



Report No.:PTC25042820703S-BS01

**TEST REPORT**  
**IEC 60598-2-20**  
**Luminaires**  
**Part 2: Particular requirements**  
**Section 20: Lighting chains**

Report Number.....: PTC25042820703S-BS01

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Testing Laboratory Name.....:

Precise Testing &amp; Certification (Guangdong) Co.,Ltd.

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Building1, No.6, TongxinRoad, Dongcheng Street,Dongguan,  
Guangdong, China.

Applicant's name.....:

GAZE ART LIGHTING CO., LTD

Address.....:

SHI XIA Road NO.48,SHI XIA Village, DA LANG Town,DO  
NG GUAN City, GUANG DONG Province, CHINA

Manufacturer's name.....:

GAZE ART LIGHTING CO., LTD

Address.....:

SHI XIA Road NO.48,SHI XIA Village, DA LANG Town,DO  
NG GUAN City, GUANG DONG Province, CHINA**Test specification:**Standard.....: IEC 60598-2-20:2014 used in conjunction with IEC 60598-1:2014,  
AMD1:2017

Test procedure.....: PTC

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

Test item description.....: FUCTIONS LOW VOLTAGE LIGHT SET

Trade Mark.....: /

Model/Type reference.....: UKCA-31V-9W-650L-IC.(Details see model list on page 4)

Ratings.....: 220-240V~ 50/60Hz 0.30A 9W

**General disclaimer:**

This report is only for applicant use. Any copying this report to/for any other person or entity, and use our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification





**List of Attachments:**

Attachment 1: Additional requirement test for (BS EN IEC 60598-1:2021/A11:2022,BS EN 60598-2-20:2015).  
Attachment 2: Additional requirement test for IEC TR 62778:2014;  
Attachment 3: EMF Evaluate Procedure acc to BS EN 62493:2015.  
Attachment 4: Photos.

**Summary of testing:**

N/A

**Testing location:**

Precise Testing & Certification (Guangdong) Co.,Ltd.  
Building1, No.6, TongxinRoad, Dongcheng Street,Dongguan, Guangdong, China.

**Summary of compliance with National Differences:**

**List of countries addressed: European National Differences.**

☒ **The product fulfils the requirements of BS EN IEC 60598-1:2021/A11:2022, BS EN 60598-2-20:2015.**

**Copy of marking plate:****The artwork below may be only a draft.**

FUNCTIONS LOW VOLTAGE LIGHT SET

Model: UKCA-31V-9W-650L-IC

Rated voltage/Frequency: 220-240V~ 50/60Hz

Rated Power: 9W

**UK  
CA**

GAZE ART LIGHTING CO., LTD

**Remark:**

1.Height of UKCA mark at least 5mm, height of WEEE mark at least 7mm, height of other marks at least 5mm height of letters and numerals at least 2mm.

2.According to the UK Regulations,UK importer's name and address shall be affixed on the product or,where that is not possible on its packaging or in a document accompanying the product before the product is placed on the UK market.



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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>Test item particulars..... :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | See test report                                                                                                                 |
| <b>Classification of installation and use..... :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Class II                                                                                                                        |
| <b>Supply Connection..... :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | See test report                                                                                                                 |
| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | May 08, 2025                                                                                                                    |
| <b>Date (s) of performance of tests..... :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | May 08, 2025 to June 4, 2025                                                                                                    |
| <b>General remarks:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                 |
| "(See Enclosure #)" refers to additional information appended to the report.<br>"(See appended table)" refers to a table appended to the report.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                 |
| Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                 |
| <b>Name and address of factory (ies)..... :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | GAZE ART LIGHTING CO., LTD<br>SHI XIA Road NO.48,SHI XIA Village, DA LANG<br>Town,DONG GUAN City, GUANG DONG Province,<br>CHINA |
| <b>General product information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                 |
| 1. The products are FUCTIONS LOW VOLTAGE LIGHT SET.<br>2. All test conducted on model UKCA-31V-9W-650L-IC.<br>3.Main model: UKCA-31V-9W-650L-IC<br>Covered models: UKCA-31V-9W-300L-IC、UKCA-31V-9W-350L-IC、UKCA-31V-9W-400L-IC、UKCA-31V-9W-450L-IC、UKCA-31V-9W-500L-IC、UKCA-31V-9W-550L-IC、UKCA-31V-9W-600L-IC、UKCA-31V-3.6W-250L-IC、UKCA-31V-3.6W-100L-IC、UKCA-31V-3.6W-150L-IC、UKCA-31V-3.6W-200L-IC<br>The differences between the covered model and the main inspection model are as follows: only the number of connected lamp heads is different.<br>4. The specified max ambient temperature is 25°C. |                                                                                                                                 |
| <b>Summary of testing:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                 |
| 1. Tests according to these standards are type tests.<br>2. All test items are conducted on model model UKCA-31V-9W-650L-IC. Only the most unfavourable results are recorded in this report.<br>3. Construction inspection for model UKCA-31V-9W-650L-IC. And the test results comply with the requirements of these standards in this test report.<br>4. The blue light hazards for FUCTIONS LOW VOLTAGE LIGHT SET was assessed according to standard IEC/TR 62778-2014, details see attachment 3.                                                                                                          |                                                                                                                                 |



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| BS EN 60598-2-20 |                                                    |                                                                                       |          |
|------------------|----------------------------------------------------|---------------------------------------------------------------------------------------|----------|
| Clause           | Requirement + Test                                 | Result - Remark                                                                       | Verdict  |
| <b>20.4 (0)</b>  | <b>GENERAL TEST REQUIREMENTS</b>                   |                                                                                       | <b>P</b> |
| 20.4 (0.1)       | Information for luminaire design considered..... : | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/><br>Lamp standard: | —        |
| 20.4 (0.3)       | More sections applicable..... :                    | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/><br>Section/s:     | —        |

|                 |                                                                              |                                                                     |          |
|-----------------|------------------------------------------------------------------------------|---------------------------------------------------------------------|----------|
| <b>20.5 (2)</b> | <b>CLASSIFICATION</b>                                                        |                                                                     | <b>P</b> |
| 20.5 (2.2)      | Type of protection .....                                                     | Class II                                                            | P        |
| 20.5 (2.3)      | Degree of protection.....                                                    | IP20                                                                | P        |
| 20.5 (2.4)      | Luminaire suitable for direct mounting on normally flammable surfaces..... : | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | —        |
| 20.5 (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"/> | —        |
| 20.5.2 (-)      | Class II or Class III                                                        | Class II                                                            | P        |
| 20.5.3 (-)      | Chain for outdoor use shall be IP44 or higher                                |                                                                     | N/A      |

|                 |                                       |         |          |
|-----------------|---------------------------------------|---------|----------|
| <b>20.6 (3)</b> | <b>MARKING</b>                        |         | <b>P</b> |
| 20.6 (3.2)      | Mandatory markings                    |         | P        |
|                 | Position of the marking               |         | P        |
|                 | Format of symbols/text                |         | P        |
| 20.6 (3.3)      | Additional information                |         | P        |
|                 | Language of instructions              | English | P        |
| 20.6 (3.3.1)    | Combination luminaires                |         | N/A      |
| 20.6 (3.3.2)    | Nominal frequency in Hz               | 50/60Hz | P        |
| 20.6 (3.3.3)    | Operating temperature                 |         | P        |
| 20.6 (3.3.4)    | Symbol or warning notice              |         | N/A      |
| 20.6 (3.3.5)    | Wiring diagram                        |         | N/A      |
| 20.6 (3.3.6)    | Special conditions                    |         | N/A      |
| 20.6 (3.3.7)    | Metal halide lamp luminaire – warning |         | N/A      |
| 20.6 (3.3.8)    | Limitation for semi-luminaires        |         | N/A      |
| 20.6 (3.3.9)    | Power factor and supply current       |         | P        |



| BS EN 60598-2-20  |                                                                             |                 |          |
|-------------------|-----------------------------------------------------------------------------|-----------------|----------|
| Clause            | Requirement + Test                                                          | Result - Remark | Verdict  |
| 20.6<br>(3.3.10)  | Suitability for use indoors                                                 |                 | P        |
| 20.6<br>(3.3.11)  | Luminaires with remote control                                              |                 | N/A      |
| 20.6<br>(3.3.12)  | Clip-mounted luminaire – warning                                            |                 | N/A      |
| 20.6<br>(3.3.13)  | Specifications of protective shields                                        |                 | N/A      |
| 20.6<br>(3.3.14)  | Symbol for nature of supply                                                 |                 | P        |
| 20.6<br>(3.3.15)  | Rated current of socket outlet                                              |                 | N/A      |
| 20.6<br>(3.3.16)  | Rough service luminaire                                                     |                 | N/A      |
| 20.6<br>(3.3.17)  | Mounting instruction for type Y, type Z and some type X attachments         |                 | N/A      |
| 20.6<br>(3.3.18)  | Non-ordinary luminaires with PVC cable                                      |                 | N/A      |
| 20.6<br>(3.3.19)  | Protective conductor current in instruction if applicable                   |                 | N/A      |
| 20.6<br>(3.3.20)  | Provided with information if not intended to be mounted within arm's reach  |                 | N/A      |
| 20.6<br>(3.3.21)  | Non replaceable and non-user replaceable light sources information provided |                 | P        |
|                   | Cautionary symbol                                                           |                 | N/A      |
| 20.6<br>(3.3.22)  | Controllable luminaires, classification of insulation provided              |                 | N/A      |
| 20.6 (3.4)        | Test with water                                                             |                 | P        |
|                   | Test with hexane                                                            |                 | P        |
|                   | Legible after test                                                          |                 | P        |
|                   | Label attached                                                              |                 | P        |
| <b>20.6.2 (-)</b> | <b>Lighting chain marking</b>                                               |                 | <b>P</b> |
|                   | Rated voltage and wattage marked on the chain                               |                 | P        |
|                   | Durable non-removable label if information on the cable                     |                 | P        |
| <b>20.6.3 (-)</b> | <b>Lighting chain and packing marking</b>                                   |                 | <b>P</b> |

| BS EN 60598-2-20  |                                               |                 |          |
|-------------------|-----------------------------------------------|-----------------|----------|
| Clause            | Requirement + Test                            | Result - Remark | Verdict  |
|                   | Marking if only for indoor use                |                 | P        |
| <b>20.6.4 (-)</b> | <b>Marking on the packing or instructions</b> |                 | <b>P</b> |
|                   | Marking a) – I)                               |                 | P        |

|                   |                                                                                                                          |  |     |
|-------------------|--------------------------------------------------------------------------------------------------------------------------|--|-----|
| <b>20.7 (4)</b>   | <b>CONSTRUCTION</b>                                                                                                      |  | P   |
| 20.7 (4.2)        | Components replaceable without difficulty                                                                                |  | P   |
| 20.7 (4.3)        | Wireways smooth and free from sharp edges                                                                                |  | P   |
| <b>20.7 (4.4)</b> | <b>Lampholders</b>                                                                                                       |  | N/A |
| 20.7 (4.4.1)      | Integral lampholder                                                                                                      |  | N/A |
| 20.7 (4.4.2)      | Wiring connection                                                                                                        |  | N/A |
| 20.7 (4.4.3)      | Lampholder for end-to-end mounting                                                                                       |  | N/A |
| 20.7 (4.4.4)      | Positioning                                                                                                              |  | N/A |
|                   | - pressure test (N) .....                                                                                                |  | —   |
|                   | After test the lampholder comply with relevant standard sheets and show no damage                                        |  | N/A |
|                   | After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation |  | N/A |
|                   | - bending test (N) .....                                                                                                 |  | —   |
|                   | After test the lampholder have not moved from its position and show no permanent deformation                             |  | N/A |
| 20.7 (4.4.5)      | Peak pulse voltage                                                                                                       |  | N/A |
| 20.7 (4.4.6)      | Centre contact                                                                                                           |  | N/A |
| 20.7 (4.4.7)      | Parts in rough service luminaires resistant to tracking                                                                  |  | N/A |
| 20.7 (4.4.8)      | Lamp connectors                                                                                                          |  | N/A |
| 20.7 (4.4.9)      | Caps and bases correctly used                                                                                            |  | N/A |
| 20.7 (4.4.10)     | Light source for lampholder or connection according IEC 60061 not connected another way                                  |  | N/A |
| <b>20.7 (4.5)</b> | <b>Starter holders</b>                                                                                                   |  | N/A |
|                   | Starter holder in luminaires other than class II                                                                         |  | N/A |
|                   | Starter holder class II construction                                                                                     |  | N/A |
| <b>20.7 (4.6)</b> | <b>Terminal blocks</b>                                                                                                   |  | N/A |



| BS EN 60598-2-20  |                                                               |                 |         |
|-------------------|---------------------------------------------------------------|-----------------|---------|
| Clause            | Requirement + Test                                            | Result - Remark | Verdict |
|                   | Tails                                                         |                 | N/A     |
|                   | Unsecured blocks                                              |                 | N/A     |
| <b>20.7 (4.7)</b> | <b>Terminals and supply connections</b>                       |                 | N/A     |
| 20.7 (4.7.1)      | Contact to metal parts                                        |                 | N/A     |
| 20.7 (4.7.2)      | Test 8 mm live conductor                                      |                 | N/A     |
|                   | Test 8 mm earth conductor                                     |                 | N/A     |
| 20.7 (4.7.3)      | Terminals for supply conductors                               |                 | N/A     |
| 20.7 (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 15.6.2.3 and 15.6.2.4                |                 | N/A     |
| 20.7 (4.7.4)      | Terminals other than supply connection                        |                 | N/A     |
| 20.7 (4.7.5)      | Heat-resistant wiring/sleeves                                 |                 | N/A     |
| 20.7 (4.7.6)      | Multi-pole plug                                               |                 | N/A     |
|                   | - test at 30 N                                                |                 | N/A     |
| <b>20.7 (4.8)</b> | <b>Switches</b>                                               |                 | N/A     |
|                   | - adequate rating                                             |                 | N/A     |
|                   | - adequate fixing                                             |                 | N/A     |
|                   | - polarized supply                                            |                 | N/A     |
|                   | - compliance with IEC 61058-1 for electronic switches         |                 | N/A     |
| <b>20.7 (4.9)</b> | <b>Insulating lining and sleeves</b>                          |                 | N/A     |
| 20.7 (4.9.1)      | Retainment                                                    |                 | N/A     |
|                   | Method of fixing.....:                                        |                 | N/A     |
| 20.7 (4.9.2)      | Insulated linings and sleeves:                                |                 | N/A     |
|                   | Resistant to a temperature > 20 °C to the wire temperature or |                 | N/A     |



| BS EN 60598-2-20   |                                                                                    |                 |            |
|--------------------|------------------------------------------------------------------------------------|-----------------|------------|
| Clause             | Requirement + Test                                                                 | Result - Remark | Verdict    |
|                    | a) & c) Insulation resistance and electric strength                                |                 | N/A        |
|                    | b) Ageing test. Temperature (°C).....:                                             |                 | N/A        |
| <b>20.7 (4.10)</b> | <b>Double or reinforced insulation</b>                                             |                 | <b>P</b>   |
| 20.7 (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        |
| 20.7 (4.10.2)      | Assembly gaps:                                                                     |                 | P          |
|                    | - not coincidental                                                                 |                 | P          |
|                    | - no straight access with test probe                                               |                 | P          |
| 20.7 (4.10.3)      | Retention 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        |
| <b>20.7 (4.11)</b> | <b>Electrical connections and current-carrying parts</b>                           |                 | <b>N/A</b> |
| 20.7 (4.11.1)      | Contact pressure                                                                   |                 | N/A        |
| 20.7 (4.11.2)      | Screws:                                                                            |                 | N/A        |
|                    | - self-tapping screws                                                              |                 | N/A        |
|                    | - thread-cutting screws                                                            |                 | N/A        |
| 20.7 (4.11.3)      | Screw locking:                                                                     |                 | N/A        |
|                    | - spring washer                                                                    |                 | N/A        |
|                    | - rivets                                                                           |                 | N/A        |
| 20.7 (4.11.4)      | Material of current-carrying parts                                                 |                 | N/A        |
| 20.7 (4.11.5)      | No contact to wood or mounting surface                                             |                 | N/A        |

| BS EN 60598-2-20   |                                                       |                         |          |
|--------------------|-------------------------------------------------------|-------------------------|----------|
| Clause             | Requirement + Test                                    | Result - Remark         | Verdict  |
| 20.7<br>(4.11.6)   | Electro-mechanical contact systems                    |                         | N/A      |
| <b>20.7 (4.12)</b> | <b>Screws and connections (mechanical) and glands</b> |                         | N/A      |
| 20.7<br>(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      |
| 20.7<br>(4.12.2)   | Screws with diameter < 3 mm screwed into metal        |                         | N/A      |
| 20.7<br>(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      |
| 20.7<br>(4.12.5)   | Screwed glands; force (Nm)..... :                     |                         | N/A      |
| <b>20.7 (4.13)</b> | <b>Mechanical strength</b>                            |                         | <b>P</b> |
| 20.7<br>(4.13.1)   | Impact tests:                                         |                         | P        |
|                    | - fragile parts; energy (Nm)..... :                   |                         | N/A      |
|                    | - other parts; energy (Nm)..... :                     | All other parts: 0.35Nm | P        |
|                    | 1) live parts                                         |                         | P        |
|                    | 2) linings                                            |                         | N/A      |
|                    | 3) protection                                         |                         | P        |
|                    | 4) covers                                             |                         | N/A      |
| 20.7<br>(4.13.3)   | Straight test finger                                  |                         | N/A      |
| 20.7<br>(4.13.4)   | Rough service luminaires                              |                         | N/A      |
|                    | - IP54 or higher                                      |                         | N/A      |
|                    | a) fixed                                              |                         | N/A      |
|                    | b) hand-held                                          |                         | N/A      |

| BS EN 60598-2-20   |                                                                     |                 |         |
|--------------------|---------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                  | Result - Remark | Verdict |
|                    | c) delivered with a stand                                           |                 | N/A     |
|                    | d) for temporary installations and suitable for mounting on a stand |                 | N/A     |
| 20.7<br>(4.13.6)   | Tumbling barrel                                                     |                 | N/A     |
| <b>20.7 (4.14)</b> | <b>Suspensions, fixings and means of adjusting</b>                  |                 | N/A     |
| 20.7<br>(4.14.1)   | Mechanical load:                                                    |                 | N/A     |
|                    | A) four times the weight                                            |                 | N/A     |
|                    | B) torque 2,5 Nm                                                    |                 | N/A     |
|                    | C) bracket arm; bending moment (Nm)..... :                          |                 | N/A     |
|                    | D) load track-mounted luminaires                                    |                 | N/A     |
|                    | E) clip-mounted luminaires, glass-shelve. Thickness (mm) .....      |                 | N/A     |
|                    | Metal rod. diameter (mm) .....                                      |                 | N/A     |
|                    | Fixed luminaire or independent control gear without fixing devices  |                 | N/A     |
| 20.7<br>(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     |
| 20.7<br>(4.14.3)   | Adjusting devices:                                                  |                 | N/A     |
|                    | - flexing test; number of cycles..... :                             |                 | N/A     |
|                    | - strands broken..... :                                             |                 | N/A     |
|                    | - electric strength test afterwards                                 |                 | N/A     |
| 20.7<br>(4.14.4)   | Telescopic tubes: cords not fixed to tube; no strain on conductors  |                 | N/A     |
| 20.7<br>(4.14.5)   | Guide pulleys                                                       |                 | N/A     |
| 20.7<br>(4.14.6)   | Strain on socket-outlets                                            |                 | N/A     |

| BS EN 60598-2-20   |                                                                  |                               |            |
|--------------------|------------------------------------------------------------------|-------------------------------|------------|
| Clause             | Requirement + Test                                               | Result - Remark               | Verdict    |
| <b>20.7 (4.15)</b> | <b>Flammable materials</b>                                       |                               | <b>N/A</b> |
|                    | - glow-wire test 650°C..... :                                    | See Test Table 20.16 (13.3.2) | N/A        |
|                    | - spacing $\geq 30$ mm                                           |                               | N/A        |
|                    | - screen withstanding test of 13.3.1                             |                               | N/A        |
|                    | - screen dimensions                                              |                               | N/A        |
|                    | - no fiercely burning material                                   |                               | N/A        |
|                    | - thermal protection                                             |                               | N/A        |
|                    | - electronic circuits exempted                                   |                               | N/A        |
| 20.7 (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>20.7 (4.16)</b> | <b>Luminaires for mounting on normally flammable surfaces</b>    |                               | <b>P</b>   |
|                    | No lamp control gear..... :                                      | (compliance with Section 12)  | N/A        |
| 20.7 (4.16.1)      | Lamp control gear spacing:                                       |                               | N/A        |
|                    | - spacing 35 mm                                                  |                               | N/A        |
|                    | - spacing 10 mm                                                  |                               | N/A        |
| 20.7 (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        |
| 20.7 (4.16.3)      | Design to satisfy the test of 12.6                               | (see clause 12.6)             | N/A        |
| <b>20.7 (4.17)</b> | <b>Drain holes</b>                                               |                               | <b>N/A</b> |
|                    | Clearance at least 5 mm                                          |                               | N/A        |
| <b>20.7 (4.18)</b> | <b>Resistance to corrosion</b>                                   |                               | <b>N/A</b> |
| 20.7 (4.18.1)      | - rust-resistance                                                |                               | N/A        |

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|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------|
| Clause             | Requirement + Test                                                                                                                                 | Result - Remark               | Verdict |
| 20.7 (4.18.2)      | - season cracking in copper                                                                                                                        |                               | N/A     |
| 20.7 (4.18.3)      | - corrosion of aluminium                                                                                                                           |                               | N/A     |
| 20.7 (4.19)        | Igniters compatible with ballast                                                                                                                   |                               | N/A     |
| 20.7 (4.20)        | Rough service vibration                                                                                                                            |                               | N/A     |
| <b>20.7 (4.21)</b> | <b>Protective shield</b>                                                                                                                           |                               | N/A     |
| 20.7 (4.21.1)      | Shield fitted if tungsten halogen lamps or metal halide lamps                                                                                      |                               | N/A     |
|                    | Shield of glass if tungsten halogen lamps                                                                                                          |                               | N/A     |
| 20.7 (4.21.2)      | Particles from a shattering lamp not impair safety                                                                                                 |                               | N/A     |
| 20.7 (4.21.3)      | No direct path                                                                                                                                     |                               | N/A     |
| 20.7 (4.21.4)      | Impact test on shield                                                                                                                              |                               | N/A     |
|                    | Glow-wire test on lamp compartment.....:                                                                                                           | See Test Table 20.16 (13.3.2) | N/A     |
| 20.7 (4.22)        | Attachments to lamps not cause overheating or damage                                                                                               |                               | N/A     |
| 20.7 (4.23)        | Semi-luminaires comply Class II                                                                                                                    |                               | N/A     |
| <b>20.7 (4.24)</b> | <b>Photobiological hazards</b>                                                                                                                     |                               | P       |
| 20.7 (4.24.1)      | No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)                                                               |                               | N/A     |
| 20.7 (4.24.2)      | Retinal blue light hazard                                                                                                                          |                               | P       |
|                    | Luminaires with $E_{thr}$ :                                                                                                                        |                               | P       |
|                    | 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     |

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|--------------------|------------------------------------------------------------------------|-----------------|------------|
| Clause             | Requirement + Test                                                     | Result - Remark | Verdict    |
| <b>20.7 (4.25)</b> | <b>Mechanical hazard</b>                                               |                 | <b>P</b>   |
|                    | No sharp point or edges                                                |                 | P          |
| <b>20.7 (4.26)</b> | <b>Short-circuit protection</b>                                        |                 | N/A        |
| 20.7 (4.26.1)      | Adequate means of uninsulated accessible SELV parts                    |                 | N/A        |
| 20.7 (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>20.7 (4.27)</b> | <b>Terminal blocks with integrated screwless earthing contacts</b>     |                 | N/A        |
|                    | 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>20.7 (4.28)</b> | <b>Fixing of thermal sensing control</b>                               |                 | N/A        |
|                    | Not plug-in or easily replaceable type                                 |                 | N/A        |
|                    | Reliably kept in position                                              |                 | N/A        |
|                    | No adhesive fixing if UV radiations from a lamp can degrade the fixing |                 | N/A        |
|                    | Not outside the luminaire enclosure                                    |                 | N/A        |
|                    | Test of adhesive fixing:                                               |                 | N/A        |
|                    | Max. temperature on adhesive material ( $^{\circ}\text{C}$ ).....:     |                 | —          |
|                    | 100 cycles between t min and t max                                     |                 | N/A        |
|                    | Temperature sensing control still in position                          |                 | N/A        |
| <b>20.7 (4.29)</b> | <b>Luminaires with non-replaceable light source</b>                    |                 | <b>N/A</b> |
|                    | Not possible to replace light source                                   |                 | N/A        |
|                    | Live part not accessible after parts have been opened by hand or tools |                 | N/A        |
| <b>20.7 (4.30)</b> | <b>Luminaires with non-user replaceable light source</b>               |                 | <b>P</b>   |

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|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------|
| Clause             | Requirement + Test                                                                                                                                                                  | Result - Remark | Verdict    |
|                    | 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>20.7 (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        |
| 20.7 (4.31.1)      | SELV circuits                                                                                                                                                                       |                 | P          |
|                    | Used SELV source                                                                                                                                                                    |                 | P          |
|                    | Voltage $\leq$ ELV                                                                                                                                                                  |                 | P          |
|                    | Insulating of SELV circuits from LV supply                                                                                                                                          |                 | P          |
|                    | Insulating of SELV circuits from other non SELV circuits                                                                                                                            |                 | N/A        |
|                    | Insulating of SELV circuits from FELV                                                                                                                                               |                 | N/A        |
|                    | Insulating of SELV circuits from other SELV circuits                                                                                                                                |                 | N/A        |
|                    | SELV circuits insulated from accessible parts according Table X.1                                                                                                                   |                 | P          |
|                    | Plugs not able to enter socket-outlets of other voltage systems                                                                                                                     |                 | N/A        |
|                    | Socket outlets does not admit plugs of other voltage systems                                                                                                                        |                 | N/A        |
|                    | Plugs and socket-outlets does not have protective conductor contact                                                                                                                 |                 | N/A        |
| 20.7 (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        |

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|------------------|--------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause           | Requirement + Test                                                                                           | Result - Remark | Verdict |
|                  | Socket outlets does not admit plugs of other voltage systems                                                 |                 | N/A     |
|                  | Socket-outlets does not have protective conductor contact                                                    |                 | N/A     |
| 20.7 (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     |
| 20.7 (4.32)      | <b>Overvoltage protective devices</b>                                                                        |                 | N/A     |
|                  | Comply with IEC 61643-11                                                                                     |                 | N/A     |
|                  | External to controlgear and connected to earth:                                                              |                 | N/A     |
|                  | - only in fixed luminaires                                                                                   |                 | N/A     |
|                  | - only connected to protective earth                                                                         |                 | N/A     |
| 20.7.2 (-)       | <b>Lampholders</b>                                                                                           |                 | N/A     |
|                  | Tested as part of the lighting chain if non-standardised lampholders                                         |                 | N/A     |
|                  | E5, E10, E14 and E27 according IEC 60238                                                                     |                 | N/A     |
|                  | Bayonet according IEC 61184                                                                                  |                 | N/A     |
|                  | Insulating piercing terminals only if SELV circuit or permanent non-rewireable connections in class II chain |                 | N/A     |
|                  | Maximum voltage used for E5, E10 and small lampholders                                                       |                 | N/A     |
|                  | Body of insulating material                                                                                  |                 | N/A     |
| 20.7.3 (-)       | <b>Terminal blocks</b>                                                                                       |                 | N/A     |

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|--------------------|-----------------------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                                            | Result - Remark | Verdict |
|                    | Clause 4.6 of IEC 60598-1 referring to terminal blocks does not apply                         |                 | —       |
| <b>20.7.4 (-)</b>  | <b>Terminals and supply connections</b>                                                       |                 | N/A     |
|                    | Comply with Annex A                                                                           |                 | N/A     |
| <b>20.7.5 (-)</b>  | <b>Gaskets</b>                                                                                |                 | N/A     |
|                    | Gasket weather resistant if outdoor use                                                       |                 | N/A     |
|                    | Gasket remains in place and fit tightly                                                       |                 | N/A     |
| <b>20.7.6 (-)</b>  | <b>Mechanical strength</b>                                                                    |                 | P       |
|                    | Mechanical strength requirements of 4.13 of part 1 or 15 of IEC 61184                         |                 | P       |
|                    | Accessories comply with 4.13.6 of part 1                                                      |                 | P       |
| <b>20.7.7 (-)</b>  | <b>Lamp bridging devices</b>                                                                  |                 | N/A     |
|                    | Protection against electric shock and fire will not be impaired by bridging lamp filaments    |                 | N/A     |
| <b>20.7.8 (-)</b>  | <b>Control units</b>                                                                          |                 | P       |
|                    | Forming an integral part enclosed in non-flammable insulating material tested according 20.16 |                 | P       |
|                    | Securely fixed to the cable                                                                   |                 | P       |
|                    | Electronic control device comply with IEC 61347-2-11                                          |                 | P       |
|                    | LED driver comply with IEC 61347-2-13                                                         |                 | N/A     |
| <b>20.7.9 (-)</b>  | <b>Lamp rotation</b>                                                                          |                 | N/A     |
|                    | Bulb and lamp cap of push-in lamps will not rotate with a torque of 0,025 Nm                  |                 | N/A     |
| <b>20.7.10 (-)</b> | <b>Lamp insertion/withdrawal force</b>                                                        |                 | N/A     |
|                    | Pull force up to 3 N for push-in lamps                                                        |                 | N/A     |
|                    | Push-in force up to 3 N for push-in lamps                                                     |                 | N/A     |
|                    | Pull out force of between 3 N and 10 N for push-in lamps                                      |                 | N/A     |
| <b>20.7.11 (-)</b> | <b>Lamp mechanical requirements</b>                                                           |                 | N/A     |
|                    | Impact test of 0,2 Nm on lamps of Class II chain:                                             |                 | N/A     |
|                    | - non-removable lamps                                                                         |                 | N/A     |
|                    | - non-standardized lamps                                                                      |                 | N/A     |

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|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------|
| Clause             | Requirement + Test                                                                                                                           | Result - Remark                                                                           | Verdict    |
| <b>20.8 (11)</b>   | <b>CREEPAGE DISTANCES AND CLEARANCES</b>                                                                                                     |                                                                                           | <b>P</b>   |
| 20.8 (11.2)        | Creepage distances and clearances.....:                                                                                                      | See Table 20.8 (11.2)                                                                     | P          |
|                    | Working voltage (V).....:                                                                                                                    |                                                                                           | —          |
|                    | Rated pulse voltage (kV).....:                                                                                                               |                                                                                           | —          |
|                    | Voltage form.....:                                                                                                                           | Sinusoidal <input type="checkbox"/><br>Non-sinusoidal <input checked="" type="checkbox"/> | —          |
|                    | PTI.....:                                                                                                                                    | < 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>                  | —          |
|                    | Impulse withstand category (Normal category II)<br>(Category III Annex U)                                                                    | Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>     | —          |
| <b>20.10 (14)</b>  | <b>SCREW TERMINALS</b>                                                                                                                       |                                                                                           | <b>N/A</b> |
|                    | Separately approved; component list                                                                                                          | (see Annex 1)                                                                             | N/A        |
|                    | Part of the luminaire                                                                                                                        | (see Annex 3)                                                                             | N/A        |
| <b>20.10 (15)</b>  | <b>SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS</b>                                                                                        |                                                                                           | <b>N/A</b> |
|                    | Separately approved; component list.....:                                                                                                    | (see Annex 1)                                                                             | N/A        |
|                    | Part of the luminaire.....:                                                                                                                  | (see Annex 4)                                                                             | N/A        |
| <b>20.11 (5)</b>   | <b>EXTERNAL AND INTERNAL WIRING</b>                                                                                                          |                                                                                           | <b>P</b>   |
| <b>20.11 (5.2)</b> | <b>Supply connection and external wiring</b>                                                                                                 |                                                                                           | <b>P</b>   |
| 20.11<br>(5.2.1)   | Means of connection.....:                                                                                                                    |                                                                                           | P          |
|                    | Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment |                                                                                           | N/A        |
| 20.11<br>(5.2.2)   | Type of cable.....:                                                                                                                          |                                                                                           | P          |
|                    | Nominal cross-sectional area (mm <sup>2</sup> ).....:                                                                                        |                                                                                           | P          |
|                    | Cables equal to IEC 60227 or IEC 60245                                                                                                       |                                                                                           | N/A        |
| 20.11<br>(5.2.3)   | Type of attachment, X, Y or Z                                                                                                                |                                                                                           | N/A        |
| 20.11<br>(5.2.5)   | Type Z not connected to screws                                                                                                               |                                                                                           | N/A        |

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|---------------------|---------------------------------------------------------|-----------------|---------|
| Clause              | Requirement + Test                                      | Result - Remark | Verdict |
| 20.11<br>(5.2.6)    | Cable entries:                                          |                 | N/A     |
|                     | - suitable for introduction                             |                 | N/A     |
|                     | - adequate degree of protection                         |                 | N/A     |
| 20.11<br>(5.2.7)    | Cable entries through rigid material have rounded edges |                 | N/A     |
| 20.11<br>(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     |
| 20.11<br>(5.2.9)    | Locking of screwed bushings                             |                 | N/A     |
| 20.11<br>(5.2.10)   | Cord anchorage:                                         |                 | N/A     |
|                     | - covering protected from abrasion                      |                 | N/A     |
|                     | - clear how to be effective                             |                 | N/A     |
|                     | - no mechanical or thermal stress                       |                 | N/A     |
|                     | - no tying of cables into knots etc.                    |                 | N/A     |
|                     | - insulating material or lining                         |                 | N/A     |
| 20.11<br>(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     |

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|---------------------|--------------------------------------------------------------------|-----------------|---------|
| Clause              | Requirement + Test                                                 | Result - Remark | Verdict |
| 20.11<br>(5.2.10.2) | Adequate cord anchorage for type Y and type Z attachment           |                 | N/A     |
| 20.11<br>(5.2.10.3) | Tests:                                                             |                 | P       |
|                     | - impossible to push cable; unsafe                                 |                 | P       |
|                     | - pull test: 25 times; pull (N)..... :                             |                 | P       |
|                     | - torque test: torque (Nm)..... :                                  |                 | P       |
|                     | - displacement $\leq 2$ mm                                         |                 | P       |
|                     | - no movement of conductors                                        |                 | P       |
|                     | - no damage of cable or cord                                       |                 | P       |
|                     | - function independent of electrical connection                    |                 | N/A     |
| 20.11<br>(5.2.11)   | External wiring passing into luminaire                             |                 | P       |
| 20.11<br>(5.2.12)   | Looping-in terminals                                               |                 | N/A     |
| 20.11<br>(5.2.13)   | Wire ends not tinned                                               |                 | N/A     |
|                     | Wire ends tinned: no cold flow                                     |                 | P       |
| 20.11<br>(5.2.14)   | Mains plug same protection                                         |                 | N/A     |
|                     | Class III luminaire plug                                           |                 | N/A     |
|                     | No unsafe compatibility                                            |                 | N/A     |
| 20.11<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     |
| 20.11<br>(5.2.17)   | No standardized interconnecting cables properly assembled          |                 | N/A     |
| 20.11<br>(5.2.18)   | Used plug in accordance with                                       |                 | N/A     |
|                     | - IEC 60083                                                        |                 | N/A     |
|                     | - other standard                                                   |                 | N/A     |
| <b>20.11 (5.3)</b>  | <b>Internal wiring</b>                                             |                 | P       |

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|--------------------|--------------------------------------------------------------------------------|-----------------|---------|
| Clause             | Requirement + Test                                                             | Result - Remark | Verdict |
| 20.11<br>(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     |
| 20.11<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                                                           |                 | N/A     |
|                    | Extra insulation added where necessary                                         |                 | N/A     |
| 20.11<br>(5.3.1.2) | Internal wiring connected to fixed wiring via internal current-limiting device |                 | N/A     |
|                    | Adequate cross-sectional area and insulation thickness                         |                 | N/A     |
| 20.11<br>(5.3.1.3) | Double or reinforced insulation for class II                                   |                 | N/A     |
| 20.11<br>(5.3.1.4) | Conductors without insulation                                                  |                 | N/A     |
| 20.11<br>(5.3.1.5) | SELV current-carrying parts                                                    |                 | N/A     |
| 20.11<br>(5.3.1.6) | Insulation thickness other than PVC or rubber                                  |                 | N/A     |
| 20.11<br>(5.3.2)   | Sharp edges etc.                                                               |                 | P       |
|                    | No moving parts of switches etc.                                               |                 | N/A     |
|                    | Joints, raising/lowering devices                                               |                 | N/A     |
|                    | Telescopic tubes etc.                                                          |                 | N/A     |
|                    | No twisting over 360°                                                          |                 | P       |
| 20.11<br>(5.3.3)   | Insulating bushings:                                                           |                 | N/A     |
|                    | - suitable fixed                                                               |                 | N/A     |

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|--------------------|---------------------------------------------------------------------------------------|-----------------|------------|
| Clause             | Requirement + Test                                                                    | Result - Remark | Verdict    |
|                    | - material in bushings                                                                |                 | N/A        |
|                    | - material not likely to deteriorate                                                  |                 | N/A        |
|                    | - cables with protective sheath                                                       |                 | N/A        |
| 20.11<br>(5.3.4)   | Joints and junctions effectively insulated                                            |                 | N/A        |
| 20.11<br>(5.3.5)   | Strain on internal wiring                                                             |                 | N/A        |
| 20.11<br>(5.3.6)   | Wire carriers                                                                         |                 | N/A        |
| 20.11<br>(5.3.7)   | Wire ends not tinned                                                                  |                 | N/A        |
|                    | Wire ends tinned: no cold flow                                                        |                 | P          |
| <b>20.11.2 (-)</b> | <b>Cables for lighting chains</b>                                                     |                 | <b>P</b>   |
|                    | Type of cable.....:                                                                   | (see Annex 1)   | P          |
|                    | Cables not lighter than IEC 60227 or IEC 60245 for class II chain                     |                 | N/A        |
|                    | Cables not lighter than insulation according to 5.3.1 of part 1 for class III chain   |                 | P          |
|                    | Nominal cross-sectional area (mm <sup>2</sup> ).....:                                 |                 | P          |
|                    | Mechanical properties according 4.14.1 and 4.14.2 of part 1                           |                 | P          |
| <b>20.11.3 (-)</b> | <b>Cord anchorage test</b>                                                            |                 | <b>N/A</b> |
|                    | Pull test 30 N 25 times on single-core cable                                          |                 | N/A        |
| <b>20.11.4 (-)</b> | <b>Plugs and cable length</b>                                                         |                 | <b>N/A</b> |
|                    | Splash-proof plug or permanent connection if for outdoor use                          |                 | N/A        |
|                    | Length of the cable between the plug and first lamp or lampholder not less than 1,5 m |                 | N/A        |
| <b>20.11.5 (-)</b> | <b>Maximum length of extendable class II lighting chains</b>                          |                 | <b>N/A</b> |
|                    | Maximum length 100 m for 0,5 mm <sup>2</sup> cable                                    |                 | N/A        |
|                    | Maximum length 150 m for 0,75 mm <sup>2</sup> cable                                   |                 | N/A        |

| BS EN 60598-2-20 |                                                                                                                        |                 |         |
|------------------|------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause           | Requirement + Test                                                                                                     | Result - Remark | Verdict |
| <b>20.12 (8)</b> | <b>PROTECTION AGAINST ELECTRIC SHOCK</b>                                                                               |                 | P       |
| 20.12 (8.2.1)    | Live parts not accessible                                                                                              |                 | P       |
|                  | Basic insulated parts not used on the outer surface without appropriate protection                                     |                 | P       |
|                  | Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires         |                 | N/A     |
|                  | Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires                        |                 | P       |
|                  | Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements |                 | N/A     |
|                  | Basic insulation only accessible under lamp or starter replacement                                                     |                 | N/A     |
|                  | Protection in any position                                                                                             |                 | P       |
|                  | Double-ended tungsten filament lamp                                                                                    |                 | N/A     |
|                  | Insulation lacquer not reliable                                                                                        |                 | N/A     |
|                  | Double-ended high pressure discharge lamp                                                                              |                 | N/A     |
|                  | Relevant warning according to 3.2.18 fitted to the luminaire                                                           |                 | N/A     |
| 20.12 (8.2.2)    | Portable luminaire adjusted in most unfavourable position                                                              |                 | N/A     |
| 20.12 (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     |
| 20.12 (8.2.3.b)  | BC lampholder of metal in class I luminaires shall be earthed                                                          |                 | N/A     |
| 20.12 (8.2.3.c)  | SELV circuits with exposed current carrying parts:                                                                     |                 | N/A     |
|                  | Ordinary luminaire:                                                                                                    |                 | N/A     |

| BS EN 60598-2-20   |                                                                                                      |                 |          |
|--------------------|------------------------------------------------------------------------------------------------------|-----------------|----------|
| Clause             | Requirement + Test                                                                                   | Result - Remark | Verdict  |
|                    | - touch current .....                                                                                |                 | N/A      |
|                    | - no-load voltage.....                                                                               |                 | N/A      |
|                    | Other than ordinary luminaire:                                                                       |                 | N/A      |
|                    | - nominal voltage .....                                                                              |                 | N/A      |
| 20.12 (8.2.4)      | Portable luminaire have protection independent of supporting surface                                 |                 | N/A      |
| 20.12 (8.2.5)      | Compliance with the standard test finger or relevant probe                                           |                 | P        |
| 20.12 (8.2.6)      | Covers reliably secured                                                                              |                 | P        |
| 20.12 (8.2.7)      | Discharging of capacitors $\geq 0,5 \mu\text{F}$                                                     |                 | N/A      |
|                    | Portable plug connected luminaire with capacitor                                                     |                 | N/A      |
|                    | Other plug connected luminaire with capacitor                                                        |                 | N/A      |
|                    | Discharge device on or within capacitor                                                              |                 | N/A      |
|                    | Discharge device mounted separately                                                                  |                 | N/A      |
| <b>20.12.2 (-)</b> | <b>Divisible plug</b>                                                                                |                 | N/A      |
|                    | Divisible plug in compliance with Figure 1                                                           |                 | N/A      |
|                    | Parts of the connector do not separate with a pull force of 10 N                                     |                 | N/A      |
| <b>20.12.3 (-)</b> | <b>Electrification of decorations</b>                                                                |                 | N/A      |
|                    | Test with flat probe                                                                                 |                 | N/A      |
| <b>20.12.4 (-)</b> | <b>Contact of push-in lampholders</b>                                                                |                 | N/A      |
|                    | Lampholder contacts in push-in lampholders is reliably secured                                       |                 | N/A      |
|                    | Contacts move maximum 0,8 mm during the endurance test                                               |                 | N/A      |
| <b>20.12.5 (-)</b> | <b>Blanking plugs</b>                                                                                |                 | N/A      |
|                    | Blanking plugs provided if chain designed to be used without lamp in every lampholder                |                 | N/A      |
| <b>20.13 (12)</b>  | <b>ENDURANCE TEST AND THERMAL TEST</b>                                                               |                 | <b>P</b> |
| 20.13.1 (-)        | If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 20.14 |                 | P        |

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|-------------------|------------------------------------------------------------------------|--------------------------------|---------|
| Clause            | Requirement + Test                                                     | Result - Remark                | Verdict |
| 20.13<br>(12.3)   | Endurance test:                                                        |                                | P       |
|                   | - mounting- position..... :                                            | According to instruction sheet | —       |
|                   | - test temperature (°C)..... :                                         | 35°C                           | —       |
|                   | - total duration (h)..... :                                            | 240h                           | —       |
|                   | - supply voltage: Un factor; calculated voltage (V).... :              | 264VAC                         | —       |
|                   | - lamp used..... :                                                     |                                | —       |
| 20.13<br>(12.3.2) | After endurance test:                                                  |                                | P       |
|                   | - no part unserviceable                                                |                                | P       |
|                   | - luminaire not unsafe                                                 |                                | P       |
|                   | - no damage to track system                                            |                                | N/A     |
|                   | - marking legible                                                      |                                | P       |
|                   | - no cracks, deformation etc.                                          |                                | P       |
| 20.13<br>(12.4)   | Thermal test (normal operation)                                        | (see Annex 2)                  | P       |
| 20.13<br>(12.5)   | Thermal test (abnormal operation)                                      | (see Annex 2)                  | N/A     |
| 20.13<br>(12.6)   | Thermal test (failed lamp control gear condition):                     |                                | N/A     |
| 20.13<br>(12.6.1) | Through wiring or looping-in wiring loaded by a current of (A) ..... : |                                | —       |
|                   | - case of abnormal conditions..... :                                   |                                | —       |
|                   | - electronic lamp control gear                                         |                                | N/A     |
|                   | - measured winding temperature (°C): at 1,1 Un ..... :                 |                                | —       |
|                   | - measured mounting surface temperature (°C) at 1,1 Un..... :          |                                | N/A     |
|                   | - calculated mounting surface temperature (°C) ..... :                 |                                | N/A     |
|                   | - track-mounted luminaires                                             |                                | N/A     |
| 20.13<br>(12.6.2) | Temperature sensing control                                            |                                | N/A     |
|                   | - case of abnormal conditions..... :                                   |                                | —       |
|                   | - thermal link                                                         |                                | N/A     |

| BS EN 60598-2-20    |                                                                            |                          |         |
|---------------------|----------------------------------------------------------------------------|--------------------------|---------|
| Clause              | Requirement + Test                                                         | Result - Remark          | Verdict |
|                     | - manual reset cut-out                                                     |                          | N/A     |
|                     | - auto reset cut-out                                                       |                          | N/A     |
|                     | - measured mounting surface temperature (°C)..... :                        |                          | N/A     |
|                     | - track-mounted luminaires                                                 |                          | N/A     |
| 20.13<br>(12.7)     | Thermal test (failed lamp control gear in plastic luminaires):             |                          | N/A     |
| 20.13<br>(12.7.1)   | Luminaire without temperature sensing control                              |                          | N/A     |
| 20.13<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 Table 20.16 (13.2.1) | N/A     |
| 20.13<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.....:                       |                          | —       |
|                     | - measured temperature of fixing point/exposed part (°C): at 1,1 Un.....:  |                          | —       |
|                     | - calculated temperature of fixing point/exposed part (°C).....:           |                          | —       |
|                     | Ball-pressure test.....:                                                   | See Table 20.16 (13.2.1) | N/A     |

| BS EN 60598-2-20    |                                                                                                                                                         |                          |         |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------|
| Clause              | Requirement + Test                                                                                                                                      | Result - Remark          | Verdict |
| 20.13<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     |
| 20.13<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 Table 20.16 (13.2.1) | N/A     |
| <b>20.13.2 (-)</b>  | <b>Test voltage</b>                                                                                                                                     |                          | N/A     |
|                     | Provision of 12.3.1 d) of part 1 and if class III chain<br>1,1 x rated voltage of transformer/convertor                                                 |                          | —       |
|                     | Provision of 12.4.1 d) of part 1 and if class III chain<br>1,06 x rated voltage of transformer/convertor                                                |                          | —       |
| <b>20.13.3 (-)</b>  | <b>Lamp bridging devices</b>                                                                                                                            |                          | N/A     |
|                     | Lamp bridging not cause temperature which impair<br>safety                                                                                              |                          | N/A     |
|                     | Temperature of lampholders and cables not exceed<br>values in Table 12.1 when bridging device operate<br>successively on each lamp                      |                          | N/A     |
| <b>20.13.4 (-)</b>  | <b>Short-circuit test of rectifier</b>                                                                                                                  |                          | N/A     |
|                     | No emission of flames or molten material or<br>production of flammable gases and no live parts<br>accessible when short-circuit output of the rectifier |                          | N/A     |

|                  |                                                               |   |
|------------------|---------------------------------------------------------------|---|
| <b>20.14 (9)</b> | <b>RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE</b>         | P |
| 20.14 (-)        | If IP > IP 20 the order of tests as specified in clause 20.13 | — |
| 20.14 (9.2)      | Tests for ingress of dust, solid objects and moisture:        | P |
|                  | - classification according to IP.....: IP20                   | — |

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|------------------|------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause           | Requirement + Test                                                                             | Result - Remark | Verdict |
|                  | - mounting position during test.....:                                                          |                 | —       |
|                  | - fixing screws tightened; torque (Nm).....:                                                   |                 | —       |
|                  | - tests according to clauses.....:                                                             |                 | —       |
|                  | - electric strength test afterwards                                                            |                 | P       |
|                  | a) no deposit in dust-proof luminaire                                                          |                 | N/A     |
|                  | b) no talcum in dust-tight luminaire                                                           |                 | N/A     |
|                  | c) no trace of water on current-carrying parts or on insulation where it could become a hazard |                 | N/A     |
|                  | d) i) For luminaires without drain holes – no water entry                                      |                 | N/A     |
|                  | d) ii) For luminaires with drain holes – no hazardous water entry                              |                 | N/A     |
|                  | e) no water in watertight luminaire                                                            |                 | N/A     |
|                  | f) no contact with live parts (IP 2X)                                                          |                 | P       |
|                  | f) no entry into enclosure (IP 3X and IP 4X)                                                   |                 | N/A     |
|                  | f) no contact with live parts (IP3X and IP4X)                                                  |                 | N/A     |
|                  | g) no trace of water on part of lamp requiring protection from splashing water                 |                 | N/A     |
|                  | h) no damage of protective shield or glass envelope                                            |                 | N/A     |
| 20.14 (9.3)      | Humidity test 48h                                                                              | 25°C, 93%RH     | P       |

|                   |                                                                              |          |          |
|-------------------|------------------------------------------------------------------------------|----------|----------|
| <b>20.15 (10)</b> | <b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>                           |          | <b>P</b> |
| 20.15 (-)         | Metal foil procedure                                                         |          | —        |
| 20.15 (10.2.1)    | Insulation resistance test                                                   |          | P        |
|                   | Cable or cord covered by metal foil or replaced by a metal rod of mm Ø ..... |          | —        |
|                   | Insulation resistance (MΩ).....:                                             |          | —        |
|                   | SELV                                                                         |          | P        |
|                   | - between current-carrying parts of different polarity:                      |          | N/A      |
|                   | - between current-carrying parts and mounting surface.....:                  | > 100 MΩ | P        |

| BS EN 60598-2-20  |                                                                                                                                   |                 |         |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause            | Requirement + Test                                                                                                                | Result - Remark | Verdict |
|                   | - 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                                                                                                                   |                 | P       |
|                   | - between live parts of different polarity..... :                                                                                 | > 100 MΩ        | P       |
|                   | - between live parts and mounting surface..... :                                                                                  | > 100 MΩ        | P       |
|                   | - 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     |
| 20.15<br>(10.2.2) | Electric strength test                                                                                                            |                 | P       |
|                   | Dummy lamp                                                                                                                        |                 | N/A     |
|                   | Luminaires with ignitors after 24 h test                                                                                          |                 | N/A     |
|                   | Luminaires with manual ignitors                                                                                                   |                 | N/A     |
|                   | Test voltage (V)..... :                                                                                                           |                 | --      |
|                   | SELV                                                                                                                              |                 | P       |
|                   | - between current-carrying parts of different polarity:                                                                           |                 | N/A     |
|                   | - between current-carrying parts and mounting surface..... :                                                                      | 500V            | 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                                                                                                                   |                 | P       |
|                   | - between live parts of different polarity..... :                                                                                 | 1480V           | P       |

| BS EN 60598-2-20 |                                                                                                                                   |                 |         |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause           | Requirement + Test                                                                                                                | Result - Remark | Verdict |
|                  | - between live parts and mounting surface..... :                                                                                  | 2960V           | P       |
|                  | - 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     |
| 20.15 (10.3)     | Touch current or protective conductor current (mA) :                                                                              | 0.06mA          | P       |

|                   |                                                   |                               |          |
|-------------------|---------------------------------------------------|-------------------------------|----------|
| <b>20.16 (13)</b> | <b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>      |                               | <b>P</b> |
| 20.16 (13.2.1)    | Ball-pressure test..... :                         | See Test Table 20.16 (13.2.1) | P        |
| 20.16 (13.3.1)    | Needle-flame test (10 s)..... :                   | See Test Table 20.16 (13.3.1) | N/A      |
| 20.16 (13.3.2)    | Glow-wire test (650°C)..... :                     | See Test Table 20.16 (13.3.2) | P        |
| 20.16 (13.4)      | Proof tracking test (IEC 60112)..... :            | See Test Table 20.16 (13.4)   | N/A      |
| 20.16 (-)         | Edison lampholders according cl. 20 of IEC 60238  |                               | N/A      |
| 20.16 (-)         | Bayonet lampholders according cl. 19 of IEC 61184 |                               | N/A      |

| BS EN 60598-2-20                                                 |                                                                                                                          |                    |           |        |                                                                          |          |         |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------|-----------|--------|--------------------------------------------------------------------------|----------|---------|
| Clause                                                           | Requirement + Test                                                                                                       |                    |           |        | Result - Remark                                                          |          | Verdict |
| 4.7 (11.2)                                                       | TABLE: Creepage distances and clearances<br>No values are specified for working voltages below 25 V r.m.s. and 60 V d.c. |                    |           |        |                                                                          |          | P       |
|                                                                  | Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages                                                           |                    |           |        |                                                                          |          | P       |
|                                                                  | Applicable part of IEC 60598-1 Table 11.1* and 11.2*                                                                     |                    |           |        |                                                                          |          | P       |
|                                                                  | Insulation type **                                                                                                       | Measured clearance | Required  |        | Measured creepage                                                        | Required |         |
|                                                                  |                                                                                                                          |                    | clearance | *Table |                                                                          | creepage | *Table  |
| Distance 1:                                                      | B                                                                                                                        | >3.0               | 1,5       | 11.1   | >3.0                                                                     | 2,5      | 11.1    |
| Working voltage (V)..... :                                       |                                                                                                                          |                    |           |        | 240VAC                                                                   |          | —       |
| PTI..... :                                                       |                                                                                                                          |                    |           |        | < 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/> |          | —       |
| Pulse voltage if applicable (kV) .....                           |                                                                                                                          |                    |           |        | --                                                                       |          | —       |
| Supplementary information: Between the LN pins                   |                                                                                                                          |                    |           |        |                                                                          |          |         |
| Distance 2:                                                      | R                                                                                                                        | >5.5               | 3.0       | 11.1   | >5.5                                                                     | 5.0      | 11.1    |
| Working voltage (V)..... :                                       |                                                                                                                          |                    |           |        | 240VAC                                                                   |          | —       |
| PTI..... :                                                       |                                                                                                                          |                    |           |        | < 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/> |          | —       |
| Pulse voltage if applicable (kV) .....                           |                                                                                                                          |                    |           |        | --                                                                       |          | —       |
| Supplementary information: Between live parts and plastic shell. |                                                                                                                          |                    |           |        |                                                                          |          |         |
| Distance 3:                                                      |                                                                                                                          |                    |           |        |                                                                          |          |         |
| Working voltage (V)..... :                                       |                                                                                                                          |                    |           |        |                                                                          |          | —       |
| PTI..... :                                                       |                                                                                                                          |                    |           |        | < 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>            |          | —       |
| Pulse voltage if applicable (kV) .....                           |                                                                                                                          |                    |           |        | --                                                                       |          | —       |
| Supplementary information: --                                    |                                                                                                                          |                    |           |        |                                                                          |          |         |

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

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

|                                        |                                             |                       |                          |   |
|----------------------------------------|---------------------------------------------|-----------------------|--------------------------|---|
| 20.16<br>(13.2.1)                      | TABLE: Ball Pressure Test of Thermoplastics |                       |                          | P |
| Allowed impression diameter (mm) ..... |                                             |                       |                          | — |
| Object/ Part No./ Material             | Manufacturer/<br>trademark                  | Test temperature (°C) | Impression diameter (mm) |   |
| DC connector                           | See annex 1                                 | 125°C                 | 1.40                     |   |
| switch                                 | See annex 1                                 | 125°C                 | 1.51                     |   |
| Supplementary information:             |                                             |                       |                          |   |

|                               |                                                  |                                                       |                                          |                                    |         |
|-------------------------------|--------------------------------------------------|-------------------------------------------------------|------------------------------------------|------------------------------------|---------|
| 20.16<br>(13.3.1)             | <b>TABLE: Needle-flame test (IEC 60695-11-5)</b> |                                                       |                                          |                                    | P       |
| 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 |
| DC connector                  | See annex 1                                      | 10                                                    | No                                       | 2                                  | P       |
| switch                        | See annex 1                                      | 10                                                    | No                                       | 1                                  | P       |
| Supplementary information:    |                                                  |                                                       |                                          |                                    |         |

|                                                                                                                                                                             |                                               |                                          |                                    |         |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------|------------------------------------|---------|-----|
| 20.16 (13.3.2)                                                                                                                                                              | <b>TABLE: Glow-wire test (IEC 60695-2-11)</b> |                                          |                                    |         | N/A |
| <b>Glow wire temperature .....</b>                                                                                                                                          |                                               |                                          |                                    | 650°C   | —   |
| Object/ Part No./<br>Material                                                                                                                                               | Manufacturer/<br>trademark                    | Ignition of<br>specified layer<br>Yes/No | Duration of<br>burning (tb)<br>(s) | Verdict |     |
| --                                                                                                                                                                          | --                                            | --                                       | --                                 | --      |     |
| Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No).....: |                                               |                                          |                                    |         | Yes |
| Supplementary information:                                                                                                                                                  |                                               |                                          |                                    |         |     |

|                               |                                               |                                                                          |    |    |         |
|-------------------------------|-----------------------------------------------|--------------------------------------------------------------------------|----|----|---------|
| 20.16 (13.4)                  | <b>TABLE: Proof tracking test (IEC 60112)</b> |                                                                          |    |    | N/A     |
| <b>Test voltage PTI .....</b> |                                               |                                                                          |    | -- | —       |
| Object/ Part No./ Material    | Manufacturer/<br>trademark                    | Withstand 50 drops without failure on three places or on three specimens |    |    | Verdict |
| --                            | --                                            | --                                                                       | -- | -- | --      |
| Supplementary information:    |                                               |                                                                          |    |    |         |

| BS EN 60598-2-20 |                                                                                                                                                                                                                      |                 |         |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause           | Requirement + Test                                                                                                                                                                                                   | Result - Remark | Verdict |
| <b>ANNEX A</b>   | <b>Requirements for interconnecting connectors for use in lighting chains</b>                                                                                                                                        |                 | N/A     |
|                  | <b>This Annex A consist relevant requirements and modifications of IEC 61984</b>                                                                                                                                     |                 | N/A     |
| <b>5.2</b>       | <b>Classification according to protection against electric shock</b>                                                                                                                                                 |                 | N/A     |
|                  | Only enclosed connectors                                                                                                                                                                                             |                 | N/A     |
| <b>5.3</b>       | <b>Classification according to the style of connector</b>                                                                                                                                                            |                 | N/A     |
|                  | Only free connectors                                                                                                                                                                                                 |                 | N/A     |
| <b>5.4</b>       | <b>Classification according to additional characteristics of connectors</b>                                                                                                                                          |                 | N/A     |
|                  | According b), d), e), f), h), and j)                                                                                                                                                                                 |                 | N/A     |
| <b>6.2.1</b>     | <b>Identification</b>                                                                                                                                                                                                |                 | N/A     |
|                  | According a) and b)                                                                                                                                                                                                  |                 | N/A     |
| <b>6.4.1</b>     | <b>Non accessibility of live parts</b>                                                                                                                                                                               |                 | N/A     |
|                  | Test with test finger on class II chain                                                                                                                                                                              |                 | N/A     |
| <b>6.9.1</b>     | <b>Polarisation</b>                                                                                                                                                                                                  |                 | N/A     |
|                  | Improper connection of mating parts is prevented                                                                                                                                                                     |                 | N/A     |
|                  | No unsafe compatibility between connectors for class II and class III chains of the same manufacturer                                                                                                                |                 | N/A     |
|                  | Male part of class III chains not make contact in the female contact of low voltage connectors (e.g. IEC 60320)                                                                                                      |                 | N/A     |
|                  | Manufacturer designed connectors, no unsafe compatibility with systems according IEC 60320 and IEC 60906 and national domestic plug and socket-outlet systems in the country where the chain is placed on the market |                 | N/A     |
| <b>6.9.3</b>     | <b>Connection of conductors</b>                                                                                                                                                                                      |                 | N/A     |
|                  | Cross sectional area of the contact making part of the interconnecting coupler not less than the corresponding conductor in the interconnected cable                                                                 |                 | N/A     |
| <b>6.10</b>      | <b>Design of a CBC</b>                                                                                                                                                                                               |                 | N/A     |
|                  | Adequate breaking capacity                                                                                                                                                                                           |                 | N/A     |
|                  | Female part at the end of the chain, other than ordinary, provided with sealing device securely fixed to the coupler                                                                                                 |                 | N/A     |
| <b>6.13</b>      | <b>Dielectric strength</b>                                                                                                                                                                                           |                 | N/A     |
|                  | Test according clause 20.15 of this standard                                                                                                                                                                         |                 | N/A     |



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| BS EN 60598-2-20 |                                                |                 |         |
|------------------|------------------------------------------------|-----------------|---------|
| Clause           | Requirement + Test                             | Result - Remark | Verdict |
| <b>6.14.2</b>    | <b>Electrical endurance (CBC)</b>              |                 | N/A     |
|                  | Meet the specified breaking capacity           |                 | N/A     |
|                  | Number of cycles 50                            |                 | —       |
|                  | Test according 7.3.8                           |                 | N/A     |
| <b>6.14.3</b>    | <b>Bendings (non-rewirable connectors)</b>     |                 | N/A     |
|                  | Meet the specified number of bendings          |                 | N/A     |
|                  | Number of cycles 1000                          |                 | —       |
|                  | Test according 7.3.9                           |                 | N/A     |
| <b>6.17</b>      | <b>Cable clamp</b>                             |                 | N/A     |
|                  | Test according clause 20.11.3 of this standard |                 | N/A     |

| BS EN 60598-2-20 |                    |                 |         |
|------------------|--------------------|-----------------|---------|
| 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 Driver                                     | B    | GHANZHOU JUTAI ELECTRONIC CO.,LTD      | JT-DC31V9W-F5      | Input: 220-240V~ 50-60Hz 0.30A<br>output : 31Vdc 9W   | BS EN 61347-1<br>BS EN 61347-2-13     | BS                                  |
|                                                |      |                                        | JT-DC31V3.6W-E4    | Input: 220-240V~ 50-60Hz 0.10A<br>output : 31Vdc 3.6W | BS EN 61347-1<br>BS EN 61347-2-13     | BS                                  |
| LED                                            | C    | Philips                                | L128-4080RA35002K1 | VF: 3VDC;Max IF=150mA; 6500K                          | IEC/TR 62778                          | Tested with appliance               |
| Internal wiring                                | B    | DONGGUAN CHUANTAI WIRE PRODUCTS CO LTD | 1569               | 80°C, 300V,24AWG                                      | UL758                                 | UL E315628                          |
| DC connector                                   | C    | Tongxiang Zhouquan Hongke Electronics  | 5521               | 300V                                                  | BS EN IEC 60598-1<br>BS EN 60598-2-20 | Tested with appliance               |
| switch                                         | C    | AN HUI SHILIN LIGHTING CO.,LTD.        | -                  | PC                                                    | BS EN IEC 60598-1<br>BS EN 60598-2-20 | Tested with appliance               |

Supplementary information:

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

The codes above have the following meaning:

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

| BS EN 60598-2-20               |                                                                                           |                     |         |       |                        |       |
|--------------------------------|-------------------------------------------------------------------------------------------|---------------------|---------|-------|------------------------|-------|
| Clause                         | Requirement + Test                                                                        | Result - Remark     | Verdict |       |                        |       |
| ANNEX 2                        | TABLE: Temperature measurements, thermal tests of Section 12                              |                     | P       |       |                        |       |
|                                | Type reference.....:                                                                      | UKCA-31V-9W-650L-IC | —       |       |                        |       |
|                                | Lamp used.....:                                                                           | LED lamp            | —       |       |                        |       |
|                                | Lamp control gear used.....:                                                              | --                  | —       |       |                        |       |
|                                | Mounting position of luminaire.....:                                                      | See product manual  | —       |       |                        |       |
|                                | Supply wattage (W).....:                                                                  | 9.85W               | —       |       |                        |       |
|                                | Supply current (A).....:                                                                  | 0.062A              | —       |       |                        |       |
|                                | Calculated power factor.....:                                                             | /                   | —       |       |                        |       |
|                                | Table: measured temperatures corrected for ta=25°C:                                       |                     |         |       |                        |       |
|                                | - abnormal operating mode.....:                                                           | LED driver short    | —       |       |                        |       |
|                                | - test 1: rated voltage.....:                                                             | --                  | —       |       |                        |       |
|                                | - test 2: 1,06 times rated voltage or 1,05 times rated wattage.....:                      | 254.4VAC            | —       |       |                        |       |
|                                | - test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage.....: | --                  | —       |       |                        |       |
|                                | - test 4: 1,1 times rated voltage or 1,05 times rated wattage.....:                       | --                  | —       |       |                        |       |
|                                | Through wiring or looping-in wiring loaded by a current of A during the test .....        | 254.4VAC            | —       |       |                        |       |
| Temperature measurements, (°C) |                                                                                           |                     |         |       |                        |       |
| Part                           | Clause 12.4 – normal                                                                      |                     |         |       | Clause 12.5 – abnormal |       |
|                                | test 1                                                                                    | test 2              | test 3  | limit | test 4                 | limit |
| DC connector                   | ---                                                                                       | 34.0                | ---     | Ref   | ---                    | ---   |
| switch                         | ---                                                                                       | 31.2                | ---     | 55    | ---                    | ---   |
| LED driver tc                  | ---                                                                                       | 48.2                | ---     | 75    | 29.1                   | 85    |
| Input wire into LED model      | ---                                                                                       | 40.7                | ---     | 80    | ---                    | ---   |
| Mounting surface               | ---                                                                                       | 28.8                | ---     | 90    | 27.0                   | 130   |
| Ambient                        | ---                                                                                       | 25.0                | ---     | ---   | ---                    | ---   |
| Supplementary information:     |                                                                                           |                     |         |       |                        |       |

| BS EN 60598-2-20 |                    |                 |         |
|------------------|--------------------|-----------------|---------|
| Clause           | Requirement + Test | Result - Remark | Verdict |

|                |                                                       |   |            |
|----------------|-------------------------------------------------------|---|------------|
| <b>ANNEX 3</b> | <b>Screw terminals (part of the luminaire)</b>        |   | <b>N/A</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        |

| BS EN 60598-2-20 |                                                                                |                 |         |
|------------------|--------------------------------------------------------------------------------|-----------------|---------|
| Clause           | Requirement + Test                                                             | Result - Remark | Verdict |
| <b>ANNEX 4</b>   | <b>Screwless terminals (part of the luminaire)</b>                             |                 | N/A     |
| <b>(15)</b>      | <b>SCREWLESS TERMINALS</b>                                                     |                 | N/A     |
| (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     |



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| BS EN 60598-2-20 |                                                                                   |                 |         |
|------------------|-----------------------------------------------------------------------------------|-----------------|---------|
| Clause           | Requirement + Test                                                                | Result - Remark | Verdict |
| (15.6)           | Terminals and connections for external wiring                                     |                 | N/A     |
| (15.6.1)         | Conductors                                                                        |                 | N/A     |
|                  | Terminal size and rating                                                          |                 | N/A     |
| 15.6.2           | Mechanical tests                                                                  |                 | N/A     |
| (15.6.2.1)       | Pull test spring-type terminals or welded connections (4 samples); pull (N) ..... |                 | N/A     |
| (15.6.2.2)       | Pull test pin or tab terminals (4 samples); pull (N) .....                        |                 | N/A     |
| (15.6.3)         | Electrical tests                                                                  |                 | N/A     |
|                  | Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1                                |                 | N/A     |



| BS EN 60598-2-20           |                                                            |   |   |   |   |                 |   |   |   |    |         |
|----------------------------|------------------------------------------------------------|---|---|---|---|-----------------|---|---|---|----|---------|
| Clause                     | Requirement + Test                                         |   |   |   |   | Result - Remark |   |   |   |    | Verdict |
| (15.6.3.1)<br>(15.6.3.2)   | TABLE: Contact resistance test / Heating tests             |   |   |   |   |                 |   |   |   |    | N/A     |
|                            | Voltage drop (mV) after 1 h                                |   |   |   |   |                 |   |   |   |    | —       |
| terminal                   | 1                                                          | 2 | 3 | 4 | 5 | 6               | 7 | 8 | 9 | 10 |         |
| voltage drop (mV)          |                                                            |   |   |   |   |                 |   |   |   |    |         |
|                            | Voltage drop of two inseparable joints                     |   |   |   |   |                 |   |   |   |    |         |
|                            | Voltage drop after 10th alt. 25th cycle                    |   |   |   |   |                 |   |   |   |    |         |
|                            | Max. allowed voltage drop (mV).....:                       |   |   |   |   |                 |   |   |   |    | —       |
| terminal                   | 1                                                          | 2 | 3 | 4 | 5 | 6               | 7 | 8 | 9 | 10 |         |
| voltage drop (mV)          |                                                            |   |   |   |   |                 |   |   |   |    |         |
|                            | Voltage drop after 50th alt. 100th cycle                   |   |   |   |   |                 |   |   |   |    |         |
|                            | Max. allowed voltage drop (mV).....:                       |   |   |   |   |                 |   |   |   |    | —       |
| terminal                   | 1                                                          | 2 | 3 | 4 | 5 | 6               | 7 | 8 | 9 | 10 |         |
| voltage drop (mV)          |                                                            |   |   |   |   |                 |   |   |   |    |         |
|                            | Continued ageing: voltage drop after 10th alt. 25th cycle  |   |   |   |   |                 |   |   |   |    |         |
|                            | Max. allowed voltage drop (mV).....:                       |   |   |   |   |                 |   |   |   |    | —       |
| terminal                   | 1                                                          | 2 | 3 | 4 | 5 | 6               | 7 | 8 | 9 | 10 |         |
| voltage drop (mV)          |                                                            |   |   |   |   |                 |   |   |   |    |         |
|                            | Continued ageing: voltage drop after 50th alt. 100th cycle |   |   |   |   |                 |   |   |   |    |         |
|                            | Max. allowed voltage drop (mV).....:                       |   |   |   |   |                 |   |   |   |    | —       |
| terminal                   | 1                                                          | 2 | 3 | 4 | 5 | 6               | 7 | 8 | 9 | 10 |         |
| voltage drop (mV)          |                                                            |   |   |   |   |                 |   |   |   |    |         |
|                            |                                                            |   |   |   |   |                 |   |   |   |    |         |
| Supplementary information: |                                                            |   |   |   |   |                 |   |   |   |    |         |



**ATTACHMENT TO TEST REPORT BS EN 60598-2-20**  
**EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**  
**LUMINAIRES**  
**PART 2: PARTICULAR REQUIREMENTS**  
**SECTION 20: LIGHTING CHAINS**

**Differences according to**.....: BS EN 60598-2-20:2015 used in conjunction with  
BS EN IEC 60598-1:2021/A11:2022

**Annex Form No**.....: EU\_GD\_IEC60598\_2\_20E

**Annex Form Originator**.....: Intertek Semko AB

|                   |                                                                                     |          |
|-------------------|-------------------------------------------------------------------------------------|----------|
|                   | <b>CENELEC COMMON MODIFICATIONS (EN)</b>                                            | <b>P</b> |
| <b>20.6 (3)</b>   | <b>MARKING</b>                                                                      | <b>P</b> |
| 20.6<br>(3.3.101) | For luminaires not supplied with terminal block:<br>Adequate warning on the package | <b>P</b> |

|                 |                                    |            |
|-----------------|------------------------------------|------------|
| <b>20.7 (4)</b> | <b>CONSTRUCTION</b>                | <b>N/A</b> |
| 20.7 (4.11.6)   | Electro-mechanical contact systems | <b>N/A</b> |

|                  |                                                                             |            |
|------------------|-----------------------------------------------------------------------------|------------|
| <b>20.11 (5)</b> | <b>EXTERNAL AND INTERNAL WIRING</b>                                         | <b>P</b>   |
| 20.11 (5.2.1)    | Connecting leads                                                            | <b>P</b>   |
|                  | - without a means for connection to the supply                              | <b>N/A</b> |
|                  | - terminal block specified                                                  | <b>N/A</b> |
|                  | - relevant information provided                                             | <b>P</b>   |
|                  | - compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2,<br>12 and 13.2 of Part 1 | <b>P</b>   |
| 20.11 (5.2.2)    | Cables equal to EN 50525                                                    | <b>N/A</b> |
|                  | Replace table 5.1 – Supply cord                                             | <b>N/A</b> |

|                    |                                                                                                       |            |
|--------------------|-------------------------------------------------------------------------------------------------------|------------|
| <b>20.13 (12)</b>  | <b>ENDURANCE TESTS AND THERMAL TESTS</b>                                                              | <b>P</b>   |
| 20.13<br>(12.4.2c) | Thermal test (normal operation)<br>see footnote c to table 12.2 relating to unsleeved<br>fixed wiring | <b>N/A</b> |



|           |                                                         |  |     |
|-----------|---------------------------------------------------------|--|-----|
| <b>ZB</b> | <b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>       |  | N/A |
| (3.3)     | DK: power supply cords of class I luminaires with label |  | N/A |
| (4.5.1)   | DK: socket-outlets                                      |  | N/A |
| (5.2.1)   | CY, DK, FI, GB: type of plug                            |  | N/A |

|           |                                                                                                                                                                                                                                                                                                                               |  |     |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----|
| <b>ZC</b> | <b>ANNEX ZC, NATIONAL DEVIATIONS (EN)</b>                                                                                                                                                                                                                                                                                     |  | N/A |
| (4 & 5)   | FR: Shuttered socket-outlets 10/16A                                                                                                                                                                                                                                                                                           |  | N/A |
|           | FR: Safety requirements for high buildings<br><br>(Arrêté du 30 décembre 2011 portant règlement de sécurité pour la construction des immeubles de grande hauteur et leur protection contre les risques d'incendie et de panique; Section VIII; Article GH 48, Eclairage)<br><br>Glow-wire test for outer parts of luminaires: |  | N/A |
|           | - 850°C for luminaires in stairways and horizontal travel paths                                                                                                                                                                                                                                                               |  | N/A |
|           | - 650°C for indoor luminaires                                                                                                                                                                                                                                                                                                 |  | N/A |
| (13.3)    | GB: Requirements according to United Kingdom Building Regulation                                                                                                                                                                                                                                                              |  | N/A |

|            |                                                                                                                               |                                                                                                                                                               |            |
|------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>7</b>   | <b>Measurement information flow</b>                                                                                           |                                                                                                                                                               | <b>P</b>   |
| <b>7.1</b> | <b>Basic flow</b>                                                                                                             |                                                                                                                                                               | <b>P</b>   |
|            | 'Law of conservation of luminance' applied                                                                                    |                                                                                                                                                               | N/A        |
|            | Use of only true luminance/radiance values                                                                                    |                                                                                                                                                               | N/A        |
|            | In case of luminaire:<br>The light source is operated in the luminaire under similar conditions as when tested as a component |                                                                                                                                                               | N/A        |
|            | In case $E_{thr}$ value for RG2 was established the peak value was derived from angular light distribution                    |                                                                                                                                                               | N/A        |
| <b>7.2</b> | <b>Conditions for the radiance measurement</b>                                                                                |                                                                                                                                                               | <b>P</b>   |
|            | Standard condition applied<br>(200mm distance, 0,011rad field of view)                                                        |                                                                                                                                                               | P          |
|            | Non-standard condition applied                                                                                                |                                                                                                                                                               | N/A        |
| <b>7.3</b> | <b>Special cases (I): Replacement by a lamp or LED module of another type</b>                                                 |                                                                                                                                                               | <b>N/A</b> |
|            | Light source is a white light source                                                                                          |                                                                                                                                                               | N/A        |
|            | Evaluation done based on highest luminance                                                                                    |                                                                                                                                                               | N/A        |
|            | Evaluation done based on CCT value                                                                                            |                                                                                                                                                               | N/A        |
| <b>7.4</b> | <b>Special cases (II): Arrays and clusters of primary light sources</b>                                                       |                                                                                                                                                               | <b>N/A</b> |
|            | LED package is evaluated as ..... :<br><input type="checkbox"/> RG0 unlimited<br><input type="checkbox"/> RG1 unlimited       |                                                                                                                                                               | N/A        |
|            | $E_{thr}$ of LED package applies to array                                                                                     |                                                                                                                                                               | N/A        |
| <b>8</b>   | <b>RISK GROUP CLASSIFICATION</b>                                                                                              |                                                                                                                                                               | <b>P</b>   |
|            | Risk group achieved:                                                                                                          |                                                                                                                                                               | P          |
|            | -... Risk Group 0 unlimited                                                                                                   |                                                                                                                                                               | P          |
|            | -... Risk Group 1 unlimited                                                                                                   |                                                                                                                                                               | N/A        |
|            | - $E_{thr}$ ..... (lx) :<br>Distance to reach RG1..... (m) :                                                                  |                                                                                                                                                               | N/A        |
|            | <b>TABLE: Spectroradiometric measurement</b>                                                                                  |                                                                                                                                                               | <b>P</b>   |
|            | Measurement performed on:                                                                                                     | <input type="checkbox"/> LED package<br><input type="checkbox"/> LED module<br><input type="checkbox"/> Lamp<br><input checked="" type="checkbox"/> Luminaire | <b>P</b>   |
|            | Model number..... :                                                                                                           | UKCA-31V-9W-650L-IC                                                                                                                                           | <b>P</b>   |
|            | Test voltage (V)..... :                                                                                                       | 220VAC                                                                                                                                                        | —          |
|            | Test current (A)..... :                                                                                                       | 0.066A                                                                                                                                                        | —          |
|            | Test frequency (Hz)..... :                                                                                                    | /                                                                                                                                                             | —          |
|            | Ambient, $t(^{\circ}\text{C})$ ..... :                                                                                        | 25.1                                                                                                                                                          | —          |



|                               | Measurement distance..... : |                |                                      | <input checked="" type="checkbox"/> 20 cm<br><input type="checkbox"/> ... cm                                                              | —      |
|-------------------------------|-----------------------------|----------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                               | Source size ..... :         |                |                                      | <input checked="" type="checkbox"/> Non-small<br><input type="checkbox"/> Small : mm                                                      | —      |
|                               | Field of view ..... :       |                |                                      | <input type="checkbox"/> 100 mrad<br><input checked="" type="checkbox"/> 11 mrad<br><input type="checkbox"/> 1,7 mrad (for small sources) | —      |
| Item                          |                             | Symbol         | Units                                | Result                                                                                                                                    | Remark |
| Correlated colour temperature |                             | CCT            | K                                    | 2608K                                                                                                                                     | --     |
| x/y colour coordinates        |                             | (x,y)          | --                                   | --                                                                                                                                        | --     |
| Blue light hazard radiance    |                             | L <sub>B</sub> | W/(m <sup>2</sup> •sr <sup>1</sup> ) | 1.525E+01                                                                                                                                 | --     |
| Blue light hazard irradiance  |                             | E <sub>B</sub> | W/m <sup>2</sup>                     | --                                                                                                                                        | --     |
| Luminance                     |                             | L              | cd/m <sup>2</sup>                    | 5.751E+04                                                                                                                                 | --     |
| Illuminance                   |                             | E              | lx                                   | --                                                                                                                                        | --     |
| Supplementary information:--  |                             |                |                                      |                                                                                                                                           |        |



| BS EN 62493:2015 |                                                                                                                                                                                   |                                                      |                                                      |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| Clause           | Requirement + Test                                                                                                                                                                | Result - Remark                                      | Verdict                                              |
| Procedure        | Products are applications with                                                                                                                                                    | If No                                                | If yes                                               |
| a)               | Non-electronic control gear?                                                                                                                                                      | <input checked="" type="checkbox"/> see Procedure b) | <input type="checkbox"/> Pass                        |
| b)               | Incandescent-lamp technology or halogen?                                                                                                                                          | <input checked="" type="checkbox"/> see Procedure c) | <input type="checkbox"/> see Procedure h)            |
| c)               | LED light-source technology?                                                                                                                                                      | <input type="checkbox"/> see Procedure d)            | <input checked="" type="checkbox"/> see Procedure h) |
| d)               | OLED light-source technology?                                                                                                                                                     | <input type="checkbox"/> see Procedure e)            | <input type="checkbox"/> see Procedure h)            |
| e)               | High-pressure discharge lamp technology?                                                                                                                                          | <input type="checkbox"/> see Procedure f)            | <input type="checkbox"/> see Procedure h)            |
| f)               | Low-pressure discharge lamp technologies with a measurement distance $\geq 50\text{cm}$<br>(Distance for Hand lights, table lightings and Self-ballasted lamps is less than 50cm) | <input type="checkbox"/> see Procedure g)            | <input type="checkbox"/> see Procedure h)            |
| g)               | Independent auxiliary?                                                                                                                                                            | <input type="checkbox"/> see Procedure i)            | <input type="checkbox"/> see Procedure h)            |
| h)               | Non-wireless technology (exclude infra-red)?                                                                                                                                      | <input checked="" type="checkbox"/> see Procedure i) | <input type="checkbox"/> Pass                        |
| i)               | Additional test is performed and result is Pass                                                                                                                                   | <input type="checkbox"/> see Procedure b)            | <input checked="" type="checkbox"/> Pass             |

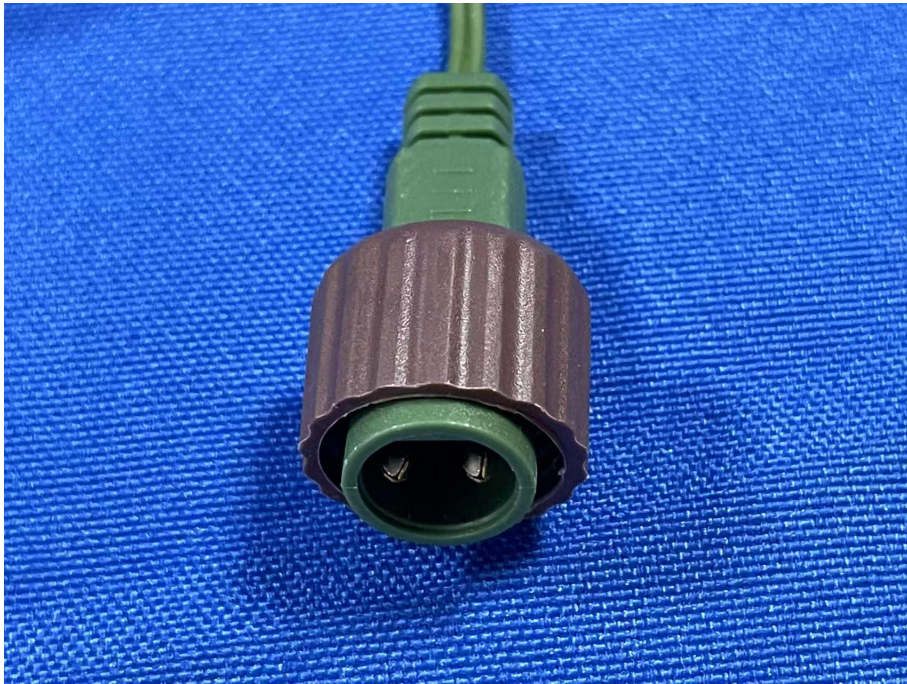


Product Photo  
**Model: UKCA-31V-9W-650L-IC**



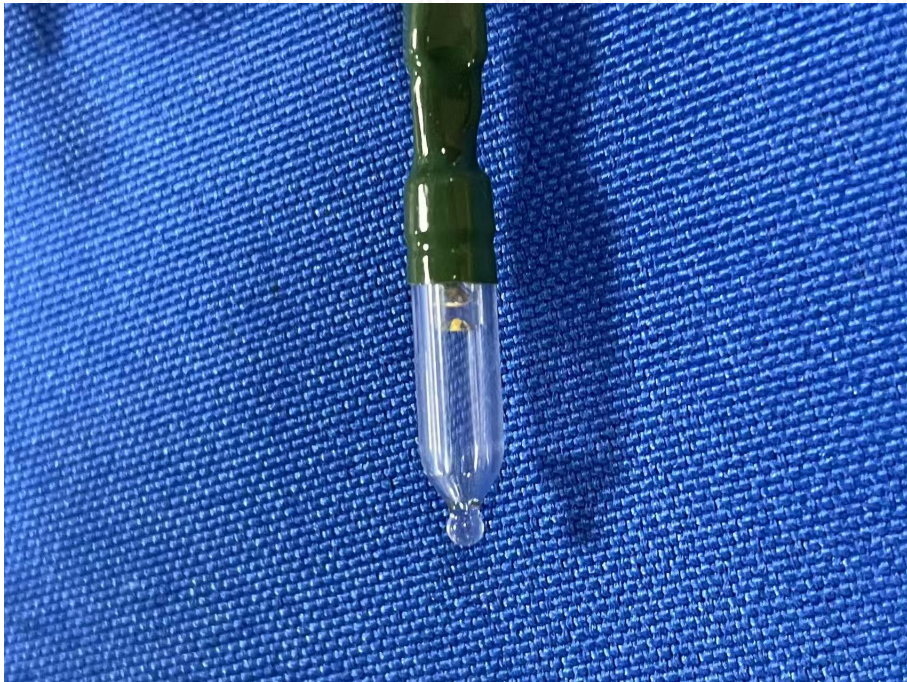
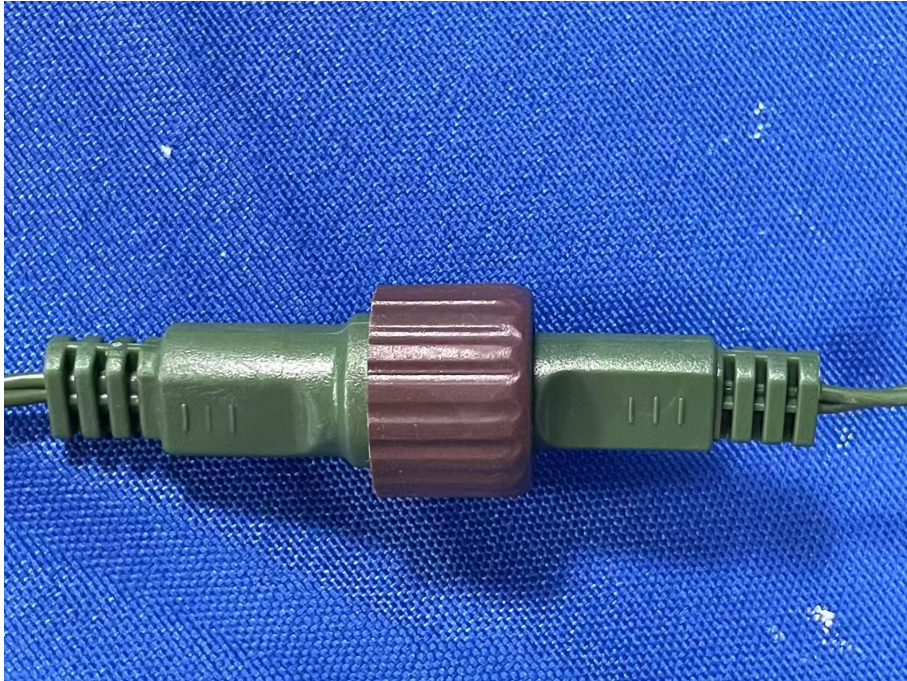


Product Photo

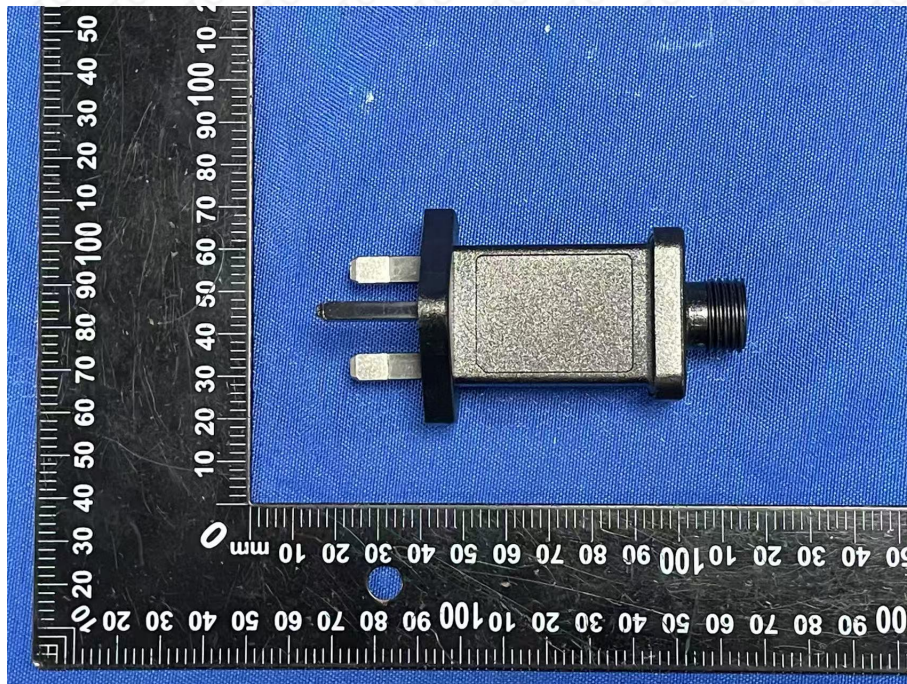




Product Photo



## Product Photo



===== End of Report =====