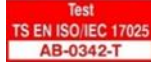




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Prüfbericht - Produkte
Test Report - Products

Prüfbericht-Nr.: <i>Test report no.:</i>	TR23KNN8 001	Auftrags-Nr.: <i>Order no.:</i>	144385950	Seite 1 von 17 Page 1 of 17
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	1553183	Auftragsdatum: <i>Order date:</i>	23.06.2023	
Auftraggeber: <i>Client:</i>	BAYTAŞ AYDINLATMA İMALAT PROJE TAAHHÜT SAN. VE TİC. LTD. ŞTİ.			
Prüfgegenstand: <i>Test item:</i>	ROAD & STREET LUMINAIRE			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	SURGE LINEAR DORA LINEAR			
Auftrags-Inhalt: <i>Order content:</i>	Test report			
Prüfgrundlage: <i>Test specification:</i>	IEC TR 62778:2014 (Second Edition) Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires			
Wareneingangsdatum: <i>Date of sample receipt:</i>	23.06.2023			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003501881-001 A003501881-002			
Prüfzeitraum: <i>Testing period:</i>	03.07.2023 – 04.07.2023			
Ort der Prüfung: <i>Place of testing:</i>	See page 3			
Prüflaboratorium: <i>Testing laboratory:</i>	See page 3			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>		genehmigt von: <i>authorized by:</i>		
Datum: <i>Date:</i>	07.07.2023	Ausstellungsdatum: <i>Issue date:</i>	07.07.2023	
Stellung / Position:	Hanife Şeyma Ekşi / SPE	Stellung / Position:	Tümer Timuçin / LM	
Sonstiges / Other:	TÜV Rheinland testing laboratories apply Zero Guard band rule unless other decision rule required by standard or customer. For the Zero Guard band rule, the measurement uncertainty is not considered and will also not be declared in the Test report. Zero guard band rule for statement of conformity evaluation was used in this test report. TÜV Rheinland Uluslararası Standartlar Sertifikasyon ve Denetim A.Ş. accredited by TÜRKAK under registration number AB-0342-T for ISO/IEC 17025-2017 as test laboratory The Turkish Accreditation Agency (TÜRKAK) is signatory to the multilateral agreements of the European co-operation for the Accreditation (EA) and of the International Laboratory Accreditation (ILAC) for the Mutual recognition of the test reports. The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following, pages which are part of this report			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. N/A = nicht anwendbar N/T = nicht				
* Legend: P(ass) = passed a.m. test F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				


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Test Report issued under the responsibility of:



TEST REPORT IEC TR 62778 Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires	
Report Number	TR23KNN8 001
Date of issue	07.07.2023
Total number of pages	17
Name of Testing Laboratory preparing the Report	TÜV Rheinland Uluslararası Standartlar Sertifikasyon ve Denetim A.Ş.
Applicant's name	BAYTAŞ AYDINLATMA İMALAT PROJE TAAHHÜT SAN. VE TİC. LTD. ŞTİ.
Address	SINCAN SANAYİ SITESİ, AHI EVRAN MAH. 225.CAD. NO.84, 06935 SINCAN-ANKARA, TÜRKİYE
Test specification:	
Standard	IEC TR 62778:2014 (Second Edition)
Test procedure	Test Report
Non-standard test method	N/A
Test Report Form No	IEC62778A
Test Report Form(s) Originator	TÜV SÜD Product Service GmbH
Master TRF	Dated 2016-02
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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.	
General disclaimer:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	

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Test item description :	Luminaires for road and street lighting	
Trade Mark :		
Manufacturer :	BAYTAŞ AYDINLATMA İMALAT PROJE TAAHHÜT SAN. TİC. VE LTD. ŞTİ.	
Model/Type reference :	SURGE LINEAR, DORA LINEAR	
Ratings :	200-240V AC, 50-60Hz, 80W, Class I, IP66, 4000K	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	Testing Laboratory:	TÜV Rheinland Uluslararası Standartlar Sertifikasyon ve Denetim A.Ş.
	Testing location/ address:	Saniye Ermutlu Sokak No:12 Çolakoğlu Plaza B Blok Kozyatağı/İstanbul,Türkiye
	Tested by (name, function, signature):	Refer to cover page
	Approved by (name, function, signature) ...:	Refer to cover page
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
	Testing location/ address:	
	Tested by (name, function, signature):	
	Approved by (name, function, signature) ...:	
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
	Testing location/ address:	
	Tested by (name + signature)	
	Witnessed by (name, function, signature) ..:	
	Approved by (name, function, signature) ...:	
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
	Testing location/ address:	
	Tested by (name, function, signature):	
	Witnessed by (name, function, signature) ..:	
	Approved by (name, function, signature) ...:	
	Supervised by (name, function, signature) :	

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<p>List of Attachments (including a total number of pages in each attachment):</p> <p>A. List of test equipment (on page 10 of this test report)</p> <p>B. Spectrum graph (on page 11 of this test report)</p> <p>C. Photo documentation (on pages 12 to 16 of this test report)</p>	
<p>Summary of testing: The product was found to be in compliance with the mentioned safety requirements and the luminaire passed.</p> <p>SURGE LINEAR:</p> <ul style="list-style-type: none"> • RG1 (11mrad@200mm) low risk • Blue Light hazard $L_b=3.65E+03 \text{ W.m}^{-2}.\text{sr}^{-1}$ (11mrad@200mm) 	
<p>Tests performed (name of test and test clause):</p> <p>All applicable clauses have been evaluated. IEC TR 62778:2014 (Second Edition)</p>	<p>Testing location:</p> <p>TUV Rheinland Uluslararası Standartlar Sertifikasyon ve Denetim A.Ş.</p> <p>Saniye Ermutlu Sokak No:12 Çolakoğlu Plaza B Blok Kozyatağı/İstanbul, Türkiye</p>
<p>Summary of compliance with National Differences (List of countries addressed):</p> <p>-N/A</p> <p><input checked="" type="checkbox"/> The product fulfils the requirements of IEC TR 62778:2014 (Second Edition)</p>	

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Copy of marking plate:



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Test item particulars: Luminaires for Road and Street Lighting	
Product evaluated: <input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input checked="" type="checkbox"/> Luminaire	
Rated voltage (V): 200-240V AC	
Rated current (mA): -	
Rated CCT (K): 4000K	
Rated Luminance (Mcd/m²): N/A	
Component report data used: <input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp	
Possible test case verdicts: - test case does not apply to the test object..... : N/A - test object does meet the requirement..... : P (Pass) - test object does not meet the requirement..... : F (Fail)	
Testing :	
Date of receipt of test item : 23.06.2023 (A003501881-001)	
Date (s) of performance of tests : 03.07.2023 – 04.07.2023	
General remarks: "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC62778A:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable

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When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies)..... : BAYTAŞ AYDINLATMA İMALAT PROJE
TAAHHÜT SAN. TİC. VE LTD ŞTİ./

SİNCAN SANAYİ SİTESİ, AHİ EVRAN MAH.
225.CAD. NO:84, 06935 SİNCAN-ANKARA,
Türkiye

General product information:

BAYLED brand SURGE LINEAR and DORA LINEAR models are Class I LED road& street luminaires. Appliances have IP66 protection ratings. Luminaires are suitable for outdoor using. Appliances have working range of 200-240V at 50-60 Hz. Luminaires have aluminium injection body with tempered glass.

BAYLED brand SURGE LINEAR model LED road and street luminaire has been tested as representative models. Photobiological test results is valid also for BAYLED brand DORA LINEAR model product. There is no critical component (LED, PCB, LED driver, reflector etc.) or electrical design difference between SURGE LINEAR and DORA LINEAR. Differences between models are only in mounting accessories/dimensions of pole.

Components used with the sample:

Control gear: LEDVANCE – LVED FP 100/1.05-1.50/IP67 VS10

LED chip: NICHIA– NVSW219FV2

LED module: BAYLED – TLSM-316-15L22264NC35-10-T1.6

LENS: LEDİL – RITA

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IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict
7	MEASUREMENT INFORMATION FLOW		P
7.1	Basic flow		N/A
	'Law of conservation of luminance' applied		N/A
	Use of only true luminance/radiance values		N/A
	In case of luminaire: The light source is operated in the luminaire under similar conditions as when tested as a component		N/A
	In case E_{thr} value for RG2 was established the peak value was derived from angular light distribution		N/A
7.2	Conditions for the radiance measurement		P
	Standard condition applied (200mm distance, 0,011rad field of view)		P
	Non-standard condition applied		N/A
7.3	Special cases (I): Replacement by a lamp or LED module of another type		N/A
	Light source is a white light source		N/A
	Evaluation done based on highest luminance		N/A
	Evaluation done based on CCT value		N/A
7.4	Special cases (II): Arrays and clusters of primary light sources		N/A
	LED package is evaluated as: <input type="checkbox"/> RG0 unlimited <input type="checkbox"/> RG1 unlimited		N/A
	E_{thr} of LED package applies to array		N/A
8	RISK GROUP CLASSIFICATION		P
	Risk group achieved:		P
	-...Risk Group 0 unlimited		N/A
	-...Risk Group 1 unlimited	RG1 Limit= $1E+04 \text{ W.m}^{-2}\text{.sr}^{-1}$ $L_b=3.65E+03 \text{ W.m}^{-2}\text{.sr}^{-1}$	P
	- E_{thr} (lx) : Distance to reach RG1 (m) :	Risk Group 1	N/A

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IEC TR 62778				
Clause	Requirement + Test		Result - Remark	Verdict
	TABLE: Spectroradiometric measurement			P
	Measurement performed on:	<input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input checked="" type="checkbox"/> Luminaire		
	Model number	SURGE LINEAR		
	Test voltage (V)	200-240V		—
	Test current (mA)	356mA		—
	Test frequency (Hz)	50Hz		—
	Ambient, t (°C)	24		—
	Measurement distance	<input checked="" type="checkbox"/> 20 cm <input type="checkbox"/> ... cm		—
	Source size	<input checked="" type="checkbox"/> Non-small <input type="checkbox"/> Small : mm		—
	Field of view	<input type="checkbox"/> 100 mrad <input checked="" type="checkbox"/> 11 mrad <input type="checkbox"/> 1,7 mrad (for small sources)		—
Item	Symbol	Units	Result	Remark
Correlated colour temperature	CCT	K	N/A	-
x/y colour coordinates	x/y	-	N/A	-
Blue light hazard radiance	L _B	W/(m ² .sr ¹)	3.65E+03	11mrad, @200mm,
Blue light hazard irradiance	E _B	W/(m ² .sr ¹)	N/A	-
Luminance	L	cd/m ²	5.41E+06	11mrad, @200mm
Illuminance	E	lux	N/A	-
Supplementary information: Measurement distance 200mm, RG1 Limit=1E+04 W.m-2.sr-1, Spectral Range 300 – 780nm				

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IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

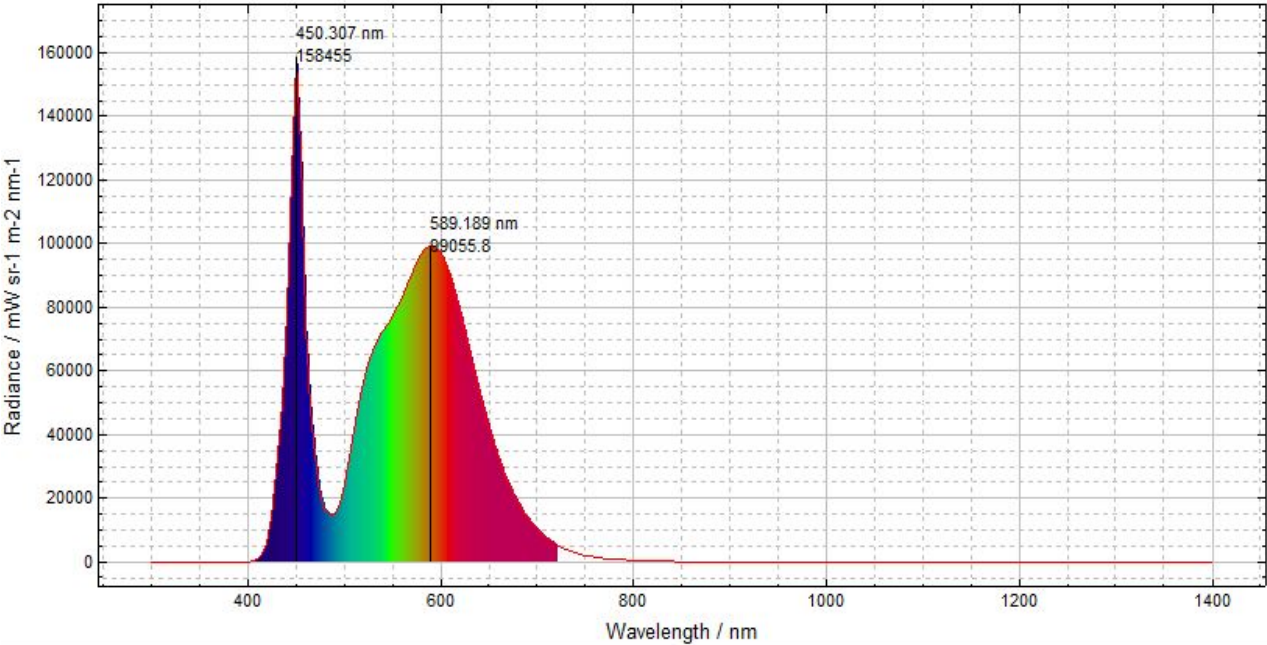
	TABLE: Angular light distribution	N/A

List of test equipment used:

Testing / measuring equipment / material used	Identification Number	Last Clb.	Next Clb.
Monochromator	2972088	N.N.C	N.N.C
Precision Diffusers	2972095	N.N.C	N.N.C
Irradiance Calibration Lamp	2972091	21.03.2023	21.03.2024
Radiance Calibration Lamp	2972093	21.03.2023	21.03.2024
Current Stabilised Power Supply	2972089	N.N.C	N.N.C
Digital Caliper	2972178	16.08.2022	21.08.2023
Multimeter	2971867	17.02.2023	17.02.2024
Ruler	2972004	14.06.2021	14.06.2024

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Spectrum



Spectral Range: 300 – 780 nm
 Luminance.....: 5.41E+06 cd m-2

Hazard	Measured value	RG1 Limit	Classification	E _{thr} (Ix)
Blue Light Radiance 11mrad FOV (W m-2 sr-1)	3.65E+03	1E+04	RG1	N/A

Method of determination	d _{thr} ¹ (m)
Direct measurement with illuminance meter	N/A

¹ Where angular subtense of source at d_{thr} > 11mrad, value of d_{thr} conservative.

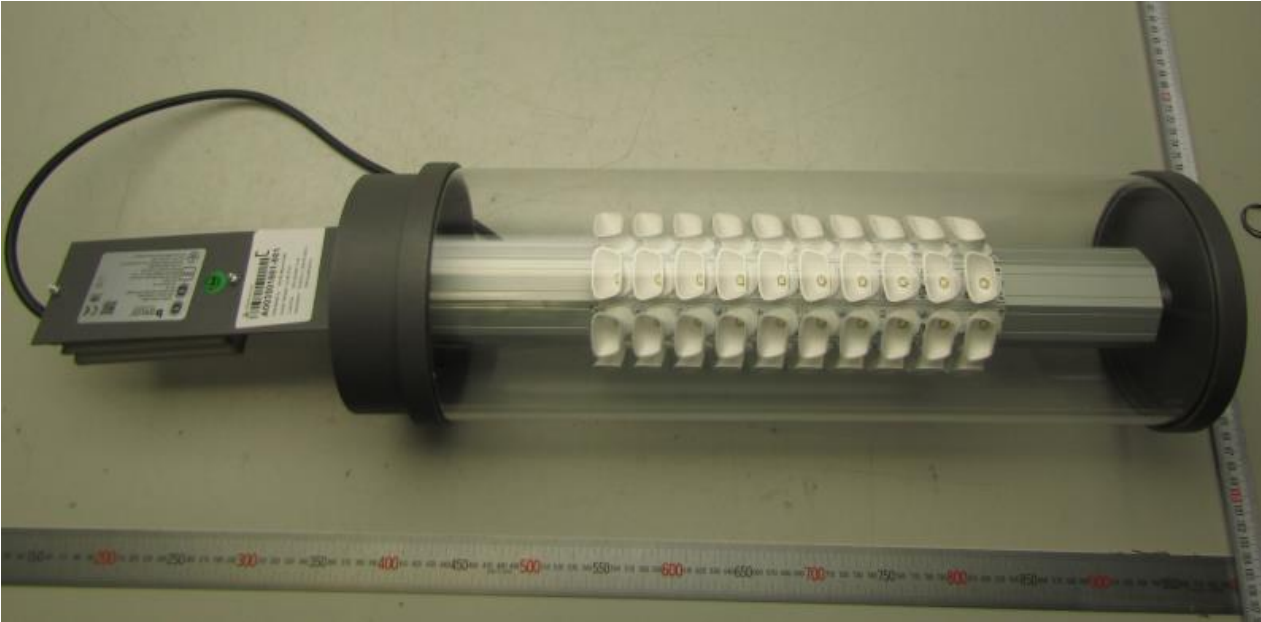
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Photodocumentation:

Picture 1 :SURGE LINEAR model front view

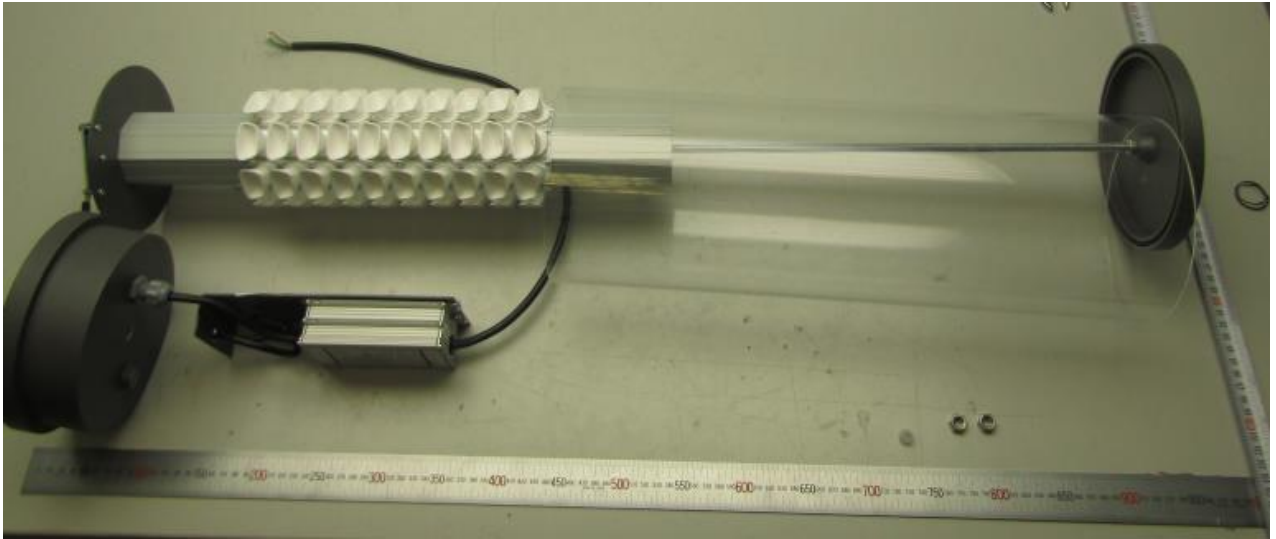


Picture 2 : SURGE LINEAR model back view

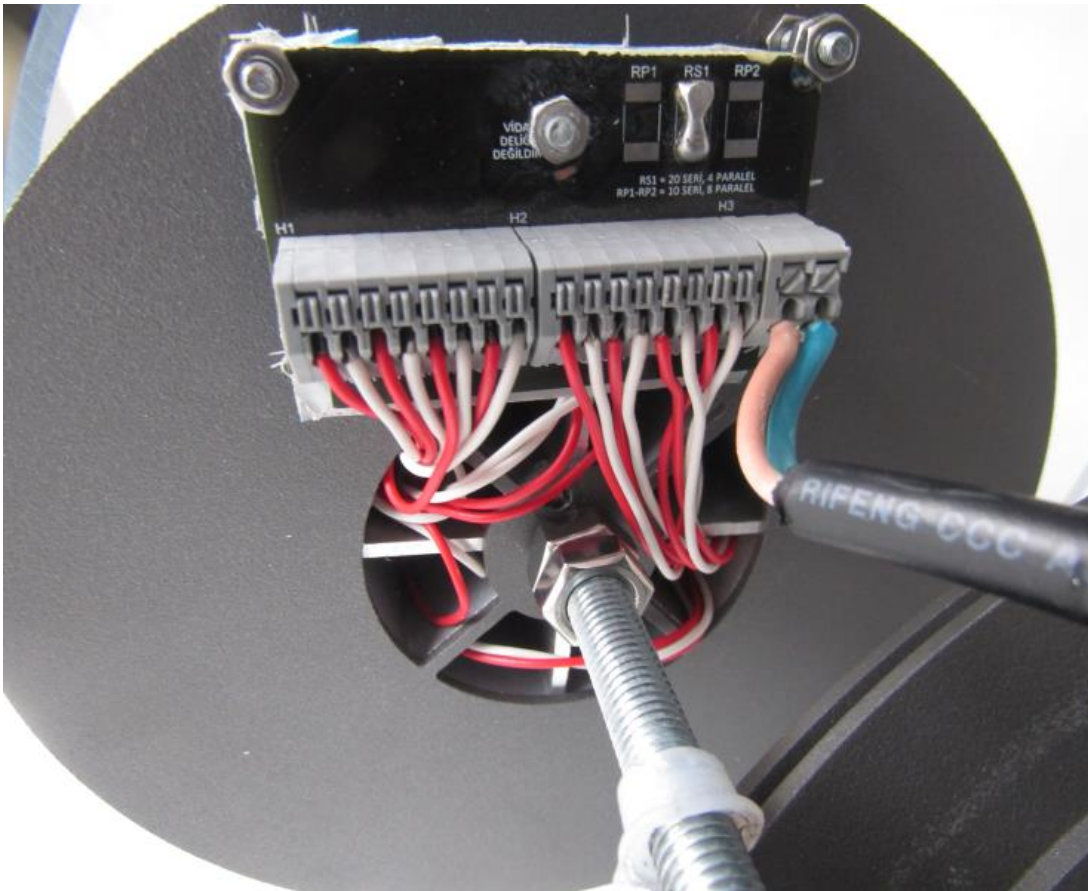


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Picture 3 : SURGE LINEAR model inside view



Picture 4 : SURGE LINEAR and DORA LINEAR model inside view

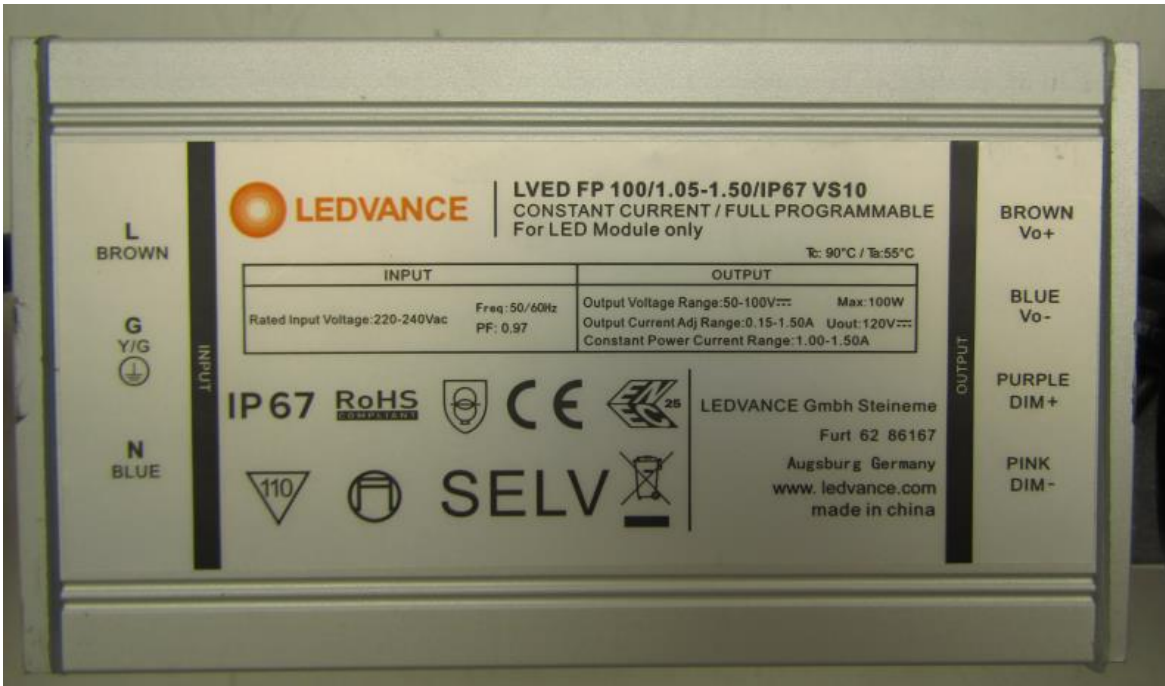


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Picture 5 : SURGE LINEAR and DORA LINEAR model led module



Picture 6 : SURGE LINEAR and DORA LINEAR model LED electronic control gear



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Picture 7 : SURGE LINEAR and DORA LINEAR model LED chips



Picture 8 : DORA LINEAR model front view



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Picture 9 : DORA LINEAR model front view



Picture 10 : DORA LINEAR model top view

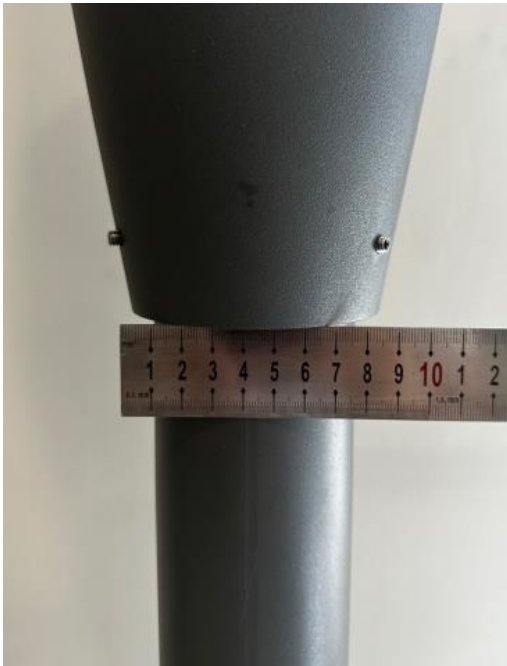


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Picture 11 : DORA LINEAR model mounting accessories



Picture 12 : DORA LINEAR model mounting accessories



-End of the Test Report-