

APPLICATION FOR TEST REPORT

On Behalf of

KLM Lighting Co., Ltd.

LED Bulb

**Model: KLM-CB-03, KLM-CB-05, KLM-GB-SS05, KLM-GB-03,
KLM-GB-SS07, KLM-GB-SS09, KLM-GB-SS11**

**Prepared For : KLM Lighting Co., Ltd.
18-6 Zhongxin Road, Guzhen Town, Zhongshan City, Guangdong
Province, China**

**Prepared By : Shenzhen LCS Compliance Testing Laboratory Ltd.
1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an
District, Shenzhen, Guangdong, China**

Date of Test : October 11, 2013 – October 25, 2013

Date of Report : October 25, 2013

Report Number : LCS131021039TS

| | |
|---|---|
| <p>TEST REPORT</p> <p>JIS C8156</p> <p>Self-ballasted LED-lamps for general lighting services by voltage > 50 V</p> <p>– Safety specifications</p> | |
| Report reference No..... | LCS131021039TS |
| Tested by | Sara Tang <i>Sara Tang</i> |
| Approved by | Hart Qiu <i>Hart Qiu</i> |
| Date of issue | October 25, 2013 |
| Contents | 11 pages |
| Testing laboratory | |
| Name | Shenzhen LCS Compliance Testing Laboratory Ltd. |
| Address | 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China |
| Testing location | As above |
| Client | |
| Name | KLM Lighting Co., Ltd. |
| Address | 18-6 Zhongxin Road, Guzhen Town, Zhongshan City, Guangdong Province, China |
| Manufacturer | |
| Name | KLM Lighting Co., Ltd. |
| Address | 18-6 Zhongxin Road, Guzhen Town, Zhongshan City, Guangdong Province, China |
| Test specification | |
| Standard..... | JIS C8156-2011; IEC 62560: 2011 |
| Test procedure | Compliance with JIS C8156-2011; IEC 62560: 2011 |
| Non-standard test method | N/A |
| Test item Description | |
| Trademark | N/A |
| Model and/or type reference | KLM-CB-03, KLM-CB-05, KLM-GB-SS05, KLM-GB-03, KLM-GB-SS07, KLM-GB-SS09, KLM-GB-SS11 |
| Rating(s)..... | 85-250V~, 50/60Hz, Max.11W |

Test item particulars:

Lamp cap: E14 lamp cap
 Lamp identification.....: LED Lamp
 Commission received form: Same as applicant
 Electrical safety class: Class II
 IP number: IPX0

Test case verdicts

Test case does not apply to the test object : N (N/A)
 Test item does meet the requirement: P(Pass)
 Test item does not meet the requirement ...: F(Fail)

Testing

Date of receipt of test item: October 11, 2013
 Date(s) of performance of test: October 11, 2013 – October 25, 2013

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 tested.

Clause numbers between brackets refer to clauses in JIS C8156.

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

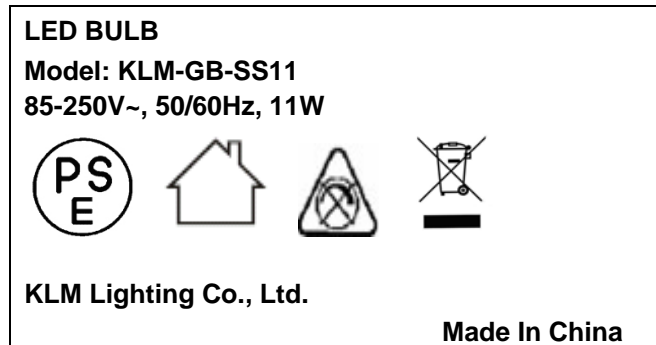
"(see Annex #)" refers to an annex appended to the report.

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

Remarks


1. All models are similar except their model names, appearance and power. All tests are conducted on model KLM-GB-SS11.
2. The report included Attachment 1: 1 page of product photos.
3. The laboratory ambient for testing: 22.0-28.0°C, 60%-73%R.H.

Copy of marking plate



Label of testing

Rubbing for 15 s with a piece of cloth soaked with water. And a further 15 s with a piece of cloth soaked with petroleum.

| JIS C8156 | | | |
|-----------|--|--|---------|
| Clause | Requirement - Test | Result - Remark | Verdict |
| 4 | GENERAL REQUIREMENTS AND GENERAL TEST REQUIREMENTS | | P |
| 4.1 | The lamps shall be so designed and constructed that in normal use they function reliably and cause no danger to the user or surroundings. | | P |
| 4.2 | Self-ballasted LED-lamps are non-repairable, factory-sealed units. They shall normally not be opened for any tests. In the case of doubt based on the inspection of the lamp and the examination of the circuit diagram, and in agreement with the manufacturer or responsible vendor, either the output terminals shall be short-circuited or, in agreement with the manufacturer, lamps specially prepared so that a fault condition can be simulated shall be submitted for testing | | P |
| 4.3 | In general, all tests are carried out on each type of lamp or, where a range of similar lamps is involved, for each wattage in the range or on a representative selection from the range, as agreed with the manufacturer. | | P |
| 4.4 | When the lamp fails safely during one of the tests, it is replaced, provided that no fire, smoke or flammable gas is produced. | | P |
| 5 | MARKING | | P |
| 5.1 | 1) Mark of origin | | P |
| | 2) Rated voltage/voltage range (V) | 85-250V~ | P |
| | 3) Rated input (W) | 11W | P |
| | 4) Rated frequency (Hz) | 50/60Hz | P |
| 5.2 | 1) Lamp current (A) | | N |
| | 2) Burning position if restricted | Not such apparatus | N |
| | 3) The mechanical stress caused by the weight of the lamp in the luminaire | No so higher weight | N |
| | 4) Other things which have effect on the operation  | | P |
| 5.3 | 1) Presence and legibility of the marking by visual inspection | | P |
| | 2) The durability of the marking is checked by rubbing lightly with water and hexane for 15s | After rubbing test, the marking was still legible. | P |

| JIS C8156 | | | |
|-----------|--|-----------------|---------|
| Clause | Requirement - Test | Result - Remark | Verdict |
| | 3) Availability of information by visual inspection | | P |
| 6. | INTERCHANGEABILITY | | P |
| 6.1 | Interchange ability shall be ensured by the use of caps in accordance with IEC Publication 60061-1 and 60061-3 | | P |
| 6.2 | Bending moment, axial pull and mass | | N |
| | B 22d: | | N |
| | A max. and A min. gauge 7006-10/11 | | N |
| | D1 max. gauge 7006-10/11 | | N |
| | N min. gauge 7006-10/11 | | N |
| | Diametrical position of the pins: | | N |
| | Insertion in lampholder gauge 7006-4A | | N |
| | Retention in lampholder gauge 7006-4B | | N |
| | Mass not exceeding 1 kg | | N |
| | E27: | | N |
| | Max. dimension of the screw thread gauge | | N |
| | Min. major diameter of the screw thread gauge 7006-28A | | N |
| | Contact making gauge 7006-50 | | N |
| | Mass not exceeding 1 kg | | N |
| | E14: | | P |
| | Max. dimension of the screw thread gauge | | P |
| | Min. major diameter of the screw thread gauge 7006-28B | | P |
| | Contact making gauge 7006-54 | | P |
| | GU10: | | N |
| | 7006-121-1(go) | | N |
| | 7006-121-1(not go) | | N |
| | GX53: | | N |
| | 7006-142-1 | | N |
| | 7006-142D-1 | | N |
| | 7006-142E-1 | | N |
| | 7006-142F-1 | | N |

| JIS C8156 | | | |
|-----------|---|--|---------|
| Clause | Requirement - Test | Result - Remark | Verdict |
| 7. | PROTECTION AGAINST ELECTRIC SHOCK | | P |
| | Lamps shall be so constructed that no internal metal parts or live parts are accessible, when the lamp is installed in a prescribed lampholder. Compliance is checked by means of the standard test finger with force of 10N. | Can not access internal metal parts or live parts. | P |
| | Edison screw caps compliance with gauge IEC60061-3, sheet 7006-51A for E27caps | | N |
| | And sheet 7006-55 for E14 caps | | P |
| | B22 or B15 caps compliances with normal incandescent lamps | | N |
| | Lamps with B22, B15, GU10 or GZ10 caps are subject to the same requirements as normal incandescent lamps with this cap. | | N |
| | External metal parts shall be so designed that live parts are not accessible (test of Cl. 8) | | P |

| | | | |
|-----|--|------------------------|---|
| 8. | INSULATION RESISTANCE AND ELECTRIC STRENGTH AFTER HUMIDITY TREATMENT | | P |
| 8.1 | General | | P |
| | Insulation resistance and electric strength shall be adequate between live parts of the lamp and accessible parts of the lamp. | | P |
| 8.2 | Insulation resistance | | P |
| | After storage 48 h at a 91-95 % relative humidity and at 20-30 °C. | 93%, 45°C, 120h | P |
| | Insulation resistance with 500 V d.c., required $\geq 4 \text{ M}\Omega$. | $>100 \text{ M}\Omega$ | P |
| 8.3 | Electric strength | | P |
| | Dummy lamp | | N |
| | Luminaires with ignitors after 24 h test | | N |
| | Luminaires with manual ignitors | | N |
| | Test voltage (V): | | P |
| | SELV: | | N |
| | - between current-carrying parts of different polarity..... : | | N |
| | - between current-carrying parts and mounting surface : | | N |

| JIS C8156 | | | |
|-----------|--|--------------------------|---------|
| Clause | Requirement - Test | Result - Remark | Verdict |
| | - between current-carrying parts and metal parts of the luminaire | | N |
| | Other than SELV: | | P |
| | - between live parts of different polarity : | 1500Vac, 1min, no damage | P |
| | - between live parts and mounting surface : | 3000Vac, 1min, no damage | P |
| | - between live parts and metal parts..... : | 3000Vac, 1min, no damage | P |
| | No flashover or breakdown shall occur during the test. Measurements shall be carried out in the humidity cabinet. | | P |
| 9. | MECHANICAL STRENGTH | | P |
| | Torsion resistance | | P |
| | The mechanical strength of connection between the cap and the bulb/part of the lamp is checked by the torque of 3 Nm. | | P |
| | - B22d3 Nm | | N |
| | - B15d1.15 Nm | | N |
| | - E26 and E273 Nm | | N |
| | - E141.15 Nm | | P |
| | - E120.8 Nm | | N |
| | - E171.5 Nm | | N |
| | -GU10.....: | | N |
| | -GX53.....: | | N |
| | Torque increased continuously from zero to specified value | | P |
| | Uncemented caps; relative movement between cap and bulb does not exceed 10 | | P |
| | After mechanical strength test sample complies requirement of accessibility | | P |
| 10. | CAP TEMPERATURE RISE | | P |
| | The surface temperature rise (above ambient) of a lampholder fitted to the lamp shall not be higher than that of the lamp type which is being replaced by the lamp. | | P |
| | The cap temperature rise Δt_s of the complete lamp shall not exceed 120 K. The value of Δt_s corresponds to a 60 W max. incandescent lamp. The operating position and ambient temperature are detailed in IEC 60360. | See the appended table | P |

| JIS C8156 | | | |
|------------|---|---------------------------------|---------|
| Clause | Requirement - Test | Result - Remark | Verdict |
| | Measurement shall be carried out at rated voltage. If the lamp is marked with a voltage range, it shall be measured at the maximum voltage of that range. | | P |
| 11. | RESISTANCE TO HEAT | | P |
| | External parts of insulating material providing protection against electric shock, and parts of insulating material retaining live parts in position, ball pressure test: | | P |
| | Part tested; temperature (°C); diameter of impression (≤ 2 mm).....: | PCB, 125°C, 0.8mm | P |
| | Part tested; temperature (°C); diameter of impression (≤ 2 mm).....: | Plastic enclosure, 125°C, 1.1mm | P |
| | Part tested; temperature (°C); diameter of impression (≤ 2 mm).....: | Bobbin of transformer, 0.9mm | P |
| 12. | RESISTANCE TO FLAME AND IGNITION | | P |
| | Parts of insulating material retaining live parts in position and external parts of insulating material providing protection against electric shock, glow-wire test 650 °C | | P |
| | Part tested; temperature (°C).....: | PCB, 650°C | P |
| | Part tested; temperature (°C).....: | Plastic enclosure, 650°C | P |
| | Part tested; temperature (°C).....: | Bobbin of transformer, 650°C | P |
| | No visible flame and no sustained glowing | | P |
| | Flames and glowing, extinguish within 30s: | No burning | N |
| | No ignition of the tissue paper | | P |
| 13. | FAULT CONDITIONS | | -- |
| 13.1 | General | | P |
| | Lamps shall not impair safety when operated under fault conditions which may occur during the intended use. Each of the following fault conditions is applied in turn, as well as any other associated fault condition that may arise from them as logical consequence. | | P |
| 13.2 | Extreme electrical conditions (dimnable lamps) | | N |

| JIS C8156 | | | |
|-----------|--|------------------------|---------|
| Clause | Requirement - Test | Result - Remark | Verdict |
| 13.3 | Extreme electrical conditions (non-dimmable lamps) | | P |
| 13.4 | b) Short-circuit across capacitors | See the appended table | P |
| 13.5 | Fault conditions across electronic components | See the appended table | P |

Tables

| | | | | | | |
|---|---|--------|-----------------|-------------------|--|--------|
| 13 | TABLE: tests of fault conditions (1.1 Un is more severe than 0.9Un and chose for test) | | | | | |
| C1 | 0,9xUn | 1,1xUn | Short-circuited | Discon- nected | Result | Hazard |
| BD1 | -- | 275V | S-C | -- | Fuse resistor opened, No hazard. | No |
| Output | -- | 275V | S-C | -- | Fuse resistor opened, No hazard. | No |
| T1 pri. (1-2) | -- | 275V | S-C | -- | Shut down instantly, recoverable. | No |
| T1 pri. (3-4) | -- | 275V | S-C | -- | Shut down instantly, recoverable, No hazard. | No |
| T1 secondary | -- | 275V | O-L | -- | Shut down instantly, recoverable, No hazard. | No |
| NOTE: S-C; short circuit ; O-C; open circuit; O-L: overload | | | | | | |

| | | | | | | | |
|--|--|-----------|------------------|---------|------------------|---------|---|
| 14 | TABLE: Clearance And Creep age Distance Measurements | | | | | | P |
| clearance cl and creepage distance cr at/of: | Up (V) | U rms.(V) | Required cl (mm) | cl (mm) | required cr (mm) | cr (mm) | |
| L and N on PCB | -- | 250 | 2.5 | 3.5 | 2.6 | 3.5 | |
| Two ends of current fuse resistor on PCB | -- | 250 | 2.5 | 3.2 | 2.6 | 3.2 | |
| Live part and metal enclosure | -- | 250 | 4.7 | 5.5 | 5.0 | 5.5 | |

| | | | | | | |
|-------------------------|---|-----------------|--------|--------|------------------------|-------|
| ANNEX 2 | TABLE: Temperature measurements | | | | | P |
| | Type reference | KLM-GB-SS11 | | | P | |
| | Lamp used | LED Lamp | | | P | |
| | Lamp control gear used..... | | | | N | |
| | Mounting position of luminaire..... | cap up/cap down | | | P | |
| | Supply wattage (W) | 10.9W | | | P | |
| | Supply current (A) | 0.04A | | | P | |
| | Calculated power factor..... | 0.94 | | | P | |
| | Table: measured temperatures corrected for ta = 25°C: | | | | P | |
| Temperature(°C) of part | Clause 12.4 – normal | | | | Clause 12.5 – abnormal | |
| | Test 1 | Test 2 | Test 3 | Limits | Test 4 | Limit |
| Enclosure (plastic) | 37.7 | --- | --- | Ref. | --- | --- |
| Enclosure (metal) | 42.2 | --- | --- | Ref. | --- | --- |
| Input wire | 43.6 | --- | --- | 105 | --- | --- |
| output wire | 48.3 | --- | --- | 105 | --- | --- |

Tables

| | | | | | | |
|-------------------|------|-----|-----|------|-----|-----|
| C1 | 42.7 | --- | --- | 105 | --- | --- |
| CY1 | 45.7 | --- | --- | 125 | --- | --- |
| PCB of led module | 55.1 | --- | --- | Ref. | --- | --- |
| winding(T1) | 56.5 | --- | --- | 130 | --- | --- |
| Bobbin(T1) | 53.5 | --- | --- | 130 | --- | --- |
| PCB near T1 | 55.6 | --- | --- | 130 | --- | --- |
| Ambient | 25.9 | --- | --- | --- | --- | --- |

| ANNEX 3 | COMPONENTS | | | | | P |
|------------------|------------|---|------------|-------------------|-------------|-----------------------|
| object/part No. | Code | manufacturer/trademark | type/model | technical data | standard | mark(s) of conformity |
| PCB | B | SHANDONG JINBAO ELECTRONICS CO., CTD | ZD-95(G)F | V-0, 130°C, 1.6mm | UL 796 | UL E141940 |
| Lamp cap | B | KANGZHEN LIGHTING SOURCE | E14 | -- | -- | UL |
| Y- capacitors | B | SHANTOU HIGH-NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE COLTD | CD | 102/250VAC | UL 60384-14 | UL E208107 |
| Internal wire | B | XIAMEN XIN CHENG DA ELECTRIC CO LTD | 2464 | 300V, 105°C | UL 758 | UL E322113 |
| Fuse resistor | B | XIAMEN SET ELECTRONICS CO LTD | RXF | 1Ω | UL 1412 | UL E324712 |
| Transformer T1 | B | Haiya Led Electronics Co., Limited | Hk-1 | Class B | -- | Test with appliance |
| -Bobbin | B | CHANG CHUN PLASTICS CO., LTD. | T375J | V-0, 150°C | UL 94 | UL E59481 |
| -Magnet Wire | B | PACIFIC ELECTRONIC WIRE & CABLECO., LTD. | MW-28C | 130°C | UL 1446 | UL E201757 |
| -Insulating tape | B | 3M COMPANY ELECTRICAL MARKETS DIV (EMD) | 44-T(a) | 130°C | UL 510 | UL E17385 |

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

ATTACHMENT 1

Photo Documentation

View:
Model:
KLM-GB-
SS11

- General
- Front
- Rear
- Internal
- Top
- Bottom
- PWB



Figure 1

View:

- General
- Front
- Rear
- Internal
- Top
- Bottom
- PWB



Figure 2