provided with necessary information for selection of appropriate component |                      | P       |
| 1.5 (3.3.24)  | If not supplied with terminal block, information on the packaging                                        |                      | N/A     |
| 1.5 (3.4)     | Test with water                                                                                          |                      | P       |
|               | Test with hexane                                                                                         |                      | P       |
|               | Legible after test                                                                                       |                      | P       |
|               | Label attached                                                                                           |                      | P       |

|                  |                                                                                                                          |  |            |
|------------------|--------------------------------------------------------------------------------------------------------------------------|--|------------|
| <b>1.6 (4)</b>   | <b>CONSTRUCTION</b>                                                                                                      |  |            |
| 1.6 (4.2)        | Components replaceable without difficulty                                                                                |  | N/A        |
| 1.6 (4.3)        | Wireways smooth and free from sharp edges                                                                                |  | P          |
| <b>1.6 (4.4)</b> | <b>Lampholders</b>                                                                                                       |  | <b>N/A</b> |
| 1.6 (4.4.1)      | Integral lampholder                                                                                                      |  | N/A        |
| 1.6 (4.4.2)      | Wiring connection                                                                                                        |  | N/A        |
| 1.6 (4.4.3)      | Lampholder for end-to-end mounting                                                                                       |  | N/A        |
| 1.6 (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        |

| IEC 60598-2-1    |                                                                                              |                 |            |
|------------------|----------------------------------------------------------------------------------------------|-----------------|------------|
| Clause           | Requirement + Test                                                                           | Result - Remark | Verdict    |
|                  | - bending test (N) .....                                                                     |                 | —          |
|                  | After test the lampholder have not moved from its position and show no permanent deformation |                 | N/A        |
| 1.6 (4.4.5)      | Peak pulse voltage                                                                           |                 | N/A        |
| 1.6 (4.4.6)      | Centre contact                                                                               |                 | N/A        |
| 1.6 (4.4.7)      | Parts in rough service luminaires resistant to tracking                                      |                 | N/A        |
| 1.6 (4.4.8)      | Lamp connectors                                                                              |                 | N/A        |
| 1.6 (4.4.9)      | Caps and bases correctly used                                                                |                 | N/A        |
| 1.6 (4.4.10)     | Light source for lampholder or connection according IEC 60061 not connected another way      |                 | N/A        |
| <b>1.6 (4.5)</b> | <b>Starter holders</b>                                                                       |                 | <b>N/A</b> |
|                  | Starter holder in luminaires other than class II                                             |                 | N/A        |
|                  | Starter holder class II construction                                                         |                 | N/A        |
| <b>1.6 (4.6)</b> | <b>Terminal blocks</b>                                                                       |                 | <b>N/A</b> |
|                  | Tails                                                                                        |                 | N/A        |
|                  | Unsecured blocks                                                                             |                 | N/A        |
| <b>1.6 (4.7)</b> | <b>Terminals and supply connections</b>                                                      |                 | <b>P</b>   |
| 1.6 (4.7.1)      | Contact to metal parts                                                                       |                 | N/A        |
| 1.6 (4.7.2)      | Test 8 mm live conductor                                                                     |                 | N/A        |
|                  | Test 8 mm earth conductor                                                                    |                 | N/A        |
| 1.6 (4.7.3)      | Terminals for supply conductors                                                              |                 | P          |
| 1.6 (4.7.3.1)    | Welded method and material                                                                   |                 | N/A        |
|                  | - stranded or solid conductor                                                                |                 | N/A        |
|                  | - spot welding                                                                               |                 | N/A        |
|                  | - welding between wires                                                                      |                 | N/A        |
|                  | - Type Z attachment                                                                          |                 | N/A        |
|                  | - mechanical test according to 15.6.2                                                        |                 | N/A        |
|                  | - electrical test according to 15.6.3                                                        |                 | N/A        |
|                  | - heat test according to 15.6.3.2.3 and 15.6.3.2.4                                           |                 | N/A        |
| 1.6 (4.7.4)      | Terminals other than supply connection                                                       |                 | N/A        |
| 1.6 (4.7.5)      | Heat-resistant wiring/sleeves                                                                |                 | N/A        |
| 1.6 (4.7.6)      | Multi-pole plug                                                                              |                 | N/A        |
|                  | - test at 30 N                                                                               |                 | N/A        |
| <b>1.6 (4.8)</b> | <b>Switches</b>                                                                              |                 | <b>N/A</b> |
|                  | - adequate rating                                                                            |                 | N/A        |

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|-------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------|------------|
| Clause            | Requirement + Test                                                                                                         | Result - Remark | Verdict    |
|                   | - adequate fixing                                                                                                          |                 | N/A        |
|                   | - polarized supply                                                                                                         |                 | N/A        |
|                   | - compliance with IEC 61058-1 for electronic switches                                                                      |                 | N/A        |
| <b>1.6 (4.9)</b>  | <b>Insulating lining and sleeves</b>                                                                                       |                 | <b>N/A</b> |
| 1.6 (4.9.1)       | Retainment                                                                                                                 |                 | N/A        |
|                   | Method of fixing .....                                                                                                     |                 | N/A        |
| 1.6 (4.9.2)       | Insulated linings and sleeves:                                                                                             |                 | N/A        |
|                   | Resistant to a temperature > 20 °C to the wire temperature or                                                              |                 | N/A        |
|                   | a) & c) Insulation resistance and electric strength                                                                        |                 | N/A        |
|                   | b) Ageing test. Temperature (°C) .....                                                                                     |                 | N/A        |
| <b>1.6 (4.10)</b> | <b>Double or reinforced insulation</b>                                                                                     |                 | <b>N/A</b> |
| 1.6 (4.10.1)      | No contact, mounting surface – accessible metal parts – wiring of basic insulation                                         |                 | N/A        |
|                   | Safe installation fixed luminaires                                                                                         |                 | N/A        |
|                   | Capacitors and switches                                                                                                    |                 | N/A        |
|                   | Interference suppression capacitors according to IEC 60384-14                                                              |                 | N/A        |
| 1.6 (4.10.2)      | Assembly gaps:                                                                                                             |                 | N/A        |
|                   | - not coincidental                                                                                                         |                 | N/A        |
|                   | - no straight access with test probe                                                                                       |                 | N/A        |
| 1.6 (4.10.3)      | Retainment of insulation:                                                                                                  |                 | N/A        |
|                   | - fixed                                                                                                                    |                 | N/A        |
|                   | - unable to be replaced; luminaire inoperative                                                                             |                 | N/A        |
|                   | - sleeves retained in position                                                                                             |                 | N/A        |
|                   | - lining in lampholder                                                                                                     |                 | N/A        |
| 1.6 (4.10.4)      | Protective impedance device                                                                                                |                 | N/A        |
|                   | Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor |                 | N/A        |
|                   | Y1 or Y2 capacitors comply with IEC 60384-14                                                                               |                 | N/A        |
|                   | Resistors comply with test (a) in 14.1 of IEC 60065                                                                        |                 | N/A        |
| <b>1.6 (4.11)</b> | <b>Electrical connections and current-carrying parts</b>                                                                   |                 | <b>P</b>   |
| 1.6 (4.11.1)      | Contact pressure                                                                                                           |                 | P          |

| IEC 60598-2-1     |                                                       |                 |            |
|-------------------|-------------------------------------------------------|-----------------|------------|
| Clause            | Requirement + Test                                    | Result - Remark | Verdict    |
| 1.6 (4.11.2)      | Screws:                                               |                 | N/A        |
|                   | - self-tapping screws                                 |                 | N/A        |
|                   | - thread-cutting screws                               |                 | N/A        |
| 1.6 (4.11.3)      | Screw locking:                                        |                 | N/A        |
|                   | - spring washer                                       |                 | N/A        |
|                   | - rivets                                              |                 | N/A        |
| 1.6 (4.11.4)      | Material of current-carrying parts                    |                 | P          |
| 1.6 (4.11.5)      | No contact to wood or mounting surface                |                 | P          |
| 1.6 (4.11.6)      | Electro-mechanical contact systems                    |                 | N/A        |
| <b>1.6 (4.12)</b> | <b>Screws and connections (mechanical) and glands</b> |                 | <b>N/A</b> |
| 1.6 (4.12.1)      | Screws not made of soft metal                         |                 | N/A        |
|                   | Screws of insulating material                         |                 | N/A        |
|                   | Torque test: torque (Nm); part .....                  |                 | N/A        |
|                   | Torque test: torque (Nm); part .....                  |                 | N/A        |
|                   | Torque test: torque (Nm); part .....                  |                 | N/A        |
| 1.6 (4.12.2)      | Screws with diameter < 3 mm screwed into metal        |                 | N/A        |
| 1.6 (4.12.4)      | Locked connections:                                   |                 | N/A        |
|                   | - fixed arms; torque (Nm).....                        |                 | N/A        |
|                   | - lampholder; torque (Nm) .....                       |                 | N/A        |
|                   | - push-button switches; torque 0,8 Nm.....            |                 | N/A        |
| 1.6 (4.12.5)      | Screwed glands; force (Nm) .....                      |                 | N/A        |
| <b>1.6 (4.13)</b> | <b>Mechanical strength</b>                            |                 | <b>P</b>   |
| 1.6 (4.13.1)      | Impact tests:                                         |                 | P          |
|                   | - fragile parts; energy (Nm).....                     | 0,5             | P          |
|                   | - other parts; energy (Nm) .....                      |                 | N/A        |
|                   | 1) live parts                                         |                 | N/A        |
|                   | 2) linings                                            |                 | N/A        |
|                   | 3) protection                                         |                 | P          |
|                   | 4) covers                                             |                 | P          |
| 1.6 (4.13.2)      | Metal parts have adequate mechanical strength         |                 | N/A        |
| 1.6 (4.13.3)      | Straight test finger                                  |                 | N/A        |
| 1.6 (4.13.4)      | Rough service luminaires                              |                 | N/A        |
|                   | - IP54 or higher                                      |                 | N/A        |
|                   | a) fixed                                              |                 | N/A        |

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|-------------------|---------------------------------------------------------------------|------------------------------|----------|
| Clause            | Requirement + Test                                                  | Result - Remark              | Verdict  |
|                   | 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      |
| 1.6 (4.13.6)      | Tumbling barrel                                                     |                              | N/A      |
| <b>1.6 (4.14)</b> | <b>Suspensions, fixings and means of adjusting</b>                  |                              | <b>P</b> |
| 1.6 (4.14.1)      | Mechanical load:                                                    |                              | P        |
|                   | A) four times the weight                                            | Max. 0,91 kg x 4 = 3,64 kg   | P        |
|                   | 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      |
| 1.6 (4.14.2)      | Load to flexible cables                                             |                              | N/A      |
|                   | Mass (kg) .....                                                     |                              | —        |
|                   | Stress in conductors (N/mm <sup>2</sup> ) .....                     |                              | N/A      |
|                   | Mass (kg) of semi-luminaire .....                                   |                              | N/A      |
|                   | Bending moment (Nm) of semi-luminaire .....                         |                              | N/A      |
| 1.6 (4.14.3)      | Adjusting devices:                                                  |                              | N/A      |
|                   | - flexing test; number of cycles .....                              |                              | N/A      |
|                   | - strands broken.....                                               |                              | N/A      |
|                   | - electric strength test afterwards                                 |                              | N/A      |
| 1.6 (4.14.4)      | Telescopic tubes: cords not fixed to tube; no strain on conductors  |                              | N/A      |
| 1.6 (4.14.5)      | Guide pulleys                                                       |                              | N/A      |
| 1.6 (4.14.6)      | Strain on socket-outlets                                            |                              | N/A      |
| <b>1.6 (4.15)</b> | <b>Flammable materials</b>                                          |                              | <b>P</b> |
|                   | - glow-wire test 650°C .....                                        | See Test Table 1.15 (13.3.2) | P        |
|                   | - spacing ≥30 mm                                                    |                              | N/A      |
|                   | - screen withstanding test of 13.3.1                                |                              | N/A      |
|                   | - screen dimensions                                                 |                              | N/A      |
|                   | - no fiercely burning material                                      |                              | P        |

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|-------------------|------------------------------------------------------------------------------------------------------------|------------------------------|------------|
| Clause            | Requirement + Test                                                                                         | Result - Remark              | Verdict    |
|                   | - thermal protection                                                                                       |                              | N/A        |
|                   | - electronic circuits exempted                                                                             |                              | N/A        |
| 1.6 (4.15.2)      | Luminaires made of thermoplastic material with lamp control gear                                           |                              | N/A        |
|                   | a) construction                                                                                            |                              | N/A        |
|                   | b) temperature sensing control                                                                             |                              | N/A        |
|                   | c) surface temperature                                                                                     |                              | N/A        |
| <b>1.6 (4.16)</b> | <b>Luminaires for mounting on normally flammable surfaces</b>                                              |                              | <b>P</b>   |
|                   | No lamp control gear .....:                                                                                | (compliance with Section 12) | P          |
|                   | Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces |                              | N/A        |
| 1.6 (4.16.1)      | Lamp control gear spacing:                                                                                 |                              | N/A        |
|                   | - spacing 35 mm                                                                                            |                              | N/A        |
|                   | - spacing 10 mm                                                                                            |                              | N/A        |
| 1.6 (4.16.2)      | Thermal protection:                                                                                        |                              | N/A        |
|                   | - in lamp control gear                                                                                     |                              | N/A        |
|                   | - external                                                                                                 |                              | N/A        |
|                   | - fixed position                                                                                           |                              | N/A        |
|                   | - temperature marked lamp control gear                                                                     |                              | N/A        |
| 1.6 (4.16.3)      | Design to satisfy the test of 12.6                                                                         | (see clause 12.6)            | N/A        |
| <b>1.6 (4.17)</b> | <b>Drain holes</b>                                                                                         |                              | <b>N/A</b> |
|                   | Clearance at least 5 mm                                                                                    |                              | N/A        |
| <b>1.6 (4.18)</b> | <b>Resistance to corrosion</b>                                                                             |                              | <b>P</b>   |
| 1.6 (4.18.1)      | - rust-resistance                                                                                          |                              | N/A        |
| 1.6 (4.18.2)      | - season cracking in copper                                                                                |                              | P          |
| 1.6 (4.18.3)      | - corrosion of aluminium                                                                                   |                              | N/A        |
| 1.6 (4.19)        | Igniters compatible with ballast                                                                           |                              | N/A        |
| 1.6 (4.20)        | Rough service vibration                                                                                    |                              | N/A        |
| <b>1.6 (4.21)</b> | <b>Protective shield</b>                                                                                   |                              | <b>N/A</b> |
| 1.6 (4.21.1)      | Shield fitted if tungsten halogen lamps or metal halide lamps                                              |                              | N/A        |
|                   | Shield of glass if tungsten halogen lamps                                                                  |                              | N/A        |
| 1.6 (4.21.2)      | Particles from a shattering lamp not impair safety                                                         |                              | N/A        |
| 1.6 (4.21.3)      | No direct path                                                                                             |                              | N/A        |
| 1.6 (4.21.4)      | Impact test on shield                                                                                      |                              | N/A        |

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|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------|
| Clause            | Requirement + Test                                                                                                                                 | Result - Remark              | Verdict    |
|                   | Glow-wire test on lamp compartment .....                                                                                                           | See Test Table 1.15 (13.3.2) | N/A        |
| 1.6 (4.22)        | Attachments to lamps not cause overheating or damage                                                                                               |                              | N/A        |
| 1.6 (4.23)        | Semi-luminaires comply Class II                                                                                                                    |                              | N/A        |
| <b>1.6 (4.24)</b> | <b>Photobiological hazards</b>                                                                                                                     |                              | <b>P</b>   |
| 1.6 (4.24.1)      | No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)                                                               |                              | N/A        |
| 1.6 (4.24.2)      | Retinal blue light hazard                                                                                                                          |                              | P          |
|                   | Class of risk group assessed according to IEC/TR 62778 .....                                                                                       | RG1                          | —          |
|                   | Luminaires with $E_{thr}$ :                                                                                                                        |                              | N/A        |
|                   | a) Fixed luminaires                                                                                                                                |                              | N/A        |
|                   | - distance x m, borderline between RG1 and RG2 ...:                                                                                                |                              | N/A        |
|                   | - marking and instruction according 3.2.23                                                                                                         |                              | N/A        |
|                   | b) Portable and handheld luminaires                                                                                                                |                              | N/A        |
|                   | - marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778                                                                     |                              | N/A        |
|                   | Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778 |                              | N/A        |
| <b>1.6 (4.25)</b> | <b>Mechanical hazard</b>                                                                                                                           |                              | <b>P</b>   |
|                   | No sharp point or edges                                                                                                                            |                              | P          |
| <b>1.6 (4.26)</b> | <b>Short-circuit protection</b>                                                                                                                    |                              | <b>N/A</b> |
| 1.6 (4.26.1)      | Adequate means of uninsulated accessible SELV parts                                                                                                |                              | N/A        |
| 1.6 (4.26.2)      | Short-circuit test with test chain according 4.26.3                                                                                                |                              | N/A        |
|                   | Test chain not melt through                                                                                                                        |                              | N/A        |
|                   | Test sample not exceed values of Table 12.1 and 12.2                                                                                               |                              | N/A        |
| <b>1.6 (4.27)</b> | <b>Terminal blocks with integrated screwless earthing contacts</b>                                                                                 |                              | <b>N/A</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        |
| <b>1.6 (4.28)</b> | <b>Fixing of thermal sensing control</b>                                                                                                           |                              | <b>N/A</b> |

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|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------|
| Clause              | Requirement + Test                                                                                                                                                                  | Result - Remark | Verdict    |
|                     | Not plug-in or easily replaceable type                                                                                                                                              |                 | N/A        |
|                     | Reliably kept in position                                                                                                                                                           |                 | N/A        |
|                     | No adhesive fixing if UV radiations from a lamp can degrade the fixing                                                                                                              |                 | N/A        |
|                     | Not outside the luminaire enclosure                                                                                                                                                 |                 | N/A        |
|                     | Test of adhesive fixing:                                                                                                                                                            |                 | N/A        |
|                     | Max. temperature on adhesive material (°C) .....:                                                                                                                                   |                 | —          |
|                     | 100 cycles between t min and t max                                                                                                                                                  |                 | N/A        |
|                     | Temperature sensing control still in position                                                                                                                                       |                 | N/A        |
| <b>1.6 (4.29)</b>   | <b>Luminaires with non-replaceable light source</b>                                                                                                                                 |                 | <b>P</b>   |
|                     | Not possible to replace light source                                                                                                                                                |                 | P          |
|                     | Live part not accessible after parts have been opened by hand or tools                                                                                                              |                 | N/A        |
| <b>1.6 (4.30)</b>   | <b>Luminaires with non-user replaceable light source</b>                                                                                                                            |                 | <b>N/A</b> |
|                     | If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:                                                                |                 | N/A        |
|                     | Minimum two fixing means                                                                                                                                                            |                 | N/A        |
| <b>1.6 (4.31)</b>   | <b>Insulation between circuits</b>                                                                                                                                                  |                 | <b>N/A</b> |
|                     | Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3                                                                                                     |                 | N/A        |
|                     | Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3 |                 | N/A        |
| <b>1.6 (4.31.1)</b> | <b>SELV circuits</b>                                                                                                                                                                |                 | <b>N/A</b> |
|                     | Used SELV source                                                                                                                                                                    |                 | N/A        |
|                     | Voltage ≤ ELV                                                                                                                                                                       |                 | N/A        |
|                     | Insulating of SELV circuits from LV supply                                                                                                                                          |                 | N/A        |
|                     | 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                                                                                                                   |                 | 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        |

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|---------------|------------------------------------------------------------------------------------------------------------|-----------------|------------|
| Clause        | Requirement + Test                                                                                         | Result - Remark | Verdict    |
|               | Plugs and socket-outlets does not have protective conductor contact                                        |                 | N/A        |
| 1.6 (4.31.2)  | FELV circuits                                                                                              |                 | N/A        |
|               | Used FELV source                                                                                           |                 | N/A        |
|               | Voltage $\leq$ ELV                                                                                         |                 | N/A        |
|               | Insulating of FELV circuits from LV supply                                                                 |                 | N/A        |
|               | FELV circuits insulated from accessible parts according Table X.1                                          |                 | N/A        |
|               | Plugs not able to 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        |
| 1.6 (4.31.3)  | Other circuits                                                                                             |                 | N/A        |
|               | Other circuits insulated from accessible parts according Table X.1                                         |                 | N/A        |
|               | Class II construction with equipotential bonding for protection against indirect contacts with live parts: |                 | N/A        |
|               | - conductive parts are connected together                                                                  |                 | N/A        |
|               | - test according 7.2.3                                                                                     |                 | 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        |
| 1.6 (4.32)    | <b>Overvoltage protective devices</b>                                                                      |                 | <b>N/A</b> |
|               | Comply with IEC 61643-11                                                                                   |                 | N/A        |
|               | External to controlgear and connected to earth:                                                            |                 | N/A        |
|               | - only in fixed luminaires                                                                                 |                 | N/A        |
|               | - only connected to protective earth                                                                       |                 | N/A        |

|                 |                                                 |                                                                            |     |
|-----------------|-------------------------------------------------|----------------------------------------------------------------------------|-----|
| <b>1.7 (11)</b> | <b>CREEPAGE DISTANCES AND CLEARANCES</b>        |                                                                            |     |
| 1.7 (11.2.1)    | Impulse withstand category (Normal category II) | Category II <input type="checkbox"/> Category III <input type="checkbox"/> | —   |
|                 | Category III according Annex U                  |                                                                            | N/A |

| IEC 60598-2-1 |                                                                                                    |                              |         |
|---------------|----------------------------------------------------------------------------------------------------|------------------------------|---------|
| Clause        | Requirement + Test                                                                                 | Result - Remark              | Verdict |
|               | Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1       |                              | N/A     |
| 1.7 (11.2.2)  | Creepage distances for frequency up to 30 kHz                                                      | See Test Table 1.7 (11.2) I  | N/A     |
|               | Creepage distances for frequency over 30 kHz:                                                      |                              | N/A     |
|               | - Controlgear marked with $\hat{U}_{OUT}$ and $f_{UOUT}$ according IEC 61347-1, clause 7.1, item w | See Test Table 1.7 (11.2) II | N/A     |
|               | - Requirements according IEC 60664-4 for controlgear not covered by IEC 61347                      | See Test Table 1.7 (11.2) II | N/A     |
| 1.7 (11.2.3)  | Clearances for frequency up to 30 kHz                                                              | See Test Table 1.7 (11.2) I  | N/A     |
|               | Clearances distances for frequency over 30 kHz:                                                    |                              | N/A     |
|               | - Controlgear marked with $U_P$                                                                    | See Test Table 1.7 (11.2) II | N/A     |
|               | - Requirements according IEC 60664-4 for controlgear not covered by IEC 61347                      | See Test Table 1.7 (11.2) II | N/A     |

|                     |                                                                                      |  |     |
|---------------------|--------------------------------------------------------------------------------------|--|-----|
| <b>1.8 (7)</b>      | <b>PROVISION FOR EARTHING</b>                                                        |  |     |
| 1.8 (7.2.1 + 7.2.3) | Accessible metal parts                                                               |  | N/A |
|                     | Metal parts in contact with supporting surface                                       |  | N/A |
|                     | Resistance < 0,5 $\Omega$ .....                                                      |  | N/A |
|                     | 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 |
| 1.8 (7.2.2 + 7.2.3) | Earth continuity in joints, etc.                                                     |  | N/A |
| 1.8 (7.2.4)         | Locking of clamping means                                                            |  | N/A |
|                     | Compliance with 4.7.3                                                                |  | N/A |
|                     | Terminal blocks with integrated screwless earthing contacts tested according Annex V |  | N/A |
| 1.8 (7.2.5)         | Earth terminal integral part of connector socket                                     |  | N/A |
| 1.8 (7.2.6)         | Earth terminal adjacent to mains terminals                                           |  | N/A |
| 1.8 (7.2.7)         | Electrolytic corrosion of the earth terminal                                         |  | N/A |
| 1.8 (7.2.8)         | Material of earth terminal                                                           |  | N/A |

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|---------------|-----------------------------------------------------|-----------------|---------|
| Clause        | Requirement + Test                                  | Result - Remark | Verdict |
|               | Contact surface bare metal                          |                 | N/A     |
| 1.8 (7.2.10)  | Class II luminaire for looping-in                   |                 | N/A     |
|               | Double or reinforced insulation to functional earth |                 | N/A     |
| 1.8 (7.2.11)  | Earthing core coloured green-yellow                 |                 | N/A     |
|               | Length of earth conductor                           |                 | N/A     |

|                 |                                     |               |     |
|-----------------|-------------------------------------|---------------|-----|
| <b>1.9 (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>1.9 (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>1.10 (5)</b>   | <b>EXTERNAL AND INTERNAL WIRING</b>                                                                                                               |            |          |
| <b>1.10 (5.2)</b> | <b>Supply connection and external wiring</b>                                                                                                      |            | <b>P</b> |
| 1.10 (5.2.1)      | Means of connection .....                                                                                                                         | Input wire | 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 |            | N/A      |
| 1.10 (5.2.2)      | Type of cable .....                                                                                                                               | PVC wire   | P        |
|                   | Nominal cross-sectional area (mm <sup>2</sup> ).....                                                                                              | 18 AWG     | P        |
|                   | Cables equal to IEC 60227 or IEC 60245                                                                                                            |            | N/A      |
| 1.10 (5.2.3)      | Type of attachment, X, Y or Z                                                                                                                     |            | N/A      |
| 1.10 (5.2.5)      | Type Z not connected to screws                                                                                                                    |            | N/A      |
| 1.10 (5.2.6)      | Cable entries:                                                                                                                                    |            | N/A      |
|                   | - suitable for introduction                                                                                                                       |            | N/A      |
|                   | - adequate degree of protection                                                                                                                   |            | N/A      |
| 1.10 (5.2.7)      | Cable entries through rigid material have rounded edges                                                                                           |            | P        |
| 1.10 (5.2.8)      | Insulating bushings:                                                                                                                              |            | N/A      |
|                   | - suitably fixed                                                                                                                                  |            | N/A      |
|                   | - material in bushings                                                                                                                            |            | N/A      |
|                   | - material not likely to deteriorate                                                                                                              |            | N/A      |
|                   | - tubes or guards made of insulating material                                                                                                     |            | N/A      |

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|-----------------|----------------------------------------------------------|-----------------|---------|
| Clause          | Requirement + Test                                       | Result - Remark | Verdict |
| 1.10 (5.2.9)    | Locking of screwed bushings                              |                 | N/A     |
| 1.10 (5.2.10)   | Cord anchorage:                                          |                 | P       |
|                 | - covering protected from abrasion                       |                 | P       |
|                 | - clear how to be effective                              |                 | P       |
|                 | - no mechanical or thermal stress                        |                 | P       |
|                 | - no tying of cables into knots etc.                     |                 | P       |
|                 | - insulating material or lining                          |                 | N/A     |
| 1.10 (5.2.10.1) | Cord anchorage for type X attachment:                    |                 | N/A     |
|                 | a) at least one part fixed                               |                 | N/A     |
|                 | b) types of cable                                        |                 | N/A     |
|                 | c) no damaging of the cable                              |                 | N/A     |
|                 | d) whole cable can be mounted                            |                 | N/A     |
|                 | e) no touching of clamping screws                        |                 | N/A     |
|                 | f) metal screw not directly on cable                     |                 | N/A     |
|                 | g) replacement without special tool                      |                 | N/A     |
|                 | Glands not used as anchorage                             |                 | N/A     |
|                 | Labyrinth type anchorages                                |                 | N/A     |
| 1.10 (5.2.10.2) | Adequate cord anchorage for type Y and type Z attachment |                 | N/A     |
| 1.10 (5.2.10.3) | Tests:                                                   |                 | P       |
|                 | - impossible to push cable; unsafe                       |                 | P       |
|                 | - pull test: 25 times; pull (N) .....: 60                |                 | P       |
|                 | - torque test: torque (Nm) .....: 0,25                   |                 | P       |
|                 | - displacement $\leq 2$ mm                               |                 | P       |
|                 | - no movement of conductors                              |                 | N/A     |
|                 | - no damage of cable or cord                             |                 | N/A     |
|                 | - function independent of electrical connection          |                 | N/A     |
| 1.10 (5.2.11)   | External wiring passing into luminaire                   |                 | N/A     |
| 1.10 (5.2.12)   | Looping-in terminals                                     |                 | N/A     |
| 1.10 (5.2.13)   | Wire ends not tinned                                     |                 | P       |

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|-------------------|--------------------------------------------------------------------------------|-----------------|------------|
| Clause            | Requirement + Test                                                             | Result - Remark | Verdict    |
|                   | Wire ends tinned: no cold flow                                                 |                 | N/A        |
| 1.10<br>(5.2.14)  | Mains plug same protection                                                     |                 | N/A        |
|                   | Class III luminaire plug                                                       |                 | N/A        |
|                   | No unsafe compatibility                                                        |                 | N/A        |
| 1.10<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        |
| 1.10<br>(5.2.17)  | No standardized interconnecting cables properly assembled                      |                 | N/A        |
| 1.10<br>(5.2.18)  | Used plug in accordance with                                                   |                 | N/A        |
|                   | - IEC 60083                                                                    |                 | N/A        |
|                   | - other standard                                                               |                 | N/A        |
| <b>1.10 (5.3)</b> | <b>Internal wiring</b>                                                         |                 | <b>N/A</b> |
| 1.10 (5.3.1)      | Internal wiring of suitable size and type                                      |                 | N/A        |
|                   | Through wiring                                                                 |                 | N/A        |
|                   | - not delivered/ mounting instruction                                          |                 | N/A        |
|                   | - factory assembled                                                            |                 | N/A        |
|                   | - socket outlet loaded (A).....:                                               |                 | N/A        |
|                   | - temperatures .....: (see Annex 2)                                            |                 | N/A        |
|                   | Green-yellow for earth only                                                    |                 | N/A        |
| 1.10<br>(5.3.1.1) | Internal wiring connected directly to fixed wiring                             |                 | N/A        |
|                   | Cross-sectional area (mm <sup>2</sup> ).....:                                  |                 | N/A        |
|                   | Insulation thickness (mm) .....                                                |                 | N/A        |
|                   | Extra insulation added where necessary                                         |                 | N/A        |
| 1.10<br>(5.3.1.2) | Internal wiring connected to fixed wiring via internal current-limiting device |                 | N/A        |
|                   | Cross-sectional area (mm <sup>2</sup> ).....:                                  |                 | N/A        |
| 1.10<br>(5.3.1.3) | Double or reinforced insulation for class II                                   |                 | N/A        |
| 1.10<br>(5.3.1.4) | Conductors without insulation                                                  |                 | N/A        |

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|-------------------|----------------------------------------------------------------------------------------------------------|-----------------|------------|
| Clause            | Requirement + Test                                                                                       | Result - Remark | Verdict    |
| 1.10 (5.3.1.5)    | SELV current-carrying parts                                                                              |                 | N/A        |
| 1.10 (5.3.1.6)    | Insulation thickness other than PVC or rubber                                                            |                 | N/A        |
| 1.10 (5.3.2)      | Sharp edges etc.                                                                                         |                 | N/A        |
|                   | 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        |
| 1.10 (5.3.3)      | Insulating bushings:                                                                                     |                 | N/A        |
|                   | - suitable fixed                                                                                         |                 | N/A        |
|                   | - material in bushings                                                                                   |                 | N/A        |
|                   | - material not likely to deteriorate                                                                     |                 | N/A        |
|                   | - cables with protective sheath                                                                          |                 | N/A        |
| 1.10 (5.3.4)      | Joints and junctions effectively insulated                                                               |                 | N/A        |
| 1.10 (5.3.5)      | Strain on internal wiring                                                                                |                 | N/A        |
| 1.10 (5.3.6)      | Wire carriers                                                                                            |                 | N/A        |
| 1.10 (5.3.7)      | Wire ends not tinned                                                                                     |                 | N/A        |
|                   | Wire ends tinned: no cold flow                                                                           |                 | N/A        |
| <b>1.10 (5.4)</b> | <b>Test to determine suitability of conductors having a reduced cross-sectional area</b>                 |                 | <b>N/A</b> |
|                   | Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2 | (see Annex 2)   | N/A        |
|                   | No damage to luminaire wiring after test                                                                 |                 | N/A        |

|                 |                                                                                                                        |  |     |
|-----------------|------------------------------------------------------------------------------------------------------------------------|--|-----|
| <b>1.11 (8)</b> | <b>PROTECTION AGAINST ELECTRIC SHOCK</b>                                                                               |  |     |
| 1.11 (8.2.1)    | Live parts not accessible                                                                                              |  | N/A |
|                 | Basic insulated parts not used on the outer surface without appropriate protection                                     |  | N/A |
|                 | Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires         |  | N/A |
|                 | Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires                        |  | N/A |
|                 | Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements |  | N/A |

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|----------------|---------------------------------------------------------------------------------|-----------------|---------|
| Clause         | Requirement + Test                                                              | Result - Remark | Verdict |
|                | Basic insulation only accessible under lamp or starter replacement              |                 | N/A     |
|                | Protection in any position                                                      |                 | N/A     |
|                | Double-ended tungsten filament lamp                                             |                 | N/A     |
|                | Insulation lacquer not reliable                                                 |                 | N/A     |
|                | Double-ended high-pressure discharge lamp                                       |                 | N/A     |
|                | Relevant warning according to 3.2.18 fitted to the luminaire                    |                 | N/A     |
| 1.11 (8.2.2)   | Portable luminaire adjusted in most unfavourable position                       |                 | N/A     |
| 1.11 (8.2.3.a) | Class II luminaire:                                                             |                 | N/A     |
|                | - 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     |
| 1.11 (8.2.3.b) | BC lampholder of metal in class I luminaires shall be earthed                   |                 | N/A     |
| 1.11 (8.2.3.c) | SELV circuits with exposed current carrying parts:                              |                 | N/A     |
|                | Ordinary luminaire:                                                             |                 | N/A     |
|                | - voltage under load (V) .....                                                  |                 | N/A     |
|                | - no-load voltage (V) .....                                                     |                 | N/A     |
|                | - touch current if applicable (mA) .....                                        |                 | N/A     |
|                | One conductive part insulated if required                                       |                 | N/A     |
|                | Other than ordinary luminaire:                                                  |                 | N/A     |
|                | - nominal voltage (V) .....                                                     |                 | N/A     |
|                | Class III luminaire only for connection to SELV                                 |                 | N/A     |
|                | Class III luminaire not provided with means for protective earthing             |                 | N/A     |
| 1.11 (8.2.4)   | Portable luminaire has protection independent of supporting surface             |                 | N/A     |
| 1.11 (8.2.5)   | Compliance with the standard test finger or relevant probe                      |                 | N/A     |
| 1.11 (8.2.6)   | Covers reliably secured                                                         |                 | N/A     |

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|---------------|---------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement + Test                                                                                                        | Result - Remark | Verdict |
| 1.11 (8.2.7)  | Luminaire other than below with capacitor > 0,5 $\mu$ F not exceed 50 V 1 min after disconnection                         |                 | N/A     |
|               | Portable luminaire with capacitor > 0,1 $\mu$ F (0.25) not exceed 34 V 1 s after disconnection                            |                 | N/A     |
|               | Other luminaires with capacitor > 0,1 $\mu$ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection |                 | N/A     |

|                    |                                                                                                     |                                |            |
|--------------------|-----------------------------------------------------------------------------------------------------|--------------------------------|------------|
| <b>1.12 (12)</b>   | <b>ENDURANCE TEST AND THERMAL TEST</b>                                                              |                                |            |
| 1.12 (-)           | If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 1.13 |                                | —          |
| <b>1.12 (12.2)</b> | <b>Selection of lamps and ballasts</b>                                                              |                                | —          |
|                    | Lamp used according Annex B                                                                         | (Lamp used see Annex 2)        | —          |
|                    | Controlgear if separate and not supplied                                                            | (Controlgear used see Annex 2) | —          |
| <b>1.12 (12.3)</b> | <b>Endurance test</b>                                                                               |                                | <b>P</b>   |
|                    | a) mounting-position .....                                                                          | As normal use                  | —          |
|                    | b) test temperature (°C).....                                                                       | 70                             | —          |
|                    | c) total duration (h) .....                                                                         | 240                            | —          |
|                    | d) supply voltage (V).....                                                                          | —                              | —          |
|                    | d) if not equipped with controlgear, constant voltage/current (V) or (A) .....                      | 1,1 x 12 V dc = 13,1 V dc      | —          |
|                    | e) luminaire ceases to operate                                                                      |                                | —          |
| 1.12 (12.3.2)      | After endurance test:                                                                               |                                | <b>P</b>   |
|                    | - no part unserviceable                                                                             |                                | <b>P</b>   |
|                    | - luminaire not unsafe                                                                              |                                | <b>P</b>   |
|                    | - no damage to track system                                                                         |                                | N/A        |
|                    | - marking legible                                                                                   |                                | <b>P</b>   |
|                    | - no cracks, deformation etc.                                                                       |                                | <b>P</b>   |
| <b>1.12 (12.4)</b> | <b>Thermal test (normal operation)</b>                                                              | (see Annex 2)                  | <b>P</b>   |
| <b>1.12 (12.5)</b> | <b>Thermal test (abnormal operation)</b>                                                            | (see Annex 2)                  | N/A        |
| <b>1.12 (12.6)</b> | <b>Thermal test (failed lamp control gear condition):</b>                                           |                                | <b>N/A</b> |
| 1.12 (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 .....                                                |                                | —          |

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|--------------------|----------------------------------------------------------------------------|------------------------------|------------|
| Clause             | Requirement + Test                                                         | Result - Remark              | Verdict    |
|                    | - measured mounting surface temperature (°C) at 1,1 Un .....               |                              | N/A        |
|                    | - calculated mounting surface temperature (°C) .....                       |                              | N/A        |
|                    | - track-mounted luminaires                                                 |                              | N/A        |
| 1.12<br>(12.6.2)   | Temperature sensing control                                                |                              | N/A        |
|                    | - case of abnormal conditions.....                                         |                              | —          |
|                    | - 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        |
| <b>1.12 (12.7)</b> | <b>Thermal test (failed lamp control gear in plastic luminaires):</b>      |                              | <b>N/A</b> |
| 1.12<br>(12.7.1)   | Luminaire without temperature sensing control                              |                              | N/A        |
| 1.12<br>(12.7.1.1) | Luminaire with fluorescent lamp ≤ 70W                                      |                              | N/A        |
|                    | Test method 12.7.1.1 or Annex W .....                                      |                              | —          |
|                    | Test according to 12.7.1.1:                                                |                              | N/A        |
|                    | - 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:                                                 |                              | N/A        |
|                    | - 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 .....                                                   | See Test Table 1.15 (13.2.1) | N/A        |
| 1.12<br>(12.7.1.2) | Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA |                              | N/A        |
|                    | - case of abnormal conditions.....                                         |                              | —          |
|                    | - measured winding temperature (°C): at 1,1 Un.....                        |                              | —          |

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|--------------------|-----------------------------------------------------------------------------|----------------------------------------------------------|---------|
| Clause             | Requirement + Test                                                          | Result - Remark                                          | Verdict |
|                    | - measured temperature of fixing point/exposed part (°C): at 1,1 Un.....:   |                                                          | —       |
|                    | - calculated temperature of fixing point/exposed part (°C) .....            |                                                          | —       |
|                    | Ball-pressure test.....:                                                    | See Test Table 1.15 (13.2.1)                             | N/A     |
| 1.12<br>(12.7.1.3) | Luminaire with short circuit proof transformers<br>≤ 10 VA                  |                                                          | N/A     |
|                    | - case of abnormal conditions.....:                                         |                                                          | —       |
|                    | - Components retained in place after the test                               |                                                          | N/A     |
|                    | - Test with standard test finger after the test                             |                                                          | N/A     |
| 1.12<br>(12.7.2)   | Luminaire with temperature sensing control                                  |                                                          | N/A     |
|                    | - thermal link .....                                                        | Yes <input type="checkbox"/> No <input type="checkbox"/> | —       |
|                    | - manual reset cut-out.....:                                                | Yes <input type="checkbox"/> No <input type="checkbox"/> | —       |
|                    | - auto reset cut-out .....                                                  | Yes <input type="checkbox"/> No <input type="checkbox"/> | —       |
|                    | - case of abnormal conditions.....:                                         |                                                          | —       |
|                    | - highest measured temperature of fixing point/<br>exposed part (°C): ..... |                                                          | —       |
|                    | Ball-pressure test:.....:                                                   | See Test Table 1.15 (13.2.1)                             | N/A     |

|                 |                                                                                                   |                              |     |
|-----------------|---------------------------------------------------------------------------------------------------|------------------------------|-----|
| <b>1.13 (9)</b> | <b>RESISTANCE TO DUST AND MOISTURE</b>                                                            |                              |     |
| 1.13 (-)        | If IP > IP 20 the order of tests as specified in clause 1.12                                      |                              | P   |
| 1.13 (9.2)      | Tests for ingress of dust, solid objects and moisture:                                            |                              | P   |
|                 | - classification according to IP .....                                                            | IP65                         | —   |
|                 | - mounting position during test .....                                                             | As normal use                | —   |
|                 | - fixing screws tightened; torque (Nm).....:                                                      | —                            | —   |
|                 | - tests according to clauses .....                                                                | 9.2.2 & 9.2.6 of IEC 60598-1 | —   |
|                 | - 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 |                              | P   |
|                 | c.1) For luminaires without drain holes – no water<br>entry                                       |                              | P   |
|                 | c.2) For luminaires with drain holes – no hazardous<br>water entry                                |                              | N/A |

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|---------------|-----------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement + Test                                                                      | Result - Remark | Verdict |
|               | d) no water in watertight or pressure watertight luminaire                              |                 | N/A     |
|               | e) no contact with live parts (IP 2X)                                                   |                 | N/A     |
|               | e) no entry into enclosure (IP 3X and IP 4X)                                            |                 | N/A     |
|               | e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X) |                 | N/A     |
|               | f) no trace of water on part of lamp requiring protection from splashing water          |                 | N/A     |
|               | g) no damage of protective shield or glass envelope                                     |                 | N/A     |
| 1.13 (9.3)    | Humidity test 48 h                                                                      | 25 °C; 93% Rh   | P       |

|                  |                                                                                                                                  |                       |     |
|------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----|
| <b>1.14 (10)</b> | <b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>                                                                               |                       |     |
| 1.14 (10.2.1)    | Insulation resistance test                                                                                                       |                       | P   |
|                  | Cable or cord covered by metal foil or replaced by a metal rod of mm Ø .....                                                     | Covered by metal foil | —   |
|                  | Insulation resistance (MΩ).....                                                                                                  | As below              | —   |
|                  | SELV                                                                                                                             |                       | P   |
|                  | - between current-carrying parts of different polarity :                                                                         | 20 MΩ                 | P   |
|                  | - between current-carrying parts and mounting surface .....                                                                      | 20 MΩ                 | P   |
|                  | - between current-carrying parts and metal parts of the luminaire .....                                                          |                       | N/A |
|                  | - between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... |                       | N/A |
|                  | - Insulation bushings as described in Section 5 .....                                                                            |                       | N/A |
|                  | Other than SELV                                                                                                                  |                       | N/A |
|                  | - between live parts of different polarity .....                                                                                 |                       | N/A |
|                  | - between live parts and mounting surface .....                                                                                  |                       | N/A |
|                  | - between live parts and metal parts.....                                                                                        |                       | N/A |
|                  | - between live parts of different polarity through action of a switch .....                                                      |                       | N/A |
|                  | - between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... |                       | N/A |
|                  | - Insulation bushings as described in Section 5 .....                                                                            |                       | N/A |

| IEC 60598-2-1 |                                                                                                                                  |                 |         |
|---------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement + Test                                                                                                               | Result - Remark | Verdict |
| 1.14 (10.2.2) | Electric strength test                                                                                                           |                 | N/A     |
|               | Dummy lamp                                                                                                                       |                 | N/A     |
|               | Luminaires with ignitors after 24 h test                                                                                         |                 | N/A     |
|               | Luminaires with manual ignitors                                                                                                  |                 | N/A     |
|               | Test voltage (V) .....                                                                                                           | As below        | P       |
|               | SELV                                                                                                                             |                 | P       |
|               | - between current-carrying parts of different polarity :                                                                         | 500 V           | P       |
|               | - between current-carrying parts and mounting surface .....                                                                      | 500 V           | P       |
|               | - between current-carrying parts and metal parts of the luminaire .....                                                          |                 | N/A     |
|               | - between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... |                 | N/A     |
|               | - Insulation bushings as described in Section 5 .....                                                                            |                 | N/A     |
|               | Other than SELV                                                                                                                  |                 | N/A     |
|               | - between live parts of different polarity .....                                                                                 |                 | N/A     |
|               | - between live parts and mounting surface .....                                                                                  |                 | N/A     |
|               | - between live parts and metal parts .....                                                                                       |                 | N/A     |
|               | - between live parts of different polarity through action of a switch .....                                                      |                 | N/A     |
|               | - between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... |                 | N/A     |
|               | - Insulation bushings as described in Section 5 .....                                                                            |                 | N/A     |
| 1.14 (10.3)   | Touch current or protective conductor current (mA):                                                                              |                 | N/A     |

|                  |                                              |                              |     |
|------------------|----------------------------------------------|------------------------------|-----|
| <b>1.15 (13)</b> | <b>RESISTANCE TO HEAT, FIRE AND TRACKING</b> |                              |     |
| 1.15 (13.2.1)    | Ball-pressure test .....                     | See Test Table 1.15 (13.2.1) | N/A |
| 1.15 (13.3.1)    | Needle-flame test (10 s) .....               | See Test Table 1.15 (13.3.1) | N/A |
| 1.15 (13.3.2)    | Glow-wire test (650°C) .....                 | See Test Table 1.15 (13.3.2) | P   |
| 1.15 (13.4)      | Proof tracking test (IEC 60112) .....        | See Test Table 1.15 (13.4)   | P   |

| IEC 60598-2-1 |                    |                 |         |
|---------------|--------------------|-----------------|---------|
| Clause        | Requirement + Test | Result - Remark | Verdict |

|                                                 |                                                                  |                    |           |        |                                                               |          |        |     |
|-------------------------------------------------|------------------------------------------------------------------|--------------------|-----------|--------|---------------------------------------------------------------|----------|--------|-----|
| 1.7 (11.2)                                      | TABLE I: Creepage distances and clearances                       |                    |           |        |                                                               |          |        | N/A |
|                                                 | Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages |                    |           |        |                                                               |          |        |     |
|                                                 | Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*  |                    |           |        |                                                               |          |        |     |
|                                                 | Insulation type **                                               | Measured clearance | Required  |        | Measured creepage                                             | Required |        |     |
|                                                 |                                                                  |                    | clearance | *Table |                                                               | creepage | *Table |     |
| Distance 1:                                     |                                                                  |                    |           |        |                                                               |          |        |     |
| Working voltage (V).....:                       |                                                                  |                    |           |        |                                                               |          | —      |     |
| PTI.....:                                       |                                                                  |                    |           |        | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/> |          | —      |     |
| Pulse voltage or $U_p$ if applicable (kV) ..... |                                                                  |                    |           |        |                                                               |          | —      |     |
| Supplementary information:                      |                                                                  |                    |           |        |                                                               |          |        |     |
| Distance 2:                                     |                                                                  |                    |           |        |                                                               |          |        |     |
| Working voltage (V).....:                       |                                                                  |                    |           |        |                                                               |          | —      |     |
| PTI.....:                                       |                                                                  |                    |           |        | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/> |          | —      |     |
| Pulse voltage or $U_p$ if applicable (kV) ..... |                                                                  |                    |           |        |                                                               |          | —      |     |
| Supplementary information:                      |                                                                  |                    |           |        |                                                               |          |        |     |
| Distance 3:                                     |                                                                  |                    |           |        |                                                               |          |        |     |
| Working voltage (V).....:                       |                                                                  |                    |           |        |                                                               |          | —      |     |
| PTI.....:                                       |                                                                  |                    |           |        | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/> |          | —      |     |
| Pulse voltage or $U_p$ if applicable (kV) ..... |                                                                  |                    |           |        |                                                               |          | —      |     |
| Supplementary information:                      |                                                                  |                    |           |        |                                                               |          |        |     |

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

| <b>1.7 (11.2)</b>                                                          | <b>TABLE II: Creepage distances and clearances</b>                                |                    |           |        |                                                               |          | <b>N/A</b> |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------|-----------|--------|---------------------------------------------------------------|----------|------------|
|                                                                            | <b>Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages</b>     |                    |           |        |                                                               |          |            |
|                                                                            | <b>Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2</b> |                    |           |        |                                                               |          |            |
| Distances                                                                  | Insulation type **                                                                | Measured clearance | Required  |        | Measured creepage                                             | Required |            |
|                                                                            |                                                                                   |                    | clearance | *Table |                                                               | creepage | *Table     |
| Distance 1:                                                                |                                                                                   |                    |           |        |                                                               |          |            |
| Working voltage (V).....:                                                  |                                                                                   |                    |           |        |                                                               |          | —          |
| Frequency if applicable (kHz).....:                                        |                                                                                   |                    |           |        |                                                               |          | —          |
| PTI.....:                                                                  |                                                                                   |                    |           |        | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/> |          | —          |
| Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... |                                                                                   |                    |           |        |                                                               |          | —          |

| IEC 60598-2-1                                                              |                    |  |  |  |                                                               |  |         |
|----------------------------------------------------------------------------|--------------------|--|--|--|---------------------------------------------------------------|--|---------|
| Clause                                                                     | Requirement + Test |  |  |  | Result - Remark                                               |  | Verdict |
| Supplementary information:                                                 |                    |  |  |  |                                                               |  |         |
| Distance 2:                                                                |                    |  |  |  |                                                               |  |         |
| Working voltage (V).....:                                                  |                    |  |  |  |                                                               |  | —       |
| Frequency if applicable (kHz).....:                                        |                    |  |  |  |                                                               |  | —       |
| PTI.....:                                                                  |                    |  |  |  | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/> |  | —       |
| Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... |                    |  |  |  |                                                               |  | —       |
| Supplementary information:                                                 |                    |  |  |  |                                                               |  |         |
| Distance 3:                                                                |                    |  |  |  |                                                               |  |         |
| Working voltage (V).....:                                                  |                    |  |  |  |                                                               |  | —       |
| Frequency if applicable (kHz).....:                                        |                    |  |  |  |                                                               |  | —       |
| PTI.....:                                                                  |                    |  |  |  | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/> |  | —       |
| Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) ..... |                    |  |  |  |                                                               |  | —       |
| Supplementary information:                                                 |                    |  |  |  |                                                               |  |         |

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

|                                        |                                             |                       |                          |     |
|----------------------------------------|---------------------------------------------|-----------------------|--------------------------|-----|
| 1.15<br>(13.2.1)                       | TABLE: Ball Pressure Test of Thermoplastics |                       |                          | N/A |
| Allowed impression diameter (mm) ..... |                                             | 2                     |                          | —   |
| Object/ Part No./ Material             | Manufacturer/<br>trademark                  | Test temperature (°C) | Impression diameter (mm) |     |
| —                                      | —                                           | —                     | —                        |     |
| —                                      | —                                           | —                     | —                        |     |
| —                                      | —                                           | —                     | —                        |     |
| Supplementary information: —           |                                             |                       |                          |     |

|                               |                                           |                                                       |                                          |                                    |         |     |
|-------------------------------|-------------------------------------------|-------------------------------------------------------|------------------------------------------|------------------------------------|---------|-----|
| 1.15<br>(13.3.1)              | TABLE: Needle-flame test (IEC 60695-11-5) |                                                       |                                          |                                    |         | N/A |
| Object/ Part No./<br>Material | Manufacturer/<br>trademark                | Duration of<br>application of test<br>flame (ta); (s) | Ignition of<br>specified layer<br>Yes/No | Duration of<br>burning (tb)<br>(s) | Verdict |     |
| —                             | —                                         | —                                                     | —                                        | —                                  | —       |     |
| —                             | —                                         | —                                                     | —                                        | —                                  | —       |     |
| —                             | —                                         | —                                                     | —                                        | —                                  | —       |     |
| Supplementary information: —  |                                           |                                                       |                                          |                                    |         |     |

| IEC 60598-2-1 |                    |                 |         |
|---------------|--------------------|-----------------|---------|
| Clause        | Requirement + Test | Result - Remark | Verdict |

| <b>1.15 (13.3.2)</b>               | <b>TABLE: Glow-wire test (IEC 60695-2-11)</b>                  |                                    |                              | <b>P</b> |
|------------------------------------|----------------------------------------------------------------|------------------------------------|------------------------------|----------|
| <b>Glow wire temperature .....</b> |                                                                | 650°C                              | —                            |          |
| Object/ Part No./ Material         | Manufacturer/ trademark                                        | Ignition of specified layer Yes/No | Duration of burning (tb) (s) | Verdict  |
| Plastic enclosure                  | Sabic Innovative Plastics US L L C                             | No                                 | 0                            | P        |
| LED lens                           | Dongguan City Love Day Yi Di Photoelectric Technology Co. Ltd. | No                                 | 0                            | P        |
| —                                  | —                                                              | —                                  | —                            | —        |
| Supplementary information: —       |                                                                |                                    |                              |          |

|                              |                                        |                                                                          |      |      |         |
|------------------------------|----------------------------------------|--------------------------------------------------------------------------|------|------|---------|
| 1.15 (13.4)                  | TABLE: Proof tracking test (IEC 60112) |                                                                          |      |      | P       |
| Test voltage PTI .....:      |                                        | 175 V                                                                    |      |      | —       |
| Object/ Part No./ Material   | Manufacturer/ trademark                | Withstand 50 drops without failure on three places or on three specimens |      |      | Verdict |
| Plastic enclosure            | Sabic Innovative Plastics US L L C     | pass                                                                     | pass | pass | P       |
| —                            | —                                      | —                                                                        | —    | —    |         |
| —                            | —                                      | —                                                                        | —    | —    |         |
| Supplementary information: — |                                        |                                                                          |      |      |         |

| IEC 60598-2-1 |                    |                 |         |
|---------------|--------------------|-----------------|---------|
| Clause        | Requirement + Test | Result - Remark | Verdict |

| ANNEX 1                                                                                                                      | TABLE: Critical components information |                                                                |              |                                                                                               |                                    |                                     | P |
|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------|---|
| Object / part No.                                                                                                            | Code                                   | Manufacturer/ trademark                                        | Type / model | Technical data                                                                                | Standard                           | Mark(s) of conformity <sup>1)</sup> |   |
| LED for Z18, PSX-X, BV-AL-3030-24, PQX-X, K2S-X, BPS2-X, YZX, BPS300, BPSX-X, QYDX-X, XYDX-X, YDX-X, BP2-W, RGBW-YDX, FYDX-X | B                                      | Shenzhen Runlite Technology Co., Ltd.                          | 3030         | V <sub>F</sub> : 1,8 V-12 V;<br>I <sub>F</sub> : 100-500 mA;<br>T <sub>c</sub> : 2700-10000 K | IEC/EN IEC 62031                   | Tested with appliance               |   |
|                                                                                                                              | D                                      | Shenzhen HSG Electronics Co., Ltd.                             | 3030         | V <sub>F</sub> : 1,8 V-12 V;<br>I <sub>F</sub> : 100-500 mA;<br>T <sub>c</sub> :2700-10000 K  | IEC/EN IEC 62031                   | Tested with appliance               |   |
|                                                                                                                              | D                                      | Jiangxi Elite Semiconductors Technology Co, Ltd.               | 3030         | V <sub>F</sub> : 1,8 V-12 V;<br>I <sub>F</sub> : 100-500 mA;<br>T <sub>c</sub> : 2700-10000 K | IEC/EN IEC 62031                   | Tested with appliance               |   |
| LED for other models                                                                                                         | B                                      | Shenzhen Runlite Technology Co., Ltd.                          | 2835         | V <sub>F</sub> : 1,8 V-12 V;<br>I <sub>F</sub> : 100-500 mA;<br>T <sub>c</sub> : 2700-10000 K | IEC/EN IEC 62031                   | Tested with appliance               |   |
|                                                                                                                              | D                                      | Shenzhen HSG Electronics Co., Ltd.                             | 2835         | V <sub>F</sub> : 1,8 V-12 V;<br>I <sub>F</sub> : 100-500 mA;<br>T <sub>c</sub> :2700-10000 K  | IEC/EN IEC 62031                   | Tested with appliance               |   |
|                                                                                                                              | D                                      | Jiangxi Elite Semiconductors Technology Co, Ltd.               | 2835         | V <sub>F</sub> : 1,8 V-12 V;<br>I <sub>F</sub> : 100-500 mA;<br>T <sub>c</sub> : 2700-10000 K | IEC/EN IEC 62031                   | Tested with appliance               |   |
| Input cord & Inter-connecting wire                                                                                           | B                                      | Shenzhen Jieshuo Wire & Cable Co., Ltd.                        | 1007         | 18 AWG                                                                                        | IEC/EN 60598-2-1<br>IEC/EN 60598-1 | UL E491472 & tested with appliance  |   |
| Plastic enclosure                                                                                                            | B                                      | SABIC Innovative Plastics US L L C                             | 945(GG)      | PC; V-0;<br>Porcelain White                                                                   | IEC/EN 60598-2-1<br>IEC/EN 60598-1 | UL E121562 & Tested with appliance  |   |
| Lens                                                                                                                         | B                                      | Dongguan City Love Day Yi Di Photoelectric Technology Co. Ltd. | PMMA         | --                                                                                            | IEC/EN 60598-2-1<br>IEC/EN 60598-1 | Tested with appliance               |   |

| IEC 60598-2-1 |                    |                 |         |
|---------------|--------------------|-----------------|---------|
| Clause        | Requirement + Test | Result - Remark | Verdict |

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

| IEC 60598-2-1 |                    |                 |         |
|---------------|--------------------|-----------------|---------|
| Clause        | Requirement + Test | Result - Remark | Verdict |

| ANNEX 2                       | TABLE: Thermal tests of Section 12                                                                            |                      |        |        |       |                     |       |
|-------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------|--------|--------|-------|---------------------|-------|
|                               | Type reference.....:                                                                                          | M8-C                 | —      |        |       |                     |       |
|                               | Lamp used .....                                                                                               | Non-replaceable LEDs | —      |        |       |                     |       |
|                               | Lamp control gear used .....                                                                                  | —                    | —      |        |       |                     |       |
|                               | Mounting position of luminaire .....                                                                          | As normal use        | —      |        |       |                     |       |
|                               | Supply wattage (W) .....                                                                                      | 74,17                | —      |        |       |                     |       |
|                               | Supply current (A).....:                                                                                      | 5,619                | —      |        |       |                     |       |
|                               | Temperatures in test 1 - 4 below are corrected for<br>ta (°C) .....                                           | 60                   | —      |        |       |                     |       |
|                               | - abnormal operating mode.....:                                                                               | —                    | —      |        |       |                     |       |
| 1.12 (12.4)                   | - test 1: rated voltage .....                                                                                 | —                    | —      |        |       |                     |       |
|                               | - test 2: 1,06 times rated voltage or 1,05 times rated<br>wattage or 1,1 times constant voltage/current ..... | 1,1 x 12 V = 13,2 V  | —      |        |       |                     |       |
|                               | - test 3: Load on wiring to socket-outlet, 1,06 times<br>voltage or 1,05 times wattage.....:                  | —                    | —      |        |       |                     |       |
|                               | Through wiring or looping-in wiring loaded by a<br>current of A during the test .....                         | 6,7 A                | —      |        |       |                     |       |
| 1.12 (12.5)                   | - test 4: 1,1 times rated voltage or 1,05 times rated<br>wattage or 1,1 times constant voltage/current.....:  | —                    | —      |        |       |                     |       |
| Temperature measurements (°C) |                                                                                                               |                      |        |        |       |                     |       |
| Part                          | Ambient                                                                                                       | Cl. 12.4 – normal    |        |        |       | Cl. 12.5 – abnormal |       |
|                               |                                                                                                               | test 1               | test 2 | test 3 | limit | test 4              | limit |
| Input wire                    | 60,0                                                                                                          | —                    | 72,0   | —      | 90    | —                   | —     |
| Input wire by clamped         | 60,0                                                                                                          | —                    | 71,9   | —      | 75    | —                   | —     |
| Inter-connecting wire         | 60,0                                                                                                          | —                    | 81,6   | —      | 90    | —                   | —     |
| LED                           | 60,0                                                                                                          | —                    | 87,9   | —      | Ref.  | —                   | —     |
| Plastic enclosure             | 60,0                                                                                                          | —                    | 77,5   | —      | Ref.  | —                   | —     |
| LED lens                      | 60,0                                                                                                          | —                    | 82,9   | —      | Ref.  | —                   | —     |
| Mounting surface              | 60,0                                                                                                          | —                    | 77,2   | —      | 90    | —                   | —     |
| Object lighted (0,1 m)        | 60,0                                                                                                          | —                    | 62,0   | —      | 90    | —                   | —     |
| Supplementary information: —  |                                                                                                               |                      |        |        |       |                     |       |

| IEC 60598-2-1 |                    |                 |         |
|---------------|--------------------|-----------------|---------|
| Clause        | Requirement + Test | Result - Remark | Verdict |

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

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

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

| IEC 60598-2-1                          |                                                                                   |   |   |   |   |   |                 |   |   |    |         |
|----------------------------------------|-----------------------------------------------------------------------------------|---|---|---|---|---|-----------------|---|---|----|---------|
| Clause                                 | Requirement + Test                                                                |   |   |   |   |   | Result - Remark |   |   |    | Verdict |
|                                        | Terminal size and rating                                                          |   |   |   |   |   |                 |   |   |    | N/A     |
| 15.6.2                                 | Mechanical tests                                                                  |   |   |   |   |   |                 |   |   |    | P       |
| (15.6.2.1)                             | Pull test spring-type terminals or welded connections (4 samples); pull (N) ..... |   |   |   |   |   |                 |   |   |    | N/A     |
| (15.6.2.2)                             | Pull test pin or tab terminals (4 samples); pull (N) .....                        |   |   |   |   |   |                 |   |   |    | N/A     |
| (15.6.3)                               | Electrical tests                                                                  |   |   |   |   |   |                 |   |   |    | N/A     |
|                                        | Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1                                |   |   |   |   |   |                 |   |   |    | N/A     |
| <b>(15.6.3.1)</b><br><b>(15.6.3.2)</b> | <b>TABLE: Contact resistance test / Heating tests</b>                             |   |   |   |   |   |                 |   |   |    | N/A     |
|                                        | Voltage drop (mV) after 1 h                                                       |   |   |   |   |   |                 |   |   |    | —       |
| terminal                               | 1                                                                                 | 2 | 3 | 4 | 5 | 6 | 7               | 8 | 9 | 10 |         |
| voltage drop (mV)                      |                                                                                   |   |   |   |   |   |                 |   |   |    |         |
|                                        | Voltage drop of two inseparable joints                                            |   |   |   |   |   |                 |   |   |    |         |
|                                        | Voltage drop after 10th alt. 25th cycle                                           |   |   |   |   |   |                 |   |   |    |         |
|                                        | Max. allowed voltage drop (mV) .....                                              |   |   |   |   |   |                 |   |   |    | —       |
| terminal                               | 1                                                                                 | 2 | 3 | 4 | 5 | 6 | 7               | 8 | 9 | 10 |         |
| voltage drop (mV)                      |                                                                                   |   |   |   |   |   |                 |   |   |    |         |
|                                        | Voltage drop after 50th alt. 100th cycle                                          |   |   |   |   |   |                 |   |   |    |         |
|                                        | Max. allowed voltage drop (mV) .....                                              |   |   |   |   |   |                 |   |   |    | —       |
| terminal                               | 1                                                                                 | 2 | 3 | 4 | 5 | 6 | 7               | 8 | 9 | 10 |         |
| voltage drop (mV)                      |                                                                                   |   |   |   |   |   |                 |   |   |    |         |
|                                        | Continued ageing: voltage drop after 10th alt. 25th cycle                         |   |   |   |   |   |                 |   |   |    |         |
|                                        | Max. allowed voltage drop (mV) .....                                              |   |   |   |   |   |                 |   |   |    | —       |
| terminal                               | 1                                                                                 | 2 | 3 | 4 | 5 | 6 | 7               | 8 | 9 | 10 |         |
| voltage drop (mV)                      |                                                                                   |   |   |   |   |   |                 |   |   |    |         |
|                                        | Continued ageing: voltage drop after 50th alt. 100th cycle                        |   |   |   |   |   |                 |   |   |    |         |
|                                        | Max. allowed voltage drop (mV) .....                                              |   |   |   |   |   |                 |   |   |    | —       |
| terminal                               | 1                                                                                 | 2 | 3 | 4 | 5 | 6 | 7               | 8 | 9 | 10 |         |
| voltage drop (mV)                      |                                                                                   |   |   |   |   |   |                 |   |   |    |         |
|                                        |                                                                                   |   |   |   |   |   |                 |   |   |    |         |
| Supplementary information:             |                                                                                   |   |   |   |   |   |                 |   |   |    |         |

- - - End of Main Report - - -

| Attachment 1: Additional test of EN IEC 62031 |                                                                                                                                         |                                                                     |            |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------------|
| Clause                                        | Requirement + Test                                                                                                                      | Result - Remark                                                     | Verdict    |
| <b>4</b>                                      | <b>GENERAL REQUIREMENTS</b>                                                                                                             |                                                                     |            |
| 4.2                                           | Classification                                                                                                                          |                                                                     |            |
|                                               | Built-in module .....                                                                                                                   | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | —          |
|                                               | Independent module .....                                                                                                                | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | —          |
|                                               | Integral module .....                                                                                                                   | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | —          |
| 4.6                                           | Independent modules comply with requirements in IEC 60598-1:2014/AMD1:2017                                                              |                                                                     | N/A        |
| 4.8                                           | Modules with integrated controlgear providing SELV comply with requirements according to IEC 61347-1:2015/AMD1:2017 clause L.5 to L.11. | (see Annex 1)                                                       | N/A        |
| <b>6</b>                                      | <b>MARKING</b>                                                                                                                          |                                                                     | <b>N/A</b> |
| <b>7</b>                                      | <b>TERMINALS</b>                                                                                                                        |                                                                     | <b>N/A</b> |
| <b>8 (9)</b>                                  | <b>EARTHING</b>                                                                                                                         |                                                                     | <b>N/A</b> |
| <b>9 (10)</b>                                 | <b>PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS</b>                                                                            |                                                                     | <b>N/A</b> |
| <b>10 (11)</b>                                | <b>MOISTURE RESISTANCE AND INSULATION</b>                                                                                               |                                                                     |            |
|                                               | After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ):                    |                                                                     | P          |
|                                               | For basic insulation $\geq 2 \text{ M}\Omega$ .....                                                                                     | 20 MΩ                                                               | P          |
|                                               | For double or reinforced insulation $\geq 4 \text{ M}\Omega$ .....                                                                      |                                                                     | N/A        |
|                                               | Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1                                  |                                                                     | N/A        |
| <b>11 (12)</b>                                | <b>ELECTRIC STRENGTH</b>                                                                                                                |                                                                     |            |
|                                               | Immediately after clause 11 electric strength test for 1 min                                                                            |                                                                     | P          |
|                                               | Basic insulation for SELV, test voltage 500 V                                                                                           |                                                                     | P          |
|                                               | Working voltage $\leq 50 \text{ V}$ , test voltage 500 V                                                                                |                                                                     | P          |
|                                               | Working voltage $> 50 \text{ V} \leq 1000 \text{ V}$ , test voltage (V):                                                                |                                                                     | N/A        |
|                                               | Basic insulation, $2U + 1000 \text{ V}$                                                                                                 |                                                                     | N/A        |
|                                               | Supplementary insulation, $2U + 1000 \text{ V}$                                                                                         |                                                                     | N/A        |
|                                               | Double or reinforced insulation, $4U + 2000 \text{ V}$                                                                                  |                                                                     | N/A        |
|                                               | No flashover or breakdown                                                                                                               |                                                                     | P          |

| Attachment 1: Additional test of EN IEC 62031 |                                                                                                                                                         |                 |          |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|
| Clause                                        | Requirement + Test                                                                                                                                      | Result - Remark | Verdict  |
|                                               | Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1                                    |                 | N/A      |
| <b>12 (14)</b>                                | <b>FAULT CONDITIONS</b>                                                                                                                                 |                 |          |
| - (14.1)                                      | When operated under fault conditions the controlgear:                                                                                                   |                 | P        |
|                                               | - does not emit flames or molten material                                                                                                               |                 | P        |
|                                               | - does not produce flammable gases                                                                                                                      |                 | P        |
|                                               | - protection against accidental contact not impaired                                                                                                    |                 | P        |
|                                               | Thermally protected controlgear does not exceed the marked temperature value                                                                            |                 | N/A      |
|                                               | Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected |                 | N/A      |
| - (14.2)                                      | Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)                   |                 | N/A      |
| - (14.3)                                      | Short-circuit or interruption of semiconductor devices                                                                                                  |                 | P        |
| - (14.4)                                      | Short-circuit across insulation consisting of lacquer, enamel or textile                                                                                |                 | N/A      |
| - (14.5)                                      | Short-circuit across electrolytic capacitors                                                                                                            |                 | N/A      |
|                                               | Short-circuit or interruption of SPDs                                                                                                                   |                 | N/A      |
| - (14.6)                                      | After the tests has been carried out on three samples:                                                                                                  |                 | P        |
|                                               | The insulation resistance $\geq 1 \text{ M}\Omega$ .....                                                                                                | 20 M $\Omega$   | P        |
|                                               | No flammable gases                                                                                                                                      |                 | P        |
|                                               | No accessible parts have become live                                                                                                                    |                 | P        |
|                                               | During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite                                                        |                 | P        |
| - (14.7)                                      | Relevant fault condition tests with high-power a.c. supply and in turn to a d.c. supply                                                                 |                 | —        |
| <b>12.2</b>                                   | <b>Overpower condition</b>                                                                                                                              |                 | <b>P</b> |
|                                               | Module withstands overpower condition >15 min.                                                                                                          |                 | P        |
|                                               | Module with automatic protective device or power limiter, test performed 15 min. at limit.                                                              |                 | N/A      |
|                                               | No fire, smoke or flammable gas is produced                                                                                                             |                 | P        |
|                                               | Molten material does not ignite tissue paper, spread below the module                                                                                   |                 | P        |

| Attachment 1: Additional test of EN IEC 62031 |                                                                                                                                         |                 |            |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------|
| Clause                                        | Requirement + Test                                                                                                                      | Result - Remark | Verdict    |
| <b>14 (15)</b>                                | <b>CONSTRUCTION</b>                                                                                                                     |                 |            |
| <b>- (15.1)</b>                               | <b>Wood, cotton, silk, paper and similar fibrous material</b>                                                                           |                 | <b>P</b>   |
|                                               | Wood, cotton, silk, paper and similar fibrous material not used as insulation                                                           |                 | P          |
| <b>- (15.2)</b>                               | <b>Printed circuits</b>                                                                                                                 |                 | <b>P</b>   |
|                                               | Printed circuits used as internal connections complies with clause 14                                                                   |                 | P          |
| <b>15 (16)</b>                                | <b>CREEPAGE DISTANCES AND CLEARANCES</b>                                                                                                |                 | <b>N/A</b> |
| <b>16 (17)</b>                                | <b>SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS</b>                                                                                   |                 |            |
|                                               | Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1) |                 | —          |
| <b>(4.11)</b>                                 | <b>Electrical connections</b>                                                                                                           |                 | <b>P</b>   |
| (4.11.1)                                      | Contact pressure                                                                                                                        |                 | P          |
| (4.11.2)                                      | Screws:                                                                                                                                 |                 | N/A        |
|                                               | - self-tapping screws                                                                                                                   |                 | N/A        |
|                                               | - thread-cutting screws                                                                                                                 |                 | N/A        |
| (4.11.3)                                      | Screw locking:                                                                                                                          |                 | N/A        |
|                                               | - spring washer                                                                                                                         |                 | N/A        |
|                                               | - rivets                                                                                                                                |                 | N/A        |
| (4.11.4)                                      | Material of current-carrying parts                                                                                                      |                 | P          |
| (4.11.5)                                      | No contact to wood or mounting surface                                                                                                  |                 | P          |
| (4.11.6)                                      | Electro-mechanical contact systems                                                                                                      |                 | N/A        |
| <b>(4.12)</b>                                 | <b>Mechanical connections and glands</b>                                                                                                |                 | <b>N/A</b> |
| (4.12.1)                                      | Screws not made of soft metal                                                                                                           |                 | N/A        |
|                                               | Screws of insulating material                                                                                                           |                 | N/A        |
|                                               | Torque test: torque (Nm); part.....:                                                                                                    |                 | N/A        |
|                                               | Torque test: torque (Nm); part.....:                                                                                                    |                 | N/A        |
|                                               | Torque test: torque (Nm); part.....:                                                                                                    |                 | N/A        |
| (4.12.2)                                      | Screws with diameter < 3 mm screwed into metal                                                                                          |                 | N/A        |
| (4.12.4)                                      | Locked connections:                                                                                                                     |                 | N/A        |
|                                               | - fixed arms; torque (Nm) .....                                                                                                         |                 | N/A        |
|                                               | - lampholder; torque (Nm) .....                                                                                                         |                 | N/A        |
|                                               | - push-button switches; torque 0,8 Nm.....                                                                                              |                 | N/A        |
| (4.12.5)                                      | Screwed glands; force (Nm).....                                                                                                         |                 | N/A        |

| Attachment 1: Additional test of EN IEC 62031 |                                                                                                               |                 |               |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| Clause                                        | Requirement + Test                                                                                            | Result - Remark | Verdict       |
| <b>17 (18)</b>                                | <b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>                                                                  |                 | <b>N/A</b>    |
| <b>18</b>                                     | <b>RESISTANCE TO CORROSION</b>                                                                                |                 | <b>N/A</b>    |
| <b>20</b>                                     | <b>HEAT MANAGEMENT</b>                                                                                        |                 | <b>N/A</b>    |
| <b>22</b>                                     | <b>PHOTOBIOLOGICAL SAFETY</b>                                                                                 |                 |               |
| <b>22.1</b>                                   | <b>UV radiation</b>                                                                                           |                 | <b>P</b>      |
|                                               | Luminous radiation not exceed 2mW/klm                                                                         |                 | P             |
| <b>22.2</b>                                   | <b>Blue light hazard</b>                                                                                      |                 | <b>P</b>      |
|                                               | Assessed according to IEC TR 62778                                                                            | RG1             | P             |
| <b>22.3</b>                                   | <b>Infrared radiation</b>                                                                                     |                 | <b>N/A</b>    |
|                                               | Requirements for infrared radiation when required                                                             |                 | N/A           |
| <b>A</b>                                      | <b>ANNEX A - TESTS</b>                                                                                        |                 |               |
|                                               | All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable              |                 | <b>P</b>      |
| <b>12 (14)</b>                                | <b>TABLE: tests of fault conditions</b>                                                                       |                 |               |
| <b>Part</b>                                   | <b>Simulated fault</b>                                                                                        |                 | <b>Hazard</b> |
| LED                                           | Open-circuited;                                                                                               |                 | NO            |
| LED                                           | Short-circuited;                                                                                              |                 | NO            |
| Input                                         | Short-circuited                                                                                               |                 | NO            |
| <b>(A)</b>                                    | <b>ANNEX A - TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK</b> |                 | <b>N/A</b>    |
| <b>ANNEX 1</b>                                | <b>LED MODULES WITH INTEGRAL CONTROLGEAR PROVIDING SELV</b>                                                   |                 | <b>N/A</b>    |

--- End of attachment 1 ---

**Attachment 2: Photo documentations**

Details of: General front view for M8-C (M8-X series), similar as QGX

View:

☒ general

☐ front

☐ rear

☐ right

☐ left

☐ top

☐ bottom



Details of: General front view for M8-C (M8-X series), similar as QGX

View:

☒ general

☐ front

☐ rear

☐ right

☐ left

☐ top

☐ bottom



**Attachment 2: Photo documentations**

Details of: General front view for (M8-X series), similar as QGX, only different appearance

View:

☒ general

☐ front

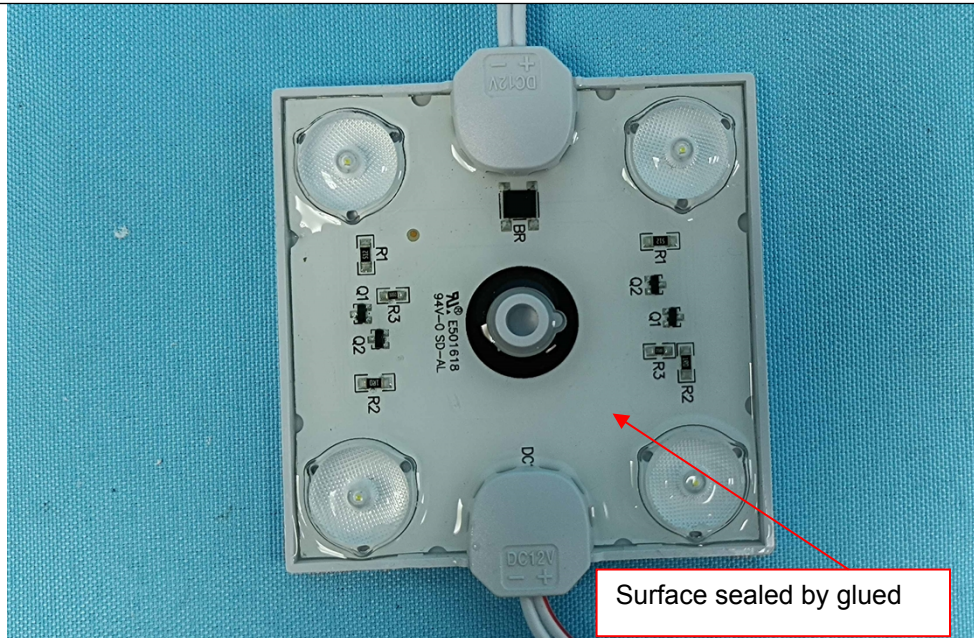
☐ rear

☐ right

☐ left

☐ top

☐ bottom



Details of: General front view for (M8-X series), same as QGX

View:

☒ general

☐ front

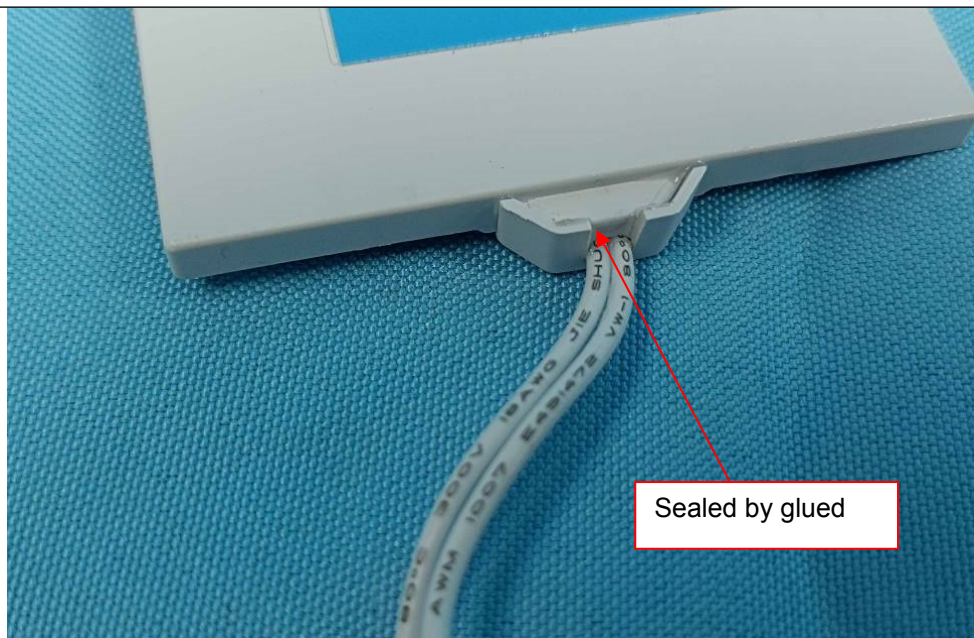
☐ rear

☐ right

☐ left

☐ top

☐ bottom



### Attachment 2: Photo documentations

Details of:

General front view for ST2E, similar as STX-X, SMX-X, SGXX, MZ18-X, STLH-X, K2S-X, T8-X-X, KPT8-X-X, PJX-X, 9PCX-X, PSX-X, BV-AL-3030-24, SSX, PQX-X, M6-X, BTH-X, JSS2-X, QGX, PQX, DX, GBPSX-X-X, BPS2-X, YZX, BPS300, BPSX-X, QYDX-X, XYDX-X, WN-YDX-X, YDX, YDX-X, JYDX-X, FYDX-X, JFYDX-X, YLX-X, BP2-W, RGBW-YDX, BQX-X, FYDX-X, JYLX, JYLDX only different appearance

View:

☒ general

☐ front

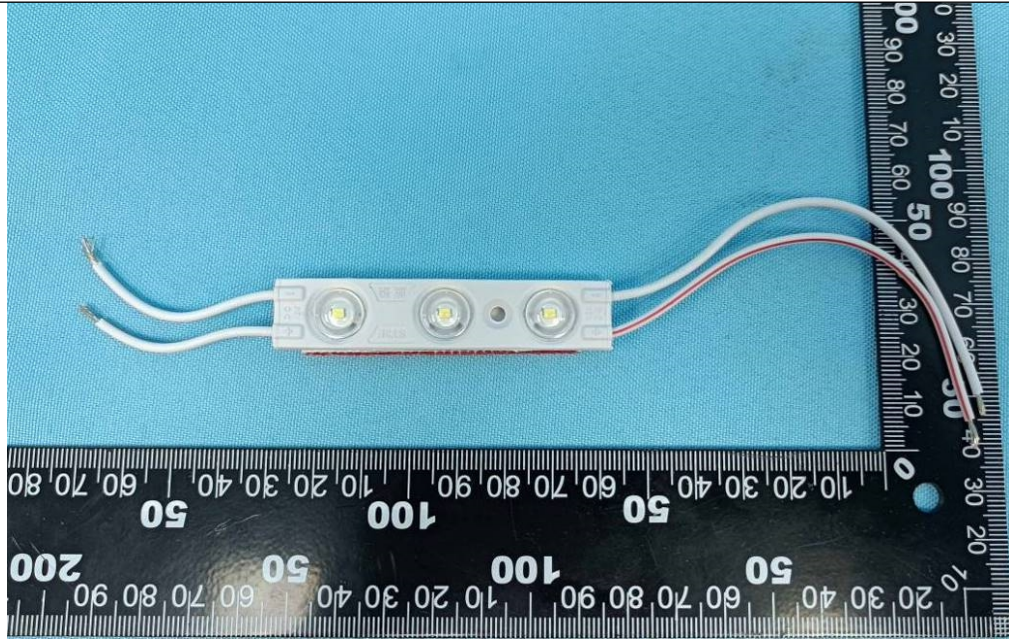
☐ rear

☐ right

☐ left

☐ top

☐ bottom



Details of:

General rear view for ST2E

View:

☒ general

☐ front

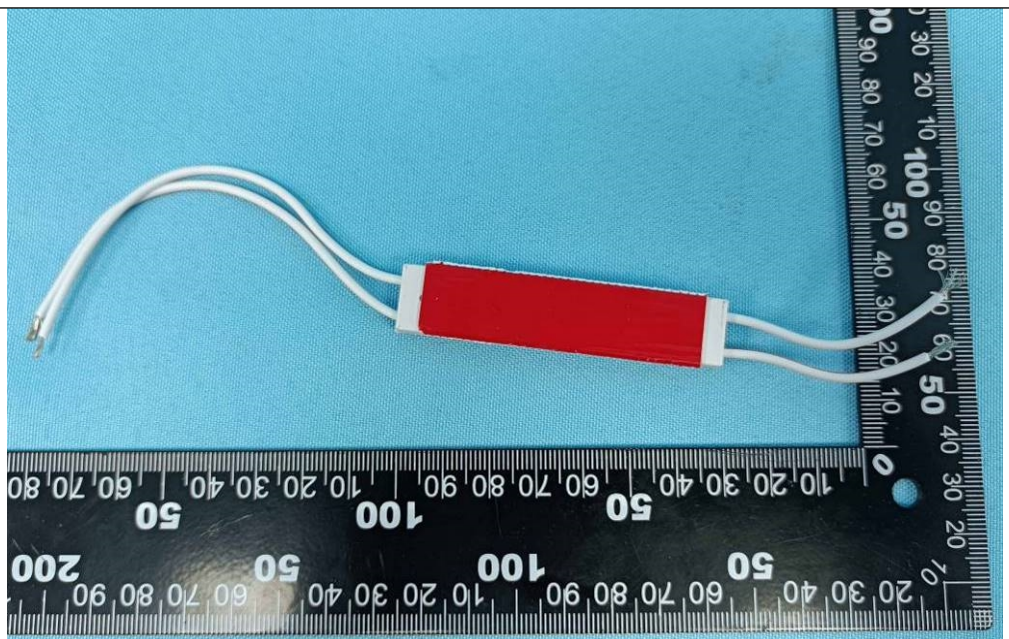
☐ rear

☐ right

☐ left

☐ top

☐ bottom



**Attachment 2: Photo documentations**

Details of: General rear view for ST2E, after removed back glue

View:

☒ general

☐ front

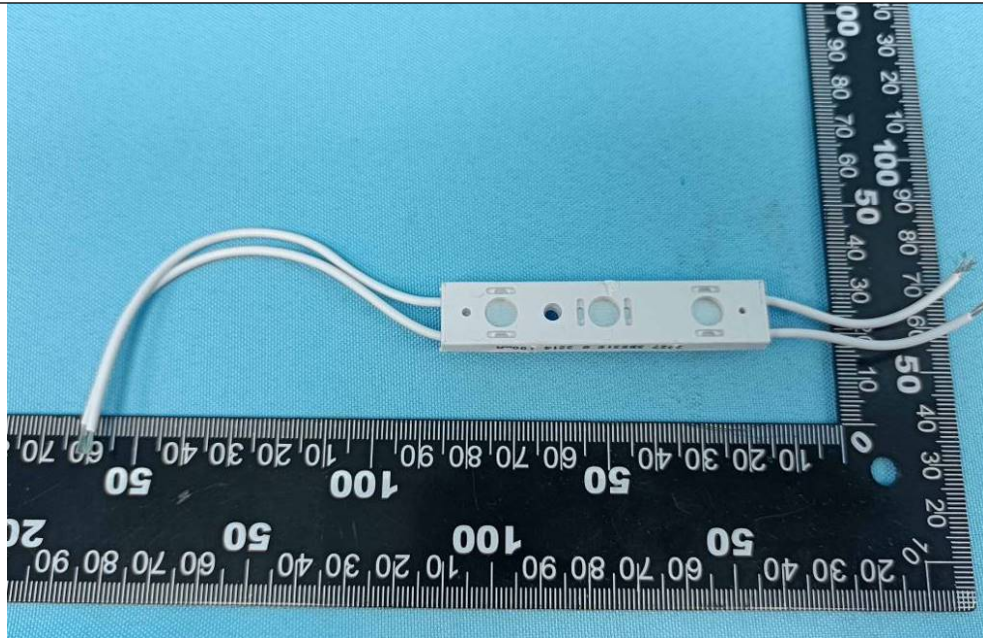
☐ rear

☐ right

☐ left

☐ top

☐ bottom



Details of:

LED view for ST2E, same as STX-X, SMX-X, SGXX, PT8-X-X, KPT8-X-X, PJX-X, 9PCX-X, ZX-X, CSX, CSX-X, SSX, MZ18-X, M6-X, M8-X, STLH-X, BTH-X, JSS2-X, QGX, PQX, DX, GBPSX-X-X, WN-YDX-X, YDX, JYDX-X, FYDX-X, JFYDX-X, YLX-X, BQX-X, JYLX, JYLDX

View:

☒ general

☐ front

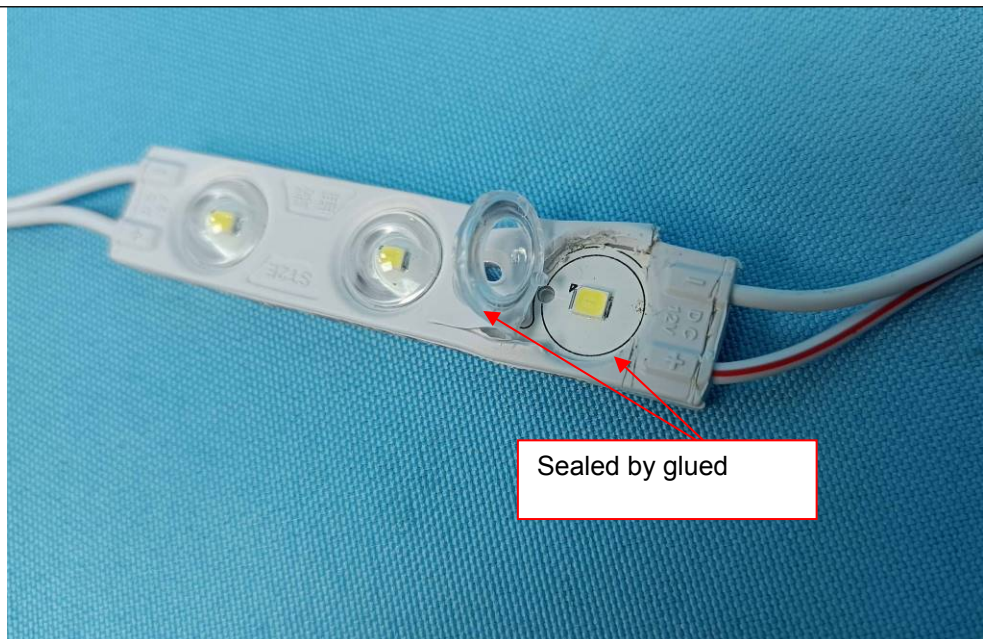
☐ rear

☐ right

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☐ top

☐ bottom



**Attachment 2: Photo documentations**

Details of: General front view for Z18, similar as ZX-X, only different appearance

View:

☒ general

☐ front

☐ rear

☐ right

☐ left

☐ top

☐ bottom



Details of: General rear view for Z18

View:

☒ general

☐ front

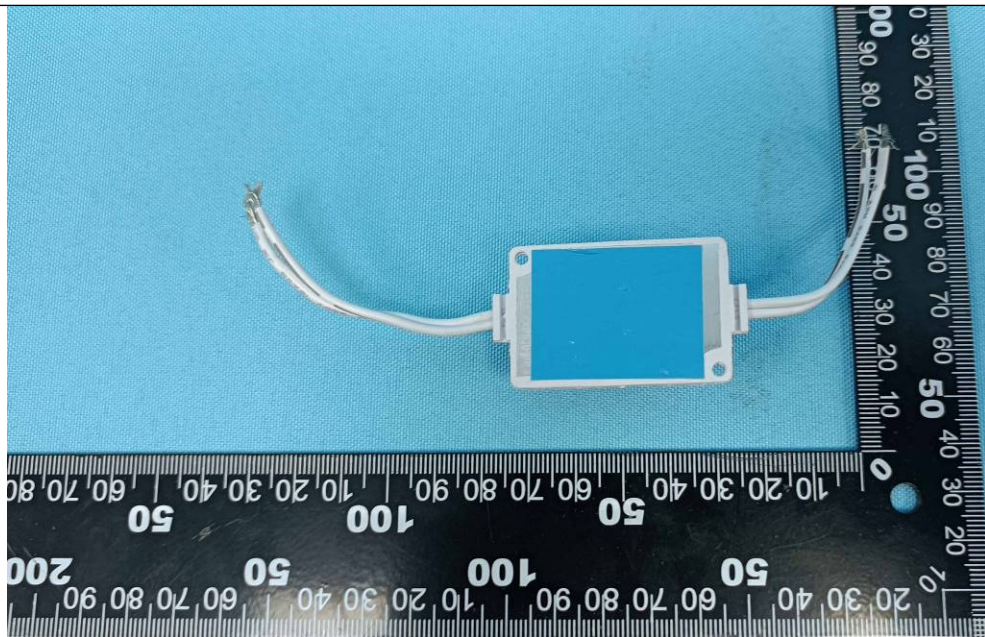
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☐ left

☐ top

☐ bottom



**Attachment 2: Photo documentations**

Details of: LED view for Z18, same as other models

View:

☒ general

☐ front

☐ rear

☐ right

☐ left

☐ top

☐ bottom



- - - End of attachment 2 - - -