



UDEM

Uluslar Arası Belgelendirme Denetim Eğitim Merkezi
San. Ve Tic. A.Ş.
Mutlukent Mahallesi 2073. Sokak No:10 Umitköy Çankaya-ANKARA



Test
TS EN ISO / IEC 17025
AB-1124-T

AB-1124-T

ULVD-049

04-18

LVD DENEY RAPORU LVD TEST REPORT

Sayfa(page) 1/36

Müşterinin adı/adresi : BSI AYDINLATMA ELEKT. SAN. TİC. A.Ş.
Customer name/address KONUTKENT MAH. 3029 CAD. NO:3/91 06810 ÇANKAYA ANKARA

İstek Numarası : 030418-01
Order No.

Numunenin adı ve tarifi : WALLWASHER
Name and identity of test item

Numunenin kabul tarihi : 03.04.2018
The date of receipt of test item

Açıklamalar : DGC'ye, TS 8698 EN 60598-2-1 standardı uyarınca testler uygulanmıştır.
Remarks EUT has been tested according to TS 8698 EN 60598-2-1 standard.

Deneyin yapıldığı tarih : 06.04.2018-24.04.2018
Date of Test

Raporun sayfa sayısı : 36
Number of pages of the Report

Deney laboratuvarı olarak faaliyet gösteren UDEM, TÜRKAK'tan AB-1124-T ile TS EN ISO/IEC 17025 Nisan 2012 standardına göre akredite edilmiştir.

UDEM accredited by TÜRKAK under registration number AB-1124-T for TS EN ISO/IEC 17025 April 2012 as test laboratory.

Türk Akreditasyon Kurumu(TÜRKAK) deney raporlarının tanınırılığı konusunda Avrupa Akreditasyon Birliği(EA) ile Çok Taraflı Anlaşma ve Uluslararası Laboratuvar Akreditasyon Birliği(ILAC) ile karşılıklı tanıma anlaşması imzalamıştır.

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Deney ve /veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (olması halinde) ve deney metotları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir .

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.

Bu rapor, laboratuvara gönderilen numunelere uygulanan deney/deneyler sonucu hazırlanmıştır. Müşteriye ait diğer numuneleri kapsamaz.
This report was prepared according to test results of specimens sent to laboratory. It doesn't contain other specimens belonging to customer.

Mühür ve Tarih
Seal and Date



25.04.2018

Deney Sorumlusu
Person in charge of test


Onur KESKİN

Onaylayan
Approval


Gürhan CANSIZ



UDEM

Uluslar Arası Belgelendirme Denetim Eğitim Merkezi
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Deneyden Geçirilen Cihazın :
(Equipment Under Test's)

Markası (Brand)	: BSI LIGHTING	Beyan Gücü : (Rated Power)	18 W
Modeli (Model)	: iAXIS	Beyan Gerilimi : (Rated Voltage)	220-240 VAC
Seri Numarası (Serial Number)	Test numunesi Test Sample	Beyan Frekansı : (Rated Frequency)	50-60 Hz
Tanımı : (Description)	Sıva üstü armatür duvar yıkama, vurgu ve mimari uygulamalarda, endirekt aydınlatma gerektiren projelerde mimari detayları özelleştirmekte kullanılabilir. Surface mounted fixtures can be used for wall washing, emphasis and architectural applications, and for architectural details in projects requiring indirect lighting.		

Açıklamalar: Madde 1.6 (4.20) ve madde 1.6 (4.24) akreditasyon kapsamı dışındadır.
Remarks Clause 1.6 (4.20) and clause 1.6 (4.24) are not included in accreditation.

Çevre Şartları :
(Environmental Conditions)

Deneyler sırasında ölçülen çevre şartları ilgili sayfalarda belirtilmiştir.
(The enviromental conditions are measured during tests, are determined related pages.)

Sembollerin Tanımları : DGC = Deneyden geçen cihaz
(Definations of Symbols) (EUT = Equipment under test)



Bu rapor, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. İmzasız ve mühürlü raporlar geçersizdir.
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LFRM.21/02-17.08.2017/15.01.2016

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

Report Number: ULVD-049(04-18)

Date of issue: 25.04.2018

Total number of pages: 36

Name of Testing Laboratory preparing the Report: UDEM ULUSLARARASI BELGELENDİRME DENETİM EĞİTİM MERKEZİ SANAYİ VE TİC. A.Ş.

Applicant's name: BSI AYDINLATMA ELEKT. SAN. TİC. A.Ş.

Address: KONUTKENT MAH. 3029 CAD. NO:3/91 06810 ÇANKAYA ANKARA

Test specification:

Standard: IEC 60598-2-1:1979 (First Edition) + A1:1987 used in conjunction with IEC 60598-1:2014 (Eighth Edition)

Test procedure: LVD

Non-standard test method: N/A

Test Report Form No.: IEC60598_2_1D

Test Report Form(s) Originator: Intertek Semko AB

Master TRF: 2014-08

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.

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Test item description	WALLWASHER	
Trade Mark	BSI LIGHTING	
Manufacturer.....	BSI AYDINLATMA ELEKT. SAN. TİC. A.Ş.	
Model/Type reference	iAXIS	
Ratings	220-240 VAC / 50-60 Hz / 18 W	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☐ Testing Laboratory:	UDEM ULUSLARARASI BELGELENDİRME DENETİM EĞİTİM MERKEZİ SANAYİ VE TİC. A.Ş.	
Testing location/ address	Mutlukent Mahallesi 2073. Sokak No:10 Ümitköy 06810 Çankaya / ANKARA / TÜRKİYE	
Tested by (name and signature).....	Onur KESKİN	
Approved by (name and signature).....	Gürhan CANSIZ	

List of Attachments (including a total number of pages in each attachment):

Summary of testing:

Experiments marked with ¹* are not included in accreditation.

Tests performed (name of test and test clause):

Testing location:

UDEM ULUSLARARASI BELGELENDİRME DENETİM EĞİTİM MERKEZİ SANAYİ VE TİC. A.Ş.

Mutlukent Mahallesi 2073. Sokak No:10 Ümitköy 06810 Çankaya / ANKARA / TÜRKİYE

Summary of compliance with National Differences:

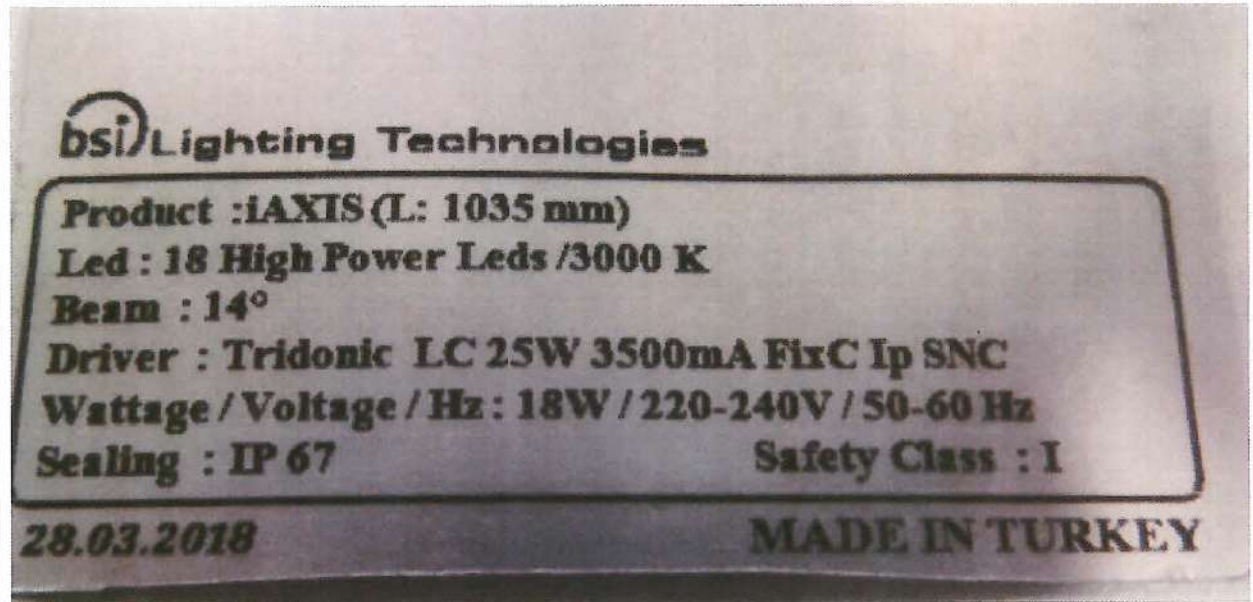
List of countries addressed

☐ The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis, leave it blank or delete the whole sentence, if not applicable)



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 : Fixed luminaire	
Supply Connection : Type Y	
..... :	
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 : 03.04.2018	
Date (s) of performance of tests : 06.04.2018-24.04.2018	
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.	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60598-2-22:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided	☐ Yes ☐ Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)	
General product information:	



1.2 (0)	GENERAL TEST REQUIREMENTS		—
1.2 (0.1)	Information for luminaire design considered	Standard Yes ☒ No ☐ TS 8698 EN 60598-2-1	—
1.2 (0.3)	More sections applicable	Yes ☒ No ☐	—

1.4 (2)	CLASSIFICATION		—
1.4 (2.2)	Type of protection	Class I	—
1.4 (2.3)	Degree of protection	IP 67	—
1.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes ☒ No ☐	—
1.4 (2.5)	Luminaire for normal use	Yes ☒ No ☐	—
	Luminaire for rough service	Yes ☐ No ☒	—

1.5 (3)	MARKING		—
1.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
1.5 (3.3)	Additional information		P
	Language of instructions	Turkish	P
1.5 (3.3.1)	Combination luminaires	IP 67	P
1.5 (3.3.2)	Nominal frequency in Hz	50-60 Hz	P
1.5 (3.3.3)	Operating temperature	Ambient Temperature: 25 °C	P
1.5 (3.3.4)	Symbol or warning notice		N/A
1.5 (3.3.5)	Wiring diagram		N/A
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		N/A
1.5 (3.3.10)	Suitability for use indoors		P
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	VAC/50-60 Hz	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	Type Y	P



1.5 (3.3.18)	Non-ordinary luminaires with PVC cable		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)	Non-replaceable and non-user replaceable light sources information provided		N/A
	Cautionary symbol		N/A
1.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
1.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P

1.6 (4)	CONSTRUCTION		—
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		—
1.6 (4.4.1)	Integral lampholder		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)		—
	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		—
	Starter holder in luminaires other than class II		N/A



	Starter holder class II construction		N/A
1.6 (4.6)	Terminal blocks		—
	Tails		N/A
	Unsecured blocks		N/A
1.6 (4.7)	Terminals and supply connections		—
1.6 (4.7.1)	Contact to metal parts		P
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 method and material		—
	- 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
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		—
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
1.6 (4.9)	Insulating lining and sleeves		—
1.6 (4.9.1)	Retainment		N/A
	Method of fixing		—
1.6 (4.9.2)	Insulated linings and sleeves:		—
	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)	Double or reinforced insulation		—
1.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		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:		—
	- not coincidental		N/A
	- no straight access with test probe		N/A
1.6 (4.10.3)	Retention of insulation:		—
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
1.6 (4.11)	Electrical connections and current-carrying parts		—
1.6 (4.11.1)	Contact pressure		P
1.6 (4.11.2)	Screws:		—
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
1.6 (4.11.3)	Screw locking:		—
	- 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	No wood material in the luminaires	P
1.6 (4.11.6)	Electro-mechanical contact systems		N/A
1.6 (4.12)	Screws and connections (mechanical) and glands		—
1.6 (4.12.1)	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
1.6 (4.12.4)	Locked connections:		—
	- 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)		N/A
1.6 (4.13)	Mechanical strength		—
1.6 (4.13.1)	Impact tests:		—



	- fragile parts; energy (Nm).....:	0,2 Nm	P
	- other parts; energy (Nm)	0,35 Nm	P
	1) live parts		P
	2) linings		P
	3) protection		P
	4) covers		P
1.6 (4.13.3)	Straight test finger		P
1.6 (4.13.4)	Rough service luminaires		—
	- 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, fixings and means of adjusting		—
1.6 (4.14.1)	Mechanical load:		—
	A) four times the weight		N/A
	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		N/A
1.6 (4.14.2)	Load to flexible cables		N/A
	Mass (kg)		—
	Stress in conductors (N/mm ²)		N/A
	Mass (kg) of semi-luminaire		—
	Bending moment (Nm) of semi-luminaire		N/A
1.6 (4.14.3)	Adjusting devices:		—
	- 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		—
	- glow-wire test 650°C	See Test Table 1.15 (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
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		—
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
1.6 (4.16)	Luminaires for mounting on normally flammable surfaces		—
	No lamp control gear	(compliance with Section 12)	N/A
1.6 (4.16.1)	Lamp control gear spacing:		—
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
1.6 (4.16.2)	Thermal protection:		—
	- in lamp control gear		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	(see clause 12.6)	N/A
1.6 (4.17)	Drain holes		
	Clearance at least 5 mm		N/A
1.6 (4.18)	Resistance to corrosion		—
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		—
1.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		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
1.6 (4.21.4)	Impact test on shield		N/A



	Glow-wire test on lamp compartment.....:	See Test Table 1.15 (13.3.2)	N/A
1.6 (4.22)	Attachments to lamps not cause overheating or damage		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		—
	Luminaires with E_{thr} :		—
	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
1.6 (4.25)	Mechanical hazard		—
	No sharp point or edges		P
1.6 (4.26)	Short-circuit protection		
1.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N/A
1.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		—
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
1.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		—
	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		
	Not plug-in or easily replaceable type		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
1.6 (4.29)	Luminaires with non-replaceable light source	
	Not possible to replace light source	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	—
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:	—
	Minimum two fixing means	N/A
1.6 (4.31)	Insulation between circuits	
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3	N/A
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3	N/A
1.6 (4.31.1)	SELV circuits	—
	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
	Plugs and socket-outlets does not have protective conductor contact	N/A
1.6 (4.31.2)	FELV circuits	—
	Used FELV source	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 enter 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
1.6 (4.31.3)	Other circuits		—
	Other circuits insulated from accessible parts according Table X.1		N/A
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		—
	- conductive parts are connected together		N/A
	- test according 7.2.3 of above		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
1.6 (4.32)	Overvoltage protective devices		—
	Comply with IEC 61643-11		N/A
	External to control gear and connected to earth:		—
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A

1.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		—
1.7 (11.2)	Creepage distances and clearances	See Table 1.7 (11.2)	P
	Working voltage (V)	220-240 VAC	—
	Rated pulse voltage (kV)		—
	Voltage form	Sinusoidal ☒ Non-sinusoidal ☐	—
	PTI	< 600 ☐ ≥ 600 ☒	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II ☒ Category III ☐	—

1.8 (7)	PROVISION FOR EARTHING		
1.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω	94 m Ω	P
	Self-tapping screws used		N/A



	Thread-forming screws		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		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.		P
1.8 (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		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		P
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
1.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
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		P
	Length of earth conductor		P

1.9 (14)	SCREW TERMINALS		—
	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		—
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 4)	N/A

1.10 (5)	EXTERNAL AND INTERNAL WIRING		—
1.10 (5.2)	Supply connection and external wiring		—
1.10 (5.2.1)	Means of connection		P
	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	H03VV-F	P
	Nominal cross-sectional area (mm ²).....	3 x 0,75 mm ²	P



	Cables equal to IEC 60227 or IEC 60245		N/A
1.10 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
1.10 (5.2.5)	Type Z not connected to screws		N/A
1.10 (5.2.6)	Cable entries:		—
	- suitable for introduction		P
	- adequate degree of protection		P
1.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
1.10 (5.2.8)	Insulating bushings:		—
	- 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
1.10 (5.2.10)	Cord anchorage:		—
	- 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:		—
	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:		—
	- 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
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		—
	- IEC 60083		N/A
	- other standard		N/A
1.10 (5.3)	Internal wiring		
1.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		—
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A).....:		N/A
	- temperatures: (see Annex 2)		N/A
	Green-yellow for earth only		N/A
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		—
	Cross-sectional area (mm ²).....:		N/A
	Insulation thickness		N/A
	Extra insulation added where necessary		N/A
1.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		—



	Adequate cross-sectional area and insulation thickness		N/A
1.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A
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		N/A
1.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
1.10 (5.3.3)	Insulating bushings:		—
	- 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		N/A
1.10 (5.3.6)	Wire carriers		N/A
1.10 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A

1.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		—
1.11 (8.2.1)	Live parts not accessible	No access of live part in normal use	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		P
	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		N/A
	Basic insulation only accessible under lamp or starter replacement		P
	Protection in any position		N/A



	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		N/A
	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:		—
	- basic insulated metal parts not accessible during starter or lamp replacement		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
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:		—
	Ordinary luminaire:		—
	- touch current		N/A
	- no-load voltage		N/A
	Other than ordinary luminaire:		
	- nominal voltage		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		P
1.11 (8.2.6)	Covers reliably secured		N/A
1.11 (8.2.7)	Discharging of capacitors $\geq 0,5 \mu\text{F}$		N/A
	Portable plug connected luminaire with capacitor		N/A
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		N/A



1.12 (12)	ENDURANCE TEST AND THERMAL TEST		—
1.12 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 4.13		—
1.12 (12.3)	Endurance test:		—
	- mounting-position		—
	- test temperature (°C)	$t_a + 10^\circ\text{C}$	—
	- total duration (h)	240 h	—
	- supply voltage: Un factor; calculated voltage (V)	264 V	—
	- lamp used		—
1.12 (12.3.2)	After endurance test:		—
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to 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)	P
1.12 (12.6)	Thermal test (failed lamp control gear condition):		—
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		—
	- 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):		—
1.12 (12.7.1)	Luminaire without temperature sensing control		—



1.12 (12.7.1.1)	Luminaire with fluorescent lamp $\leq 70W$		—
	Test method 12.7.1.1 or Annex W		—
	Test according to 12.7.1.1:		
	- 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:		—
	- case of abnormal conditions.....		—
	- measured winding temperature ($^{\circ}C$): at 1,1 Un.....		—
	- measured temperature of fixing point/exposed part ($^{\circ}C$): at 1,1 Un.....		—
	- calculated temperature of fixing point/exposed part ($^{\circ}C$)		—
	Ball-pressure test.....	See Table 1.15 (13.2.1)	N/A
1.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp $> 70W$, transformer $> 10 VA$		—
	- case of abnormal conditions.....		—
	- measured winding temperature ($^{\circ}C$): at 1,1 Un.....		—
	- measured temperature of fixing point/exposed part ($^{\circ}C$): at 1,1 Un.....		—
	- calculated temperature of fixing point/exposed part ($^{\circ}C$)		—
	Ball-pressure test.....	See Table 1.15 (13.2.1)	N/A
1.12 (12.7.1.3)	Luminaire with short circuit proof transformers $\leq 10 VA$		N/A
	- case of abnormal conditions.....		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
1.12 (12.7.2)	Luminaire with temperature sensing control		—
	- thermal link	Yes ☐ No ☐	—
	- manual reset cut-out.....	Yes ☐ No ☐	—
	- auto reset cut-out.....	Yes ☐ No ☐	—
	- case of abnormal conditions.....		—
	- highest measured temperature of fixing point/exposed part ($^{\circ}C$):		—
	Ball-pressure test:	See Table 1.15 (13.2.1)	N/A



1.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		—
1.13 (-)	If IP > IP 20 the order of tests as specified in clause 1.12		—
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		—
	- classification according to IP	IP 67	—
	- mounting position during test		—
	- fixing screws tightened; torque (Nm).....		—
	- tests according to clauses		—
	- electric strength test afterwards	1480 V	P
	a) no deposit in dust-proof luminaire		P
	b) no talcum in dust-tight luminaire		N/A
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N/A
	d) i) For luminaires without drain holes – no water entry		P
	d) ii) For luminaires with drain holes – no hazardous water entry		N/A
	e) no water in watertight luminaire		N/A
	f) no contact with live parts (IP 2X)		N/A
	f) no entry into enclosure (IP 3X and IP 4X)		N/A
	f) no contact with live parts (IP3X and IP4X)		N/A
	g) no trace of water on part of lamp requiring protection from splashing water		N/A
	h) no damage of protective shield or glass envelope		P
1.13 (9.3)	Humidity test 48 h	RH: 96% T: 26 °C	P

1.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		
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).....	400 MΩ	—
	SELV		—
	- 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		—
	- between live parts of different polarity.....	400 MΩ	P
	- between live parts and mounting surface.....		N/A
	- between live parts and metal parts.....	400 MΩ	P
	- between live parts of different polarity through action of a switch		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
1.14 (10.2.2)	Electric strength test		—
	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		—
	- 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		—
	- between live parts of different polarity.....	1480 V	P
	- between live parts and mounting surface.....		N/A
	- between live parts and metal parts.....	1480 V	P
	- between live parts of different polarity through action of a switch		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
1.14 (10.3)	Touch current or protective conductor current (mA):	Protective conductor current: 0,058 mA	P



1.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING	—
1.15 (13.2.1)	Ball-pressure test.....:	See Test Table 1.15 (13.2.1)
1.15 (13.3.1)	Needle-flame test (10 s)	See Test Table 1.15 (13.3.1)
1.15 (13.3.2)	Glow-wire test (650°C)	See Test Table 1.15 (13.3.2)
1.15 (13.4)	Proof tracking test (IEC 60112)	See Test Table 1.15 (13.4)
		N/A



1.7 (11.2)	TABLES: Creepage distances and clearances						P	
Table 11.1	Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages							
RMS working voltage (V) not exceeding		50	150	250	500	750	1000	
Creepage distances								
Required basic insulation, PTI ≥ 600		0,6	0,8	1,5	3	4	5,5	
Measured				2,8				
Required basic insulation, PTI < 600		1,2	1,6	2,5	5	8	10	
Measured								
Required supplementary insulation PTI ≥ 600		-	0,8	1,5	3	4	5,5	
Measured								
Required supplementary insulation PTI < 600		-	1,6	2,5	5	8	10	
Measured								
Required reinforced insulation		-	3,2	3	6	8	11	
Measured								
Clearances								
Required basic insulation		0,2	0,8	1,5	3	4	5,5	
Measured				1,8				
Required supplementary insulation		-	0,8	1,5	3	4	5,5	
Measured								
Required reinforced insulation		-	1,6	3	6	8	11	
Measured								
Table 11.2	Minimum distances (mm) for non-sinusoidal pulse voltages							
Rated pulse voltage (peak kV)		2,0	2,5	3,0	4,0	5,0	6,0	8,0
Required clearances		1,0	1,5	2	3	4	5,5	8
Measured								
Rated pulse voltage (peak kV)		10	12	15	20	25	30	40
Required clearances		11	14	18	25	33	40	60
Measured								
Rated pulse voltage (peak kV)		50	60	80	100	-	-	-
Required clearances		75	90	130	170	-	-	-
Measured								



1.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			N/A
Allowed impression diameter (mm) :				—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

1.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
-	-	-	-	-	N/A
Supplementary information:					

1.15 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)				N/A
Glow wire temperature				650°C	—
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
	-			-	
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No)					Yes
Supplementary information:					

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
-	-	-	-	-	N/A
Supplementary information:					



ANNEX 1		TABLE: Critical components information					
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
LED	C	NICHIA	NVSL 219BT-V1	700 mA / 2,17mm 279lm	LM-80 PHOTOBIOLOGICAL SAFETY EVALUATION OF LED PRODUCTS	NICHIA CORPORATION LED TESTING LABORATORY	
LED DRIVER	B	TRIDONIC	LC 25W 350mA fixC Ip SNC	Output current 250, 300, 350 or 500 mA Max. output power 25W	EN 61347-2-13	VDE 0712-43	
CABLE	A	PEKTAŞ	3 x 0,75 mm ²	PVC	TS EN 50525-2-11:2011	KEMA-KEUR	

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: Temperature measurements, thermal tests of Section 12		—				
	Type reference.....:	LED LAMP	—				
	Lamp used	LED	—				
	Lamp control gear used	-	—				
	Mounting position of luminaire	Using Position	—				
	Supply wattage (W)	18W	—				
	Supply current (A).....:	-	—				
	Calculated power factor	-	—				
	Table: measured temperatures corrected for ta = 25 °C:		—				
	- abnormal operating mode	No Abnormal Mode	—				
	- test 1: rated voltage	220-240 VAC	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage	240x1,06= 254 VAC	—				
	- 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 measurements, (°C)							
Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Enclosure	23,1	—	31,7	—	90	—	—
Cable (Inside)	23,1	—	30,9	—	100	—	—
LED Driver	23,1	35,3	—	—	65	—	—
Supplementary information:							



ANNEX 3	Screw terminals (part of the luminaire)		—
(14)	SCREW TERMINALS		—
(14.2)	Type of terminal		—
	Rated current (A)		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm ²)		—
(14.3.3)	Conductor space (mm)		N/A
(14.4)	Mechanical tests		—
(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)		—
(15)	SCREWLESS TERMINALS		—
(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



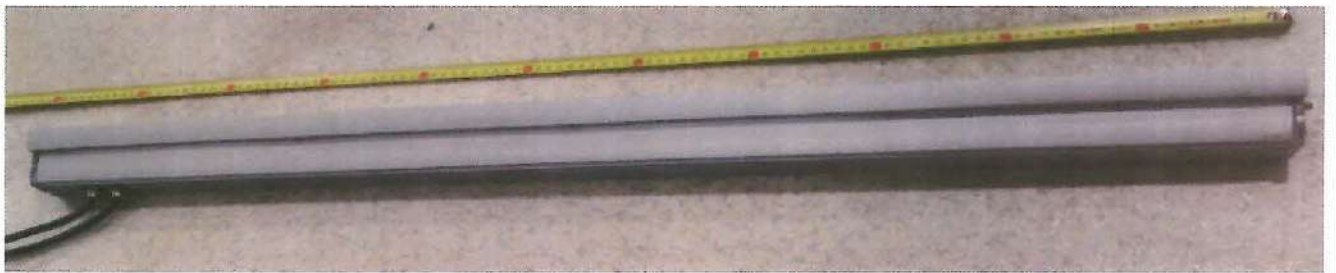
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5.1)	Terminals internal wiring		N/A
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:		N/A
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....:		N/A
	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		—
	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 external wiring		N/A
	Terminal size and rating		N/A
(15.6.2.1)	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



(15.6.3.1) TABLE: Contact resistance test		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:										



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