

TEST REPORT

Reference Standard: IEC 60598-2-2

Luminaires - Part 2-2: Particular requirements - Recessed luminaires

Report Reference No.....	53524
Date of issue.....	04 November 2022
Total Number of Pages.....	08
Applicant's Name.....	DECOLIGHT TRADING CO., LLC.
Address.....	Dubai, UAE.
Test specification:	
Standard(s).....	IEC 60598-2-2: Edition 3.0 2011-11, IEC 60598-1: Edition 9.0 2020-08.
Test Report Form No.....	GMES/LAB/FRM/-21 Rev 02, Nov'21
Test Report Form(s) Originator.....	Gray Mackenzie Engineering Services LLC
Master TRF.....	25-November-2021.
Client Document No.....	N/A
Client Reference No.....	N/A
Lab Reference No.....	N/A
Job No.....	26214
Data Sheet No.....	22523
Test Item Description.....	LED RECESSED DOWN LIGHT
Trademark/Identification mark.....	DUVA ILUMINACION Control Gear: LIFUD
Manufacturer name.....	Not Indicated
Model/Type reference.....	C732.15.65.30 RAL9010, Control Gear: LF-GIR0013YS0350H
Serial Number.....	Not Indicated
Ratings.....	36VDC, 350mA, 15W, 3000k, IP65, 220-240V~, 50/60Hz, 0.15A, Output: 25.38V ~~, 13.3W, 350mA



Testing Procedure and Testing Location:

<input checked="" type="checkbox"/> Testing Laboratory:	Gray Mackenzie Engineering Services LLC, Shed No.118 Al Jadaf, Dubai, U.A.E
Tested By (name signature)	Syed Ali Zain Zaidi Testing Engineer 
Approved By (name signature).....	Vijaya Ratna Paul.Pitta Lab Incharge 

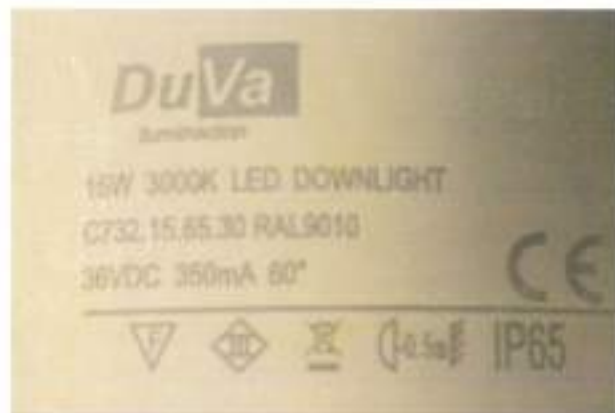
Summary of Testing:

The product complies with the requirements of the test performed as per IEC 60598-2-2, IEC 60598-1.

- NOTE:** 1. Only the tests requested by customer were conducted.
2. Clause No 4 & 12 of IEC 60598-1 are not covered under GAC Scope of accreditation.

Copy of Marking Plate:

LED Downlight Marking Label:



Control Gear Marking:



Possible Test Case Verdicts:

- test case not conducted to the test object.....: N/C
- test case does not apply to the test object: 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.....: 02 November 2022

Date (s) of performance of tests.....: 02 November 2022 to 04 November 2022

Laboratory Temperature.....: 23±2°C

General Remarks:

The test results presented in this report relate only to the object tested.

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"(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 point is used as the decimal separator.

IEC 60598-2-2, IEC 60598-1				
Clause	Requirement - Test	Result - Remark		Verdict
2.6 (3)	MARKING:			P
3.1	GENERAL:			P
	Any written instructions related to safety shall be in a language which is acceptable in the country in which the equipment is to be installed.			P
3.2	MARKING ON LUMINAIRES:	Light	Driver	P
	Mark of origin	DUVA ILUMINACION	Lifud	P
	Rated voltage(s) in volts	36VDC	220-240V	P
	rated maximum ambient temperature ta	60°C	50°C	P
	Symbol for class II luminaires	-		P
	Symbol for class III luminaires		-	P
	Marking with IP numbers	IP65	-	P
	Model number or type reference	C732.15.85. 30 RAL9010	LF- GIR0013 YS0350H	P
	Rated wattage or the designation	15W		P
	Symbol for luminaires for lamps of similar shape to "cool beam"			N/A
	Except for type Z attachments, terminations shall be marked to identify live, neutral and earth	-		P
	Symbol for minimum distance from lighted objects	0.5m	-	P
	Symbol for luminaires for cracked protective shield			N/A
	Luminaires incorporating a protective shield		-	P
	maximum number of luminaires that may be interconnected or the maximum total current	350mA	0.15A	P
	Symbol for luminaires which are designed to be used only with self-shielded tungsten halogen lamps or self-shielded metal halide lamps.			N/A
	Relevant symbol for luminaires not suitable for covering with thermally insulated material.			N/A
3.3	Additional information:			P
	All details which are necessary to ensure proper installation, use and maintenance shall be given			P
3.3.2	Nominal Frequency:	-	50/60Hz	P
3.3.3	Operating temperature:			N/A
3.3.17	Supply cord replacement instruction:			N/A

IEC 60598-2-2, IEC 60598-1				
Clause	Requirement - Test	Result - Remark		Verdict
2.6 (3.4)	TEST OF MARKING:			P
	After the test, the marking shall be legible,			P
	marking labels shall not be easily removable and			P
	They shall show no curling.			P
2.7 (4.13)	MECHANICAL STRENGTH:			P
4.13.1	Luminaires shall have adequate mechanical strength and be so constructed as to be safe after such rough handling as may be expected in normal use.	Applied impact energy		P
		Fragile	Other	
		0.25 Nm	0.35 Nm	
4.13.2	Metal parts enclosing live parts shall have adequate mechanical strength.	No Damage		P
2.7 (4.14)	SUSPENSION AND ADJUSTING DEVICES:			P
4.14.1	Mechanical suspensions shall have adequate factors of safety.			P
4.14.2	The mass of the luminaire suspended by flexible cables or cords shall not exceed 5 kg.			N/A
	The total nominal cross-sectional area of the conductors of flexible cables or cords suspending pendants shall be such that the stress in the conductors does not exceed 15 N/mm ²			P
4.14.3	Adjusting devices and means of adjustment 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
2.7 (4.21)	PROTECTIVE SHIELD:			P
4.21.4	inspection and by the following tests:			P
	- the protective shield shall comply with the impact test of 4.13.1 with the impact energy fragile parts;			P
	- parts of the lamp compartment, if of insulating material, shall comply with the resistance to flame and ignition test of 13.3.2.			P
2.8(11)	CREEPAGE DISTANCES AND CLEARANCES:			P
	Creepage and clearances distance (mm) between	Measured	Limit (mm)	P
	Current carrying parts of different polarity	2.3Cr 1.9Cl	1.5Cr 1.5Cl	P
	Live parts and mounting surface	2.4Cr 2.2Cl	1.5Cr 1.5Cl	P

IEC 60598-2-2, IEC 60598-1			
Clause	Requirement - Test	Result - Remark	Verdict
2.11 (5.2)	SUPPLY CONNECTION AND OTHER EXTERNAL WIRING:		P
	Luminaires shall be provided with one of the following means of connection to the supply:		-
	- fixed luminaires		P
	- portable luminaires		N/A
	- track-mounted luminaires		N/A
	- semi-luminaires		N/A
2.12 (8.2)	PROTECTION AGAINST ELECTRIC SHOCK:		P
	Luminaires shall be so constructed that their live parts are not accessible when		P
	the luminaire has been installed and		P
	wired as in normal use, and		P
	when it is opened as necessary for replacing lamps or (replaceable) starters		N/A
2.13 (12.4)	THERMAL TEST: (normal use)		P
	Ambient Temperature :	24.5°C	-
	Downlight Body:	58.2°C	P
	Cord separation point:	45.8°C	
	Cable insulation:	42.4°C	
	Control Gear Body:	49.5°C	
2.14 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE:		P
9.3.1	All luminaires shall be proof against humid conditions which may occur in normal use.	25°C 93%Rh 48h	P
2.15 (10.2)	INSULATION RESISTANCE AND ELECTRIC STRENGTH:		P
	The insulation resistance and the electric strength of luminaires shall be adequate.	Between live parts and Enclosure	P
	500V DC Insulation Resistance:	12.5GΩ	P
	1480V AC 60Sec Electric Strength (control gear):	No Breakdown	P
2.15 (10.3)	LEAKAGE CURRENT, TOUCH CURRENT:		N/A
	The touch current or protective conductor current that may occur during normal operation of the luminaire shall not exceed the values given in Table 10.3		N/A

IEC 60598-2-2, IEC 60598-1			
Clause	Requirement - Test	Result - Remark	Verdict
2.16 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING:		P
13.2	External parts of insulating material providing protection against electric shock,	BPT 75°C 0.76mm	P
	and parts of insulating material retaining current-carrying parts or SELV parts in position shall be sufficiently resistant to heat.	BPT 125°C 0.91mm	P
13.3	Parts of insulating material retaining current-carrying parts or		P
	SELV parts in position		P
	And external parts of insulating material providing protection against electric shock	GWT 650°C	P
	shall be resistant to flame and ignition.	No Flame	P

PHOTOGRAPH OF TEST OBJECT:

LED Recessed Downlight:



Control Gear:





TEST REPORT


Reference Standard: IEC 60529

Degree of Protection Provided by Enclosures (IP Code)

Report Reference No..... :	53525
Date of issue..... :	04 November 2022
Total Number of Pages..... :	07
Applicant's Name..... :	DECOLIGHT TRADING CO., LLC.
Address..... :	Dubai, UAE.
Test specification: Standard(s)..... :	IEC 60529: Edition 2.2 2013-08.
Test Report Form No..... :	GMES/LAB/FRM/-21 Rev 02, Nov'21
Test Report Form(s) Originator..... :	Gray Mackenzie Engineering Services LLC
Master TRF..... :	25-November-2021
Client Document No..... :	N/A
Client Reference No..... :	N/A
Lab Reference No..... :	N/A
Job No..... :	26214
Data Sheet No..... :	22524
Test Item Description..... :	LED DOWNLIGHT (IP65)
Trademark/identification mark..... :	DUVA ILUMINACION
Manufacturer name..... :	Not Indicated
Model/Type reference..... :	C732.15.65.30 RAL9010
Serial Number..... :	Not Indicated
Ratings..... :	36VDC, 350mA, 15W, 3000K, IP65, Ta60°.



Testing Procedure and Testing Location:

<input checked="" type="checkbox"/>	Testing Laboratory:	Gray Mackenzie Engineering Services LLC, Shed No.118 Al Jadaf, Dubai, U.A.E
Tested By (name+signature).....:		Syed Ali Zain Zaidi Testing Engineer 
Approved By (name+signature).....:		Vijaya Ratna Paul.Pitta Lab Incharge 

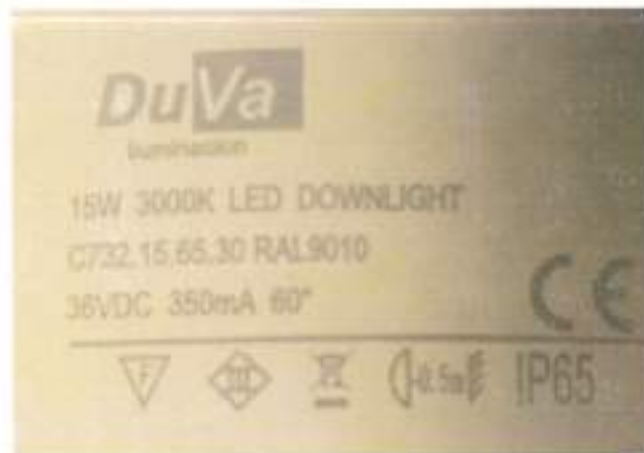
Summary of Testing:

The product complies with the test requirements performed as per IP65 of IEC 60529.

Note: Test requested by the customer were conducted.

Copy of Marking Plate:

LED Downlight Marking:





Possible Test Case Verdicts:

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

Testing.....

Date of receipt of test item.....: 02 November 2022
Date (s) of performance of tests.....: 04 November 2022
Laboratory Temperature.....: 23±2°C

General Remarks:

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IEC 60529					
Clause	Requirement - Test			Result - Remark	Verdict
11	GENERAL REQUIREMENTS FOR TESTS:				P
11.1	Atmospheric conditions for water or dust tests			25°C, 60% RH at 90kPa	P
12	TESTS FOR PROTECTION AGAINST ACCESS TO HAZARDOUS PARTS INDICATED BY THE FIRST CHARACTERISTIC NUMERAL:				P
12.1	Access probes:				P
IP6X	The test wire of 1.0mm 100mm long shall not penetrate and adequate clearance shall be kept				P
12.3	Acceptance conditions:				P
	The protection is satisfactory if adequate clearance is kept between the access probe and hazardous parts.				P
	For the test of first characteristic numeral 1, the access probe 50 mm diameter shall not completely pass through the opening.			IP1X	N/A
	For the test of first characteristic numeral 2, the jointed test finger may penetrate to its 80 mm length, but the stop face (\varnothing 50 mm \times 20 mm) shall not pass through the opening.			IP2X	N/A
	both joints of the test finger shall be successively bent				N/A
12.3.1	For low-voltage equipment (rated voltages not exceeding 1000V a.c. and 1500 Vd.c.):				P
	The access probe shall not touch hazardous live parts.				P
12.3.3	For equipment with hazardous mechanical parts:				N/A
	The access probe shall not touch hazardous mechanical parts.				N/A
13	TESTS FOR PROTECTION AGAINST SOLID FOREIGN OBJECTS INDICATED BY THE FIRST CHARACTERISTIC NUMERAL:				P
13.2	The object probe is pushed against any openings of the enclosure with the force specified in table 7.				N/A
	First Numeral	Test means	Test Force		-
	0	No test required	-	IP0X	-
	1	Rigid sphere 50.0mm \varnothing	50N	IP1X	N/A
	2	Rigid sphere 12.5mm \varnothing	30N	IP2X	N/A
	3	Rigid steel rod 2.5mm \varnothing	3N	IP3X	N/A
	4	Rigid steel rod 1.5mm \varnothing	1N	IP4X	N/A
	5	Dust chamber fig.2	-	IP5X	N/A
	6	Dust chamber fig.2	-	IP6X	P

IEC 60529			
Clause	Requirement - Test	Result - Remark	Verdict
13.3	Acceptance conditions for first characteristic numerals 1, 2, 3, 4:		N/A
	The protection is satisfactory if the full diameter of the probe specified in table 7 does not pass through any opening.		N/A
13.5	Special conditions for first characteristic numeral 5:		N/A
13.5.2	The protection is satisfactory if, on inspection, talcum powder has not accumulated in a quantity or location		N/A
13.6	Special conditions for first characteristic numeral 6:		P
13.6.1	Test conditions for first characteristic numeral 6:		P
	The enclosure shall be deemed category 1, whether reductions in pressure below the atmospheric pressure are present or not.		P
13.6.2	Acceptance conditions for first characteristic numeral 6:		P
	The protection is satisfactory if no deposit of dust is observable inside the enclosure at the end of the test.	No dust inside Enclosure	P
14	TESTS FOR PROTECTION AGAINST WATER INDICATED BY THE SECOND CHARACTERISTIC NUMERAL:		P
14.2.1	The test is made with a device which produces a uniform flow of water drops over the whole area of the enclosure.	IPX1	N/A
	The duration of test is 10 min.		
14.2.2	The dripping device is the same as specified in 14.2.1 adjusted to provide the water flow rate specified in table 8	IPX2	N/A
	The enclosure is tested for 2,5 min in each of four fixed positions of tilt		
	The total duration of the test is 10 min.		
14.2.3	The test is made using one of the two test devices described in figure 4 and in figure 5 in accordance with the relevant product standard.	IPX3	N/A
	a) using the test device as in figure 4 (oscillating tube):		
	b) using the test device as in figure 5 (spray nozzle):		
14.2.4	The test is made using one of the two test devices described in figure 4 and in figure 5 in accordance with the relevant product standard.	IPX4	N/A
	a) using the test device as in figure 4 (oscillating tube):		
	b) using the test device as in figure 5 (spray nozzle):		

IEC 60529			
Clause	Requirement - Test	Result - Remark	Verdict
14.2.5	Test for second characteristic numeral 5 with the 6,3 mm nozzle:		P
	The test is made by spraying the enclosure from all practicable directions with a stream of water from a standard test nozzle as shown in figure 6.	IPX5	P
	- test duration per square meter of enclosure surface area likely to be sprayed: 1 min;		
	- minimum test duration: 3 min;		
	- distance from nozzle to enclosure surface: between 2,5 m and 3 m.		
14.2.6	Test for second characteristic numeral 6 with the 12,5 mm nozzle:		N/A
	The test is made by spraying the enclosure from all practicable directions with a stream of water from a standard test nozzle as shown in figure 6.	IPX6	N/A
	- test duration per square metre of enclosure surface area likely to be sprayed: 1 min;		
	- minimum test duration: 3 min;		
	- distance from nozzle to enclosure surface: between 2,5 m and 3 m.		
14.2.7	Test for second characteristic numeral 7: temporary immersion between 0,15 m and 1 m		N/A
	The test is made by completely immersing the enclosure in water in its service position as specified by the manufacturer so that the following conditions are satisfied:	IPX7	N/A
	- the lowest point of enclosures with a height less than 850 mm is located 1 000 mm below the surface of the water		N/A
	- the highest point of enclosures with a height equal to or greater than 850 mm is located 150 mm below the surface of the water		
	- the duration of the test is 30 min;		
	- the water temperature does not differ from that of the equipment by more than 5 K.		
14.3	Acceptance conditions:		P
	In general, if any water has entered, it shall not:		P
	- be sufficient to interfere with the correct operation of the equipment or impair safety;		P
	- deposit on insulation parts where it could lead to tracking along the creepage distances;		P

PHOTOGRAPH OF TEST OBJECT:

Before test object:



Under Test Item:



After test Item:

