LABORATORY FOR TESTING OF MACHINERY, EQUIPMENT AND DEVICES
CENTER FOR TESTING AND EUROPEAN CERTIFICATION LTD

Center for Testing and European Certification

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ИА "БСА"
Рег.№ 101 ЛИ
ЛАБОРАТОРИЯ ЗА ИЗПИТВАНЕ
Accredited certificate
№ 101 ЛИ / 24.11.2014
Valid until: 24.11.2018
of EA BAS, according
EN ISO/IEC 17025

TEST REPORT

№ 2e-15-036 / 06.04.2015

OBJECT TO BE TESTED: Luminaire-LED lighting fixtures„LED DOWNLIGHTS" Model RDL-COB, cat.№ 92DLC3027/WH
Representative sample from fixtures group **RDL-COB** with cat. №: 92DLC1040/WH; 92DLC1027/WH; 92DLC1040/SN; 92DLC1027/SN; 92DLC1540/WH; 92DLC1527/WH; 92DLC1540/SN; 92DLC1527/SN; 92DLC2540/WH; 92DLC2527/WH; 92DLC2540/SN; 92DLC2527/SN; 92DLC3040/WH; 92DLC3040/SN; 92DLC3027/SN;
and group **RDL60-COB** with cat. № 92DL62040; 92DL62027; 92DL63040; 92DL63027; 92DL64040; 92DL64027;
(name of obejct to be tested , type, model, quantity, type – portable, fixed, for walling in and other)

APPLICANT FOR TEST: "ELMARK INDUSTRIES" SC. 2 Dobrudja Blvd. Dobrich, Bulgaria ,
Tel.: 058 500 055, e-mail: denkov@elmark.bg
Application № 036/ 11.02.2015
(name of the firm – applicant, address, telephone, number and date of the test application)

METHOD OF TEST : BDS EN 60598-1:2008+A11:2009 Luminaires - Part 1: General requirements and tests
(number and name of the standards)

DATE OF ACCEPTANCE IN THE TEST LABORATORY: 11.03.2015

CODE OF THE OBJECT: 1 piece
(identification number , year of production)

MANIFACTURER: "ELMARK INDUSTRIES" SC. 2 Dobrudja Blvd. Dobrich, Bulgaria ,
Tel.: 058 500 055, e-mail: denkov@elmark.bg
(firm, trade mark, address)

DECLARED DATA: Declared voltage 230 V
Declared frequency 50-60 Hz
Declared power 30 W
Class II

ELECTRONIC CONTROLGEAR: LCM- 25 ELMARK

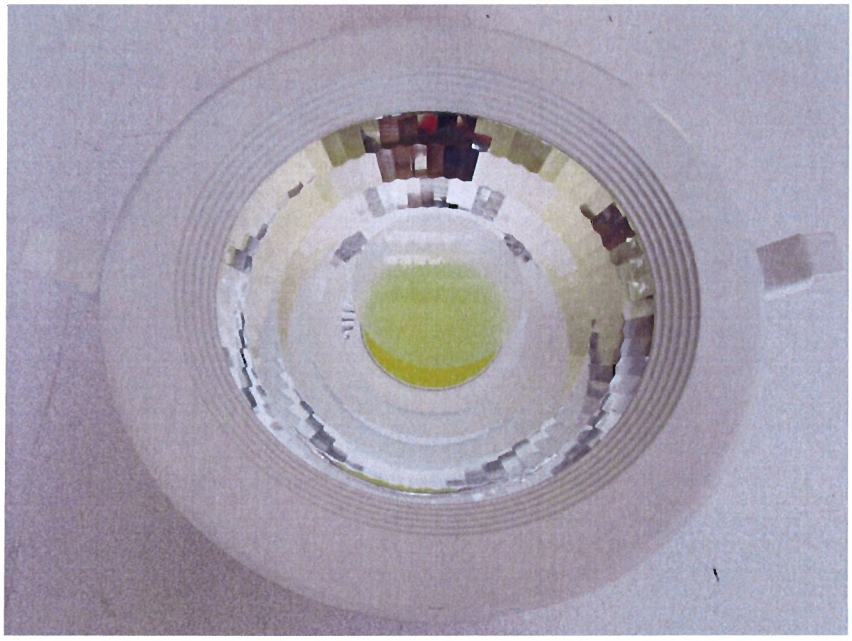
TECHNICAL REQUIREMENTS: BDS EN 60598-2-2:2012 Luminaires –
Part 2-2: Particular requirements - Recessed luminaries
BDS EN 60598-1:2008+A11:2009 Luminaires - Part 1: General requirements and tests

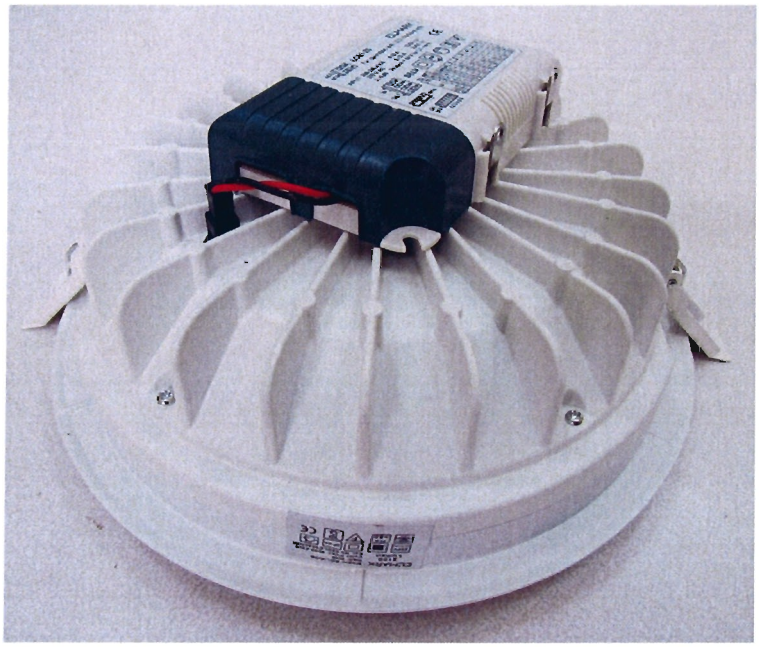
DATE OF TEST PERFORMANCE: 11.03.2015 - 03.04.2015

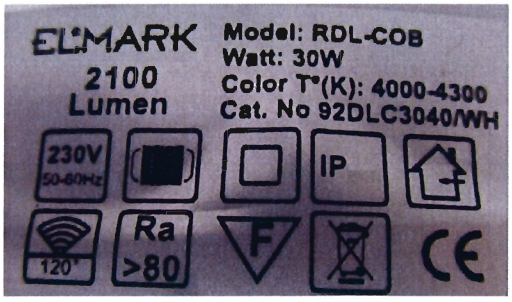
LABORATORY CHIFF :.....
/ T. Hristov /

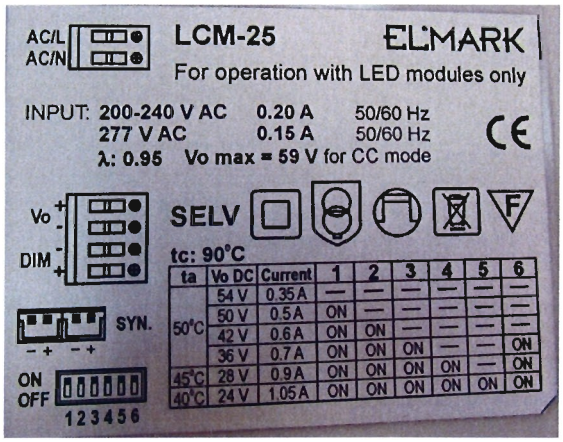
CENTER FOR TESTING AND EUROPEAN CERTIFICATION LTD. LABORATORY "MACHINES, EQUIPMENT AND DEVICES TESTING" STARA ZAGORA

Copy of identification table and/or photo of tested object









RESULTS OF TESTING:

Page 3 of 7 | **BDS EN 60598-1:2008+A11:2009** | **Test report : № 2e-15-036 / 06.04.2015**

№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
1.	**Mechanical strength:**	-	cl. 4.13	036	-	cl. 4.13	
1.1	Impact tests from spring hammer: - fragile parts - other parts	 N.m N.m	cl. 4.13.1	 036 036	 withstand 0,20	cl. 4.13.1 Table 4.3 0,20 0,35	-
2.	**Resistance to force and torque:**	-	cl. 4.13	036	-	cl. 4.13	
2.1	Mechanical load: - four times the weight - torque 2,5 Nm	min N N.m	cl. 4.14.1	036 036 036	- - -	cl. 4.14.1	-
2.2	Straight test finger	N	cl. 4.13.3	036	withstand 30	cl. 4.13.3 30	-
2.3	Lampholder	N	cl. 4.4.4 and cl.4.12.4	036	-	cl. 4.4.4 30	1 min
2.4	Screws	N.m	cl.4.12	036	withstand 2,5	cl.4.12 2,5	-
3.	**Creepage distances and clearances:**	-	cl. 11.2.1	036	-	cl. 11.2	-
3.1	Creepage distances for a.c. (50 Hz) sinusoidal voltages ≤ 250 V	mm mm mm	т. 11.2.1	036 036 036	> 5 > 6 > 8	Table11.1 Basic insulation ≥ 2,5 Supplementary insulation ≥ 2,5 Reinforced insulation ≥ 5	-
3.2	Clearances for a.c. (50 Hz) sinusoidal voltages ≤ 250 V	mm mm mm	т. 11.2.1	036 036 036	> 4 > 5 > 7	Table11.1 Basic insulation ≥ 2,5 Supplementary insulation ≥ 2,5 Reinforced insulation ≥ 5	-
4.	**Provision for earthing:**	-	cl. 7.2	036	-	cl. 7.2	-
4.1	Metal parts in contact with supporting surface	Ω	cl. 7.2.3	036	-	cl. 7.2.1 ≤ 0,5	10A 1 min
5.	**Resistance to tensile and torsional for power cords:**	-	cl. 5.2	036	-	cl. 5.2	-
5.1	Cord anchorage - pull - torque - displacement	 N N.m mm	cl. 5.2.10.3	 036 036 036	 - - -	cl. 5.2.10.1 Table 5.2 60 0,25 ≤ 2,0	

№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
6.	**Protection against electric shock**	N	cl. 8.2.5	036	withstand 10	cl. 8.2.1÷ cl. 8.2.4 10	-
7.	**Protection against residual voltages**	V	cl. 8.2.7	036	0	cl. 8.2.7 < 50	1 min
8.	**Heating / Temperature /**	-	cl. 12	036	-	cl. 12	-
8.1	Normal operation		cl. 12.4.1	036	Maximum temperature with LED P_n = 30 W	cl. 12.4.2 Table 12.1 ; 12.2	t=25°C U=1.06U_n
	Ballast	°C		036	57	≤ 90	
	Insulation of internal wiring	°C		036	51	≤ 90	
	Terminal blocks - Polyamide	°C		036	48	≤ 85	
8.2	Abnormal operation		cl. 12.5.1	036	-	cl. 12.5.2 Table 12.3	t=25°C U=1.1 U_n
9.	**Endurance test**	h	cl. 12.3.1	036	240	cl. 12.3.2 240	t=35°C U=1.1 U_n
10.	**Protection against ingress of foreign bodies and moisture resistance. (IP-code)**	-	cl. 9.2	036	withstand IP 20	≥IP 20	-
10.1	Protection against penetration of solid objects and dust	-	cl. 9.2.0	036	withstand IP 2X	IP 2X	10 N
10.2	Protection against penetration of harmful water	-	cl. 9.2.0	036	IP X0	IP X0	-
11.	**Humidity resistance**	h	cl. 9.3.1	036	withstand 48 see cl. 12 , cl.13 of test report	cl. 9.3 48	Rh=95% t=25°C

№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
12.	**Insulation resistance:**	-	cl. 10.2.1	036	-	cl. 10.2.1 Table 10.1	-
12.1	Between current-carrying parts of different polarity	MΩ	cl. 10.2.1	036	-	R > 2	1 min , 500 V
12.2	Between life parts and mounting surface	MΩ	cl. 10.2.1	036	R > 999	R > 2	1 min , 500 V
12.3	Between life parts and metal parts of luminaire	MΩ	cl. 10.2.1	036	R > 999	R > 2	1 min , 500 V
12.4	Basic insulation	MΩ	cl. 10.2.1	036	R > 999	R > 2	1 min , 500 V
12.5	Additional insulation	MΩ	cl. 10.2.1	036	R > 999	R > 3	1 min , 500 V
12.6	Double or reinforced insulation	MΩ	cl. 10.2.1	036	R > 999	R > 4	1 min , 500 V

13.	**Dielectric strenght of insulation** :	-	cl. 10.2.2	036	-	cl. 10.2.2 Table 10.2	-
13.1	Between current-carrying parts of different polarity	V	cl. 10.2.2	036	-	U(perf.) = 1460	1 min , 50 HZ
13.2	Between life parts and mounting surface	V	cl. 10.2.2	036	withstand U = 1460	U(perf.) = 1460	1 min , 50 HZ
13.3	Between life parts and metal parts of luminaire	V	cl. 10.2.2	036	withstand U = 1460	U(perf.) = 1460	1 min , 50 HZ
13.4	Basic insulation	V	cl. 10.2.2	036	withstand U = 1460	U(perf.) = 1460	1 min , 50 HZ
13.5	Additional insulation	V	cl. 10.2.2	036	withstand U = 1460	U(perf.) = 1460	1 min , 50 HZ
13.6	Double or reinforced insulation	V	cl. 10.2.2	036	withstand U = 2920	U(perf.) = 2920	1 min , 50 HZ

№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
14.	**Touch current,** **Protective conductor current**	mA mA	cl. 10.3	036 036	0,00 0,01	cl. 10.3 ≤ 0,7 ≤ 3,5	-
15.	**Resistance to heat /Resistance to abnormal heat – Ball pressure test method/**	mm	cl. 13.2.1	036	0,9	cl. 13.2 ≤ 2	t=125 °C 60 min
16.	**Resistance to flame and ignition**	-	cl. 13.3	036	-	cl. 13.3	-
16.1	Needle-flame test method	s	cl. 13.3.1	036	0	cl. 13.3.1 ≤ 30	-
16.2	Glow-wire flammability test method	°C	cl. 13.3.2	036	no ignition at 650 ° C	cl. 13.3.2 glow-wire (650 ± 10) °C for 30s	-
17.	**TRACKING TEST**	V	cl. 13.4	036	-	cl. 13.4 175	50 drops
18.	**PEAK PULSE VOLTAGE**	V	cl. 4.4.5	036	-	cl. 4.4.5 ≤ 5000 V	-

Used technical equipments:

№	Designation	Type	Manufacturer	Identification №	Date of last calibration
1.	Appliance multitester	CA6160	CHAUVIN ARNOUX France	16010173	21.03.2014
2.	Digital multimeter	UNIGOR 390	LEM- Austria	PI 3288	19.03.2014
3.	Climatic chamber	Alpha 990H	Design Environmental England	A3793	-
4.	Multi channel termoneter	MT100TD-16	Bulgaria	0418/2009	09.06.2014
5.	Digital gauge	-	China	090	31.10.2014
6.	Impact spring hammer tester	-	Bulgaria	011	21.07.2014
7.	Termometer-higrometer	177-H1	TESTO Germany	01320300/902	19.04.2012
8.	Testing finger with articulation	-	Bulgaria	№ 006	21.07.2014

TEST PERFORMER: 1.....
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2.....
/ D. Chavalinov /

HEAD OF LABORATORY:.....
/ T. Hristov /