



**CGS TEST HİZMETLERİ TEKNİK KONTROL
VE BELGELENDİRME ANONİM ŞİRKETİ**

Kayışdağı Mah. Gülçin Sok. No:2/2 Ataşehir
İstanbul/TURKIYE

Deney Raporu
Test Report



Test
TS EN ISO/IEC 17025
AB-1316-T

AB-1316-T
LVD-183-79
01-22

Müşterinin adı /adres: Customer name/address	Mutlusan Elektrik Plastik Elektrik San. Ve Tic. A.Ş./ İOSB Mah. Enkoop Cad. No:7 Başakşehir-İstanbul / TÜRKİYE
İstek Numarası : Order no.	06072021bo1
Numunenin Adı ve Tanımı : Name and identity of test item	016 038 701400; LED LIGHT 4
Numunenin Kabul tarihi : The date of receipt of test item	03-08-2021
Açıklamalar : Remarks	Ürün uygulanan testlerden geçmiştir, lütfen raporu inceleyiniz. / The product passes applied tests, see report below.
Deneyin yapıldığı tarih : Date of Test	03-08-2021 to 24-12-2021
Raporun Sayfa Sayısı: Number of pages of the Report	39 sayfa / pages

Deney laboratuvarı olarak faaliyet gösteren CGS TEST HİZMETLERİ A.Ş., TÜRKAK'tan AB-1316-T ile TS EN ISO/IEC 17025 Aralık 2017 standardına göre akredite edilmiştir.

CGS TEST HİZMETLERİ A.Ş. accredited by TÜRKAK under registration AB-1316-T for TS EN ISO/IEC 17025 December 2017 as test laboratory.

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

Mühür/Kaşe

Seal



Tarih

Date

13.01.2022

Deney Sorumlusu

Person in charge of test

Mehtap İrem TANKÜL

Onaylayan

Approval

Yüksel YILDIZ

Bu rapor laboratuvarın izni olmadan kısmen kopyalanıp çoğaltılamaz.

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TEST REPORT
IEC/EN 60598-2-1
Luminaires
Part 2: Particular requirements:
Section One – Fixed general purpose luminaires

Report Reference No.	: LVD-183-79
Date of issue:	13-01-2022
Contents	: 39 Pages
Testing Laboratory	: CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME A.Ş.
Address	: KAYIŞDAĞI MAHALLESİ GÜLÇİN SK. NO:2/2 ATAŞEHİR/İSTANBUL
Testing location	: CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME A.Ş.
Address	: KAYIŞDAĞI MAHALLESİ GÜLÇİN SK. NO:2/2 ATAŞEHİR/İSTANBUL
Applicant's name	: MUTLUSAN PLASTİK ELEKTRİK SAN. VE TİC. A.Ş.
Address	: İOSB MAH. ENKOOP CAD. NO: 7 BAŞAKŞEHİR / İSTANBUL
Test specification:	
Standard	: EN 60598-2-1:1989 used in conjunction with EN 60598-1:2015/AC:2015/AC:2016/AC:2017-05/A1:2018
Test procedure	: Compliance Testing
Non-standard test method	: N/A
Test Report Form No.	: F510_04_R7.0
Test Report Form(s) Originator	: Intertek Semko AB (Modified by CGS)
Master TRF	: 2016-04
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Test item description	: LEDLIGHT-4
Trade Mark	: 
Manufacturer	: MUTLUSAN PLASTİK ELEKTRİK SAN. VE TİC. A.Ş.
Model/Type reference	: 016 038 701400
Ratings	: 220-240 V AC; 50 Hz; 20 W; 2000 Lm



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Summary of testing: The applied tests are listed below.

Tests performed (name of test and test clause):

- 1.5 (3.4) Marking Test
- 1.6 (4.12.1) Torque Test
- 1.6 (4.13) Mechanical strength Test
- 1.6 (4.14.1) Mechanical load Test
- 1.7 (11) Creepage Distances and Clearances
- 1.9 (15) Screwless Terminals and Electrical Connections
- 1.11 (8) Protection Against Electric Shock
- 1.12 (12.3) Endurance Test
- 1.12 (12.4) Thermal Test (normal operation)
- 1.13 (9.3) Humidity Test
- 1.14 (10.2.1) Insulation Resistance Test
- 1.14 (10.2.2) Electric Strength Test
- 1.15 (13.2.1) Ball-pressure Test
- 1.15 (13.3.1) Needle flame Test (10 s)
- 1.15 (13.3.2) Glow wire Test (650°C)

Testing location:

CGS TEST HİZMETLERİ TEKNİK KONTROL VE
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Kayışdağı Mahallesi Gülçin Sokak No:2/2 Ataşehir
İSTANBUL/TÜRKİYE

Copy of marking plate

ÜRÜN ADI:	LED LIGHT 4
MODEL NO:	016 038 701400
VOLTAJ:	220-240 V ~
FREKANS:	50 Hz
GÜÇ:	20 W
IP Kodu	IP65

 **Mutlusan**
electric



Made in TÜRKİYE

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Test item particulars	LEDLIGHT-4
Classification of installation and use.....	Class II and Indoors & Outdoors Use
Supply Connection.....	Supply Connection with Tails
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)
- test cannot be applied in this laboratory	LNA
-non-requested test or inspection by the customer.....	NRT
Testing	
Date of receipt of test item.....	03-08-2021
Date (s) of performance of tests	03-08-2021 to 24-12-2021
General remarks:	
<p>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 testing laboratory.</p> <p>It is prohibited to change any and all versions of this document in any manner whatsoever. In case of a conflict between the electronic version (e.g. PDF file) and the original paper version provided by CGS TEST, the latter will prevail.</p> <p>CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME A.Ş. disclaim liability for any direct, indirect, consequential or incidental damages that may result from the use of the information or data, or from the inability to use the information or data contained in this document.</p> <p>The contents of this report may only be transmitted to third parties in its entirety and provided with the copyright notice, prohibition to change, electronic versions' validity notice and disclaimer.</p> <p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>The manufacturer/client may declare submodels with similar design with the tested product. The submodels shall have identical components, circuit designs and mechanical construction with the tested model to be categorized as submodel. Submodels may have less power consumption and/or number of functions. However, safety functions cannot be reduced. The manufacturer/client is fully responsible to check if submodels have compliance as the tested model.</p> <p>Throughout this report a comma is used as the decimal separator. Clause numbers between brackets refer to clauses in IEC 60598-1</p>	
General product information:	
LED Light which used in household and similar installation.	
It is suitable with ceiling and wall lighting.	
The rated voltage is 220-240 V AC.	



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IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.2 (0)	GENERAL TEST REQUIREMENTS		P
1.2 (0.1)	Information for luminaire design considered	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Lamp standard: -	—
1.2 (0.3)	More sections applicable	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Section: IEC 60598-2-1	—
1.2 (0.5)	Components	(see Annex 1)	
1.2 (0.7)	Information for luminaire design in light sources standards		
1.2 (0.7.2)	Light source safety standard		
	Luminaire design in the light source safety standard	Not declared	N/A

1.4 (2)	CLASSIFICATION		P
1.4 (2.2)	Type of protection	Class II	—
1.4 (2.3)	Degree of protection	IP65 (Declared)	—
1.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
1.4 (2.5)	Luminaire for normal use	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

1.5 (3)	MARKING		P
1.5 (3.2)	Mandatory markings	Acc. to b	P
	Position of the marking	Mounting surface	P
	Format of symbols/text		P
1.5 (3.3)	Additional information		P
	Language of instructions	In official language	P
1.5 (3.3.1)	Combination luminaires		N/A
1.5 (3.3.2)	Nominal frequency in Hz	50/60 Hz	P
1.5 (3.3.3)	Operating temperature		N/A
1.5 (3.3.4)	Symbol or warning notice	Written in the manufacturer's instructions	P
1.5 (3.3.5)	Wiring diagram		P
1.5 (3.3.6)	Special conditions		N/A
1.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
1.5 (3.3.8)	Limitation for semi-luminaires		N/A
1.5 (3.3.9)	Power factor and supply current	0,516 & 0,18 A	N/A

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IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5 (3.3.10)	Suitability for use indoors	Both indoors and outdoors use	N/A
1.5 (3.3.11)	Luminaires with remote control		N/A
1.5 (3.3.12)	Clip-mounted luminaire – warning		N/A
1.5 (3.3.13)	Specifications of protective shields		N/A
1.5 (3.3.14)	Symbol for nature of supply	AC	P
1.5 (3.3.15)	Rated current of socket outlet		N/A
1.5 (3.3.16)	Rough service luminaire		N/A
1.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Y type attachment without external cord	N/A
1.5 (3.3.18)	Non-ordinary luminaires with PVC cable	Luminaire which is other than ordinary however it has not external cord.	N/A
1.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
1.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
1.5 (3.3.21)	Luminaires with non-replaceable and non-user replaceable light source, the instruction sheet shall contain the substance of the following information:		P
	For non-replaceable light sources: "The light source of this luminaire is not replaceable; when the light source reaches its end of life the whole luminaire shall be replaced"	"This luminaire contains built-in LED lamps. The lamps cannot be changed in the luminaire."	P
	For non-user replaceable light sources: "The light source contained in this luminaire shall only be replaced by the manufacturer or his service agent or a similar qualified person."		N/A
	Symbol for risk of electric shock		N/A
1.5 (3.3.22)	For controllable luminaires the classification of insulation that has been maintained between LV supply and control conductors shall be provided. E.g. basic insulation, reinforced insulation.	Not controllable	N/A
1.5 (3.3.23)	Luminaires delivered without control-gear shall be provided with the necessary information for the selection of the appropriate component together with the highest allowed U_{out} value of the control-gear and the maximum U_p or equivalent peak voltage U_p where pulse voltages are used.	With lamp control gear	N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	In addition, the classification of insulation of the external control-gear that has been maintained between LV supply and secondary output shall be provided if there is a need for at least basic insulation.		N/A
	For luminaires that require no insulation between LV supply and output of the external control-gear no additional information is required.		N/A
	For luminaires that require basic insulation between the primary and secondary part of the control-gear the substance of the following information is required:		N/A
	External control-gear shall provide at least basic insulation between LV supply and output		N/A
	For luminaires that are not classified as Class III but require double or reinforced insulation between the primary and secondary part of the controlgear the substance of the following information is required:		N/A
	External control-gear shall provide at least double or reinforced insulation between LV supply and output		N/A
	For luminaires that are classified as Class III, an indication that the controlgear shall be SELV is required.		N/A
1.5 (3.3.24)	Where the terminal block is not supplied with the luminaire, the packaging shall contain the following wording:		P
	"Terminal block not included. Installation must be performed by a qualified person."	Installation should be done by a qualified electrician.	P
1.5 (3.4)	Test with water	Tested with appliance 15 s	P
	Test with hexane	Tested with appliance 15 s	P
	Legible after test	Legible	P
	Label attached	No curling	P

1.6 (4)	CONSTRUCTION		P
1.6 (4.2)	Components replaceable without difficulty		P
1.6 (4.3)	Wireways smooth and free from sharp edges		P
1.6 (4.4)	Lampholders		N/A
1.6 (4.4.1)	Integral lampholder	LED luminaire	N/A
1.6 (4.4.2)	Wiring connection		N/A
1.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
1.6 (4.4.4)	Positioning		N/A
	- pressure test (N)		—



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Clause	Requirement + Test	Result - Remark	Verdict
	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
1.6 (4.4.5)	Peak pulse voltage		N/A
1.6 (4.4.6)	Centre contact		N/A
1.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
1.6 (4.4.8)	Lamp connectors		N/A
1.6 (4.4.9)	Caps and bases correctly used		N/A
1.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
1.6 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
1.6 (4.6)	Terminal blocks		N/A
	Tails		N/A
	Unsecured blocks		N/A
1.6 (4.7)	Terminals and supply connections		N/A
1.6 (4.7.1)	Contact to metal parts	Fixed luminaire of class II that is not adjusted.	N/A
1.6 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
1.6 (4.7.3)	Terminals for supply conductors		N/A
1.6 (4.7.3.1)	Welded connections:		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 15.8.2		N/A
	- electrical test according to 15.9		N/A
	- heat test according to 15.9.2.3 and 15.9.2.4		N/A
1.6 (4.7.4)	Terminals other than supply connection		N/A



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IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
1.6 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
1.6 (4.8)	Switches:		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with 61058-1 for electronic switches		N/A
1.6 (4.9)	Insulating lining and sleeves		N/A
1.6 (4.9.1)	Retainment		N/A
	Method of fixing.....:		N/A
1.6 (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
1.6 (4.10)	Insulation of Class II luminaires		N/A
1.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation	Not metal encased class II luminaire	N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
1.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
1.6 (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
1.6 (4.10.4)	Protective impedance device		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A



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IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
1.6 (4.11)	Electrical connections		P
1.6 (4.11.1)	Contact pressure		P
1.6 (4.11.2)	Screws:		P
	- self-tapping screws		P
	- thread-cutting screws		N/A
1.6 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
1.6 (4.11.4)	Material of current-carrying parts		P
1.6 (4.11.5)	No contact to wood or mounting surface	Checked by inspection	P
1.6 (4.11.6)	Electro-mechanical contact systems		N/A
1.6 (4.12)	Mechanical connections and glands		P
1.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part		N/A
	Torque test: torque (Nm); part		P
	Torque test: torque (Nm); part		N/A
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P
1.6 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm)		N/A
	- lampholder; torque (Nm)		N/A
	- push-button switches; torque 0,8 Nm		N/A
1.6 (4.12.5)	Screwed glands; force (Nm)	Locked against rotation	N/A
1.6 (4.13)	Mechanical strength		P
1.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)	0,2 Nm (Translucent covers)	P
	- other parts; energy (Nm)	0,35 Nm (Enclosure)	P
	1) live parts	Not have become accessible	P
	2) linings		N/A
	3) protection	See Clause 9.2	NRT
	4) covers		P
1.6 (4.13.2)	Metal parts have adequate mechanical strength		N/A
1.6 (4.13.3)	Straight test finger		P

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Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		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
1.6 (4.13.6)	Tumbling barrel		N/A
1.6 (4.14)	Suspensions and adjusting devices		P
1.6 (4.14.1)	Mechanical load:		P
	A) four times the weight	257 g x 4 = 1028 g	P
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm)		N/A
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)		N/A
	Metal rod. diameter (mm)		N/A
	Fixed luminaire or independent control gear without fixing devices		
1.6 (4.14.2)	Load to flexible cables		N/A
	Mass (kg)		N/A
	Stress in conductors (N/mm ²)		N/A
	Mass (kg) of semi-luminaire		N/A
	Bending moment (Nm) of semi-luminaire		N/A
1.6 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles		N/A
	- strands broken		N/A
	- electric strength test afterwards		N/A
1.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
1.6 (4.14.5)	Guide pulleys		N/A
1.6 (4.14.6)	Strain on socket-outlets		N/A
1.6 (4.15)	Flammable materials:		P
	- glow-wire test 650 °C	See Clause 13.3.2	P
	- spacing ≥ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	- screen dimensions		N/A
	- no fiercely burning material		N/A
	- thermal protection		N/A
	- electronic circuits exempted		N/A
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		P
	a) construction		P
	b) temperature sensing control		N/A
	c) surface temperature		N/A
1.6 (4.16)	Luminaires for mounting on normally flammable surfaces		N/A
	No lamp control gear	(compliance with Section 12)	N/A
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
1.6 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
1.6 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear	No thermal protection	N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
1.6 (4.16.3)	Design to satisfy the test of 12.6		N/A
1.6 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
1.6 (4.18)	Resistance to corrosion:		N/A
1.6 (4.18.1)	- rust-resistance		N/A
1.6 (4.18.2)	- season cracking in copper		N/A
1.6 (4.18.3)	- corrosion of aluminium		N/A
1.6 (4.19)	Igniters compatible with ballast		N/A
1.6 (4.20)	Rough service vibration		N/A
1.6 (4.21)	Protective shield:		N/A
1.6 (4.21.1)	Shield fitted	LED Light	N/A
	Shield of glass if tungsten halogen lamps		N/A
1.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
1.6 (4.21.3)	No direct path		N/A



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IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment		N/A
1.6 (4.22)	Attachments to lamps		N/A
1.6 (4.23)	Semi-luminaires comply Class II		N/A
1.6 (4.24)	Photobiological hazards		-
1.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
1.6 (4.24.2)	Retinal blue light hazard		LNA
	Class of risk group assessed according to IEC/TR 62778.....:		
	Luminaires with E_{thr} :		LNA
	a) Fixed luminaires		LNA
	- distance x m, borderline between RG1 and RG2 ...		LNA
	- marking and instruction according 3.2.23		LNA
	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
1.6 (4.25)	Mechanical hazards		P
	No sharp point or edges	Checked by inspection	P
1.6 (4.26)	Short-circuit protection:		N/A
1.6 (4.26.1)	Uninsulated accessible SELV parts		N/A
1.6 (4.26.2)	Short-circuit test		N/A
1.6 (4.26.3)	Test chain according to Figure 29		N/A
1.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		N/A
	Test according Annex V		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
1.6 (4.28)	Fixing of thermal sensing control		N/A
	Not plug-in or easily replaceable type	No thermal sensing control	N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	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) :		N/A
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
1.6 (4.29)	Luminaires with non-replaceable light source		N/A
	Not possible to replace light source	See Clause 3.3.21	N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
1.6 (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
	Minimum two fixing means	See Clause 3.3.21	P
1.6 (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	Double or reinforced Insulation complying with LV _{supply}	P
1.6 (4.31.1)	SELV circuits		N/A
	Used SELV source		N/A
	Voltage ≤ ELV		N/A
	Insulating of SELV circuits from LV supply		N/A
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A
	SELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	Plugs and socket-outlets does not have protective conductor contact		N/A
1.6 (4.31.2)	FELV circuits		N/A
	Used FELV source		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 enter 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
1.6 (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	No equipotential bonding	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	No master/slave application	N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
1.6 (4.32)	Overvoltage protective devices		N/A
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A

1.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
	Creepage distances and clearances..... :		P
1.7 (11.2.1)	Impulse withstand category (Normal category II) (Category III Annex U)	Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>	—



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Clause	Requirement + Test	Result - Remark	Verdict
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
	Creepage distances for frequency up to 30 kHz	See Test Table 1.7 (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 1.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 1.7 (11.2) II	N/A
1.7 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 1.7 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P		N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 1.7 (11.2) II	N/A
1.8 (7)	PROVISION FOR EARTHING		N/A
1.8 (7.2.1 + 7.2.3)	Accessible metal parts	Class II appliance	N/A
	Metal parts in contact with supporting surface		N/A
	Resistance $< 0,5 \Omega$		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a groove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control-gear		N/A
1.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N/A
1.8 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
1.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
1.8 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
1.8 (7.2.8)	Material of earth terminal		N/A
	Contact surface bare metal		N/A



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Clause	Requirement + Test	Result - Remark	Verdict

1.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
1.8 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A

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

1.9 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		P
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 4)	P

1.10 (5)	EXTERNAL AND INTERNAL WIRING		P
1.10 (5.2)	Supply connection and external wiring		N/A
1.10 (5.2.1)	Means of connection	No external wire	N/A
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment		N/A
1.10 (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
1.10 (5.2.3)	Type of attachment, X, Y or Z		N/A
1.10 (5.2.5)	Type Z not connected to screws		N/A
1.10 (5.2.6)	Cable entries:		N/A
	- suitable for introduction		N/A
	- adequate degree of protection		N/A
1.10 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
1.10 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
1.10 (5.2.9)	Locking of screwed bushings		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
1.10 (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
1.10 (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
1.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
1.10 (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
1.10 (5.2.11)	External wiring passing into luminaire		N/A
1.10 (5.2.12)	Looping-in terminals		N/A
1.10 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
1.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
1.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector according relevant IEC standard		N/A
1.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
1.10 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
1.10 (5.3)	Internal wiring		P
1.10 (5.3.1)	Internal wiring of suitable size and type		
	Through wiring		P
	- not delivered/ mounting instruction		N/A
	- factory assembled		P
	- socket outlet loaded (A)	Lamp control device input current: 0,18 A (AC) Lamp control device output current: 0,26 A (DC)	P
	- temperatures	See Clause 12	P
	Green-yellow for earth only	Class II application	N/A
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm ²)	Lamp control device input: 0,75 mm ² Lamp control device output: >0,4 mm ²	P
	Insulation thickness	>0,5 mm	P
	Extra insulation added where necessary		N/A
1.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Adequate cross-sectional area and insulation thickness		N/A
1.10 (5.3.1.3)	Double or reinforced insulation for class II		P
1.10 (5.3.1.4)	Conductors without insulation		N/A
1.10 (5.3.1.5)	SELV current-carrying parts		N/A
1.10 (5.3.1.6)	Insulation thickness other than PVC or rubber	PVC	N/A
1.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		P
	Joints, raising/lowering devices		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
1.10 (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
1.10 (5.3.4)	Joints and junctions effectively insulated		N/A
1.10 (5.3.5)	Strain on internal wiring	The design is not such that the wiring may be subject to strain. Supported with cable gland.	N/A
1.10 (5.3.6)	Wire carriers	Not settable and adjustable	N/A
1.10 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
1.10 (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	Control-gear does not limit the current.	N/A
	No damage to luminaire wiring after test		N/A

1.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
1.11 (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 and adjustable luminaires		N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, within arm's reach, on other types of luminaires		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		P
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
1.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
1.11 (8.2.3.a)	Class II luminaire:		P
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		P
	- glass protective shields not used as supplementary insulation		N/A
1.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
1.11 (8.2.3.c)	SELV circuits with exposed current carrying parts		N/A
	Ordinary luminaire:		N/A
	- voltage under load (V)		N/A
	- no-load voltage		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		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
1.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		N/A
1.11 (8.2.5)	Compliance with the standard test finger or relevant probe	10 N	P
1.11 (8.2.6)	Covers reliably secured	20 N applied to basic insulated part	P
1.11 (8.2.7)	Luminaire other than below with capacitor > 0,5 μ F not exceed 50 V 1 min after disconnection		P
	Portable luminaire with capacitor > 0,1 μ F (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 μ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
1.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
1.12 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 1.13		—
1.12 (12.2)	Selection of lamps and ballasts		
	Lamp used according Annex B	(Lamp used see Annex 2)	
	Controlgear if separate and not supplied	(Control-gear used see Annex 2)	
1.12 (12.3)	Endurance test:		P
	a) mounting-position	In the same operating position	—
	b) test temperature (°C)	25 °C	—
	c) total duration (h)	240 h	—
	d) supply voltage	240x1,1=264 V AC	—
	d) if not equipped with controlgear, constant voltage/current (V) or (A)		—
	e) luminaire ceases to operate		—
	lamp used.....	LED	—
1.12 (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
1.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
1.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	N/A
1.12 (12.6)	Thermal test (failed lamp control gear condition):		N/A
1.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A)		—
	- 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
1.12 (12.6.2)	Temperature sensing control		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
1.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
1.12 (12.7.1)	Luminaire without temperature sensing control		N/A
1.12 (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:		N/A
1.12 (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:		N/A
1.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions		—



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Clause	Requirement + Test	Result - Remark	Verdict
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
1.12 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- manual reset cut-out	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- auto reset cut-out	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- case of abnormal conditions		—
	- highest measured temperature of fixing point/exposed part (°C):		—
	Ball-pressure test:		N/A

1.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		-
1.13 (-)	If IP > IP 20 the order of the test specified in clause 1.12		—
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		NRT
	- classification according to IP		—
	- mounting position during test.....		—
	- fixing screws tightened; torque (Nm)		—
	- tests according to clauses		—
	- electric strength test afterwards		NRT
	a) no deposit in dust-proof luminaire		NRT
	b) no talcum in dust-tight luminaire		NRT
	c) no trace of water on current-carrying parts or SELV parts or where it could become a hazard		NRT
	c.1) For luminaires without drain holes – no water entry		NRT
	c.2) For luminaires with drain holes – no hazardous water entry		NRT
	d) no water in watertight luminaire		NRT
	e) no contact with live parts (IP 2X)		NRT
	e) no entry into enclosure (IP 3X and IP 4X)		NRT
	e) no contact with live parts (IP3X and IP4X)		NRT
	f) no trace of water on part of lamp requiring protection from splashing water		NRT
	g) no damage of protective shield or glass envelope		NRT
1.13 (9.3)	Humidity test 48 h	25°C; 93%Rh	P



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Clause	Requirement + Test	Result - Remark	Verdict
1.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
1.14 (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)	4 MΩ	—
	SELV:		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:		P
	- between live parts of different polarity		N/A
	- between live parts and mounting surface	>999,9MΩ	P
	- between live parts and metal parts		N/A
	- between live parts of different polarity through action of a switch	No 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	>999,9MΩ	P
	- Insulation bushings as described in Section 5 ...		N/A
1.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V):		N/A
	SELV:		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



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Clause	Requirement + Test	Result - Remark	Verdict
	- 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:		P
	- between live parts of different polarity		N/A
	- between live parts and mounting surface	3000 V AC; No breakdown	P
	- between live parts and metal parts		N/A
	- 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	1500 V AC; No breakdown	P
	- Insulation bushings as described in Section 5 ...:		N/A
1.14 (10.3)	Touch current or protective conductor current (mA)	0,044 mA	P

1.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
1.15 (13.2.1)	Ball-pressure test:	See Table 1.15 (13.2.1)	P
1.15 (13.3.1)	Needle flame test (10 s):	See Table 1.15 (13.3.1)	P
1.15 (13.3.2)	Glow-wire test (650°C):	See Table 1.15 (13.3.2)	P
1.15 (13.4.1)	Proof tracking test(IEC 60112):		N/A

1.7 (11.2)	TABLE I: Creepage distances and clearances						P
Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages							
Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*							
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	Basic	2,57	0,35	11.1	2,57	1,3	11.1
Working voltage (V)	75 V DC					—	
PTI	< 600 <input checked="" type="checkbox"/>					≥ 600 <input type="checkbox"/>	
Pulse voltage or U_P if applicable (kV)						—	
Supplementary information: Between positive and negative parts (Lamp control gear PCB output)							
Distance 2:	Basic	3,35	1,43	11.1	3,35	2,42	11.1
Working voltage (V)	240 V AC					—	
PTI	< 600 <input checked="" type="checkbox"/>					≥ 600 <input type="checkbox"/>	



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Clause	Requirement + Test					Result - Remark	Verdict
Pulse voltage or U_P if applicable (kV)							
Supplementary information: Between line and neutral parts (Lamp control gear PCB input)							
Distance 3:	Reinforced	6,40	2,87	11.1	6,40	4,67	11.1
Working voltage (V)							
					240 V AC		—
PTI							
					< 600 <input checked="" type="checkbox"/> \geq 600 <input type="checkbox"/>		—
Pulse voltage or U_P if applicable (kV)							
Supplementary information: Between transformer primer part and seconder part							

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

1.7 (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 <input type="checkbox"/> \geq 600 <input type="checkbox"/>		—
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 <input type="checkbox"/> \geq 600 <input type="checkbox"/>		—
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 <input type="checkbox"/> \geq 600 <input type="checkbox"/>		—
Peak value of the working voltage \hat{U}_{out} if applicable (kV)							
Supplementary information:							

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



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Clause	Requirement + Test	Result - Remark	Verdict
1.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics		P
Allowed impression diameter (mm)		2	—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
Lamp control gear PCB	Undefined	125 °C	<< 2
Enclosure	Undefined	75 °C	1,25
Diffuser	Undefined	75 °C	1,25
Supplementary information:			

1.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				P
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
Lamp control gear PCB / Surface of the test specimen	Undefined	10	No	-	P
Lamp control gear PCB / Edge of the test specimen	Undefined	10	Yes	15	P
Supplementary information:					

1.15 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)				P
Glow wire temperature		650 °C		—	
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict	
Enclosure	Undefined	No	-	P	
Diffuser	Undefined	No	-	P	
Supplementary information: No ignition					

1.15 (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:					

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1: components							P
object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity	
LED Driver	B	HOROZ	Undefined	20 W Without load:75 V DC With load:130 V DC	Tested with appliance	EN 60598- 1:2015/AC:201 5/AC:2016/AC: 2017- 05/A1:2018	
LED	B	HOROZ	Undefined	4200K	Tested with appliance	EN 60598- 1:2015/AC:201 5/AC:2016/AC: 2017- 05/A1:2018	
Diffuser	B	Undefined	Undefined	PPR (moblen)	Tested with appliance	EN 60598- 1:2015/AC:201 5/AC:2016/AC: 2017- 05/A1:2018	
Enclosure	B	Undefined	Undefined	PP (moblen)	Tested with appliance	EN 60598- 1:2015/AC:201 5/AC:2016/AC: 2017- 05/A1:2018	
Connection wire	B	HOROZ	Undefined	2x0,5 mm CU	Tested with appliance	EN 60598- 1:2015/AC:201 5/AC:2016/AC: 2017- 05/A1:2018	
Supplementary Information:							

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



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Clause	Requirement + Test			Result - Remark		Verdict
	ANNEX 2: temperature measurements, thermal tests of Section 12					P
	Type reference	LED Light				—
	Lamp used	LED				—
	Lamp control gear used	Undefined				—
	Mounting position of luminaire	Wall or ceiling mounted				—
	Supply wattage (W)	22,31 W at 240 V AC 23,61 W at 254,4 V AC				—
	Supply current (A)	0,18 A at 240 V AC 0,18 A at 254,4 V AC				—
	Calculated power factor	0,516				—
	Table: measured temperatures corrected for $t_a = 25\text{ °C}$:					P
	- abnormal operating mode					—
	- test 1: rated voltage					—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage	240x1,06=254,4 V AC				—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage					—
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage					—
	Through wiring or looping-in wiring loaded by a current of A during the test					—
temperature (°C) of part	Clause 12.4 – normal				Clause 12.5 – abnormal	
	test 1	test 2	test 3	limit	test 4	limit
PCB		61,2 °C		*		
Transformer		96,7 °C		100 °C		
Capacitor (CD11G)		80,5 °C		105 °C		
Capacitor (UNITED)		77,0 °C		105 °C		
Internal wire (-)		60,9 °C		90 °C		
Internal wire (+)		56,7 °C		90 °C		
LED PCB		52,5 °C		*		
Cable Gland		50,8 °C		100 °C		
Supply Tails		47,3 °C		90 °C		
Enclosure		45,8 °C		100 °C		
Diffuser		47,9 °C		100 °C		



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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary Information:

* There is no specific limitation for this component in the standard. This is measured in order to inform the client.

	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)..... :	N/A
(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



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Clause	Requirement + Test	Result - Remark	Verdict

	ANNEX 4: screwless terminals (part of the luminaire)		P
--	---	--	---

(15)	SCREWLESS TERMINALS		P
(15.2)	Type of terminal	Soldering connection	—
	Rated current (A)	Not declared	—
(15.3.1)	Material	Not declared	N/A
(15.3.2)	Clamping	Soldering	P
(15.3.3)	Stop		P
(15.3.4)	Unprepared conductors	See Clause 15.5.2.2	P
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently	Soldering	N/A
(15.3.8)	Fixed in position	With cable gland	P
(15.3.10)	Conductor size	Not declared	N/A
	Type of conductor	Not declared	N/A
(15.5.1)	Terminals internal wiring	See Clauses 15.5.1.1& 15.5.1.2	P
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:	Permanent connection	N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....:	Permanent connection	N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		P
(15.6)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples)	Not Spring-type terminal Not pin or tab and receptacle type connection	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



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Clause	Requirement + Test										Result - Remark	Verdict
(15.7)	Terminals external wiring											N/A
	Terminal size and rating											N/A
(15.8.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)											N/A
	Pull test pin or tab terminals (4 samples); pull (N)											N/A
(15.9)	Contact resistance test											N/A
	Voltage drop (mV) after 1 h											N/A
terminal	1	2	3	4	5	6	7	8	9	10		
voltage drop (mV)												N/A
	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)												N/A
	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)												N/A
	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)												N/A
	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)												N/A



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ATTACHMENT 1

Equipment of measurements

Equipment No	Kind of equipment	Model Type	Manufacturer	Last Cal Date	Next Cal Date	Last Ver Date	Next Ver Date	Test Clause
E-003	Datalogger	DL 40	CSK Elektrik Elektronik San. ve Tic. Ltd. Şti	5.06.2021	5.06.2022	---	---	Clause 1.12 (12.4)
E-004	Climatic Chamber	---	ULMEKA Mekatronik Sistemler	18.10.2021	18.10.2022	14.11.2021	14.05.2021	Clause 1.13 (9.3)
E-005	Glow Wire Test Equipment	---	ULMEKA Mekatronik Sistemler	18.10.2021	18.10.2022	21.10.2021	21.04.2022	Clause 1.15 (13.3.2)
E-007	Needle Flame Test Equipment	---	ULMEKA Mekatronik Sistemler	19.10.2021	19.10.2022	20.10.2021	20.04.2022	Clause 1.15 (13.3.1)
E-008	Oscilloscope	UTD2102CEX	UNI-T	11.10.2021	11.10.2022	14.11.2021	14.05.2022	Clause 1.14 (10.3)
E-009	Oscilloscope Probe	UT-P04	UNI-T	11.10.2021	11.10.2022	14.11.2021	14.05.2022	Clause 1.14 (10.3)
E-034	Etuv Oven	T12	HERAEUS	18.10.2021	18.10.2022	18.11.2021	18.05.2022	Clause 1.15 (13.2.1)
E-035	Torque Screw	7441/TİP I	WERA	18.10.2021	18.10.2023	---	---	Clause 1.6 (4.12.1)
E-036	Torque Screw	7440/TİP I	WERA	18.10.2021	18.10.2023	---	---	Clause 1.6 (4.12.1)
E-042	Voltage Source (Variac)	---	VARSAN	---	---	---	---	Voltage Supply
E-044	Lighting Cage	---	ULMEKA Mekatronik Sistemler	---	---	---	---	Clause 1.12 (12.4)
E-045	Ball Mass	---	TEKNİK MEKATRONİK	22.03.2021	22.03.2023	18.05.2021	18.11.2021	Clause 1.15 (13.2.1)
E-046	Microscope	2017/583	---	13.10.2021	13.10.2021	---	---	Clause 1.15 (13.2.1)
E-050	Pull & Torque Cable Apparatus	---	CGS TEST A.Ş.	---	---	---	---	Clause (15.5.2)
E-057	Oven	FRN	DİZAYN	22.01.2021	22.01.2022	6.08.2021	6.02.2022	Clause 1.12 (12.3)
E-058	Spring Hammer	F22.50	PTL Dr Grabenhost GmbH	6.10.2021	6.10.2023	---	---	Clause 1.6 (4.13.1)
E-067	Power Meter	PM-15	SEW	23.10.2021	23.10.2022	---	---	Clause 1.12 (12.4)
E-085	High Voltage Apparatus	HVA58	ÖZ MAKİNA	---	---	---	---	Clause 1.14 (10.2.2)
E-091	Temperature Humidity Meter	351077	TFA	24.03.2021	24.03.2022	---	---	Environmental Conditions
E-093	Force Meter	SH-1000 / Dijital	GERATECH	26.03.2021	26.03.2022	---	---	Clause (15.5.2)
E-095	Touch/Leakage Current Circuit	MTFIG4	MULTITECH	22.03.2021	22.03.2022	---	---	Clause 1.14 (10.3)



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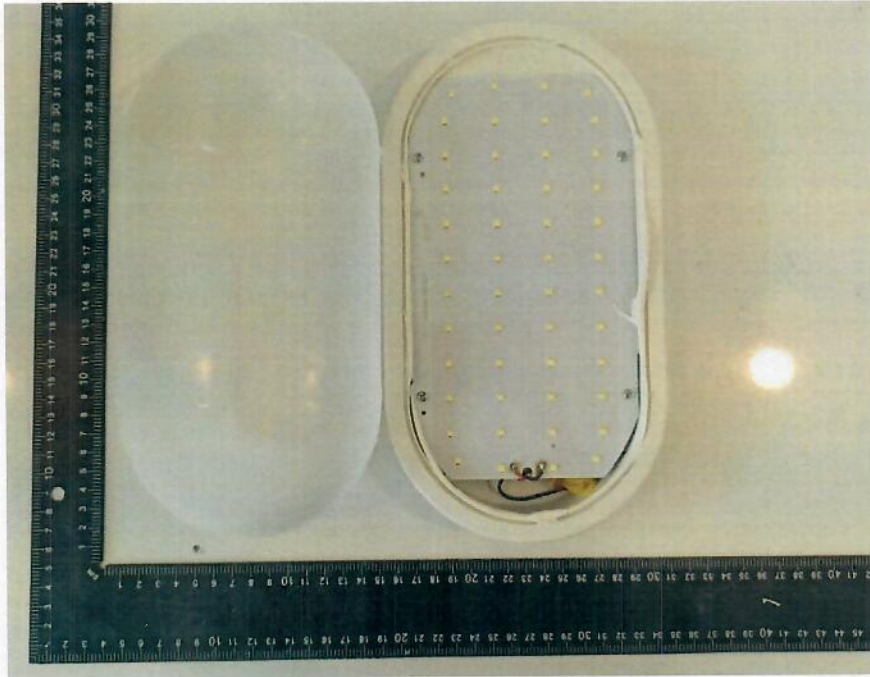
E-099	Multimeter	UT803	UNI-T	21.08.2021	21.08.2022	---	---	Voltage Verification
E-102	Digital Caliper	2310-7110	DASQUA	22.12.2021	22.12.2022	---	---	Clause 1.7 (11.2)
E-117	Counter	CT-9180	CATA	---	---	---	---	Clause 1.12 (12.3)
E-118	UPS Power Supply	TEOS110	TESCOM	---	---	---	---	Voltage Supply
E-121	Multitester	GPT-9804	GW INSTEK	2.09.2021	2.09.2022	---	---	Clauses 1.14 (10.2.1) & 1.14 (10.2.2)



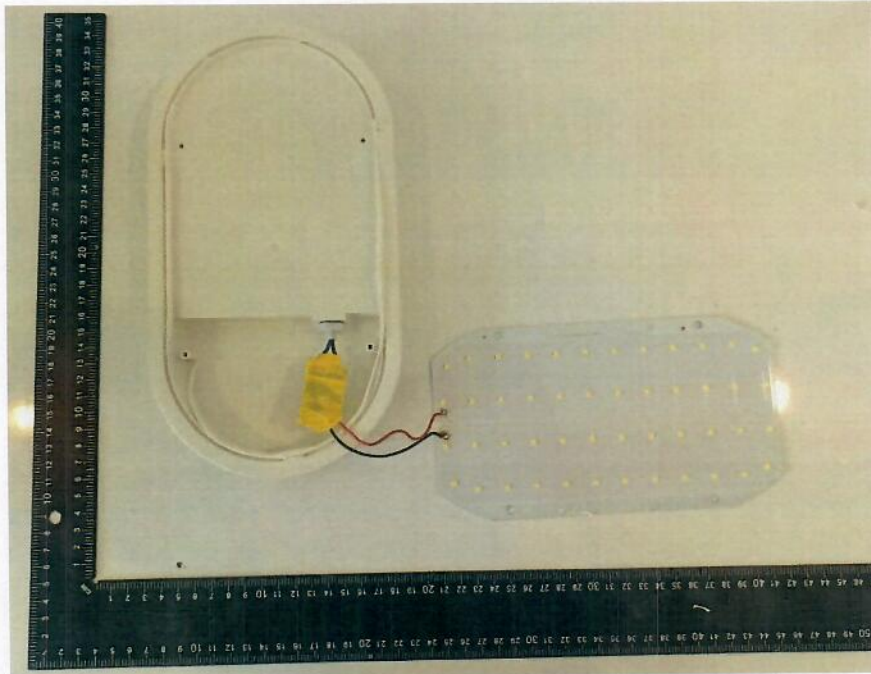
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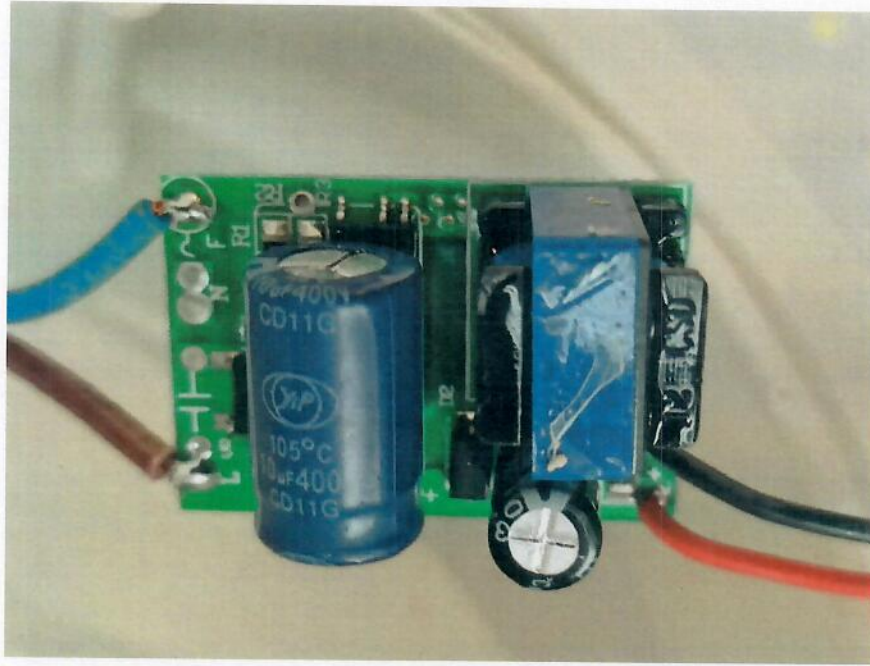
Opened View



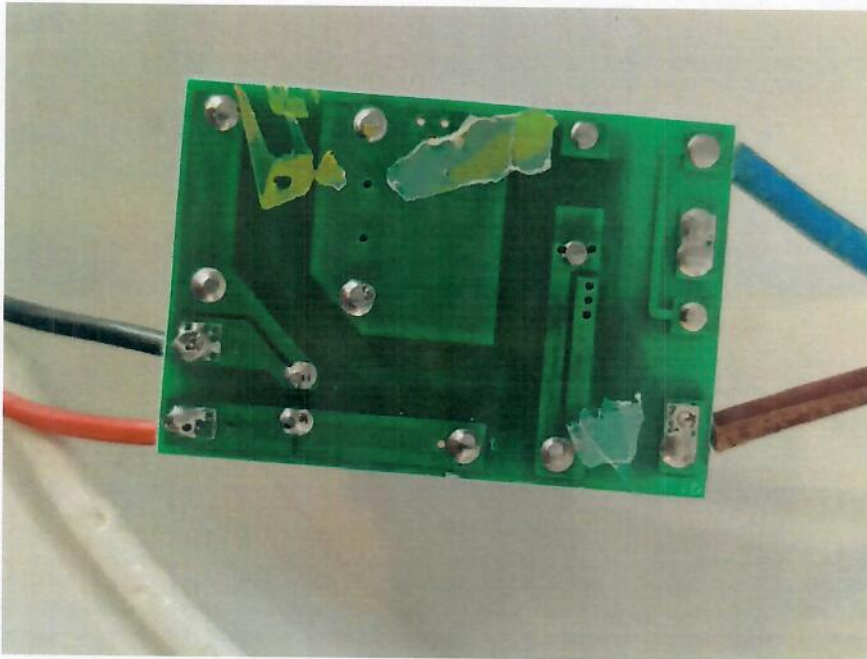
Opened View



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Component View



Component View

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ATTACHMENT 3 DECLARATION OF IDENTITY

Sayfa 1 / 1



Mutlusan Plastik Elektrik A.Ş. olarak test edilen 016 038 701400 LEDLİGHT-4 Beyaz Aydınlatma Armatürü ürününün aşağıda belirtilen ürünlerle elektriksel ve mekaniksel olarak benzer olduğunu beyan ederiz.

Ürün Adı	Ürün kodu
LEDLİGHT-3 Beyaz armatür	016 038 701300
LEDLİGHT-3 Siyah armatür	016 038 701311
LEDLİGHT-4 Siyah armatür	016 038 701411
LEDLİGHT-3 Beyaz armatür – Gün ışığı	016 038 702300
LEDLİGHT-3 Siyah armatür – Gün ışığı	016 038 702311
LEDLİGHT-4 Beyaz armatür	016 038 702400
LEDLİGHT-4 Siyah armatür – Gün ışığı	016 038 702411

MUTLUSAN PLASTİK ELEKTRİK SAN. VE TİC. A.Ş.
İkinci Organize Sanayi Bölgesi, Mutlusan Plastik Elektrik San. Tic. A.Ş.
No:7 Başkışkışlı Cad. İçişleri Bakanlığı Cad. No:7
Etiler/Beşiktaş/İSTANBUL
Mühür No: 90.212.485.04.55
Tic. Sic. No: 399323 Mersis No: 90.212.485.10.12



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