


CENTER FOR TESTING AND EUROPEAN CERTIFICATION LTD

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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



TEST REPORT

№ 2e-19-130 / 30.10.2019

OBJECT TO BE TESTED: Luminaries. Lighting fixture type LED Edge panel,
Model: LED Edge 48W PMMA 100lm/W 6500K, Ref.№ 981148100064091
Model representative of luminaries – see page 2
*(name of object 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 № 130/ 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.№ 981148100064091, 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 – 220-240 V AC
Rated frequency – 50-60 Hz
Rated power – 48 W
Class II
Maximum ambient temperature $t_a=40^{\circ}\text{C}$
Degree of protection IP40 below

ELECTRONIC CONTROLGEAR: Electrostart 50W LED Driver 1200mA, ref.№ 170200000000034

TECHNICAL REQUIREMENTS: BDS EN 60598-1:2015+AC:2015+AC:2016+A1:2018 Luminaires –
Part 1: General requirements and tests
BDS EN 60598-2-2:2012 Luminaires - Part 2-2: Particular requirements
Recessed luminaires

DATE OF TEST PERFORMANCE : 18.07.2019 – 09.08.2019

THE HEAD OF LABORATORY:

/ T. Hristov



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**List of models from the LED Edge panel series,
the representative of which is LED Edge 48W PMMA 100lm/W 6500K, Ref.№ 981148100064091**

LED Edge 36W PMMA 100lm/W 3000K	Ref.№ 981136100034004
LED Edge 36W PMMA 100lm/W 3000K UGR	Ref.№ 981136100134001
LED Edge 36W PMMA 100lm/W 4000K	Ref.№ 981136100044016
LED Edge 36W PMMA 100lm/W 4000K UGR	Ref.№ 981136100144013
LED Edge 36W PMMA 100lm/W 6500K	Ref.№ 981136100064090
LED Edge 36W PMMA 100lm/W 6500K UGR	Ref.№ 981136100164025
LED Edge 36W PS 100lm/W 3000K	Ref.№ 981136100032005
LED Edge 36W PS 100lm/W 3000K UGR	Ref.№ 981136100132002
LED Edge 36W PS 100lm/W 4000K	Ref.№ 981136100042017
LED Edge 36W PS 100lm/W 4000K UGR	Ref.№ 981136100142014
LED Edge 36W PS 100lm/W 6500K	Ref.№ 981136100062029
LED Edge 36W PS 100lm/W 6500K UGR	Ref.№ 981136100162026
LED Edge 36W PS 80lm/W 3000K	Ref.№ 981136080032006
LED Edge 36W PS 80lm/W 3000K UGR	Ref.№ 981136080132003
LED Edge 36W PS 80lm/W 4000K	Ref.№ 981136080042018
LED Edge 36W PS 80lm/W 4000K UGR	Ref.№ 981136080142015
LED Edge 36W PS 80lm/W 6500K	Ref.№ 981136080062030
LED Edge 36W PS 80lm/W 6500K UGR	Ref.№ 981136080162027
LED Edge 40W PMMA 100lm/W 3000K	Ref.№ 981140100034007
LED Edge 40W PMMA 100lm/W 3000K UGR	Ref.№ 981140100134092
LED Edge 40W PMMA 100lm/W 4000K	Ref.№ 981140100044019
LED Edge 40W PMMA 100lm/W 4000K UGR	Ref.№ 981140100144088
LED Edge 40W PMMA 100lm/W 6500K	Ref.№ 981140100064031
LED Edge 40W PMMA 100lm/W 6500K UGR	Ref.№ 981140100144093
LED Edge 40W PS 100lm/W 3000K	Ref.№ 981140100032008
LED Edge 40W PS 100lm/W 3000K UGR	Ref.№ 981140100132098
LED Edge 40W PS 100lm/W 4000K	Ref.№ 981140100042020
LED Edge 40W PS 100lm/W 4000K UGR	Ref.№ 981140100142089
LED Edge 40W PS 100lm/W 6500K	Ref.№ 981140100062032
LED Edge 40W PS 100lm/W 6500K UGR	Ref.№ 981140100162094
LED Edge 40W PS 80 lm/W 3000K UGR	Ref.№ 981140080132095
LED Edge 40W PS 80 lm/W 4000K UGR	Ref.№ 981140080142096
LED Edge 40W PS 80 lm/W 6500K UGR	Ref.№ 981140080162097
LED Edge 40W PS 80lm/W 3000K	Ref.№ 981140080032009
LED Edge 40W PS 80lm/W 4000K	Ref.№ 981140080042021
LED Edge 40W PS 80lm/W 6500K	Ref.№ 981140080062033
LED Edge 48W PMMA 100lm/W 3000K	Ref.№ 981148100034010
LED Edge 48W PMMA 100lm/W 4000K	Ref.№ 981148100044022
LED Edge 48W PS 100lm/W 3000K	Ref.№ 981148100032011
LED Edge 48W PS 100lm/W 4000K	Ref.№ 981148100042023
LED Edge 48W PS 100lm/W 6500K	Ref.№ 981148100062035
LED Edge 48W PS 80lm/W 3000K	Ref.№ 981148080032012
LED Edge 48W PS 80lm/W 4000K	Ref.№ 981148080042024
LED Edge 48W PS 80lm/W 6500K	Ref.№ 981148080062036

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Copy of identification table and/or photo of tested object



Electrostart
www.electrostart.com

Item: **LED Edge 48W PMMA 100lm/W 6500K**
 Model: 981148100064091
 Power: 48W
 Color temperature: 6500K
 Input voltage: 220-240VAC
 Frequency: 50/60 Hz
 Luminous flux: 4 800 lm
 PF: ≥0.90
 Ra: > 80
 ta: -10...+40°
 Dimensions: 595x595x10 mm
 Body: Aluminium + PMMA
 Connected with LED converter 1200mA

RoHS CE
 IP40 Below
 Made in BG/EU

AC-N
 • 220-240V-
 0.260A/230V-
 • 50/60Hz
 AC-L

Electrostart
 .tc

CE
 EN62384
 CONSTANT CURRENT

50W LED Driver 1200mA
 Electronic driver for Light Emitting Diodes
 Ref.№ 170200000000034
 tc: 80°C ta: -20...+45°C λ 0.95C

1200mA -LED
 34-42VDC
 Umax<60VDC
 50W + LED
 MADE IN BG/EU

8.5...9.5 mm
 0.50...1.5°
 wire preparation
 SELV

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RESULTS OF TESTING:

Page 4 of 8 BDS EN 60598-1:15+AC:15+AC:16+A1:18 Test report : № 2e-19-130 / 30.10.2019

Nº	Factor name	Units	Standard method	Nº of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
1.	Mechanical strength:	-	cl. 4.13	130	-	cl. 4.13	
1.1	Impact tests from spring hammer: - fragile parts - other parts	N.m N.m	cl. 4.13.1	130 130	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	130	-	cl. 4.13	
2.1	Mechanical load: - four times the weight - torque 2,5 Nm	min N N.m	cl. 4.14.1	130 130 130	-	cl. 4.14.1	-
2.2	Straight test finger	N	cl. 4.13.3	130	withstand 30	cl. 4.13.3 30	-
2.3	Lampholder	N	cl. 4.4.4 and cl.4.12.4	130	-	cl. 4.4.4	1 min
2.4	Screws	N.m	cl.4.12	130	withstand 1,2 N.m for M4	cl.4.12 1,2 N.m	-
3.	Creepage distances and clearances:	-	cl. 11.2.1	130	-	cl. 11.2	-
3.1	Creepage distances for a.c. (50 Hz) sinusoidal voltages ≤ 250 V	mm mm mm	cl. 11.2.1	130 130 130	> 5 > 6 > 8	Table11.1 Basic insulation ≥ 1,5 Suppl. insulation ≥ 2,5 Reinforced insulation ≥ 5	-
3.2	Clearances for a.c. (50 Hz) sinusoidal voltages ≤ 250 V	mm mm mm	cl. 11.2.1	130 130 130	> 4 > 5 > 7	Table11.1 Basic insulation ≥ 1,5 Suppl. insulation ≥ 1,5 Reinforced insulation ≥ 3	-

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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	130	-	cl. 7.2	-
4.1	Metal parts in contact with supporting surface	Ω	cl. 7.2.3	130	-	cl. 7.2.1 ≤ 0,5	10A 1 min
5.	Resistance to tensile and torsional for power cords:	-	cl. 5.2	130	-	cl. 5.2	-
5.1	Cord anchorage - pull - torque - displacement	N N.m mm	cl. 5.2.10.3	130 130 130	- - -	cl. 5.2.10.1 Table 5.2	-
6.	Protection against electric shock	N	cl. 8.2.5	130	withstand 10	cl. 8.2.1+ cl. 8.2.4 10	-
7.	Protection against residual voltages	V	cl. 8.2.7	130	0	cl. 8.2.7 < 50	1 min
8.	Heating / Temperature /	-	cl. 12	130	-	cl. 12	-
8.1	Normal operation Case of controlgear Insulation of internal wiring Terminal blocks Mounting surface	°C °C °C °C	cl. 12.4.1	130 130 130 130 130	Maximum temperature with LED P _n = 48 W 61 52 50 48	cl. 12.4.2 Table 12.1 ; 12.2 ≤ 80 ≤ 90 ≤ 120 ≤ 90	t=t _a =40°C U=1,06U _n =254,4 V
8.2	Abnormal operation Mounting surface	°C	cl. 12.5.1	130 130	- 48	cl. 12.5.2 Table 12.3 ≤ 130	t=t _a =40°C U=1,1 U _n =254,4 V
9.	Endurance test	h	cl. 12.3.1	130	withstand 240	cl. 12.3.2 240	t= t _a +10=50°C U=1,1 U _n =264 V
10.	Degrees of protection provided by enclosures (IP code)	-	cl. 9.2	130	withstand IP 40 below	≥IP 20	-
10.1	Protection against penetration of solid objects and dust - below	-	cl. 9.2.0	130	withstand IP 4X	IP 4X	1 N
10.2	Protection against penetration of harmful water	-	τ. 9.2.0	130	IP X0	IP X0	-
11.	Humidity resistance	h	cl. 9.3.1	130	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
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12.	Insulation resistance:	-	cl. 10.2.1	130	-	cl. 10.2.1 Table 10.1	-
12.1	Between current-carrying parts of different polarity	MΩ	cl. 10.2.1	130	-	R > 2	1 min , 500 V
12.2	Between life parts and mounting surface	MΩ	cl. 10.2.1	130	R > 999	R > 2	1 min , 500 V
12.3	Between life parts and metal parts of luminaire	MΩ	cl. 10.2.1	130	R > 999	R > 2	1 min , 500 V
12.4	Basic insulation	MΩ	cl. 10.2.1	130	R > 999	R > 2	1 min , 500 V
12.5	Additional insulation	MΩ	cl. 10.2.1	130	R > 999	R > 3	1 min , 500 V
12.6	Double or reinforced insulation	MΩ	cl. 10.2.1	130	R > 999	R > 4	1 min , 500 V

13.	Dielectric strenght of insulation :	-	cl. 10.2.2	130	-	cl. 10.2.2 Table 10.2	-
13.1	Between current-carrying parts of different polarity	V	cl. 10.2.2	130	-	U(perf.) = 1480	1 min , 50 Hz
13.2	Between life parts and mounting surface	V	cl. 10.2.2	130	withstand U = 2960	U(perf.) = 1480	1 min , 50 Hz
13.3	Between life parts and metal parts of luminaire	V	cl. 10.2.2	130	withstand U = 2960	U(perf.) = 1480	1 min , 50 Hz
13.4	Basic insulation	V	cl. 10.2.2	130	withstand U = 1480	U(perf.) = 1480	1 min , 50 Hz
13.5	Additional insulation	V	cl. 10.2.2	130	withstand U = 1480	U(perf.) = 1480	1 min , 50 Hz
13.6	Double or reinforced insulation	V	cl. 10.2.2	130	withstand U = 2960	U(perf.) = 2960	1 min , 50 Hz

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Nº	Factor name	Units	Standard method	Nº of sample	Test results (indetermination)	Factor volume and tolerance	Test conditions
14.	Touch current,	mA	cl. 10.3	130	0,06	cl. 10.3 ≤ 0,7	-
	Protective conductor current	mA		130	-	≤ 3,5	
15.	Resistance to heat /Resistance to abnormal heat – Ball pressure test method/	mm	cl. 13.2.1	130	0,8	cl. 13.2 ≤ 2	t=125 °C 60 min
16.	Resistance to flame and ignition	-	cl. 13.3	130	-	cl. 13.3	-
16.1	Needle-flame test method	s	cl. 13.3.1	130	0	cl. 13.3.1 ≤ 30	-
16.2	Glow-wire flammability test method	°C	cl. 13.3.2	130	no ignition at 650 °C	cl. 13.3.2 glow-wire (650 ± 10) °C for 30s	-
17.	Tracking test	V	cl. 13.4	130	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	130	-	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	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 thermometer	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.	Thermometer-hygrometer	177-H1	TESTO Germany	01320300/902	17.04.2018
9.	Testing finger with articulation	-	Bulgaria	№ 006	21.07.2017
10.	Testing wire (Ø1mm;L=100mm)	-	HI-HMC, Bulgaria	№ 066	21.07.2017

TEST PERFORMER: 1.....

/ T. Hristov /

2.....

/ D. Chavalinov /

HEAD OF THE LABORATORY:.....

/ T. Hristov /



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