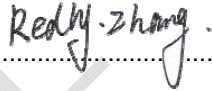



| | |
|--|---|
| <p>LVD Test Report</p> <p>EN60598-1&EN60598-2-1</p> <p>Part 1:General requirement and tests</p> <p>Part 2: Particular requirments</p> <p>Section One – Fixed general purpose luminaires</p> | |
| Report reference No..... | HT15DR-120321 |
| Tested by (name+ signature)..... | Redly Zhang  |
| Approved by (name+ signature)..... | Billy Tu  |
| Date of issue..... | Dec. 03, 2015 |
| Testing Laboratory Name..... | Honton Compliance Laboratories (Shenzhen) Co., Ltd. |
| Address..... | 6/F, Shangmei Time Building, Longguan Rd., Longhua Street, Longhua New District, Shenzhen 518109, China |
| Testing location | Same as above |
| Applicant's Name..... | KRINAS CHARALAMPOS KAI SIA OE T/A ANDROMEDA LIGHTING |
| Address..... | UNIT 20E , 28 TH OCTOBER STREET, AGIOS IOANNIS RENTIS, 182 33, ATTIKI , GREECE. |
| Standard..... | EN 60598-2-1:1989 &EN 60598-1:2008+A11: 2009 |
| Test procedure..... | Type test |
| Procedure deviation..... | N/A. |
| Non-standard test method..... | N/A. |
| Test item description..... | LEX BRASS (refer to model list for detail) |
| Manufacturer..... | Same as applicant |
| Trademark..... | N/A |
| Model / Type reference | 95, 91, 41 |
| Rating(s) | Input: AC220-250V 50/60Hz 2A |

Summary of testing:

Tests performed (name of test and test clause):

-EN 60598-2-1:1989

-EN 60598-1:2008+A11: 2009

The submitted samples were found to comply with the requirements of above specification

Test item particulars

Equipment mobility.....: Fixed

Class of equipment.....: Clas I

Degree of protection: IP54

Supply construction.....: Supply cord

Possible test case verdicts:

- test case does not apply to the test object.....: N/A

- test object does meet the requirement.....: P (Pass)

- test object does not meet the requirement.....: F (Fail)

Testing:

Date of receipt of test item: Dec. 03, 2015

Date(s) of performance of test: Dec. 03, 2015 to Dec. 13, 2015

Attachment No.1: Equipments List

Attachment No.2: Photo documentation

Lable:



Note: All models are identical except for the model name and rating.

Model List :

| Model No. | Description | Input voltage | Frequency | Current |
|-----------|--------------------------------|---------------|-----------|---------|
| 95 | Mouse , Water proof spot light | 220-250VAC | 50/60Hz | 2A |
| 91 | Small bulkhead light round | 220-250VAC | 50/60Hz | 2A |
| 41 | Small bulkhead light round | 220-250VAC | 50/60Hz | 2A |

Remark:

- 1.All models above are identical in interior structure, electrical circuits and components, and just model names, shape and colour are different for the marketing requirement.
- 2.All test are carried out on 95.

General remarks:

Clause number between brackets refer to clauses in EN 60598-1(IEC 60598-1)

"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

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

This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory.

Unless otherwise specified, test are made under normal conditions at an ambient temperature within the range of 15°C to 35°C, RH45% to 75% and an air pressure of 860mbar of 1060mbar

General product information:

LEX BRASS, Fixed general purpose luminaires ,Max.40°C

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--------------------|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |

| 1.2 (0) | GENERAL TEST REQUIREMENTS | | P |
|-----------|--|-----|----------|
| 1.2 (0.1) | Information for luminaire design considered. | Yes | — |
| 1.2 (0.3) | More sections applicable | No | — |

| 1.4 (2) | CLASSIFICATION | | P |
|-----------|---|---------|----------|
| 1.4 (2.2) | Type of protection | Class I | — |
| 1.4 (2.3) | Degree of protection | IP54 | — |
| 1.4 (2.4) | Portable or handheld luminaire | No | — |
| | Fixed luminaire suitable for normally flammable surfaces..... | Yes | — |
| | Fixed luminaire suitable for non-combustible materials only | No | — |
| 1.4 (2.5) | Luminaire for normal use | Yes | — |
| | Luminaire for rough service | No | — |

| 1.5 (3) | MARKING | | P |
|--------------|--------------------------------------|-----------|----------|
| 1.5 (3.2) | Mandatory markings | | P |
| | Position of the marking | Enclosure | P |
| | Format of symbols/text | | P |
| 1.5 (3.3) | Additional information | | P |
| | Language of instructions | English | P |
| 1.5 (3.3.1) | Combination luminaires | | N/A |
| 1.5 (3.3.2) | Nominal frequency in Hz | 50/60Hz | P |
| 1.5 (3.3.3) | Operating temperature | Max.40°C | P |
| 1.5 (3.3.4) | Symbol or warning notice | | N/A |
| 1.5 (3.3.5) | Wiring diagram | | N/A |
| 1.5 (3.3.6) | Special conditions | | N/A |
| 1.5 (3.3.7) | Metal halid lamp luminaire – warning | | N/A |
| 1.5 (3.3.8) | Limitation for semi-luminaires | | N/A |
| 1.5 (3.3.9) | Power factor and supply current | | N/A |
| 1.5 (3.3.10) | Suitability for use indoors | | P |
| 1.5 (3.3.11) | Luminaires with remote control | | N/A |
| 1.5 (3.3.12) | Clip-mounted luminaire – warning | | N/A |
| 1.5 (3.3.13) | Specifications of protective shields | | P |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|---|-----------------|----------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 1.5 (3.3.14) | Symbol for nature of supply | ~ | P |
| 1.5 (3.3.15) | Rated current of socket outlet | | N/A |
| 1.5 (3.3.16) | Rough service luminaire | | N/A |
| 1.5 (3.3.17) | Mounting instruction for type Y, type Z and some type X attachments | Type Y | P |
| 1.5 (3.3.18) | Non-ordinary luminaires with PVC cable | | N/A |
| 1.5 (3.4) | Test with water | Legible | P |
| | Test with hexane | Legible | P |
| | Legible after test | Yes | P |
| | Label attached | Yes | P |
| 1.6 (4) | Construction | | P |
| 1.6 (4.2) | Components replaceable without difficulty | | P |
| 1.6 (4.3) | Wireways smooth and free from sharp edges | | P |
| 1.6 (4.4) | Lampholders | | P |
| 1.6 (4.4.1) | Integral lampholder | | P |
| 1.6 (4.4.2) | Wiring connection | | P |
| 1.6 (4.4.3) | Lampholder for end-to-end mounting | | N/A |
| 1.6 (4.4.4) | Positioning | | N/A |
| | - pressure test (N) | | N/A |
| | - bending test (Nm) | 2.0Nm | N/A |
| 1.6 (4.4.5) | Peak pulse voltage | | N/A |
| 1.6 (4.4.6) | Centre contact | | N/A |
| 1.6 (4.4.7) | Rough service luminaires | | N/A |
| 1.6 (4.4.8) | Lamp connectors | | N/A |
| 1.6 (4.5) | Starter holders | | N/A |
| | Starter holder in luminaires other than class II | | N/A |
| | Starter holder class II construction | | N/A |
| 1.6 (4.6) | Terminal blocks | | N/A |
| | Tails | | N/A |
| | Unsecured blocks | | N/A |
| 1.6 (4.7) | Terminals and supply connections | | N/A |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 1.6 (4.7.1) | Contact to metal parts | | N/A |
| 1.6 (4.7.2) | Test 8 mm live conductor | | N/A |
| | Test 8 mm earth conductor | | N/A |
| 1.6 (4.7.3) | Terminals for supply conductors | | N/A |
| 1.6 (4.7.3.1) | Welded connections: | | 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 15.8.2 | | N/A |
| | - electrical test according to 15.9 | | N/A |
| | - heat test according to 15.9.2.3 and 15.9.2.4 | | N/A |
| 1.6 (4.7.4) | Terminals other than supply connection | | N/A |
| 1.6 (4.7.5) | Heat-resistant wiring/sleeves | | N/A |
| 1.6 (4.7.6) | Multi-pole plug | | N/A |
| 1.6 (4.8) | Switches: | | N/A |
| | - adequate rating | | N/A |
| | - adequate fixing | | N/A |
| | - polarized supply | | N/A |
| 1.6 (4.9) | Insulating lining and sleeves | | N/A |
| 1.6 (4.9.1) | Retainment | | N/A |
| | Method of fixing | | N/A |
| 1.6 (4.9.2) | Insulated linings and sleeves | | N/A |
| | a) & c) Insulation resistance and electric strength | | N/A |
| | b) Ageing test. Temperature (°C) | | N/A |
| 1.6 (4.10) | Insulation of Class II luminaires | | N/A |
| 1.6 (4.10.1) | No contact, mounting surface - accessible metal parts - wiring of basic insulation | | N/A |
| | Safe installation fixed luminaires | | N/A |
| | Capacitors | | N/A |
| | Interference suppression capacitors according to IEC 60384-14 | See table 0.5 | N/A |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--|---------------------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 1.6 (4.10.2) | Assembly gaps: | | N/A |
| | - not coincidental | | N/A |
| | - no straight access with test probe | | N/A |
| 1.6 (4.10.3) | 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 |
| 1.6 (4.11) | Electrical connections | | P |
| 1.6 (4.11.1) | Contact pressure | | P |
| 1.6 (4.11.2) | Screws: | | P |
| | - self-tapping screws | | N/A |
| | - thread-cutting screws | | P |
| | - at least two self-tapping screws | | N/A |
| 1.6 (4.11.3) | Screw locking: | | N/A |
| | - spring washer | | N/A |
| | - rivets | | N/A |
| 1.6 (4.11.4) | Material of current-carrying parts | | P |
| 1.6 (4.11.5) | No contact to wood | No wood | P |
| 1.6 (4.11.6) | Electro-mechanical contact systems | | N/A |
| 1.6 (4.12) | Mechanical connections and glands | | P |
| 1.6 (4.12.1) | Screws not made of soft metal | | P |
| | Screws of insulating material | | N/A |
| | Torque test: torque (Nm); part | 0.50 Nm; Fixed lamp cover | P |
| 1.6 (4.12.2) | Screws with diameter < 3 mm screwed into metal | | P |
| 1.6 (4.12.4) | Locked connections: | | N/A |
| | - fixed arms; torque (Nm)..... | | N/A |
| | - lampholder; torque (Nm) | 2.0Nm | N/A |
| | - push-button switches; torque 0,8 Nm..... | | N/A |
| 1.6 (4.12.5) | Screwed glands; force (N) | | N/A |
| 1.6 (4.13) | Mechanical strength | | P |
| 1.6 (4.13.1) | Impact tests: | | P |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|---|-------------------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| | - fragile parts; energy (Nm)..... | Cover ; 0.2Nm | P |
| | - other parts; energy (Nm) | Metal enclosure; 0.35Nm | P |
| | 1) live parts | | P |
| | 2) linings | | N/A |
| | 3) protection | | P |
| | 4) covers | | P |
| 1.6 (4.13.3) | Straight test finger | 30N | P |
| 1.6 (4.13.4) | Rough service luminaires | | N/A |
| | a) fixed | | N/A |
| | b) hand-held | | N/A |
| | c) delivered with a stand | | N/A |
| | d) for temporary installations and suitable for mounting on a stand | | N/A |
| 1.6 (4.13.6) | Tumbling barrel | | N/A |
| 1.6 (4.14) | Suspensions and adjusting devices | | P |
| 1.6 (4.14.1) | Mechanical load: | | P |
| | A) four times the weight | 0.75Kg ×4=3.00 Kg | P |
| | B) torque 2,5 Nm | 1min | P |
| | C) bracket arm; bending moment (Nm) | | N/A |
| | D) load track-mounted luminaires | | N/A |
| | E) clip-mounted luminaires, glass-shelve. Thickness (mm) | | N/A |
| | metal rod. Diameter (mm) | | N/A |
| 1.6 (4.14.2) | Load to flexible cables | | N/A |
| | Mass (kg) | | N/A |
| | Stress in conductors (N/mm ²) | | N/A |
| | Semi-luminaires – mass (kg) | | N/A |
| | Semi-luminaires – bending moment (Nm).... | | N/A |
| 1.6 (4.14.3) | Adjusting devices: | | N/A |
| | - flexing test; number of cycles | | N/A |
| | - strands broken | | N/A |
| | - electric strength test afterwards | | N/A |
| 1.6 (4.14.4) | Telescopic tubes: cords not fixed to tube; no strain on conductors | | N/A |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 1.6 (4.14.5) | Guide pulleys | | N/A |
| 1.6 (4.14.6) | Strain on socket-outlets | | N/A |
| 1.6 (4.15) | Flammable materials: | | N/A |
| | - glow-wire test 650 °C | | 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 |
| 1.6 (4.15.2) | Luminaires made of thermoplastic material with lamp control gear | | N/A |
| | a) construction | | N/A |
| | b) temperature sensing control | | N/A |
| | c) surface temperature | | N/A |
| 1.6 (4.16) | Luminaires marked with F-symbol | | N/A |
| | No lamp control gear | | N/A |
| 1.6 (4.16.1) | Lamp control gear spacing: | | N/A |
| | - spacing 35 mm | | N/A |
| | - spacing 10 mm | | N/A |
| 1.6 (4.16.2) | Thermal protection: | | N/A |
| | - in lamp control gear | | N/A |
| | - external | | N/A |
| | - fixed position | | N/A |
| | - temperature marked lamp control gear | | N/A |
| 1.6 (4.16.3) | "F" curve measured | | N/A |
| 1.6 (4.17) | Drain holes | | N/A |
| | Clearance at least 5 mm | | N/A |
| 1.6 (4.18) | Resistance to corrosion: | | N/A |
| 1.6 (4.18.1) | - rust-resistance | | N/A |
| 1.6 (4.18.2) | - season cracking in copper | | N/A |
| 1.6 (4.18.3) | - corrosion of aluminium | | N/A |
| 1.6 (4.19) | Igniters compatible with ballast | | N/A |
| 1.6 (4.20) | Rough service vibration | | N/A |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 1.6 (4.21) | Protective shield: | | N/A |
| 1.6 (4.21.1) | Shield fitted | | N/A |
| 1.6 (4.21.2) | Particles from a shattering lamp not impair safety | | N/A |
| 1.6 (4.21.3) | No direct path | | N/A |
| 1.6 (4.21.4) | Impact test on shield | | N/A |
| | Glow-wire test on lamp compartment | | N/A |
| 1.6 (4.22) | Attachments to lamps | | N/A |
| 1.6 (4.23) | Semi-luminaires comply class II | | N/A |
| 1.6 (4.24) | UV radiation, metal halide lamps | | N/A |
| 1.6 (4.25) | No sharp point or edges | | P |
| 1.6 (4.26) | Short-circuit protection: | | N/A |
| 1.6 (4.26.1) | Uninsulated accessible SELV parts | | N/A |
| 1.6 (4.26.2) | Short-circuit test | | N/A |
| 1.6 (4.26.3) | Test chain according to IEC 61032 | | N/A |

| | | | |
|----------|---|---|-----|
| 1.7 (11) | CREEPAGE DISTANCES AND CLEARANCES | | P |
| | Working voltage (V) | | — |
| | Voltage form | Sinusoidal [$\sqrt{\quad}$] Non-sinusoidal [\quad] | — |
| | PTI | < 600 [$\sqrt{\quad}$] > 600 [\quad] | — |
| | Rated pulse voltage (kV) | | — |
| | (1) Current-carrying parts of different polarity: cr (mm); cl (mm)..... | cr>3mm cl>3mm | P |
| | (2) Current-carrying parts and accessible parts: cr (mm); cl (mm) | cr>6mm cl>6mm | P |
| | (3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm) | | N/A |
| | (4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm) .. | | N/A |
| | (5) Current-carrying parts of switches and metal parts, after removal of insulation: cr (mm); cl (mm) | | N/A |
| | (6) Current-carrying parts and supporting surface: cr (mm); cl (mm)..... | cr>6mm cl>6mm | P |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--|------------------------------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 1.8 (7) | PROVISION FOR EARTHING | | P |
| 1.8 (7.2.1 + 7.2.3) | Accessible metal parts | | P |
| | Metal parts in contact with supporting surface | | P |
| | Resistance < 0,5 Ω | 0.05Ω | P |
| | Two self-tapping screws used | | N/A |
| | Thread-forming screws | | P |
| | Connector earthing first | | N/A |
| 1.8 (7.2.2 + 7.2.3) | Earth continuity in joints etc. | | P |
| 1.8 (7.2.4) | Locking of clamping means | | P |
| | Compliance with 4.7.3 | | P |
| 1.8 (7.2.5) | Earth terminal integral part of connector socket | | P |
| 1.8 (7.2.6) | Earth terminal adjacent to mains terminals | | P |
| 1.8 (7.2.7) | Electrolytic corrosion of the earth terminal | | P |
| 1.8 (7.2.8) | Material of earth terminal | | P |
| | Contact surface bare metal | | P |
| 1.8 (7.2.10) | Class II luminaire for looping-in | | N/A |
| 1.8 (7.2.11) | Earthing core coloured green-yellow | | P |
| | Length of earth conductor | | P |
| 1.9 (14) | SCREW TERMINALS | | N/A |
| | Separately approved; component list | (see Annex 1) | N/A |
| | Part of the luminaire | (see Annex 3) | N/A |
| 1.9 (15) | SCREWLESS TERMINALS | | N/A |
| | Separately approved; component list | (see Annex 1) | N/A |
| | Part of the luminaire | (see Annex 4) | N/A |
| 1.10 (5) | EXTERNAL AND INTERNAL WIRING | | P |
| 1.10 (5.2) | Supply connection and external wiring | | P |
| 1.10 (5.2.1) | Means of connection..... | Supply cord | P |
| 1.10 (5.2.2) | Type of cable | H05S K 42 G 3X0.75 mm ² | P |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--|----------------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| | Nominal cross-sectional area (mm ²)..... | 0.75 mm ² | P |
| 1.10 (5.2.3) | Type of attachment, X, Y or Z | Y | P |
| 1.10 (5.2.5) | Type Z not connected to screws | | N/A |
| 1.10 (5.2.6) | Cable entries: | | P |
| | - suitable for introduction | | P |
| | - adequate degree of protection | | P |
| 1.10 (5.2.7) | Cable entries through rigid material have rounded edges | | N/A |
| 1.10 (5.2.8) | Insulating bushings: | | N/A |
| | - suitably fixed | | N/A |
| | - material in bushings | | N/A |
| | - tubes or guards made of insulating material | | N/A |
| 1.10 (5.2.9) | Locking of screwed bushings | | P |
| 1.10 (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 |
| 1.10 (5.2.10.1) | Cord anchorage for type X attachment: | | N/A |
| | a) at least one part fixed | | N/A |
| | b) types of cable | | N/A |
| | c) no damaging of the cable | | N/A |
| | d) whole cable can be mounted | | N/A |
| | e) no touching of clamping screws | | N/A |
| | f) metal screw not directly on cable | | N/A |
| | g) replacement without special tool | | N/A |
| | Glands not used as anchorage | | N/A |
| | Labyrinth type anchorages | | N/A |
| 1.10 (5.2.10.2) | Adequate cord anchorage for type Y and type Z attachment | | N/A |
| 1.10 (5.2.10.3) | Tests: | | N/A |
| | - impossible to push cable; unsafe | | N/A |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| | - pull test: 25 times; pull (N)..... | 60N | N/A |
| | - torque test: torque (Nm) | 0.25Nm | N/A |
| | - displacement \leq 2 mm | | N/A |
| | - no movement of conductors | | N/A |
| | - no damage of cable or cord | | N/A |
| 1.10 (5.2.11) | External wiring passing into luminaire | | N/A |
| 1.10 (5.2.12) | Looping-in terminals | | N/A |
| 1.10 (5.2.13) | Wire ends not tinned | | P |
| | Wire ends tinned: no cold flow | | P |
| 1.10 (5.2.14) | Mains plug same protection | | N/A |
| | Class III luminaire plug | | N/A |
| 1.10 (5.2.15) | Colour code low voltage | | N/A |
| 1.10 (5.2.16) | Appliance inlets (IEC 60320) | | N/A |
| | Appliance couplers of class II type | | N/A |
| 1.10 (5.3) | Internal wiring | | N/A |
| 1.10 (5.3.1) | Internal wiring of suitable size and type | | P |
| | Through wiring | | N/A |
| | - not delivered/ mounting instruction | | N/A |
| | - factory assembled | | N/A |
| | - socket outlet loaded (A)..... | | N/A |
| | - temperatures | | N/A |
| | Green-yellow for earth only | | P |
| 1.10 (5.3.1.1) | Internal wiring connected directly to fixed wiring | | N/A |
| | Cross-sectional area (mm ²) | | N/A |
| | Insulation thickness | | N/A |
| | Extra insulation added where necessary | | N/A |
| 1.10 (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 |
| 1.10 (5.3.1.3) | Double or reinforced insulation for class II | | N/A |
| 1.10 (5.3.1.4) | Conductors without insulation | | N/A |
| 1.10 (5.3.1.5) | SELV current-carrying parts | | N/A |
| 1.10 (5.3.1.6) | Insulation thickness other than PVC or rubber | | N/A |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| 1.10 (5.3.2) | Sharp edges etc. | | N/A |
| | No moving parts of switches etc. | | N/A |
| | Joints, raising/lowering devices | | N/A |
| | Telescopic tubes etc. | | N/A |
| | No twisting over 360° | | N/A |
| 1.10 (5.3.3) | Openings | | N/A |
| | Bushings not removable | | N/A |
| | Bushings in sharp openings | | N/A |
| | Cables with protective sheath | | N/A |
| 1.10 (5.3.4) | Joints and junctions effectively insulated | | N/A |
| 1.10 (5.3.5) | Strain on internal wiring | | N/A |
| 1.10 (5.3.6) | Wire carriers | | N/A |
| 1.10 (5.3.7) | Wire ends not tinned | | N/A |
| | Wire ends tinned: no cold flow | | N/A |

| | | | |
|-----------------|---|--|----------|
| 1.11 (8) | PROTECTION AGAINST ELECTRIC SHOCK | | P |
| 1.11 (8.2.1) | Live parts not accessible | | P |
| | 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 |
| 1.11 (8.2.2) | Portable luminaire adjusted in most unfavourable position | | N/A |
| 1.11 (8.2.3) | 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 |
| | Class I luminaire with BC lampholder | | N/A |
| 1.11 (8.2.4) | Portable luminaire: | | N/A |
| | - protection independent of supporting surface | | N/A |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|---|-----------------------------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| | - terminal block completely covered | | N/A |
| 1.11 (8.2.6) | Covers reliably secured | | P |
| 1.11 (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 |
| 1.12 (12) | ENDURANCE TEST AND THERMAL TEST | | P |
| 1.12 (12.3) | Endurance test: | | N/A |
| | - mounting-position | | — |
| | - test temperature (°C)..... | 35°C | — |
| | - total duration (h) | 240h | — |
| | - supply voltage: Un factor; calculated voltage (V) | $1.05 \times 250 = 262.5\text{V}$ | — |
| | - lamp used | Incandescent | — |
| 1.12 (12.3.2) | After endurance test: | | N/A |
| | - no part unserviceable | | N/A |
| | - luminaire not unsafe | | N/A |
| | - no damage to track system | | N/A |
| | - marking legible | | N/A |
| | - no cracks, deformation etc. | | N/A |
| 1.12 (12.4) | Thermal test (normal operation) | (see Annex 2) | P |
| 1.12 (12.5) | Thermal test (abnormal operation) | | N/A |
| 1.12 (12.6) | Thermal test (failed lamp control gear condition): | | N/A |
| 1.12 (12.6.1) | - 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 |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--|---|----------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| | - track-mounted luminaires | | N/A |
| 1.12 (12.6.2) | Temperature sensing control | | N/A |
| | - case of abnormal conditions..... | | — |
| | - thermal link | | N/A |
| | - manual reset cut-out | | N/A |
| | - auto reset cut-out | | N/A |
| | - measured mounting surface temperature (°C) | | N/A |
| | - track-mounted luminaires | | N/A |
| 1.12 (12.7) | Thermal test (failed lamp control gear in plastic luminaires): | | N/A |
| | - case of abnormal conditions..... | | — |
| 1.12 (12.7.1) | - measured winding temperature (°C) at 1,1 Un | | — |
| | - measured temperature of fixing point/ exposed part (°C) at 1,1 Un..... | | N/A |
| | - calculated temperature of fixing point/ exposed part (°C)..... | | N/A |
| 1.12 (12.7.2) | Temperature sensing control | | N/A |
| | - thermal link | | N/A |
| | - manual reset cut-out | | N/A |
| | - auto reset cut-out | | N/A |
| | - measured temperature of fixing point/ exposed part (°C) | | N/A |
| 1.13 (9) | RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE | | P |
| 1.13 (9.2) | Tests for ingress of dust, solid objects and moisture: | | P |
| | - classification according to IP | IP54 | — |
| | - mounting position during test | Mounting according to the manufacturer 's installation instructions | — |
| | - fixing screws tightened; torque (Nm)..... | 1.4 | — |
| | - tests according to clauses | (9.2.1 & 9.2.5) | — |
| | - electric strength test afterwards | | P |
| | a) no deposit in dust-proof luminaire | | P |
| | b) no talcum in dust-tight luminaire | | P |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--|-------------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| | c) no trace of water on current-carrying parts or where it could become a hazard | | P |
| | d) i) For luminaires without drain holes – no water entry | | P |
| | 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) | | N/A |
| | f) no entry into enclosure (IP 3X and IP 4X) | | N/A |
| 1.13 (9.3) | Humidity test 48 h | 25°C, 93%RH, 48h | P |
| 1.14 (10) | INSULATION RESISTANCE AND ELECTRIC STRENGTH | | P |
| 1.14 (10.2.1) | Insulation resistance test | | P |
| | Insulation resistance (MΩ): | | — |
| | SELV: | | N/A |
| | - between current-carrying parts of different polarity | 100MΩ | N/A |
| | - between current-carrying parts and mounting surface | | N/A |
| | - between current-carrying parts and metal parts of the luminaire | 100MΩ | N/A |
| | Other than SELV: | | P |
| | - between live parts of different polarity | 100MΩ | P |
| | - between live parts and mounting surface... | | P |
| | - between live parts and metal parts..... | 100MΩ | P |
| | - between live parts of different polarity through action of a switch | | N/A |
| 1.14 (10.2.2) | Electric strength test | | P |
| | Dummy lamp | | N/A |
| | Luminaires with ignitors after 24 h test | No ignitor | N/A |
| | Luminaires with manual ignitors | No manual ignitor | N/A |
| | Test voltage (V): | | P |
| | SELV: | | N/A |
| | - between current-carrying parts of different polarity | 500V | N/A |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|---|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| | - between current-carrying parts and mounting surface | | N/A |
| | - between current-carrying parts and metal parts of the luminaire | 500V | N/A |
| | Other than SELV: | | P |
| | - between live parts of different polarity | 1500V | P |
| | - between live parts and mounting surface... | 1500V | P |
| | - between live parts and metal parts..... | 3000V | P |
| | - between live parts of different polarity through action of a switch | | N/A |
| 1.14 (10.3) | Leakage current (mA) | 0.04mA | P |
| 1.15 (13) | RESISTANCE TO HEAT, FIRE AND TRACKING | | N/A |
| 1.15 (13.2.1) | Ball-pressure test: | | N/A |
| | - part tested; temperature (°C)..... | | N/A |
| 1.15 (13.3.1) | Needle flame test (10 s): | | N/A |
| | - part tested..... | | N/A |
| 1.15 (13.3.2) | Glow wire test (650°C) | | N/A |
| | - part tested..... | | N/A |
| | - part tested..... | | N/A |
| 1.15 (13.4.1) | Tracking test: part tested | | N/A |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--------------------|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |

| ANNEX 1: Components list | | | | | P |
|--------------------------|-------------------------|------------|--------------------------------------|-----------------------------|------------------------|
| Object/part No. | Manufacturer/ trademark | Type/model | Technical data | Standard | Approval/Reference |
| Metal enclosure | Various | Various | min. thickness 2.0mm | EN 60598-2-1 | Tested in appliance |
| Glass cover | Various | Various | min. thickness 4.0mm | EN 60598-2-1 | Tested in appliance |
| Supply cord | Various | Various | H05S K 42 G 3X0.75mm ² | VDE | VDE |
| Metal enclosure | Various | Various | min. thickness 1.0mm | — | Tested in appliance |
| Gasket | Various | Various | - | EN 60598-2-1 | Tested in appliance |
| Lampholder | Various | Various | - | EN 60598-2-1 &EN 60061-2 | Tested in appliance |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--------------------|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |

| | ANNEX 2: temperature measurements, thermal tests of Section 12 | | | P | | |
|--|---|------------------|--------|--------|------------------------|-------|
| | Type reference..... | 95 | | — | | |
| | Lamp used | Incandescent | | — | | |
| | Ballast used | — | | — | | |
| | Mounting position of luminaire | As in normal use | | — | | |
| | Supply wattage (W) | - | | — | | |
| | Supply current (A)..... | 2A | | — | | |
| | Table: measured temperatures corrected for Ta = 25°C: | | | P | | |
| | - abnormal operating mode | — | | — | | |
| | - test 1: rated voltage | — | | — | | |
| | - test 2: 1,06 times rated voltage or 1,05 times rated wattage | 1.06*250V | | — | | |
| | - 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 | — | | — | | |
| temperature (°C) of part | clause 12.4 - normal | | | | clause 12.5 - abnormal | |
| | test 1 | test 2 | test 3 | limits | test 4 | limit |
| Internal wire, near lampholder | — | 97.3 | — | 105 | — | — |
| Connector | — | 73.3 | — | 80 | — | — |
| Metal enclosure near lampholder , outside | — | 86.1 | — | — | — | — |
| Mounting surface | — | 80.3 | — | 90 | — | — |
| Gasket | — | 83.7 | — | 105 | — | — |
| Lamp cover, inside | — | 86.4 | — | Ref. | — | — |
| Contacts of ceramic lampholders | — | 122.3 | — | 165 | — | — |
| Ambient | — | 22.7 | — | — | — | — |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| | ANNEX 3: SCREW TERMINALS (PART OF THE LUMINAIRE) | | N/A |
| (14) | SCREW TERMINALS | | N/A |
| (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 ²) : | | N/A |
| (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) : | | 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 |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--------------------|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |

| | | | |
|------------|--|--|-----|
| | ANNEX 4: SCREWLESS TERMINALS (PART OF THE LUMINAIRE) | | N/A |
| (15) | SCREWLESS TERMINALS | | N/A |
| (15.2) | Type of terminal | | — |
| | 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 |
| (15.5.1) | Terminals internal wiring | | N/A |
| (15.5.1.1) | Pull test spring-type terminals (4 N, 4 samples) | | N/A |
| (15.5.1.2) | Pull test pin or tab terminals (4 N, 4 samples) | | N/A |
| | Insertion force not exceeding 50 N | | N/A |
| (15.5.2) | Permanent connections: pull-off test (20 N) | | N/A |
| (15.6) | Electrical tests | | N/A |
| | Voltage drop (mV) after 1 h (4 samples) | | N/A |
| | Voltage drop of two inseparable joints | | N/A |
| | Number of cycles | | — |
| | Voltage drop (mV) after 10th alt. 25th cycle (4 samples) | | N/A |
| | Voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... | | N/A |
| | After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples)..... | | N/A |
| | After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... | | N/A |
| (15.7) | Terminals external wiring | | N/A |
| | Terminal size and rating | | N/A |

| EN 60598-1 & EN 60598-2-1 | | | |
|---------------------------|--|-----------------|---------|
| Clause | Requirement – Test | Result - Remark | Verdict |
| (15.8.1) | Pull test spring-type terminals (4 samples); pull (N) | | N/A |
| | Pull test pin or tab terminals (4 samples); pull (N) | | N/A |
| (15.9) | Contact resistance test | | N/A |
| | Voltage drop (mV) after 1 h | | N/A |

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Appendix 1
Equipments List

| Code | Name | Model/Type | S/N | Calibrated date | Next Calibration Date | Manufacturer | Used or not |
|---------|----------------------------------|------------|-------------------|-----------------|-----------------------|---------------------|-------------|
| HTS-001 | Digital Multimeter | 34401A | MY47043456 | 2015.05.20 | 2016.02.19 | agilent | √ |
| HTS-004 | Push/pull gauge | NK-500 | 2Q10060932 | 2015.05.20 | 2016.02.19 | - | √ |
| HTS-005 | Electronic weight | DSI-861 | 198692 | 2015.05.20 | 2016.02.19 | shangdeli | √ |
| HTS-006 | Insulation resistance tester | CS2676CX | 1107032-009 | 2015.05.20 | 2016.02.19 | changshen | √ |
| HTS-007 | Earthing resistance tester | YD2668-4B | 4B-2307 | 2015.05.20 | 2016.02.19 | Yangzi | √ |
| HTS-008 | HI-pot/Insulation tester | CS2672C | 1108006-002 | 2015.05.20 | 2016.02.19 | changshen | √ |
| HTS-010 | AC Voltage Regulator | TDGC2J | - | 2015.05.20 | 2016.02.19 | SAKO | √ |
| HTS-013 | AC power source | HPA-3110 | 3513 | 2015.05.20 | 2016.02.19 | Henqiang | √ |
| HTS-014 | Temperature/Humidity chamber | SDJ-80L | SDJ-80J | 2015.05.20 | 2016.02.19 | Shenzhen hongjian | √ |
| HTS-015 | Electric oven | HK45AS | F11011008 | 2015.05.20 | 2016.02.19 | Guangzhou KENTON | √ |
| HTS-017 | AC digital power meter | PF9901 | YG100731N11070075 | 2015.05.20 | 2016.02.19 | Yuanfang | √ |
| HTS-022 | Leakage current tester | 228 | 10-866030 | 2015.05.20 | 2016.02.19 | simpson | √ |
| HTS-025 | Stop watch | TA-228 | | 2015.05.20 | 2016.02.19 | KTJ | √ |
| HTS-026 | Data acquisition/switch unit | 34970A | MY44057668 | 2015.05.20 | 2016.02.19 | Agilent | √ |
| HTS-027 | Temperature/humidity meter | VC230 | - | 2015.05.20 | 2016.02.19 | VICTOR | √ |
| HTS-028 | Torque drive | 3RTD | 435850B | 2015.05.20 | 2016.02.19 | TOHNICHI | √ |
| HTS-033 | Test finger | ZLT-I02 | I021203 | 2015.05.20 | 2016.02.19 | Guangzhou zhilitong | √ |
| HTS-034 | Test pin | ZLT-I09 | I091201 | 2015.05.20 | 2016.02.19 | Guangzhou zhilitong | √ |
| HTS-038 | Test apparatus of the mains plug | ZLT-LJ2 | LJ011202 | 2015.05.20 | 2016.02.19 | Guangzhou zhilitong | |
| HTS-039 | Ball pressure apparatus | ZLT-QY1 | Q011202 | 2015.05.20 | 2016.02.19 | Guangzhou zhilitong | √ |
| HTS-040 | Impact hammer | ZLT-CJ1 | LJ011206 | 2015.05.20 | 2016.02.19 | Guangzhou zhilitong | √ |
| HTS-041 | Impact hammer | ZLT-CJ1 | LJ011205 | 2015.05.20 | 2016.02.19 | Guangzhou zhilitong | √ |
| HTS-042 | Caliper rule | CD-6 " CSX | 500-196-20 | 2015.05.20 | 2016.02.19 | MITUTOYO | √ |

Appendix 2

Photo documentation

Photo 1 : Outlook of the EUT (model 95)



Photo 2 : Inside view of the EUT (model 95)



Photo 3 : Inside view of the EUT (model 95)



Photo 4 : Outlook of the EUT (additional model)

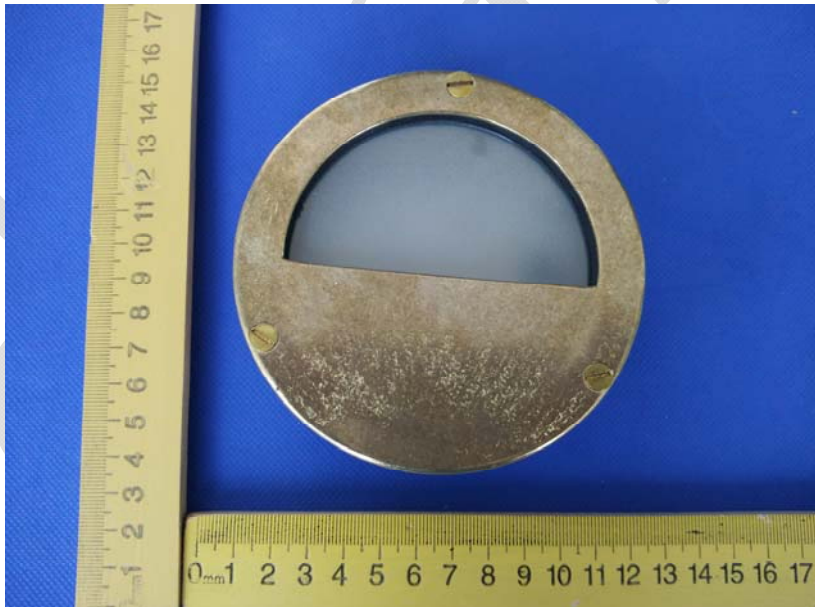
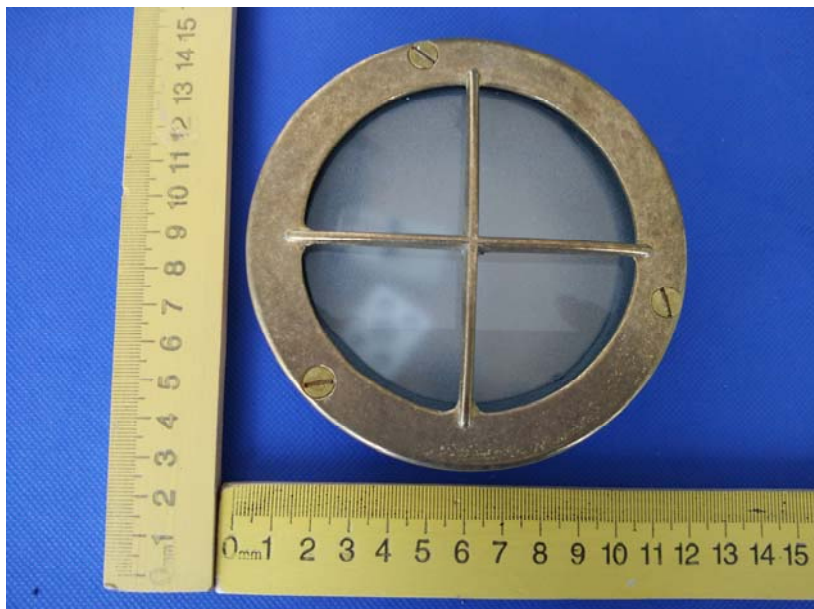


Photo 5 : Outlook of the EUT (additional model)



End of report