LVD Test Report

Application No.	:	TB150610743
Applicant	:	Shenzhen Supernova Technology co.,Ltd
Equipment Under Test (EUT)		
EUT Name	:	LED Flood light
Model No.	:	SV-FL001-10W
Series No.	:	SV-FL001-30W,SV-FL001-50W,SV-FL001-100W SV-FL001-200W,SV-FL002-10W,SV-FL002-30W, SV-FL002-50W,SV-FL002-100W,SV-FL002-200W, SV-FL003-30W,SV-FL003-50W,SV-FL003-100W
Brand Name	:	Luminans
Issue Date	:	2015-06-24
Standards	:	EN 60598-2-5:1998 EN 60598-1:2008+ A11: 2009
Conclusions	:	Complied
		This report shows that the product technically complies with the Council LVD Directive **2006/95/EC** requirements.
Report by	:	Jason Lu
Checked by	:	Benny Xu
Approved by	:	Austin Zheng

This test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

TEST REPORT

EN 60598-1 & EN 60598-2-5
Luminaires
Part 1: General Requirements And Tests
Part 2: Particular requirements –
Section 5: Floodlights

Report Reference No.....:	TB-LVD-----
Total number of pages.....:	29 pages
Testing Laboratory.....:	Shenzhen Toby Technology Co., Ltd.
Address .....:	1A/F.,Bldg.6, Yusheng Industrial Zone,The National Road No.107 Xixiang Section 467,Xixiang,Bao'an Shenzhen, Guangdong,China
Applicant's name.....:	Shenzhen Supernova Technology co.,Ltd
Address .....:	2rd Floor, 116 Xiangshan Avenue, Songgang Street, Baoan District,,Shenzhen, china
Test specification:	
Standard.....:	☒ EN 60598-2-5:1998 used in with conjunction EN 60598-1:2008+ A11: 2009 ☐ IEC 60598-2-5:1998 used in with conjunction IEC 60598-1:2008
Test procedure .....:	LVD Test Procedure
Non-standard test method..... :	N/A
Test Report Form No.....:	IEC/EN 60598_2_5C
Test Report Form(s) Originator .....:	TOBY
Master TRF .....:	Dated 2013-06
Test item description ..... :	Flood Light
Trade Mark .....:	Luminans
Manufacturer .....:	Shenzhen Supernova Technology co.,Ltd
Model/Type reference.....:	SV-FL001-10W, SV-FL001-30W,SV-FL001-50W, SV-FL001-100W,SV-FL001-200W,SV-FL002-10W, SV-FL002-30W,SV-FL002-50W,SV-FL002-100W, SV-FL002-200W,SV-FL003-30W,SV-FL003-50W, SV-FL003-100W
Ratings .....:	100-277VAC, 50/60Hz, 200W

Summary of testing:

Tests performed (name of test and test clause):

- EN 60598-2-5: 1998
- EN 60598-1: 2008 + A11: 2009
- EN 62031: 2008+A1:2013
- EN 62471: 2008
- EN 62493: 2010

The Photobiological safety of lamps was applied to EN 62471: 2006 declared by client.

The submitted samples were found to comply with the requirements of above test specification.

Summary of compliance with National Differences:

Compliance with the National requirements of CENELEC common modification.

Copy of marking plate (Take model SV-FL001-10W for example)

Flood Light
Model: SV-FL001-10W
Rating: 100-277VAC, 50/60Hz, 200W

Shenzhen Supernova Technology co.,Ltd
Made In China

Remark: The marking plate of the other models shall be of same pattern.

Test item particulars ..... :	
Equipment mobility ..... :	Fixed
Supply Connection ..... :	Directly connected to supply mains
Protection class ..... :	Class I
Degree of protection ..... :	IP 65
Possible test case verdicts:	
- test case does not apply to the test object .....:	N (N/A)
- test object does meet the requirement .....:	P (Pass)
- test object does not meet the requirement .....:	F (Fail)
Testing.....:	
Date of receipt of test item .....:	2015-06-24
Date(s) of performance of tests .....:	2015-06-24 to2015-06-27

Test report also include European group differences and national differences for En 60598-2-1: 1989 and EN 60598-1: 2008+A11: 2009

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
”(See Enclosure #)” refers to additional information appended to the report.
”(See appended table)” refers to a table appended to the report.

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

Clause numbers between brackets refer to clause in IEC 60598-1

General product information:

Fixed luminaire, supplied by mains supply.

The Flood Light complies with class I requirements of this standard

Declaration of models different:
The product all models are identical in the same construction, interior structure and electrical circuits with the model SV-FL001-10W having max power input was considered/chosen as representative to perform all tests in this report, the differences are only the model name, shape size.

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
5.1 (0)	SCOPE		P
5.1 (0.1)	More sections applicable ..... :	Yes [√] No [ ]	—
5.4 (2)	CLASSIFICATION		
5.4 (2.2)	Type of protection ..... :	Class I	—
5.4 (2.3)	Degree of protection ..... :	IP 65	—
5.4 (2.4)	Portable or handheld luminaire ..... :	No	—
	Fixed luminaire suitable for normally flammable surfaces..... :	Yes	—
	Fixed luminaire suitable for non-combustible materials only ..... :	Yes	—
5.4 (2.5)	Luminaire for normal use ..... :	No	—
	Luminaire for rough service ..... :	Yes	—
5.5 (3)	MARKING		P
5.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
5.5 (3.3)	Additional information	Install instruction	P
	Language of instructions	English	P
5.5 (3.3.1)	Combination luminaires		N
5.5 (3.3.2)	Nominal frequency in Hz	50Hz	--
5.5 (3.3.3)	Operating temperature	Space min. 1m	--
5.5 (3.3.4)	Symbol or warning notice	See marking label	P
5.5 (3.3.5)	Wiring diagram	With powet cord	N
5.5 (3.3.6)	Special conditions		N
5.5 (3.3.7)	Metal halid lamp luminaire – warning		N
5.5 (3.3.8)	Limitation for semi-luminaires		N
5.5 (3.3.9)	Power factor and supply current		N
5.5 (3.3.10)	Suitability for use indoors		N
5.5 (3.3.11)	Luminaires with remote control		N
5.5 (3.3.12)	Clip-mounted luminaire - warning		N
5.5 (3.3.13)	Specifications of protective shields		N

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
5.5 (3.3.14)	Symbol for nature of supply		P
5.5 (3.3.15)	Rated current of socket outlet		N
5.5 (3.3.16)	Rough service luminaire		N
5.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y attachment	P
4.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N
5.5 (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

5.6 (4)	CONSTRUCTION		P
5.6.1 (-)	At least IPX3	IP65	P
5.6.2 (-)	Lampholder brackets		P
5.6.3 (-)	Adjusting means		P
5.6.4 (-)	Controlling components		P
5.6.5 (-)	Fixing device		P
	Wind force test		N
5.6.6 (-)	Locking system		P
5.6.7 (-)	Vibration resistance		N
5.6.8 (-)	Glass cover		P
5.6 (4.2)	Components replaceable without difficulty		P
5.6 (4.3)	Wireways smooth and free from sharp edges		P
5.6 (4.4)	Lampholders		--
5.6 (4.4.1)	Integral lampholder		P
5.6 (4.4.2)	Wiring connection		P
5.6 (4.4.3)	Lampholder for end-to-end mounting		N
5.6 (4.4.4)	Positioning		N
5.6 (4.4.5)	Peak pulse voltage		N
5.6 (4.4.6)	Centre contact		N
5.6 (4.4.7)	Rough service luminaires	Ordinary luminaires	N
5.6 (4.4.8)	Lamp connectors	No lamp connector provided	N
5.6 (4.5)	Starter holders-		--
	Starter holder in luminaires other than class II		N

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
	Starter holder class II construction		N
5.6 (4.6)	Terminal blocks		P
	Tails		P
	Unsecured blocks		N
5.6 (4.7)	Terminals and supply connections		P
5.6 (4.7.1)	Contact to metal parts		N
5.6 (4.7.2)	Test 8 mm live conductor		N
	Test 8 mm earth conductor		N
5.6 (4.7.3)	Terminals for supply conductors		P
5.6 (4.7.4)	Terminals other than supply connection		P
5.6 (4.7.5)	Heat-resistant wiring/sleeves		P
5.6 (4.7.6)	Multi-pole plug		N
5.6 (4.8)	Switches:		--
	- adequate rating		N
	- adequate fixing		N
	- polarized supply		N
5.6 (4.9)	Insulating lining and sleeves		P
5.6 (4.9.1)	Retainment		P
	Method of fixing..... :		P
5.6 (4.9.2)	Insulated linings and sleeves		--
	a) & c) Insulation resistance and electric strength		P
	b) Ageing test. Temperature (°C)..... :		P
5.6 (4.10)	Insulation of Class II luminaires		--
5.6 (4.10.1)	No contact, mounting surface – accessible metal parts - wiring of basic insulation		N
	Safe installation fixed luminaires		N
	Capacitors		N
	Interference suppression capacitors according to IEC 60384-14		N
5.6 (4.10.2)	Assembly gaps:		--
	- not coincidental		N
	- no straight access with test probe		N
5.6 (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

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
5.6 (4.11)	Electrical connections		--
5.6 (4.11.1)	Contact pressure	Not transmitted through insulating material	P
5.6 (4.11.2)	Screws:		P
	- self-tapping screws	Not used for connection	P
	- thread-cutting screws		N
	- at least two self-tapping screws		N
5.6 (4.11.3)	Screw locking:		--
	- spring washer		P
	- rivets		N
5.6 (4.11.4)	Material of current-carrying parts	At least 50% copper	P
5.6 (4.11.5)	No contact to wood	No wood material in the luminaires	P
5.6 (4.11.6)	Electro-mechanical contact systems	No such systems	N
5.6 (4.12)	Mechanical connections and glands		--
5.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		P
	Torque test: torque (Nm); part ..... :	Φ3.84 mm	P
	Torque test: torque (Nm); part ..... :	Φ4.78 mm	P
	Torque test: torque (Nm); part ..... :	Φ3.51mm	P
5.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N
5.6 (4.12.4)	Locked connections:		--
	- fixed arms; torque (Nm) ..... :		N
	- lampholder; torque (Nm)..... :		N
	- push-button switches; torque 0,8 Nm ..... :		N
5.6 (4.12.5)	Screwed glands; force (N) ..... :		N
5.6 (4.13)	Mechanical strength		--
5.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :		N
	- other parts; energy (Nm)..... :	0.7 J for all surfaces and box	P
	1) live parts	Not access	P
	2) linings		P

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
	3) protection	Continue to afford the degree of protection against ingress of dust, solid objects and moisture	P
	4) covers	No break	P
5.6 (4.13.3)	Straight test finger		P
5.6 (4.13.4)	Rough service luminaires		--
	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
5.6 (4.13.6)	Tumbling barrel		N
5.6 (4.14)	Suspensions and adjusting devices		--
5.6 (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
	D) load track-mounted luminaires		N
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :		N
	metal rod. Diameter (mm)..... :		N
5.6 (4.14.2)	Load to flexible cables		--
	Mass (kg) ..... :		N
	Stress in conductors (N/mm²) ..... :		N
5.6 (4.14.3)	Adjusting devices:		--
	- flexing test; number of cycles ..... :		N
	- strands broken		N
	- electric strength test afterwards		N
5.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors	No telescopic tubes	N
5.6 (4.14.5)	Guide pulleys	No guide pulleys	N
5.6 (4.14.6)	Strain on socket-outlets	No socket-outlet	N
5.6 (4.15)	Flammable materials:		P

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
	- glow-wire test 650 °C		P
	- spacing ≥ 30 mm		N
	- screen withstanding test of 13.3.1		N
	- screen dimensions		N
	- no fiercely burning material		N
	- thermal protection		N
	- electronic circuits exempted		N
5.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		--
	a) construction		N
	b) temperature sensing control		N
	c) surface temperature		N
5.6 (4.16)	Luminaires marked with F-symbol		--
	No lamp control gear	(compliance with Section 12)	N
5.6 (4.16.1)	Lamp control gear spacing:		N
	- spacing 35 mm		N
	- spacing 10 mm		N
5.6 (4.16.2)	Thermal protection:		N
	- in lamp control gear		N
	- external		N
	- fixed position		N
	- temperature marked lamp control gear		N
5.6 (4.16.3)	"F" curve measured	(see 12.6)	N
5.6 (4.17)	Drain holes		N
	Clearance at least 5 mm		N
5.6 (4.18)	Resistance to corrosion:		--
5.6 (4.18.1)	- rust-resistance		P
5.6 (4.18.2)	- season cracking in copper		N
5.6 (4.18.3)	- corrosion of aluminium		N
5.6 (4.19)	Ignitors compatible with ballast		N
5.6 (4.20)	Rough service vibration		N
5.6 (4.21)	Protective shield:		N
5.6 (4.21.1)	Shield fitted		N

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
5.6 (4.21.2)	Particles from a shattering lamp not impair safety		N
5.6 (4.21.3)	No direct path		N
5.6 (4.21.4)	Impact test on shield		N
	Glow-wire test on lamp compartment		N
5.6 (4.22)	Attachments to lamps	No attachments	N
5.6 (4.23)	Semi-luminaires comply class II		N
5.6 (4.24)	UV radiation, metal halide lamps		N
5.6 (4.25)	No sharp point or edges	No sharp points or edges	N
5.6 (4.26)	Short-circuit protection:		--
5.6 (4.26.1)	Uninsulated accessible SELV parts		N
5.6 (4.26.2)	Short-circuit test		N
5.6 (4.26.3)	Test chain according to IEC 61032		N

5.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
	Working voltage (V) ..... :	230v	—
	Voltage form	Sinusoidal [√] Non-sinusoidal [ ]	—
	PTI	< 600 [√] ≥ 600 [ ]	—
	Rated pulse voltage (kV)..... :	230	—
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm)..... :	Between L and N, cr>2.5mm, cl>1.5mm required cr: 2.5mm, cl: 1.5mm	P
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm)..... :	Between Current-carrying parts and metal shell, cr>5mm, cl>3mm required cr:5mm, cl:3mm	P
	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm)..... :		P
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm)..... :		N
	(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)..... :		P

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
5.8 (7)	PROVISION FOR EARTHING		P
5.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω		P
	Two self-tapping screws used		N
	Thread-forming screws		P
	Connector earthing first		P
5.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		P
5.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
5.8 (7.2.5)	Earth terminal integral part of connector socket		N
5.8 (7.2.6)	Earth terminal adjacent to mains terminals		P
5.8 (7.2.7)	Electrolytic corrosion of the earth terminal		P
5.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
5.8 (7.2.10)	Class II luminaire for looping-in		N
5.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		P

5.9 (14)	SCREW TERMINALS		P
	Separately approved; component list	(see Annex 1)	N
	Part of the luminaire	(see Annex 3)	P

5.9 (15)	SCREWLESS TERMINALS		N
	Separately approved; component list	(see Annex 1)	N
	Part of the luminaire	(see Annex 4)	N

5.10 (5)	EXTERNAL AND INTERNAL WIRING		P
5.10 (5.2)	Supply connection and external wiring		--
5.10 (5.2.1)	Means of connection ..... :	Plug	P
5.10 (5.2.2)	Type of cable ..... :	H07RN-F	P
	Nominal cross-sectional area (mm²) ..... :	1.5mm²	P

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
5.10 (5.2.3)	Type of attachment, X, Y or Z	Type Y attachment	P
5.10 (5.2.5)	Type Z not connected to screws		N
5.10 (5.2.6)	Cable entries:		--
	- suitable for introduction		P
	- adequate degree of protection		P
5.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
5.10 (5.2.8)	Insulating bushings:		--
	- suitably fixed		P
	- material in bushings		P
	- tubes or guards made of insulating material		P
5.10 (5.2.9)	Locking of screwed bushings		N
5.10 (5.2.10)	Cord anchorage:		--
	- 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
5.10 (5.2.10.1)	Cord anchorage for type X attachment:		--
	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
	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
5.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		P
5.10 (5.2.10.3)	Tests:		--
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) ..... :	80N	P

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
	- torque test: torque (Nm)..... :	0.35Nm	P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P
5.10 (5.2.11)	External wiring passing into luminaire		N
5.10 (5.2.12)	Looping-in terminals		N
5.10 (5.2.13)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		N
5.10 (5.2.14)	Mains plug same protection		N
	Class III luminaire plug		N
5.10 (5.2.15)	Colour code low voltage		N
5.10 (5.2.16)	Appliance inlets (IEC 60320)		N
	Appliance couplers of class II type		N
5.10 (5.3)	Internal wiring		--
5.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		P
	- not delivered/ mounting instruction		N
	- factory assembled		P
	- socket outlet loaded (A)..... :		N
	- temperatures..... :	(see Annex 2)	P
	Green-yellow for earth only		P
5.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		--
	Cross-sectional area (mm²) ..... :	1.5mm²	P
	Insulation thickness		P
	Extra insulation added where necessary		N
5.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		--
	Adequate cross-sectional area and insulation thickness		N
5.10 (5.3.1.3)	Double or reinforced insulation for class II		N
5.10 (5.3.1.4)	Conductors without insulation		N

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
5.10 (5.3.1.5)	SELV current-carrying parts		N
5.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		P
5.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N
	Joints, raising/lowering devices		N
	Telescopic tubes etc.		N
	No twisting over 360°		P
5.10 (5.3.3)	Openings		N
	Bushings not removable		N
	Bushings in sharp openings		N
	Cables with protective sheath		N
5.10 (5.3.4)	Joints and junctions effectively insulated		N
5.10 (5.3.5)	Strain on internal wiring		N
5.10 (5.3.6)	Wire carriers		N
5.10 (5.3.7)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		N

5.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
5.11 (8.2.1)	Live parts not accessible	No access of live part in normal use	P
	Protection in any position		P
	Double-ended tungsten filament lamp		N
	Insulation lacquer not reliable	No insulation lacquer and similar materials as protection against electric shock	N
	Double-ended high pressure discharge lamp		N
5.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N
5.11 (8.2.3)	Class II luminaire:		--
	- basic insulated metal parts not accessible during starter or lamp replacement		N
	- basic insulation not accessible other than during starter or lamp replacement		N
	- glass protective shields not used as supplementary insulation		N
	Class I luminaire with BC lampholder		N
5.11 (8.2.4)	Portable luminaire:		--
	- protection independent of supporting surface		N

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
	- terminal block completely covered		N
5.11 (8.2.6)	Covers reliably secured		P
5.11 (8.2.7)	Discharging of capacitors ≥ 0,5 μF		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

5.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
5.12 (12.3)	Endurance test:		P
	- mounting-position ..... :		—
	- test temperature (°C) ..... :	35℃	—
	- total duration (h)..... :	168H	—
	- supply voltage: Un factor; calculated voltage (V) ..... :	293.6V	—
	- lamp used ..... :		—
5.12 (12.3.2)	After endurance test:		--
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N
	- marking legible		P
	- no cracks, deformation etc.		P
5.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
5.12.1 (-)	Temperature reduction		N
5.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	N
5.12 (12.6)	Thermal test (failed lamp control gear condition):		N
5.12 (12.6.1)	- case of abnormal conditions..... :		—
	- electronic lamp control gear		N
	- 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
5.12 (12.6.2)	Temperature sensing control		N
	- case of abnormal conditions..... :		—
	- thermal link		N

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured mounting surface temperature (°C): ..... :		N
	- track-mounted luminaires		N
5.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N
	- case of abnormal conditions ..... :		—
5.12 (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
5.12 (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

5.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		P
5.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP ..... :	IP 65	—
	- mounting position during test..... :		—
	- fixing screws tightened; torque (Nm) ..... :		—
	- tests according to clauses ..... :		—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		P
	b) no talcum in dust-tight luminaire		P
	c) no trace of water on current-carrying parts or where it could become a hazard		P
	d) i) For luminaires without drain holes – no water entry		P
	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)		P

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
5.13 (9.3)	Humidity test 48 h	R.H.:93% T:25℃	P

5.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
5.14 (10.2.1)	Insulation resistance test		--
	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:		--
	- between live parts of different polarity ..... :	>100MΩ	P
	- between live parts and mounting surface ..... :	>100MΩ	P
	- between live parts and metal parts..... :	>100MΩ	P
	- between live parts of different polarity through action of a switch ..... :		N
5.14 (10.2.2)	Electric strength test		--
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N
	Luminaires with manual ignitors		N
	Test voltage (V):		N
	SELV:		--
	- 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 ..... :	1554V	P
	- between live parts and mounting surface ..... :	3108V	P
	- between live parts and metal parts..... :	1554V	P
	- between live parts of different polarity through action of a switch ..... :		N
5.14 (10.3.1)	Leakage current (mA) ..... :	< 1mA	P

EN 60598-1 & EN 60598-2-5			
Cl.	Requirement – Test	Result	Verdict
5.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
5.15 (13.2.1)	Ball-pressure test:		--
	- part tested; temperature (°C)..... :		N
	- part tested; temperature (°C)..... :		N
5.15 (13.3.1)	Needle flame test (10 s):		--
	- part tested..... :		N
	- part tested..... :		N
5.15 (13.3.2)	Glow-wire test (650°C):		--
	- part tested..... :		N
	- part tested..... :		N
5.15 (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
(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
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
LED driver	MEAN WELL	HLG-240H-36A	Input:100-277V~, 50/60Hz Output:DC 36V, 6.7A	EN 61347-2-13	CE
output lead wire	Various	Various	600V, 105 °C VW-1, 2X0.75mm^2	--	VDE

	ANNEX 2: temperature measurements, thermal tests of Section 12	P

	Type reference.....:	LEDTG200W001	—
	Lamp used .....:	LED	—
	Lamp control gear used .....:	Electronic LED driver	—
	Mounting position of luminaire .....:	As in normal use	—
	Supply wattage (W).....:	--	—
	Supply current (A).....:	--	—
	Calculated power factor .....:	--	—
	Table: measured temperatures corrected for ta = 25 °C:		N
	- abnormal operating mode.....:	--	—
	- test 1: rated voltage .....:	Test 1 : 100V	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage .....:	Test 2 : 277*1.06=293.6V	—
	- 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 (°C) of part	Clause 12.4 – normal				Clause 12.5 – abnormal	
	test 1	test 2	test 3	limit	test 4	limit
Input lead wire	54.4	45.9	--	80	--	--
Enclosure of LED driver	59.8	52.1	--	Ref.		
Output lead wire	34.0	33.8	--	105	--	--
Mounting surface	27.9	27.8	--	90	--	--
Metal enclosure	51.3	51.4	--	90	--	--
Ambient	25.2	26.0	--	--	--	--

	ANNEX 3: screw terminals (part of the luminaire)	N

(14)	**SCREW TERMINALS**		—
(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 (mm²) .....:		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		P
(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).....:		P
(14.4.8)	Without undue damage		P

	ANNEX 4: screwless terminals (part of the luminaire)	N

(15)	**SCREWLESS TERMINALS**		—
(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 10^{th} alt. 25^{th} cycle (4 samples).....:		N
	Voltage drop (mV) after 50^{th} alt. 100^{th} cycle (4 samples).....:		N
	After ageing, voltage drop (mV) after 10^{th} alt. 25^{th} cycle (4 samples).....:		N
	After ageing, voltage drop (mV) after 50^{th} alt. 100^{th} cycle (4 samples).....:		N
(15.7)	Terminals external wiring		N
	Terminal size and rating		N
(15.8.1)	Pull test spring-type terminals or welded connections (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									N
	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
	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
	Max. allowed voltage drop (mV) .....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	--	--	--	--	--	--	--	--	--	--

TTACHMENT TO TEST REPORT EN 60598-2-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Luminaires Part 2: Particular requirements: Section one – Fixed general purpose luminaries
Differences according……..: EN 60598-2-1: 1989 used in conjunction with EN 60598-1: 2008 + A11:2009

	CENELEC COMMON MODIFICATIONS (EN)		—
3	**MARKING**		—
3.3.101	Adequate warning on the package		P
4	**CONSTRUCTION**		—
4.11.6	Electro-mechanical contact systems		N
5	**EXTERNAL AND INTERNAL WIRING**		—
5.2.1	Connection leads		N
	- without a means for connection to the supply		N
	- terminal block specified		N
	- relevant information provided		N
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of part 1		N
5.2.2	Cables equal to HD21 S2 of HD22 S2		N
12	**ENDURANCE TEST AND THERMAL TEST**		—
12.4.2c	Thermal test (normal operation)		P
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		—
(3.3)	DK: power supply cord with label		N
	IT: warning label on Class 0 luminaire		N
(4.5.1)	DK: socket-outlets		N
(5.2.1)	CY, DK, FI, SE, GB: type of plug		N
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		—
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N
(13.3)	FR: Glow-wire test 850°C alt. 750°C for luminaires in premises open to public or 960°C for luminaires in emergency exits		N
(13.3)	GB: Requirements according to United Kingdom Building Regulation		N

EN 62031			
Clause	Requirement + Test	Result – Remark	Verdict
4	**GENERAL REQUIREMENTS**		—
4.4	Integral modules treated as part of luminaires defined in clause 0.5 of IEC 60598-1	Yes ☒ No ☐	—
4.5	Independent modules complies with requirements in IEC 60598-1	Yes ☐ No ☒	—
5	**GENERAL TEST REQUIREMENTS**		—
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex B)	—
6	**CLASSIFICATION**		
	Built-in module ..... :	Yes ☒ No ☐	—
	Independent module ..... :	Yes ☐ No ☒	—
	Integral module ..... :	Yes ☐ No ☒	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		—
7	**MARKING**		N
	Requirements not applicable to the evaluated product.		—
8	**SCREW TERMINALS**		—
	Compliance with section 14 of IEC 60598-1		N
	SCREWLESS TERMINALS		—
	Compliance with section 15 of IEC 60598-1		P
	CONNECTORS		—
	Compliance with IEC 60838-2-2		N
9	**PROVISION FOR PROTECTIVE EARTHING**		N
	Requirements not applicable to the evaluated product.		—
8 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		N
	Requirements not applicable to the evaluated product.		—

EN 62031			
Clause	Requirement + Test	Result – Remark	Verdict
11	**MOISTURE RESISTANCE AND INSULATION**		—
	Protection against moisture and insulation in compliance with Clause 11, IEC 61347-1		P
12	**ELECTRIC STRENGTH**		—
	Electric strength in compliance with Clause 12 of IEC 61347-1		P
13	**FAULT CONDITIONS**		—
13.1	In compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)		P
13.2	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N
	During the tests, tissue paper, spread below module, does not ignite.		P
15	**CONSTRUCTION**		—
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
16	**CREEPAGE DISTANCES AND CLEARANCES**		—
	Creepage and distances and clearances in compliance with IEC 60598-1		P
17 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		—
	Screws, current-carrying parts and connections in compliance with IEC 60598-1		P
18 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		—
	Resistance to Heat, Fire and Tracking in compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)		P
19	**RESISTANCE TO CORROSION**		—
	Resistance to corrosion in compliance with IEC 61347-1		P
A	**ANNEX A - TESTS**		—
	All tests performed in accordance with the advise given in Annex H of IEC 61347-1, if applicable		P

EN 62031			
Clause	Requirement + Test	Result – Remark	Verdict
B	**ANNEX B - SELV-operated LED modules**		—
	SLVE-operated LED modules in compliance with Annex I of IEC 61347-2-13		N

EUT Photos

Photo 1 View of EUT

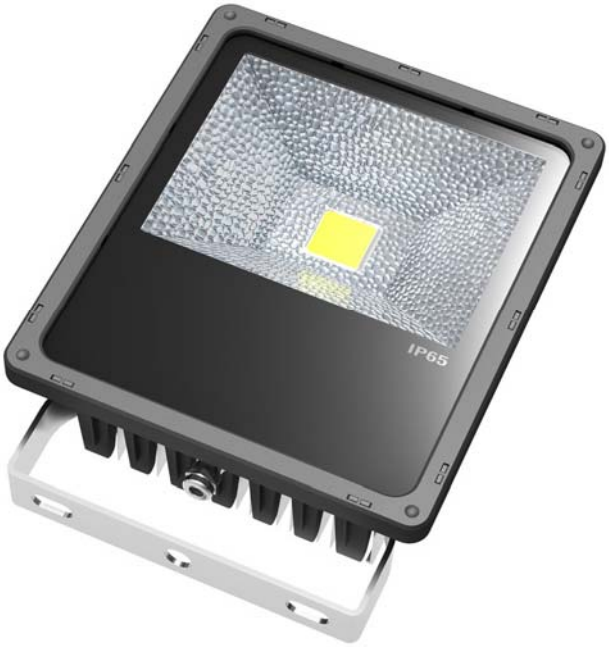
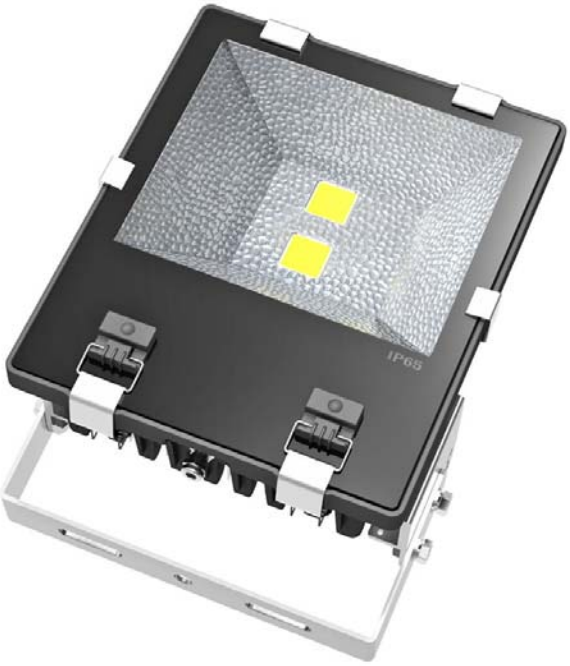


Photo 2 View of EUT



END OF REPORT