



**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

**Accredited certificate**  
№ 101 ЛИ / 10.05.2010  
Valid until: 31.05.2014  
of EA BAS, according  
EN ISO/IEC 17025

## TEST REPORT

№ 2ea-13-664 / 18.06.2013

**OBJECT TO BE TESTED:** Group luminaries – Industrial lighting "Floodlights" cat. № 98AT 105110SCH  
Representative sample from Industrial lighting "Floodlights" group with cat. №:  
98AT 45101SCH; 98AT 45102SCH; 98AT 45103SCH; 98AT 45104SCH; 98AT 105109SCH;  
98AT 105110SCH; 98AT 505111SCH; 98AT 505112SCH  
*(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 № 664 / 08.05.2013  
*(name of the firm – applicant, address, telephone, number and date of the test application)*

**METHOD OF TEST :** 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:** 08.05.2013

**CODE OF THE OBJECT:** 1 piece , year of production 2013  
*(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 TECHNICAL DATA:** Rated voltage – 230 V  
Rated frequency – 50 Hz  
Rated power – 400 W  
Class I  
Degree of protection – IP 65

**DATE OF TEST PERFORMANCE :** 20.05.2013 – 18.06.2013

**LABORATORY CHIEF :** .....

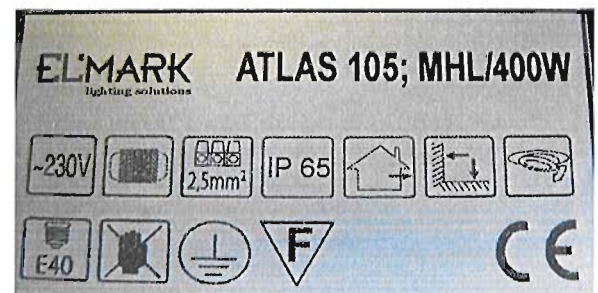
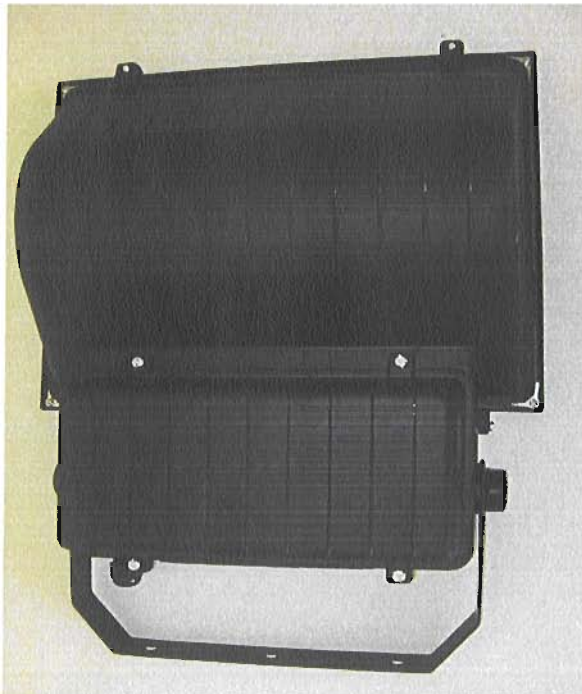
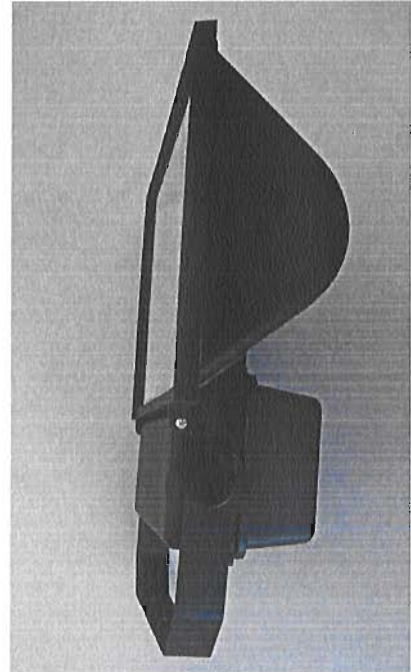
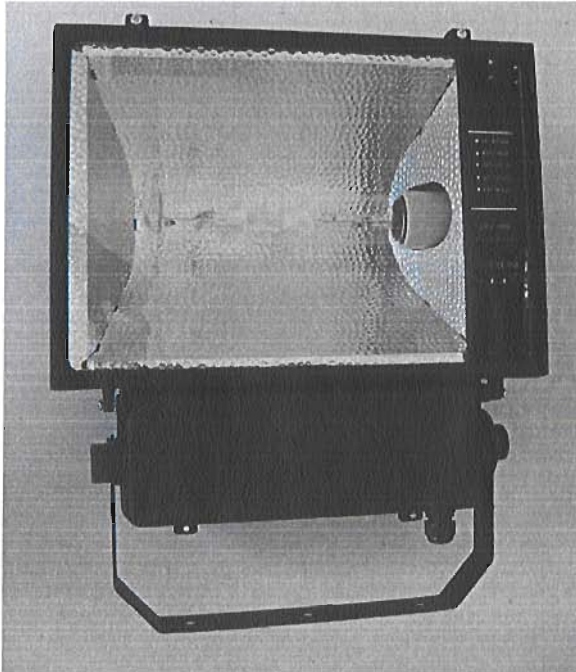
/ T. Hristov



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Copy of identification table and/or photo of tested object



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**RESULTS OF TESTING:**

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EN 60598-1:2008+A11:2009

Test report : № 2ea-13-664 / 18.06.2013

№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
<b>1.</b>	<b>Mechanical strength:</b>	-	cl. 4.13	664	-	cl. 4.13	
1.1	Mechanical load: - four times the weight - torque 2,5 Nm	min N N.m	cl. 4.14.1	664 664 664	60 330 2,5	cl. 4.14.1 60 330 2,5	-
1.2	Impact tests: - fragile parts - other parts	N.m N.m	cl. 4.13.1	664 664	0,50 0,70	cl. 4.13.1 Table 4.3 0,50 0,70	-
1.3	Straight test finger	N	cl. 4.13.3	664	30	cl. 4.13.3 30	-
1.4	Lampholder- torque	N.m	cl. 4.4.4 и cl.4.12.4	-	4	T. 4.4.4 ;T.4.12.4 4	1 min
<b>2.</b>	<b>CREEPAGE DISTANCES AND CLEARANCES:</b>	-	cl. 11.2.1	664	-	cl. 11.2	-
2.1	Creepage distances for a.c. (50 Hz) sinusoidal voltages ≤ 250 V	mm	cl. 11.2.1	664	6	Table11.1 Basic Insulation ≥ 2,5	-
2.2	Clearances for a.c. (50 Hz) sinusoidal voltages ≤ 250 V	mm	cl. 11.2.1	664	4	Table11.1 Basic insulation ≥ 1,7	-
<b>3.</b>	<b>PROVISION FOR EARTHING:</b>	-	cl. 7.2	664	-	cl. 7.2	-
3.1	Metal parts in contact with supporting surface	Ω	cl. 7.2.3	664	0,03	cl. 7.2.1 ≤ 0,5	10A 1 min
<b>4.</b>	<b>SUPPLY CONNECTION AND EXTERNAL WIRING:</b>	-	cl. 5.2	664	-	cl. 5.2	-
4.1	Cord anchorage - pull - torque - displacement	N N.m mm	cl. 5.2.10.3	664 664 664	60 0,25 0,5	cl. 5.2.10.1 Table 5.2 60 0,25 ≤ 2,0	-

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*M. D.*



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№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
<b>5.</b>	<b>INTERNAL WIRING:</b>	-	cl. 5.3	664	-	cl. 5.3	-
5.1	Cross-sectional area	mm <sup>2</sup>	cl. 5.3.1	664	0,75	cl. 5.3.1 ≥ 0,5	-
<b>6.</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK</b>	-	cl. 8	664	-	cl. 8	-
6.1	Live parts not accessible	N	cl. 8.2.5	664	10	cl. 8.2.1+ cl. 8.2.4 10	-
6.2	Discharging of capacitors	V	cl. 8.2.7	664	0	cl. 8.2.7 < 50	-
<b>7.</b>	<b>Thermal test</b>	-	cl. 12	664	-	cl. 12	-
7.1	Normal operation		cl. 12.4.1	664	Maximum temperature with MHL P <sub>n</sub> = 400 W	cl. 12.4.2 Table 12.1 ; 12.2	t=25°C U=1.06U <sub>n</sub>
	Winding in ballast	°C		664	97	≤ 130	
	Lamp cap	°C		664	129	≤ 210	
	Insulation of internal wiring - silicone	°C		664	113	≤ 200	
	Case of starting device	°C		664	82	≤ 105	
	Case of capacitor	°C		664	78	≤ 85	
	Terminal blocks	°C		664	76	≤ 120	
	Rubber gasket	°C		664	102	≤ 230	
7.2	Abnormal operation		cl. 12.5.1	664	-	cl. 12.5.2 Table 12.3	t=25°C U=1.1 U <sub>n</sub>
<b>8.</b>	<b>ENDURANCE TEST</b>	h	cl. 12.3.1	664	240	cl. 12.3.2 240	t=35°C U=1.1 U <sub>n</sub>
<b>9.</b>	<b>PROTECTION OF DUST AND MOISTURE</b>	-	cl. 9	664	IP 65	≥ IP 23	-
9.1	Protection against penetration of solid objects and dust	-	cl. 9.2.2	664	IP 6X	IP 6X	3 h
9.2	Protection against penetration of harmful water	-	cl. 9.2.6	664	IP X5	IP X5	3 min 12,5 l/m <sup>2</sup>

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Test report : № 2ea-13-664 / 18.06.2013

№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
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10.	<b>HUMIDITY TEST</b>	h	cl. 9.3.1	664	48	cl. 9.3 48	Rh=95% t=25°C
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11.	<b>INSULATION RESISTANCE:</b>	-	cl. 10.2.1	664	-	cl. 10.2.1 Table 10.1	-
11.1	Between current-carrying parts of different polarity	MΩ	cl. 10.2.1	664	R > 999	R > 2	1 min , 500 V
11.2	Between life parts and mounting surface	MΩ	cl. 10.2.1	664	R > 999	R > 2	1 min , 500 V
11.3	Between life parts and metal parts of luminaire	MΩ	cl. 10.2.1	664	R > 999	R > 2	1 min , 500 V
11.4	Basic insulation	MΩ	cl. 10.2.1	664	R > 999	R > 2	1 min , 500 V
11.5	Additional insulation	MΩ	cl. 10.2.1	664	-	R > 3	1 min , 500 V
11.6	Double or reinforced insulation	MΩ	cl. 10.2.1	664	-	R > 4	1 min , 500 V

12.	<b>DIELECTRIC STRENGTH OF INSULATION :</b>	-	cl. 10.2.2	664	-	cl. 10.2.2 Table 10.2	-
12.1	Between current-carrying parts of different polarity	V	cl. 10.2.2	664	U = 1460	U(perf.) = 1460	1 min , 50 HZ
12.2	Between life parts and mounting surface	V	cl. 10.2.2	664	U = 1460	U(perf.) = 1460	1 min , 50 HZ
12.3	Between life parts and metal parts of luminaire	V	cl. 10.2.2	664	U = 1460	U(perf.) = 1460	1 min , 50 HZ
12.4	Basic insulation	V	cl. 10.2.2	664	U = 1460	U(perf.) = 1460	1 min , 50 HZ
12.5	Additional insulation	V	cl. 10.2.2	664	not apply	U(perf.) = 2210	1 min , 50 HZ
12.6	Double or reinforced insulation	V	cl. 10.2.2	664	not apply	U(perf.) = 3670	1 min , 50 HZ

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Test report : № 2ea-13-664 / 18.06.2013

№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
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13.	<b>TOUCH CURRENT, PROTECTIVE CONDUCTOR CURRENT</b>	mA	cl. 10.3	664	0,01	cl. 10.3 ≤ 0,7	-
		mA		664	0,05	≤ 3,5	

14.	<b>RESISTANCE TO HEAT Ball-pressure test</b>	mm	cl. 13.2.1	664	1,2	cl. 13.2 ≤ 2	t=125 °C 60 min
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15.	<b>RESISTANCE TO FIRE</b>	-	cl. 13.3	664	-	cl. 13.3	-
15.1	Needle flame test	s	cl. 13.3.1	664	0	cl. 13.3.1 ≤ 30	-
15.2	Glow-wire test	°C	cl. 13.3.2	664	650	cl. 13.3.2 650	30s 200mm

16.	<b>TRACKING TEST</b>	V	cl. 13.4	664	175	cl. 13.4 175	50 drops
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17.	<b>PEAK PULSE VOLTAGE</b>	V	cl. 4.4.5	664	4200	cl. 4.4.5 ≤ 5000 V	-
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**EN 60598-2-5:1998**

18.	<b>Mechanical load:</b> - four times the weight - torque	min N N.m	cl. 5.6.5	664	60 330 2,5	cl. 5.6.5 60 330 2,5	-
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19.	<b>Static load test</b>	min kN/m <sup>2</sup>	cl. 5.6.5	664 664	10 2.4	cl. 5.6.5 10 2.4	
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**Used technical equipments:**

№	Designation	Type	Manufacturer	Identification №	Date of last calibration
1.	Appliance multitester	CA6160	CHAUVIN ARNOUX France	№ 109096DBH/ 16010173	08.07.2011
2.	Digital multimeter	UNIGOR 390	LEM- Austria	PI 3288	08.07.2011
3.	Climatic chamber	Alpha 990H	Design Environmental England	A3793	-
4.	Multi channel thermometer	MT100TD-16	Bulgaria	0420	06.12.2011
5.	Digital gauge	-	China	090	31.10.2012
6.	Impact spring hammer tester	-	Bulgaria	011	21.07.2011
7.	Thermometer-hygrometer	177-H1	TESTO Germany	01320300/902	19.04.2012
8.	Testing finger with articulation	-	Bulgaria	№ 006	21.07.2011
9.	Tester for protection against water stream with internal diameter 6,3 mm	-	HI-HMC, Bulgaria	№ 004	21.07.2011
10.	Dusting testing chamber	Heraeus VOTSCH	Germany	№ 23870	21.07.2011

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

2.....  
/ D. Chavrilov /

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

