Testing Lab.
Shenzhen LCS Compliance Testing Laboratory Ltd.

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Report No.: LCS1409180807S

Type Test Report

EN 60598-1: 2008+A11: 2009 and EN 60529: 1991/A2: 2013

RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE

Report reference No. ..... :	LCS1409180807S
Compiled by (name+ signature) ..... :	Eko Yang
Approved by (name+ signature) ..... :	Hart Qiu
Date of issue ..... :	September 21, 2014
Contents ..... :	7 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..... :	15# Xi Zhou Wei Street Guzhen, Zhongshan, GuangDong, China
Manufacturer	
Name ..... :	KLM Lighting Co.,Ltd
Address..... :	15# Xi Zhou Wei Street Guzhen, Zhongshan, GuangDong, China
Test specification	
Standard ..... :	EN 60598-1: 2008+A11: 2009; EN 60529: 1991/A2: 2013
Test procedure ..... :	Compliance with EN 60598-1: 2008+A11: 2009; EN 60529: 1991/A2: 2013
Non-standard test method ..... :	N/A
Procedure deviation ..... :	N/A
Test item	
Description ..... :	LED Down Light
Trademark ..... :	KLM LIGHTING
Model and/or type reference ..... :	KLM-HPSN-7W,KLM-HPSN-10W,KLM-HPSN-12W
Rating(s) ..... :	For LED Down Light: DC 16-48V, 300mA, 12W, IP65 For LED Driver: PRI: 220-240V~, 50/60Hz, IP20 SEC: 16-45VDC, 300mA

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 .....: September 16, 2014

Date(s) of performance of test.....: September 16, 2014 – September 21, 2014

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 EN 60598-1: 2008+A11: 2009 and

EN 60529: 1991/A2: 2013

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

Remark:

Models are similar except size, All test continued on model KLM-HPSN-12W

All external surfaces passed IP65

Copy of marking plate

KLM LIGHTING

LED Down Lights

Model: KLM-HPSN-12W

Rating: DC16-48V, 300mA, 12W

IP65

Made In China

EN 60598-1: 2008+A11: 2009 and EN 60529: 1991/A2: 2013			
Clause	Requirement - Test	Result - Remark	Verdict
--	**Tests for ingress of dust, solid objects and moisture**		P
	The enclosure of a luminaire shall provide the degree of protection against ingress of dust, solid objects and moisture in accordance with the classification of the luminaire and the IP number marked on the luminaire.		P
	Check compliance as the descried 9.2.0~9.2.9		P
	Before the tests for the second characteristic numeral, with the exception of IPX8, the luminaire complete with lamp(s) shall be switched on and brought to a stable operating temperature at rated voltage.		P
	The water for the tests shall be at a temperature of 15 °C ± 10 °C.		P
	Luminaires shall be mounted compliance as specified		P
	Solid-object-proof luminaires (first characteristic IP numeral 2) shall be tested with the standard test finger specified in IEC 60529 according to the requirements of Sections 8 and 11 of this standard. Solid-object-proof luminaires (first characteristic IP numerals 3 and 4) shall be tested at every possible point (excluding gaskets) with a probe in accordance with test probe C or D of IEC 61032,	IP65	N
	For First characteristic numeral 1-4 test as specified IEC/EN 60529		--
	First characteristic numeral	Ordinary appliance	N
	Test means		N
	Test force		N
	Dust-proof luminaires (first characteristic IP numeral 5) shall be tested in a dust chamber similar to that shown in Figure 6, in which talcum powder is maintained in suspension by an air current. The chamber shall contain 2 kg of powder for every cubic metre of its volume. The talcum powder used shall be able to pass through a square-meshed sieve whose nominal wire diameter is 50 µm and whose nominal free distance between wires is 75 µm. It shall not have been used for more than 20 tests.		N
	Compliance test as specified		N
	Dust-tight luminaires (first characteristic IP numeral 6) are tested in accordance with 9.2.1.		P

EN 60598-1: 2008+A11: 2009 and EN 60529: 1991/A2: 2013			
Clause	Requirement - Test	Result - Remark	Verdict
	Drip-proof luminaires (second characteristic IP numeral 1) are subjected for 10 min to an artificial rainfall of 3 mm/min, falling vertically from a height of 200 mm above the top of the luminaire.		N
	Test as the specified for Drip-proof luminaires (second characteristic IP numeral 3)		N
	Tube radius		N
	Number of open holes		N
	Total water flow		N
	Angle of oscillating tube		N
	Test as the specified for Drip-proof luminaires (second characteristic IP numeral 4)		N
	Tube radius		N
	Number of open holes		N
	Total water flow		N
	Angle of oscillating tube		N
	Jet-proof luminaires (second characteristic IP numeral 5) are switched off and immediately subjected to a water jet for 15 min from all directions by means of a hose having a nozzle with the shape and dimensions shown in Figure 8. The nozzle shall be held 3 m away the sample.		P
	The water pressure at the nozzle shall be adjusted to achieve a water delivery rate of 12,5 l/min ± 5 % (approximately 30 kN/m2).		P
	Powerful water jet-proof luminaires (second characteristic IP numeral 6) are switched off and immediately subjected to a water jet for 3 min from all directions by means of a hose having a nozzle with the shape and dimensions shown in Figure 8. The nozzle shall be held 3 m away from the sample.		N
	The water pressure at the nozzle shall be adjusted to achieve a water delivery rate of 100 l/min ± 5 % (approximately 100 kN/m2).		N

EN 60598-1: 2008+A11: 2009 and EN 60529: 1991/A2: 2013			
Clause	Requirement - Test	Result - Remark	Verdict
	Watertight luminaires (second characteristic IP numeral 7) are switched off and immediately immersed for 30 min in water, so that there is at least 150 mm of water above the top of the luminaire and the lowest portion is subjected to at least 1 m head of water. Luminaires shall be held in position by their normal fixing means. Luminaires for tubular fluorescent lamps shall be positioned horizontally, with the diffuser upwards, 1 m below the water surface.		N
	Pressure watertight luminaires (second characteristic IP numeral 8) are heated either by switching on the lamp or by other suitable means, so that the temperature of the luminaire enclosure exceeds that of the water in the test tank by between 5 °C and 10 °C.		N
	The luminaire shall then be switched off and subjected to a water pressure of 1,3 times that pressure which corresponds to the rated maximum immersion depth for a period of 30 min.		N
	Electric strength test		P
	Between current-carrying parts and mounting surface.	500V for +&- and metal enclosure	P
	There is no flashover or breakdown occurred.		P

Test Equipment

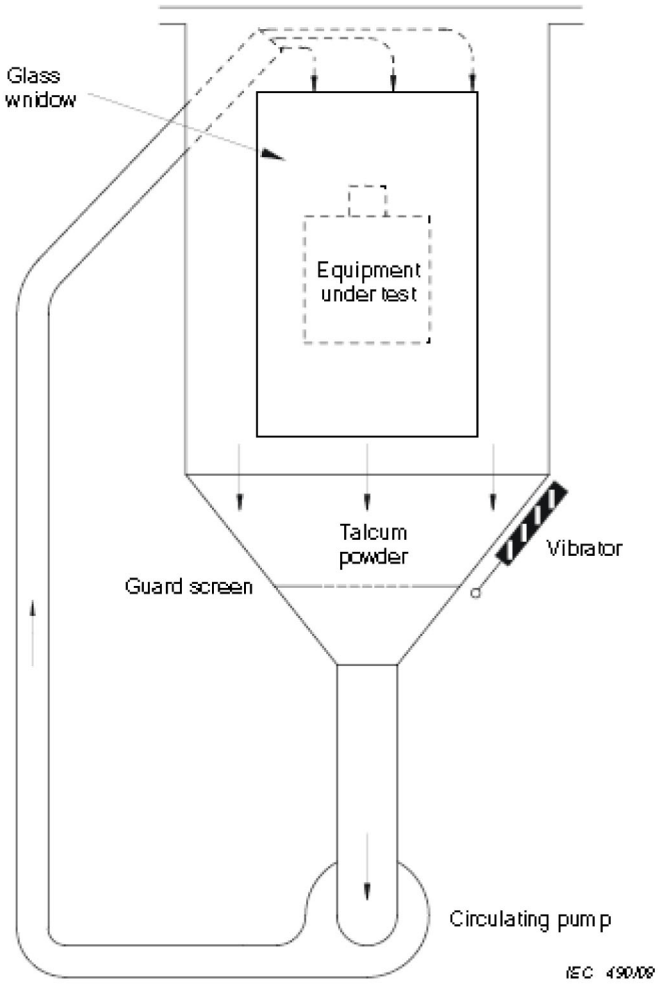
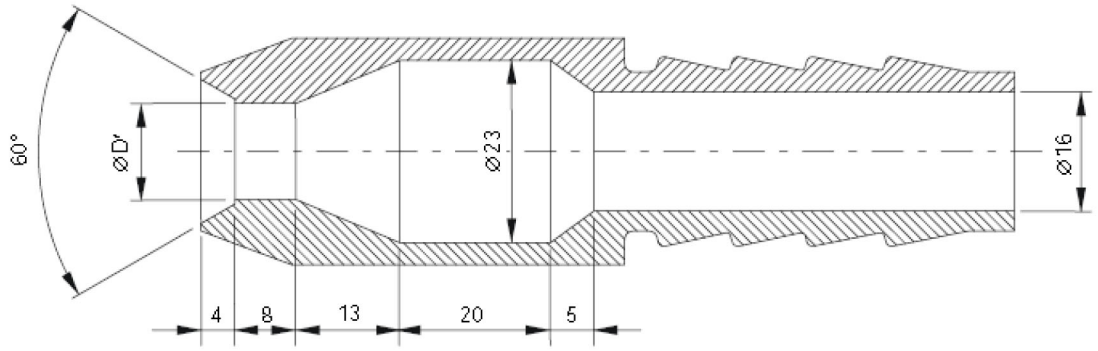


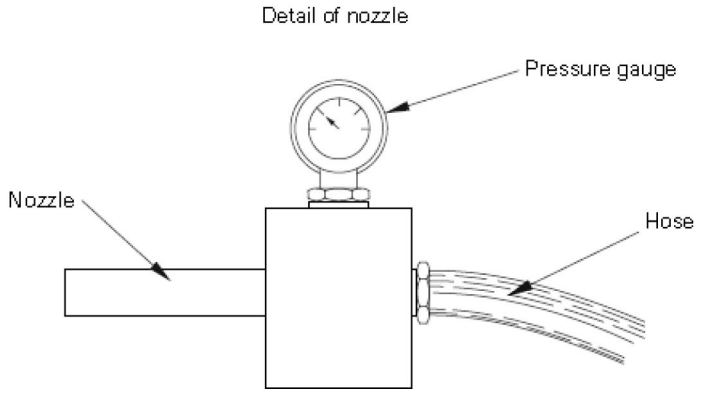
Figure 6 – Apparatus for proving protection against dust

IP 6X Test Equipment

Test Equipment



D′ = 6,3 mm for the test of 9.2.6 (second characteristic numeral 5)
D′ = 12,5 mm for the test of 9.2.7 (second characteristic numeral 6)



Dimensions in millimetres

Figure 8 – Nozzle for spray test

IP 5X Test Equipment

ATTACHMENT 1

Photo Documentation

View:
Model:
KLM-HPSN-12W

[X]General
[ ]Front
[ ]Rear
[ ]Internal
[ ]Top
[ ]Bottom
[ ]PWB

Figure 1

View:

[X]General
[ ]Front
[ ]Rear
[ ]Internal
[ ]Top
[ ]Bottom
[ ]PWB

Figure 2

ATTACHMENT 1

Photo Documentation

View:

[X]General
[ ]Front
[ ]Rear
[ ]Internal
[ ]Top
[ ]Bottom
[ ]PWB

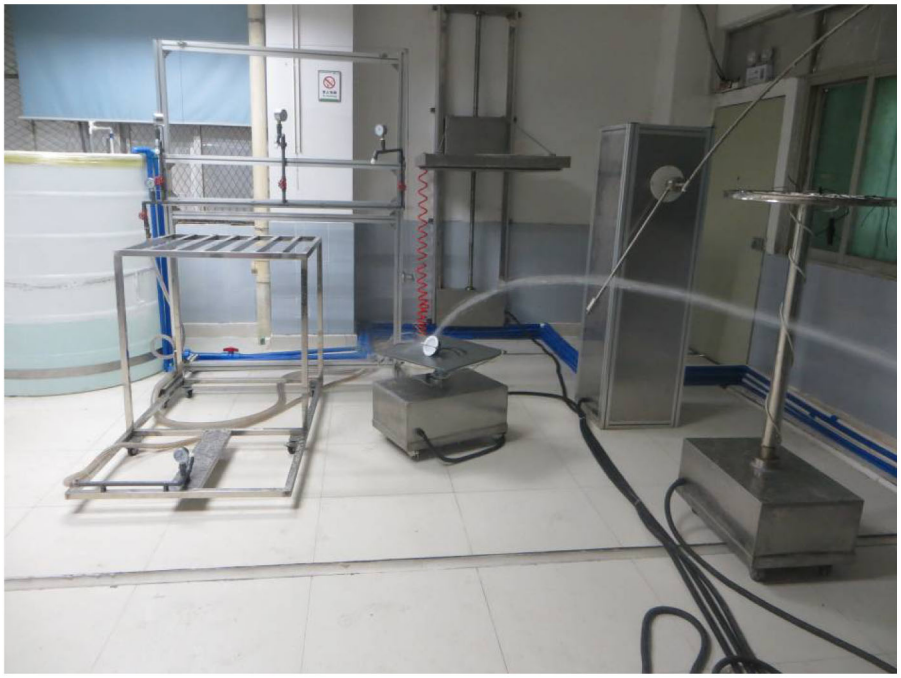


Figure 3 (IPX5 test)

View:

[X]General
[ ]Front
[ ]Rear
[ ]Internal
[ ]Top
[ ]Bottom
[ ]PWB

Figure 4 (IP6X test)