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
21-2936-R0-N1-1
01-22

DENEY RAPORU

Test Report

Müşteri *Client*	:	BSI AYDINLATMA ELEK. ELEKT. SAN. ve TİC. A.Ş.
Adres *Address*	:	KONUTKENT MAH. 3029 CAD. NO:3/91 06810, ÇANKAYA, ANKARA/TÜRKİYE
İmalatçı *Manufacturer*	:	BSI AYDINLATMA ELEK. ELEKT. SAN. ve TİC. A.Ş.
Deney Numunesi *Test Sample*	:	DEKORATİF DUVARA GÖMME LED AYDINLATMA ARMATÜRÜ
Marka *Trade Mark*	:	BSI
Deney Metodu *Test Method*	:	IEC 60598-2-2:2011, TS EN 60598-2-2:2012
Deney Tarihi *Date of Test*	:	10.12.2021 – 13.01.2022
Toplam Sayfa Sayısı *Total Number of Pages*	:	57
Basım Tarihi *Date of Issue*	:	14.01.2022

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.

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Deney ve / veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (talep halinde) ve deney metotları, 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*	**Laboratuvar Müdürü** *Head of Testing Laboratory*
	Mustafa YETİŞEN	Ata Gürül ARSLANLI

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

İçindekiler **Sayfa**
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1. Numunelerin Tanımı : **Dekoratif Duvara Gömme Led Aydınlatma Armatürü**
Definition of the Samples *Decorative Wall Recessed LED Lighting Fixture*

1.1 Dekoratif Duvara Gömme Led Aydınlatma Armatürü **(21-2936-R0-N1)**

Numune Kabul Tarihi *Receiving Date*		:	10.12.2021
Numune Seri No *Serial No*		:	AC5015
Tip *Type*		:	iCAVA
Kutup Sayısı *Number of Poles*		:	LN + PE
Beyan Gerilimi *Rated Voltage*	U_n	:	220 – 240V
Beyan Akımı *Rated Current*	I_n	:	350mA
Beyan Güç *Rated Power*	P_n	:	14W
Beyan Frekans *Rated Frequency*	f_n	:	50 – 60Hz
Beyan Koruma Derecesi *Rated Degree of Protection*	IP	:	65
Numune Boyutları *Dimensions of the Sample*	mm	:	245x245x125
Numune Ağırlığı *Weight of the Sample*	kg	:	4.4
Sınıf *Class*		:	Class I
Cihaz – Malzeme Listesi *Device – Component List*		:	Bakınız Firma Dokümanlarına *See Client Documentation*

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 *Sample*	**Uygulanan Deney** *Applied Test*	**Sonuç** *Result*
Dekoratif Duvara Gömme Led Aydınlatma Armatürü *Decorative Wall Recessed LED Lighting Fixture*	**IEC 60598-2-2:2011, TS EN 60698-2-2:2012**	**OLUMLU** *PASSED*

3. Çevre Şartları
Environmental Conditions

3.1 Ortam Sıcaklığı : (15-30) °C
Ambient Temperature

3.2 Ortam Nemi : (30-60) %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.*

5. Şartnamelere Uygunluk (Gerekli Hallerde) : -
Conformity to Specifications (If Necessary)

6.	**Dağıtım Bilgileri** *Distrubition Information*	:	BSI AYDINLATMA ELEK. ELEKT. SAN. ve TİC. A.Ş.
7.	**Açıklama** *Explanation*	:	Numune silikon ile güçlendirilmiştir. *The sample is reinforced with silicon.*
8.	**Ölçüm Belirsizliği** *Uncertainty of Measurement*	:	Detaylar aşağıdaki tabloda verilmiştir. *The details are mentioned table below.*

Beyan edilen genişletilmiş ölçüm belirsizliği, standart belirsizliğin k=2 olarak alınan genişletme katsayısı ile çarpımı sonucunda bulunan değerdir ve % 95 oranında güvenilirlik sağlamaktadır.
The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement *multiplied by the coverage factor k=2 which for a normal distribution corresponds to a coverage probability of approximately 95 %.*

Deney bilgisi *Test details*	**Cihaz kodu** *Device code*	**Ölçülen değer** *Measured value*	**Ölçüm belirsizliği** *Measurement uncertainty*
Ambient Temperature	LC349	See Clause 3.1	±1.18°C
		See Clause 3.2	±%5.64 Rh
Temperature Rise Limits	LC63	See Annex 2	±1.56°C
Humidity Conditioning	LC215	25°C	±1.27°C
		93%Rh	±%3.88 Rh
Electric Strength	LC482	See Clause 10.2.2	±0.033 kV
Touch Current	LC88	See Clause 10.3	±0.05 mA
Clearances	LC365	See Table 11.2	±%0.08
Creepage Distances	LC365	See Table 11.2	±%0.08
Earthing Resistance	LC481	0.047 Ω	±%2.06
Insulation Resistance	LC475	See Clause 10.2.1	±%3.44

9. Deney Uygulamaları:
Test Applications

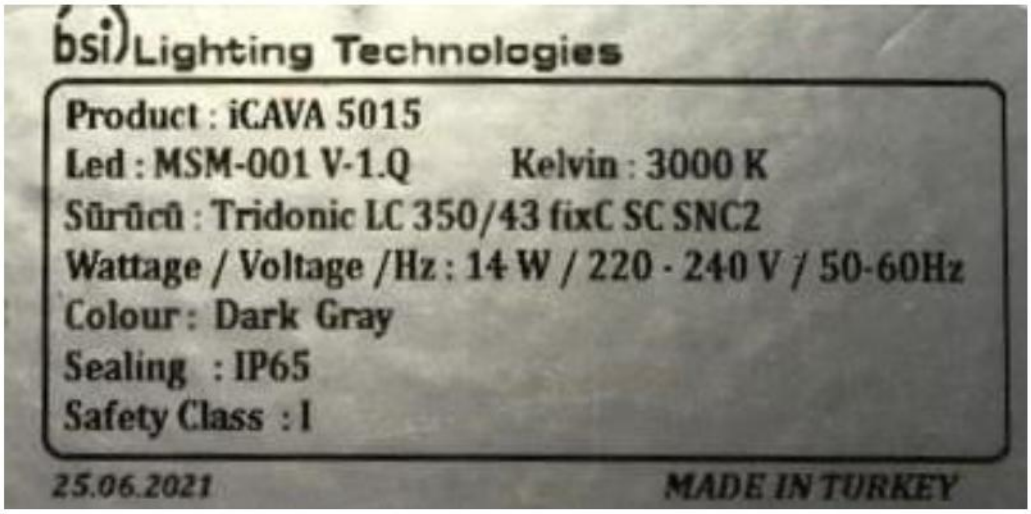
TEST REPORT
IEC 60598-2-2
Luminaires
Part 2: Particular requirements:
Section Two – Recessed luminaires

Test specification:	
Standard ..... :	IEC 60598-2-2:2011 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_2G
Test Report Form(s) Originator.... :	Intertek Semko AB
Master TRF ..... :	Dated 2021-08-20

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.

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 item particulars .....:	
Classification of installation and use .....:	Class I.
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.....:	10.12.2021
Date (s) of performance of tests.....:	10.12.2021 – 13.01.2022

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 Wall Recessed LED Lighting Fixture

P:Passed, F:Fail, N/A:Not Applicaple

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.3 (0)	**GENERAL TEST REQUIREMENTS**		**P**
2.3 (0.3)	More sections applicable..... :	Yes ☐ No ☒ Section/s:	—
2.3 (0.5)	Components	(see Annex 1)	—
2.3 (0.7)	**Information for luminaire design in light sources standards**		—
2.3 (0.7.2)	Light source safety standard ..... :		—
	Luminaire design in the light source safety standard		P
2.5 (2)	**CLASSIFICATION OF LUMINAIRES**		**P**
2.5 (2.2)	Type of protection .....:	Class I.	—
2.5 (2.3)	Degree of protection .....:	IP 65.	—
2.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces .....:	Yes ☒ No ☐	—
2.5 (2.5)	Luminaire for normal use .....:	Yes ☒ No ☐	—
	Luminaire for rough service .....:	Yes ☐ No ☒	—
2.6 (3)	**MARKING**		**P**
2.6 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
2.6 (3.3)	Additional information		P
	Language of instructions	Turkish.	P
2.6 (3.3.1)	Combination luminaires	The luminaire is not combination luminaire.	N/A
2.6 (3.3.2)	Nominal frequency in Hz	50 – 60Hz.	P
2.6 (3.3.3)	Operating temperature	The manufacturer did not declare any operating temperature.	N/A
2.6 (3.3.5)	Wiring diagram	The luminaire can be connected directly to the mains.	N/A
2.6 (3.3.6)	Special conditions		P
2.6 (3.3.7)	Metal halide lamp luminaire – warning	The luminaire is not metal halide lamp luminaire.	N/A

2.6 (3.3.8)	Limitation for semi-luminaires	The luminaire is not semi-luminaire.	N/A
2.6 (3.3.9)	Power factor and supply current		P
2.6 (3.3.10)	Suitability for use indoors	The luminaire is not use indoors.	N/A
2.6 (3.3.11)	Luminaires with remote control	The luminaire does not have remote control.	N/A
2.6 (3.3.12)	Clip-mounted luminaire – warning	The luminaire is not clip-mounted luminaire.	N/A
2.6 (3.3.13)	Specifications of protective shields	The manufacturer has provided the specifications of all protective shields.	P
2.6 (3.3.14)	Symbol for nature of supply	For alternating current, the rated frequency in hertz in sufficient to identify the type of current.	P
2.6 (3.3.15)	Rated current of socket outlet	No such part.	N/A
2.6 (3.3.16)	Rough service luminaire	The luminaire is not rough service luminaire.	N/A
2.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	The luminaire is Type Y.	P
2.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
2.6 (3.3.19)	Protective conductor current in instruction if applicable		N/A
2.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
2.6 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		P
2.6 (3.3.22)	Controllable luminaires, classification of insulation provided	The luminaire is not controllable luminaire.	N/A
2.6 (3.3.23)	Luminaire without controlgear provided with necessary information for selection of appropriate component		N/A
2.6 (3.3.24)	If not supplied with terminal block, information on the packaging		P
2.6 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided	The luminaire does not have light sources emitting UV.	N/A
2.6 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		P
2.6 (3.4)	Test with water	The test was carried out with distilled water for 15 seconds.	P
	Test with hexane	The test was carried out with petroleum ether for 15 seconds.	P
	Legible after test		P

	Label attached		P

2.7 (4)	**CONSTRUCTION**		**P**
2.7 (4.2)	Components replaceable without difficulty	The luminaire is designed with sufficient space to allow replacement of replaceable components or parts without difficulty and without compromising safety.	P
2.7 (4.3)	Wireways smooth and free from sharp edges	Wireways are smooth and free from sharp edges, burrs, flashes ande the like, which might cause abrasion of the insulation of the wiring.	P
2.7 (4.4)	**Lampholders**		**N/A**
2.7 (4.4.1)	Integral lampholder	The luminaire does not have lampholder.	N/A
2.7 (4.4.2)	Wiring connection		N/A
2.7 (4.4.3)	Lampholder for end-to-end mounting		N/A
2.7 (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
2.7 (4.4.5)	Peak pulse voltage		N/A
2.7 (4.4.6)	Centre contact		N/A
2.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
2.7 (4.4.8)	Lamp connectors		N/A
2.7 (4.4.9)	Caps and bases correctly used		N/A
2.7 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
2.7 (4.5)	**Starter holders**		**N/A**
	Starter holder in luminaires other than class II	The luminaire does not have starter holder.	N/A
	Starter holder class II construction		N/A
2.7 (4.6)	**Terminal blocks**		**N/A**
	Tails	No such part.	N/A

	Unsecured blocks		N/A
2.7 (4.7)	**Terminals and supply connections**		**P**
2.7 (4.7.1)	Contact to metal parts	The luminaire is not prtable luminaires of class I and II and fixed luminaires of class I and II that are frequently adjusted.	N/A
2.7 (4.7.2)	Test 8 mm live conductor	Live parts are protected in the enclosure.	P
	Test 8 mm earth conductor		P
2.7 (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.	P
2.7 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor	No such part.	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
2.7 (4.7.4)	Terminals other than supply connection	The luminaire does not have terminails other than those for the supply connection, which are not covered by separate standarts for components.	N/A
2.7 (4.7.5)	Heat-resistant wiring/sleeves	No such part.	N/A
2.7 (4.7.6)	Multi-pole plug	The luminaire does not have multi-pole plug.	N/A
	- test at 30 N		N/A
2.7 (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
2.7 (4.9)	**Insulating lining and sleeves**		**P**
2.7 (4.9.1)	Retainment	The insulations are electrically suitable.	P
	Method of fixing..... :	Insulating linings are fixed by compression.	P

2.7 (4.9.2)	Insulated linings and sleeves:		N/A
	Resistant to a temperature > 20 °C to the wire temperature or	There are no cables reaching extreme temperatures.	N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C)..... :		N/A
2.7 (4.10)	**Double or reinforced insulation**		**N/A**
2.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation	The luminaire is Class I.	N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
2.7 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
2.7 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
2.7 (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 at least two separate resistors in series or appropriate capacitor(s)		N/A
	Capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.2 of IEC 60065		N/A
2.7 (4.11)	**Electrical connections and current-carrying parts**		**P**
2.7 (4.11.1)	Contact pressure	There is enough flexibility.	P
2.7 (4.11.2)	Screws:		P
	- self-tapping screws	Self-tapping screws are used for mounting and grounding.	P
	- thread-cutting screws	No such part.	N/A
2.7 (4.11.3)	Screw locking:		N/A
	- spring washer	There are no screws or rivets that serve as electrical connections.	N/A
	- rivets		N/A
2.7 (4.11.4)	Material of current-carrying parts		P

2.7 (4.11.5)	No contact to wood or mounting surface	Current-carrying parts are not be in direct contact with the mounting surface.	P
2.7 (4.11.6)	Electro-mechanical contact systems	The luminaire does not have electro-mechanical contact system.	N/A
2.7 (4.12)	**Screws and connections (mechanical) and glands**		**P**
2.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material	The luminaire does not have screws of insulating material.	N/A
	Torque test: torque (Nm); part ..... :	Enclosure screw : 1.20Nm	P
	Torque test: torque (Nm); part ..... :	Mounting screw : 0.70Nm	P
	Torque test: torque (Nm); part ..... :	LED Fixing Screw : 0.40Nm	P
2.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal	Enclosure screw : 3.86mm Mounting screw : 3.88mm LED Fixing Screw : 2.59mm	P
2.7 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm) ..... :	The luminaire does not have fixed arm.	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
2.7 (4.12.5)	Screwed glands; force (Nm) ..... :	3.25 Nm.	P
2.7 (4.13)	**Mechanical strength**		**P**
2.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :	0.2 Nm.	P
	- other parts; energy (Nm)..... :	0.35 Nm.	P
	1) live parts	Live parts does not have become accessible.	P
	2) linings	The effectiveness of insulating linings and barriers are not have been impaired.	P
	3) protection	IP 65.	P
	4) covers	It is possible to remove and to replace external covers without these covers or their insulating linings breaking.	P
2.7 (4.13.2)	Metal parts have adequate mechanical strength	Metal parts enclosing live parts does have adequate mechanical strength.	P

2.7 (4.13.3)	Straight test finger	During the test, metal parts are not touch live parts.	P
2.7 (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
2.7 (4.13.6)	Tumbling barrel	No such part.	N/A
2.7 (4.14)	**Suspensions, fixings and means of adjusting**		**P**
2.7 (4.14.1)	Mechanical load:		P
	A) four times the weight	Mechanical suspensions, fixings and conncetions does have adequate factors of safety.	P
	B) torque 2,5 Nm	The luminaire is not rigid suspension 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 luminaire.	N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :	The luminaire is not clip-mounted luminaire.	N/A
	Metal rod. diameter (mm) ..... :		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
2.7 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) ..... :	The luminaire is not luminaire suspended by flexible cables or cords.	—
	Stress in conductors (N/mm²) ..... :		N/A
	Mass (kg) of semi-luminaire ..... :		N/A
	Bending moment (Nm) of semi-luminaire ..... :		N/A
2.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles ..... :	The luminaire does not have adjusting device.	N/A
	- strands broken ..... :		N/A
	- electric strength test afterwards		N/A

2.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors	The luminaire does not have telescopic tube.	N/A
2.7 (4.14.5)	Guide pulleys	The luminaire does not have guide pulley.	N/A
2.7 (4.14.6)	Strain on socket-outlets	The luminaire does not have socket-outles.	N/A
2.7 (4.15)	**Flammable materials**		**N/A**
	- glow-wire test 650°C..... :	~~See Test Table 2.16 (13.3.2)~~	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
2.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction	The luminaire is not made of thermoplastic materials.	N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
2.7 (4.16)	**Luminaires for mounting on normally flammable surfaces**		**P**
	No lamp control gear..... :	(compliance with Section 12)	P
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces	The luminaire does not have any adaptor.	N/A
2.7 (4.16.1)	Lamp control gear spacing:		P
	- spacing 35 mm		N/A
	- spacing 10 mm		P
2.7 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear	The luminaire does not have thermal protection.	N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
2.7 (4.16.3)	Design to satisfy the test of 12.6	~~(see clause 12.6)~~	N/A
2.7 (4.17)	**Drain holes**		**N/A**
	Clearance at least 5 mm	The luminaire does not have any drain hole.	N/A
2.7 (4.18)	**Resistance to corrosion**		**P**

2.7 (4.18.1)	- rust-resistance	The ferrous parts of the luminaire are sufficiently protected against corrosion.	P
2.7 (4.18.2)	- season cracking in copper	No such part.	N/A
2.7 (4.18.3)	- corrosion of aluminium	No such part.	N/A
2.7 (4.19)	Ignitors compatible with ballast	The luminaire does not have ignitors compatible.	N/A
2.7 (4.20)	Rough service vibration	The luminaire is not rough service luminaire.	N/A
2.7 (4.21)	**Protective shield**		**N/A**
2.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps	No such part.	N/A
	Shield of glass if tungsten halogen lamps	No such part.	N/A
2.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
2.7 (4.21.3)	No direct path		N/A
2.7 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment ..... :	~~See Test Table 2.16 (13.3.2)~~	N/A
2.7 (4.22)	Attachments to lamps not cause overheating or damage		N/A
2.7 (4.23)	Semi-luminaires comply Class II		N/A
***2.7 (4.24)**	**Photobiological hazards**		**N/A***
*2.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A*
*2.7 (4.24.2)	Retinal blue light hazard		N/A*
	Class of risk group assessed according to IEC/TR 62778 .....:		—
	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*
2.7 (4.25)	**Mechanical hazard**		**P**

(*) Out of Scope

	No sharp point or edges	Luminaire does not have sharp points or edges that could, during installation, normal use, or maintenance, create a hazard for the user.	P
2.7 (4.26)	**Short-circuit protection**		**N/A**
2.7 (4.26.1)	Adequate means of uninsulated accessible SELV or PELV parts	The luminaire does not have uninsulated accessible SELV or PELV parts of opposite polarity.	N/A
2.7 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
2.7 (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
2.7 (4.28)	**Fixing of thermal sensing control**		N/A
	Not plug-in or easily replaceable type	The luminaire does not have thermal sensing control.	N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	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
2.7 (4.29)	**Luminaires with non-replaceable light source**		**N/A**
	Not possible to replace light source	The luminaire does not have non-replaceable light source.	N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
2.7 (4.30)	**Luminaires with non-user replaceable light source**		**P**
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N/A

	One fixing means requiring the use of a tool for its removal		P
2.7 (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		P
2.7 (4.31.1)	SELV or PELV circuits		P
	Used SELV or PELV source		P
	Voltage ≤ ELV	U_{out}= 35V	P
	PELV circuit shall have one pole connected to functional earth	The luminaire does not have PELV circuit.	N/A
	The connection between PELV and earth shall comply with functional earth		N/A
	Insulating of SELV or PELV circuits from LV supply		P
	Insulating of SELV or PELV circuits from other non SELV circuits	The luminaire does not have other non SELV circuit.	N/A
	Insulating of SELV or PELV circuits from FELV	The luminaire does not have FELV circuit.	N/A
	Insulating of SELV or PELV circuits from other SELV or PELV circuits		N/A
	SELV or PELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to make any electrical contact socket-outlets of other voltage systems	The luminaire does not have any socket-outlet.	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
2.7 (4.31.2)	FELV circuits		N/A
	Used FELV source	The luminaire does not have FELV circuit.	N/A
	Voltage ≤ 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 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
2.7 (4.31.3)	Other circuits		P
	Other circuits insulated from accessible parts according Table X.1		P
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together	Class I.	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
2.7 (4.32)	**Overvoltage protective devices**		**N/A**
	Comply with IEC 61643-11	No such part.	N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
2.7(4.33)	**Luminaire powered via information technology communication cabling**		**N/A**
	Luminaire shall fulfil the requirement for Class III	The luminaire does not have information technology communication cabling.	N/A
	Rated voltage of luminaire shall be within range of ES1, not exceed maximum voltage rated to used connector		N/A
	The luminaire shall be designed in line with the limits of the electrical parameters of a PSE.		N/A
	No hazard with 130% rated input voltage minimum 7.5VDC for circuit greater than 5VDC		N/A
	No hazard with 150% rated input voltage for circuit equal to or less than 5VDC		N/A
2.7(4.34)	**Electromagnetic field (EMF)**		**N/A**
	Compliance to IEC 62493:2015		N/A
2.7(4.35)	**Protection against moving fan blades**		**N/A**
	Fan blades not accessible when installed and wired as in normal use and replacing light sources or components	The luminaire does not have fan blade.	N/A
	This test is not necessary for fans have leading edges and tips rounded with a radius of not less than 0,5mm and:		N/A

	Hardness less than D60 Shore, or		N/A
	Peripheral speed less than 15m/s supplied with rated voltage, or		N/A
	Fan has input power not exceeding 2W supplied with rated voltage.		N/A
2.7(4.36)	**Track-mounted luminaires**		**N/A**
	Tested according to Annex A of IEC 60570	The luminaire is not track-mounted luminaire.	N/A

2.8 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
2.8 (11.2.1)	Impulse withstand category (Normal category II)	Category II ☒ Category III ☐	—
	Category III according Annex U	Category II.	N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		P
2.8 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 2.8 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{UOUT} according IEC 61347-1, clause 7.1, item w	~~See Test Table 2.8 (11.2) II~~	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	~~See Test Table 2.8 (11.2) II~~	N/A
2.8 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 2.8 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P	~~See Test Table 2.8 (11.2) II~~	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	~~See Test Table 2.8 (11.2) II~~	N/A

2.9 (7)	**PROVISION FOR EARTHING**		**P**
2.9 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω ..... :	Max 0.047Ω.	P
	Self-tapping screws used		P
	Thread-forming screws	No such part.	N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V	No such part.	N/A
	Protective earthing of the luminaire not via built-in control gear		N/A

2.9 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		P
2.9 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		P
2.9 (7.2.5)	Earth terminal integral part of connector socket	The luminaire does not have connector socket.	N/A
2.9 (7.2.6)	Earth terminal adjacent to mains terminals		P
2.9 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
2.9 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
2.9 (7.2.10)	Class II luminaire for looping-in	The luminaire is Class I.	N/A
	Double or reinforced insulation to functional earth		N/A
2.9 (7.2.11)	Earthing core coloured green-yellow	The supply cable is not supplied with the luminaire.	N/A
	Length of earth conductor		N/A
2.9 (7.2.12)	PELV circuit connected to protective earth for functional purpose	The luminaire does not have PELV circuit.	N/A

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

2.10 (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

2.11 (5)	**EXTERNAL AND INTERNAL WIRING**		**P**
2.11 (5.2)	**Supply connection and external wiring**		**P**
2.11 (5.2.1)	Means of connection ..... :	Fixed luminaire.	P
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c/60 V d.c./25V peak interrupted DC voltage with frequency between 10Hz and 200Hz or protected from outdoor environment		N/A
2.11 (5.2.2)	Type of cable..... :	H05RN-F.	P
	Nominal cross-sectional area (mm²)..... :	3x0.75 mm².	P
	Cables equal to IEC 60227 or IEC 60245	The cable does have TS EN 50525-2-11 certificate.	N/A

2.11 (5.2.3)	Type of attachment, X, Y or Z	Type Y.	P
2.11 (5.2.5)	Type Z not connected to screws		N/A
2.11 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection	IP 65.	P
2.11 (5.2.7)	Cable entries through rigid material have rounded edges		P
2.11 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed	The luminaire does not have insulating bushing.	N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
2.11 (5.2.9)	Locking of screwed bushings	The luminaire does not have screwed bushing.	N/A
2.11 (5.2.10)	Cord anchorage:		N/A
	- covering protected from abrasion	The luminaire does not have cord anchorage.	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
2.11 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed	The luminaire does not have cord anchorage.	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
2.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment	The luminaire does not have cord anchorage.	N/A
2.11 (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
2.11 (5.2.10.4)	Exemption from cord anchorage test in 5.2.10.3 if maximum current 2A, including short circuit current.		N/A
	Prior to the operation of an overcurrent limiting device and the following conditions and test requirements are met		N/A
	Ordinary SELV Class III luminaire at voltage not exceeding 25Vrms or 60VDC	The luminaire is not Class III.	N/A
	Ordinary PELV Class III luminaire at voltage not exceeding 12Vrms or 30VDC	The luminaire is not Class III.	N/A
	Other than ordinary Class III luminaire at voltage not exceeding 12Vrms or 30VDC	The luminaire is not Class III.	N/A
	Pull test 30N for 1min		N/A
2.11 (5.2.11)	External wiring passing into luminaire		P
2.11 (5.2.12)	Looping-in terminals	No such part.	N/A
2.11 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		P
2.11 (5.2.14)	Mains plug same protection	No such part.	N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
1.10 (5.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)	The luminaire is Class I.	N/A
2.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	For appliance inlet or connector systems according to IEC 61984, additional requirements apply:		N/A
	a) Polarization		N/A
	b) Protection against electric shock		N/A
	c) Mechanical locking		N/A
	d) Early contact making		N/A
	e) Protection against short circuit poles		N/A
	f) Cable Clamp		N/A
2.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
2.11 (5.2.18)	Used plug in accordance with		N/A

	- IEC 60083		N/A
	- other standard		N/A
2.11 (5.3)	**Internal wiring**		**P**
2.11 (5.3.1)	Internal wiring of suitable size and type	H05RN-F and 3x0.75 mm².	P
	Through wiring		P
	- not delivered/ mounting instruction		N/A
	- factory assembled		P
	- socket outlet loaded (A) ..... :		N/A
	- temperatures..... :	(see Annex 2)	P
	Green-yellow for earth only		P
2.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm²) ..... :	3x0.75 mm².	P
	Insulation thickness (mm) .....:		P
	Extra insulation added where necessary		P
2.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Cross-sectional area (mm²) .....:	The luminaire does not have internal current-limiting device.	N/A
2.11 (5.3.1.3)	Double or reinforced insulation for class II	The luminaire is not Class II.	N/A
2.11 (5.3.1.4)	Conductors without insulation	The luminaire does not have conductors without insulation.	N/A
2.11 (5.3.1.5)	SELV current-carrying parts	The luminaire does not have SELV current-carrying part.	N/A
2.11 (5.3.1.6)	Insulation thickness other than PVC or rubber	The luminaire does have PVC.	N/A
2.11 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.	No such part.	N/A
	Joints, raising/lowering devices	No such part.	N/A
	Telescopic tubes etc.	No such part.	N/A
	No twisting over 360°	Cable are not bent at an angle of 360° along the length of the cable.	P
2.11 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed	The luminaire does not have insulating bushing.	N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
2.11 (5.3.4)	Joints and junctions effectively insulated		P

2.11 (5.3.5)	Strain on internal wiring	Internal wiring does not protrude outside the enclosure.	N/A
2.11 (5.3.6)	Wire carriers	No such part.	N/A
2.11 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		P
2.11 (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	No such part.	N/A
2.12 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		**P**
2.12 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires	The luminaire is not portable, settable or adjustable luminaire.	N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements	No such part.	N/A
	Basic insulation only accessible under lamp or starter replacement		P
	Protection in any position		P
	Double-ended tungsten filament lamp	The luminaire does not have tungsten filament lamp.	N/A
	Insulation lacquer not reliable	No such part.	N/A
	Double-ended high-pressure discharge lamp	The luminaire does not have double-ended high-pressure discharge lamp.	N/A
	Relevant warning according to 3.2.18 fitted to the luminaire	No such part.	N/A
2.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position	The luminaire is not portable luminaire.	N/A
2.12 (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.	N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A

2.12 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed	The luminaire does not have lampholder.	N/A
2.12 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load (V) ..... :	The luminaire is not ordinary luminaire.	N/A
	- no-load 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
	- nominal 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
2.12 (8.2.3.d)	PELV circuit may have exposed current carrying parts under the following conditions:		N/A
	For ordinary luminaires voltage not exceed 12 VRMS or 30VDC (under load and no load)	The luminaire does not have PELV circuit.	N/A
	For other than ordinary, voltage nor exceed 12 VRMS or 30VDC (under load and no load)		N/A
	If voltage exceed, only the earthed pole may be accessible, other pole shall be insulated accordance with 10.2.2		N/A
	Class III luminaires are accepted by connection to SELV source or PELV source		N/A
2.12 (8.2.4)	Portable luminaire has protection independent of supporting surface	The luminaire is not portable luminaire.	N/A
2.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
2.12 (8.2.6)	Covers reliably secured		P
2.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 μF not exceed 50 V 1 min after disconnection	No such part.	N/A
	Portable luminaire with capacitor > 0,1 μF (0.25) not exceed 34 V 1 s after disconnection	No such part.	N/A
	Other luminaires with capacitor > 0,1 μF (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection	No such part.	N/A
2.12 (-)	Parts within the celling space provide same degree of protection against electric shock as parts below the celling space		N/A

2.13 (12)	**ENDURANCE TEST AND THERMAL TEST**		**P**
2.13.1 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 2.14		—
2.13 (12.2)	**Selection of lamps and ballasts**		**—**
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Controlgear if separate and not supplied	(Controlgear used see Annex 2)	—
2.13 (12.3)	**Endurance test**		**P**
	a) mounting-position ..... :	Normal use position.	—
	b) test temperature (°C) ..... :	35°C.	—
	c) total duration (h) ..... :	240 h.	—
	d) supply voltage (V) ..... :	254 V.	—
	d) if not equipped with controlgear, constant voltage/current (V) or (A) ..... :		—
	e) luminaire ceases to operate		—
2.13 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system	No such part.	N/A
	- marking legible		P
	- no cracks, deformation etc.		P
2.13 (12.4)	**Thermal test (normal operation)**	(see Annex 2)	**P**
2.13 (12.5)	**Thermal test (abnormal operation)**	~~(see Annex 2)~~	**N/A**
2.13 (12.6)	**Thermal test (failed lamp control gear condition):**		**N/A**
2.13 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :	No such part.	—
	- 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
2.13 (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
2.13 (12.7)	**Thermal test (failed lamp control gear in plastic luminaires):**		**N/A**
2.13 (12.7.1)	Luminaire without temperature sensing control		N/A
2.13 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 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 (°C): at 1,1 Un ..... :		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un ..... :		—
	- calculated temperature of fixing point/exposed part (°C) ..... :		—
	Ball-pressure test ..... :	~~See Test Table 2.16 (13.2.1)~~	N/A
2.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions ..... :		—
	- measured winding temperature (°C): at 1,1 Un ..... :		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un ..... :		—
	- calculated temperature of fixing point/exposed part (°C) ..... :		—
	Ball-pressure test ..... :	~~See Test Table 2.16 (13.2.1)~~	N/A
2.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 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
2.13 (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 (°C): ..... :		—
	Ball-pressure test: ..... :	~~See Test Table 2.16 (13.2.1)~~	N/A
2.13.1 (-)	Wiring, for connection to the supply, not reach unsafe temperature		N/A
	- measured temperature of the cable (°C) ..... :		N/A

2.14 (9)	**RESISTANCE TO DUST AND MOISTURE**		**P**
2.14 (-)	If IP > IP 20 the order of tests as specified in clause 2.13		P
2.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP ..... :	IP 65.	—
	- mounting position during test..... :	Tested under normal use conditions.	—
	- fixing screws tightened; torque (Nm) ..... :		—
	- tests according to clauses ..... :		—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire	IP 65.	P
	b) no talcum in dust-tight luminaire		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	The luminaire does not have drain hole.	N/A
	d) no water in watertight or pressure watertight luminaire or high pressure and temperature water jet-proof luminaire or high pressure and cold water jet-proof luminaire		P
	e) no contact with live parts (IP 2X)	IP 6X.	P
	e) no entry into enclosure (IP 3X and IP 4X)	IP 6X.	P
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)	No such part.	N/A
	f) no trace of water on part of lamp requiring protection from splashing water		P
	g) no damage of protective shield or glass envelope		P
2.14 (9.3)	Humidity test 48 h	%93 Rh, 25ºC.	P

2.15 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
2.15 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø ..... :		—
	Insulation resistance (MΩ) ..... :	>20000 MΩ.	—
	SELV/PELV		P
	- between current-carrying parts of different polarity :	>20000 MΩ.	P
	- between current-carrying parts and mounting surface ..... :	>20000 MΩ.	P
	- between current-carrying parts and metal parts of the luminaire..... :	>20000 MΩ.	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
	Other than SELV/PELV		P
	- between live parts of different polarity ..... :	>20000 MΩ.	P
	- 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 ..... :	No such 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 ..... :	No such part.	N/A
	- Insulation bushings as described in Section 5 ..... :	No such part.	N/A
2.15 (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	The luminaire does not have ignitor.	N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V)..... :	Between live parts and metal parts: 1480V. Between live parts and lighting cover: 2960V.	P
	SELV/PELV		N/A
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface ..... :		N/A
	- between current-carrying parts and metal parts of the luminaire..... :		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
	Other than SELV/PELV		P
	- between live parts of different polarity ..... :	1480V.	P
	- between live parts and mounting surface ..... :	1480V.	P
	- between live parts and metal parts ..... :	1480V.	P
	- between live parts of different polarity through action of a switch ..... :	No such part.	N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :	No such part.	N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
2.15 (10.3)	Touch current or protective conductor current (mA).:	Touch current: 0.3mA.	P

2.16 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**N/A**
2.16 (13.2.1)	Ball-pressure test ..... :	~~See Test Table 2.16 (13.2.1)~~	N/A
2.16 (13.3.1)	Needle-flame test (10 s)..... :	~~See Test Table 2.16 (13.3.1)~~	N/A
2.16 (13.3.2)	Glow-wire test (650°C)..... :	~~See Test Table 2.16 (13.3.2)~~	N/A
2.16 (13.4)	Proof tracking test (IEC 60112)..... :	~~See Test Table 2.16 (13.4)~~	N/A

2.8 (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
Distance 1:	B	3.25 mm	1.5 mm	11.B	17.75 mm	2.5 mm	11.A
Working voltage (V) ..... :					220 - 240V		—
PTI ..... :					< 600 ☒	≥ 600 ☐	—
Pulse voltage or U_P if applicable (kV) ..... :							—
Supplementary information: Input L – N measured clearance distance: 3.25mm Input L – Metal Enclosure measured clearance distance: 17.75mm Input N – Metal Enclosure measured clearance distance: 17.75mm							
Distance 2:	B	2.84mm	1.5mm	11.B	16.7mm	2.5mm	11.A
Working voltage (V) ..... :					220 - 240V		—
PTI ..... :					< 600 ☒	≥ 600 ☐	—
Pulse voltage or U_P if applicable (kV) ..... :							—
Supplementary information: Output L – N measured clearance distance: 2.84mm Output L – Metal Enclosure measured clearance distance: 16.7mm Output N – Metal Enclosure measured clearance distance: 16.7mm							
Distance 3:							
Working voltage (V) ..... :							—
PTI ..... :					< 600 ☐	≥ 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.

2.8 (11.2)	TABLE II: Creepage distances and clearances							N/A
	Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages							N/A
	Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2							N/A
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.

2.16 (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:				

2.16 (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:					

2.16 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)			N/A
Glow wire temperature ..... :		650°C		—
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Supplementary information:				

2.16 (13.4)	TABLE: Proof tracking test (IEC 60112)				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:					

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	Tridonic	8750029 LC 350/43 fixC SC SNC2	U_{out}= 85V I_{rated}= 350mA P_{rated}= 15W t_a= -20°C, +50°C t_c= 80°C	EN 55015 EN 61000-3-2 EN 61000-3-3 EN 61347-1 EN 61347-2-13 EN 61547 EN 60598-1 EN 62384	Declared
LED	C	Nichia	NF2L757DR	-	IEC 62471 IEC 60825-1	Declared
Gland	C	REKSAN	PG7	Brass(MS58) Nickel Plated IP68 t_a= -40°C,+80°C	EN 60423 EN 60079-0 EN 60079-1 EN 60079-7	Declared
Cable	C	Üntel	H05RN-F	3 x 0.75mm^2	TS EN 50525-2-21:2011	Declared
Terminal	C	ONKA	5011	No: 1 2.5 – 4mm^2 Polyamide Serial Terminal (OSK)	TSE 10487 EN60998-2-1	Declared

Supplementary information:

[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 ..... :	LED.	—
	Lamp control gear used ..... :	The control gear is supplied with the luminaire.	—
	Mounting position of luminaire ..... :	Normal used position.	—
	Supply wattage (W) ..... :		—
	Supply current (A) ..... :	0.07	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	23.3°C.	—
	- abnormal operating mode ..... :		—
1.12 (12.4)	- test 1: rated voltage ..... :	(a) 240V 50Hz. (b) 240V 60Hz.	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	(a) 254V 50Hz. (b) 254V 60Hz.	—
	- 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 ..... :		—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :		—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal					Cl. 12.5 – abnormal	
		test 1(a)	test 1(b)	test 2(a)	test 2(b)	limit	test 4	limit
9) LED Driver	23.2	51.2	51.9	51.9	52.4	85	-	-
11) DC Output Cable	23.2	38.9	40.1	39.9	40.3	90	-	-
12) Input Cable(Internal)	23.2	35.6	36.6	36.4	36.6	90	-	-
14) Input Cable(External)	23.2	26.0	26.6	26.7	26.9	90	-	-
15) Enclosure	23.2	32.5	33.7	33.6	33.5	90	-	-
16) Mounting Surface	23.2	28.5	29.9	29.5	29.8	90	-	-
17) Illuminated Surface	23.2	23.6	24.9	24.6	25.3	130	-	-

Supplementary information:
test1(a) : 240V 50Hz.
test1(b) : 240V 60Hz.
test2(a) : 254V 50Hz.
test2(b) : 254V 60Hz.

ANNEX 3	Screw terminals (part of the luminaire)		N/A
(14)	**SCREW TERMINALS**		N/A
(14.2)	Type of terminal ..... :	The compliance of the terminal used with the standard 60998-2-1 has been tested. See client documents.	—
	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 (mm²) ..... :		—
(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		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.....:		—
	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
(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

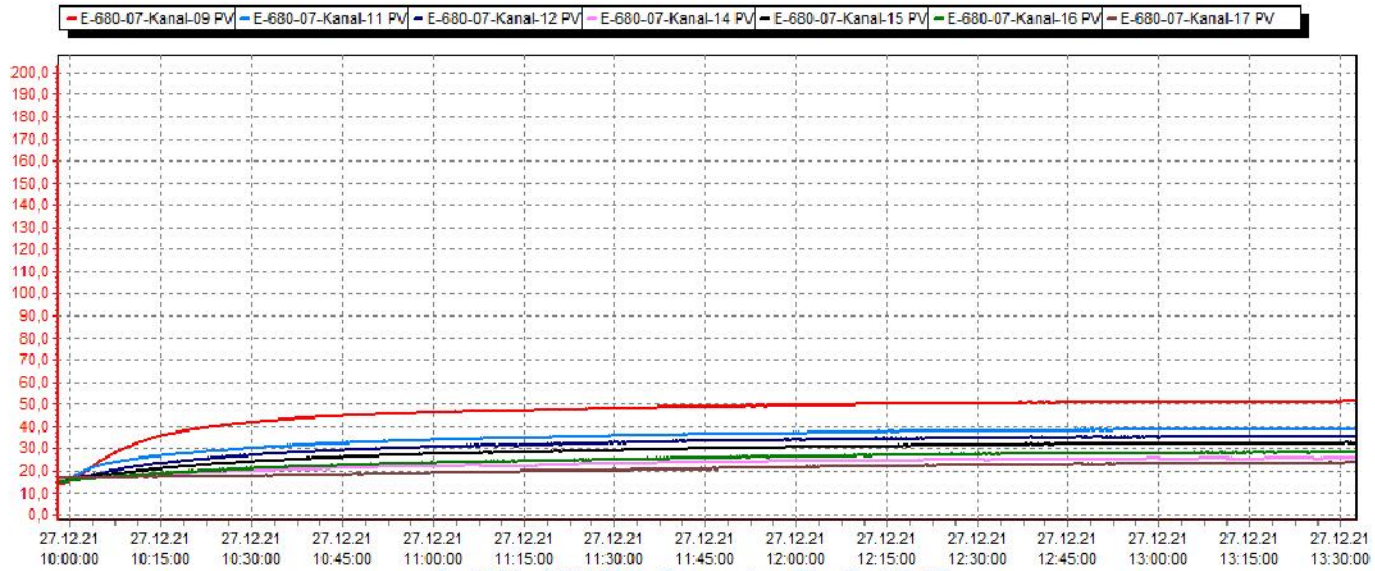
(15.6.3.1) (15.6.3.2)	**TABLE: Contact resistance test / Heating tests**									**N/A**
Voltage drop (mV) after 1 h										—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
Voltage drop of two inseparable joints										
Voltage drop after 10th alt. 25th cycle										
Max. allowed voltage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

10. Deney ve Ölçüm Bilgileri:
Test and Measuring Arrangement

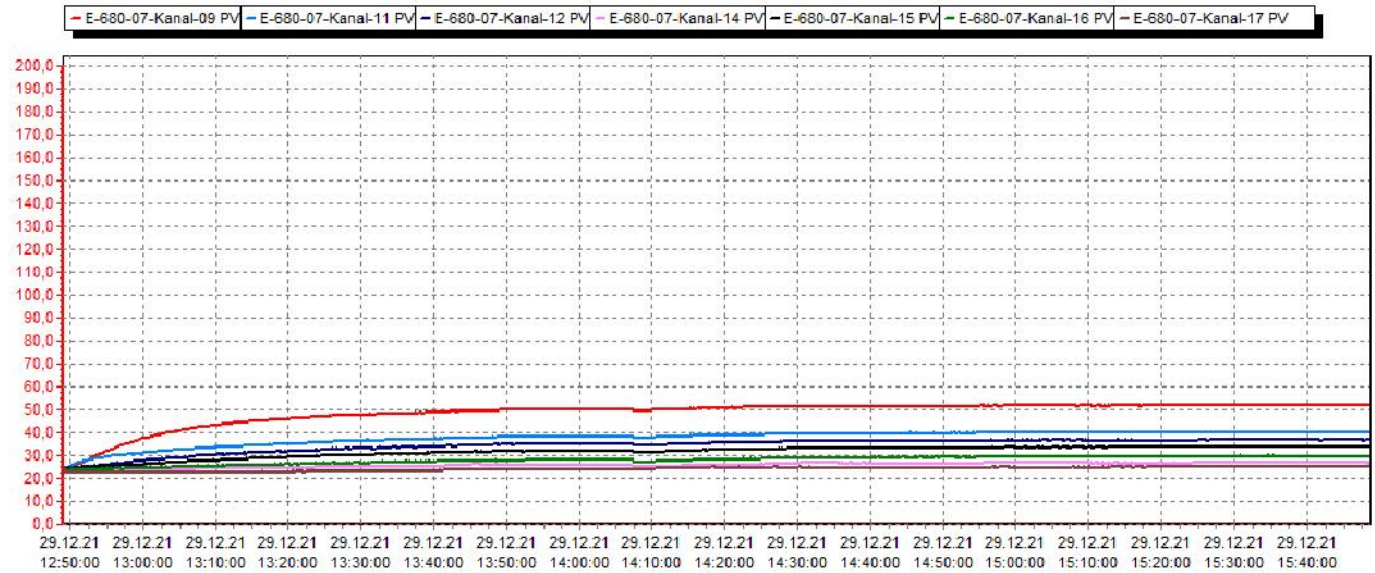
Cihaz *Device*	**İmalatçı** *Manufacturer*	**Seri No. / Kod** *Serial No / Code*	**Sertifika No** *Certificate No*	**Kalibrasyon Tarihi** *Calibration Date*
Humidity Temperature Meter	CEM	LC349	3825	January/2022
Temperature Rise Data Logger	ELİMKO	LC63	44002	March/2022
Portable Variac	VARSAN	LC380	63411	April/2023
Digital Caliper	ACCUD	LC365	3808	January/2022
Gauge Stick	LVT	LC166	20KD2645	July/2022
Torque Meter	BRITOOL	LC17	2064398	July/2023
Humidity Cabinet	ISISO	LC215	115401	June/2022
Dielectric Test Equipment	REK	LC482	105801	May/2022
Oscilloscope	RİGOL	LC30	90201	April/2022
Touch Current Simulator	CSK	LC88	146402	October/2023
Test Finger	-	LC205	20KD2313	July/2023
Newtonmeter	NK-500	LC204	2138245	September/2022
Multimeter	FLUKE	LC361	3811	January/2022
Spring Hammer (0.2J)	-	LC218	63405	April/2023
Spring Hammer (0.35J)	-	LC219	63402	April/2023
Digital Scales	DİKOMSAN	LC69	3820	January/2023
Test Finger	LVT	LC366	19KD1057	March/2022
Earthing Continuity	REK	LC481	105802	May/2022
Insulation resistance tests	WUHAN	LC475	30703	February/2022
IP Dusting Container	-	LC148	-	No need to calibrate
IPX5 Nozzle	-	LC156	20KD4035	December/2023

11. Deney Osilogramları:

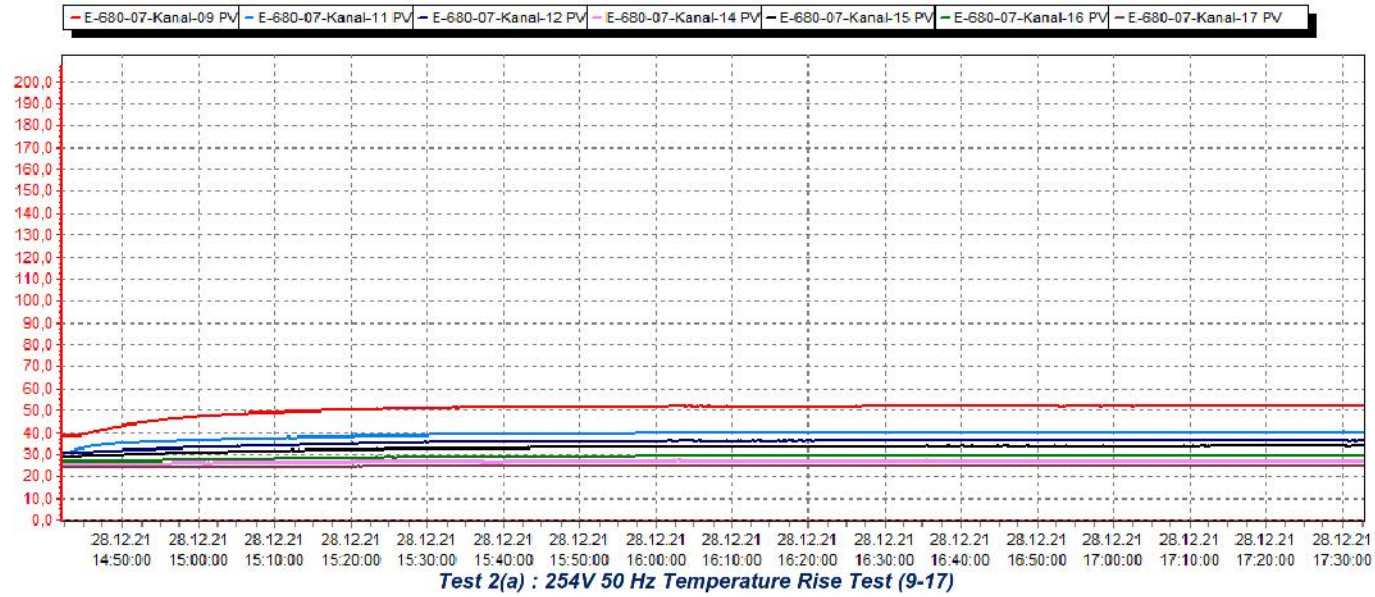
Test Oscillograms



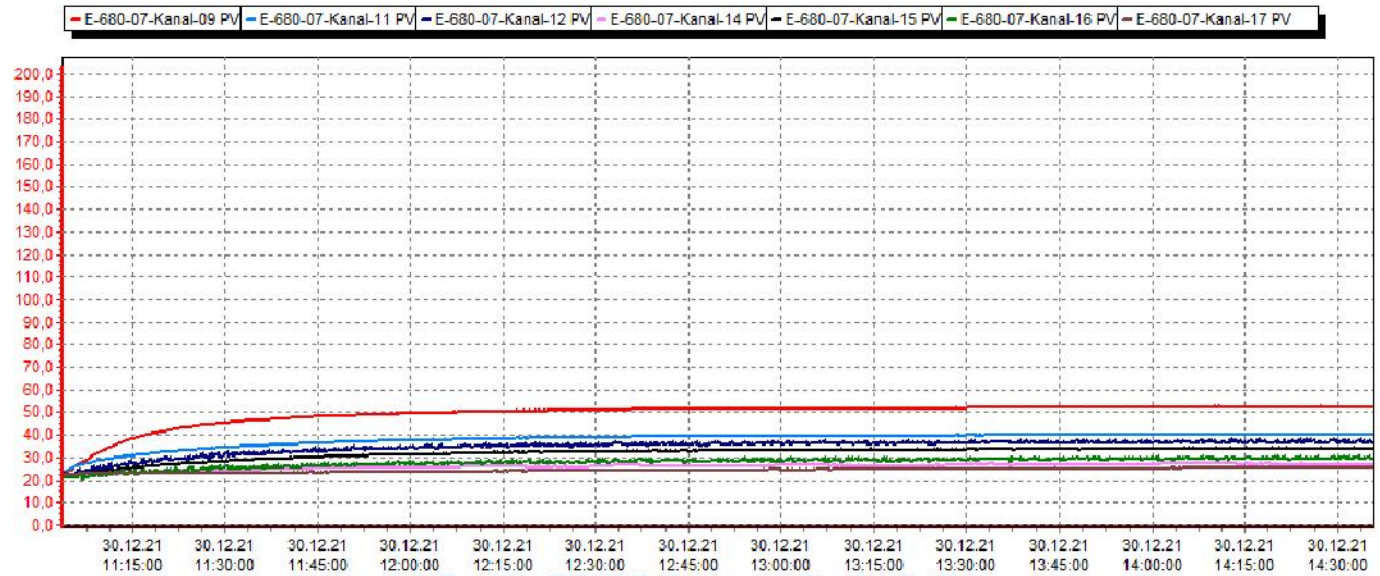
Test 1(b) : 240V 50 Hz Temperature Rise Test (9-17)



Test 1(b) : 240V 60 Hz Temperature Rise Test (9-17)

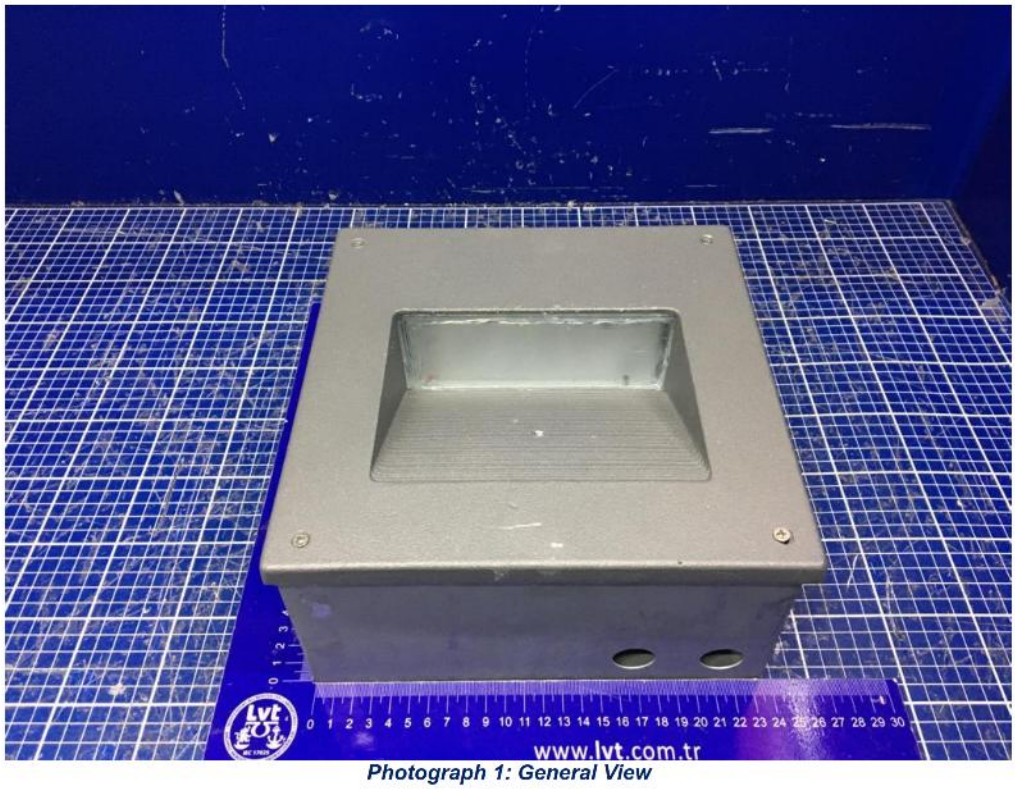


Test 2(a) : 254V 50 Hz Temperature Rise Test (9-17)

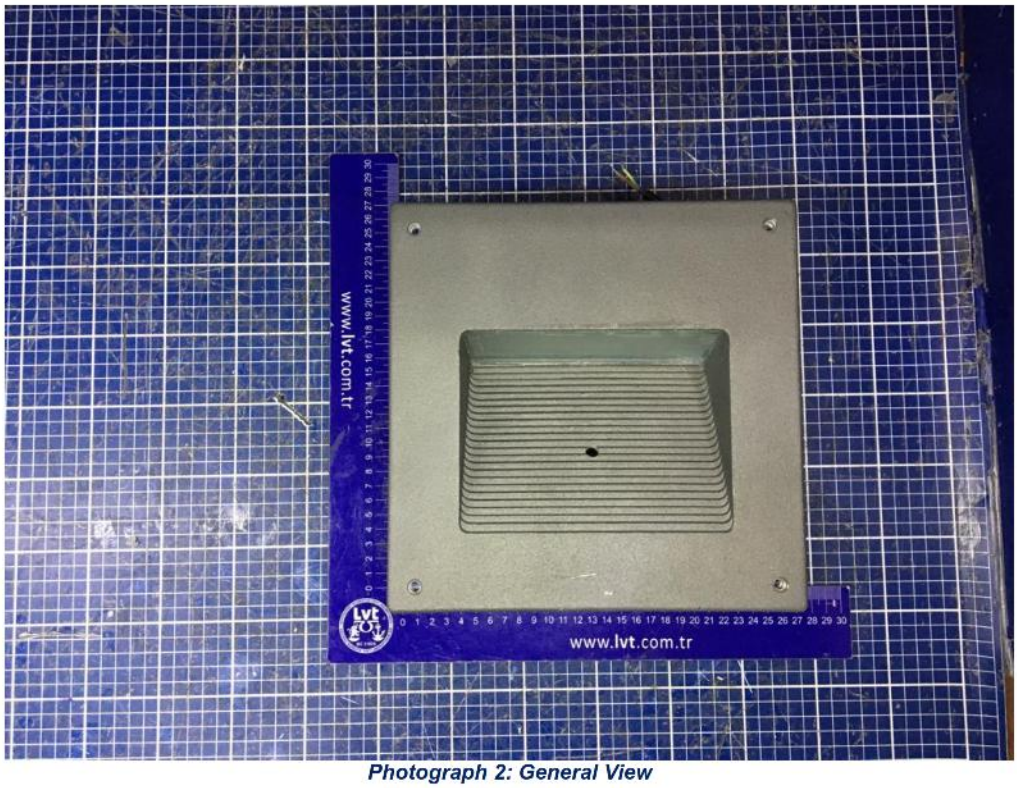


Test 2(b) : 254V 60 Hz Temperature Rise Test (9-17)

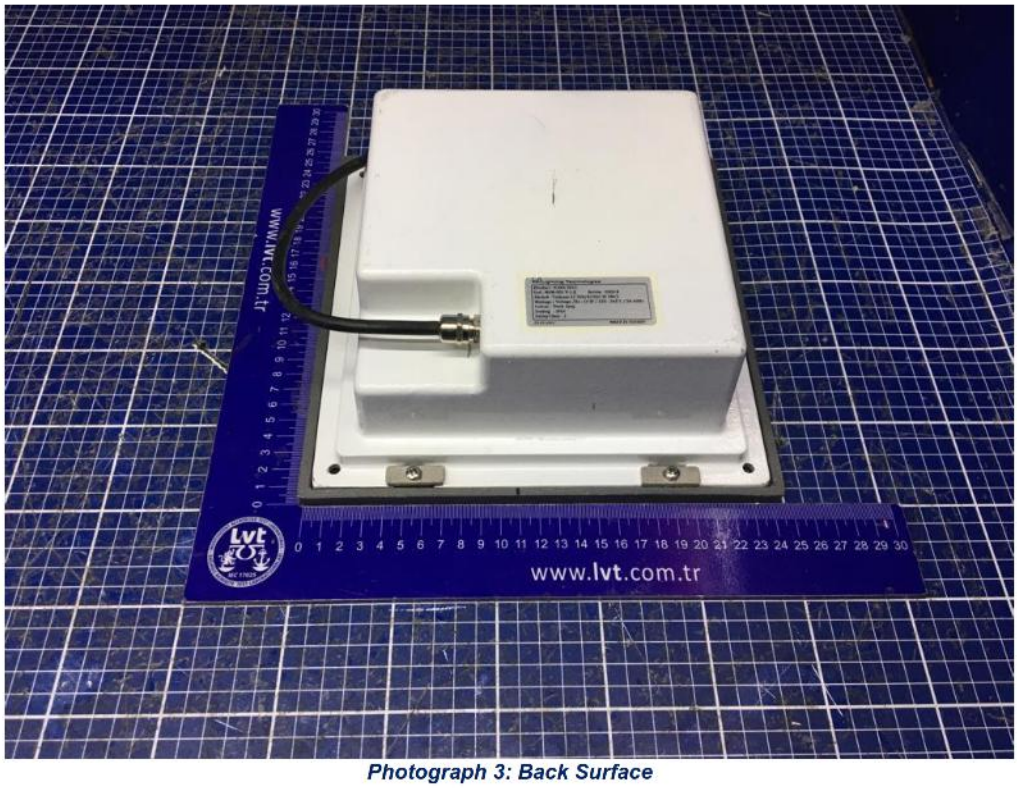
12. Deney Fotoğrafları:
Test Photographs



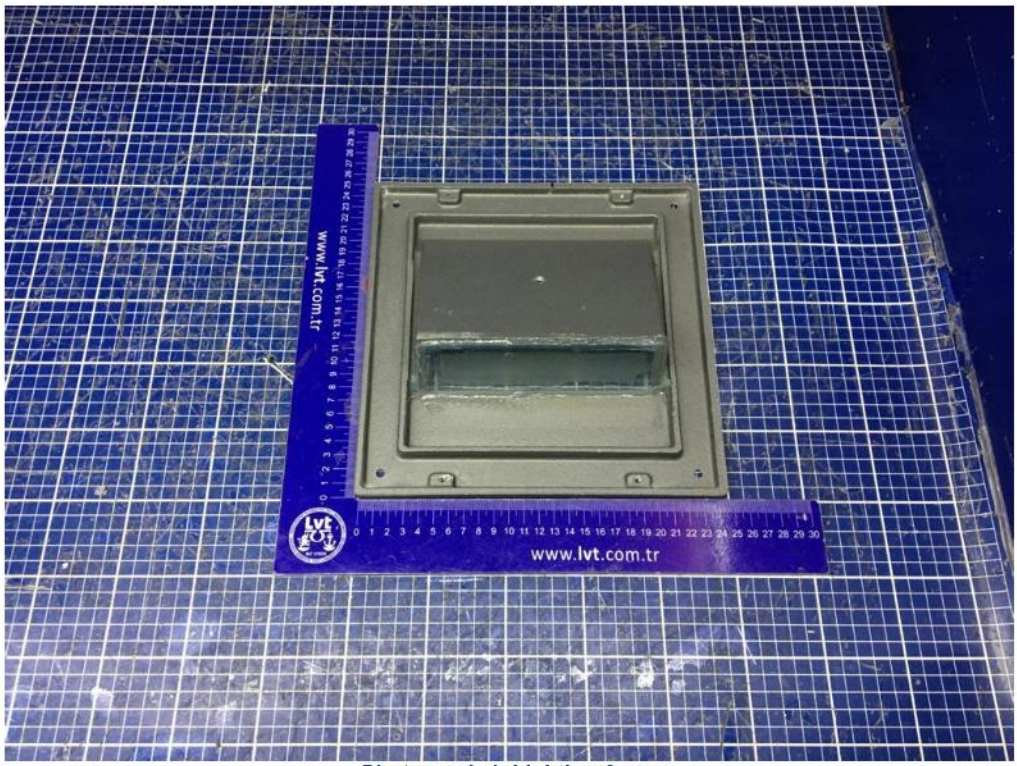
Photograph 1: General View



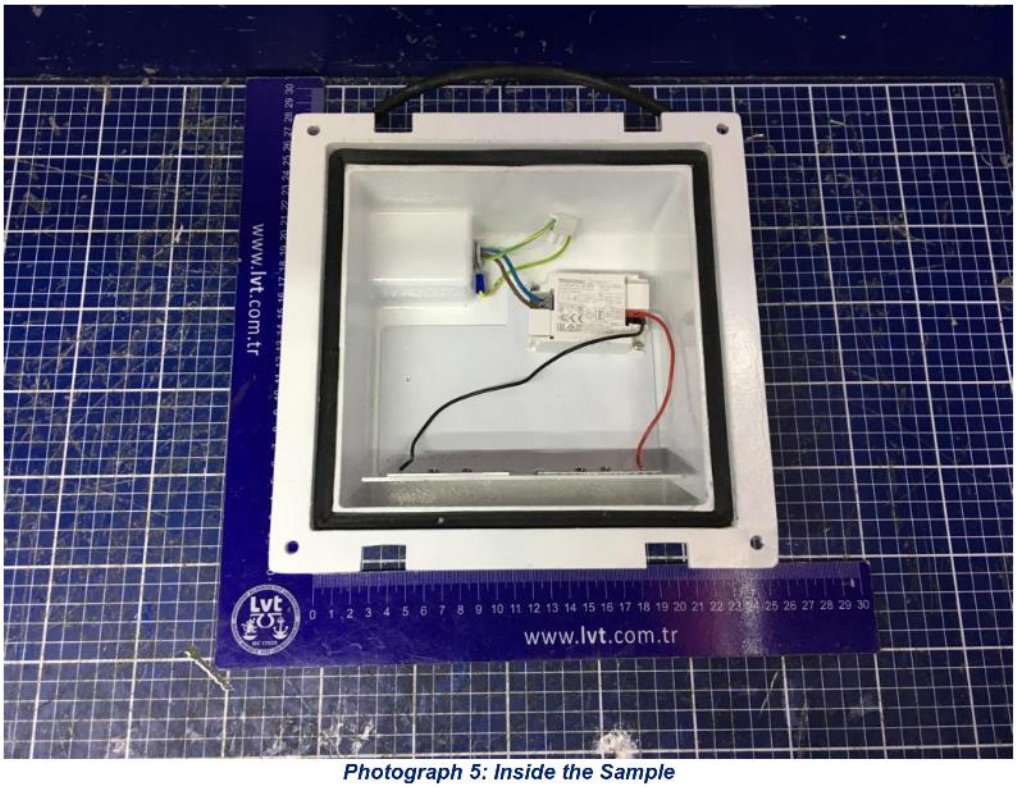
Photograph 2: General View



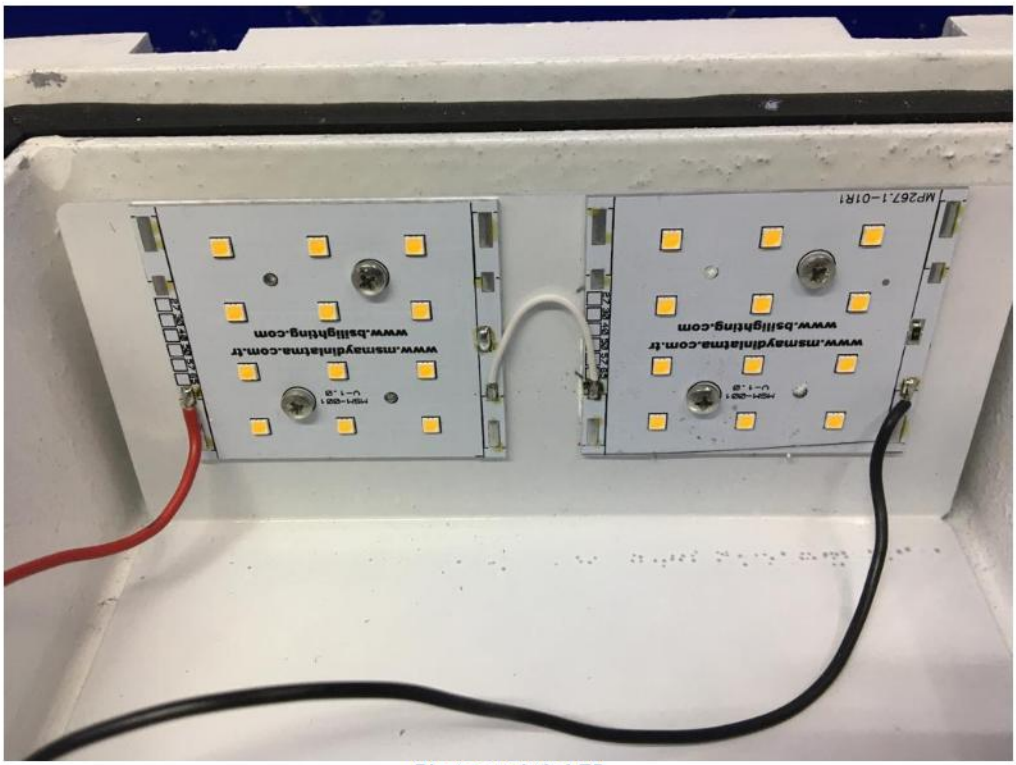
Photograph 3: Back Surface



Photograph 4: Lighting Cover



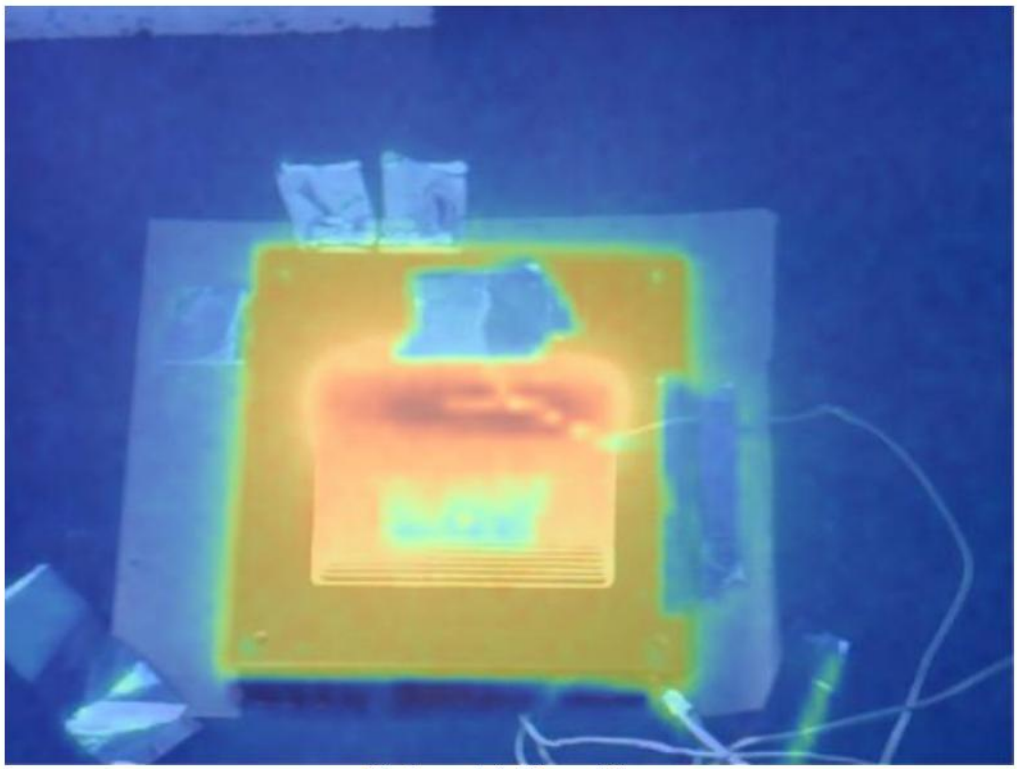
Photograph 5: Inside the Sample



Photograph 6: LED

Photograph 7: LED Driver

Photograph 8: Power Cable



Photograph 9: Thermal View

13. Firma Dokümanları:
Documentation of Client

TÜRK STANDARDLARI ENSTİTÜSÜ
TÜRK STANDARDLARINA UYGUNLUK BELGESİ
TURKISH STANDARDS INSTITUTION
CERTIFICATE OF CONFORMITY TO TURKISH STANDARDS

Markanın Tanımı Description of the Mark
TSE

BELGE NUMARASI *REFERENCE NUMBER OF LICENCE*	007896-TSE-02/01
BELGENİN İLK VERİLİŞ TARİHİ *DATE OF FIRST ISSUE OF LICENCE*	14.07.2009
BELGENİN SON GEÇERLİLİK TARİHİ *LICENCE VALID UNTIL*	15.07.2021
BELGE SAHİBİ KURULUŞUN ADI *NAME OF THE LICENCE HOLDER*	ONKA ELEKTRİK MALZEMELERİ SAN.VE TİCLTD.ŞTİ.
BELGE SAHİBİ KURULUŞUN ADRESİ *ADRESS OF THE LICENCE HOLDER*	Y.DUDULLU MH KEYAP SAN SIT E 1 BLK. NO:77 /3 ÜMRANİYE İSTANBUL/TÜRKİYE
ÜRETİM YERİ ADI *NAME OF THE MANUFACTURING PLACE*	ONKA ELEKTRİK MALZEMELERİ SANAYİ VE TİCARET LİMİTED ŞİRKETİ
ÜRETİM YERİ ADRESİ *ADRESS OF THE MANUFACTURING PLACE*	İNÖNÜ MAH. BALÇIK KÖYÜ YOLU ÜZERİ GEP OSB SANAYİ SİT. İÇİ CUMHURİYET CAD. NO:27 GEBZE KOCAELİ / TÜRKİYE
İPTAL EDİLEN BELGE NUMARASI (Varsa) *INDICATION OF SUPERSEDED LICENCE (if any)*	14.10.01/TSE-9521
TESCİLLİ TİCARİ MARKASI *REGISTERED TRADE MARK*	ONKA
İLGİLİ TÜRK STANDARDI *RELATED TURKISH STANDARD*	TS 10487 EN 60998-2-1 / 13.10.2005

BELGE KAPSAMI
SCOPE OF LICENCE

• VİDALI SIKIŞTIRMALI BAĞLANTI UCU OLAN, ÇOK YOLLU BAĞLAMA DÜZENİ (SIRA KLEMENS) OSK SERİSİ: BEYAN BAĞLANTI KAPASİTESİ 1.5 MM²(DAHİL)'DEN 25 MM²(DAHİL)'E KADAR ; BEYAN YALITIM GERİLİMİ 400 V (1.5 MM²(DAHİL)'DEN 10 MM²(DAHİL)'E KADAR) – 500 V (16 MM²(DAHİL)'DEN 25 MM²(DAHİL)'E KADAR) ; EK YAPILAN, ELEKTRİK ÇARPMASINA KARŞI KORUMALI, TESPİT TERTİBATI BULUNAN, T İŞARETİ BULUNMAYAN

e-imzalı/e-signed
08.07.2020
Belgelendirme Merkezi Başkanı Adına
AHMET NURSİ KARTAL
TSE İSTANBUL BELGELENDİRME MÜDÜRÜ

*Bu belge, belgelendirilen ürünün, üretim yerinin Enstitümüzün belirlediği şartları karşıladığını da gösterir.
*Bu belge, hiç bir surette tahrif edilemez, kısmen veya okunmasını zorlaştıracak şekilde çoğaltılamaz, kazıntı ve silinti yapılamaz.
*TSE İSTANBUL BELGELENDİRME MÜDÜRLÜĞÜ * Adres: Çayırova Tren İstasyonu Yanı ÇAYIROVA/GEBZE * Telefon: 2627231273* Faks: 2627231606
*TSE BELGELENDİRME MERKEZ BAŞKANLIĞI: Adres: Necatibey Cad. No:112 06100 Bakanlıklar/ANKARA – Telefon: 0 312 416 64 81 / 416 64 27. Faks:0 312 416 66 17 E-posta bmb@tse.org.tr .web : www.tse.org.tr

https://evrakkontrol.tse.org.tr/BelgeDogrulama.aspx?p=3jkoraov adresinden belgenin doğruluğunu ve geçerliliğini sorgulayınız.

1 / 1

NICHIA

Report No. : SQETMN558501

LM-80 Test Report

NF2L757DR

Issue Date:	June 6, 2016	**Revision Date:**	-
Test Initiation Date:	April 24, 2013	**Test Completion Date:**	June 30, 2014
Test Duration:	10,000 hours	**Report Number:**	SQETMN558501

Customer Information:

Company Name: Nichia Corporation

Address: 491-100, Oka, Kaminaka-cho, Anan-shi, Tokushima, 774-8601, JAPAN

Description of Test Samples:

Classification: LED Package

Model Name: Warm White LED

Model Number: NF2L757DR (Nominal CCT: 2700 K)

Test Summary:

Data Set	Case Temperature [T_s]	Ambient Temperature [T_A]	Drive Current [I_F]	Lumen Maintenance at 10,000 hours	Chromaticity Shift ($\Delta u'v'$) at 10,000 hours	TM-21 Projection L_{70}(10K)	TM-21 Projection L_{80}(10K)	TM-21 Projection L_{90}(10K)
1	55 °C	> 50 °C	100 mA	98.1 %	0.0014	> 60600 hours	> 60600 hours	> 60600 hours
2	55 °C	> 50 °C	150 mA	98.3 %	0.0017	> 60400 hours	> 60400 hours	> 60400 hours
3	55 °C	> 50 °C	200 mA	98.2 %	0.0020	> 60500 hours	> 60500 hours	48300 hours
4	85 °C	> 80 °C	100 mA	96.4 %	0.0014	> 60600 hours	> 60600 hours	52500 hours
5	85 °C	> 80 °C	150 mA	96.3 %	0.0020	> 60400 hours	> 60400 hours	38800 hours
6	85 °C	> 80 °C	200 mA	93.9 %	0.0035	55900 hours	35300 hours	17100 hours
7	105 °C	> 100 °C	100 mA	92.3 %	0.0019	> 60600 hours	43700 hours	15500 hours
8	105 °C	> 100 °C	150 mA	93.4 %	0.0027	> 60400 hours	57800 hours	21000 hours
9	105 °C	> 100 °C	200 mA	90.7 %	0.0034	42800 hours	26200 hours	11600 hours

ilac-MRA

International Accreditation Japan
IAJapan
ASNITE 0057 T

Approved Signatory:

Hitoshi TOHYAMA, Lab Manager

Nichia Corporation LED Testing Laboratory

1-1,Tatsumi-Cho, Anan-Shi, TOKUSHIMA 774-0001, JAPAN

Reksan

Ürün Özellikleri	
Diş normları	: PG DIN 46320
	: Metrik EN 60423
	: NPT ANSI B1.20.1
	: GAS ISO 228
Sızdırmazlık	: IP 68
Isıya dayanımı	: -40° C +80° C
Hammadesi	: Pirinç (MS 58) Nikel Kaplama

Standart Seri Pirinç/Nikel Kablo Rakorları						
Anma Ölçüsü	Kod No	Montaj Çap "Ø"	Diş Boyu	Kablo Çapı "Ø"		Kutu
		(mm)	(mm)	Min	Max	Adet
PG-7	REK.06.412	12,5	6,0	3,0	6,5	50,0
PG-7	REK.06.413	12,5	6,0	4,0	8,0	50,0
PG-9	REK.06.416	15,5	7,0	4,0	8,0	50,0
PG-9	REK.06.417	15,5	7,0	5,0	10,0	50,0
PG-11	REK.06.418	19,0	7,0	5,0	10,0	50,0
PG-11	REK.06.419	19,0	7,0	6,0	12,0	50,0
PG-13,5	REK.06.420	20,5	7,0	6,0	12,0	50,0
PG-13,5	REK.06.421	20,5	7,0	10,0	14,0	50,0
PG-16	REK.06.425	22,5	8,0	10,0	14,0	50,0
PG-16	REK.06.426	22,5	8,0	13,0	18,0	50,0
PG-21	REK.06.432	28,5	8,0	13,0	18,0	25,0
PG-21	REK.06.433	28,5	8,0	18,0	24,0	25,0
PG-29	REK.06.440	37,5	10,0	18,0	25,0	20,0
PG-29	REK.06.441	37,5	10,0	22,0	32,0	20,0
PG-36	REK.06.450	47,0	10,0	22,0	32,0	10,0
PG-36	REK.06.451	47,0	10,0	30,0	38,0	10,0
PG-42	REK.06.456	55,0	12,0	30,0	38,0	10,0
PG-42	REK.06.457	55,0	12,0	34,0	44,0	10,0
PG-48	REK.06.462	60,0	14,0	30,0	38,0	10,0
PG-48	REK.06.463	60,0	14,0	34,0	44,0	10,0

www.reksan.com.tr

İstanbul Deri Organize San. Böl. / Türkiye
+90 (850) 595 04 04
reksan@reksan.com.tr

VDE Prüf- und Zertifizierungsinstitut

ZEICHENGENEHMIGUNG
MARKS APPROVAL

ONKA ELEKTRIK MALZEMELERI
SAN. TIC. LTD. STI.
Cumhuriyet St. 27
Gebze Plastics Manuf.Org.Ind.Zone
41400 GEBZE
TURKEY

ist berechtigt, für ihr Produkt /
is authorized to use for their product

Steckverbinder (COC)
Connector (COC)

die hier abgebildeten markenrechtlich geschützten Zeichen
für die ab Blatt 2 aufgeführten Typen zu benutzen /
the legally protected Marks as shown below for the types referred to on page 2 ff.

Geprüft und zertifiziert nach /
Tested and certified according to

DIN EN 61984 (VDE 0627):2009-11; EN 61984:2009
DIN EN 61984 Berichtigung 1 (VDE 0627 Berichtigung 1):2012-03; EN 61984:2009

Aktenzeichen: 5021630-1431-0001 / 236728
File ref.:

VDE Prüf- und Zertifizierungsinstitut GmbH
VDE Testing and Certification Institute
Zertifizierungsstelle / *Certification*

Ausweis-Nr. 40046453 Blatt 1
Certificate No. *Page*

Weitere Bedingungen siehe Rückseite und Folgeblätter /
further conditions see overleaf and following pages

Offenbach, 2017-06-21

VDE Zertifikate sind nur gültig bei Veröffentlichung unter:
VDE certificates are valid only when published on:
http://www.vde.com/zertifikat
http://www.vde.com/certificate

VDE

SERTİFİKA NO: RKSN101
Certificate Nr:

UYGUNLUK BEYANI
DECLARATION OF CONFORMITY

Üretici Adı ve adresi */Manufacturer*

Reksan®

Elektrik Malzemeleri Sanayi ve Ticaret Ltd. Şti.
Fabrika(*Factory*): Kumpas Cad. No:20 Ö 1-3 Parsel
Tuzla/İSTANBUL/TURKEY

Ürün Grubu / Product Classification

Nikel Kaplı Pirinç Kablo Rakorları
Nickel Plated Brass Cable Glands

Ürün Tipi / *Type Designation*

REM, REK (Ürün kapsamı için Sayfa 2'ye bakınız)
REM, REK (Refer to addendum page 2 for product covered)

İlgili AT Direktifi /
The designated product meets the essential safety requirements of the EC-Directive

(2006/95/AT)
Belirli Gerilim Sınırları Dahilinde Kullanılmak Üzere Tasarlanmış Elektrikli Teçhizat İle İlgili Yönetmelik (Ürün kapsamı için Sayfa 2'ye bakınız)

Adı geçen ürün serilerimizde bu hükümlerin yerine getirilmesinde aşağıda belirtilen standartlar kullanılmıştır; / *The confirmity with the provisions of this directive is proved by the compliance with the following standards;*

EN 60079-0, EN 60079-1, EN 60079-7

CE işaretinin iliştirildiği yıl: 13
fixing date of CE label

CE

Bu beyanat REKSAN Ltd. Şti'nin yetkilisi Genel Müdür Müjgan ŞAHİN tarafından düzenlenmiştir.
This declaration is signed and issued by Müjgan ŞAHİN / Chairwoman

Teknik Dosya No:RKDT.01.01
Technical File Nr:

Genel Müdür / *Chairwoman*
Müjgan ŞAHİN
İstanbul - 20.09.2015

Rev. Nr: 01 Rev. Date: 20.09.2015 Page 1/2

LED drivers
Compact fixed output

TRIDONIC

Driver LC 15W 300/350mA fixC SC SNC2
essence series

Product description
_ Fixed output LED driver
_ Can be either used built-in or independent with clip-on strain-relief (see accessory)
_ Independent LED driver with cable clamps
_ Constant current LED driver
_ For luminaires of protection class II
_ Temperature protection as per EN 61347-2-13 C5e
_ Output current 300 or 350 mA
_ Max. output power 15 W
_ Nominal lifetime up to 50,000 h
_ 5 years guarantee

Housing properties
_ Casing: polycarbonate, white
_ Type of protection IP20

Functions
_ Overload protection
_ Short-circuit protection
_ No-load protection
_ Burst protection voltage 1 kV
_ Surge protection voltage 0.5 kV (L to N)
_ Surge protection voltage 1 kV (L/N to earth)

Typical applications
_ For spot light and downlight in retail and hospitality applications
_ For panel light and area light in office and education application

Website
http://www.tridonic.com/87500729

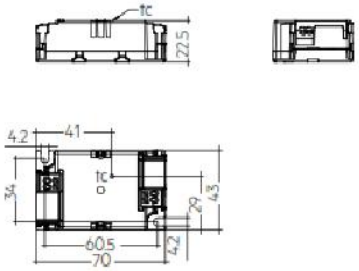
Spotlights | Downlights | Linear | Area | Floor | Wall | Free-standing | Street | Decorative | High bay

LED drivers
Compact fixed output

TRIDONIC

Driver LC 15W 300/350mA fixC SC SNC2
essence series

The complete data sheet for this product is available in the Downloads section.



Ordering data

Type	Article number	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
LC 15/350/43 fixC SC SNC2	87500729	50 pc(s).	1,300 pc(s).	7,800 pc(s).	0.045 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 1 h
THD (at 230 V, 50 Hz, full load)	< 150 %
Output current tolerance ①	± 7.5 %
Typical output LF current ripple at full load	± 5 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	≤ 0.5 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.5 s
Hold on time at power failure (output)	0 s
Ambient temperature ta	-20 … +50 °C
Ambient temperature ta (at lifetime 50,000 h)	40 °C
Storage temperature ts	-40 … +80 °C
Lifetime	up to 50,000 h
Guarantee	5 Year(s)
Dimensions L x W x H	70 x 43 x 22.5 mm

Approval marks

IP20 SELV RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 61547, EN 60598-1, EN 62384

Specific technical data

Type	Output current ①	Input current Cat 230 V, 50 Hz, full load	Max. input power	Typ. power consumption Cat 230 V, 50 Hz, full	Output power range	λ at full load	Efficiency at full load ②	λ at min. load	Efficiency at min. load ②	Min. forward voltage	Max. forward voltage	Max. output voltage (U-OUT)	Max. peak output current ③	Max. casing temperature tc
LC 15/350/43 fixC SC SNC2	350 mA	145 mA	18 W	17.7 W	8.8 – 15.1 W	0.55C	86 %	0.56C	84 %	25 V	43 V	85 V	400 mA	80 °C

① Output current is mean value.
② Test result at 230 V, 50 Hz.
③ The trend between min. and full load is linear.

KAUÇUK KABLOLAR

CE | RoHS | REACH

H05RN-F

PCP VEYA EŞDEĞER SENTETİK ELASTOMER KILIFLI BÜKÜLGEN KABLO
PCP OR EQUIVALENT SYNTHETIC ELASTOMER SHEATHED FLEXIBLE CABLE

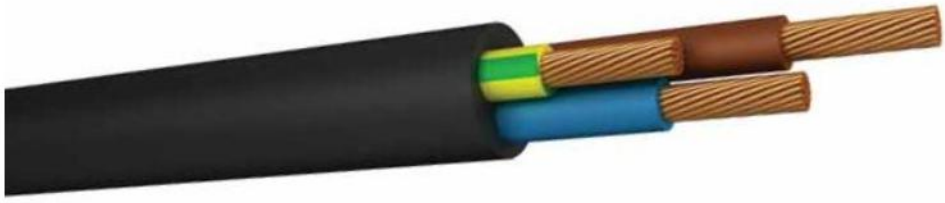
300/500 V

KABLO YAPISI

* İLETKEN	: Elektrolitik tavlı, sınıf 5 bükülü çıplak bakır teller (isteğe bağlı kalaylı iletken)
* AYIRICI	: İletkenlerin üzerine uygun bir ayırıcı bant uygulanabilir
* İZOLASYON	: EI4 Tipi kauçuk (EPR) bileşik
* DAMAR RENKLERİ	: HD 308'e uygun
* KILIF	: EM2 Tipi elastomer bileşik
* RENK	: Siyah (isteğe bağlı olarak diğer renkler)

CABLE STRUCTURE

* *CONDUCTOR*	*: Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)*
* *SEPARATOR*	*: A suitable tape may be applied over the conductor*
* *INSULATION*	*: EI4 Type rubber (EPR) compound*
* *CORE IDENTIFICATION*	*: Acc. to HD 308*
* *SHEATH*	*: EM2 Type elastomer compound*
* *COLOR*	*: Black (other colors on request)*



TASARIM ÖZELLİKLERİ / *DESIGN FEATURES*

KONSTRÜKSİYON / *CONSTRUCTION*	: EN 50525-2-21, HD 22.4, DIN VDE 0282-4, BS 6500, BS 7919, IEC 60245-4
GENEL ÖZELLİKLER / *GENERAL REQUIREMENTS*	: EN 50525-1, HD 22.1, DIN VDE 0282-1, IEC 60245-1
KULLANMA KILAVUZU / *GUIDE TO USE*	: HD 516, DIN VDE 0298-300
ELEKTRİKSEL DENEYLER / *ELECTRICAL TESTS*	: EN 50395, IEC 60245-2
ELEKTRİKSEL OLMAYAN DENEYLER / *NON-ELECTRICAL TESTS*	: EN 50396, IEC 60245-2
İLETKEN DİRENCİ / *CONDUCTOR RESISTANCE*	: EN/IEC 60228, HD 383, DIN VDE 0295, BS 6360

ÇALIŞMA KARAKTERİSTİKLERİ / *OPERATING CHARACTERISTICS*

İLETKEN İŞLETME SICAKLIĞI / *CONDUCTOR OPERATING TEMPERATURE*	: Max. 60°C
İLETKEN KISA DEVRE SICAKLIĞI / *CONDUCTOR SHORT-CIRCUIT TEMPERATURE*	: Max. 200°C
KABLO YÜZEY SICAKLIĞI / *TEMP. ON CABLE SURFACE*	: Max. +50°C
EN DÜŞÜK TESİSAT SICAKLIĞI / *MIN INSTALLATION TEMPERATURE*	: -25°C
MİN. BÜKME YARIÇAPI / *MIN BENDING RADIUS*	: HD 516 Tab.7c
AKIM TAŞIMA KAPASİTELERİ / *CURRENT CARRYING CAPACITIES*	: HD 516, VDE 0298-4
ALEVİ İLETMEZ / *FLAME RETARDANT*	: EN/IEC 60332-1-2, DIN VDE 0482-332-1-2
YAĞA DAYANIKLI / *OIL RESISTANT*	: HD/EN/IEC 60811-2-1, DIN VDE 0473-811-2-1
OZON DAYANIMI / *OZONE RESISTANT*	
SOĞUĞA DAYANIKLI / *COLD RESISTANT*	
YIRTILMAYA DAYANIKLI / *TEAR RESISTANT*	
UV DAYANIMLI / *UV RESISTANT*	

ÜNTEL

14

FR 076-006 / REV. 0 REV. TAR. 18.04.2011 / Sf. 1/2

RUBBER CABLES

H05RN-F

KULLANIM ALANI

Bu kablolar, ofis, mutfak, endüstriyel veya zirai iş yerlerinde, sıcak yüzeylere temas olabilecek, sabit yada taşınabilir ekipmanların bağlantılarında kullanılabilirler.

ORTAM

Bina içi, bina dışı, kuru, ıslak ve yağlı ortamlarda kullanılabilir.

GÜVENLİK

Yanma esnasında alevi iletmez ve kendiliğinden sönerler.
Aşırı mekanik gerilmeli sistemler için uygun değildir.
Doğrudan toprak altına gömülmemelidir.

APPLICATION

These cables can be used on connections of fixed or mobile equipments which can be contacted with the hot surfaces in offices, kitchens, agricultural and industrial workshops.

ENVIRONMENT

It can be used indoor, outdoor, dry, wet and oily environments.

SAFETY

It's flame retardant and self extinguishes during fire.
It's not suitable for extremely mechanical stresses systems.
It shouldn't buried directly underground.

İLETKEN SAYISI X KESİT *NO. CONDUCTORS X CROSS-SECTION* (mm^2)	DIŞ ÇAP *OUTER DIAMETER* Min.-Max. (mm)	BAKIR FAKTÖRÜ *COPPER FACTOR* (kg / km)	KABLO AĞIRLIĞI *CABLE WEIGHT* (kg / km)
2x0,75	5,7 - 7,4	14,4	58
2x1	6,1 - 8	19,2	71
3x0,75	6,2 - 8,1	21,6	74
3x1	6,5 - 8,5	28,8	85
4x0,75	6,8 - 8,8	28,8	78
4x1	7,1 - 9,3	38,4	103
5x0,75	7,6 - 9,9	36	99
5x1	8 - 10,3	48	134

* Dış çaplar EN 60719 standardına göre hesaplanmıştır.
** The overall dimensions of cables have been calculated in accordance with EN 60719*

TÜRK STANDARDLARI ENSTİTÜSÜ

TÜRK STANDARDLARINA UYGUNLUK BELGESİ

TURKISH STANDARDS INSTITUTION

CERTIFICATE OF CONFORMITY TO TURKISH STANDARDS

Markanın Tanımı Description of the Mark
TSE veya/or TSE veya/or TSE

BELGE NUMARASI *REFERENCE NUMBER OF LICENCE*	000083-TSE-06/01
BELGENİN İLK VERİLİŞ TARİHİ *DATE OF FIRST ISSUE OF LICENCE*	04.12.1997
BELGENİN SON GEÇERLİLİK TARİHİ *LICENCE VALID UNTIL*	13.08.2019
BELGE SAHİBİ KURULUŞUN ADI *NAME OF THE LICENCE HOLDER*	ÜNTEL KABLOLARI SANAYİİ VE TİCARET ANONİM ŞİRKETİ
BELGE SAHİBİ KURULUŞUN ADRESİ *ADRESS OF THE LICENCE HOLDER*	DEMİRCİLER KÖYÜ MAKİNA O.S.B. 6.CD. NO:4 DİLOVASI KOCAELİ/TÜRKİYE
ÜRETİM YERİ ADI *NAME OF THE MANUFACTURING PLACE*	ÜNTEL KABLOLARI SAN. VE TİC.A.Ş.
ÜRETİM YERİ ADRESİ *ADRESS OF THE MANUFACTURING PLACE*	DEMİRCİLER KÖYÜ DİLOVASI S.S. MAKİNA İML. SANAYİCİLERİ ORG. SAN. BÖLG. 97 PARSEL 6.CAD.NO:4 P.K. :41455 DİLOVASI/KOCAELİ KOCAELİ / TÜRKİYE
İPTAL EDİLEN BELGE NUMARASI (Varsa) *INDICATION OF SUPERSEDED LICENCE (if any)*	14.0.10.0.01.00/TSE-65425
TESCİLLİ TİCARİ MARKASI *REGISTERED TRADE MARK*	ÜNTEL
İLGİLİ TÜRK STANDARDI *RELATED TURKISH STANDARD*	TS EN 50525-2-21:2011 / Elektrik Kabloları - Beyan gerilimi en çok 450 / 750 V dahil olan düşük gerilimli enerji kabloları- Bölüm 2-21-Genel uygulamalar için kablolar -Çapraz bağlı elastomerik yalıtımlı bükülgen kablolar / 22.11.2011

TÜRKAK Ürün TS EN ISO/IEC 17065 AB-0009-U

BELGE KAPSAMI
SCOPE OF LICENCE

OLAĞAN POLİKLOROPREN VEYA DİĞER EŞ DEĞER SENTETİK ELASTOMER KILIFLI BÜKÜLGEN KABLO

H05 RR-F 3,4,5 DAMARLI
H05 RN-F

e-imzalı/e-signed
27.07.2018
Belgelendirme Merkezi Başkanı Adına
GÜRSEL ERATAK
ELEKTROTEKNİK SEKTÖRÜ MÜDÜRÜ

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