CENTER FOR TESTING AND EUROPEAN CERTIFICATION LTD
2, Industrialna Str., Stara Zagora, 6000, Bulgaria,
Tel.: +359 42 630476; +359 42 620368; Fax:+359 42 602377;
www.ctec-sz.com e-mail: ctec@ ctec-sz.com

LABORATORY FOR TESTING OF MACHINERY, EQUIPMENT AND DEVICES
Certificate of accreditation № 101 ЛИ / 26.11.2018, valid until: 26.11.2022
Issued by EA BAS, in accordance with the requirements of BDS EN ISO/IEC 17025:2006

ИА "БСА" Рег.№ 101 ЛИ
ЛАБОРАТОРИЯ ЗА ИЗПИТВАНЕ

TEST REPORT

№ 2e-19-131 / 30.10.2019

OBJECT TO BE TESTED: Luminaries. Lighting fixture type Tri-Proof
Model: LED Tri-Proof 50 W 4000K, Ref.№ 983050140040044
Model representative of luminaries: LED Tri-Proof 23 W 4000K, LED Tri-Proof 29 W 4000K, LED Tri-Proof 37 W 4000K, LED Tri-Proof 23 W 6500K, LED Tri-Proof 29 W 6500K, LED Tri-Proof 37 W 6500K, LED Tri-Proof 50 W 6500K, LED Tri-Proof 23 W 3000K, LED Tri-Proof 29 W 3000K, LED Tri-Proof 37 W 3000K, LED Tri-Proof 50 W 3000K
(name of obejct to be tested , type, model, quantity, type – portable, fixed, for walling in and other)

APPLICANT FOR TEST: "Electrostart" JSCo. 3540 Varshets, 2 Republika Blvd.,
Tel.: +359 2 400 7011, fax: + 359 2 400 7012;
Application № 131/ 03.07.2019
(name of the firm – applicant, address, telephone, number and date of the test application)

METHOD OF TEST : BDS EN 60598-1:15+AC:15+AC:16+A1:18 Luminaires - Part 1: General requirements and tests
(number and name of the standards)

DATE OF ACCEPTANCE IN THE TEST LABORATORY: 03.07.2019

CODE OF THE OBJECT: 1 piece, ref.№ 983050140040044, year of production 2019
(identification number , year of production)

MANUFACTURER: "Electrostart" JSCo. 3540 Varshets, 2 Republika Blvd.,
Tel.: +359 2 400 7011, fax: + 359 2 400 7012
(firm, trade mark, address)

DECLARED TECHNICAL DATA:
Rated voltage – 200-240 V AC
Rated frequency – 50-60 Hz
Rated power – 50W
Class I
Maximum ambient temperature t_a=35°C
Degree of protection IP65

ELECTRONIC CONTROLGEAR: Electrostart LED-450-54PWNI, ref.№ 980054045003404

TECHNICAL REQUIREMENTS: BDS EN 60598-1:2015+AC:2015+AC:2016+A1:2018 Luminaires – Part 1: General requirements and tests
BDS EN 60598-2-1:2002 Luminaires – Part 2-1: Particular requirements – Fixed general purpose luminaires

DATE OF TEST PERFORMANCE : 18.07.2019 – 09.08.2019

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

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

The results showed in present certificate concern tested sample only
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RESULTS OF TESTING:

Page 3 of 7 **BDS EN 60598-1:15+AC:15+AC:16+A1:18** **Test report : № 2e-19-131 / 30.10.2019**

№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
1.	**Mechanical strength:**	-	cl. 4.13	131	-	cl. 4.13	
1.1	Impact tests from spring hammer: - fragile parts - other parts	N.m N.m	cl. 4.13.1	131 131	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	131	-	cl. 4.13	
2.1	Mechanical load: - four times the weight - torque 2,5 Nm	min N N.m	cl. 4.14.1	131 131 131	withstand 60 73 2,5	cl. 4.14.1 60 73 2,5	-
2.2	Straight test finger	N	cl. 4.13.3	131	withstand 30	cl. 4.13.3 30	-
2.3	Lampholder	N	cl. 4.4.4 and cl.4.12.4	131	-	cl. 4.4.4	1 min
2.4	Screws	N.m	cl.4.12	131	withstand 1,2 N.m for M4	cl.4.12 1,2 N.m	-
3.	**Creepage distances and clearances:**	-	cl. 11.2.1	131	-	cl. 11.2	-
3.1	Creepage distances for a.c. (50 Hz) sinusoidal voltages ≤ 250 V	mm	cl. 11.2.1	131	6	Table11.1 Basic insulation ≥ 2,5	-
3.2	Clearances for a.c. (50 Hz) sinusoidal voltages ≤ 250 V	mm	cl. 11.2.1	131	4	Table11.1 Basic insulation ≥ 1,5	-

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№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
4.	**Provision for earthing:**	-	cl. 7.2	131	-	cl. 7.2	-
4.1	Metal parts in contact with supporting surface	Ω	cl. 7.2.3	131	0,04	cl. 7.2.1 ≤ 0,5	10A 1 min
5.	**Resistance to tensile and torsional for power cords:**	-	cl. 5.2	131	-	cl. 5.2	-
5.1	Cord anchorage - pull - torque - displacement	 N N.m mm	cl. 5.2.10.3	 131 131 131	 - --	 cl. 5.2.10.1 Table 5.2	-
6.	**Protection against electric shock**	N	cl. 8.2.5	131	withstand 10	cl. 8.2.1÷ cl. 8.2.4 10	-
7.	**Protection against residual voltages**	V	cl. 8.2.7	131	0	cl. 8.2.7 < 50	1 min
8.	**Heating / Temperature /**	-	cl. 12	131	-	cl. 12	-
8.1	Normal operation		cl. 12.4.1	131	Maximum temperature with LED P_n = 50 W	cl. 12.4.2 Table 12.1 ; 12.2	t=t_a=35°C U=1,06U_n =254,4 V
	Case of controlgear	°C		131	69	≤ 75	
	Insulation of internal wiring	°C		131	64	≤ 90	
	Terminal blocks	°C		131	60	≤ 120	
	Rubber gasket	°C		131	55	≤ 70	
	Mounting surface	°C		131	51	≤ 90	
8.2	Abnormal operation		cl. 12.5.1	131	-	cl. 12.5.2 Table 12.3	t=t_a=35°C U=1,1 U_n =254,4 V
	Mounting surface	°C		131	52	≤ 130	
9.	**Endurance test**	h	cl. 12.3.1	131	withstand 240	cl. 12.3.2 240	t= t_a+10=45°C U=1,1 U_n =264 V
10.	**Degrees of protection provided by enclosures (IP code)**	-	cl. 9.2 BDS EN 60529+A1:04 cl.13.6 cl.14.2.5	131	withstand IP 65	cl. 3.6.1 of BDS EN 60598-2-3:2003 ≥IP 23	-
10.1	Protection against penetration of solid objects and dust	-	cl. 9.2.2 BDS EN 60529+A1:04 cl.13.6	131	withstand IP 6X	IP 6X	2 kPa 2 h
10.2	Protection against penetration of harmful water		т. 9.2.6 BDS EN 60529+A1:04 cl.14.2.5	131	withstand IP X5 see cl. 12 , cl.13 of test report	IP X5	15 min. 12,5 l/min
11.	**Humidity resistance**	h	cl. 9.3.1	131	withstand 48 see cl. 12 , cl.13 of test report	cl. 9.3 48	Rh=95% t=25°C

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№	Factor name	Units	Standard method	№ of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
12.	**Insulation resistance:**	-	cl. 10.2.1	131	-	cl. 10.2.1 Table 10.1	-
12.1	Between current-carrying parts of different polarity	MΩ	cl. 10.2.1	131	-	R > 2	1 min , 500 V
12.2	Between life parts and mounting surface	MΩ	cl. 10.2.1	131	R > 999	R > 2	1 min , 500 V
12.3	Between life parts and metal parts of luminaire	MΩ	cl. 10.2.1	131	R > 999	R > 2	1 min , 500 V
12.4	Basic insulation	MΩ	cl. 10.2.1	131	R > 999	R > 2	1 min , 500 V
12.5	Additional insulation	MΩ	cl. 10.2.1	131	-	R > 3	1 min , 500 V
12.6	Double or reinforced insulation	MΩ	cl. 10.2.1	131	-	R > 4	1 min , 500 V
13.	**Dielectric strenght of insulation :**	-	cl. 10.2.2	131	-	cl. 10.2.2 Table 10.2	-
13.1	Between current-carrying parts of different polarity	V	cl. 10.2.2	131	-	U(perf.) = 1480	1 min , 50 HZ
13.2	Between life parts and mounting surface	V	cl. 10.2.2	131	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	131	withstand U = 1480	U(perf.) = 1480	1 min , 50 HZ
13.4	Basic insulation	V	cl. 10.2.2	131	withstand U = 1480	U(perf.) = 1480	1 min , 50 HZ
13.5	Additional insulation	V	cl. 10.2.2	131	-	U(perf.) = 1480	1 min , 50 HZ
13.6	Double or reinforced insulation	V	cl. 10.2.2	131	-	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,** **Protective conductor current**	mA mA	cl. 10.3	131 131	0,14 0,17	cl. 10.3 ≤ 0,7 ≤ 3,5	-
15.	**Resistance to heat /Resistance to abnormal heat – Ball pressure test method/**	mm	cl. 13.2.1	131	0,8	cl. 13.2 ≤ 2	t=125 °C 60 min
16.	**Resistance to flame and ignition**	-	cl. 13.3	131	-	cl. 13.3	-
16.1	Needle-flame test method	s	cl. 13.3.1	131	0	cl. 13.3.1 ≤ 30	-
16.2	Glow-wire flammability test method	°C	cl. 13.3.2	131	no ignition at 650 ° C	cl. 13.3.2 glow-wire (650 ± 10) °C for 30s	-
17.	**Tracking test**	V	cl. 13.4	131	withstand 175 V without ignition and leakage currents > 0,5 A	cl. 13.4 175	50 drops
18.	**Peak pulse voltage**	V	cl. 4.4.5	131	-	cl. 4.4.5 ≤ 5000 V	-

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Used technical equipments:

№	Designation	Type	Manufacturer	Identification №	Date of last calibration
1.	Appliance multitester	CA6160	CHAUVIN ARNOUX France	16010173	20.03.2017
2.	Digital multimeter	UNIGOR 390	LEM- Austria	PI 3288	20.03.2017
3.	Microhmmeter	C.A 6250	CHAUVIN ARNOUX France	1811ST030731A	20.03.2017
4.	Climatic chamber	Alpha 990H	Design Environmental England	A3793	-
5.	Multi channel termoneter	MT100TD-16	Bulgaria	0418/2009	09.06.2017
6.	Digital gauge	-	China	090	23.10.2017
7.	Impact spring hammer tester	-	Bulgaria	011	21.07.2017
8.	Termometer-higrometer	177-H1	TESTO Germany	01320300/902	17.04.2018
9.	Testing finger with articulation	-	Bulgaria	№ 006	21.07.2017
10.	Dusting testing chamber	Heraeus VOTSCH	Germany	№ 23870	21.07.2017
11.	Tester for protection against water stream with internal diameter 6,3 mm	-	HI-HMC, Bulgaria	№ 004	21.07.2017

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

2.....
/ D. Chavalinov /

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

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