



Test Laboratuvarları

LVT Test Laboratuvarları Ltd. Şti.

www.lvt.com.tr

Saray Modern Keresteciler Sanayi Sitesi 4.Cadde No:9 Kazan / ANKARA

Tel: 0 312 815 13 25-26 Faks: 0 312 815 13 27



Test
TS EN ISO/IEC 17025
AB-0341-T

AB-0341-T

23-1679-
R0-N1-1

07-23

DENEY RAPORU

Test Report

1/54

Müşteri Client	: BSI AYDINLATMA SAN. ve TİC. A.Ş.
Adres Address	: BAŞKENT OSB, 20. CAD. B/3 BLOK NO:4 MALİKÖY, SİNCAN, ANKARA/TURKEY
İmalatçı Manufacturer	: BSI AYDINLATMA SAN. ve TİC. A.Ş.
Teklif Numarası Order No	: 23-1679-R0
Deney Numunesi Test Sample	: DEKORATİF LED YOL AYDINLATMA ARMATÜRÜ (iMistral-T Bollard)
Marka Trade Mark	: BSI
Deney Metodu Test Method	: TS EN IEC 60598-1:2021 / TS 8700 EN 60598-2-3:2003/AC:2005 + A1:2011 (IEC 60598-2-3:2002+AMD1:2011 CSV)
Deney Tarihi Date of Test	: 12.06.2023 – 24.07.2023
Toplam Sayfa Sayısı Total Number of Pages	: 54
Basım Tarihi Date of Issue	: 28.07.2023

Deney laboratuvarı olarak faaliyet gösteren LVT Test Laboratuvarları Ltd. Şti. TÜRKAK' tan AB-0341-T numarası ile IEC/ISO TS EN 17025:2017 standardına göre akredite edilmiştir.

LVT Test Laboratuvarları Ltd. Şti. accredited by TÜRKAK under registration number AB-0341-T for IEC/ISO 17025:2017 as test laboratory.

Türk Akreditasyon Kurumu (TÜRKAK) deney raporlarının tanınması konusunda Avrupa Akreditasyon Birliği (EA) ile Çok Taraflı Anlaşma ve Uluslararası Laboratuvar Akreditasyon Birliği (ILAC) ile karşılıklı tanınma antlaşmasını imzalamıştır.

The Turkish Accreditation Agency (TÜRKAK) is a signatory to the European co-operation for Accreditation (EA) Multilateral Agreements (MLA) and to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the recognition of test reports

Deney ve / veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (talep halinde) ve deney metodları, bu raporun tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.

The test and / or measurements results, the uncertainties (if required) with confidence probability and test methods are given on the following pages which are part of this report.

Mühür
Seal

Deney Sorumlusu
Person in Charge of Test

Bölüm Müdürü
Department Manager



Mustafa YETİŞEN

Ata Gürül ARSLANLI

Rapor detaylarını karekod ile kontrol edebilirsiniz.
You can check the report details via QR code.

Bu rapor, Laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.
İmzasız ve mühürlü raporlar geçersizdir.

This report shall not be reproduced other than in full except with the permission of the laboratory.
Testing reports without signature and seal are not valid.

FRT.76/Rev08/0422

İçindekiler

Contents

	Sayfa
	Page
1. Numunelerin Tanımı (<i>Definition of the Samples</i>).....	3
2. Deney Sonuçları (<i>Test Results</i>).....	3
3. Çevre Şartları (<i>Enviromental Conditions</i>).....	3
4. Deney Metodundan Sapma, Ekleme ve Çıkarmalar (<i>Deviations , Additions & Cutbacks from the Test Method</i>)...	3
5. Şartnamelere Uygunluk (<i>Conformity to Specifications</i>).....	4
6. Dağıtım Bilgileri (<i>Distrubition Information</i>).....	4
7. Açıklama (<i>Explanations</i>).....	4
8. Ölçüm Belirsizliği (<i>Uncertainty of Measurement</i>).....	4
9. Deney Uygulamaları (<i>Test Applications</i>).....	5
10. Deney ve Ölçüm Bilgileri (<i>Test & Measuring Arrangements</i>).....	44
11. Deney Osilogramları (<i>Test Oscillograms</i>).....	45
12. Deney Fotoğrafları (<i>Test Photographs</i>).....	47
13. Firma Dokümanları (<i>Documentation of Client</i>).....	52



1. **Numunelerin Tanımı** : **Dekoratif LED Aydınlatma Armatürü (iMistral-T Bollard)**
Definition of the Samples : *Decorative LED Lighting Fixture (iMistral-T Bollard)*

1.1 Dekoratif LED Aydınlatma Armatürü (iMistral-T Bollard) (23-1679-R0-N1)

Numune Kabul Tarihi <i>Date of Receive</i>	:	08.06.2023
Numune Seri No <i>Serial No</i>	:	LB2492
Tip <i>Type</i>	:	iMistral-T Bollard
Kutup Sayısı <i>Number of Poles</i>	:	L, N, PE
Beyan Gerilimi <i>Rated Voltage</i>	U _n :	220V – 240V
Beyan Akımı <i>Rated Current</i>	I _n :	-
Beyan Güç <i>Rated Power</i>	P _n :	8 W
Beyan Frekans <i>Rated Frequency</i>	f _n :	50-60Hz
Beyan Koruma Derecesi <i>Rated Degree of Protection</i>	IP :	66
Numune Boyutları <i>Dimensions of the Sample</i>	mm :	Firma Dokümanlarına Bakınız <i>See Documentation of Client</i>
Numune Ağırlığı <i>Weight of the Sample</i>	kg :	7.70
Sınıf <i>Class</i>	:	Class I
Cihaz – Malzeme Listesi <i>Device – Component List</i>	:	Firma Dokümanlarına Bakınız <i>See Documentation of Client</i>

2. **Deney Sonuçları** : Deney sonuçları, müşteri tarafından laboratuvara teslim edilen ve sadece deneyi yapılan numuneye aittir.
Test Results : *The test results only belong to the tested sample(s) delivered to the laboratory by client.*

Numune <i>Sample</i>	Uygulanan Deney <i>Applied Test</i>	Sonuç <i>Result</i>
Dekoratif LED Aydınlatma Armatürü (iMistral-T Bollard) <i>Decorative LED Lighting Fixture (iMistral-T Bollard)</i>	TS 8700 EN 60598-2-3:2003/AC:2005 + A1:2011 (IEC 60598-2-3:2002+AMD1:2011 CSV)	OLUMLU <i>PASSED</i>

3. **Çevre Şartları**
Environmental Conditions

3.1 Ortam Sıcaklığı : (20 – 30) °C
Ambient Temperature

3.2 Ortam Nemi : (37±3) %Rh
Ambient Moisture

4. **Deney Metodundan Sapma, Ekleme ve Çıkarmalar** : Deneyler; standart deney metoduna göre uygulanmıştır.
Deviations, Additions & Cutbacks from the Test Method : *Tests were made according to the clauses of the relevant standards.*

LVT Test Laboratuvarları Ltd. Şti.

AB-0341-T

23-1679-
R0-N1-1

07-23

4/54

5.	Şartnamelere Uygunluk (Gerekli Hallerde) <i>Conformity to Specifications (If Necessary)</i>	:	-
6.	Dağıtım Bilgileri <i>Distribution Information</i>	:	BSİ AYDINLATMA SAN. ve TİC. A.Ş.
7.	Açıklama <i>Explanation</i>	:	The IP protection of the luminaire only belongs to the LED module. The housing of the luminaire has no IP protection. This test report is the new edition of the report numbered 23-1679-R0-N1-1, dated 18.05.2023 and supersedes the previous edition.
8.	Ölçüm Belirsizliği <i>Uncertainty of Measurement</i>	:	-



Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

9. Deney Uygulamaları:

Test Applications

TEST REPORT IEC 60598-2-3 Luminaires Part 2: Particular requirements Section 3: Luminaires for road and street lighting	
Test specification:	
Standard	IEC 60598-2-3:2002, IEC 60598-2-3:2002/AMD1:2011 used in conjunction with IEC 60598-1:2020
Test procedure	Type Test
Non-standard test method	N/A
TRF template used	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No.	IEC60598_2_3M
Test Report Form(s) Originator	Intertek Semko AB
Master TRF	2021-11-11
Copyright © 2021 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved.	
This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.	
If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.	
This report is not valid as a CB Test Report unless signed by an approved IECEE 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 NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	



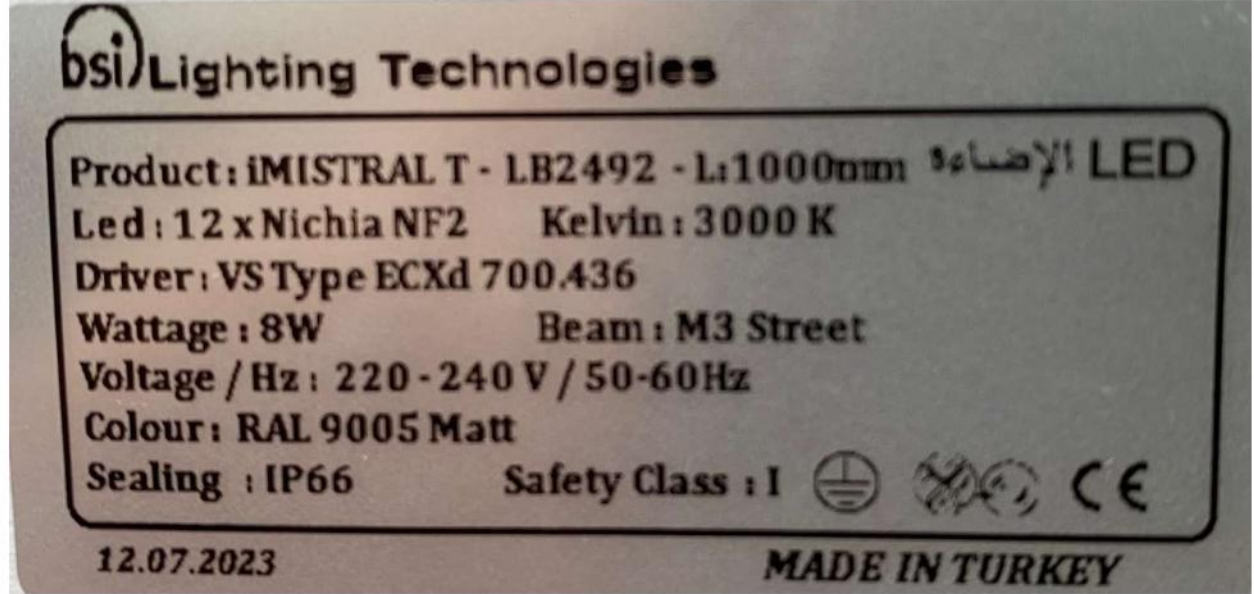
Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test item particulars	Decorative LED Lighting Fixture (IMistral-T Bollard)
Classification of installation and use	Class I / Outdoor / Luminaires for Road and Street Lighting
Supply Connection.....	Permanently Supply Connection
.....	:
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	: 14.04.2023
Date (s) of performance of tests.....	: 17.05.2023 – 16.05.2023
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 ☐ comma / ☒ point is used as the decimal separator.	
Clause numbers between brackets refer to clauses in IEC 60598-1	
General product information: Decorative LED Lighting Fixture (IMistral-T Bollard) 8W luminaire with 220-240V 50-60Hz supply voltage.	





Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

3.2 (0)	GENERAL TEST REQUIREMENTS		P
3.2 (0.3)	More sections applicable	Yes ☐ No ☒ Section/s: Only the tests in 60598-2-3 were applied to the luminaire at the request of the manufacturer.	—
3.2 (0.5)	Components	(see Annex 1)	—
3.2 (0.7)	Information for luminaire design in light sources standards		—
3.2 (0.7.2)	Light source safety standard		—
	Luminaire design in the light source safety standard		—

3.4 (2)	CLASSIFICATION OF LUMINAIRES		P
3.4 (2.2)	Type of protection	Class I.	P
3.4 (2.3)	Degree of protection.....	IP 66	P
3.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes ☒ No ☐	—
3.4 (2.5)	Luminaire for normal use	Yes ☒ No ☐	—
	Luminaire for rough service	Yes ☐ No ☒	—
3.4 (-)	Modes of installation of road or street lighting		—
	a) on a pipe	Yes ☐ No ☒	—
	b) on a mast arm	Yes ☒ No ☐	—
	c) on a post top	Yes ☒ No ☐	—
	d) on span or suspension wires	Yes ☐ No ☒	—
	e) on a wall	Yes ☐ No ☒	—

3.5 (3)	MARKING		P
3.5 (3.2)	Mandatory markings	The table 3.2 information in IEC 60598-1 is distinctly and durably marked on the luminaire.	P
	Position of the marking	There are no replaceable components, but the label is visible.	P
	Format of symbols/text	The necessary information for the assembly of the luminaire is provided with the assembly instruction and the luminaire.	P
3.5 (3.3)	Additional information		P





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

	Language of instructions	English.	P
3.5 (3.3.1)	Combination luminaires	The luminaire is not combination luminaire.	N/A
3.5 (3.3.2)	Nominal frequency in Hz	50-60	P
3.5 (3.3.3)	Operating temperature	No declared.	N/A
3.5 (3.3.5)	Wiring diagram	The luminaire can be connected directly to the main.	P
3.5 (3.3.6)	Special conditions		N/A
3.5 (3.3.7)	Metal halide lamp luminaire – warning	The luminaire does not have metal halide lamp luminaire. The light source is LED.	N/A
3.5 (3.3.8)	Limitation for semi-luminaires	The luminaire is not semi-luminaire because the luminaire does not have replaceable light source.	N/A
3.5 (3.3.9)	Power factor and supply current	Power Factor: 0.86 Supply Current: 625mA	N/A
3.5 (3.3.10)	Suitability for use indoors		N/A
3.5 (3.3.11)	Luminaires with remote control	The luminaire is not luminaire using remote controlgear.	N/A
3.5 (3.3.12)	Clip-mounted luminaire – warning	The luminaire is not clip-mounted luminaire.	N/A
3.5 (3.3.13)	Specifications of protective shields		N/A
3.5 (3.3.14)	Symbol for nature of supply	There is no AC symbol on the luminaire, but the frequency value is specified. See label.	P
3.5 (3.3.15)	Rated current of socket outlet	The luminaire does not have socket-outlet.	N/A
3.5 (3.3.16)	Rough service luminaire	The luminaire is not rough service luminaire.	N/A
3.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y.	P
3.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
3.5 (3.3.19)	Protective conductor current in instruction if applicable	Supply current < 20A.	N/A
3.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
3.5 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	See addinstruction.	P
3.5 (3.3.22)	Controllable luminaires, classification of insulation provided	The luminaire is not controllable luminaire.	N/A
3.5 (3.3.23)	Luminaires without control gear provided with necessary information for selection of appropriate component	Supplied with luminaire controlgear.	N/A



Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

3.5 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
3.5 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided	No light source emitting UV.	N/A
3.5 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		N/A
3.5 (3.4)	Test with water	Tried to remove it by rubbing lightly for 15 s with a piece of cloth soaked with water.	P
	Test with hexane	It was rubbed with petroleum ether for another 15 seconds using a cloth.	P
	Legible after test	After the test, the marking is legible, marking label is not easily removable and they are show no curling.	P
	Label attached		P
3.5 (-)	Additional information in instruction leaflet		P
	a) Design attitude		P
	b) Weight	7.70 kg	P
	c) Overall dimensions		N/A
	d) Maximum projected area if applicable		N/A
	e) Cross-sectional area of wires if applicable		N/A
	f) Suitability for indoors use	Outdoor use.	N/A
	g) Dimensions of the compartment		N/A
	h) Torque setting to be applied to bolts or screws		P
	i) Maximum mounting height	< 8 m	N/A

3.6 (4)	CONSTRUCTION		P
3.6 (4.2)	Components replaceable without difficulty	Luminaires incorporating components or parts intended to be replaceable is so designed that there is sufficient space to permit replacement of such components or parts without difficulty and without impairing safety.	P
3.6 (4.3)	Wireways smooth and free from sharp edges	Wireways are smooth and free from sharp edges, burrs, flashes and the like, which might cause abrasion of the insulation of the wiring. Parts such as metal set screws are not protrude into wireways.	P



Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

3.6 (4.4)	Lampholders		N/A
3.6 (4.4.1)	Integral lampholder	The luminaire does not have lampholder.	N/A
3.6 (4.4.2)	Wiring connection		N/A
3.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
3.6 (4.4.4)	Positioning		N/A
	- pressure test (N)		—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N)		—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
3.6 (4.4.5)	Peak pulse voltage	No such part.	N/A
3.6 (4.4.6)	Centre contact	The luminaire does not have Edison screw lampholder.	N/A
3.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
3.6 (4.4.8)	Lamp connectors	No such part.	N/A
3.6 (4.4.9)	Caps and bases correctly used		N/A
3.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way	No such part.	N/A
3.6 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II	The luminaire does not starter holder.	N/A
	Starter holder class II construction		N/A
3.6 (4.6)	Terminal blocks		N/A
	Tails		N/A
	Unsecured blocks		N/A
3.6 (4.7)	Terminals and supply connections		P
3.6 (4.7.1)	Contact to metal parts	The luminaire is not class I and II portable luminaire or frequently adjusted class I and II fixed luminaire.	N/A
3.6 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
3.6 (4.7.3)	Terminals for supply conductors	Terminals for supply cords, are suitable for connection to be made by means of screws, nuts or equally effective devices.	N/A





Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

3.6 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A
3.6 (4.7.4)	Terminals other than supply connection		P
3.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
3.6 (4.7.6)	Multi-pole plug	No multi-pole plug.	N/A
	- test at 30 N		N/A
3.6 (4.8)	Switches		N/A
	- adequate rating	The luminaire does not have switch.	N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
3.6 (4.9)	Insulating lining and sleeves		N/A
3.6 (4.9.1)	Retainment	No such part.	N/A
	Method of fixing		N/A
3.6 (4.9.2)	Insulated linings and sleeves:		N/A
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C)		N/A
3.6 (4.10)	Double or reinforced insulation		N/A
3.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation	Class I luminaire.	N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
3.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
3.6 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A



Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

	- sleeves retained in position		N/A
	- lining in lampholder		N/A
3.6 (4.10.4)	Protective impedance device		N/A
	Basic and supplementary insulation bridged by resistor(s) or appropriate capacitor		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
3.6 (4.11)	Electrical connections and current-carrying parts		P
3.6 (4.11.1)	Contact pressure		P
3.6 (4.11.2)	Screws:		P
	- self-tapping screws	Self-tapping screw was not used for the connection of current-carrying parts, unless they clamp these parts directly in contact with each other, and are provided with a suitable means of locking.	P
	- thread-cutting screws	Thread-cutting screw and self-tapping screw was not used for the interconnection of current-carrying parts of metal which is soft or liable to creep, such as zinc or aluminium.	P
3.6 (4.11.3)	Screw locking:		P
	- spring washer	Screws which serve as electrical as well as mechanical connections are locked against loosening. Spring washer is provide satisfactory locking.	P
	- rivets	No such rivet.	N/A
3.6 (4.11.4)	Material of current-carrying parts	Current-carrying parts are of copper. Confirmed by manufacturer's declaration.	P
3.6 (4.11.5)	No contact to wood or mounting surface	Current-carrying parts are not in direct contact with the mounting surface or wood.	P
3.6 (4.11.6)	Electro-mechanical contact systems		N/A
3.6 (4.12)	Screws and connections (mechanical) and glands		P



Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

3.6 (4.12.1)	Screws not made of soft metal	Screw and mechanical connections, the failure of which might cause the luminaire to become unsafe, are withstand the mechanical stresses occurring in normal use. Screws are not made of a material which is soft or liable to creep.	P
	Screws of insulating material	The screws are not used insulating material.	N/A
	Torque test: torque (Nm); part		P
	Torque test: torque (Nm); part		P
	Torque test: torque (Nm); part		N/A
3.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal	No such screw.	N/A
3.6 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm).....		N/A
	- lampholder; torque (Nm)	The luminaire does not have lampholder.	N/A
	- push-button switches; torque 0,8 Nm.....	The luminaire does not have push-button switch.	N/A
3.6 (4.12.5)	Screwed glands; force (Nm)	The luminaire does not have screwed gland.	P
3.6 (4.13)	Mechanical strength		P
3.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm).....	0.5	P
	- other parts; energy (Nm)	0.7	P
	1) live parts	Live parts are not have become accessible	P
	2) linings	It has not lost its insulating property.	N/A
	3) protection	The sample is continue to afford the degree of protection against ingress of dust, solid objects and moisture, in accordance with its classification.	P
	4) covers		N/A
3.6 (4.13.2)	Metal parts have adequate mechanical strength	Metal parts enclosing live parts does have adequate mechanical strength. Compliance was checked by the appropriate test of 4.13.3.	P
3.6 (4.13.3)	Straight test finger	The finger was pressed against the surface with a force of 30 N. During the test, metal parts are not touch live parts.	P



Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

3.6 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher	The luminaire is not rough service luminaire.	N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
3.6 (4.13.6)	Tumbling barrel		N/A
3.6 (4.14)	Suspensions, fixings and means of adjusting		P
3.6 (4.14.1)	Mechanical load:		P
	A) four times the weight	11 x 4 = 44	P
	B) torque 2,5 Nm	The luminaire is not rigid suspensions luminaire.	N/A
	C) bracket arm; bending moment (Nm).....:	The luminaire does not have rigid suspension bracket.	N/A
	D) load track-mounted luminaires	The luminaire is not track-mounted luminaires.	N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)	The luminaire is bot clip-mounted luminaires.	N/A
	Metal rod. diameter (mm)		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
3.6 (4.14.2)	Load to flexible cables		N/A
	Mass (kg)	The luminaire is not secured with flexible cables or cords.	—
	Stress in conductors (N/mm ²)		N/A
	Mass (kg) of semi-luminaire		N/A
	Bending moment (Nm) of semi-luminaire		N/A
3.6 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles	No such device.	N/A
	- strands broken.....:		N/A
	- electric strength test afterwards		N/A
3.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors	The luminaire does not have telescopic tube.	N/A
3.6 (4.14.5)	Guide pulleys	The luminaire does not have guide pulleys.	N/A
3.6 (4.14.6)	Strain on socket-outlets		N/A
3.6 (4.15)	Flammable materials		N/A



Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

	- glow-wire test 650°C	See Test Table 3.15 (13.3.2) No such material.	N/A
	- spacing ≥ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		N/A
	- thermal protection		N/A
	- electronic circuits exempted		N/A
3.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
3.6 (4.16)	Luminaires for mounting on normally flammable surfaces		N/A
	No lamp control gear	(compliance with Section 12) The transformer is in its own enclosure. This enclosure has more than IP 20 degree of protection.	N/A
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
3.6 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
3.6 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
3.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
3.6 (4.17)	Drain holes		N/A
	Clearance at least 5 mm	The luminaire does not have drain hole.	N/A
3.6 (4.18)	Resistance to corrosion		P



Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

3.6 (4.18.1)	- rust-resistance	Ferrous parts luminaires, the rusting of which might cause the luminaire to become unsafe, is adequately protected against rusting. All grease was removed from the parts to be tested. The parts was then immersed for 10 min in a 10 % solution of ammonium chloride in water at a temperature of 22 °C. Without drying, but after shaking off any drops, the parts was placed for 10 min in a box containing air saturated with moisture at a temperature of 23 °C. After the parts have been dried for 10 min in a heating cabinet at a temperature of 100 °C ± 5 °C, their surfaces was show no signs of rust. The test was applied only to screws, mounting metal and part of the enclosure.	P
3.6 (4.18.2)	- season cracking in copper		N/A
3.6 (4.18.3)	- corrosion of aluminium		P
3.6 (4.19)	Ignitors compatible with ballast	No ignitor.	N/A
3.6 (4.20)	Rough service vibration	The luminaire is not rough service luminaire.	N/A
3.6 (4.21)	Protective shield		N/A
3.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps	Lighting source is LED. The luminaire does not have tungsten halogen lamp.	N/A
	Shield of glass if tungsten halogen lamps		N/A
3.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
3.6 (4.21.3)	No direct path		N/A
3.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment.....:	See Test Table 3.15 (13.3.2)	N/A
3.6 (4.22)	Attachments to lamps not cause overheating or damage		N/A
3.6 (4.23)	Semi-luminaires comply Class II	The luminaire is not semi-luminaire.	N/A
*3.6 (4.24)	Photobiological hazards		*N/A
*3.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		*N/A
*3.6 (4.24.2)	Retinal blue light hazard		*N/A
	Class of risk group assessed according to IEC/TR 62778		—





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

	Luminaires with E_{thr} :		*N/A
	a) Fixed luminaires		*N/A
	- distance x m, borderline between RG1 and RG2...:		*N/A
	- marking and instruction according 3.2.23		*N/A
	b) Portable and handheld luminaires		*N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		*N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		*N/A
3.6 (4.25)	Mechanical hazard		P
	No sharp point or edges	Luminaire does have no sharp points or edges that could, during installation, normal use, or maintenance, create a hazard for the user.	P
3.6 (4.26)	Short-circuit protection		N/A
3.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts	The luminaire does not have uninsulated accesible SELV part.	N/A
3.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	Supply source ES1 PSE		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
3.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		N/A
	Test according Annex V	No such part.	N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
3.6 (4.28)	Fixing of thermal sensing control		N/A
	Not plug-in or easily replaceable type	There is no thermal sensing control other than the thermal sensing control that the LED driver has.	N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A

* Deney/Deneyler akreditasyon kapsamı dahilinde değildir.

* The test/tests are not within the scope of accreditation



Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material (°C):		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
3.6 (4.29)	Luminaires with non-replaceable light source		N/A
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
3.6 (4.30)	Luminaires with non-user replaceable light source		N/A
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N/A
	At least one fixing means requiring use of tool	The cover is fixed with screws.	N/A
3.6 (4.31)	Insulation between circuits		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
3.6 (4.31.1)	SELV or PELV circuits		P
	Used SELV/PELV source	Controlgear certified according to IEC 61347 was used to power the SELV or PELV circuits.	P
	Voltage ≤ ELV		P
	Insulating of SELV/PELV circuits from LV supply		N/A
	Insulating of SELV/PELV circuits from other non SELV/PELV circuits		N/A
	Insulating of SELV/PELV circuits from FELV		N/A
	Insulating of SELV/PELV circuits from other SELV/PELV circuits		N/A
	SELV/PELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.2)	FELV circuits		N/A





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

	Used FELV source	The luminaire does not have FELV circuit.	N/A
	Voltage $\leq$ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.3)	Other circuits		N/A
	Other circuits insulated from accessible parts according Table X.1		N/A
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together		N/A
	- test according 7.2.3		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
3.6 (4.32)	Overvoltage protective devices		N/A
	Comply with IEC 61643-11	The luminaire does not have overvoltage protective device.	N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
3.6 (4.33)	Luminaire powered via information technology communication cabling		N/A
	Requirements for Class III luminaire	The luminaire does not have information technology communication cabling.	N/A
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		N/A
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	N/A
3.6 (4.34)	Electromagnetic fields (EMF)		N/A
	No harmful electromagnetic fields		N/A
3.6 (4.35)	Protection against moving fan blades		N/A





Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

	Test with a standard test finger	The luminaire does not have fan blades.	N/A
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		N/A
	Blades rounded with radius ≥ 0.5 mm and:		N/A
	-hardness less than D60 Shore		N/A
	-peripheral speed less than 15 m/s		N/A
	-input power of fan ≤ 2 W at rated voltage		N/A
3.6 (4.36)	Track-mounted luminaires		N/A
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019	The luminaire is not track-mounted luminaire.	N/A
3.6.1 (-)	At least IP X3 or X5 respectively. IP	IP66.	P
	Column-integrated luminaires:		N/A
	- parts below 2,5 m. IP		N/A
	- parts above 2,5 m. IP		N/A
3.6.2 (-)	Suspension on span wires		N/A
3.6.3 (-)	Means for attaching the luminaire or external parts to its support appropriate to the weight	The means for attaching the luminaire or external part to its support is appropriate to the weight of the luminaire or external part. Compliance was checked by inspection and the test of 3.6.3.1.	P
3.6.3.1 (-)	Static load test		P
	- drag coefficient		P
	- loaded area (m ²)		P
	- used load (N)		P
	- measured deformation (cm/m)		P
	- no rotation		P
3.6.4 (-)	Adjustable lampholders	No lampholder.	N/A
3.6.5 (-)	Luminaires installed above 5 m, glass covers shall be:		P
	a) glass that fractures into small pieces (test according to 3.6.5.1), or		P
	b) glass having a high impact shock resistance (test according to 3.6.5.2), or		N/A
	c) protected by any means to retain glass fragments		N/A
	For tunnel luminaires 3.6.5.1 apply		N/A
	Method of protection declared by the manufacturer		N/A
3.6.5.1 (-)	Protection by the use of glass that fractures into small pieces		N/A
	- number of particles is more than 40		N/A





Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

3.6.5.2 (-)	Protection by the use of high impact resistant glass		P
3.6.5.2.1 (-)	Glass covers have high mechanical strength		P
	Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample		P
3.6.5.2.2 (-)	Glass covers not break into large pieces		N/A
	- test according 3.6.5.1, number of particles is more than 20..... :		N/A
3.6.6 (-)	Connection compartment of column-integrated luminaire		N/A
	- provides adequate space		N/A
	- means for attachment		N/A
	- means for attachment of metal corrosion-resistant		N/A
3.6.7 (-)	Compliance with ISO standard or other :		N/A
3.6.8 (-)	Doors of column-integrated luminaires:		N/A
	- corrosion-resistant		N/A
	- opening only possible for an authorized person		N/A
	- impact test 5 Nm		N/A
	- sample show no damage		N/A
3.6.9 (-)	Column-integrated luminaire:		N/A
	- dimension of the cable entry slot (mm) :		N/A
	- cable path from the slot to the connection compartment (mm) :		N/A
	- cable path free from obstruction that might cause abrasion of the cable		N/A
3.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
3.7 (11.2)	Creepage distances and clearances :	See Table 3.7 (11.2)	P
	Impulse withstand category (Normal category II) (Category III Annex U, Table U.1)	Category II ☒ Category III ☐	—
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
3.7 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 3.7 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{OUT} according IEC 61347-1, clause 7.1, item w	See Test Table 3.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 3.7 (11.2) II	N/A
3.7 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 3.7 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P	See Test Table 3.7 (11.2) II	N/A





Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 3.7 (11.2) II	N/A
--	---	------------------------------	-----

3.8 (7)	PROVISION FOR EARTHING		P
3.8 (7.2.1 + 7.2.3)	Accessible metal parts	Metal parts of Class I luminaires that are accessible when the luminaire is installed or opened for cleaning and that may become live in the event of an insulation fault are permanently connected to a protective earth terminal or protective earth contact.	P
	Metal parts in contact with supporting surface		P
	Resistance $< 0,5 \Omega$	Max resistance: 0.089Ω	P
	Self-tapping screws used	Self-tapping screws conforming to the requirements given in 4.12.1 are used to ensure continuity of protective earthing.	P
	Thread-forming screws		N/A
	Thread-forming screw used in a groove		N/A
	Protective earth makes contact first		P
	Terminal blocks with integrated screwless protective earthing contacts tested according Annex V	No such terminal.	N/A
	Protective earthing of the luminaire not via built-in control gear		P
3.8 (7.2.2 + 7.2.3)	Protective earth continuity in joints, etc.		N/A
3.8 (7.2.4)	Locking of clamping means	The connection is adequately locked against accidental loosening. It is not possible to loosen the clamping means by hand. It is not possible to loosen the clamping means unintentionally. Protective earthing terminal is comply with the requirements of 4.7.3.	P
	Compliance with 4.7.3	Compliance was checked by inspection, by manual test and by the tests specified in 4.7.3.	P
3.8 (7.2.5)	Protective earth terminal integral part of connector socket		N/A
3.8 (7.2.6)	Protective earth terminal adjacent to mains terminals		P
3.8 (7.2.7)	Electrolytic corrosion of the protective earth terminal	Checked by the test in clause 4.18.	P
3.8 (7.2.8)	Material of protective earth terminal		P





Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

	Contact surface bare metal		P
3.8 (7.2.10)	Class II luminaire for looping-in	Class I luminaire.	N/A
	Double or reinforced insulation to functional earth		N/A
3.8 (7.2.11)	Protective earthing core coloured green-yellow	The luminaire does not have supply cord. The earth wire used in the internal wiring is green-yellow.	N/A
	Length of earth conductor		N/A
3.8 (7.2.12)	PELV circuit connected to protective earth for functional purpose	The luminaire does not have PELV circuit.	N/A

3.9 (14)	SCREW TERMINALS		P
	Separately approved; component list	(see Annex 1)	P
	Part of the luminaire	(see Annex 3)	N/A

3.9 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		N/A
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 4)	N/A
3.10 (5)	EXTERNAL AND INTERNAL WIRING		P
3.10 (5.2)	Supply connection and external wiring		N/A
3.10 (5.2.1)	Means of connection		N/A
	Outdoor luminaire has not PVC insulated external wiring if not Class III or SELV/PELV circuits ≤ 25 V AC/60 V DC/25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment		N/A
3.10 (5.2.2)	Type of cable		N/A
	Nominal cross-sectional area (mm ²).....		N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
3.10 (5.2.3)	Type of attachment, X, Y or Z		N/A
3.10 (5.2.5)	Type Z not connected to screws		N/A
3.10 (5.2.6)	Cable entries:		N/A
	- suitable for introduction		N/A
	- adequate degree of protection		N/A
3.10 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
3.10 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed	The luminaire is Class I.	N/A
	- material in bushings		N/A





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
3.10 (5.2.9)	Locking of screwed bushings		N/A
3.10 (5.2.10)	Cord anchorage:		N/A
	- covering protected from abrasion		N/A
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
3.10 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
3.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
3.10 (5.2.10.3)	Tests:		N/A
	- impossible to push cable; unsafe		N/A
	- pull test: 25 times; pull (N).....:		N/A
	- torque test: torque (Nm)		N/A
	- displacement ≤ 2 mm		N/A
	- no movement of conductors		N/A
	- no damage of cable or cord		N/A
	- function independent of electrical connection		N/A
3.10 (5.2.10.4)	Luminaire with/designed for use with supply cord with maximum current of 2A:		N/A
	- Ordinary Class III luminaire supplied with SELV ≤ 25 V RMS/60V DC		N/A
	- Ordinary Class III luminaire supplied with PELV ≤ 12 V RMS/30V DC		N/A





Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

	- Other than ordinary Class III luminaire supplied with voltage $\leq 12V$ RMS/30V DC		N/A
	Pull test of 30N		N/A
3.10 (5.2.11)	External wiring passing into luminaire		N/A
3.10 (5.2.12)	Looping-in terminals		N/A
3.10 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
3.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
3.10 (5.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)	The luminaire is Class I luminaire.	N/A
3.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Appliance inlet or connector systems (IEC 61984)		N/A
3.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
3.10 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
3.10 (5.3)	Internal wiring		P
3.10 (5.3.1)	Internal wiring of suitable size and type	Type: H05VV-F	P
	Through wiring		P
	- not delivered/ mounting instruction		P
	- factory assembled		P
	- socket outlet loaded (A).....:		N/A
	- temperatures:	(see Annex 2)	P
	Green-yellow for protective earth only		P
3.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm ²).....:	0.75 mm ²	P
	Insulation thickness	Cable does have certificate.	N/A
	Extra insulation added where necessary		N/A



Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

3.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Cross-sectional area (mm ²)		N/A
3.10 (5.3.1.3)	Double or reinforced insulation for class II	The luminaire is Class I.	N/A
3.10 (5.3.1.4)	Conductors without insulation	No conductors without insulation.	N/A
3.10 (5.3.1.5)	SELV/PELV current-carrying parts		N/A
3.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
3.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.	No switch.	N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.	The luminaire does not have telescopic tube.	N/A
	No twisting over 360°		P
3.10 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
3.10 (5.3.4)	Joints and junctions effectively insulated		N/A
3.10 (5.3.5)	Strain on internal wiring		N/A
3.10 (5.3.6)	Wire carriers		N/A
3.10 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
3.10 (5.4)	Test to determine suitability of conductors having a reduced cross-sectional area		N/A
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	N/A
	No damage to luminaire wiring after test		N/A
3.10.1 (-)	Cord anchorage if applicable	The luminaire does not have cord anchorage.	N/A
	- pull test: 25 times; pull (N)		N/A
	- torque test: torque (Nm)		N/A



Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

3.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
3.11 (8.2.1)	Live parts not accessible	Luminaire was so constructed that their live parts are not accessible when the luminaire has been installed and wired as in normal use, and when it is opened as necessary for replacing replaceable light sources or (replaceable) starters, even if the operation cannot be achieved by hand. According to the manufacturer statement, the connectors cannot be opened without tools.	P
	Basic insulated parts not used on the outer surface without appropriate protection	Basic insulated parts was not used on the outer surface of the luminaire without appropriate protection against accidental contact.	P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires	The luminaire is fixed luminaire.	N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires	There are no access to basic insulated parts from the outside of the luminaire by means of a Ø,50 mm probe according to Figure 1 in IEC 61032:1997.	P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp	The luminaire does not have tungsten filament.	N/A
	Insulation lacquer not reliable		N/A
	Double-ended high pressure discharge lamp	The luminaire does not have discharge lamp.	N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
3.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position	The luminaire is fixed luminaire.	N/A
3.11 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement	The luminaire is Class I luminaire.	N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

	- glass protective shields not used as supplementary insulation		N/A
3.11 (8.2.3.b)	BC lamp holder of metal in class I luminaires shall be connected to protective earth		N/A
3.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)	The luminaire is nor ordinary luminaire.	N/A
	- voltage under load/ no-load DC (V)		N/A
	- interrupted DC voltage (V)		N/A
	- touch current if applicable (mA)		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V)		N/A
	- interrupted DC voltage (V)		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
3.11 (8.2.3.d)	PELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V)		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V)		N/A
	One pole insulated if required		N/A
3.11 (8.2.4)	Portable luminaire have protection independent of supporting surface	The luminaire is fixed luminaire.	N/A
3.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

3.11 (8.2.6)	Covers reliably secured	Covers and other parts providing protection against electric shock does have adequate mechanical strength and reliably secured so that they will not work loose with normal handling. A force of 80N was applied approximately perpendicular to the mounting/support surface. The cover was not work loose.	P
3.11 (8.2.7)	Luminaire other than below with capacitor > 0,5 µF not exceed 50 V 1 min after disconnection		N/A
	Portable luminaire with capacitor > 0,1 µF (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 µF (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A
3.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
3.12 (-)	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) before (9.3) as specified in 3.13		—
3.12 (12.2)	Selection of lamps and ballasts		—
	Lamp used according Annex B	(Lamp used see Annex 2) Light source is LED. LUXEON 5050	—
	Control gear if separate and not supplied	(Control gear used see Annex 2) The controlgear is supplied combined with the luminaire. Controlgear used: Type: ECXd 1400.311, Ref. No: 186776	—
3.12 (12.3)	Endurance test:		P
	a) mounting-position	The luminaire was positioned on a similar supporting surface (and in the same operating position) as for the normal operation thermal test (see IEC 60598-1 clause 12.4.1).	—
	b) test temperature (°C).....	25°C + 10°C= 35°C.	—
	c) total duration (h)	240 h	—
	d) supply voltage (V).....	240 x 1.1= 264 V	—
	d) if not equipped with control gear, constant voltage/current (V) or (A)		—
3.12 (12.3.1d)	d) Class III luminaires powered via information technology communication cable:		N/A



Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

	- voltage under normal operation (V).....:	The luminaire is not powered via information technology communication cable and the luminaire is Class I luminaire.	—
	- voltage under abnormal operation (V).....:		—
	e) luminaire ceases to operate	The luminaire was not stop operate.	—
	f) luminaire with constant light output function		P
3.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system	No track system.	N/A
	- marking legible		P
	- no cracks, deformation etc.		P
3.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
3.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	N/A
3.12 (12.6)	Thermal test (failed lamp control gear condition):		N/A
3.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A)	The controlgear does have thermal protection. See photos.	—
	- case of abnormal conditions.....:		—
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un		—
	- measured mounting surface temperature (°C) at 1,1 Un		N/A
	- calculated mounting surface temperature (°C)		N/A
	- track-mounted luminaires		N/A
3.12 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions.....:		—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C).....:		N/A
	- track-mounted luminaires		N/A
3.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
3.12 (12.7.1)	Luminaire without temperature sensing control		N/A



Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

3.12 (12.7.1.1)	Luminaire with fluorescent lamp $\leq 70W$		N/A
	Test method 12.7.1.1 or Annex W		—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions.....		—
	- Ballast failure at supply voltage (V)		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- case of abnormal conditions.....		—
	- measured winding temperature ($^{\circ}C$): at 1,1 Un.....		—
	- measured temperature of fixing point/exposed part ($^{\circ}C$): at 1,1 Un.....		—
	- calculated temperature of fixing point/exposed part ($^{\circ}C$)		—
	Ball-pressure test.....	See Table 3.15 (13.2.1)	N/A
3.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp $> 70W$, transformer $> 10 VA$		N/A
	- case of abnormal conditions.....		—
	- measured winding temperature ($^{\circ}C$): at 1,1 Un.....		—
	- measured temperature of fixing point/exposed part ($^{\circ}C$): at 1,1 Un.....		—
	- calculated temperature of fixing point/exposed part ($^{\circ}C$)		—
	Ball-pressure test.....	See Table 3.15 (13.2.1)	N/A
3.12 (12.7.1.3)	Luminaire with short circuit proof transformers $\leq 10 VA$		N/A
	- case of abnormal conditions.....		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
3.12 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link	Yes ☐ No ☐	—
	- manual reset cut-out.....	Yes ☐ No ☐	—
	- auto reset cut-out.....	Yes ☐ No ☐	—
	- case of abnormal conditions.....		—
	- highest measured temperature of fixing point/ exposed part ($^{\circ}C$):		—

	Ball-pressure test:.....:	See Table 3.15 (13.2.4)	N/A
3.12.1 (-)	Temperature reduction if for outdoor use only		P
3.12.2 (-)	(See above)	IP66.	—
3.12.3 (-)	Glass covers used within the thermal limits declared by the glass manufacturer	No glass.	N/A

3.13 (9)	RESISTANCE TO DUST AND MOISTURE		P
3.13.1 (-)	If IP > IP 20 the order of tests as specified in clause 3.12		P
3.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP	IP66. (LED Modüle)	—
	- mounting position during test	Normal use.	—
	- fixing screws tightened; torque (Nm).....		—
	- tests according to clauses	9.2.2 and 9.2.7	—
	- electric strength test afterwards	500, 1480V and 2960V	P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire	IP6X. (LED Modüle)	P
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		P
	c.1) For luminaires without drain holes – no water entry		P
	c.2) For luminaires with drain holes – no hazardous water entry	No drain hole.	N/A
	d) no water in watertight, pressure watertight, high pressure and temperature water jet-proof or high pressure and cold water jet-proof luminaire		P
	e) no contact with live parts (IP 2X)		N/A
	e) no entry into enclosure (IP 3X and IP 4X)		N/A
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)		N/A
	f) no trace of water on part of lamp requiring protection from splashing water		N/A
	g) no damage of protective shield or glass envelope		P
3.13 (9.3)	Humidity test 48 h	25°C and %93 Rh.	P



Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

3.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
3.14 (10.2.1)	Insulation resistance test	The insulation resistance is measured with a DC voltage of approximately 500 V, 1 min after the application of the voltage. For the insulation of SELV or PELV parts of luminaire is, the DC voltage to be used for measurement is 100 V.	P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø		—
	Insulation resistance (MΩ).....		—
	SELV/PELV:		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface	>20000 MΩ	P
	- between current-carrying parts and metal parts of the luminaire	>20000 MΩ	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5	The luminaire does not have bushing.	N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity		N/A
	- between live parts and mounting surface.....	>20000 MΩ	P
	- between live parts and metal parts.....	>20000 MΩ	P
	- between live parts of different polarity through action of a switch	The luminaire does not have switch.	N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5	The luminaire does not have bushing.	P
3.14 (10.2.2)	Electric strength test		P
	Dummy lamp	The luminaire does not have dummy lamp.	N/A
	Luminaires with ignitors after 24 h test	No ignitor.	N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V)	500V, 1480V and 2960V	P
	SELV/PELV:		P
	- between current-carrying parts of different polarity :		N/A





Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

	- between current-carrying parts and mounting surface	500V applied.	P
	- between current-carrying parts and metal parts of the luminaire	500V applied.	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5	The luminaire does not have bushing.	N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity		N/A
	- between live parts and mounting surface	1480V applied.	P
	- between live parts and metal parts	1480V applied.	P
	- between live parts of different polarity through action of a switch		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
3.14 (10.3)	Touch current (mA)	Max: 0.028	P
	Protective conductor current (mA)	0.041	P

3.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		N/A
3.15 (13.2.1)	Ball-pressure test	See Test Table 3.15 (13.2.1)	N/A
3.15 (13.3.1)	Needle-flame test (10 s)	See Test Table 3.15 (13.3.1)	N/A
3.15 (13.3.2)	Glow-wire test (650°C)	See Test Table 3.15 (13.3.2)	N/A
3.15 (13.4)	Proof tracking test (IEC 60112)	See Test Table 3.15 (13.4)	N/A

3.7 (11.2)	TABLE I: Creepage distances and clearances						P
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages						P
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*						P
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Distance 1:	R	4.86 mm	3 mm	11.1.B	16.06 mm	5.0 mm	11.1.A
Working voltage (V)					220 - 240		—
PTI.....					< 600 ☒ $\geq$ 600 ☐		—
Pulse voltage or U_P if applicable (kV)							—
Supplementary information: L – N							
Distance 2:							
Working voltage (V)							—
PTI.....					< 600 ☐ $\geq$ 600 ☐		—
Pulse voltage or U_P if applicable (kV)							—
Supplementary information:							
Distance 3:							
Working voltage (V)							—
PTI.....					< 600 ☐ $\geq$ 600 ☐		—
Pulse voltage or U_P if applicable (kV)							—
Supplementary information:							

** Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

3.7 (11.2)	TABLE II: Creepage distances and clearances							N/A
Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages								
Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2								
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required		
			clearance	*Table		creepage	*Table	
Distance 1:								
Working voltage (V)							—	
Frequency if applicable (kHz)							—	
PTI.....					< 600 ☐ ≥ 600 ☐		—	
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)							—	
Supplementary information:								
Distance 2:								
Working voltage (V)							—	
Frequency if applicable (kHz)							—	
PTI.....					< 600 ☐ ≥ 600 ☐		—	
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)							—	
Supplementary information:								
Distance 3:								
Working voltage (V)							—	
Frequency if applicable (kHz)							—	
PTI.....					< 600 ☐ ≥ 600 ☐		—	
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)							—	
Supplementary information:								

** Insulation type: B – Basic; S – Supplementary; R – Reinforced.

3.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics				N/A
Allowed impression diameter (mm)			2		—
Object/ Part No./ Material		Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Supplementary information:					





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

3.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Supplementary information:					

3.15 (13.3.2)	TABLE: Resistance to heat and fire - Glow wire tests						N/A
Object/ Part No./ Material	Manufacturer/ trademark	Glow wire test (°C)					Verdict
		650		750		850	
		te	ti	te	ti		
Ignition of the specified layer placed underneath the test specimen (Yes/No)..... :							
Supplementary information:							

3.15 (13.4)	TABLE: Proof tracking test				N/A
Test voltage PTI		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
Supplementary information:					



Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

ANNEX 1		TABLE: Critical components information				P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
Driver	C	VOSSLOH SCHWABE	Type: ECXd 700.436 187053	U: 59V, 26W	EN 61347-1 EN 61347-2-13	Declared
Cable	C	Pamukkale	HO5VV-F	300/500V 3x0.75mm ²	TS EN 50525-2-11	Declared
LED	C	NICHIA	NF2757 SERIES	-	IEC 62471:2006 IEC 60825-1:2007	Declared

Supplementary information: **Components have been tested with the product. You can also access certificates from documentation of client.**

¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.

The codes above have the following meaning:

- A - The component is replaceable with another one, also certified, with equivalent characteristics
- B - The component is replaceable if authorised by the test house
- C - Integrated component tested together with the appliance
- D - Alternative component

ANNEX 2		TABLE: Thermal tests of Section 12		P
	Type reference			—
	Lamp used			—
	Lamp control gear used			—
	Mounting position of luminaire	Normal use.		—
	Supply wattage (W)			—
	Supply current (A)			—
	Temperatures in test 1 - 4 below are corrected for ta (°C)			—
	- abnormal operating mode			—
3.12 (12.4)	- test 1: rated voltage	220 V and 240 V		—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	254.4 V ≈ 255 V		—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage			—
	Through wiring or looping-in wiring loaded by a current of A during the test			—
3.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current or 130/150% of rated input voltage			—
Temperature measurements (°C)				





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri
Yol ve Cadde Aydınlatma Armatürleri
Luminaries Safety Tests
Luminaires for Road and Street Lighting

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
1) Power Supply T _c	20.3 – 21.2 – 20.5	51.5	51.1	-	85	-	-
2) LED Enclosure	20.3 – 21.2 – 20.5	52.4 – 52.2	52.2	-	125	-	-
3) Internal Cable	20.3 – 21.2 – 20.5	33.4 – 33.1	33.1	-	90	-	-
4) Plastic Box	20.3 – 21.2 – 20.5	39.2 – 39.0	39.0	-	90	-	-
5) Enclosure (Top)	20.3 – 21.2 – 20.5	32.0 – 29.7	29.7	-	90	-	-
6) Mounting Surface	20.3 – 21.2 – 20.5	31.3 – 30.9	30.9	-	90	-	-
7) Power Cable	20.3 – 21.2 – 20.5	27.9 – 27.8	27.8	-	90	-	-
Supplementary information: The experiment was performed at both frequencies. The highest measured values and oscillograms have been added.							





Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

ANNEX 3	Screw terminals (part of the luminaire)		N/A
(14)	SCREW TERMINALS		N/A
(14.2)	Type of terminal		—
	Rated current (A)		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm ²)		—
(14.3.3)	Conductor space (mm)		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread)	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion	Checked by section 4.	N/A
(14.4.6)	Nominal diameter of thread (mm)		N/A
	Torque (Nm)		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N)		N/A
(14.4.8)	Without undue damage		N/A

ANNEX 4	Screwless terminals (part of the luminaire)		N/A
(15)	SCREWLESS TERMINALS		N/A
(15.2)	Type of terminal	No screwless terminal.	—
	Rated current (A)		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A





Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5)	Terminals and connections for internal wiring		N/A
(15.5.1)	Mechanical tests		N/A
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:		N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....:		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples)		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples)		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples)		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
15.6.2	Mechanical tests		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N)		N/A
(15.6.3)	Electrical tests		N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A



Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

Test Laboratuvarları

(15.6.3.1) (15.6.3.2)	TABLE: Contact resistance test / Heating tests										N/A
	Voltage drop (mV) after 1 h										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop of two inseparable joints										
	Voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV) :										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop after 50th alt. 100th cycle										
	Max. allowed voltage drop (mV) :										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV) :										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Continued ageing: voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV) :										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Continued ageing: voltage drop after 50th alt. 100th cycle										
	Max. allowed voltage drop (mV) :										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
Supplementary information:											





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri
Yol ve Cadde Aydınlatma Armatürleri
Luminaries Safety Tests
Luminaires for Road and Street Lighting

10. Deney ve Ölçüm Bilgileri:
Test And Measuring Arrangement

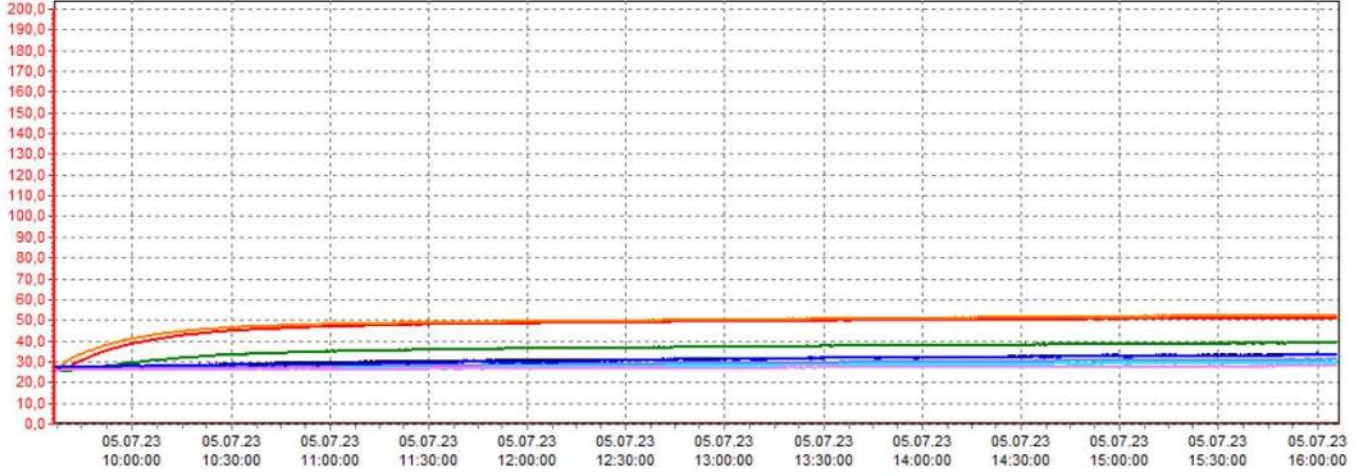
Cihaz Device	İmalatçı Manufacturer	Seri No. / Kod Serial No / Code	Sertifika No Certificate No	Kalibrasyon Tarihi Calibration Date
Humidity Temperature Meter	CEM	LC349	2325972	May/2024
Temperature Rise Data Logger	ELİMKO	LC118	3283002	July/2024
Caliper	TM-150	LC159	179210	September/2023
Torque Meter	AUTE	LC177	2120858	June/2024
Humidity Cabinet	NÜKLEON	LC215	23/1219 ve 23/1220	July/2024
Test Finger	-	LC205	22M04234	May/2025
Newtonmeter	NK-500	LC204	2256986	November/2023
Multimeter	FLUKE	LC332	2207531D	December/2023
Portable Variac	DHUMA	LC484	-	-
Perforated Metal Housing	LVT	LC393	-	-
Spring Hammer (0,5J)	-	LC220	2325966	May/2025
CE MULTITESTER	METREL	LC558	2303974	July/2024



11. Deney Osilogramları:

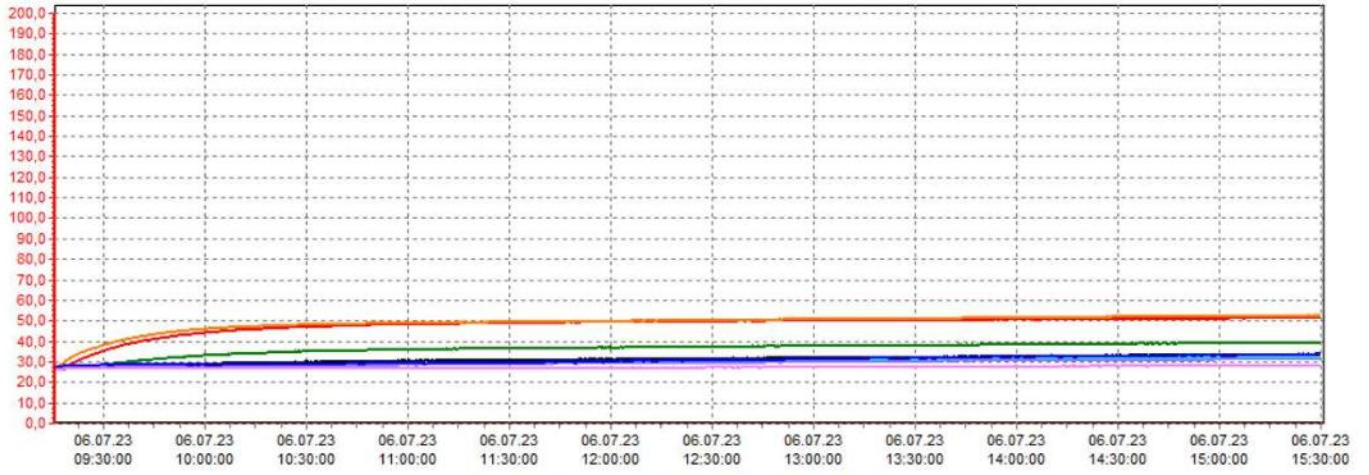
Test Oscillograms

— E-680-02-Kanal-01 PV — E-680-02-Kanal-02 PV — E-680-02-Kanal-03 PV — E-680-02-Kanal-04 PV — E-680-02-Kanal-05 PV — E-680-02-Kanal-06 PV — E-680-02-Kanal-07 PV
 — E-680-02-Kanal-08 PV



Temperature Rise Test 220V – 50Hz (1 - 8)

— E-680-02-Kanal-01 PV — E-680-02-Kanal-02 PV — E-680-02-Kanal-03 PV — E-680-02-Kanal-04 PV — E-680-02-Kanal-05 PV — E-680-02-Kanal-06 PV — E-680-02-Kanal-07 PV
 — E-680-02-Kanal-08 PV



Temperature Rise Test 240V – 50Hz (1 - 8)

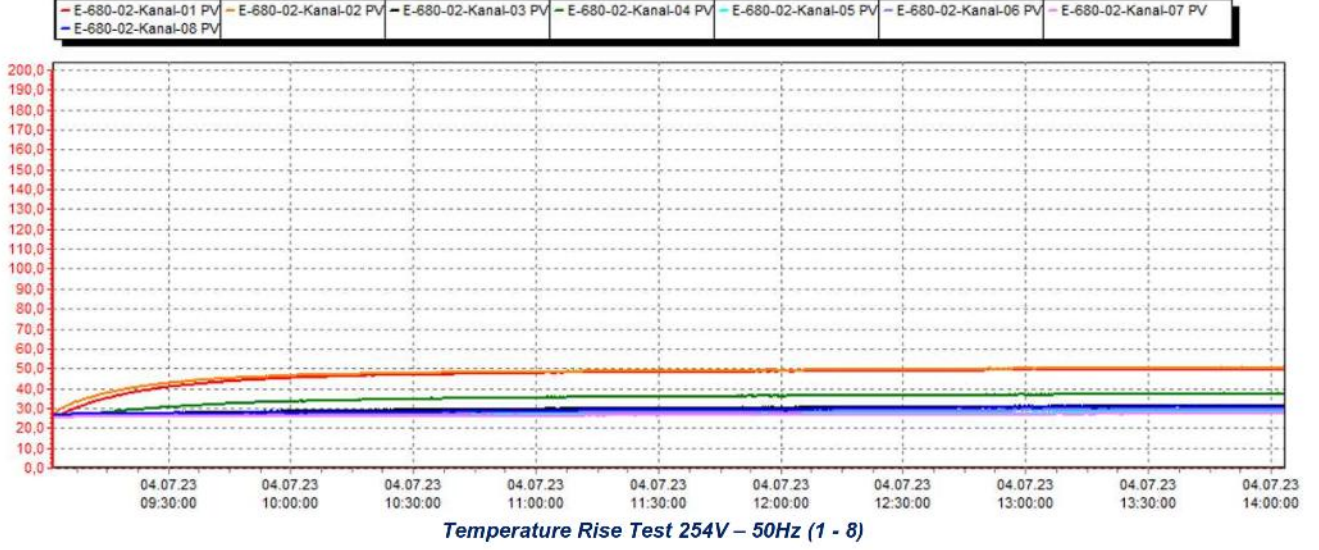


Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri

Yol ve Cadde Aydınlatma Armatürleri

Luminaries Safety Tests
Luminaires for Road and Street Lighting





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

12. Deney Fotoğrafları: *Test Photographs*



Photograph 1: General View (Front)



Photograph 2: General View

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting



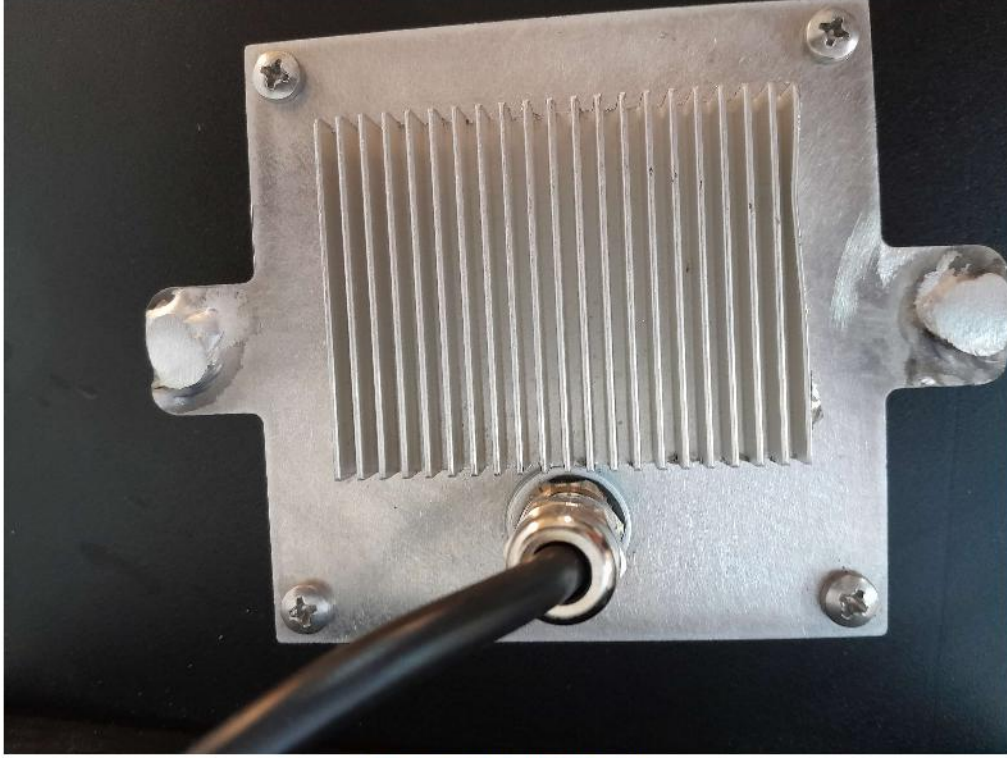
Photograph 3: General View



Photograph 4: General View (Back)

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaries Safety Tests
Luminaires for Road and Street Lighting



Photograph 5: LED Module

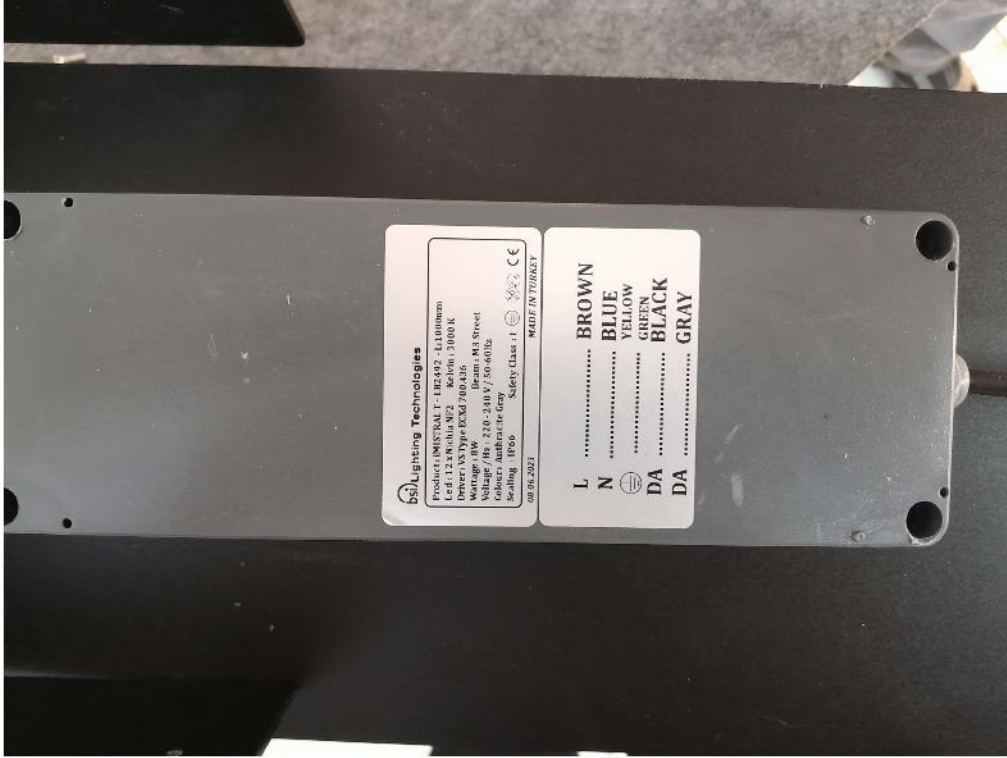


Photograph 6: LED

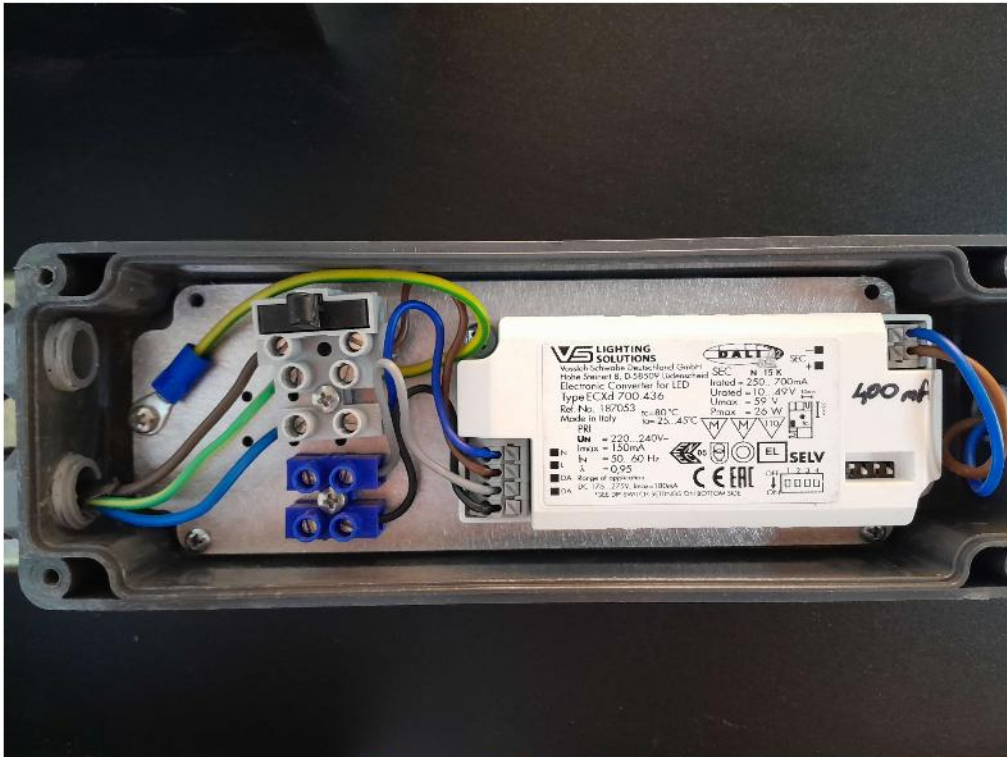
Aydınlatma Armatürleri Güvenlik Deneyleri

Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting



Photograph 7: Power Supply Box



Photograph 8: Power Supply



Photograph 9: Mounting Surface

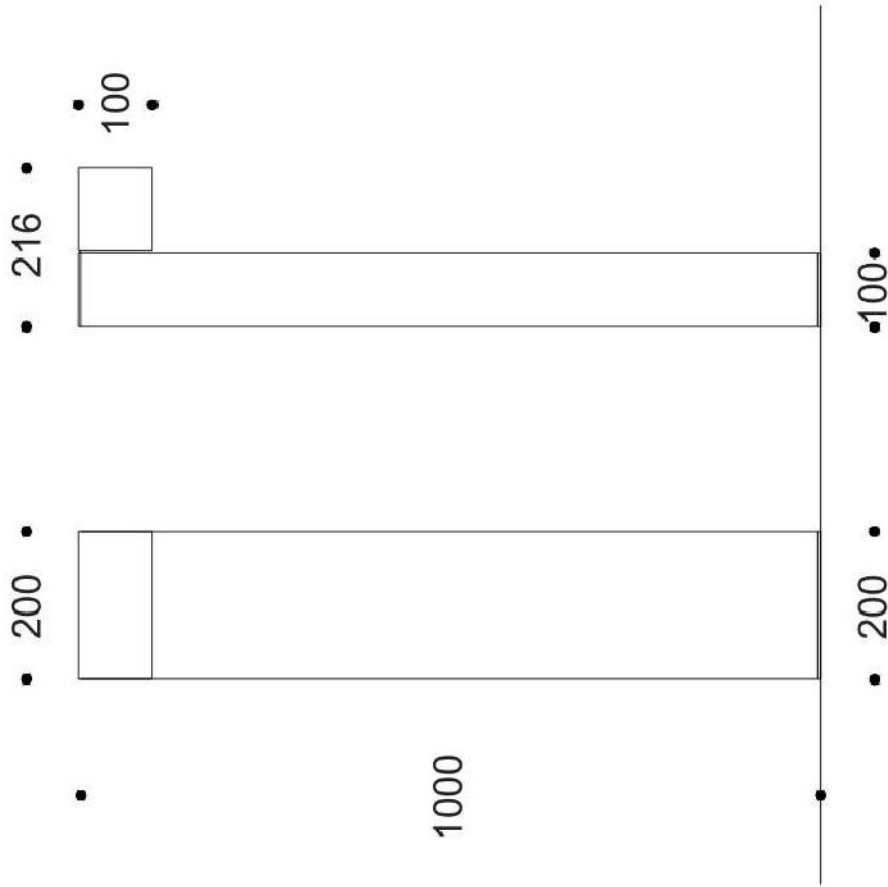


Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaires Safety Tests
Luminaires for Road and Street Lighting

13. Firma Dokümanları: *Documentary of Client*





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri Yol ve Cadde Aydınlatma Armatürleri

Luminaries Safety Tests
Luminaires for Road and Street Lighting



BSİ AYDINLATMA SAN. VE TİC. A.Ş.

Kritik Komponent Listesi**

Critical Component List

Object / part No.	Manufacturer/ trademark	Model	Technical data	Standard	Mark(s) of conformity
SÜRÜCÜ	VOSSLOH SCHWABE	Type ECXd 700.436 187053	26W 59V DALI 250-700mA	• EN 61347-1 • EN 61347-2-13 • EN 61547 • EN 61000-3-3 • EN 62384 • EN 55015 • IEC 62386 ed. 2 part 102/103/207 • VDE 0710-T14	
LED	Nichia	NF2757 SERIES	High Performas Power Led	30X30	Lm-80
KABLO	Pamukkale	H05VV-F		TS EN 50525-2-11:2011	TSE
KLEMENS	Adels	1003-Si- 3E	working temperature 100 °C short-time temperature 160 °C	DIN EN 60127-1 (VDE 0820-1):2015-12; EN 60127-1:2006+A1:2011+A2:2015 DIN EN 60127-6 (VDE 0820-6):2015-07; EN 60127-6:2014	VDE
MERCEK	LIMBUS	TLS-12N1-STL-ME3	ASYM 50x50x4.79 mm	MERCEK	
REKOR	REKSAN	PG7	Pirinç (MS 58) Nikel Kaplama , IP 68	CE	
REKOR	ORTAÇ	PG7 - ORGL PG9 - ORGL	POLYAMID IP68 -30°C +80°C	VDE TSE EN 61386-22	VDE / CE

bsi
BSİ AYDINLATMA SAN. VE TİC. A.Ş.
Başkent OSB 20 Cadde No:3/4
Malıköy/Sincan/ANKARA
Tic.Sic.No:339371 Mersis No: 0187065266200001
Sincan/TC 1670652662
Web:bsilighting.com E-mail:info@bsilighting.com

BSİ AYDINLATMA SAN. VE TİC. A.Ş.

Başkent OSB, 20 Cad. No:3/4 Malıköy - Sincan - Ankara / TURKEY
T: +90.312.472.42.50 F:+90.312.502 74 75
bsilighting.com - info@bsilighting.com
MERSIS NO: 0187065266200001 REGISTRY NO: 359371





Test Laboratuvarları

Aydınlatma Armatürleri Güvenlik Deneyleri
Yol ve Cadde Aydınlatma Armatürleri
Luminaires Safety Tests
Luminaires for Road and Street Lighting

NICHIA STS-DA1-2942A <Cat.No.140116>

NICHIA CORPORATION

SPECIFICATIONS FOR WARM WHITE LED

NF2L757DRT-V1

- Pb-free Reflow Soldering Application
- Built-in ESD Protection Device
- RoHS Compliant

