



Center for Testing and European Certification

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

2, Industrialna Str., Stara Zagora, Bulgaria, www.ctec-sz.com
Tel.: +359 42 620 368 Fax: +359 42 602 377 e-mail:ctec_limsu@abv.bg



ИА "БСА"
Пер.№ 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-15-037 / 06.04.2015

OBJECT TO BE TESTED: Luminaire - LED lighting fixtures „PANEL” Model: LED PANEL ROUND, cat.№ 99LED621
Representative sample from fixtures group LED PANEL ROUND with cat. №: 99LED609;
99LED610; 99LED611;99LED612; 99LED613; 99LED614; 99LED615;99LED616; 99LED617;
99LED618; 99LED619;99LED620; 99LED622; 99LED623; 99LED624; 99LED625;99LED626;
99LED627; 99LED628;99LED629; 99LED630; 99LED631;
*(name of object 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 № 037/ 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)

MANUFACTURER: "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 – 240 V
Declared frequency 50-60 Hz
Declared power 30 W
Class II

ELECTRONIC CONTROLGEAR: LCM-40 ELMARK

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

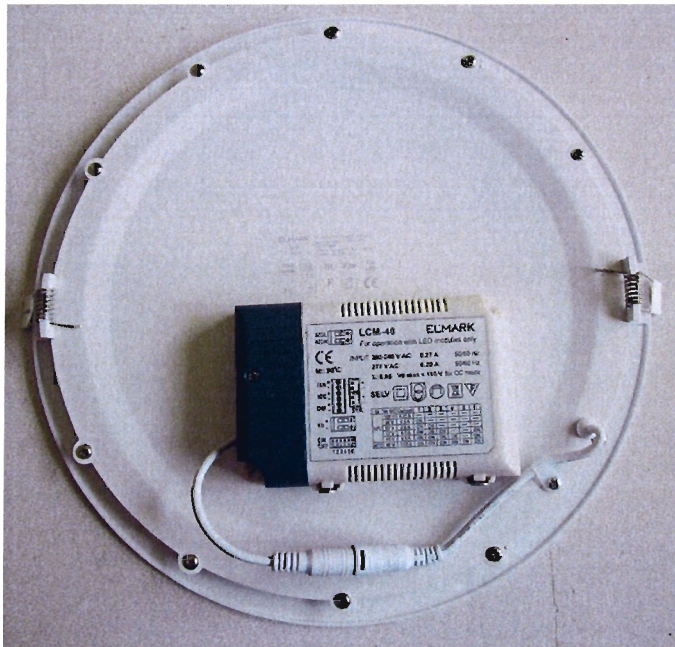
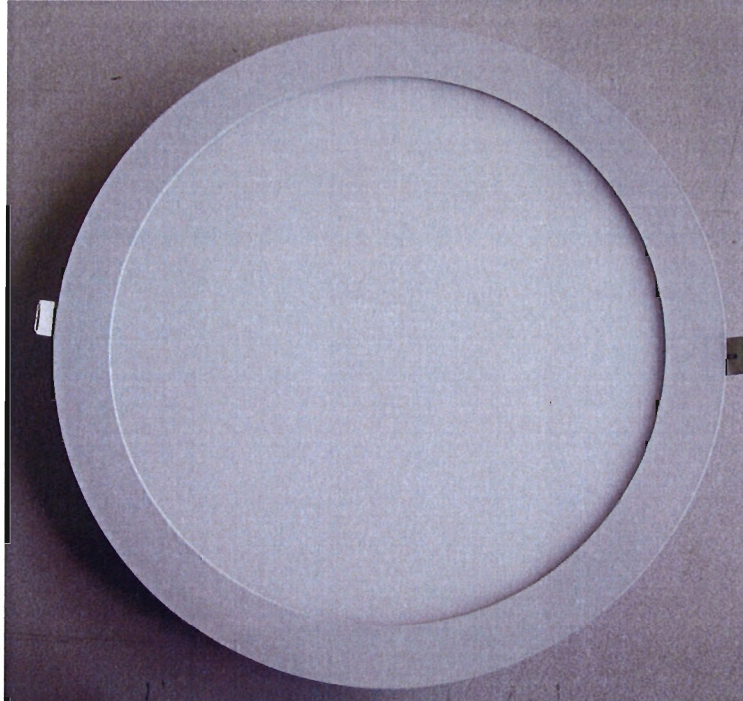
DATE OF TEST PERFORMANCE: 11.03.2015 - 03.04.2015

LABORATORY CHIEF :
/ T. Hristov /



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laboratory**

Copy of identification table and/or photo of tested object



ELMARK
LCM-40
For operation with LED modules only

AC/L AC/N

CE INPUT: 200-240 V AC 0.27 A 50/60 Hz
tc: 90°C 277 V AC 0.20 A 50/60 Hz
λ: 0.95 Vo max = 110 V for CC mode

FAN+ NTC+ DIM+ Vo+ ON OFF

SELV

ta	Vo DC	Current	1	2	3	4	5	6
50°C	100 V	0.35 A	—	—	—	—	—	—
	80 V	0.5 A	ON	—	—	—	—	—
	67 V	0.6 A	ON	ON	—	—	—	—
	57 V	0.7 A	ON	ON	ON	—	—	ON
40°C	45 V	0.9 A	ON	ON	ON	ON	—	ON
	40 V	1.05 A	ON	ON	ON	ON	ON	ON

1 2 3 4 5 6

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RESULTS OF TESTING:

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BDS EN 60598-1:2008+A11:2009

Test report : № 2e-15-037 / 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	037	-	cl. 4.13	
1.1	Impact tests from spring hammer: - fragile parts - other parts	N.m N.m	cl. 4.13.1	037 037	withstand 0,20 0,35	cl. 4.13.1 Table 4.3 0,20 0,35	-
2.	Resistance to force and torque:	-	cl. 4.13	037	-	cl. 4.13	
2.1	Mechanical load: - four times the weight - torque 2,5 Nm	min N N.m	cl. 4.14.1	037 037 037	- - -	cl. 4.14.1	-
2.2	Straight test finger	N	cl. 4.13.3	037	withstand 30	cl. 4.13.3 30	-
2.3	Lampholder	N	cl. 4.4.4 and cl.4.12.4	037	-	cl. 4.4.4 30	1 min
2.4	Screws	N.m	cl.4.12	037	withstand 2,5	cl.4.12 2,5	-
3.	Creepage distances and clearances:	-	cl. 11.2.1	037	-	cl. 11.2	-
3.1	Creepage distances for a.c. (50 Hz) sinusoidal voltages ≤ 250 V	mm mm mm	T. 11.2.1	037 037 037	> 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	T. 11.2.1	037 037 037	> 4 > 5 > 7	Table11.1 Basic insulation ≥ 2,5 Supplementary insulation ≥ 2,5 Reinforced insulation ≥ 5	-
4.	Provision for earthing:	-	cl. 7.2	037	-	cl. 7.2	-
4.1	Metal parts in contact with supporting surface	Ω	cl. 7.2.3	037	-	cl. 7.2.1 ≤ 0,5	10A 1 min
5.	Resistance to tensile and torsional for power cords:	-	cl. 5.2	037	-	cl. 5.2	-
5.1	Cord anchorage - pull - torque - displacement	N N.m mm	cl. 5.2.10.3	037 037 037	- - -	cl. 5.2.10.1 Table 5.2 60 0,25 ≤ 2,0	-

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№	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	037	withstand 10	cl. 8.2.1÷ cl. 8.2.4 10	-
7.	Protection against residual voltages	V	cl. 8.2.7	037	0	cl. 8.2.7 < 50	1 min
8.	Heating / Temperature /	-	cl. 12	037	-	cl. 12	-
8.1	Normal operation		cl. 12.4.1	037	Maximum temperature with LED $P_n = 30$ W	cl. 12.4.2 Table 12.1 ; 12.2	$t=25^{\circ}\text{C}$ $U=1.06U_n$
	Ballast	$^{\circ}\text{C}$		037	50	≤ 90	
	Insulation of internal wiring	$^{\circ}\text{C}$		037	42	≤ 90	
	Terminal blocks - Polyamide	$^{\circ}\text{C}$		037	43	≤ 85	
8.2	Abnormal operation		cl. 12.5.1	037	-	cl. 12.5.2 Table 12.3	$t=25^{\circ}\text{C}$ $U=1.1 U_n$
9.	Endurance test	h	cl. 12.3.1	037	240	cl. 12.3.2 240	$t=35^{\circ}\text{C}$ $U=1.1 U_n$
10.	Protection against ingress of foreign bodies and moisture resistance. (IP-code)	-	cl. 9.2	037	withstand IP 20	$\geq \text{IP } 20$	-
10.1	Protection against penetration of solid objects and dust	-	cl. 9.2.0	037	withstand IP 2X	IP 2X	10 N
10.2	Protection against penetration of harmful water	-	cl. 9.2.0	037	IP X0	IP X0	-
11.	Humidity resistance	h	cl. 9.3.1	037	withstand 48 see cl. 12 , cl.13 of test report	cl. 9.3 48	$\text{Rh}=95\%$ $t=25^{\circ}\text{C}$

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BDS EN 60598-1:2008+A11:2009

Test report : № 2e-15-037 / 06.04.2015

№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
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12.	Insulation resistance:	-	cl. 10.2.1	037	-	cl. 10.2.1 Table 10.1	-
12.1	Between current-carrying parts of different polarity	MΩ	cl. 10.2.1	037	-	R > 2	1 min , 500 V
12.2	Between life parts and mounting surface	MΩ	cl. 10.2.1	037	R > 999	R > 2	1 min , 500 V
12.3	Between life parts and metal parts of luminaire	MΩ	cl. 10.2.1	037	R > 999	R > 2	1 min , 500 V
12.4	Basic insulation	MΩ	cl. 10.2.1	037	R > 999	R > 2	1 min , 500 V
12.5	Additional insulation	MΩ	cl. 10.2.1	037	R > 999	R > 3	1 min , 500 V
12.6	Double or reinforced insulation	MΩ	cl. 10.2.1	037	R > 999	R > 4	1 min , 500 V

13.	Dielectric strenght of insulation :	-	cl. 10.2.2	037	-	cl. 10.2.2 Table 10.2	-
13.1	Between current-carrying parts of different polarity	V	cl. 10.2.2	037	-	U(perf.) = 1480	1 min , 50 HZ
13.2	Between life parts and mounting surface	V	cl. 10.2.2	037	withstand U = 1480	U(perf.) = 1480	1 min , 50 HZ
13.3	Between life parts and metal parts of luminaire	V	cl. 10.2.2	037	withstand U = 1480	U(perf.) = 1480	1 min , 50 HZ
13.4	Basic insulation	V	cl. 10.2.2	037	withstand U = 1480	U(perf.) = 1480	1 min , 50 HZ
13.5	Additional insulation	V	cl. 10.2.2	037	withstand U = 1480	U(perf.) = 1480	1 min , 50 HZ
13.6	Double or reinforced insulation	V	cl. 10.2.2	037	withstand U = 2960	U(perf.) = 2960	1 min , 50 HZ

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№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
14.	Touch current,	mA	cl. 10.3	037	0,00	cl. 10.3 ≤ 0,7	-
	Protective conductor current	mA		037	0,02	≤ 3,5	
15.	Resistance to heat /Resistance to abnormal heat – Ball pressure test method/	mm	cl. 13.2.1	037	0,9	cl. 13.2 ≤ 2	t=125 °C 60 min
16.	Resistance to flame and ignition	-	cl. 13.3	037	-	cl. 13.3	-
16.1	Needle-flame test method	s	cl. 13.3.1	037	0	cl. 13.3.1 ≤ 30	-
16.2	Glow-wire flammability test method	°C	cl. 13.3.2	037	no ignition at 650 ° C	cl. 13.3.2 glow-wire (650 ± 10) °C for 30s	-
17.	TRACKING TEST	V	cl. 13.4	037	-	cl. 13.4 175	50 drops
18.	PEAK PULSE VOLTAGE	V	cl. 4.4.5	037	-	cl. 4.4.5 ≤ 5000 V	-

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Used technical equipments:

№	Designation	Type	Manufacturer	Identification №	Date of last calibration
1.	Appliance multimeter	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 thermometer	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.	Thermometer-hygrometer	177-H1	TESTO Germany	01320300/902	19.04.2012
8.	Testing finger with articulation	-	Bulgaria	№ 006	21.07.2014

TEST PERFORMER: 1.....
/ T. Hristov /



2.....
/ D. Chavalinov /

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