



CE LVD TEST REPORT

For

LED panel driver

Model No.: 6004, 6019, 6270, 6427, 6271, 6268, 6269, 6328, 6259, 6436,
6427, 6437, 6386, 8073, 8074, 8075, 738, 739, 740, 741, 742, 743

Applicant : V-TAC EXPORTS LIMITED
ROOM NO.301, KAM ON BUILDING 176A QUEENS ROAD
CENTRAL, CENTRAL, HONGKONG

Manufacturer : V-TAC EXPORTS LIMITED
ROOM NO.301, KAM ON BUILDING 176A QUEENS ROAD
CENTRAL, CENTRAL, HONGKONG

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Note:

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| Test Report EN 61347-1: 2015 Luminaires — Part 1: General and safety requirements EN 61347-2-13: 2014 Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules | |
|---|---|
| Report reference No. | J0120180118006S |
| Testing laboratory | Global-Standard Testing Service Co., Ltd. |
| Location..... | Room 1911-1914, Noble Plaza, Qian Jin 1st Road, Bao An district, Shenzhen, Guangdong, China. |
| Applicant..... | V-TAC EXPORTS LIMITED |
| Address:..... | ROOM NO.301, KAM ON BUILDING 176A QUEENS ROAD CENTRAL, CENTRAL, HONGKONG |
| Manufacturer..... | V-TAC EXPORTS LIMITED |
| Address:..... | ROOM NO.301, KAM ON BUILDING 176A QUEENS ROAD CENTRAL, CENTRAL, HONGKONG |
| Standards..... | EN 61347-1: 2015 EN 61347-2-13: 2014 |
| Procedure deviation..... | N/A |
| Non-standard test method..... | N/A |
| Type of test equipment | LED panel driver |
| Trade mark..... | N/A |
| Model/Type designation..... | 6004, 6019, 6270, 6427, 6271, 6268, 6269, 6328, 6259, 6436, 6427, 6437, 6386, 8073, 8074, 8075, 738, 739, 740, 741, 742, 743 |
| Rating..... | Input: 200-240VAC, 50/60Hz, 0.16A Output: 26-36VDC, 800mA |
| Test item particulars..... | -- |
| Operating Condition..... | Continuous |
| Tested for IT power systems..... | No |
| IT testing, phase-phase voltage (V)..... | N/A. |
| Protection against ingress of water..... | IP20 |

| Possible test case verdicts: | |
|---|--------|
| test case does not apply to the test object | N(/A.) |
| test object does meet the requirement | P(ass) |
| test object does not meet the requirement | F(ail) |

Name and address of the testing laboratory :


Global-Standard Testing Service Co., Ltd.
Room 1911-1914, Noble Plaza, Qian Jin 1st Road, Bao An District,
Shenzhen, Guangdong, China.

Tested by : king Li January 09, 2018
Signature Date

King Li / Engineer
Name/title

Reviewed by : Jerry Hu January 23, 2018
Signature Date

Jerry Hu / Supervisor
Name/title

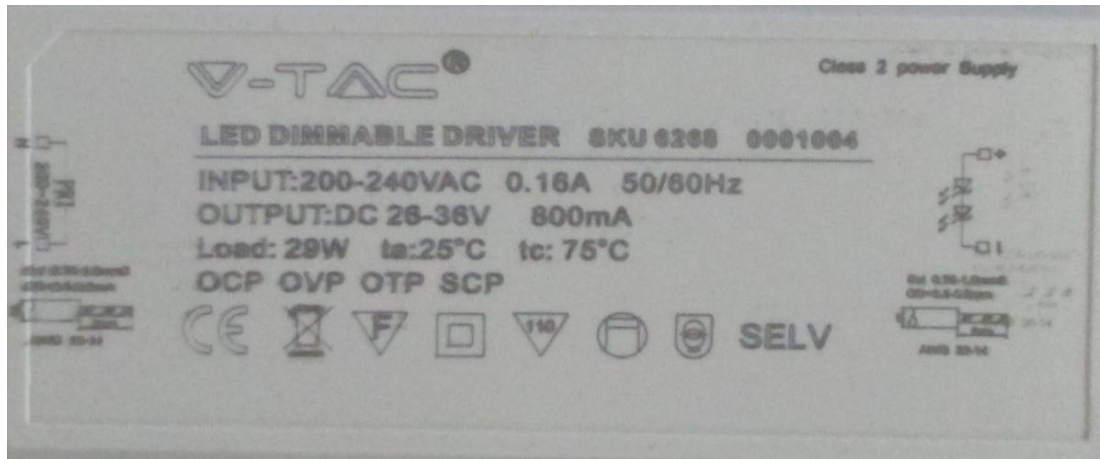
Approved by :  January 23, 2018
Signature Date

Tim Sun / Supervisor
Name/title

| | |
|---|---|
| <p>General remarks:</p> <p>Clause number between brackets refer to clauses in IEC 60598-1</p> <p>"(see remark #)" refers to a remark appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a comma is used as the decimal separator.</p> <p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced except in full without the written approval of the testing laboratory.</p> <p>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</p> | <p>Attached with:</p> <p>Attachment - A. Stylebook Of Marking Label</p> |
| <p>Brief description of the test sample:</p> <p>The test samples were pre-production samples without serial numbers. This report shall not be reproduced except in full without the written approval of the testing laboratory.</p> <p>the test result presented in this report relate only to the object(s) tested.</p> <p>The equipment with model 6004, 6019, 6270, 6427, 6271, 6268, 6269, 6328, 6259, 6436, 6427, 6437, 6386, 8073, 8074, 8075, 738, 739, 740, 741, 742, 743 are class I LED power supply(build-in type) used for d.c. supplied electronic controlgear for LED modules</p> <p>All models are identical except for the parameters of secondary componets depend on output power an output current.</p> <p>All tests were performed by model 6268 to represent the other identical models.</p> <p>The test result presented in this report relate only to the object(s) tested.</p> | |

Label

Representative



Note:

1. Due to similarity of the labels, only above label was listed;
2. All labels have the same format except for model name and wattage;
3. The height of WEEE directive mark is at least 7mm height, and CE directive mark is at least 5mm height.

| EN 61347-2-13 | | | |
|---------------|-------------------|-----------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |

| | | | |
|--------------|--|-----------|-----|
| 1+4 | SCOPE AND GENERAL REQUIREMENTS | | --- |
| | Annex I applicable: | | --- |
| 6 (6) | CLASSIFICATION | | --- |
| | Independent ballast | Yes | --- |
| | Built-in ballast | No | --- |
| | Integral ballast | No | --- |
| (-) | SELV-equivalent or isolating controlgear | No | --- |
| (-) | Auto-wound controlgear | No | --- |
| (-) | Independent SELV controlgear | Yes | --- |
| 7 | MARKING | | --- |
| 7.1 (7.1) | Mandatory markings | | --- |
| | - mark of origin | See label | P |
| | - model number, type reference | See label | P |
| | - symbol for independent ballast, if applicable | | N |
| | - correlation between interchangeable parts and ballast marked | | N |
| | - legend on the ballast | See label | P |
| | - manufacturer's catalogue | See label | P |
| | - rated supply voltage(V) | See label | P |
| | - rated supply frequency (Hz) | See label | P |
| | - rated supply current (A) | See label | P |
| | - earthing symbol | | N |
| | - wiring diagram | | P |
| | - value of t_c | 75°C | P |
| | - symbol for temperature declared | See label | P |
| (-) | - for constant voltage types: rated output voltage | | N |
| (-) | - for constant current types: rated output current and maximum output voltage | | P |
| (-) | - If applicable: an indication that the control gear is suitable for operation with LED modules only | | P |
| 7.2 (7.1) | - information to be provided, if applicable | | --- |

| EN 61347-2-13 | | | |
|---------------|---|--|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |
| | - declaration on protection against accidental contact | | N |
| | - cross-section of conductors (mm ²): | | N |
| | - number, type and wattage of lamp(s) | | N |
| (-) | - mention whether the controlgear has mains-connected windings | | N |
| (-) | - mention that they are SELV-equivalent controlgear, if applicable | | N |
| - (7.2) | Marking durable and legible | | P |
| | Rubbing 15 s water, 15 s petroleum; marking legible | | P |
| 8 (10) | PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS | | --- |
| - (10.1) | Lamp controlgear which do not rely upon the luminaire enclosure for protection against electric shock shall be sufficiently protected against accidental contact with live parts (see annex A) when installed as in normal use. | | N |
| | Lamp controlgear relies upon the luminaire enclosure for protection | | P |
| | Lacquer or enamel is not considered to be adequate protection or insulation for the purpose of this requirement. | | P |
| | Adequate mechanical strength on parts providing protection | | P |
| - (10.2) | Capacitors > 0,5 µF: voltage after 1 min (V): < 50 V: | | P |
| 8.1 | For SELV-equivalent controlgear, the accessible parts shall be insulated from live parts by double or reinforced insulation | Input circuit is isolated from output circuit by double or reinforced insulation. See appended table 18(16) for detail. However, the controlgear is intended to be built-in, the insulation between live parts and accessible parts shall be evaluated during final system assembly. | P |
| 8.2 | Output circuits of SELV- or SELV equivalent control gear may have exposed terminals if | | P |

| EN 61347-2-13 | | | |
|---------------|---|---|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |
| | - the rated output voltage for constant voltage control gear or maximum output voltage for constant current control gear under load does not exceed 25 V r.m.s.; | | P |
| | - the no-load output voltage does not exceed 33 V r.m.s. and the peak does not exceed $33\sqrt{2}$ V | | N |
| | Controlgear with a rated output voltage above 25 V shall have insulated terminals | | N |
| | In the case of capacitors which are connected between SELV or SELV equivalent output and primary circuits, one capacitor Y1 or two capacitors Y2 in series with the same value specified and tested according to Tables 2 and 3 respectively of IEC 60384-14 are to be used | | P |
| | Each capacitor shall comply with the requirements of 14.2 of IEC 60065 | | P |
| | If other components are necessary for bridging the separating transformer, Clause 14 of IEC 60065 shall apply | | P |
| 9 (8) | TERMINALS | | --- |
| | Screw terminals: compliance with Section 14 of IEC 60598-1 | Compliance checked. (See attachment table 1) | N |
| | Screwless terminals: compliance with section 15 of IEC 60598-1 | | N |
| 10 (9) | PROVISION FOR EARTHING | | --- |
| | External metal parts connected to the earth-terminal: | | N |
| | - compliance with 7.2.1 in IEC 60598-1 | | N |
| | Test with a current of 10 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω) : < 0,5 Ω : | | N |
| | Protective earth, symbol | | N |
| | Terminal complying with clause 8 in Part 1 | | N |
| | Locked against loosening and not possible to loosen by hand | | N |
| | Not possible to loosen clamping means unintentionally on screwless terminals | | N |

| EN 61347-2-13 | | | |
|---------------|-------------------|-----------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |

| | | | |
|----------------|---|--|-----|
| | Earthing via means of fixing | | N |
| | Earthing terminal only used for the earthing of the control gear | | N |
| | All parts of material minimizing the danger of electrolytic corrosion | | N |
| | Made of brass or equivalent material | | N |
| | Contact surface bare metal | | N |
| | Conductors by tracks on printed circuit boards: | | --- |
| | - a.c. current of 25 A for 1 min between earthing terminal and accessible metal parts | | N |
| | - compliance with clause 7.2.1 in IEC 60598-1 | | N |
| 11 (11) | MOISTURE RESISTANCE AND INSULATION | | --- |
| | After storage 48 h at 91-98% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ): > 2 MΩ: | | P |
| | ≥2 MΩ for basic insulation.....: | Between different polarity measured: more than1000 MΩ | P |
| | ≥4 MΩ for double or reinforced insulation.....: | Between live parts and output circuits measured: more than1000 MΩ, Between live parts and metal enclosure measured: more than1000 MΩ | P |
| (-) | For SELV-equivalent controlgear, the insulation between input and output terminals not bonded together shall be adequate | Input terminals are separated from output terminals by double or reinforced insulation | P |
| (-) | With double or reinforced insulation, the resistance shall be not less than 4 MΩ | | P |
| 12 (12) | ELECTRIC STRENGTH | | --- |
| | Immediately after clause 11 electric strength test for 1 min | | --- |
| | Working voltage ≤ 42 V, test voltage 500 V | | N |
| | Working voltage > 42 V, test voltage (V): 2U + 1000 V: | | P |
| | Reinforced insulation, test voltage (V) : | | P |
| | No flashover or breakdown | | P |

| EN 61347-2-13 | | | |
|----------------|--|----------------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |
| (-) | Insulation conditions of windings of separating transformers in SELV-equivalent control gear shall apply according to 14.3.2 of IEC 60065 | | P |
| 13 (13) | THERMAL ENDURANCE FOR WINDINGS | | --- |
| | Not applicable | | --- |
| 14 (14) | FAULT CONDITIONS | | --- |
| | When operated under fault conditions the ballast: - does not emit flames or molten material | | P |
| | - does not produce flammable gases | | P |
| | - protection against accidental contact not exceed the marked temperature value | | P |
| | Thermally protected ballasts does not exceed the marked temperature value | | P |
| | Fault conditions: capacitors resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected | | P |
| (14.1) | Short-circuit of creepage distances and clearances if less than specified in clause 18 (except between live parts and accessible metal parts) | | N |
| | Distances not printed boards provided with coating according to IEC 60664-3 is used | | N |
| (14.2) | Short-circuit or interruption of semiconductor devices | | P |
| (14.3) | Short-circuit across insulation consisting of lacquer, enamel or textile | | N |
| (14.4) | Short-circuit across electrolytic capacitors | (see appended table) | P |
| | During the tests, a five-layer, tissue paper, where the test specimen is wrapped, does not ignite | | P |
| (-) | In the case of controlgear provided with the marking of thermally protected controlgear, the requirements specified in Annex C shall be fulfilled | | P |
| 15 | TRANSFORMER HEATING | | --- |
| | In SELV-equivalent controlgear, windings of separating transformers shall be tested according to 7.1 and 11.2 of IEC 60065 | | P |

| EN 61347-2-13 | | | |
|---------------|---|-----------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |
| 15.1 | Normal operation | | P |
| | For normal operation, the values in the second column of Table 3 of IEC 60065 shall apply | | P |
| 15.2 | Abnormal operation | | P |
| | For operation under abnormal conditions according to Clause 16 and fault conditions according to Clause 14 of this standard, the values in the third column of Table 3 of IEC 60065 shall apply | | P |
| | Tests shall be made under conditions such that the controlgear is brought to t_c , as reached under normal operation | | P |
| | For moulded-in transformers specially prepared samples provided with thermocouples shall be submitted for testing | | N |
| 16 | ABNORMAL CONDITIONS | | --- |
| | The controlgear shall not impair safety when operated under abnormal conditions. The short-circuit in 16.1 and 16.2 shall be applied with the length of the output cable of both, 20 cm and 200 cm, unless otherwise declared by the manufacturer | | N |
| 16.1 | Controlgear which are of the constant voltage output type | | --- |
| | Compliance is checked by the following test at any voltage between 90 % and 110 % of the rated supply voltage | | N |
| | a) No LED module is inserted | | N |
| | b) Double the LED modules or equivalent load for which the controlgear is designed, connected in parallel to the output terminals | | N |
| | c) The output terminals of the controlgear shall be short-circuited | | N |
| | no defect impairing safety, nor shall any smoke or flammable gases be produced | | N |
| 16.2 | Controlgear which are of the constant current output type | | --- |
| | The maximum output voltage shall not be exceeded | | P |

| EN 61347-2-13 | | | |
|----------------|--|--------------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |
| | Compliance is checked by the following test at any voltage between 90 % and 110 % of the rated supply voltage | | P |
| | a) No LED modules are connected | | N |
| | b) Double the LED modules or equivalent load for which the controlgear is designed, connected in series to the output terminals | | P |
| | c) The output terminals of the controlgear shall be short-circuited | | P |
| | No defect impairing safety, nor shall any smoke or flammable gases be produced | | P |
| 17 (15) | CONSTRUCTION | | --- |
| (15.1) | Wood, cotton, silk, paper and similar fibrous material shall not be used as insulation, unless impregnated | | N |
| (15.2) | Printed circuits are permitted for internal connections | | P |
| (-) | Socket-outlets in the output circuit shall not accept plugs complying with IEC 60083 and IEC 60906; neither shall it be possible to engage plugs accepted by socket-outlets in the output circuit with socket-outlets complying with IEC 60083 and IEC 60906 | | N |
| 18 (16) | CREEPAGE DISTANCES AND CLEARANCES | | --- |
| | Creepage distances and clearances according to Table 3 and 4, as appropriate | See appended table | P |
| | Printed boards see clause 14 | | P |
| | Insulating lining of metallic enclosures | | P |
| 19 (17) | SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS | | --- |
| | Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1) | | P |
| (4.11) | Electrical connections | | --- |
| (4.11.1) | Contact pressure | | P |
| (4.11.2) | Screws: | | --- |
| | - self-tapping screws | | N |
| | - thread-cutting screws | | N |

| EN 61347-2-13 | | | |
|---------------|-------------------|-----------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |

| | | | |
|----------------|--|-----------------------|-----|
| | - at least two self-tapping screws | | N |
| (4.11.3) | Screw locking: | | --- |
| | - spring washer | | N |
| | - rivets | | N |
| (4.11.4) | Material of current-carrying parts | | P |
| (4.11.5) | No contact to wood | | N |
| (4.12) | Mechanical connections and glands | | P |
| (4.12.1) | Mechanical stress | | P |
| | Screws not made of soft metal | | N |
| | Screws of insulating material | | N |
| | Torque test: part; torque (Nm) | | N |
| | Torque test: part; torque (Nm) | | N |
| | Torque test: part; torque (Nm) | | N |
| (4.12.2) | Screw diameter < 3mm screwed into metal | | P |
| (4.12.3) | Void | | --- |
| (4.12.4) | Locked connections | | P |
| (4.12.5) | Screwed glands: force (N) | | N |
| 20 (18) | RESISTANCE TO HEAT, FIRE AND TRACKING | | --- |
| (18.1) | Parts of insulating material retaining live parts in position, ball-pressure test: | | --- |
| | - part; test temperature (°C) | PCB: 125°C, 1.06mm | P |
| | - part; test temperature (°C) | Enclosure:75°C 0.89mm | P |
| (18.2) | Printed boards in accordance with IEC 60249-1, 4.3 | | P |
| (18.3) | External parts of insulating material preventing electric shock glow-wire test 650 °C | PCB, Enclosure | P |
| (18.4) | Parts of insulating material retaining live parts in position, needle-flame test 10 s: | | --- |
| | - flame extinguished within 30 s | PCB, Enclosure | P |
| | - no flaming drops igniting tissue paper | | P |
| (18.5) | Tracking test | | N |
| 21 (19) | RESISTANCE TO CORROSION | | --- |
| | Rust protection: | | --- |

| EN 61347-2-13 | | | |
|---------------|-------------------|-----------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |

| | | | |
|--------------|--|--|---|
| | - 10% solution of ammonium chloride in water | | P |
| | - adequate varnish on the outer surface | | P |
| -(20) | NO-LOAD OUTPUT VOLTAGE | | P |
| | No load output voltage not differ more than 10% from rated voltage | | P |

| 14 | TABLE: TESTS OF FAULT CONDITIONS | | | P |
|-------------|----------------------------------|--------|--|--------|
| Part | Simulated fault | | | Hazard |
| -- | Fault condition | Result | | -- |
| -- | -- | Time | Observation | -- |
| BD1 | 254 S/C | 1s | Fuse open | NO |
| RV1 | 254 S/C | 1s | Fuse open | NO |
| L2 | 254 S/C | 1s | Fuse open | NO |
| C1 | 254 S/C | 1s | Fuse open | NO |
| D6 | 254 S/C | 10 min | I/P: 0.09A, 0.963PF; O/P: 37.2V,0.898A normal | NO |
| T1 1-2 | 254 S/C | 1s | Unit protection,recoverable | NO |
| T1 3-4 | 254 S/C | 1s | Unit protection,recoverable | NO |
| T1 5-6 | 254 S/C | 1s | Unit protection,recoverable | NO |
| Output(+ -) | 254 S/C | 10 min | Unit protection,recoverable | NO |

| EN 61347-2-13 | | | |
|---------------|-------------------|-----------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |

Tables

| | |
|-------------------|----------|
| components | P |
|-------------------|----------|

| TABLE | List of critical components and materials | | | |
|--------------------------------|---|--------------|---|------------------------------|
| Component | manufacturers / trademark | Type / model | Value / rating | Approval/ Reference |
| Enclosure | Formosa Chemicals & Fibre Corp Plastics Div | AC3600 | V-1, 80°C, Min. thick 1.5mm. | Tested with Appliance and UL |
| Input wire | Yang Tai Wire & Cable Co.,Ltd | 1015 | AWM, VW-1, Min. 18AWG, Min. 600V, Min. 105°C. | Tested with Appliance and UL |
| Output wire | Yang Tai Wire & Cable Co.,Ltd | 1015 | AWM, VW-1, Min. 18AWG, Min. 600V, Min. 105°C. | Tested with Appliance and UL |
| PCB | Hui zhou lianxing electronic co., ltd | LX-D | V-0, 130°C | Tested with Appliance and UL |
| Fuse (F1) | XC Electronics (Shen Zhen)Corp. Ltd. | 5TE | T2A, 250VAC | VDE |
| Y1-Capacitor (Y1) | Haohua Electronic Co.Ltd. | CT 7 | Max.2.2nF, 400Vac, 25/125/21,Y1 type | VDE |
| Transformer (T1) | FOSHAN HUAQUAN ELECTRICAL LIGHTING CO.,LTD | EE19 | Class B, 130°C | Tested with appliance |
| Pri. winding of transformer | Dongguan Yida Industrial Co., Ltd. | xUEW | 155°C | Tested with Appliance and UL |
| Sec.winding of transformer | Fluo Tech Industrial Co., Ltd. | TWBR(B) | 130°C | VDE |
| Bobbin of transformer | Chang Chun Plastics Co., Ltd. | T375J | 150°C | Tested with Appliance and UL |
| Insulation tape of transformer | Jingjiang Yhua Pressure Sensetive Glue Co., Ltd. | CT-280B | 130°C | Tested with Appliance and UL |
| Varnishes of transformer | Zhuhai Changxian New Materials Technology Co., Ltd. | E962 | 130°C | Tested with Appliance and UL |
| Tube | Fluo Tech Industrial Co., Ltd. | TFL | 200°C | Tested with Appliance and UL |

| EN 61347-2-13 | | | |
|---------------|-------------------|-----------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |

| TABLE: Temperature measurements, thermal tests of Section 12 | | | p |
|--|---|---|---|
| Type reference..... | : | 6268 | — |
| Lamp used..... | : | LED lamp | — |
| Lamp control gear used..... | : | As normal sue | — |
| Mounting position of luminaire..... | : | As normal use | — |
| Supply wattage (W)..... | : | 35.7W | — |
| Supply current (A)..... | : | 0.15A | — |
| Calculated power factor..... | : | — | — |
| Table: measured temperatures corrected for $t_a = 45\text{ }^\circ\text{C}$: | | | p |
| - abnormal operating mode..... | : | — | — |
| - test 1: rated voltage..... | : | — | — |
| - test 2: 1,06 times rated voltage or 1,05 times rated wattage..... | : | Supplied from adapter 1.06x240V=254.4V | — |
| - 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 | : | — | — |

Temperature measurements, ($^\circ\text{C}$)

| Part | Ambient | Clause 12.4 – normal | | | | Clause 12.5 – abnormal | |
|---------------|---------|----------------------|--------|--------|-------|------------------------|-------|
| | | test 1 | test 2 | test 3 | limit | test 4 | limit |
| Input wire | 25 | — | 47.1 | — | 90 | — | — |
| F1 | 25 | — | 47.2 | — | 90 | — | — |
| L1 | 25 | — | 52.7 | — | 110 | — | — |
| RV1 | 25 | — | 57.4 | — | 85 | — | — |
| Winding of T1 | 25 | — | 84.3 | — | 110 | — | — |
| C15 | 25 | — | 76.4 | — | | | |
| L4 | 25 | — | 69.5 | — | 110 | — | — |
| PCB near T1 | 25 | — | 85.2 | — | 130 | — | — |
| Output wire | 25 | — | 50.0 | — | 90 | — | — |

| EN 61347-2-13 | | | |
|---------------|-------------------|-----------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |

| | | | | | | | |
|------------------------|----|---|------|---|----|---|---|
| Driver surface top(Tc) | 25 | – | 60.7 | – | 80 | – | – |
| Driver surface bottom | 25 | – | 60.1 | – | 90 | – | – |
| Ambient | 25 | – | 45.0 | – | -- | – | – |

| EN 61347-2-13 | | | |
|---------------|-------------------|-----------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |

| | | | |
|--|--|--|------------|
| | screw terminals (part of the luminaire) | | N/A |
|--|--|--|------------|

| (14) | SCREW TERMINALS | | N/A |
|------------|---|-------|------------|
| (14.2) | Type of terminal..... : | Cross | — |
| | 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 61347-2-13 | | | |
|---------------|-------------------|-----------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |

| | | |
|--|--|------------|
| | 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 |
| (15.8.1) | Pull test spring-type terminals or welded connections (4 samples); pull (N) : | N/A |

| EN 61347-2-13 | | | |
|---------------|-------------------|-----------------|-------|
| Clause | Requirement+ Test | Result - Remark | Verd. |

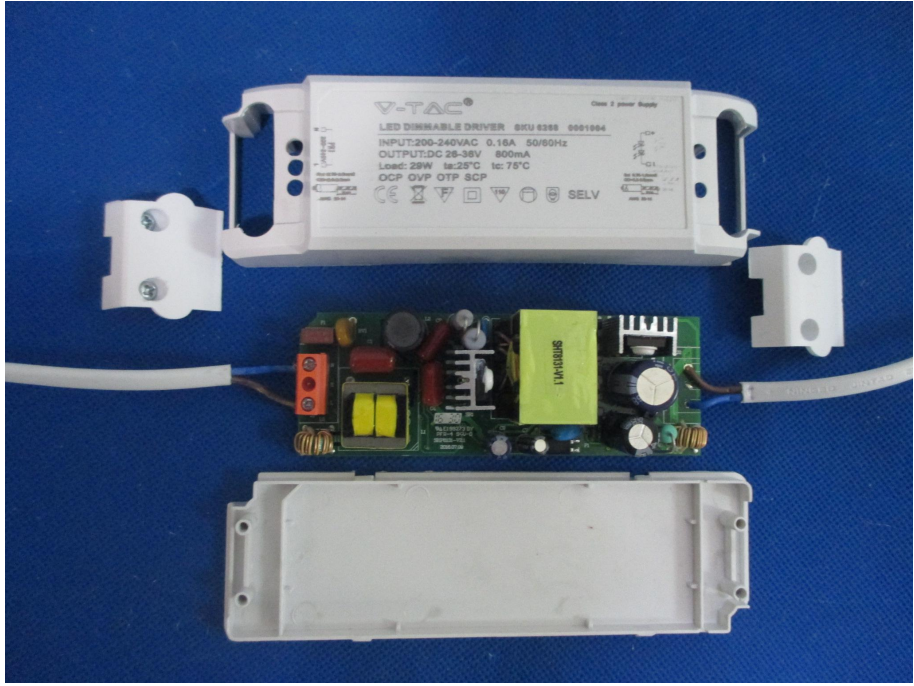
| | | | |
|--------|---|--|-----|
| | Pull test pin or tab terminals (4 samples); pull (N) | | N/A |
| (15.9) | Contact resistance test | | N/A |
| | Voltage drop (mV) after 1 h | | N/A |

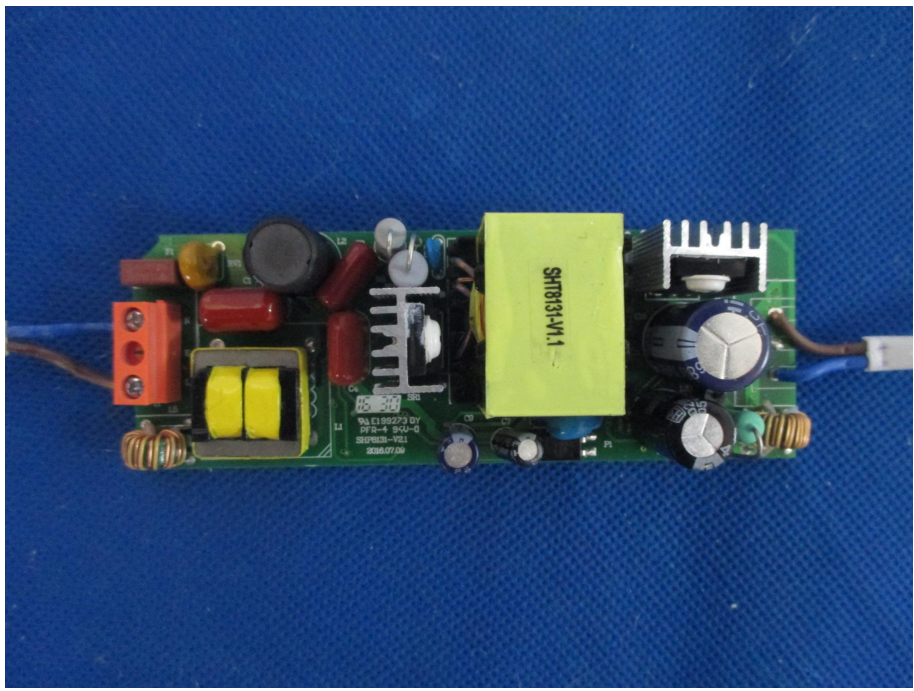
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------------|--|---|---|---|---|---|---|---|---|-----|
| voltage drop (mV) | | | | | | | | | | |
| | Voltage drop of two inseparable joints | | | | | | | | | N/A |
| | Voltage drop after 10th alt. 25th cycle | | | | | | | | | N/A |
| | Max. 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 | | | | | | | | | N/A |
| | 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 | | | | | | | | | N/A |
| | 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 | | | | | | | | | N/A |
| | Max. allowed voltage drop (mV)..... : | | | | | | | | | — |
| terminal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| voltage drop (mV) | | | | | | | | | | |

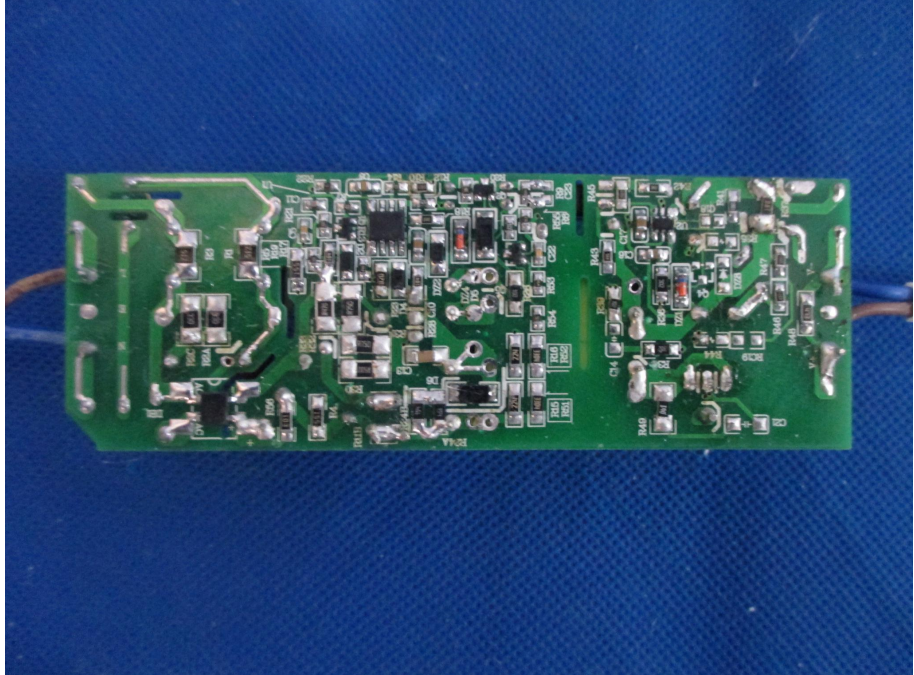
Photo Documents

| | |
|--|---|
| <p>Photo 1</p> <p>View:</p> <p><input checked="" type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input type="checkbox"/> Internal</p> |  |
|--|---|

| | |
|--|--|
| <p>Photo 2</p> <p>View:</p> <p><input type="checkbox"/> Front</p> <p><input checked="" type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input type="checkbox"/> Internal</p> |  |
|--|--|

| | |
|--|--|
| <p>Photo 3</p> <p>View:</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input checked="" type="checkbox"/> Internal</p> |  |
|--|--|

| | |
|--|--|
| <p>Photo 4</p> <p>View:</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input checked="" type="checkbox"/> Internal</p> |  |
|--|--|

| | |
|--|--|
| <p>Photo 5</p> <p>View:</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right side</p> <p><input type="checkbox"/> Left side</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p> <p><input checked="" type="checkbox"/> Internal</p> |  |
|--|--|

--END.--