



Verification Services

Project No: 6013-000258-01
Report No: 6013-000258-01-01
Report Issued Date:

Test Report

Certificate No.: T-2233

Customer Company & Address:

M/s. Sahasra Electronics Private Limited,
129-G, NSEZ, Noida 201305

Contact Person: Dr. Abhey Kumar

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Manufacturer:	M/s. Sahasra Electronics Private Limited
Country of Origin:	India
Country of Export:	---
Product Description:	100W LED Street Light
Model	100WSL
Electrical Specification:	Rated Voltage: 230V/50Hz & 110V/60Hz, Voltage Range: 85-285V, Frequency: 50/60Hz, Power: 100W, ta 27°C, Class I, IP65

Test Laboratory & Address:

UL India Private Limited.
Plot No. 413, Sector 8,
IMT Manesar, Gurgaon, Haryana 122050, India

Telephone:	+91124-4215709	Fax:	N.A.
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Receipt of Test Samples :	Test Period:
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Tested By	Approved By
/ Hari Om	/ Mehta Abhay
Test Personnel Name & Signatory	Approval Name & Signatory

The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.



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Sr. no.	Test Flow	Test Method	Sample ID (Lab)	Sample Serial No	Pass/Fail/ NA
1	Visual examination	As per clause no.13.2 of IS 10322-Part 5/Sec 3-1987			Pass
2	Markings	As per clause no.5.0 of IS 10322-Part 5/Sec 3-1987			---
3	Construction	As per clause no.6.0 of IS 10322-Part 5/Sec 3-1987			---
4	Creepage distances & clearances	As per clause no.7.0 of IS 10322-Part 5/Sec 3-1987			Pass
5	Provision for earthing	As per clause no.8.0 of IS 10322-Part 5/Sec 3-1987			Pass
6	Terminals	As per clause no.9.0 of IS 10322-Part 5/Sec 3-1987			Pass
7	External & internal wiring	As per clause no.10.0 of IS 10322-Part 5/Sec 3-1987			---
8	Protection against electric shock	As per clause no.11.0 of IS 10322-Part 5/Sec 3-1987			Pass
9	Mechanical strength test	As per clause no.13.3 of IS 10322-Part 5/Sec 3-1987			Pass
10	Endurance and Thermal test	As per clause no.13.4 of IS 10322-Part 5/Sec 4-1987			Pass
11	Resistance to dust and moisture	As per clause no.13.5 of IS 10322-Part 5/Sec 3-1987			Pass
12	Insulation resistance and electric strength test	As per clause no.13.6 of IS 10322-Part 5/Sec 3-1987			Pass
13	Resistance to heat, fire and tracking	As per clause no.13.7 of IS 10322-Part 5/Sec 3-1987			Pass
14	Photometric Requirements	As per clause no.13.8 of IS 10322-Part 5/Sec 3-1987			Evaluated by customer

Deviation from Test Method (if any)

N/A

Remark (if any)

N/A



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Sr. No.	Test	Test Requirement	Test Result
1.	Visual examination [Clause No.13.2]	Luminaire shall be examined visually for external finish workmanship and electrical connections.	Luminaire was examined visually for external finish workmanship and electrical connections and found O.K.
2.	Markings [Clause No.5]	<ol style="list-style-type: none">1. Mark of origin2. Rated voltage (s)3. Rated max. ambient temperature 'ta' if other than 27 deg. C4. Symbol for Class II/III Luminaire5. Marking for ingress protection6. Model or type reference7. Rated wattage of lamp(s)8. Symbol for luminaire with built-in ballast or transformer suitable for direct mounting on normally flammable surfaces.9. Information concerning special lamps10. Symbol for warning against use of cool-beam lamp11. Marking of terminations12. Symbol for minimum distance from lighted objects for spot lights <p>Additional information</p> <ol style="list-style-type: none">13. Permissible ambient temperature class of protection for combination luminaire14. Nominal frequency15. Operating temperatures :<ol style="list-style-type: none">a. Rated max. operating temperature of winding twb. Rated max. operating temperature of capacitor tcc. Max. Temperature to which the insulation of the cables will be subjected within the luminaire if in excess of 90°C.16. Warning notice that the luminaire is not suitable for mounting on a normally flammable surface17. Wiring diagram18. Special conditions for which the luminaire is suitable19. Supply information on the power factor and supply current20. Design attitude (normal operating position)21. Weight including controlgear, if any22. Overall dimensions23. If intended for mounting more than 8m above ground level, the maximum projected area subjected to wind force24. The range of cross-sectional areas of suspension wires suitable for luminaires, if applicable.	'Not Marked' Not Marked Not marked (Optional) Not applicable Not marked Not Marked Not Marked Not applicable Not Marked Not applicable Not Marked Not applicable Not applicable Not Marked Not applicable Not applicable Not Marked Not applicable Not applicable Not marked (Optional) Not marked Provided Not marked Not marked Not marked Not marked Not marked Not marked Not marked Not marked Not applicable

Sr. No.	Test	Test Requirement	Test Result
3.	Construction [Clause No.6]	<p>Road and street light luminaires shall have protection against ingress of moisture of at least IPX3.</p> <p>Luminaires for suspension on span wires shall be fitted with clamping devices for this purpose and the range of span-wire sizes for which the clamping devices are suitable shall be stated in the instruction leaflet supplied with the luminaire.</p> <p>The means for attaching the luminaire or external part to its support shall be appropriate to the weight of the luminaire or external part. The connection shall be designed to withstand wind speeds of 150 km/h on the projected surface of the assembly without undue deflection.</p> <p>If the use of a single lampholder does not ensure the correct position of the lamp, an adequate supporting device shall be provided.</p>	<p>IP 65 Satisfactory</p> <p>Not applicable</p> <p>Luminaire withstood the test.</p>
	Replaceable components	Sufficient space shall be provided to replace components which are replaceable without difficulty and without impairing safety.	Satisfactory
	Wire ways	Wire ways shall be smooth and free from sharp edges, burrs, flashes and like, which might cause abrasion of insulation of the wiring. Parts such as metal set screws shall not protrude in to wire ways.	Satisfactory
	Lamp holder	<p>The requirements for electrical safety of integral lampholders shall be those applicable to the luminaire as a whole with the lampholder and lamp in fully assembled position, as for normal use.</p> <p>Connection of wiring to integral lampholder contacts may be made by any method giving reliable electrical contact over the service life of the lampholder.</p>	<p>Not applicable</p> <p>Not applicable</p>
		Luminaires for tubular fluorescent lamps designed for end-to-end mounting shall be so designed that the lamp may be changed in the middle luminaire of a row without adjusting any other luminaire. In multi-lamp luminaires for tubular fluorescent lamps, the changing of any one lamp shall not impair the security of the other lamps.	Not applicable

Sr. No.	Test	Test Requirement	Test Result
	Starter holder	Lampholders which are put into position by the user shall be capable of easy and correct positioning. Starter holders in luminaires other than class II shall accept starters which comply with IEC 60155.	Satisfactory Not applicable
	Terminal blocks	If luminaires are provided with connecting leads (tails) requiring a separate terminal block for the connection to the fixed wiring, adequate space for this terminal block shall be provided within the luminaire, or within a box delivered with the luminaire, or specified by the manufacturer. This requirement applies to terminal blocks for connecting leads (tails) with conductor nominal cross-sectional areas not exceeding 2.5 mm ² .	Not applicable
	Terminals and supply Connection	In portable luminaires of class I and II and in fixed luminaires of class I and II that are frequently adjusted, adequate precautions shall be taken to prevent metal parts from becoming live due to a detached wire or screw. This requirement applies to all terminals (including supply terminals). Supply terminals shall be located or shielded in such a way that, if a wire of a stranded conductor escapes from a terminal when the conductors are fitted, there is no risk of contact between live parts and metal parts. Compliance is checked by inspection and by the following test: An 8 mm length of insulation is removed from the end of a flexible conductor having the largest cross-sectional area 2.5mm ² . One wire of the stranded conductor is left free and the remainder are fully inserted and clamped in the terminal. The free wire is bent, without tearing the insulation back, in every possible direction, but without making sharp bends around barriers. The free wire of a conductor connected to a live terminal shall not touch any metal part which is accessible or connected to an accessible metal part, and the free wire of a conductor connected to an earthing terminal shall not touch any live part.	Not applicable The free wire was not touched any metal part which is accessible or connected to an accessible metal part.

Sr. No.	Test	Test Requirement	Test Result
		Terminals for supply conductor, including those for non detachable flexible cables shall be suitable for connection to be made by means of screws, nuts or equally effective devices. Terminals, other than those for supply connection, which are not covered by separate standards for components, shall comply with the requirements of Part 3 of IS: 10322. If the external wiring or supply cord is unsuitable for the temperatures reached inside the luminaire, either a connection shall be provided at the point of entry of the external wiring into the luminaire for the use of heat-resistant wiring after this point, or heat-resisting parts shall be supplied with the luminaire to cover the part of the wiring placed inside it, which exceeds the wiring temperature limit.	Satisfactory Satisfactory Terminal block was provided at the point entry of external wiring. OK
	Switches	Switches shall be adequately rated and so fixed that they are secured against rotation and can not be removed by hand.	Not applicable OK
	Insulating linings and sleeves	Insulating linings and sleeves shall be so designed that they are reliably retained in position when switches, lampholders, terminals, wires or similar parts have been mounted.	Not applicable OK
	Insulation of Class II luminaires	For class II luminaires, contact between accessible metal parts and wire with basic insulation only shall be effectively prevented. Assembly joints in basic insulation and in supplementary insulation shall not be coincidental.	Not applicable Not applicable OK
	Electrical connections & Current-carrying parts	Electrical connections shall be so designed that contact pressure is not transmitted through insulating material other than ceramic, pure mica or other material with characteristics which are at least equivalent, unless there is sufficient resilience in the metallic parts to compensate for any possible shrinkage of the insulating material.	Satisfactory OK

Sr. No.	Test	Test Requirement	Test Result
	Screws and connections (Mechanical) and glands	<p>Self-tapping screws shall not be used for the connection of current-carrying parts, unless they clamp these parts directly in contact with each other, and are provided with a suitable means of locking.</p> <p>Screws and rivets which serve as electrical as well as mechanical connections shall be locked against loosening. Spring washers may provide satisfactory locking. For rivets, a noncircular shank or an appropriate notch may be sufficient.</p> <p>Current-carrying parts shall be of copper, an alloy containing at least 50 % copper, or a material having at least equivalent characteristics.</p> <p>Current-carrying parts shall not be in direct contact with the mounting surface or wood.</p> <p>Screws and mechanical connections, the failure of which might cause the luminaire to become unsafe, shall withstand the mechanical stresses occurring in normal use.</p> <p>Screws transmitting contact pressure, screws which are operated when mounting or connecting the luminaires and having nominal diameter less than 3 mm shall screw into metal.</p> <p>Screw or nuts engage with the thread of insulating material shall have a length engagement of at least 3mm plus one-third of the nominal screw diameter, except that this length need not exceed 8mm.</p> <p>Screwed and other fixed connections between different parts of luminaires shall be made in such a way that they do not work loose through such torsion, bending stresses, vibration, etc., as may occur in normal use. Fixed arms and suspension tubes shall be securely attached.</p> <p>Screwed glands shall be fitted with a cylindrical metal rod having a diameter equal to the nearest whole number of millimetres below the internal diameter of the packing. The glands shall then be tightened by means of a suitable spanner, the force of 15N being applied to the spanner for 1 min. After the test, the luminaire and the glands shall show no damage.</p>	<p>Self-tapping screws not used</p> <p>Screw used for earthing serves electrical and mechanical connections is locked against loosening.</p> <p>Not Provided</p> <p>Satisfactory</p> <p>Satisfactory</p> <p>Not applicable</p> <p>Not applicable</p> <p>Satisfactory Allen key bolt used for fixed connections with thread Diameter 4.85mm (approx.). Torque applied 2.5Nm.</p> <p>Not applicable.</p>

Sr. No.	Test	Test Requirement	Test Result
	Suspension and adjusting devices	<p>Mechanical suspensions shall have adequate factors of safety.</p> <p>Adjusting devices and means of adjustment, for example joints, hoisting devices, adjusting brackets or telescopic tubes, shall be so constructed that cords or cables are not pressed, clamped, damaged or twisted along the longitudinal axis by more than 360° during operation.</p> <p>Cords or cables passing through telescopic tubes shall not be fixed to the outer tube. Means shall be provided for avoiding strain on the conductors at the terminals.</p> <p>Guide pulleys for flexible cords shall be dimensioned to prevent damage to the cords by excessive bending. Grooves in the pulleys shall be well rounded, the diameter of the pulley at the bottom of the groove being at least three times the diameter of the cord. Accessible metal pulleys shall be earthed.</p>	<p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p>
	Flammable materials	<p>Parts of flammable materials not having insulation function, including covers, shades and similar parts which do not withstand hot mandrel test specified in part 4 of IS 10322 shall be adequately spaced from any heated part of the luminaire which could raise the material to its ignition temperature. These parts made of flammable material shall have suitable fastenings or supporting devices to maintain this Spacing.</p>	<p>Not applicable</p>
	Luminaire Marked with F symbol		<p>Not applicable</p>
	Drain Holes	<p>Drip-proof, rain-proof, splash-proof and jet-proof luminaires shall be so designed that if water accumulates in the luminaire it can drain out effectively, for example by opening one or more drain holes. Watertight luminaires shall have no provision for draining.</p>	<p>Not applicable</p> <p>No water accumulation found during IP X5 test.</p>
	Resistance to corrosion	<p>Ferrous parts of drip-proof, rain-proof, splash-proof, jet-proof, watertight and pressure-watertight luminaires, the rusting of which might cause the luminaire to become unsafe, shall be adequately protected against rusting.</p>	<p>Satisfactory</p>

Sr. No.	Test	Test Requirement	Test Result
4.	<p>Creepage distances & clearances [Clause No.7]</p> <ul style="list-style-type: none"> -Between live parts of different polarity -Between live parts & accessible metal parts or between live parts & the outer accessible surface of insulating parts 	<p>Creepage distance Shall not be less than 3 mm.</p> <p>Clearance Shall not be less than 3 mm.</p> <p>Creepage distance Shall not be less than 4 mm.</p> <p>Clearance Shall not be less than 3 mm.</p>	<p>More than 3 mm More than 3 mm More than 4 mm More than 3 mm</p>
5.	<p>Provision for earthing [Clause No.8]</p>	<p>Metal parts of class I luminaires which are accessible when the luminaire has been mounted, or is opened for replacement of a lamp or replaceable starter or for cleaning purposes, and which may become live in the event of an insulation fault, shall be permanently and reliably connected to an earthing terminal or earthing contact.</p> <p>When current of at least 10 A, derived from a source with no-load voltage not exceeding 12V, passed between earthing terminal or earthing contact and each of accessible metal parts in turns & voltage drop measured between them and the calculated resistance shall not exceed 0.5 ohms.</p> <p>The earthing terminal shall comply with the requirements of part-3 of IS: 10322.</p> <p>For a luminaire provided with a connector socket for a mains supply, the earth contact shall be an integral part of the socket.</p> <p>For a luminaire to be connected to supply cables (fixed wiring) or to a supply cord, the earth terminal shall be adjacent to the mains terminal.</p> <p>For luminaires which are other than ordinary luminaires, all parts of an earth terminal shall be such as to minimize the danger of electrolytic corrosion resulting from contact with the earth conductor or any other metal in contact with them.</p>	<p>Earthing terminal Provided</p> <p>0.155 Ohms</p> <p>Satisfactory</p> <p>Not applicable</p> <p>Satisfactory</p> <p>Satisfactory</p>

Sr. No.	Test	Test Requirement	Test Result
		<p>Either the screw or the other part of the earth terminal shall be made of brass or other non-rusting metal or a material with a non-rusting surface and the contact surfaces shall be bare metal.</p> <p>If a fixed class II luminaire designed for looping-in is provided with internal terminal(s) for maintaining the electrical continuity of an earthing conductor not terminating in the luminaire, this(these) terminal(s) shall be insulated from accessible metal parts by double insulation or reinforced insulation.</p>	<p>Satisfactory</p> <p>Not applicable</p>
6.	<p>Terminals [Clause No.9]</p> <p>Mechanical tests</p>	<p>Terminals shall allow proper connection of copper conductors having nominal cross-sectional area upto 2.5 sq. mm.</p> <p>Conductor space shall be at least 3.0 mm</p> <p>For pillar terminals, the distance between the clamping screw and the end of the conductor, when fully inserted, shall be at least 1.5mm.</p> <p>Terminals shall allow solid conductor having nominal cross-sectional area upto 2.5 sq. mm shall be inserted fully and fully clamped.</p> <p>The terminals when fitted with a conductor having 50 strands of 0.25 mm nominal dia and twisted in one direction of length approx. 20 mm with a torque of 0.5 Nm, no strands shall have slipped out.</p> <p>Terminal shall allow the conductor to be connected without any special preparation.</p> <p>Terminal shall have adequate mechanical strength.</p> <p>Terminals shall be resistant to corrosion.</p> <p>Terminals shall be fixed to the luminaire or to a terminal block or otherwise fixed in position. When the clamping screws or nuts are tightened or loosened, the terminals shall not work loose, internal wiring shall not be subjected to stress, and creepage distances and clearances shall not be reduced below the values specified in clause no.7.</p>	<p>Satisfactory</p> <p>More than 3.0 mm</p> <p>More than 1.5 mm</p> <p>Satisfactory</p> <p>Strands did not slip out from the terminal.</p> <p>Satisfactory</p> <p>Satisfactory</p> <p>Satisfactory</p> <p>Satisfactory</p>

Sr. No.	Test	Test Requirement	Test Result
		<p>After tightening and loosening the terminal with 2.5 sq. mm rigid copper conductor for five times, the torque applied when tightening 0.5 Nm ,the terminal shall not work loose and there shall be no damage occur.</p> <p>When terminal is fitted with a rigid conductor of a cross -section area of 2.5 sq. mm with a torque of 0.33 Nm and pull of 50 N applied for 1 minute, the conductor shall not move noticeably in the terminal.</p> <p>When terminal is fitted with conductor of a cross -section area 2.5 sq.mm with a torque of 0.33 Nm and loosened terminals shall clamp conductor without undue damage to conductor.</p>	<p>No damage observed.</p> <p>Conductor did not move.</p> <p>Terminals clamp conductor without undue damage to conductor.</p>
7.	External & internal wiring [Clause No.10]	<p>Luminaire shall be provided with one of the following means of connection to the supply :</p> <ul style="list-style-type: none"> -Terminals -Plugs for engagement with socket-outlets connecting leads -Non-detachable flexible cables or cords -Adapters for engagement with supply tracks <p>Non detachable flexible cables should comply with relevant Indian Standards.</p> <p>Cable entries shall be suitable for the introduction of the conduit or the protective covering of the cable or flexible cord.</p> <p>Internal wiring shall be made with conductors of nominal cross-sectional area not less than 0.5 sq. mm and minimum nominal insulation thickness of 0.6 mm if of rubber or pvc.</p> <p>Internal wiring situated in such a way that it can not damage by sharp edges, rivets, screw or similar component.</p> <p>Wiring shall not be twisted through an angle exceeding 360°.</p>	<p>Terminals provided for connection to the supply.</p> <p>Not marked on cable</p> <p>Satisfactory</p> <p>Wiring conductors cross-sectional area more than 0.5 sq. mm and thickness of insulation more than 0.6 mm.</p> <p>Satisfactory</p> <p>Satisfactory</p>

Sr. No.	Test	Test Requirement	Test Result
		<p>Joints and junctions in internal wiring shall be easily accessible and shall be provided with insulating covering no less effective than the insulation of wiring.</p> <p>The ends of flexible stranded conductor shall not have applied additional solder.</p> <p>Internal wiring shall not pass out luminaire.</p> <p>Luminaire for street and road lighting should be provided with a cord anchorage such that conductors for supply cables are relieved from strain where they are connected to the terminals.</p>	<p>No joints and junctions are provided.</p> <p>Wire ends tinned but without additional solder</p> <p>Satisfactory</p> <p>Silicon applied to relieve strain on terminals.</p> <p>OK</p>
8.	Protection against electric shock [Clause No.11]	<p>The standard test finger shall not touch live parts in normal use when applied to every possible position.</p> <p>The voltage across the capacitor 1 min after disconnection of the luminaire from the source of supply at rated voltage shall not exceed 50 V.</p>	<p>Test finger did not touch live parts.</p> <p>Voltage did not exceed 50V.</p> <p>OK</p>
9.	Mechanical strength test [Clause No.13.3]	<p>The sample shall show no damage when three blows applied to the weakest point as below:</p> <p>Translucent cover: 0.20 Nm Impact energy Other Parts: 0.35 Nm Impact energy</p> <p>After the test,</p> <ul style="list-style-type: none"> a) live parts shall not have become accessible b) the effectiveness of insulating linings and barriers shall not have been impaired c) the sample shall continue to afford the degree of protection against ingress of dust and moisture, in accordance with its classification. d) it shall be possible to remove and replace external covers without these covers or their insulating linings breaking. 	<p>0.20Nm and 0.35Nm Impact energy was applied on respective parts and No damage was observed.</p> <p>Satisfactory</p> <p>Satisfactory</p> <p>Satisfactory</p> <p>Satisfactory</p>

Sr. No.	Test	Test Requirement	Test Result
10.	Endurance test and thermal test [Clause No.13.4] (A) Endurance test :	<p>The luminaire shall be tested at ambient temperature in the draught free enclosure for a total duration of 240 hours, made up of 10 successive cycles of 24 hours. Supply voltage of 1.10 ± 0.015 times rated voltage was applied to the luminaire during each cycle, except the continuous off period of 3 hours.</p> <p>After the test :</p> <ul style="list-style-type: none"> ➤ No part shall have become unserviceable ➤ The luminaire shall not have become unsafe ➤ The marking shall be legible. 	<p>The luminaire was tested at ambient temperature (37 ± 2) °C for 240 hours made up of 10 successive cycles of 24 hours.</p> <p>Supply voltage 253V was applied to luminaire for 21 hours and switched off for 3 hours.</p> <p style="text-align: right;">Satisfactory</p> <p style="text-align: right;">Satisfactory</p> <p style="text-align: right;">Not Applicable.</p>

Sr. No.	Test	Test Requirement		Test Result
	(B)Thermal test:	<p>The luminaire shall be tested at ambient temperature i.e. $ta=(27\pm1)^\circ C$ in the draught free enclosure until the luminaire has stabilized and 1.06 times rated voltage applied during normal operation.</p> <p>Temperature of following parts shall not increase;</p> <p>Normal condition :</p>		
		Parts	Limit ($^\circ C$)	Test voltage: 243.8V Amb.temp. :$(27\pm1)^\circ C$
	Ambient	27		26.2
	Bracket	70		34.2
	Driver Upper centre	---		52.6
	Heat sink	---		68.5
	Insulation of wiring	90		27.5
	Lens	130		87.5
	Body	70		45.8

Sr. No.	Test	Test Requirement	Test Result															
11.	<p>Resistance to dust and moisture [Clause no.13.5]</p> <p>(A) IP65 tests : (Protection against ingress of dust and protection against water jet)</p>	<p>(1.0) IP 6X test:- (Protection against ingress of dust as per clause No.2.1.2 of IS:10322 Part-4-1984)</p> <p>(1.1) IP 6X test</p> <p>The sample shall be kept as in normal use inside the test chamber . The required amount of talcum powder shall be maintained in suspension throughout the test. The test shall be continue for 8 hrs with maintaining the following test sequence.</p> <table border="1"> <thead> <tr> <th>Luminaire condition</th><th>Test chamber condition</th><th>Time in hours</th></tr> </thead> <tbody> <tr> <td>Luminaire ON</td><td>OFF</td><td>Approx. 3 hrs. for stabilization.</td></tr> <tr> <td>Luminaire OFF</td><td>ON</td><td>Approx.2½ hrs.</td></tr> <tr> <td>Luminaire ON</td><td>ON</td><td>Approx. 3 hrs.</td></tr> <tr> <td>Luminaire OFF</td><td>ON</td><td>Approx.2½ hrs.</td></tr> </tbody> </table> <p>No ingress of dust shall enter in the luminaire.</p>	Luminaire condition	Test chamber condition	Time in hours	Luminaire ON	OFF	Approx. 3 hrs. for stabilization.	Luminaire OFF	ON	Approx.2½ hrs.	Luminaire ON	ON	Approx. 3 hrs.	Luminaire OFF	ON	Approx.2½ hrs.	<p>No dust was found inside the enclosure.</p>
Luminaire condition	Test chamber condition	Time in hours																
Luminaire ON	OFF	Approx. 3 hrs. for stabilization.																
Luminaire OFF	ON	Approx.2½ hrs.																
Luminaire ON	ON	Approx. 3 hrs.																
Luminaire OFF	ON	Approx.2½ hrs.																

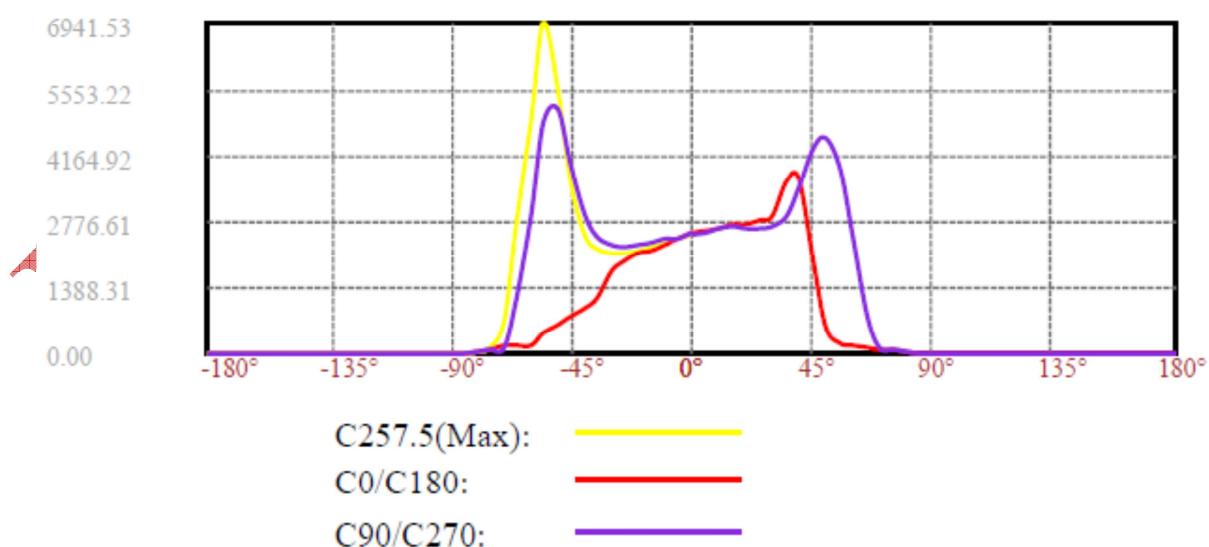
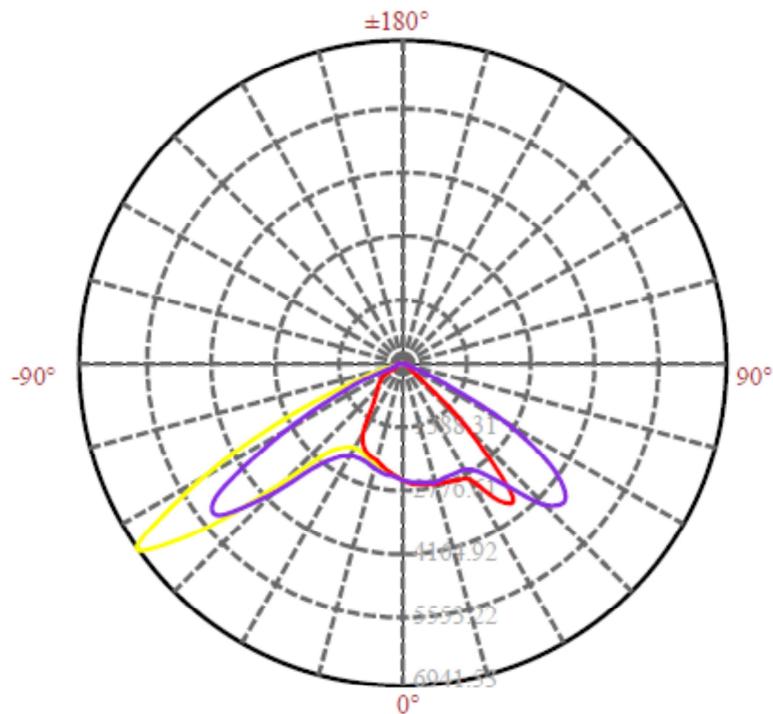
Sr. No.	Test	Test Requirement	Test Result
		<p>(1.2) After IP 6X test The following tests shall be carried out.</p> <p>a. <u>Insulation resistance test :-</u> The Insulation resistance shall be measure using 500V DC source between all live parts connected together and the body. The measure value shall be more than $2\text{ M}\Omega$.</p> <p>b. <u>High voltage test :-</u> The sample shall be subject to test voltage of 1.46 kV (RMS) at 50 Hz for one minute between all live parts connected together and the body. The sample shall withstand the test</p> <p>(2.0) IP X5 test:- (Protection against water jets as per clause No.2.1.6 of IS:10322 Part-4-1984)</p> <p>(2.1) The sample shall be kept as in normal use. The unit shall be subjected to a stream of water from water nozzle of 6.3 mm inner diameter from all practicable possible directions at a pressure of 30kN/m².The distance between nozzle and equipment was maintained approximately 3.0 m. The test shall be continued for 15 minute. Any ingress of water must only be in a quantity not impairing the operation of the luminaire.</p> <p>2.2 After IP X5 test:- The following tests shall be carried out.</p> <p>a. <u>Insulation resistance test :-</u> The Insulation resistance shall be more than $2\text{ M}\Omega$ when measure in accordance as per Sr.no.1.2.a.</p> <p>b. <u>High voltage test :-</u> The sample shall withstand high voltage test for one minute when subject to the test voltage as per Sr.no.1.2b.</p>	<p>More than $2\text{ M}\Omega$</p> <p>Withstood the test.</p> <p>No water was found inside the enclosure</p> <p>More than $2\text{ M}\Omega$</p> <p>Withstood the test.</p>

Sr. No.	Test	Test Requirement	Test Result
	(B) Resistance to moisture.	<p>Humidity test:- (As per clause No.2.2 of IS:10322 Part-4-1984)</p> <p>The Luminaire shall brought to a temperature between t and (t+4) degree C, where t is equal to any convenient value between 20°C to 30 °C. The Luminaire shall placed in the most unfavorable position in normal use, in a humidity cabinet containing air with a relative humidity maintained between 91 and 95 %.The temperature of air at all places where samples can be located shall maintained within ± 1 degree C of the value .The sample shall be kept in the cabinet for 48 hrs. After the humidity treatment, the sample shall show no damage affecting compliance with the requirements of this standards.</p>	<p>The luminaire was kept at temperature 27°C and relative humidity 93% for 48 Hrs.</p> <p>No damage was observed</p>
12.	Insulation resistance and electric strength [Clause No.13.6]	<p>Immediately after the humidity test;</p> <p>Insulation resistance measured between live parts and the body by applying 500V DC for 1 minute, shall not be less than 2 M. ohms.</p> <p>No flashover or breakdown shall occur when a voltage of 1.46 kV of sine wave form at power frequency applied between live parts and the body.</p> <p>The leakage current measured between each pole of the supply source and the metal body of the luminaire with and without lamp shall not exceed 1.0 mA</p>	<p>More than 200 MΩ.</p> <p>No flashover was observed.</p> <p>Below 1.0 mA</p>

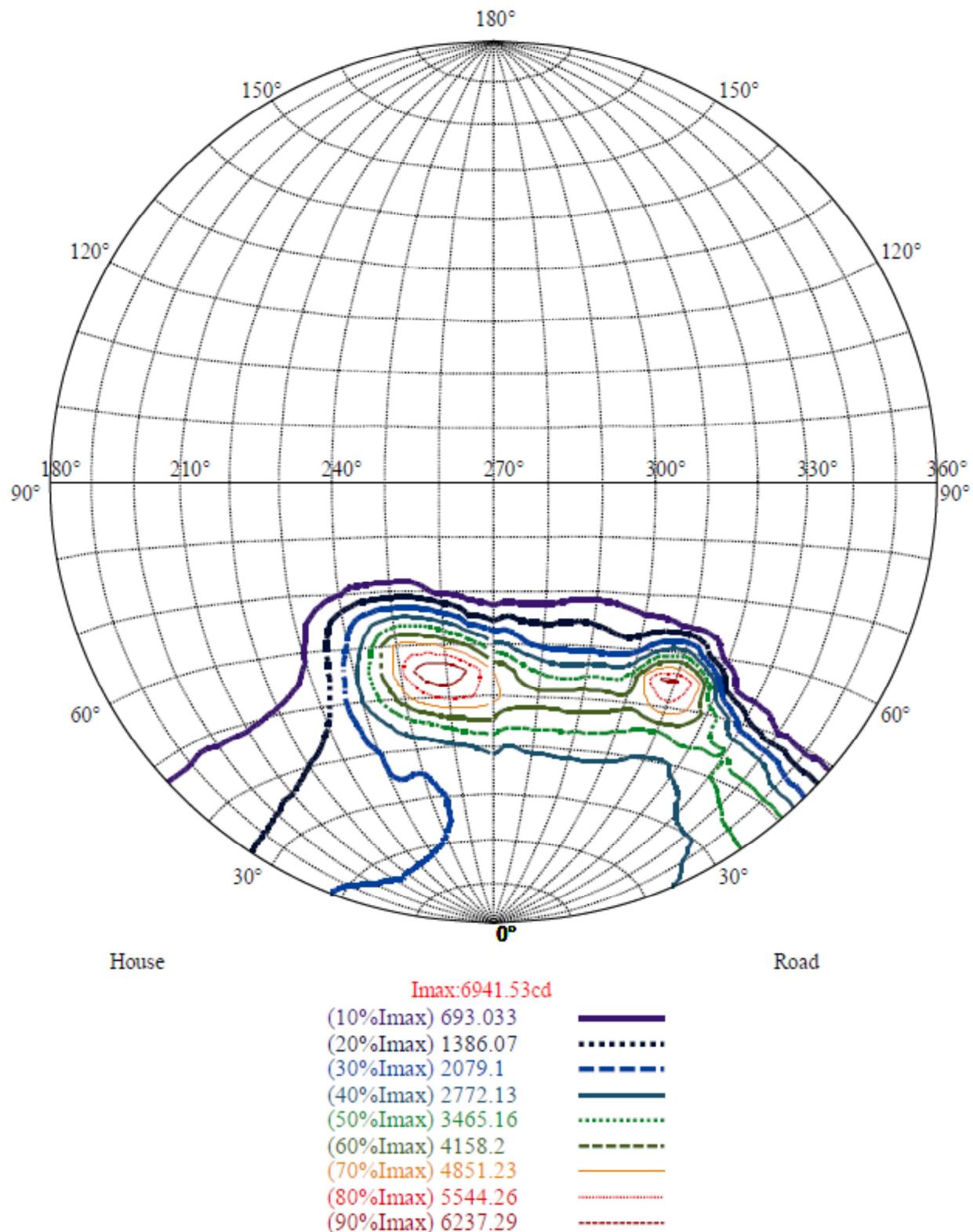
Sr. No.	Test	Test Requirement	Test Result
13.	Resistance to heat, fire and tracking [Clause no.13.7]	<p>Resistance to heat:- (As per clause No.7.1 of IS:10322 Part-4-1984)</p> <p>After ball pressure test the diameter of impression shall not exceed 2.0 mm.</p> <p>Resistance to flame and Ignition:- (As per clause No.7.2 of IS:10322 Part-4-1984)</p> <p>(Clause No.7.2.1) : After needle flame test any self-sustaining flame shall extinguish within 30 sec. of removal of the gas flame and any burning drop from the sample shall not ignite a piece of cotton gauze, consisting of five layers, spread out horizontally 500 mm below test sample.</p> <p>(Clause No.7.2.2) : After the hot mandrel test neither the sample nor any gas produced during the heating shall be ignited by the sparks.</p> <p>Resistance to tracking:- (As per clause No.7.3 of IS:10322 Part-4-1984)</p> <p>After test no flash over or breakdown shall occur between two electrodes.</p>	Less than 2.0 mm. No flame or flaming drop was observed. Not applicable Not applicable as insulating material in contact with live part was protected against dust and moisture.

Sr. No.	Test	Test Requirement	Test Result
14.	Photometry test [Clause No.13.8]	<p>The photometric tests shall be carried out to check following photometric requirements.</p> <p>a) Luminous intensity distribution (cd) in longitudinal roadway vertical plane ($C=0^\circ$ and $C=180^\circ$).</p> <p>b) Luminous intensity distribution (cd) in the transverse vertical plane on road side ($C=90^\circ$) and on kerb side ($C=270^\circ$).</p> <p>c) Light distribution in the plane containing the maximum intensity the principal vertical plane ($C=257.5^\circ$).</p> <p>d) Isocandela diagram</p> <p>e) Light output ratio : [Downward light output ratio] [Upward light output ratio]</p>	<p>Lumen output of Luminaires : 8534.0 lm, Lumens(lm)/Power(W): 81.67</p> <p>Test Distance: 8.7 m</p> <p>Test voltage: 230V, 50Hz</p> <p>Ambient Temp: $(25 \pm 2)^\circ\text{C}$</p> <p>As per sheet 20 of 25.</p> <p>As per sheet 20 of 25.</p> <p>As per sheet 20 of 25.</p> <p>As per sheet 21 of 25.</p> <p>99.95 %</p> <p>0.05 %</p>

Light Distribution curve:



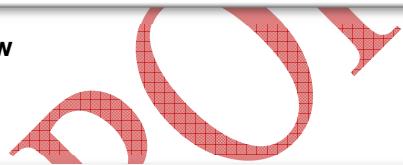
Isocandela Diagram:



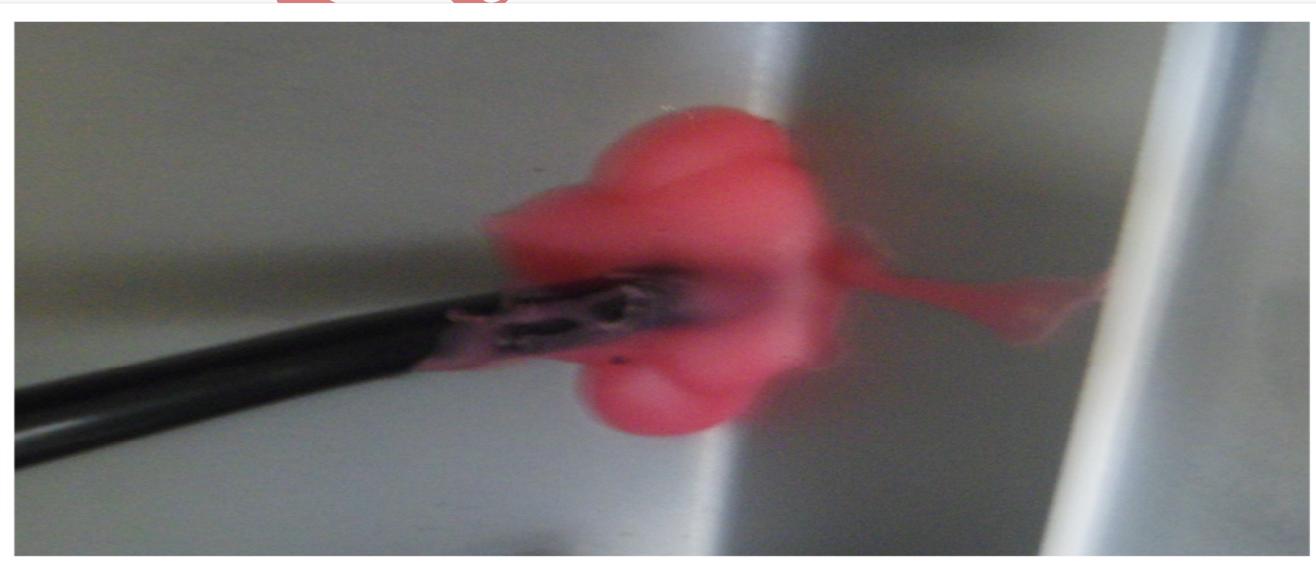
Photos of sample



1. Front View



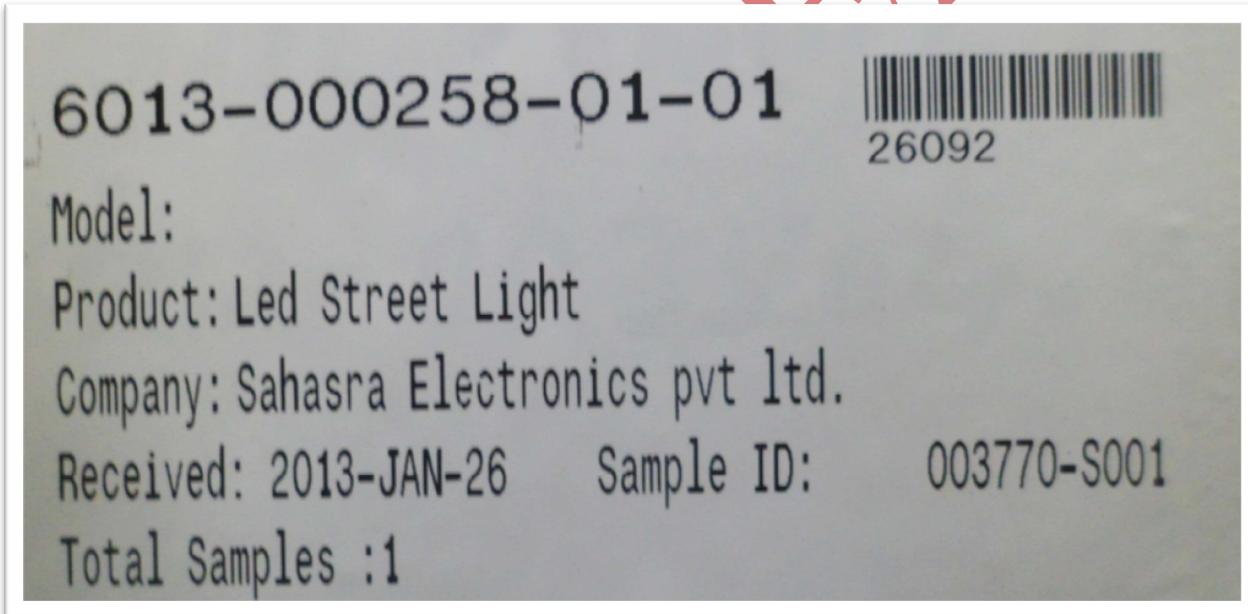
2. Rear View



3. Silicon for strain relief



4. Dissamblly View



5. Sample ID

END OF REPORT