# B.GA LIGHTING CO.,LTD

CE LVD REPORT

| | |
|---|---|
| Prepared For : | **B.GA LIGHTING CO.,LTD**<br><br>UNIT 2,22/F.,RICHMOND COMM.BLDG.,109 ARGYLE STREET,MONGKOK,KLN, HONG KONG |
| Product Name: | **LAMP CORD WITH PLUG** |
| Trade Name: | **N/A** |
| Model : | **BGA-P01, BGA-P02, BGA-P03, BGA-P04, BGA-P05, BGA-P06, BGA-P07, BGA-P08, BGA-P09, BGA-P10, BGA-P11, BGA-P12, BGA-P13, BGA-P14, BGA-P15, BGA-P16, BGA-P17, BGA-P18, BGA-P19, BGA-P20, BGA-P21, BGA-P22, BGA-P23, BGA-P24, BGA-P25, BGA-P26, BGA-P27, BGA-P28, BGA-P29, BGA-P30** |
| Prepared By : | Shenzhen bst technology co., ltd.<br><br>Building No.23-24, Zhiheng Industrial Park, Guankouer Road, Nantou,Nanshan District,Shenzhen,Guangdong,China |
| Test Date: | Mar. 2, 2018 – Mar. 16, 2018 |
| Date of Report : | Mar.17, 2018 |
| Report No.: | BST180384972A0001Y-1SR-2 |

# TEST REPORT

## EN 60598-2-4

## Luminaires

## Part 2: Particular Requirements
## Section Four – Portable general purpose luminaires

| | |
|---|---|
| Testing Laboratory Name .....: | SHENZHEN BST TECHNOLOGY CO.,LTD. |
| Address .....: | Building No.23-24, Zhiheng Industrial Park, Guankouer Road, Nantou,Nanshan District,Shenzhen,Guangdong,China |
| Testing location .....: | SHENZHEN BST TECHNOLOGY CO.,LTD. |
| Applicant's Name .....: | B.GA LIGHTING CO.,LTD |
| Address .....: | UNIT 2,22/F.,RICHMOND COMM.BLDG.,109 ARGYLE STREET,MONGKOK,KLN, HONG KONG |
| Manufacturer ..... .....: | B.GA LIGHTING CO.,LTD |
| Address ..... ..... : | UNIT 2,22/F.,RICHMOND COMM.BLDG.,109 ARGYLE STREET,MONGKOK,KLN, HONG KONG |
| Test specification | N/A |
| Standard .....: | EN 60598-2-4:1998<br>EN 60598-1:2015+AC:2016 |
| Procedure deviation .....: | N/A |
| Non-standard test method .....: | N/A |
| Test item description .....: | See page 1 |
| Trademark .....: | N/A |
| Model and/or type reference .....: | See page 1 |
| Rating(s) .....: | AC220V,50Hz |
| Test case does not apply to the test object . : | N/A |
| Test item does meet the requirement .....: | P(ass) |
| Test item does not meet the requirement .....: | F(ail) |

General remarks

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

The test results presented in this report relate only to the item(s) tested.

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

"(see Annex #)" refers to an annex appended to the report.

Copy of marking plate and summary of test results:

Product Name: LAMP CORD WITH PLUG
Model No.: BGA-P01
Rated: AC220V,50Hz



B.GA LIGHTING CO.,LTD

Prepared by : Watt Sun
Engineer

Reviewer : Jacky Zhang
Supervisor

Approved & Authorized Signer :
Manager

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| 4.1 (0) | SCOPE | | P |
| 4.1 (0.1) | More sections applicable ..... | Yes [√ ] No [ ] | — |
| 4.4 (2) | CLASSIFICATION | | P |
| 4.4 (2.2) | Type of protection..... | Class II | — |
| 4.4 (2.3) | Degree of protection..... | -- | — |
| 4.4 (2.4) | Portable or handheld luminaire ..... | Portable luminaire | — |
| | luminaire suitable for normally flammable surfaces..... | No | — |
| | luminaire suitable for non-combustible materials only ..... | No | — |
| 4.4 (2.5) | Luminaire for normal use ..... | Yes | — |
| | Luminaire for rough service ..... | No | — |
| 4.5 (3) | MARKING | | P |
| 4.5 (3.2) | Mandatory markings | | P |
| | Position of the marking | Marking on the Enclosure | P |
| | Format of symbols/text | | P |
| 4.5 (3.3) | Additional information | | P |
| | Language of instructions | English | P |
| 4.5 (3.3.1) | Combination luminaires | | P |
| 4.5 (3.3.2) | Nominal frequency in Hz | 50Hz | P |
| 4.5 (3.3.3) | Operating temperature | | N |
| 4.5 (3.3.4) | Symbol or warning notice | | P |
| 4.5 (3.3.5) | Wiring diagram | | P |
| 4.5 (3.3.6) | Special conditions | | N |
| 4.5 (3.3.7) | Metal halid lamp luminaire – warning | | N |
| 4.5 (3.3.8) | Limitation for semi-luminaires | | N |
| 4.5 (3.3.9) | Power factor and supply current | | P |
| 4.5 (3.3.10) | Suitability for use indoors | | P |
| 4.5 (3.3.11) | Luminaires with remote control | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| 4.5 (3.3.12) | Clip-mounted luminaire - warning | | N |
| 4.5 (3.3.13) | Specifications of protective shields | | N |
| 4.5 (3.3.14) | Symbol for nature of supply | AC | P |
| 4.5 (3.3.15) | Rated current of socket outlet | | P |
| 4.5 (3.3.16) | Rough service luminaire | | N |
| 4.5 (3.3.17) | Mounting instruction for type Y, type Z and some type X attachments | Type Y attachments | P |
| 4.5 (3.3.18) | Non-ordinary luminaires with PVC cable | | N |
| 4.5 (3.4) | Test with water | 15s with water | P |
| | Test with hexane | 15s with hexane | P |
| | Legible after test | The marking is legible | P |
| | Label attached | The marking not be easily removable and shows no curling | P |

| | | | |
|---|---|---|---|
| 4.6 (4) | CONSTRUCTION | | P |
| 4.6.1 (-) | Insulation not damaged when placing on support | | N |
| 4.6.2 (-) | Wiring fixed, to avoid rubbing | | N |
| 4.6.3 (-) | Stability 15° | | N |
| 4.6.4 (-) | Candlestick luminaires with switch | | N |
| 4.6.5 (-) | E5 lampholders | | N |
| 4.6 (4.2) | Components replaceable without difficulty | | N |
| 4.6 (4.3) | Wireways smooth and free from sharp edges | | P |
| 4.6 (4.4) | Lampholders | | N |
| 4.6 (4.4.1) | Integral lampholder | | N |
| 4.6 (4.4.2) | Wiring connection | | P |
| 4.6 (4.4.3) | Lampholder for end-to-end mounting | | N |
| 4.6 (4.4.4) | Positioning | | N |
| 4.6 (4.4.5) | Peak pulse voltage | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| 4.6 (4.4.6) | Centre contact | | P |
| 4.6 (4.4.7) | Rough service luminaires | | N |
| 4.6 (4.4.8) | Lamp connectors | | N |
| 4.6 (4.5) | Starter holders | | N |
| | Starter holder in luminaires other than class II | | N |
| | Starter holder class II construction | | N |
| 4.6 (4.6) | Terminal blocks | | N |
| | Tails | | N |
| | Unsecured blocks | | N |
| 4.6 (4.7) | Terminals and supply connections | | N |
| 4.6 (4.7.1) | Contact to metal parts | | N |
| 4.6 (4.7.2) | Test 8 mm live conductor | | N |
| | Test 8 mm earth conductor | | N |
| 4.6 (4.7.3) | Terminals for supply conductors | | N |
| 4.6 (4.7.4) | Terminals other than supply connection | | N |
| 4.6 (4.7.5) | Heat-resistant wiring/sleeves | | N |
| 4.6 (4.7.6) | Multi-pole plug | | N |
| 4.6 (4.8) | Switches: | | P |
| | - adequate rating | | P |
| | - adequate fixing | | P |
| | - polarized supply | | N |
| 4.6 (4.9) | Insulating lining and sleeves | | P |
| 4.6 (4.9.1) | Retainment | | N |
| | Method of fixing..... | | N |
| 4.6 (4.9.2) | Insulated linings and sleeves | | P |
| | a) & c) Insulation resistance and electric strength | | P |
| | b) Ageing test. Temperature (°C)..... | | P |
| 4.6 (4.10) | Insulation of Class II luminaires | | N |
| 4.6 (4.10.1) | No contact, mounting surface - accessible metal parts - wiring of basic insulation | | N |
| | Safe installation fixed luminaires | | N |
| | Capacitors | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| | Interference suppression capacitors according to IEC 60384-14 | | N |
| 4.6 (4.10.2) | Assembly gaps: | | N |
| | - not coincidental | | N |
| | - no straight access with test probe | | N |
| 4.6 (4.10.3) | Retainment of insulation: | | N |
| | - fixed | | N |
| | - unable to be replaced; luminaire inoperative | | N |
| | - sleeves retained in position | | N |
| | - lining in lampholder | | N |
| 4.6 (4.11) | Electrical connections | | N |
| 4.6 (4.11.1) | Contact pressure | | N |
| 4.6 (4.11.2) | Screws: | | N |
| | - self-tapping screws | | N |
| | - thread-cutting screws | | N |
| | - at least two self-tapping screws | | N |
| 4.6 (4.11.3) | Screw locking: | | N |
| | - spring washer | | N |
| | - rivets | | N |
| 4.6 (4.11.4) | Material of current-carrying parts | | N |
| 4.6 (4.11.5) | No contact to wood | | N |
| 4.6 (4.11.6) | Electro-mechanical contact systems | | N |
| 4.6 (4.12) | Mechanical connections and glands | | |
| 4.6 (4.12.1) | Screws not made of soft metal | | N |
| | Screws of insulating material | | N |
| | Torque test: torque (Nm); part ..... | | N |
| | Torque test: torque (Nm); part ..... | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| | Torque test: torque (Nm); part ..... | | N |
| 4.6 (4.12.2) | Screws with diameter < 3 mm screwed into metal | | N |
| 4.6 (4.12.4) | Locked connections: | | N |
| | - fixed arms; torque (Nm)..... | | N |
| | - lampholder; torque (Nm) ..... | | N |
| | - push-button switches; torque 0,8 Nm ..... | | N |
| 4.6 (4.12.5) | Screwed glands; force (N)..... | | N |
| 4.6 (4.13) | Mechanical strength | | N |
| 4.6 (4.13.1) | Impact tests: | | P |
| | - fragile parts; energy (Nm)..... | 0.35Nm | P |
| | - other parts; energy (Nm) ..... | Enclosure: 0.5 Nm | P |
| | 1) live parts | Not become accessible | P |
| | 2) linings | | P |
| | 3) protection | | P |
| | 4) covers | | P |
| 4.6 (4.13.3) | Straight test finger | | N |
| 4.6 (4.13.4) | Rough service luminaires | | N |
| | a) fixed | | N |
| | b) hand-held | | N |
| | c) delivered with a stand | | N |
| | d) for temporary installations and suitable for mounting on a stand | | N |
| 4.6 (4.13.6) | Tumbling barrel | | N |
| 4.6 (4.14) | Suspensions and adjusting devices | | N |
| 4.6 (4.14.1) | Mechanical load: | | N |
| | A) four times the weight | | N |
| | B) torque 2,5 Nm | | N |
| | C) bracket arm; bending moment (Nm).....: | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| | D) load track-mounted luminaires | | N |
| | E) clip-mounted luminaires, glass-shelve. Thickness (mm)..... | | N |
| | metal rod. diameter (mm)..... | | N |
| 4.6 (4.14.2) | Load to flexible cables | | N |
| | Mass (kg)..... | | N |
| | Stress in conductors (N/mm²)..... | | N |
| | Mass (kg) of semi-luminaire ..... | | N |
| | Bending moment (Nm) of semi-luminaire..... | | N |
| 4.6 (4.14.3) | Adjusting devices: | | N |
| | - flexing test; number of cycles..... | | N |
| | - strands broken | | N |
| | - electric strength test afterwards | | N |
| 4.6 (4.14.4) | Telescopic tubes: cords not fixed to tube; no strain on conductors | | N |
| 4.6 (4.14.5) | Guide pulleys | | N |
| 4.6 (4.14.6) | Strain on socket-outlets | | N |
| 4.6 (4.15) | Flammable materials: | | P |
| | - glow-wire test 650 C | Enclosure :650 C | P |
| | - spacing ≥ 30 mm | | N |
| | - screen withstanding test of 13.3.1 | | P |
| | - screen dimensions | | N |
| | - no fiercely burning material | No fiercely burning material | P |
| | - thermal protection | | N |
| | - electronic circuits exempted | | P |
| 4.6 (4.15.2) | Luminaires made of thermoplastic material with lamp control gear | | N |
| | a) construction | | N |
| | b) temperature sensing control | | N |
| | c) surface temperature | | N |
| 4.6 (4.16) | Luminaires marked with F-symbol | | P |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| | No lamp control gear | | N |
| 4.6 (4.16.1) | Lamp control gear spacing: | | N |
| | - spacing 35 mm | | N |
| | - spacing 10 mm | | N |
| 4.6 (4.16.2) | Thermal protection: | | N |
| | - in lamp control gear | | N |
| | - external | | N |
| | - fixed position | | N |
| | - temperature marked lamp control gear | | N |
| 4.6 (4.16.3) | "F" curve measured | | P |
| 4.6 (4.17) | Drain holes | | N |
| | Clearance at least 5 mm | | N |
| 4.6 (4.18) | Resistance to corrosion: | | N |
| 4.6 (4.18.1) | - rust-resistance | | N |
| 4.6 (4.18.2) | - season cracking in copper | | N |
| 4.6 (4.18.3) | - corrosion of aluminium | | N |
| 4.6 (4.19) | Ignitors compatible with ballast | | N |
| 4.6 (4.20) | Rough service vibration | | N |
| 4.6 (4.21) | Protective shield: | | N |
| 4.6 (4.21.1) | Shield fitted | | N |
| 4.6 (4.21.2) | Particles from a shattering lamp not impair safety | | N |
| 4.6 (4.21.3) | No direct path | | N |
| 4.6 (4.21.4) | Impact test on shield | Impact test | P |
| | Glow-wire test on lamp compartment | Enclosure650 C Glow-wire test | P |
| 4.6 (4.22) | Attachments to lamps | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| 4.6 (4.23) | Semi-luminaires comply Class II | | N |
| 4.6 (4.24) | UV radiation, metal halide lamps | | N |
| 4.6 (4.25) | No sharp point or edges | No sharp point or edges | P |
| 4.6 (4.26) | Short-circuit protection: | | N |
| 4.6 (4.26.1) | Uninsulated accessible SELV parts | | N |
| 4.6 (4.26.2) | Short-circuit test | | N |
| 4.6 (4.26.3) | Test chain according to IEC 61032 | | N |

| | | | |
|---|---|---|---|
| 4.7 (11) | CREEPAGE DISTANCES AND CLEARANCES | | P |
| | Working voltage (V) .....: | 220V | — |
| | Voltage form | Sinusoidal | — |
| | PTI | <600 | — |
| | Rated pulse voltage (kV) .....: | -- | — |
| | (1) Current-carrying parts of different polarity: cr (mm); cl (mm) .....: | Cr>2.5mm, Cl ＞1.5mm | P |
| | (2) Current-carrying parts and accessible parts: cr (mm); cl (mm) .....: | Cr>5.0mm,Cl ＞3.0mm | P |
| | (3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm) .....: | | N |
| | (4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm) .....: | | P |
| | (5) Current-carrying parts of switches and metal parts, after removal of insulation: cr (mm); cl (mm) .....: | | N |
| | (6) Current-carrying parts and supporting surface: cr (mm); cl (mm) .....: | Cr>5.0mm, Cl ＞3.0mm | P |

| | | | |
|---|---|---|---|
| 4.8 (7) | PROVISION FOR EARTHING | | P |
| 4.8 (7.2.1 + 7.2.3) | Accessible metal parts | | P |
| | Metal parts in contact with supporting surface | | P |
| | Resistance < 0,5 Ω | 0.029Ω | P |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| | Two self-tapping screws used | | P |
| | Thread-forming screws | | P |
| | Connector earthing first | | P |
| 4.8 (7.2.2 + 7.2.3) | Earth continuity in joints etc. | | P |
| 4.8 (7.2.4) | Locking of clamping means | | P |
| | Compliance with 4.7.3 | | P |
| 4.8 (7.2.5) | Earth terminal integral part of connector socket | | P |
| 4.8 (7.2.6) | Earth terminal adjacent to mains terminals | | P |
| 4.8 (7.2.7) | Electrolytic corrosion of the earth terminal | | P |
| 4.8 (7.2.8) | Material of earth terminal | | P |
| | Contact surface bare metal | | P |
| 4.8 (7.2.10) | Class II luminaire for looping-in | | N |
| 4.8 (7.2.11) | Earthing core coloured green-yellow | | P |
| | Length of earth conductor | | P |

| | | | |
|---|---|---|---|
| 4.9 (14) | SCREW TERMINALS | | N |
| | Separately approved; component list | | N |
| | Part of the luminaire | | N |

| | | | |
|---|---|---|---|
| 4.9 (15) | SCREWLESS TERMINALS | | N |
| | Separately approved; component list | | N |
| | Part of the luminaire | | N |

| | | |
|---|---|---|
| 4.10 (5) | EXTERNAL AND INTERNAL WIRING | P |
| 4.10 (5.2) | Supply connection and external wiring | P |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| 4.10 (5.2.1) | Means of connection .....: | | P |
| 4.10 (5.2.2) | Type of cable.....: | | P |
| | Nominal cross-sectional area (mm²).....: | | P |
| 4.10 (5.2.3) | Type of attachment, X, Y or Z | Type Y | P |
| 4.10 (5.2.5) | Type Z not connected to screws | | N |
| 4.10 (5.2.6) | Cable entries: | | N |
| | - suitable for introduction | | N |
| | - adequate degree of protection | | N |
| 4.10 (5.2.7) | Cable entries through rigid material have rounded edges | | N |
| 4.10 (5.2.8) | Insulating bushings: | | N |
| | - suitably fixed | | N |
| | - material in bushings | | N |
| | - tubes or guards made of insulating material | | N |
| 4.10 (5.2.9) | Locking of screwed bushings | | N |
| 4.10 (5.2.10) | Cord anchorage: | | P |
| | - covering protected from abrasion | | P |
| | - clear how to be effective | | P |
| | - no mechanical or thermal stress | | P |
| | - no tying of cables into knots etc. | | P |
| | - insulating material or lining | | P |
| 4.10 (5.2.10.1) | Cord anchorage for type X attachment: | | N |
| | a) at least one part fixed | | N |
| | b) types of cable | | N |
| | c) no damaging of the cable | | N |
| | d) whole cable can be mounted | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| | e) no touching of clamping screws | | N |
| | f) metal screw not directly on cable | | N |
| | g) replacement without special tool | | N |
| | Glands not used as anchorage | | N |
| | Labyrinth type anchorages | | N |
| 4.10 (5.2.10.2) | Adequate cord anchorage for type Y and type Z attachment | | P |
| 4.10 (5.2.10.3) | Tests: | | P |
| | - impossible to push cable; unsafe | | P |
| | - pull test: 25 times; pull (N).....: | 60N | P |
| | - torque test: torque (Nm).....: | 0.25Nm | P |
| | - displacement ≤ 2 mm | 0.26mm | P |
| | - no movement of conductors | | P |
| | - no damage of cable or cord | | P |
| 4.10 (5.2.11) | External wiring passing into luminaire | | N |
| 4.10 (5.2.12) | Looping-in terminals | | N |
| 4.10 (5.2.13) | Wire ends not tinned | | N |
| | Wire ends tinned: no cold flow | | N |
| 4.10 (5.2.14) | Mains plug same protection | | N |
| | Class III luminaire plug | | N |
| 4.10 (5.2.15) | Colour code low voltage | | N |
| 4.10 (5.2.16) | Appliance inlets (IEC 60320) | | N |
| | Appliance couplers of class II type | | N |
| 4.10 (5.3) | Internal wiring | | P |
| 4.10 (5.3.1) | Cross-sectional area ($mm^2$) .....: | | P |
| | Insulation thickness | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| | Temperature resistant | | P |
| | Sleeves suitable for hot spots | | N |
| | Green-yellow for earth only | | N |
| | Through wiring | | P |
| | - cross-sectional area ($mm^2$).....: | | N |
| | - not delivered/ mounting instruction | | N |
| | - factory assembled | | P |
| | - socket outlet loaded (A) .....: | | N |
| | - temperatures .....: | | P |
| 4.10 (5.3.2) | Sharp edges etc. | No Sharp edges etc. | P |
| | No moving parts of switches etc. | | N |
| | Joints, raising/lowering devices | | P |
| | Telescopic tubes etc. | | N |
| | No twisting over 360° | | P |
| 4.10 (5.3.3) | Openings | | N |
| | Bushings not removable | | N |
| | Bushings in sharp openings | | N |
| | Cables with protective sheath | | N |
| 4.10 (5.3.4) | Joints and junctions effectively insulated | | N |
| 4.10 (5.3.5) | Strain on internal wiring | | N |
| 4.10 (5.3.6) | Wire carriers | | N |
| 4.10 (5.3.7) | Wire ends not tinned | | N |
| | Wire ends tinned: no cold flow | | N |

| | | | |
|---|---|---|---|
| 4.11 (8) | PROTECTION AGAINST ELECTRIC SHOCK | | N |
| 4.11.1 (-) | Luminaires with BC cap | | N |
| 4.11 (8.2.1) | Live parts not accessible | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| | Protection in any position | | N |
| | Double-ended tungsten filament lamp | | N |
| | Insulation lacquer not reliable | | N |
| | Double-ended high pressure discharge lamp | | N |
| 4.11 (8.2.2 ) | Portable luminaire adjusted in most unfavourable position | | N |
| 4.11 (8.2.3) | Class II luminaire: | | P |
| | - basic insulated metal parts not accessible during starter or lamp replacement | | N |
| | - basic insulation not accessible other than during starter or lamp replacement | | P |
| | - glass protective shields not used as supplementary insulation | | N |
| | Class I luminaire with BC lampholder | | N |
| 4.11 (8.2.4) | Portable luminaire: | | P |
| | - protection independent of supporting surface | | P |
| | - terminal block completely covered | | P |
| 4.11 (8.2.6) | Covers reliably secured | | N |
| 4.11 (8.2.7) | Discharging of capacitors ≥0,5μF | | N |
| | Portable plug connected luminaire with capacitor | | N |
| | Other plug connected luminaire with capacitor | | N |
| | Discharge device on or within capacitor | | N |
| | Discharge device mounted separately | | N |

| | | | |
|---|---|---|---|
| 4.12 (12) | ENDURANCE TEST AND THERMAL TEST | | P |
| 4.12 (12.3) | Endurance test: | | P |
| | - mounting-position.....: | | — |
| | - test temperature (°C).....: | 35°C | — |
| | - total duration (h) .....: | 240h | — |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| | - supply voltage: Un factor; calculated voltage (V) .....: | 220X1.1=242V | — |
| | - lamp used.....: | | — |
| 4.12 (12.3.2) | After endurance test: | | P |
| | - no part unserviceable | | P |
| | - luminaire not unsafe | | P |
| | - no damage to track system | | N |
| | - marking legible | Marking legible | P |
| | - no cracks, deformation etc. | No cracks, deformation etc. | P |
| 4.12 (12.4) | Thermal test (normal operation) | | P |
| 4.12 (12.5) | Thermal test (abnormal operation) | | N |
| 4.12 (-) | Test overturned position (overturns = 15°) | | N |
| 4.12 (12.6) | Thermal test (failed lamp control gear condition): | | N |
| 4.12 (12.6.1) | - case of abnormal conditions.....: | | — |
| | - electronic lamp control gear | | |
| | - measured winding temperature (°C): at 1,1 Un.: | | — |
| | - measured mounting surface temperature (°C): at 1,1 Un.....: | | N |
| | - calculated mounting surface temperature (°C)..: | | N |
| | - track-mounted luminaires | | N |
| 4.12 (12.6.2) | Temperature sensing control | | N |
| | - case of abnormal conditions.....: | | — |
| | - thermal link | | N |
| | - manual reset cut-out | | N |
| | - auto reset cut-out | | N |
| | - measured mounting surface temperature (°C): : | | N |
| | - track-mounted luminaires | | N |
| 4.12 (12.7) | Thermal test (failed lamp control gear in plastic luminaires): | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| | - case of abnormal conditions | | — |
| 4.12 (12.7.1) | - measured winding temperature (°C): at 1,1 Un.: | | — |
| | - measured temperature of fixing point/ exposed part (°C): at 1,1 Un.....: | | N |
| | - calculated temperature of fixing point/ exposed part (°C).....: | | N |
| 4.12 (12.7.2) | Temperature sensing control | | N |
| | - thermal link | | N |
| | - manual reset cut-out | | N |
| | - auto reset cut-out | | N |
| | - measured temperature of fixing point/ exposed part (°C): .....: | | N |

| | | | |
|---|---|---|---|
| 4.13 (9) | RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE | | N |
| 4.13 (9.2) | Tests for ingress of dust, solid objects and moisture: | | |
| | - classification according to IP.....: | | — |
| | - mounting position during test.....: | | — |
| | - fixing screws tightened; torque (Nm) .....: | | — |
| | - tests according to clauses.....: | | — |
| | - electric strength test afterwards | | N |
| | a) no deposit in dust-proof luminaire | | N |
| | b) no talcum in dust-tight luminaire | | N |
| | c) no trace of water on current-carrying parts or where it could become a hazard | | N |
| | d) i) For luminaires without drain holes – no water entry | | N |
| | d) ii) For luminaires with drain holes – no hazardous water entry | | N |
| | e) no water in watertight luminaire | | N |
| | f) no contact with live parts (IP 2X) | | N |
| | f) no entry into enclosure (IP 3X and IP 4X) | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| 4.13 (9.3) | Humidity test 48 h | R.H.:95%<br>T:25℃ | P |

| | | | |
|---|---|---|---|
| 4.14 (10) | INSULATION RESISTANCE AND ELECTRIC STRENGTH | | P |
| 4.14 (10.2.1) | Insulation resistance test | | P |
| | Insulation resistance (MΩ): | | P |
| | SELV: | | N |
| | - between current-carrying parts of different polarity.....: | | N |
| | - between current-carrying parts and mounting surface .....: | | N |
| | - between current-carrying parts and metal parts of the luminaire .....: | | N |
| | Other than SELV: | | P |
| | - between live parts of different polarity .....: | Insulation resistance > 2MΩ | P |
| | - between live parts and mounting surface .....: | Insulation resistance > 4MΩ | P |
| | - between live parts and metal parts.....: | Insulation resistance > 4MΩ | P |
| | - between live parts of different polarity through action of a switch.....: | | N |
| 4.14 (10.2.2) | Electric strength test | | P |
| | Dummy lamp | | N |
| | Luminaires with ignitors after 24 h test | | N |
| | Luminaires with manual ignitors | | N |
| | Test voltage (V): | | N |
| | SELV: | | N |
| | - between current-carrying parts of different polarity.....: | | N |
| | - between current-carrying parts and mounting surface .....: | | N |
| | - between current-carrying parts and metal parts of the luminaire .....: | | N |
| | Other than SELV: | | P |
| | - between live parts of different polarity .....: | 1440V No broken | P |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| | - between live parts and mounting surface .....: | 2880V No broken | P |
| | - between live parts and metal parts.....: | 2880V No broken | P |
| | - between live parts of different polarity through action of a switch.....: | | N |
| 4.14 (10.3.1) | Leakage current (mA) .....: | 0.034mA < 0.7mA | P |
| 4.15 (13) | RESISTANCE TO HEAT, FIRE AND TRACKING | | P |
| 4.15 (13.2.1) | Ball-pressure test: | | P |
| | - part tested; temperature (°C) .....: | Enclosure :75°C d<2mm | P |
| | - part tested; temperature (°C) .....: | Switch :75°C d<2mm | P |
| 4.15 (13.3.1) | Needle flame test (10 s): | | P |
| | - part tested.....: | Switch | P |
| | - part tested.....: | Enclosure | P |
| 4.15 (13.3.2) | Glow-wire test (650°C): | | P |
| | - part tested.....: | Enclosure:650°C | P |
| | - part tested.....: | Switch :650°C | P |
| 4.15 (13.4.1) | Tracking test: part tested .....: | | N |
| | COMMON MODIFICATIONS | | N |
| (3.3.101 + 5.2.1) | For luminaires connected by tails, information about terminal block | | N |
| (5.2.2) | Cables equal to HD 21 S2 or HD 22 S2 | | N |
| (5.2.15) | Colour code low voltage | | N |
| ZB | ANNEX ZB, SPECIAL NATIONAL CONDITIONS | | N |
| (2.2) | Class 0 not accepted | | N |
| 4.4 (2.2) | PL: class 0 and class I not permitted on portable luminaires | | N |
| (3.3) | DK: power supply cord with label | | N |
| | IT: warning label on Class 0 luminaire | | N |
| (4.5.1) | DK: socket-outlets | | N |
| (4.5.1) | FR: socket-outlets | | N |
| (5.2.1) | DK, FI, SE, GB: type of plug | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| ZC | ANNEX ZC, NATIONAL DEVIATIONS | | N |
| (13.3) | DK: Needle flame test or glow-wire test 750 °C for luminaires in access routes | | N |
| (13.3) | GB: Requirements according to United Kingdom Building Regulation | | N |
| (13.3.2) | FR: Glow-wire test 850 °C alt. 750 °C for luminaires in premises open to public and workers | | N |
| | ANNEX 1: components | | P |

| object/part No. | manufacturer/ trademark | type/model | technical data | standard | mark(s) of conformity |
|---|---|---|---|---|---|
| | | | | -- | |

| | | | |
|---|---|---|---|
| | ANNEX 2: TEMPERATURE MEASUREMENTS, THERMAL TESTS OF SECTION 12 | | P |
| | Type reference ..... : | -- | — |
| | Lamp used ..... : | -- | — |
| | Lamp control gear used ..... : | No lamp control gear | — |
| | Mounting position of luminaire ..... : | Normal | — |
| | Supply wattage (W) ..... : | | — |
| | Supply current (A) ..... : | | — |
| | Calculated power factor ..... : | -- | — |
| | Table: measured temperatures corrected for ta = 25 °C: | | |
| 12.4 | - normal operating mode ..... : | | — |
| | - test 1: rated voltage ..... : | | — |
| | - test 2: 1,06 times rated voltage or 1,05 times rated wattage ..... : | | — |
| 12.5 | - Abnormal operating mode ..... : | | |
| | - test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... : | 220X1.06=233.2Vdc | — |
| | - 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 |
| Switch | | 30.5 | | 50 | | |
| Enclosure | | 39.3 | | 90 | | |

| EN 60598-1&EN 60598-2-4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Cl. | Requirement – Test | | | Result | | | Verdict |
| Light surface | | | 48.6 | | 120 | | |
| Mount surface | | | 40.1 | | 90 | | |
| Ambient | | | 25.7 | | -- | | |
| | ANNEX 3: SCREW TERMINALS (PART OF THE LUMINAIRE) | | | | | | N |
| (14) | SCREW TERMINALS | | | | | | N |
| (14.2) | Type of terminal ..... | | | | | | — |
| | Rated current (A) ..... | | | | | | — |
| (14.3.2.1) | One or more conductors | | | | | | N |
| (14.3.2.2) | Special preparation | | | | | | N |
| (14.3.2.3) | Terminal size | | | | | | N |
| | Cross-sectional area ($mm^2$)..... | | | | | | N |
| (14.3.3) | Conductor space (mm) ..... | | | | | | N |
| (14.4) | Mechanical tests | | | | | | N |
| (14.4.1) | Minimum distance | | | | | | N |
| (14.4.2) | Cannot slip out | | | | | | N |
| (14.4.3) | Special preparation | | | | | | N |
| (14.4.4) | Nominal diameter of thread (metric ISO thread) ..... | | | | | | N |
| | External wiring | | | | | | N |
| | No soft metal | | | | | | N |
| (14.4.5) | Corrosion | | | | | | N |
| (14.4.6) | Nominal diameter of thread (mm)..... | | | | | | N |
| | Torque (Nm) ..... | | | | | | N |
| (14.4.7) | Between metal surfaces | | | | | | N |
| | Lug terminal | | | | | | N |
| | Mantle terminal | | | | | | N |
| | Pull test; pull (N) ..... | | | | | | N |
| (14.4.8) | Without undue damage | | | | | | N |

| EN 60598-1&EN 60598-2-4 | | | |
|---|---|---|---|
| Cl. | Requirement – Test | Result | Verdict |
| | ANNEX 4: SCREWLESS TERMINALS (PART OF THE LUMINAIRE) | | N |
| (15) | SCREWLESS TERMINALS | | N |
| (15.2) | Type of terminal ..... | | — |
| | Rated current (A) ..... | | — |
| (15.3.1) | Material | | N |
| (15.3.2) | Clamping | | N |
| (15.3.3) | Stop | | N |
| (15.3.4) | Unprepared conductors | | N |
| (15.3.5) | Pressure on insulating material | | N |
| (15.3.6) | Clear connection method | | N |
| (15.3.7) | Clamping independently | | N |
| (15.3.8) | Fixed in position | | N |
| (15.3.10) | Conductor size | | N |
| | Type of conductor | | N |
| (15.5.1) | Terminals internal wiring | | N |
| (15.5.1.1) | Pull test spring-type terminals (4 N, 4 samples) | | N |
| (15.5.1.2) | Pull test pin or tab terminals (4 N, 4 samples) | | N |
| | Insertion force not exceeding 50 N | | N |
| (15.5.2) | Permanent connections: pull-off test (20 N) | | N |
| (15.6) | Electrical tests | | N |
| | Voltage drop (mV) after 1 h (4 samples) ..... | | N |
| | Voltage drop of two inseparable joints | | N |
| | Number of cycles ..... | | — |
| | Voltage drop (mV) after 10th alt. 25th cycle (4 samples)..... | | N |
| | Voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... | | N |
| | After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples)..... | | N |
| | After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... | | N |
| (15.7) | Terminals external wiring | | N |
| | Terminal size and rating | | N |

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

**TABLE: List of critical components**

| Object/part No. | Manufacturer/ trademark | Type/model | Technical data | Standard | Mark(s)of Conformity |
|---|---|---|---|---|---|
| Socket | Zhongshan Guzhen Gaojie Lighting Fittings Sales Department | GJ-2701 | 250V 2A T180 °C | EN60238 | CE |
| Socket | Zhongshan Guzhen Shangzheng Lampholder Factory | SZ-2701<br>SZ-2702<br>SZ-2703 | 250V 4A T210 ° C | EN60238 | CE |
| Socket | Zhongshan Guzhen Heyi Electrica Applicance Factory | HY-2701<br>HY-2702<br>HY-2703<br>HY-2704 | 250V 4A T230 ° C | EN60238 | CE |
| Socket | Fujian Mingqing Hengye Electrical | E27 | 250V 2A T180 ° C | EN60238 | CE |
| Socket | Zhongshan City Henglan Town Ruicheng Electric Applicance Factory | 102/E | 250V 4A 250 ° C | EN60238 | CE |
| Socket | Jiangmen Z&X Plastic Products Co., Ltd. | E27-LM | 250V 4A 250 ° C | EN60238 | CE |
| Plug line | Kenic Electric Mfg.Co.Ltd | KE-21 | AC250V 2.5A | | |
| Heat Shrink Tubing | Dongguan Salipt Co.,Ltd | Salipt S-901-600 | 600V 125° C | UL 224<br>UL E209436 | UL |
| Dimmer switch | Foshan Ojun Electronic Technology Co.,Ltd | OJ-339 | 250V~/ 50HZ<br>2.5KV 850° C | EN61058-2-1 | TUV-CE |
| Switch | Foshan Ojun Electronic Technology Co.,Ltd | 8s.303 | 250V~/ 50HZ<br>2.5KV 650° C | EN61058 | ENEC |
| Switch | Foshan Ojun Electronic Technology Co.,Ltd | oj-303 | 250V~/ 50HZ<br>2.5KV 850° C | EN61058 | ENEC |

# ANNEX A:

**Photo-documentation**



**Photo 1 Over view**

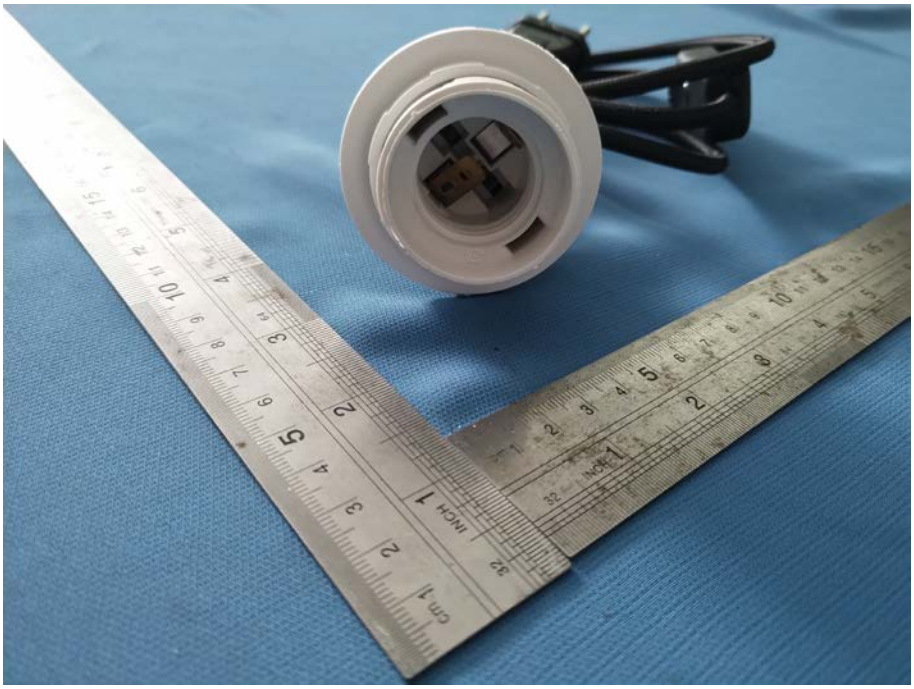

**Photo 2 Over view**



**Photo 3 Over view**



**Photo 4 Over view**




**Photo 5 Over view**



**Photo 6 Over view**



**Photo 7 Over view**



**Photo 8 Over view**

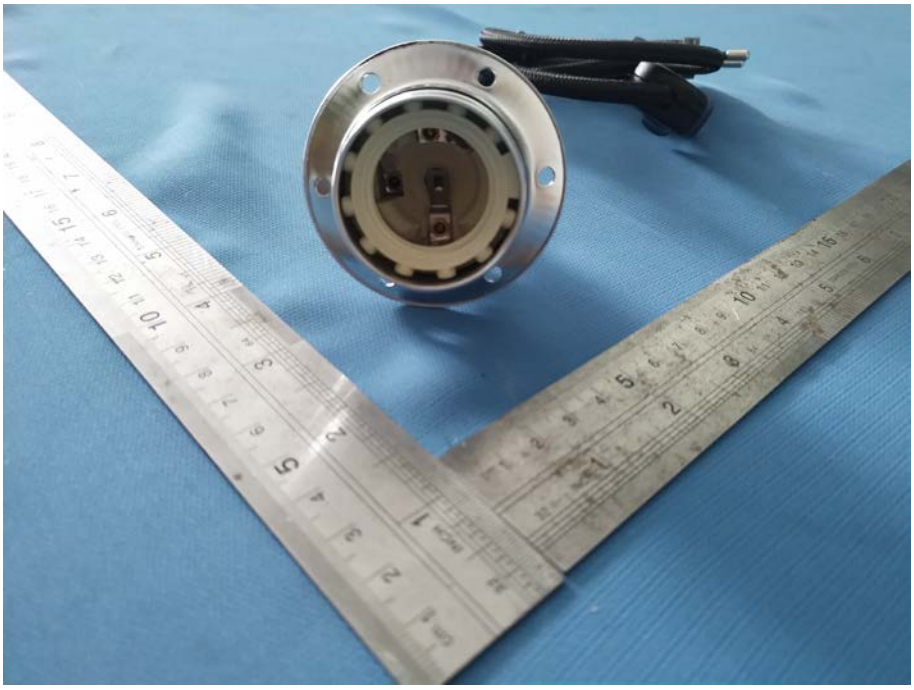

**Photo 9 Over view**



**Photo 10 Over view**

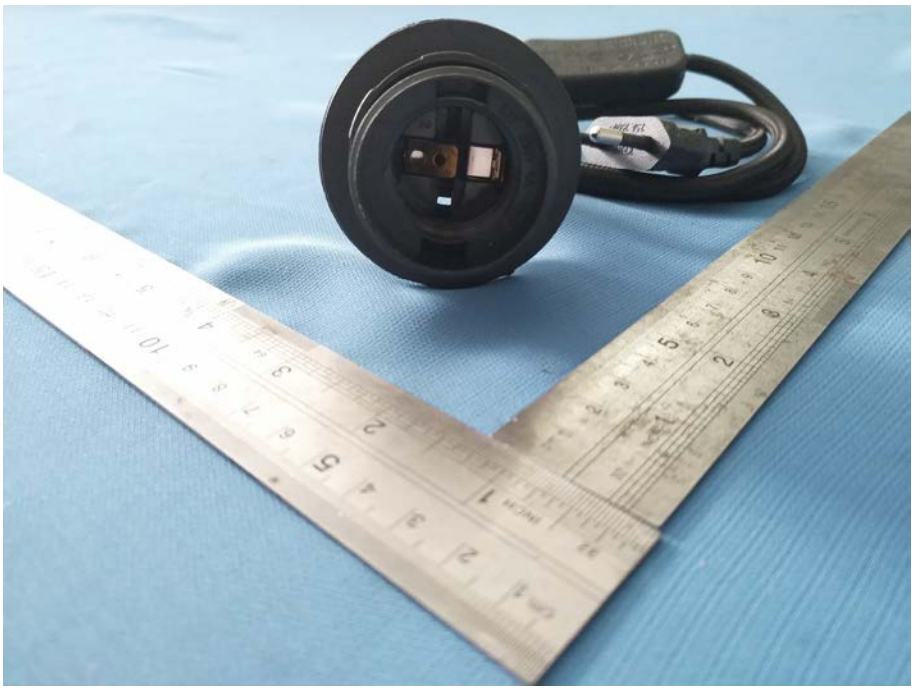

**Photo 11 Over view**



**Photo 12 Over view**

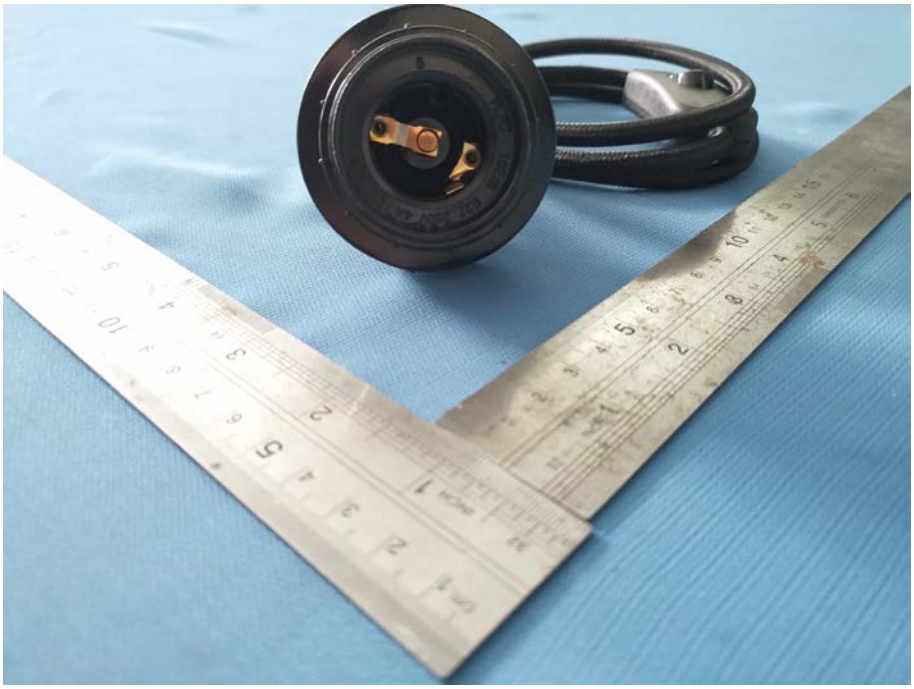

**Photo 13 Over view**