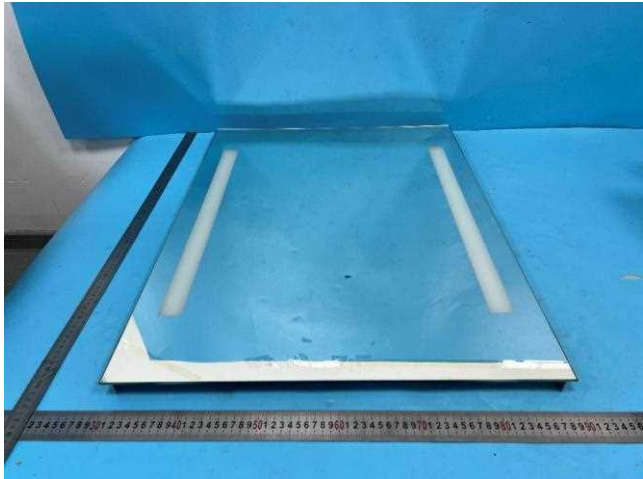
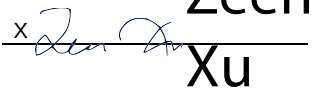


Prüfbericht-Nr.: Test report no.:	CN244IUS 001	Auftrags-Nr.: Order no.:	180294020	Seite 1 von 55 Page 1 of 55
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2024-05-14	
Auftraggeber: Client:	ZHEJIANG GANGHONG DECORATION TECHNOLOGY CO.,LTD 72 Xitang xia, Baiyang Village, Anchang Town, Shaoxing city 312080 Zhejiang P.R. China			
Prüfgegenstand: Test item:	LED Mirror			
Bezeichnung / Typ-Nr.: Identification / Type no.:	See "General Product Information"			
Auftrags-Inhalt: Order content:	Type test			
Prüfgrundlage: Test specification:	EN IEC 60598-1:2021+A11 EN IEC 60598-2-1:2021 EN 62471:2008 EN 62493:2015+A1			
Wareneingangsdatum: Date of sample receipt:	2024-05-14			
Prüfmuster-Nr.: Test sample no.:	A003718934			
Prüfzeitraum: Testing period:	2024-05-14 - 2024-12-20			
Ort der Prüfung: Place of testing:	TÜV Rheinland/CCIC (Ningbo)Co.,Ltd.			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland/CCIC (Ningbo)Co.,Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:	 Jing Zheng		genehmigt von: authorized by:	 Zeen Xu
Datum: Date:	2025-02-21		Ausstellungsdatum: Issue date:	2025-02-21
Stellung / Position:	Project Engineer		Stellung / Position:	Authorizer
Sonstiges / Other:	CE LVD issued.			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet			
* Legend:	P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested			
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.				

Prüfbericht-Nr.: CN244IUS 001
Test Report No.:

Seite 2 von 55
Page 2 of 55

Anmerkungen Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>



TEST REPORT IEC 60598-2-1 Luminaires Part 2: Particular requirements Section 1: Fixed general purpose luminaires	
Report Number..... : CN244IUS 001 Date of issue..... : See cover page Total number of pages..... : See cover page	
Name of Testing Laboratory preparing the Report	TÜV Rheinland / CCIC (Ningbo) Co., Ltd. 3F, Building C13, R&D Park, No.32 Lane 299 Guanghua Road, National Hi-Tech Zone, Ningbo 315048, P.R. China.
Applicant's name..... :	ZHEJIANG GANGHONG DECORATION TECHNOLOGY CO.,LTD
Address..... :	72 Xitang xia, Baiyang Village, Anchang Town, Shaoxing city 312080 Zhejiang P.R. China
Test specification: Standard..... : IEC 60598-2-1:2020 used in conjunction with IEC 60598-1:2020 Test procedure..... : CE LVD Non-standard test method : N/A	
TRF template used : IEC EE OD-2020-F1:2021, Ed.1.4 Test Report Form No. : IEC60598_2_1I Test Report Form(s) Originator.... : Intertek Semko AB Master TRF : Dated 2022-04-14	
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General disclaimer: The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	

Test item description..... :	LED Mirror	
Trade Mark(s)..... :	N/A	
Manufacturer	Same as applicant	
Model/Type reference..... :	TH-xyz-w, DL-xyz-w (x means mirror's length, y means mirror's width, z means mirror's depth, unit: mm; x and y = 100, 110, 120...3000, in step of 10; z = 10, 11,12...300, in step of 1; w means rated power of product, unit: W; w = 15, 16, 17... 75, in step of 1).	
Ratings..... :	AC 220-240V, 50Hz; Class II; ta: 25°C; IP44; other parameters see "General Product Information".	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒	Testing Laboratory:	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.
	Testing location/ address..... :	3F, Building C13, R&D Park, No.32 Lane 299 Guanghua Road, National Hi-Tech Zone, Ningbo 315048, P.R. China.
	Tested by (name, function, signature) :	See cover page
	Approved by (name, function, signature):	See cover page
☐	Testing procedure: CTF Stage 1:	N/A
	Testing location/ address..... :	N/A
	Tested by (name, function, signature) :	N/A
	Approved by (name, function, signature):	N/A
☐	Testing procedure: CTF Stage 2:	N/A
	Testing location/ address..... :	N/A
	Tested by (name + signature)	N/A
	Witnessed by (name, function, signature). :	N/A
	Approved by (name, function, signature):	N/A
☐	Testing procedure: CTF Stage 3:	N/A
☐	Testing procedure: CTF Stage 4:	N/A
	Testing location/ address..... :	N/A
	Tested by (name, function, signature) :	N/A
	Witnessed by (name, function, signature):	N/A
	Approved by (name, function, signature):	N/A
	Supervised by (name, function, signature):	N/A

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

Attachment 1: Acceptance testing report for control module according to EN 61347-2-11:2001+A1 and EN 61347-1:2015+A1 (26 pages).

Summary of testing DL-1000120010-75 was selected to perform all tests and TH-1000120010-75 was selected to perform construction check.

According to the standard EN 62493:2015+A1, the DUT belongs to unintentional radiating part of lighting equipment. Due to the reason that the DUT fulfils the inherent-compliance condition "It is a LED-light-source technology", the DUT is deemed to comply with requirements of this standard without testing.

Tests performed (name of test and test clause):

- 1.6 (3) Marking
- 1.7 (4) Construction
- 1.8 (11) Creepage distance and clearance
- 1.10 (15) Screwless terminals and electrical connections
- 1.11(5) External and internal wiring
- 1.12(8) Protection against Electric shock
- 1.13(12) Endurance test and thermal test.
- 1.14(9) Resistance to dust and moisture.
- 1.15(10) Insulation resistance and electric strength
- 1.16 (13) Resistance to heat, fire and tracking.

The LED module as an integral LED module was tested according to EN IEC 62031: 2020+A11
Photobiological safety of lamps and lamp systems testing according to EN 62471:2008 was evaluated as RG0 unlimited

Test result: Passed

Testing location:

TÜV Rheinland / CCIC (Ningbo) Co., Ltd.
3F, Building C13, R&D Park, No.32 Lane 299
Guanghua Road, National Hi-Tech Zone, Ningbo
315048, P.R.China.

Summary of compliance with National Differences:

EU Group Differences.

☒ **The product fulfils the requirements of EN IEC 60598-2-1:2021 used in conjunction with EN IEC60598-1:2021+A11.**

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

Label below is representative



The height of letters and numerals is not less than 2 mm.

The height of graphical symbols are not less than 5 mm.

The height of WEEE symbol is not less than 7 mm.

Test item particulars: Fixed luminaire (LED Mirror)													
Classification of installation and use: Class II, IP44 for Indoor use													
Supply Connection: Terminal block													
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 : 2024-05-14 Date (s) of performance of tests : 2024-05-14 to 2024-09-30													
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 IEC60598-2:													
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): Same as applicant													
General product information and other remarks: The products are LED Mirror which intended to be installed as fixing luminaire. The luminaires are class II appliance suitable for suspend on the wall and indoor use AC 220-240V, 50/60Hz, Class II. ta: 25 °C. IP44. Technical data for details as following:													
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th style="width: 20%;">Model</th> <th style="width: 20%;">Rated power</th> <th style="width: 20%;">Rated current</th> <th style="width: 40%;">LED</th> </tr> <tr> <td>TH-xyz-w</td> <td>Max.75,0W</td> <td>6,25A</td> <td>2835/COB</td> </tr> <tr> <td>DL-xyz-w</td> <td>Max.75,0W</td> <td>6,25A</td> <td>2835/COB</td> </tr> </table>		Model	Rated power	Rated current	LED	TH-xyz-w	Max.75,0W	6,25A	2835/COB	DL-xyz-w	Max.75,0W	6,25A	2835/COB
Model	Rated power	Rated current	LED										
TH-xyz-w	Max.75,0W	6,25A	2835/COB										
DL-xyz-w	Max.75,0W	6,25A	2835/COB										
Remark: x means mirror's length, y means mirror's width, z means mirror's depth, unit: mm; x and y = 100, 110, 120...3000, in step of 10; z = 10, 11, 12...300, in step of 1; w means rated power of product, unit: W; w = 15, 16, 17... 75, in step of 1. TH and DL series is exactly the same just different model name for buyers													

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.4 (0)	GENERAL TEST REQUIREMENTS		P
1.4 (0.3)	More sections applicable..... :	Yes ☐ No ☒ Section/s:	—
1.4 (0.5)	Components	(see Annex 1)	—
1.4 (0.7)	Information for luminaire design in light sources standards		—
1.4 (0.7.2)	Light source safety standard	EN IEC 62031:2020+A11 EN 62471:2008	—
	Luminaire design in the light source safety standard		P
1.5 (2)	CLASSIFICATION OF LUMINAIRES		P
1.5 (2.2)	Type of protection	Class II	P
1.5 (2.3)	Degree of protection..... :	IP44	—
1.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes ☒ No ☐	—
1.5 (2.5)	Luminaire for normal use	Yes ☒ No ☐	—
	Luminaire for rough service	Yes ☐ No ☒	—
1.6 (3)	MARKING		P
1.6 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
1.6 (3.3)	Additional information		P
	Language of instructions		P
1.6 (3.3.1)	Combination luminaires		N/A
1.6 (3.3.2)	Nominal frequency in Hz		P
1.6 (3.3.3)	Operating temperature		N/A
1.6 (3.3.5)	Wiring diagram		P
1.6 (3.3.6)	Special conditions		N/A
1.6 (3.3.7)	Metal halide lamp luminaire – warning		N/A
1.6 (3.3.8)	Limitation for semi-luminaires		N/A
1.6 (3.3.9)	Power factor and supply current		P
1.6 (3.3.10)	Suitability for use indoors		P
1.6 (3.3.11)	Luminaires with remote control		N/A
1.6 (3.3.12)	Clip-mounted luminaire – warning		N/A
1.6 (3.3.13)	Specifications of protective shields		N/A
1.6 (3.3.14)	Symbol for nature of supply		P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (3.3.15)	Rated current of socket outlet		N/A
1.6 (3.3.16)	Rough service luminaire		N/A
1.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N/A
1.6 (3.3.18)	Non-ordinary luminaires with PVC cable		P
1.6 (3.3.19)	Protective conductor current in instruction if applicable		N/A
1.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
1.6 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	Non replaceable	P
1.6 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
1.6 (3.3.23)	Luminaires without control gear provided with necessary information for selection of appropriate component		N/A
1.6 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
1.6 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided		N/A
1.6 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		N/A
1.6 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P

1.7 (4)	CONSTRUCTION		P
1.7 (4.2)	Components replaceable without difficulty		P
1.7 (4.3)	Wireways smooth and free from sharp edges		P
1.7 (4.4)	Lamp holders		N/A
1.7 (4.4.1)	Integral lamp holder		N/A
1.7 (4.4.2)	Wiring connection		N/A
1.7 (4.4.3)	Lamp holder for end-to-end mounting		N/A
1.7 (4.4.4)	Positioning		N/A
	- pressure test (N) :		—
	After test the lamp holder comply with relevant standard sheets and show no damage		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	After test on single-capped lamp holder the lamp holder has not moved from its position and show no permanent deformation		N/A
	- bending test (N) :		—
	After test the lamp holder has not moved from its position and show no permanent deformation		N/A
1.7 (4.4.5)	Peak pulse voltage		N/A
1.7 (4.4.6)	Centre contact		N/A
1.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
1.7 (4.4.8)	Lamp connectors		N/A
1.7 (4.4.9)	Caps and bases correctly used		N/A
1.7 (4.4.10)	Light source for lamp holder or connection according IEC 60061 not connected another way		N/A
1.7 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
1.7 (4.6)	Terminal blocks		P
	Tails		P
	Unsecured blocks		P
1.7 (4.7)	Terminals and supply connections		P
1.7 (4.7.1)	Contact to metal parts		N/A
1.7 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
1.7 (4.7.3)	Terminals for supply conductors		P
1.7 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A
1.7 (4.7.4)	Terminals other than supply connection		N/A
1.7 (4.7.5)	Heat-resistant wiring/sleeves		N/A
1.7 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7 (4.8)	Switches		P
	- adequate rating		P
	- adequate fixing		P
	- polarized supply		P
	- compliance with IEC 61058-1 for electronic switches		P
1.7 (4.9)	Insulating lining and sleeves		N/A
1.7 (4.9.1)	Retainment		N/A
	Method of fixing :		N/A
1.7 (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
1.7 (4.10)	Double or reinforced insulation		P
1.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		P
	Safe installation fixed luminaires		P
	Capacitors and switches		N/A
1.7 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
1.7 (4.10.3)	Retainment of insulation:		P
	- fixed		P
	- unable to be replaced; luminaire inoperative		P
	- sleeves retained in position		P
	- lining in lamp holder		P
1.7 (4.10.4)	Protective impedance device		N/A
	Basic and supplementary insulation bridged by resistor(s) or appropriate capacitor		N/A
	Double or reinforced insulation bridged by at least two separate resistors in series or appropriate capacitor(s)		N/A
	Capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.2 of IEC 60065		N/A
1.7 (4.11)	Electrical connections and current-carrying parts		P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7 (4.11.1)	Contact pressure		P
1.7 (4.11.2)	Screws:		P
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
1.7 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
1.7 (4.11.4)	Material of current-carrying parts		P
1.7 (4.11.5)	No contact to wood or mounting surface		P
1.7 (4.11.6)	Electro-mechanical contact systems		N/A
1.7 (4.12)	Screws and connections (mechanical) and glands		P
1.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		P
	Torque test: torque (Nm); part..... :	0,6Nm; metal enclosure;	P
	Torque test: torque (Nm); part..... :	0,5Nm; plastic enclosure;	P
	Torque test: torque (Nm); part..... :	0,5Nm; fixed anchorage;	P
1.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P
1.7 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm)		N/A
	- lamp holder; torque (Nm)		N/A
	- push-button switches; torque 0,8 Nm		N/A
1.7 (4.12.5)	Screwed glands; force (Nm)		N/A
1.7 (4.13)	Mechanical strength		P
1.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :	Glass cover; 0,2Nm	P
	- other parts; energy (Nm)..... :	Metal enclosure; 0,35Nm	P
	1) live parts	Not have become accessible	P
	2) linings	Not have been impaired	P
	3) protection	Continue to afford the degree of protection	P
	4) covers	No breaking	P
1.7 (4.13.2)	Metal parts have adequate mechanical strength		P
1.7 (4.13.3)	Straight test finger	30N	P
1.7 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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
1.7 (4.13.6)	Tumbling barrel		N/A
1.7 (4.14)	Suspensions, fixings and means of adjusting		P
1.7 (4.14.1)	Mechanical load:		P
	A) four times the weight	Max. 4x13,5= 54,0kg	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		N/A
1.7 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) :		—
	Stress in conductors (N/mm ²) :		N/A
	Mass (kg) of semi-luminaire :		N/A
	Bending moment (Nm) of semi-luminaire :		N/A
1.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles..... :		N/A
	- strands broken..... :		N/A
	- electric strength test afterwards		N/A
1.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
1.7 (4.14.5)	Guide pulleys		N/A
1.7 (4.14.6)	Strain on socket-outlets		N/A
1.7 (4.15)	Flammable materials		P
	- glow-wire test 650°C..... :	See Test Table 1.15 (13.3.2)	P
	- spacing ≥30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- thermal protection		N/A
	- electronic circuits exempted		P
1.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
1.7 (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
1.7 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
1.7 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
1.7 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
1.7 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
1.7 (4.18)	Resistance to corrosion		N/A
1.7 (4.18.1)	- rust-resistance		N/A
1.7 (4.18.2)	- season cracking in copper		N/A
1.7 (4.18.3)	- corrosion of aluminium		N/A
1.7 (4.19)	Ignitors compatible with ballast		N/A
1.7 (4.20)	Rough service vibration		N/A
1.7 (4.21)	Protective shield		N/A
1.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
1.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
1.7 (4.21.3)	No direct path		N/A
1.7 (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

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Clause	Requirement + Test	Result - Remark	Verdict
1.7 (4.22)	Attachments to lamps not cause overheating or damage		N/A
1.7 (4.23)	Semi-luminaires comply Class II		N/A
1.7 (4.24)	Photobiological hazards		P
1.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
1.7 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778	RG0	—
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2.. :		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
1.7 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
1.7 (4.26)	Short-circuit protection		N/A
1.7 (4.26.1)	Adequate means of uninsulated accessible SELV / PELV parts		N/A
1.7 (4.26.2)	Short-circuit test with test chain according 4.26.3:		N/A
	Supply source ES1 PSE		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
1.7 (4.27)	Terminal blocks with integrated screwless protective 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
1.7 (4.28)	Fixing of thermal sensing control		N/A
	Not plug-in or easily replaceable type		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) :		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
1.7 (4.29)	Luminaires with non-replaceable light source		P
	Not possible to replace light source		P
	Live part not accessible after parts have been opened by hand or tools		P
1.7 (4.30)	Luminaires with non-user replaceable light source		N/A
	If protective cover provide protection against electric shock and marked with "caution, electric shock risk" symbol:		N/A
	At least one fixing means requiring use of tool		N/A
1.7 (4.31)	Insulation between circuits		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
1.7 (4.31.1)	SELV or PELV circuits		P
	Used SELV/PELV source		P
	Voltage ≤ ELV		P
	Insulating of SELV/PELV circuits from LV supply		P
	Insulating of SELV/PELV circuits from other non SELV/PELV circuits		N/A
	Insulating of SELV/PELV circuits from FELV		N/A
	Insulating of SELV/PELV circuits from other SELV/PELV circuits		N/A
	SELV/PELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.7 (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 make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets have protective conductor contact		N/A
1.7 (4.31.3)	Other circuits		P
	Other circuits insulated from accessible parts according Table X.1		P
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together		N/A
	- test according 7.2.3		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
1.7 (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
1.6 (4.33)	Luminaire powered via information technology communication cabling		N/A
	Requirements for Class III luminaire		N/A
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		N/A
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	N/A
1.6 (4.34)	Electromagnetic fields (EMF)		P
	No harmful electromagnetic fields		P
1.6 (4.35)	Protection against moving fan blades		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Test with a standard test finger		N/A
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		N/A
	Blades rounded with radius ≥ 0.5 mm and:		N/A
	-hardness less than D60 Shore		N/A
	-peripheral speed less than 15 m/s		N/A
	-input power of fan ≤ 2 W at rated voltage		N/A
1.6 (4.36)	Track-mounted luminaires		N/A
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019		N/A
1.8 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
1.8 (11.2.1)	Impulse withstand category (Normal category II)	Category II ☒ Category III ☐	—
	Category III according Annex U		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
1.8 (11.2.2)	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
1.8 (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	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
1.9 (7)	PROVISION FOR EARTHING		N/A
1.9 (7.2.1 + 7.2.3)	Accessible metal parts		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
	Protective earth makes contact first		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Terminal blocks with integrated screwless protective earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
1.9 (7.2.2 + 7.2.3)	Protective earth continuity in joints, etc.		N/A
1.9 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
1.9 (7.2.5)	Protective earth terminal integral part of connector socket		N/A
1.9 (7.2.6)	Protective earth terminal adjacent to mains terminals		N/A
1.9 (7.2.7)	Electrolytic corrosion of the protective earth terminal		N/A
1.9 (7.2.8)	Material of protective earth terminal		N/A
	Contact surface bare metal		N/A
1.9 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
1.9 (7.2.11)	Protective earthing core coloured green-yellow		N/A
	Length of protective earthing conductor		N/A
1.9 (7.2.12)	PELV circuit connected to protective earth for functional purpose		N/A

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

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

1.11 (5)	EXTERNAL AND INTERNAL WIRING		P
1.11 (5.2)	Supply connection and external wiring		P
1.11 (5.2.1)	Means of connection..... :	Terminal block	P
	Outdoor luminaire has not PVC insulated external wiring if not Class III or SELV/PELV circuits ≤ 25 V AC/60 V DC/25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment		N/A
1.11 (5.2.2)	Type of cable..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Nominal cross-sectional area (mm ²)..... :		N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
1.11 (5.2.3)	Type of attachment, X, Y or Z		N/A
1.11 (5.2.5)	Type Z not connected to screws		N/A
1.11 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
1.11 (5.2.7)	Cable entries through rigid material have rounded edges		P
1.11 (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
1.11 (5.2.9)	Locking of screwed bushings		N/A
1.11 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		P
1.11 (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
1.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
1.11 (5.2.10.3)	Tests:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) :	60N	P
	- torque test: torque (Nm) :	2x0,75mm ² ; 0,25Nm	P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
1.11 (5.2.10.4)	Luminaire with/ designed for use with supply cord with maximum current of 2A:		N/A
	- Ordinary Class III luminaire supplied with SELV ≤ 25V RMS/60V DC		N/A
	- Ordinary Class III luminaire supplied with PELV ≤12V RMS/30V DC		N/A
	- Other than ordinary Class III luminaire supplied with voltage ≤12V RMS/30V DC		N/A
	Pull test of 30N		N/A
1.11 (5.2.11)	External wiring passing into luminaire		P
1.11 (5.2.12)	Looping-in terminals		N/A
1.11 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
1.11 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
1.11 (5.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)		N/A
1.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Appliance inlet or connector systems (IEC 61984)		N/A
1.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
1.11 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.11 (5.3)	Internal wiring		P
1.11 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N/A
	- 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 protective earth only		N/A
1.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm²)..... :		N/A
	Insulation thickness (mm) :		N/A
	Extra insulation added where necessary		N/A
1.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Cross-sectional area (mm²)..... :	See annex1	P
1.11 (5.3.1.3)	Double or reinforced insulation for class II		P
1.11 (5.3.1.4)	Conductors without insulation		N/A
1.11 (5.3.1.5)	SELV/PELV current-carrying parts		P
1.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
1.11 (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
1.11 (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
1.11 (5.3.4)	Joints and junctions effectively insulated		N/A
1.11 (5.3.5)	Strain on internal wiring		N/A
1.11 (5.3.6)	Wire carriers		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.11 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
1.11 (5.4)	Test to determine suitability of conductors having a reduced cross-sectional area		P
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	P
	No damage to luminaire wiring after test		P

1.12 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
1.12 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lamp and starter holders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		P
	Double-ended high-pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
1.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
1.12 (8.2.3.a)	Class II luminaire:		P
	- basic insulated metal parts not accessible		N/A
	- required insulation from live parts in compliance with Table X.1		N/A
	- glass protective shields not used as supplementary insulation		N/A
1.12 (8.2.3.b)	BC lamp holder of metal in class I luminaires shall be connected to protective earth		N/A
1.12 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A

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Clause	Requirement + Test		Verdict
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V).....		N/A
	- interrupted DC voltage (V)		N/A
	- touch current if applicable (mA)		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V).....		N/A
	- interrupted DC voltage (V)		N/A
	Class III luminaire only for connection to SELV/PELV		N/A
1.12 (8.2.3.d)	PELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V).....		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V).....		N/A
	One pole insulated if required		N/A
1.12 (8.2.4)	Portable luminaire has protection independent of supporting surface		N/A
1.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
1.12 (8.2.6)	Covers reliably secured		P
1.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 µF not exceed 50 V 1 min after disconnection		N/A
	Portable luminaire with capacitor > 0,1 µF (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 µF (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A
1.13 (12)	ENDURANCE TEST AND THERMAL TEST		P
1.13 (-)	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) before (9.3) as specified in 1.14		—
1.13 (12.2)	Selection of lamps and ballasts		—
	Lamp used according Annex B	(Lamp used see Annex 2)	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Control gear if separate and not supplied	(Control gear used see Annex 2)	—
1.13 (12.3)	Endurance test		P
	a) mounting position	As in normal used	—
	b) test temperature (°C).....	35±2°C	—
	c) total duration (h)	240h	—
	d) supply voltage (V).....	264V	—
	d) if not equipped with control gear, constant voltage/current (V) or (A)	LED source	—
1.13 (12.3.1d)	d) Class III luminaires powered via information technology communication cable:		N/A
	- voltage under normal operation (V).....		—
	- voltage under abnormal operation (V).....		—
	e) luminaire ceases to operate		—
	f) luminaire with constant light output function		N/A
1.13 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
1.13 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
1.13 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	P
1.13 (12.6)	Thermal test (failed lamp control gear condition):		N/A
1.13 (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
1.13 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions.....		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
1.13 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
1.13 (12.7.1)	Luminaire without temperature sensing control		N/A
1.13 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W :		—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions..... :		—
	- Ballast failure at supply voltage (V) :		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- case of abnormal conditions..... :		—
	- measured winding temperature (°C): at 1,1 Un..... :		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un :		—
	- calculated temperature of fixing point/exposed part (°C)..... :		—
	Ball-pressure test..... :	See Test Table 1.15 (13.2.1)	N/A
1.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions..... :		—
	- measured winding temperature (°C): at 1,1 Un..... :		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un :		—
	- calculated temperature of fixing point/exposed part (°C)..... :		—
	Ball-pressure test..... :	See Test Table 1.15 (13.2.1)	N/A
1.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions..... :		—
	- Components retained in place after the test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Test with standard test finger after the test		N/A
1.13 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link : Yes ☐ No ☐		—
	- manual reset cut-out..... : Yes ☐ No ☐		—
	- auto reset cut-out..... : Yes ☐ No ☐		—
	- case of abnormal conditions..... :		—
	- highest measured temperature of fixing point/ exposed part (°C):..... :		—
	Ball-pressure test: :	See Test Table 1.15 (13.2.1)	N/A

1.14 (9)	RESISTANCE TO DUST AND MOISTURE		P
1.14 (-)	If IP > IP 20 the order of tests as specified in clause 1.12		P
1.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... :	IP44	—
	- mounting position during test..... :	In the most unfavourable position of normal use	—
	- fixing screws tightened; torque (Nm) :	--	—
	- tests according to clauses..... :	Cl. 9.2.0 and Cl. 9.2.5	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	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		P
	c.1) For luminaires without drain holes – no water entry		P
	c.2) For luminaires with drain holes – no hazardous water entry		N/A
	d) no water in watertight, pressure watertight, high pressure and temperature water jet-proof or high pressure and cold water jet-proof luminaire		N/A
	e) no contact with live parts (IP 2X)		N/A
	e) no entry into enclosure (IP 3X and IP 4X)		P
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)		N/A
	f) no trace of water on part of lamp requiring protection from splashing water		P
	g) no damage of protective shield or glass envelope		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1.14 (9.3)	Humidity test 48 h		P
1.15 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
1.15 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø		—
	Insulation resistance (MΩ):		P
	SELV/PELV:		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface	500MΩ	P
	- between current-carrying parts and metal parts of the luminaire	500MΩ	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	500MΩ	P
	- Insulation bushings as described in Section 5		N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity..... :	500MΩ	P
	- between live parts and mounting surface	500MΩ	P
	- between live parts and metal parts..... :	500MΩ	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	500MΩ	P
	- Insulation bushings as described in Section 5		N/A
1.15 (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):		P
	SELV/PELV:		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface	500V	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts and metal parts of the luminaire	500V	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity.....	1480V.	P
	- between live parts and mounting surface	2960V	P
	- between live parts and metal parts.....	2960V	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	2960V	P
	- Insulation bushings as described in Section 5		N/A
1.15 (10.3)	Touch current (mA).....	0,017mA	P
	Protective conductor current (mA).....		N/A

1.16 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
1.16 (13.2.1)	Ball-pressure test.....	See Test Table 1.16 (13.2.1)	P
1.16 (13.3.1)	Needle-flame test (10 s).....	See Test Table 1.16 (13.3.1)	P
1.16 (13.3.2)	Glow-wire test (650°C).....	See Test Table 1.16 (13.3.2)	P
1.16 (13.4)	Proof tracking test (IEC 60112)	See Test Table 1.16 (13.4)	N/A

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.8 (11.2)	TABLE: Creepage distances and clearances						P
	Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages						P
	Applicable part of IEC 60598-1 Table 11.1* and 11.2*						P
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	B	>3mm	1,5	11.1.B	>3mm	2,5	11.1.A
Working voltage (V).....:					AC 220-240V		—
PTI.....:					< 600 ☒ ≥ 600 ☐		—
Pulse voltage if applicable (kV)					-		—
Supplementary information: Between LN							
Distance 2:	R	>5mm	3,0	11.1B	>5mm	5,0	11.1A
Working voltage (V).....:					AC 220-240V		—
PTI.....:					< 600 ☒ ≥ 600 ☐		—
Pulse voltage if applicable (kV)					--		—
Supplementary information: Live part and accessible part							
Distance 3:	--	--	--	--	--	--	--
Working voltage (V).....:					-		—
PTI.....:					< 600 ☐ ≥ 600 ☐		—
Pulse voltage if applicable (kV)					-		—
Supplementary information: N/A							

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

IEC 60598-2-1							
Clause	Requirement + Test				Result - Remark		Verdict
1.8 (11.2)	TABLE II: Creepage distances and clearances						N/A
Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages							
Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2							
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	-	-	-	-	-	-	-
Working voltage (V).....:					-		—
Frequency if applicable (kHz)					-		—
PTI.....:					< 600 ☐ ≥ 600 ☐		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)					-		—
Supplementary information:							
Distance 2:	-	-	-	-	-	-	-
Working voltage (V).....:					-		—
Frequency if applicable (kHz)					-		—
PTI.....:					< 600 ☐ ≥ 600 ☐		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)					-		—
Supplementary information:							
Distance 3:	-	-	-	-	-	-	-
Working voltage (V).....:					-		—
Frequency if applicable (kHz)					-		—
PTI.....:					< 600 ☐ ≥ 600 ☐		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)					-		—
Supplementary information:							

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

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.16 (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)
Plastic enclosure	See Annex 1	75°C	1,34mm
Terminal block	See Annex 1	125°C	1,64mm
LED cover	See Annex 1	75°C	1,37mm
Supplementary information:N/A			

1.16 (13.3.1)	TABLE: Needle-flame test				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
Terminal block	See Annex 1	10	No	No burning	P
Supplementary information:N/A					

1.16 (13.3.2)	TABLE: Resistance to heat and fire - Glow wire tests						P
Object/ Part No./ Material	Manufacturer/ trademark	Glow wire test (°C)					Verdict
		650		750		850	
		te	ti	te	ti		
Enclosure	See Annex 1	No burning	No burning	--	--	--	P
--	--	--	--	--	--	--	--
Ignition of the specified layer placed underneath the test specimen (Yes/No):							No
Supplementary information:N/A							

1.16 (13.4)	TABLE: Proof tracking test				N/A
Test voltage PTI		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
--	--	--	--	--	--
Supplementary information:N/A					

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1 TABLE: Critical components information						P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
Supply cord	B	Yuyao Jinsheng Electron Co.,Ltd.	H05VV-F; H05VVH2-F	2X1.0mm ²	EN50525-2-11	VDE(40028513)
Alternative	D	Ningbo qiaopu electric Co.,Ltd	H05VV-F; H05VVH2-F	2X1.0mm ²	EN 50525-2-11	VDE(40035976)
Alternative	D	Zhejiang Jinting Nuclear Cable Co.,Ltd	H05VVH2-F H05VV-F	2X1.0mm ²	EN 50525-2-11	VDE (40013419)
Alternative	D	Taizhou Xin Yongli Electrics appliances Co.,Ltd	H05VVH2-F	2X1.0mm ²	EN 50525-2-11	VDE (136411)
Alternative	D	Ningbo Ousheng Electric Appliance Co.,Ltd	H05VVH2-F H05VV -F	2X1.0mm ²	EN 50525-2-11	VDE (40021137)
Alternative	D	Taizhou Xin Yongli Electrics appliances Co.,Ltd	H03VVH2-F H05VVH2-F	2X0.75mm ²	EN 50525-2-11	VDE (136411)
Alternative	D	Zhejiang Jinting Nuclear Cable Co.,Ltd	H05VVH2-F H05VV -F H03VVH2-F H03VV -F	2X0.75mm ²	EN 50525-2-11	VDE (40013419)
Alternative	D	Ningbo Ousheng Electric Appliance Co.,Ltd	H03VVH2-F H03VV-F H05VV-F H05VVH2-F	2X0.75mm ²	EN 50525-2-11	VDE (40021137)
Internal wire	D	Yuyao Jinsheng Electron Co.,Ltd.	H03VV-F; H03VVH2-F	2X0.5mm ²	EN 50525-2-11	VDE (40028513)
Alternative	D	Zhejiang Jinting Nuclear Cable Co.,Ltd	H03VVH2-F H03VV-F	2X0.5mm ²	EN 50525-2-11	VDE (40013419)
Alternative	D	Ningbo Ousheng Electric Appliance Co.,Ltd	H03VV -F H03VVH2-F	2X0.5mm ²	EN 50525-2-11	VDE (40021137)
Alternative	D	Taizhou Xin Yongli Electrics appliances Co.,Ltd	H03VH7-H	1X0.5mm ²	DIN VDE0281-8:2000-08	VDE (136412)
Alternative	D	Zhejiang Jinting Nuclear Cable Co.,Ltd	H05V-K	1X0.5mm ²	EN 50525-2-31	VDE (40033762)
LED driver	B	Ningbo Snappy Optoelectronics Co.,Ltd.	SE15-12VF-1	Input: 200-240 VAC Output: 12VDC, Max.15W SELV, ta:45°C, tc:80°C; class II Independent,	EN 61347-1 EN 61347-2-13	TÜV Rheinland R 50537264

IEC 60598-2-1						
Clause	Requirement + Test			Result - Remark		Verdict
Alternative	D	Ningbo Snappy Optoelectronics Co.,Ltd.	SE20-12VF-1	Input: 200-240 VAC; 50/60Hz; 0.11A; Output: 12VDC, Max.20W SELV, ta:45°C, tc:80°C; class II Independent,	EN 61347-1 EN 61347-2-13	TÜV Rheinland R 50537272
Alternative	D	Ningbo Snappy Optoelectronics Co.,Ltd.	SS30-12VL	Input: 220-240 VAC; 50/60Hz; Output: 12VDC, Max.30W; SELV, ta:45°C, tc:80°C; Independent, class II	EN 61347-1 EN 61347-2-13	TÜV Rheinland R 50497386
Alternative	D	Ningbo Snappy Optoelectronics Co.,Ltd.	SS30-12VF	Input: 220-240 VAC; 50/60Hz; Output: 12VDC, Max.30W; SELV, ta:45°C, tc:85°C; Independent, class II	EN 61347-1 EN 61347-2-13	TÜV Rheinland R 50441442
Alternative	D	Ningbo Snappy Optoelectronics Co.,Ltd.	SS40-12VF	Input: 220-240 VAC; 50/60Hz; Output: 12VDC, Max.40W; SELV, ta:45°C, tc:85°C; Independent, class II	EN 61347-1 EN 61347-2-13	TÜV Rheinland R 50441442
Alternative	D	Ningbo Snappy Optoelectronics Co.,Ltd.	SS50-12VF	Input: 220-240 VAC; 50/60Hz; Output: 12VDC, Max.50W; SELV, ta:45°C, tc:80°C; Independent, class II	EN 61347-1 EN 61347-2-13	TÜV Rheinland R 50500820
Alternative	D	Ningbo Snappy Optoelectronics Co.,Ltd.	SS60-12VF	Input: 220-240 VAC; 50/60Hz; Output: 12VDC, Max.60W; SELV, ta:45°C, tc:85°C; Independent, class II	EN 61347-1 EN 61347-2-13	TÜV Rheinland R 50441561
Alternative	D	Ningbo Snappy Optoelectronics Co.,Ltd.	SS75-12VF	Input: 220-240 VAC; 50/60Hz; Output: 12VDC, Max.75W; SELV, ta:45°C, tc:90°C; Independent, class II	EN 61347-1 EN 61347-2-13	TÜV Rheinland R50569380

IEC 60598-2-1						
Clause	Requirement + Test			Result - Remark		Verdict
Alternative	D	Self Electronics Co.,Ltd.	SLT15-12VF-2s	Input: 220-240VAC;50/60Hz; 0.11A; Output: 12 VDC, MAX.1.25A; Max.15W; SELV, ta:-20-45°C, tc:80°C; class II Independent,	EN 61347-1 EN 61347-2-13	Intertek 1512069
Alternative	D	Self Electronics Co.,Ltd.	SLT20-12VFGs	Input: 220-240 VAC;50/60Hz; 0.2A; Output: 12VDC, MAX. 1.67A; Max.20W; SELV, ta:-20-50°C, tc:75°C; Independent, class II	EN 61347-1 EN 61347-2-13	Intertek 1403631
Alternative	D	Self Electronics Co.,Ltd.	SLT30-12VFG-EU	Input: 220-240 VAC;50/60Hz; 0.17A; SEC: 12VDC, 0-2.5A,0-30W ta:-20... + 45°C, tc:85°C; Independent, class II	EN 61347-1 EN 61347-2-13	TÜV Rheinland HN 69290882 0001
Alternative	D	Self Electronics Co.,Ltd.	SLT30-12VLG-EU	PRI:220-240VAC 50/60Hz,0.16A, SEC:12VDC,0-2.50A, 30Wmax ta:-20...+45°C, tc:85°C; class II Independent,	EN 61347-1 EN 61347-2-13	TÜV Rheinland HN 69290589 0001
Alternative	D	Self Electronics Co.,Ltd.	SLT40-12VL-UN	Input: 110-240 VAC;50/60Hz; 0.5A; Output: 12VDC,0-3.33A;40Wmax,; SELV, ta:-20-50°C, tc:90°C; Independent, class II	EN 61347-1 EN 61347-2-13	TÜV Rheinland HN 69290583 0001
Alternative	D	Self Electronics Co.,Ltd.	SLT60-12VFG-EU	PRI:220-240VAC 50/60Hz,0.30A,67.0W SEC: 12VDC,0-5A,0-60W ta:-20...+ 45°C, tc:90°C; Independent, class II	EN 61347-1 EN 61347-2-13	TÜV Rheinland HN 69290901 0001

IEC 60598-2-1						
Clause	Requirement + Test			Result - Remark		Verdict
Alternative	D	Self Electronics Co.,Ltd.	SLT60-12VFG-UN	PRI:120VAC,50/60Hz,0.60A, 220V~240VAC,50/60Hz,0.30A, SEC:12VDC,5A,60Wmax Independent, class II	EN 61347-1 EN 61347-2-13	TÜV Rheinland HN 69290901 0001
Alternative	D	Self Electronics Co.,Ltd.	SLT75-12VFG	Input: 220-240 VAC;50/60Hz; 0.4A; Output: 12VDC, MAX. 6.25A; Max.75W; SELV, ta:-20-45°C, tc:90°C; Independent, class II	EN 61347-1 EN 61347-2-13	TÜV Rheinland HN 69290901 0001
Alternative	D	Self Electronics Co.,Ltd.	SLT100-12VFG	PRI:220-240VAC 50/60Hz,0.60A, SEC:12VDC,8A,96Wmax ta:-20...+45°C, tc:90°C; Independent, class II	EN 61347-1 EN 61347-2-13	TÜV Rheinland HN 69290901 0001
Sensor switch	B	Ningbo Self Electronics Co.,Ltd.	HZK218C	Input: 100-240 VAC;50/60Hz; 1A; Output: 100-240V Max.1A 220W/220V 120W/120V SELV, ta:-20-50°C, tc:70°C; Independent, class II	EN 61347-1 EN 61347-2-11	TÜV Rheinland R50446837
Alternative	D	ZHEJIANG GANGHONG DECORATION TECHNOLOGY CO.,LTD	IR CONTROLLE R-1907LV-3	Input: 12V/24V ; Output: 12V/24V Max.6.25A 75W/12V 150W/24V SELV, ta:-20-35°C,	EN 61347-1 EN 61347-2-11	Test with appliance
Rocker switch	B	Canal Electronic Co.,Ltd	Rh series	16(4) A 125/250;T55	EN IEC 61058-1 EN 61058-1-1	ENEC-02664-A2
Alternative	D	Siber(China) Electric Mfg.Limited.	KCD3/KCD3-1	13(4)A,6(3)A,T10 5/55; 3A,T105/55	EN IEC 61058-1 EN 61058-1-1	No. B 093102 0004 Rev. 00
Alternative	D	Ningbo YinxinLine Switch Factory	RL3	10(2)A; 250V	EN IEC 61058-1 EN 61058-1-1	No. SE/18031-04

IEC 60598-2-1						
Clause	Requirement + Test			Result - Remark		Verdict
Pull switch	B	Shenzhen GreenWay Electronics Co.,Ltd.	M200	250VAC,2A,T85	EN61058-1-1	B N8A 092250 0002 Rev.01
Terminal block	B	ShenZhen GreenWay Electronics Co.,Ltd.	PA7,PA8,PA9, PA10,MK1282, MK1283, MK254	AC450V, 24A,2.5mm², T100	EN 60998-2-1 EN 60998-1	TÜV SÜD B N8A 14 12 092250 006
Alternative	D	ShenZhen Hongyu Electronics Co.,Ltd.	HYT-230	AC450V, 17.5A, 0.75 mm², T110	EN 60998-2-1 EN 60998-1	VDE 40020423
Alternative	D	ShenZhen Hongyu Electronics Co.,Ltd.	HYT-500	AC450V, 24A, 2.5mm², T110	EN 60998-2-1 EN 60998-1	VDE 40020423
Alternative	D	Heavy Power Co.,Ltd.	PA9	AC450V, 24A, 2.5mm², T110	EN 60998-2-1 EN 60998-1	VDE 40016425
Alternative	D	Viola Direkt GmbH	UC02M, UC03M, UC05M, UC08M	AC450V 24A 0.2 mm²-2.5mm² T85	EN60998-1 EN60998-2-2	VDE 40051254
Alternative	D	Openwise Industrial Ltd.	106	AC450V, 1,0...4,0mm², T130	EN 60998-2-1	VDE (40022325)
Alternative	D	VASK Components Hong Kong Company	VK-JB	AC450V, 1.5mm², T85	EN 60998-2-1	VDE (40032004)
Alternative	D	ShenZhen GreenWay Electronics Co.,Ltd.	M654	AC450V 0.5-1.5mm² -5 to+60°C	EN60670-22	No.N8A1709 90250018
Alternative	D	Jiangxi Gaochao industrial Co.,Ltd	GC221-2/ GC221-3/ GC221-4/ GC221-5	AC450V 24A 0.2 mm²-2.5mm² T110	EN60998-1 EN60998-2-2	No.B003006 0008 Rev.00
Alternative	D	Jiangxi Gaochao industrial Co.,Ltd	GC222-2/ GC222-3/ GC222-4/ GC222-5/ GC222-8	AC450V 0.2 mm²-4.0mm² T110	EN60998-1 EN60998-2-2	NO.B003006 0008 Rev.00
Alternative	D	Jiangxi Gaochao industrial Co.,Ltd	KB18-2P/ KB18-3P/ KB18-4P/ KB18-5P	AC450V 16A 0.2 mm²-2.5mm² T110	EN60998-1 EN60998-2-2	NO.B003006 0001 REV.01
Alternative	D	Jiangxi Gaochao industrial Co.,Ltd	PA8	AC450V 1.5mm²-2.5mm² T110	EN60998-1 EN60998-2-1	VDE 40025416
Alternative	D	Jiangxi Gaochao industrial Co.,Ltd	PA10	AC450V 2.5mm²-4mm² T110	EN60998-1 EN60998-2-1	VDE 40025212

IEC 60598-2-1						
Clause	Requirement + Test			Result - Remark		Verdict
LED chip	C	Shenzhen Bright Lighting Technology Co., Ltd.	AD2835XXX-12XXX08-D15XXX	12VDC, Max. 6500K	EN 62471	Test with appliance
LED chip	C	Guangzhou Linong Lighting Technology Co., Ltd	LNTS0WNW608COB0-M1-D12	12VDC, Max. 6500K	EN 62471	Test with appliance
Defogger	B	SuzhouNuoliang Electronic Technology Co.,Ltd.	NL-2301, NL-2302, NL-2303	AC240V, Max 980W Class II; IP65	EN 60335-1 EN 62233	SGS LVD SHE2010020 899HSA01
Relay	B	Self Electronics co.,Ltd	TS-002	AC100-240V;50-60HZ	EN IEC 6105-1 EN 61058-1-2 EN 61347-1 EN 61347-2-11	TUV R 50591630 0001
USB-TYPE C	C	ZHEJIANG GANGHONG DECORATION TECHNOLOGY CO.,LTD	GH-SCHARG-GH	Input 12V Output 5V	EN IEC 62368-1	CN24CNDU 001
Touch switch	C	ZHEJIANG GANGHONG DECORATION TECHNOLOGY CO.,LTD	ZRY-TK4231 ZRY-TKB801 HX-TK3001(-1) HX-TK4002 ZRY-SHIB00 JD710(-1/-2/C...)	DC12V/24V OUTPUT:5A	EN 61347-1 EN 61347-2-11	Test with appliance
Alternative	D	ZHEJIANG GANGHONG DECORATION TECHNOLOGY CO.,LTD	KZQ-1712LV-K	12VDC ;0-6.25A; Max.75W ta:-20...+35°C tc:65°C	EN 61347-1 EN 61347-2-11	Test with appliance
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 ²⁾ Components license available upon request						

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12		P				
	Type reference..... :	DL-1000120010-075	—				
	Lamp used..... :	LED source	—				
	Lamp control gear used :	SLT100-12VFG	—				
	Mounting position of luminaire..... :	Fixed as stated in manual	—				
	Supply wattage (W) :	74,99W	—				
	Supply current (A) :	0,31A	—				
	Temperatures in test 1 - 4 below are corrected for ta (°C) :	25°C	—				
	- abnormal operating mode..... :	N/A	—				
1.13 (12.4)	- test 1: rated voltage :	N/A	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	254,4V	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :	N/A	—				
	Through wiring or looping-in wiring loaded by a current of A during the test :	N/A	—				
1.13 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current or 130/150% of rated input voltage..... :	264V	—				
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Terminal block	25,0	--	34,9	--	110	--	--
Glass cover	25,0	--	31,4	--	90	--	--
Metal enclosure	25,0	--	32,7	--	Ref.	--	--
Plastic enclosure	25,0	--	48,6	--	Ref.	--	--
Input wire of LED driver	25,0	--	35,2	--	90	--	--
Output wire of LED driver	25,0	--	51,4	--	90	--	--
Input wire of LED strip	25,0	--	43,3	--	90	34,3	80
Surface of LED strip	25,0	--	37,5	--	130	--	--
Tc of LED driver	25,0	71,6	--	--	90	--	--
Tc of controller	25,0	--	57,5	--	60	--	--
Dimmer switch	25,0	--	31,3	--	60	--	--
Output wire of controller	25,0	--	50,7	--	80	--	--

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Clause	Requirement + Test			Result - Remark			Verdict
Mirror defogger	25,0	--	40,5	--	Ref.	--	--
Surface illuminated by lamp(0.1m)	25,0	--	30,6	--	90	--	--
Mounting surface	25,0	--	36,0	--	90	--	130
Supplementary information:N/A							

ANNEX 2	TABLE: Thermal tests of Section 12					P	
	Type reference.....:	DL-1000120010-075				—	
	Lamp used.....:	LED source				—	
	Lamp control gear used	SS75-12VF SE20-12VF-1				—	
	Mounting position of luminaire.....:	Fixed as stated in manual				—	
	Supply wattage (W)	75,15W for SS75-12VF 20,79W for SE20-12VF-1				—	
	Supply current (A)	0,33A for SS75-12VF 0,11A for SE20-12VF-1				—	
	Temperatures in test 1 - 4 below are corrected for ta (°C)	25°C				—	
	- abnormal operating mode.....:	N/A				—	
1.13 (12.4)	- test 1: rated voltage	AC 240V				—	
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	N/A				—	
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	N/A				—	
	Through wiring or looping-in wiring loaded by a current of A during the test	N/A				—	
1.13 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current or 130/150% of rated input voltage.....:	264V				—	
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Tc of SS75-12VF	25,0	70,8	--	--	90	--	--
Tc of SE20-12VF-1	25,0	60,3	--	--	85	--	130
Supplementary information:N/A							

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Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 4	Screwless terminals (part of the luminaire)		N/A
(15)	SCREWLESS TERMINALS		N/A
(15.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5)	Terminals and connections for internal wiring		N/A
(15.5.1)	Mechanical tests		N/A
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples) :		N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples)..... :		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples)..... :		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples)..... :		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... :		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples)..... :		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... :		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
15.6.2	Mechanical tests		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N)		N/A
(15.6.3)	Electrical tests		N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A

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

IEC60598_2_1I ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT IEC 60598-2-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES LUMINAIRES PART 2: PARTICULAR REQUIREMENTS SECTION 1: FIXED GENERAL PURPOSE LUMINAIRES			
Differences according to		EN IEC 60598-2-1:2021 used in conjunction with EN IEC 60598-1:2021 + AMD11:2022	
TRF template used.....		IECEE OD-2020-F2:2020, Ed. 1.1	
Attachment Form No.....		EU_GD_IEC60598_2_1I	
Attachment Originator		UL(Demko)	
Master Attachment		2022-05-13	
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	CENELEC COMMON MODIFICATIONS (EN)		P
1.6 (3)	MARKING		P
1.6 (3.2.12)	Note 4 deleted		P
1.7 (4)	CONSTRUCTION		P
1.7 (4.11.6)	Electro-mechanical contact systems: electric strength test at 1 500 V		P
1.11 (5)	EXTERNAL AND INTERNAL WIRING”		P
1.11 (5.2.2)	Cables equal to EN 50525 (all parts)		P
	Paragraph 2 deleted		N/A
	Replace table 5.1 – Supply cord		N/A
1.13 (12)	ENDURANCE TESTS AND THERMAL TESTS		P
1.13 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		P
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
(3.3)	DK: power supply cords of class I luminaires with label		N/A
(5.2.1)	CY, DK, FI, UK: type of plug		N/A
(5.2.18)	DK: socket-outlets		N/A
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A

IEC60598_2_1I ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	FR: Safety requirements for high buildings <i>(Decree of 30 December 2011 on safety regulations for the construction of high-rise buildings and their protection against fire and panic risks; Section VIII; Article GH 48, Lighting)</i> Glow-wire test for outer parts of luminaires:		N/A
	- 850°C for luminaires in stairways and horizontal travel paths		N/A
	- 650°C for indoor luminaires		N/A
	UK: Requirements according to United Kingdom Building Regulation		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
13 (14)	FAULT CONDITIONS		P
- (14.1)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected		N/A
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)		N/A
- (14.3)	Short-circuit or interruption of semiconductor devices	One LED: Normal work except the shorted chip.	P
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile		N/A
- (14.5)	Short-circuit across electrolytic capacitors		N/A
- (14.6)	After the tests has been carried out on three samples:		P
	The insulation resistance $\geq 1 \text{ M}\Omega$	>500 M Ω	P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.7)	Relevant fault condition tests with high-power supply		—
12.2	Overpower condition		P
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
	During the tests, tissue paper, spread below module, does not ignite		P

IEC 62471			
Clause	Requirement + Test	Result – Remark	Verdict
4	EXPOSURE LIMITS		P
4.1	General		P
	The exposure limits in this standard is not less than 0,01 ms and not more than any 8-hour period and should be used as guides in the control of exposure		P
	Detailed spectral data of a light source are generally required only if the luminance of the source exceeds $10^4 \text{ cd} \cdot \text{m}^{-2}$	see clause 4.3	P
4.3	Hazard exposure limits		P
4.3.1	Actinic UV hazard exposure limit for the skin and eye		N/A
	The exposure limit for effective radiant exposure is $30 \text{ J} \cdot \text{m}^{-2}$ within any 8-hour period		N/A
	To protect against injury of the eye or skin from ultraviolet radiation exposure produced by a broadband source, the effective integrated spectral irradiance, E_s , of the light source shall not exceed the levels defined by:		N/A
	$E_s \cdot t = \sum_{200}^{400} \sum_t E_\lambda(\lambda, t) \cdot S_{UV}(\lambda) \cdot \Delta t \cdot \Delta \lambda \leq 30 \quad \text{J} \cdot \text{m}^{-2}$		N/A
	The permissible time for exposure to ultraviolet radiation incident upon the unprotected eye or skin shall be computed by:		N/A
	$t_{\max} = \frac{30}{E_s} \quad \text{s}$		N/A
4.3.2	Near-UV hazard exposure limit for eye		N/A
	For the spectral region 315 nm to 400 nm (UV-A) the total radiant exposure to the eye shall not exceed $10000 \text{ J} \cdot \text{m}^{-2}$ for exposure times less than 1000 s. For exposure times greater than 1000 s (approximately 16 minutes) the UV-A irradiance for the unprotected eye, E_{UVA} , shall not exceed $10 \text{ W} \cdot \text{m}^{-2}$.		N/A
	The permissible time for exposure to ultraviolet radiation incident upon the unprotected eye for time less than 1000 s, shall be computed by:		N/A
	$t_{\max} \leq \frac{10\,000}{E_{UVA}} \quad \text{s}$		N/A
4.3.3	Retinal blue light hazard exposure limit		P
	To protect against retinal photochemical injury from chronic blue-light exposure, the integrated spectral radiance of the light source weighted against the blue-light hazard function, $B(\lambda)$, i.e., the blue-light weighted radiance, L_B , shall not exceed the levels defined by:		P
	$L_B \cdot t = \sum_{300}^{700} \sum_t L_\lambda(\lambda, t) \cdot B(\lambda) \cdot \Delta t \cdot \Delta \lambda \leq 10^6 \quad \text{J} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$	for $t \leq 10^4 \text{ s}$ $t_{\max} = \frac{10^6}{L_B}$	N/A
	$L_B = \sum_{300}^{700} L_\lambda \cdot B(\lambda) \cdot \Delta \lambda \leq 100 \quad \text{W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$	for $t > 10^4 \text{ s}$	P
4.3.4	Retinal blue light hazard exposure limit - small source		N/A
	Thus the spectral irradiance at the eye E_λ , weighted against the blue-light hazard function $B(\lambda)$ shall not exceed the levels defined by:	see table 4.2	N/A

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Clause	Requirement + Test	Result – Remark	Verdict
	$E_B \cdot t = \sum_{300}^{700} \sum_t E_\lambda(\lambda, t) \cdot B(\lambda) \cdot \Delta\lambda \cdot \Delta t \leq 100 \quad \text{J} \cdot \text{m}^{-2}$	for $t \leq 100 \text{ s}$	N/A
	$E_B = \sum_{300}^{700} E_\lambda \cdot B(\lambda) \cdot \Delta\lambda \leq 1 \quad \text{W} \cdot \text{m}^{-2}$	for $t > 100 \text{ s}$	N/A
4.3.5	Retinal thermal hazard exposure limit		P
	To protect against retinal thermal injury, the integrated spectral radiance of the light source, L_λ , weighted by the burn hazard weighting function $R(\lambda)$ (from Figure 4.2 and Table 4.2), i.e., the burn hazard weighted radiance, shall not exceed the levels defined by:		P
	$L_R = \sum_{380}^{1400} L_\lambda \cdot R(\lambda) \cdot \Delta\lambda \leq \frac{50\,000}{\alpha \cdot t^{0,25}} \quad \text{W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$	$(10 \mu\text{s} \leq t \leq 10 \text{ s})$	P
4.3.6	Retinal thermal hazard exposure limit – weak visual stimulus		N/A
	For an infrared heat lamp or any near-infrared source where a weak visual stimulus is inadequate to activate the aversion response, the near infrared (780 nm to 1400 nm) radiance, L_{IR} , as viewed by the eye for exposure times greater than 10 s shall be limited to:		N/A
	$L_{IR} = \sum_{780}^{1400} L_\lambda \cdot R(\lambda) \cdot \Delta\lambda \leq \frac{6\,000}{\alpha} \quad \text{W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$	$t > 10 \text{ s}$	N/A
4.3.7	Infrared radiation hazard exposure limits for the eye		N/A
	The avoid thermal injury of the cornea and possible delayed effects upon the lens of the eye (cataractogenesis), ocular exposure to infrared radiation, E_{IR} , over the wavelength range 780 nm to 3000 nm, for times less than 1000 s, shall not exceed:		N/A
	$E_{IR} = \sum_{780}^{3000} E_\lambda \cdot \Delta\lambda \leq 18\,000 \cdot t^{-0,75} \quad \text{W} \cdot \text{m}^{-2}$	$t \leq 1000 \text{ s}$	N/A
	For times greater than 1000 s the limit becomes:		N/A
	$E_{IR} = \sum_{780}^{3000} E_\lambda \cdot \Delta\lambda \leq 100 \quad \text{W} \cdot \text{m}^{-2}$	$t > 1000 \text{ s}$	N/A
4.3.8	Thermal hazard exposure limit for the skin		P
	Visible and infrared radiant exposure (380 nm to 3000 nm) of the skin shall be limited to:		P
	$E_H \cdot t = \sum_{380}^{3000} \sum_t E_\lambda(\lambda, t) \cdot \Delta\lambda \cdot \Delta t \leq 20\,000 \cdot t^{0,25} \quad \text{J} \cdot \text{m}^{-2}$		P
5	MEASUREMENT OF LAMPS AND LAMP SYSTEMS		P
5.1	Measurement conditions		P
	Measurement conditions shall be reported as part of the evaluation against the exposure limits and the assignment of risk classification.		P
5.1.1	Lamp ageing (seasoning)		N/A
	Seasoning of lamps shall be done as stated in the appropriate IEC lamp standard.		N/A
5.1.2	Test environment		P
	For specific test conditions, see the appropriate IEC lamp standard or in absence of such standards, the appropriate national standards or manufacturer's recommendations.		P

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Clause	Requirement + Test	Result – Remark	Verdict
5.1.3	Extraneous radiation		P
	Careful checks should be made to ensure that extraneous sources of radiation and reflections do not add significantly to the measurement results.		P
5.1.4	Lamp operation		P
	Operation of the test lamp shall be provided in accordance with:		P
	– the appropriate IEC lamp standard, or		N/A
	– the manufacturer' s recommendation		P
5.1.5	Lamp system operation		N/A
	The power source for operation of the test lamp shall be provided in accordance with:		N/A
	– the appropriate IEC standard, or		N/A
	– the manufacturer' s recommendation		N/A
5.2	Measurement procedure		P
5.2.1	Irradiance measurements		P
	Minimum aperture diameter 7mm.	7mm	P
	Maximum aperture diameter 50 mm.		N/A
	The measurement shall be made in that position of the beam giving the maximum reading.		P
	The measurement instrument is adequate calibrated.		P
5.2.2	Radiance measurements		P
5.2.2.1	Standard method		P
	The measurements made with an optical system.		P
	The instrument shall be calibrated to read in absolute radiant power per unit receiving area and per unit solid angle to acceptance averaged over the field of view of the instrument.		P
5.2.2.2	Alternative method		N/A
	Alternatively to an imaging radiance set-up, an irradiance measurement set-up with a circular field stop placed at the source can be used to perform radiance measurements.		N/A
5.2.3	Measurement of source size		P
	The determination of α , the angle subtended by a source, requires the determination of the 50% emission points of the source.		P
5.2.4	Pulse width measurement for pulsed sources		N/A
	The determination of Δt , the nominal pulse duration of a source, requires the determination of the time during which the emission is > 50% of its peak value.		N/A
5.3	Analysis methods		P
5.3.1	Weighting curve interpolations		P
	To standardize interpolated values, use linear interpolation on the log of given values to obtain intermediate points at the wavelength intervals desired.	see table 4.1	P
5.3.2	Calculations		P
	The calculation of source hazard values shall be performed by weighting the spectral scan by the appropriate function and calculating the total weighted energy.		P
5.3.3	Measurement uncertainty		P

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Clause	Requirement + Test	Result – Remark	Verdict
	The quality of all measurement results must be quantified by an analysis of the uncertainty.	see Annex C in the norm	P
6	LAMP CLASSIFICATION		P
	For the purposes of this standard it was decided that the values shall be reported as follows:	see table 6.1	P
	– for lamps intended for general lighting service, the hazard values shall be reported as either irradiance or radiance values at a distance which produces an illuminance of 500 lux, but not at a distance less than 200 mm		N/A
	– for all other light sources, including pulsed lamp sources, the hazard values shall be reported at a distance of 200 mm		P
6.1	Continuous wave lamps		P
6.1.1	Except Group		P
	In the except group are lamps, which does not pose any photobiological hazard. The requirement is met by any lamp that does not pose:		P
	– an actinic ultraviolet hazard (E_S) within 8-hours exposure (30000 s), nor		N/A
	– a near-UV hazard (E_{UVA}) within 1000 s, (about 16 min), nor		N/A
	– a retinal blue-light hazard (L_B) within 10000 s (about 2,8 h), nor		P
	– a retinal thermal hazard (L_R) within 10 s, nor		P
	– an infrared radiation hazard for the eye (E_{IR}) within 1000 s		N/A
6.1.2	Risk Group 1 (Low-Risk)		N/A
	In this group are lamps, which exceeds the limits for the except group but that does not pose:		N/A
	– an actinic ultraviolet hazard (E_S) within 10000 s, nor		N/A
	– a near ultraviolet hazard (E_{UVA}) within 300 s, nor		N/A
	– a retinal blue-light hazard (L_B) within 100 s, nor		N/A
	– a retinal thermal hazard (L_R) within 10 s, nor		N/A
	– an infrared radiation hazard for the eye (E_{IR}) within 100 s		N/A
	Lamps that emit infrared radiation without a strong visual stimulus and do not pose a near-infrared retinal hazard (L_{IR}), within 100 s are in Risk Group 1.		N/A
6.1.3	Risk Group 2 (Moderate-Risk)		N/A
	This requirement is met by any lamp that exceeds the limits for Risk Group 1, but that does not pose:		N/A
	– an actinic ultraviolet hazard (E_S) within 1000 s exposure, nor		N/A
	– a near ultraviolet hazard (E_{UVA}) within 100 s, nor		N/A
	– a retinal blue-light hazard (L_B) within 0,25 s (aversion response), nor		N/A
	– a retinal thermal hazard (L_R) within 0,25 s		N/A

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Clause	Requirement + Test	Result – Remark	Verdict
	(aversion response), nor		
	– an infrared radiation hazard for the eye (E_{IR}) within 10 s		N/A
	Lamps that emit infrared radiation without a strong visual stimulus and do not pose a near-infrared retinal hazard (L_{IR}), within 10 s are in Risk Group 2.		N/A
6.1.4	Risk Group 3 (High-Risk)		N/A
	Lamps which exceed the limits for Risk Group 2 are in Group 3.		N/A
6.2	Pulsed lamps		N/A
	Pulse lamp criteria shall apply to a single pulse and to any group of pulses within 0,25 s.		N/A
	A pulsed lamp shall be evaluated at the highest nominal energy loading as specified by the manufacturer.		N/A
	The risk group determination of the lamp being tested shall be made as follows:		N/A
	– a lamp that exceeds the exposure limit shall be classified as belonging to Risk Group 3 (High-Risk)		N/A
	– for single pulsed lamps, a lamp whose weighted radiant exposure or weighted radiance does is below the EL shall be classified as belonging to the Exempt Group		N/A
	– for repetitively pulsed lamps, a lamp whose weighted radiant exposure or weighted radiance dose is below the EL, shall be evaluated using the continuous wave risk criteria discussed in clause 6.1, using time averaged values of the pulsed emission		N/A
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Clause	Requirement + Test	Result – Remark	Verdict

Table 4.1 Spectral weighting function for assessing ultraviolet hazards for skin and eye			P
Wavelength ¹ λ , nm	UV hazard function $S_{uv}(\lambda)$	Wavelength λ , nm	UV hazard function $S_{uv}(\lambda)$
200	0,030	313*	0,006
205	0,051	315	0,003
210	0,075	316	0,0024
215	0,095	317	0,0020
220	0,120	318	0,0016
225	0,150	319	0,0012
230	0,190	320	0,0010
235	0,240	322	0,00067
240	0,300	323	0,00054
245	0,360	325	0,00050
250	0,430	328	0,00044
254*	0,500	330	0,00041
255	0,520	333*	0,00037
260	0,650	335	0,00034
265	0,810	340	0,00028
270	1,000	345	0,00024
275	0,960	350	0,00020
280*	0,880	355	0,00016
285	0,770	360	0,00013
290	0,640	365*	0,00011
295	0,540	370	0,000093
297*	0,460	375	0,000077
300	0,300	380	0,000064
303*	0,120	385	0,000053
305	0,060	390	0,000044
308	0,026	395	0,000036
310	0,015	400	0,000030
¹ Wavelengths chosen are representative: other values should be obtained by logarithmic interpolation at intermediate wavelengths.			
* Emission lines of a mercury discharge spectrum.			

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Clause	Requirement + Test	Result – Remark	Verdict

Table 4.2	Spectral weighting functions for assessing retinal hazards from broadband optical sources		P
Wavelength nm	Blue-light hazard function B (λ)	Burn hazard function R (λ)	
300	0,01		
305	0,01		
310	0,01		
315	0,01		
320	0,01		
325	0,01		
330	0,01		
335	0,01		
340	0,01		
345	0,01		
350	0,01		
355	0,01		
360	0,01		
365	0,01		
370	0,01		
375	0,01		
380	0,01	0,1	
385	0,013	0,13	
390	0,025	0,25	
395	0,05	0,5	
400	0,10	1,0	
405	0,20	2,0	
410	0,40	4,0	
415	0,80	8,0	
420	0,90	9,0	
425	0,95	9,5	
430	0,98	9,8	
435	1,00	10,0	
440	1,00	10,0	
445	0,97	9,7	
450	0,94	9,4	
455	0,90	9,0	
460	0,80	8,0	
465	0,70	7,0	
470	0,62	6,2	
475	0,55	5,5	
480	0,45	4,5	
485	0,40	4,0	
490	0,22	2,2	
495	0,16	1,6	
500-600	$10^{[(450-\lambda)/50]}$	1,0	
600-700	0,001	1,0	
700-1050		$10^{[(700-\lambda)/500]}$	
1050-1150		0,2	
1150-1200		$0,2 \cdot 10^{0,02(1150-\lambda)}$	
1200-1400		0,02	

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Clause	Requirement + Test	Result – Remark	Verdict

Table 5.4 Summary of the ELs for the surface of the skin or cornea (irradiance based values)					P
Hazard Name	Relevant equation	Wavelength range nm	Exposure duration sec	Limiting aperture rad (deg)	EL in terms of constant irradiance $W \cdot m^{-2}$
Actinic UV skin & eye	$E_S = \sum E_\lambda \cdot S(\lambda) \cdot \Delta\lambda$	200 – 400	< 30000	1,4 (80)	30/t
Eye UV-A	$E_{UVA} = \sum E_\lambda \cdot \Delta\lambda$	315 – 400	≤ 1000 >1000	1,4 (80)	10000/t 10
Blue-light small source	$E_B = \sum E_\lambda \cdot B(\lambda) \cdot \Delta\lambda$	300 – 700	≤ 100 >100	< 0,011	100/t 1,0
Eye IR	$E_{IR} = \sum E_\lambda \cdot \Delta\lambda$	780 – 3000	≤ 1000 >1000	1,4 (80)	18000/t ^{0,75} 100
Skin thermal	$E_H = \sum E_\lambda \cdot \Delta\lambda$	380 – 3000	< 10	2π sr	20000/t ^{0,75}

Table 5.5 Summary of the ELs for the retina (radiance based values)					P
Hazard Name	Relevant equation	Wavelength range nm	Exposure duration sec	Field of view radians	EL in terms of constant radiance $W \cdot m^{-2} \cdot sr^{-1}$
Blue light	$L_B = \sum L_\lambda \cdot B(\lambda) \cdot \Delta\lambda$	300 – 700	0,25 – 10 10-100 100-10000 ≥ 10000	$0,011 \cdot \sqrt{t/10}$ 0,011 $0,0011 \cdot \sqrt{t}$ 0,1	$10^6/t$ $10^6/t$ $10^6/t$ 100
Retinal thermal	$L_R = \sum L_\lambda \cdot R(\lambda) \cdot \Delta\lambda$	380 – 1400	< 0,25 0,25 – 10	0,0017 $0,011 \cdot \sqrt{t/10}$	$50000/(\alpha \cdot t^{0,25})$ $50000/(\alpha \cdot t^{0,25})$
Retinal thermal (weak visual stimulus)	$L_{IR} = \sum L_\lambda \cdot R(\lambda) \cdot \Delta\lambda$	780 – 1400	> 10	0,011	6000/α

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Clause	Requirement + Test	Result - Remark	Verdict

Table 6.1	Emission limits for risk groups of continuous wave lamps								P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	SUV(λ)	Es	W•m-2	0,001	-	0,003	-	0,03	-
Near UV		EUVA	W•m-2	10	-	33	-	100	-
Blue light	B(λ)	LB	W•m-2•sr-1	100	7,47x10 ¹	10000	-	4000000	-
Blue light, small source	B(λ)	EB	W•m-2	1,0*	-	1,0	-	400	-
Retinal thermal	R(λ)	LR	W•m-2•sr-1	5,306x10 ⁵	1,024x10 ³ (α =52,78 mrad)	5,306x10 ⁵	-	5,306x10 ⁵	-
Retinal thermal, weak visual stimulus**	R(λ)	LIR	W•m-2•sr-1	6000/ α	-	6000/ α	-	6000/ α	-
IR radiation, eye		EIR	W•m-2	100	-	570	-	3200	-

* Small source defined as one with $\alpha < 0,011$ radian. Averaging field of view at 10000 s is 0,1 radian.

** Involves evaluation of non-GLS source

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Clause	Requirement + Test	Result - Remark	Verdict
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4 (4)	GENERAL REQUIREMENTS		P
- (4)	Insulation materials for double or reinforced insulation according requirements in Annex N of IEC 61347-1	(see Annex N)	N/A
- (4)	Compliance of independent controlgear enclosure with IEC 60598-1		N/A
- (4)	Built-in magnetic ballast with double or reinforced insulation comply with Annex I of IEC 61347-1		N/A
- (4)	Built-in electronic controlgear with double or reinforced insulation comply with Annex O of IEC 61347-1	(see Annex O)	N/A
- (4)	SELV controlgear comply with Annex L of IEC 61347-1	(see Annex L)	N/A

6 (6)	CLASSIFICATION		P
	Built-in controlgear	Yes ☐ No ☒	—
	Independent controlgear.....	Yes ☐ No ☒	—
	Integral controlgear	Yes ☒ No ☐	—

7 (7)	MARKING		N/A
7.1 (7.1)	Mandatory markings		N/A
	a) mark of origin		N/A
	b) model number or type reference		N/A
	d) correlation between interchangeable parts and controlgear marked		N/A
	e) rated supply voltage (V)		N/A
	supply frequency (Hz)		N/A
	supply current (A)		N/A
	f) earthing symbol, if applicable		N/A
	k) wiring diagram		N/A
	l) value of tc alternative ta		N/A
	s) SELV symbol		N/A
7.1 (-)	control terminals identified		N/A
	classification of insulation between live parts and control circuits		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

7.1 (7.2)	Marking durable and legible		N/A
	Rubbing 15 s water, 15 s petroleum; marking legible		N/A
7.2 (7.1)	Information to be provided, if applicable		N/A
	h) declaration of protection against accidental contact		N/A
	i) cross-section of conductors (mm²)		N/A
	j) number, type and wattage of lamp(s)		N/A
7.1 (7.2)	Marking durable and legible		N/A
	Rubbing 15 s water, 15 s petroleum; marking legible		N/A

8 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		P
- (10.1)	Controlgear protected against accidental contact with live parts		P
- (A2)	Voltage measured with 50 kΩ	(see Annex A)	N/A
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impedance device	(see Annex A)	N/A
- (10.1)	Lacquer or enamel not used for protection or insulation		P
	Adequate mechanical strength on parts providing protection		P
- (10.2)	Capacitors > 0,5 μF: voltage after 1 min (V): < 50 V		N/A
- (10.3)	Controlgear providing SELV		N/A
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		N/A
	No connection between output circuit and the body or protective earthing circuit		N/A
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N/A
	SELV outputs separated by at least basic insulation		N/A
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of IEC 61347-1		N/A
- (10.4)	Accessible conductive parts in SELV circuits		N/A
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. :		N/A
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		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
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A

9 (8)	TERMINALS		N/A
- (8.1)	Integral terminals		N/A
	Screw terminals according section 14 of IEC 60598-1	(see Annex 2)	N/A
	Screwless terminals according section 15 of IEC 60598-1	(see Annex 3)	N/A
- (8.2)	Terminals other than integral terminals		N/A
	Comply with relevant IEC standard	(see Annex 1)	N/A
	Suit the conditions		N/A
	Satisfy additional relevant requirements of this standard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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10 (9)	PROVISION FOR PROTECTIVE EARTHING		N/A
- (9.1)	Provisions for protective earthing		N/A
	Terminal complying with clause 8		N/A
	Locked against loosening and not possible to loosen by hand		N/A
	Not possible to loosen clamping means unintentionally on screwless terminals		N/A
	All parts of material minimizing the danger of electrolytic corrosion		N/A
	Made of brass or equivalent material		N/A
	Contact surface bare metal		N/A
	Test according 7.2.3 of IEC 60598-1		N/A
- (9.2)	Provision for functional earthing		N/A
	Comply with clause 8 and 9.1		N/A
	Functional earth insulated from live parts by double or reinforced insulation		N/A

- (9.3)	Lamp controlgear with conductors for protective earthing by tracks on printed circuit board		N/A
	Test with a current of 25 A between earthing terminal or earthing contact and each of the accessible metal parts; measured resistance (Ω) at ≥ 10 A according 7.2.3 of IEC 60598-1: $< 0,5 \Omega$		N/A
- (9.4)	Earthing of built-in lamp controlgear		N/A
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1		N/A
	Earthing terminal only for earthing the built-in controlgear		N/A
- (9.5)	Earthing via independent controlgear		N/A
- (9.5.1)	Earth connection to other equipment		N/A
	Looping or through connection, conductor min. 1,5 mm ² and of copper or equivalent		N/A
	Protective earthing wires in line with 5.3.1.1 and clause 7 of IEC 60598-1		N/A
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N/A
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal or earthing contact and each of the accessible metal parts at ≥ 10 A according 7.2.3 of IEC 60598-1: $< 0,5 \Omega$		N/A
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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11 (11)	MOISTURE RESISTANCE AND INSULATION		P
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance:		P
	For basic insulation $\geq 2 \text{ M}\Omega$	>500 M Ω	P
	For double or reinforced insulation $\geq 4 \text{ M}\Omega$		N/A
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N/A
12 (12)	ELECTRIC STRENGTH		P
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		P
	Working voltage $\leq 50 \text{ V}$, test voltage 500 V		P
	Working voltage $> 50 \text{ V} \leq 1000 \text{ V}$, test voltage (V):		N/A
	Basic insulation, $2U + 1000 \text{ V}$		N/A
	Supplementary insulation, $2U + 1000 \text{ V}$		N/A
	Double or reinforced insulation, $4U + 2000 \text{ V}$		N/A
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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14 (14)	FAULT CONDITIONS		P
- (14.1)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	N/A
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)	(see appended table)	N/A
- (14.3)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.5)	Short-circuit across electrolytic capacitors	(see appended table)	N/A
- (14.6)	After the tests has been carried out on three samples:		P
	The insulation resistance $\geq 1 \text{ M}\Omega$	> 100 M Ω	P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.7)	Relevant fault condition tests with high-power a.c. supply		—

15 (15)	CONSTRUCTION		P
- (15.1)	Wood, cotton, silk, paper and similar fibrous material		P
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
- (15.2)	Printed circuits		P
	Printed circuits used as internal connections complies with clause 14		P
- (15.3)	Plugs and socket-outlets used in SELV or ELV circuits		N/A
	No dangerous compatibility between output socket-outlet and a plug for socket-outlets for input circuit in relation to installation rules, voltages and frequencies		N/A
	Plugs and socket-outlets for SELV comply with IEC 60906-3 and IEC 60884-2-4		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Plugs and socket-outlets for SELV $\leq 3\text{ A}$, $\leq 25\text{ V}$ r.m.s. or $\leq 60\text{ V}$ d.c. and $\leq 72\text{ W}$ comply with IEC 60906-3 and IEC 60884-2-4 or:		N/A
	- plugs not able to enter socket-outlets of other standardised system		N/A
	- socket-outlets not admit plugs of other standardised system		N/A
	- socket-outlets without protective earth		N/A
- (15.4)	Insulation between circuits and accessible parts		P
- (15.4.2)	SELV circuits		P
	Source used to supply SELV circuits:		P
	- safety isolating transformer in accordance with relevant part 2 of IEC 61558		N/A
	- controlgear providing SELV in accordance with relevant part 2 of IEC 61347		N/A
	- another source		N/A
	Voltage in the circuit not higher than ELV		P
	SELV circuits insulated from LV by double or reinforced insulation		N/A
	SELV circuits insulated from non SELV circuits by double or reinforced insulation		N/A
	SELV circuits insulated from FELV circuits by supplementary insulation		N/A
	SELV circuits insulated from other SELV circuits by basic insulation		N/A
	SELV circuits insulated from accessible conductive parts according Table 6 in 15.4.5		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
- (15.4.3)	FELV circuits		N/A
	Source used to supply FELV circuits:		N/A
	- separating transformer in accordance with relevant part 2 of IEC 61558		N/A
	- separating controlgear providing basic insulation between input and output circuits in accordance with relevant part 2 of IEC 61347		N/A
	- another source		N/A
	- source in circuits separated by the LV supply by basic insulation		N/A
	Voltage in the circuit not higher than ELV		N/A
	FELV circuits insulated from LV supply by at least basic insulation		N/A
	FELV circuits insulated from other FELV circuits if functional purpose		N/A
	FELV circuits insulated from accessible conductive parts according Table 6 in 15.4.5		N/A
	Plugs and socket-outlets for FELV system comply with:		N/A
	- plugs not able to enter socket-outlets of other voltage systems		N/A
	- socket-outlets not admit plugs of other voltage systems		N/A
	- socket-outlets have a protective conductor contact		N/A
- (15.4.4)	Other circuits		N/A
	Insulation between circuits other than SELV or FELV and accessible conductive parts in according Table 6 in 15.4.5.		N/A
- (15.4.5)	Insulation between circuits and accessible conductive parts		N/A
	Accessible conductive parts insulated from active parts of electric circuits by insulating according Table 6		N/A
	Requirements for Class II construction with equipotential bonding for protection against indirect contact with live parts:		N/A
	- all conductive parts are connected together		N/A
	- conductive parts are reliably connected together according test of IEC 60598-1 cl. 7.2.3		N/A
	- conductive parts comply with requirements of Annex A in case of insulation fault		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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16 (16)	CREEPAGE DISTANCES AND CLEARANCES The working voltage is below 60Vd.c., no values for creepage distances and clearances		P
- (16)	Creepage distances and clearances according to 16.2 and 16.3		P
	Controlgears providing SELV comply with additional requirements in Annex L		N/A
	Insulating lining of metallic enclosures		N/A
	Controlgear protected against pollution comply with Annex P		N/A
- (16.2)	Creepage distances		N/A
- (16.2.2)	Minimum creepage distances for working voltages		N/A
	Creepage distances according to Table 7	(see appended table)	N/A
- (16.2.3)	Creepage distances for working voltages with frequencies above 30 kHz		N/A
	Creepage distances according to Table 8	(see appended table)	N/A
- (16.3)	Clearances		N/A
- (16.3.2)	Clearances for working voltages		N/A
	Clearances distances according to Table 9	(see appended table)	N/A
- (16.3.3)	Clearances for ignition voltages and working voltages with higher frequencies		N/A
	Clearances distances for basic or supplementary insulation according to Table 10	(see appended table)	N/A
	Clearances distances for reinforced insulation according to Table 11	(see appended table)	N/A

17 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		P
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		P
(4.11)	Electrical connections		P
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
(4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		P

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Clause	Requirement + Test	Result - Remark	Verdict

(4.11.5)	No contact to wood or mounting surface		P
(4.11.6)	Electro-mechanical contact systems		N/A
(4.12)	Mechanical connections and glands		N/A
(4.12.1)	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: torque (Nm); part	Fixed PCB board:0,4Nm	P
	Torque test: torque (Nm); part		N/A
	Torque test: torque (Nm); part		N/A
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
(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
(4.12.5)	Screwed glands; force (Nm).....		N/A

19 (19)	RESISTANCE TO CORROSION		N/A
	- test according 4.18.1 of IEC 60598-1		N/A
	- adequate varnish on the outer surface		N/A

20 (-)	ANNEXES		P
	Comply with appropriate annexes of IEC 61347-1 (see Annexes)		P

14	TABLE: tests of fault conditions for ZRY-SHIB00 HX-TK3001, ZRY-TK4801, ZRY-TK4231,TK4002, JD710(-1/-2/C...)		P
Part	Simulated fault		Hazard
Output	SC; Stop working, recoverable Input: 12.0 V, 0 A, 0 W		YES/NO
Output	OC; Stop working, recoverable Input: 12.0 V, 0 A, 0 W		YES/NO

14	TABLE: tests of fault conditions for IR CONTROLLER-1907LV-3		P
Part	Simulated fault		Hazard
Q7 G-D	SC; Working normal Input:12.0 V, 6.63 A, 79.56 W		YES/NO
Q7 G-S	SC; Stop working, recoverable		YES/NO
Q7 D-S	SC; Working normal Input: 12.0 V, 6.63 A, 79.56 W		YES/NO
1, 16 of N1	SC; Stop working, recoverable Input: 12.0 V, 0 A, 0 W		YES/NO
1, 8 of N1	SC; Working normal Input: 12.0 V, 6.63 A, 79.56 W		YES/NO
2, 8 of N1	SC; Stop working, recoverable		YES/NO
Output	SC; Stop working, recoverable Input: 12.0 V, 0 A, 0 W		YES/NO
Output	OC; Stop working, recoverable Input: 12.0 V, 0 A, 0 W		YES/NO

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Clause	Requirement + Test	Result - Remark	Verdict
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14	TABLE: tests of fault conditions for KZQ-1712LV-K	P
Part	Simulated fault	Hazard
Q3 G-D	SC; Working normal Input: 12.0 V, 6.63 A, 79.56W	~~YES~~ /NO
Q3 G-S	SC; Stop working, recoverable	~~YES~~ /NO
Q3 D-S	SC; Working normal Input: 12.0 V, 6.58 A, 78.96 W	~~YES~~ /NO
1, 8 of Q2	SC; Stop working, recoverable Input: 12.0 V, 0 A, 0 W	~~YES~~ /NO
1, 4 of Q2	SC; Stop working, can not recoverable	~~YES~~ /NO
2, 4 of Q2	SC; Stop working, recoverable	~~YES~~ /NO
Output	SC; Stop working	~~YES~~ /NO
Output	OC; Stop working, recoverable	~~YES~~ /NO

15.1	TABLE: test of transformer heating (☒ Constant voltage ☐ Constant current)			
	Type reference:		IR CONTROLLER-1907LV-3	
15.2	Test 1: Normal Operation			
	1,0Un (for built in type) times rated voltage:.....		1,0Un: 12,0 V; 6,63 A; 79,56 W	
			Output: 11,34 V; 6,62 A; 75,07 W	
	ta = ...		25.0°C	
15.3	Test 2: Abnormal Operation: Short-circuit the output according to L.7			
	1.1 or 0.9 times rated voltage:		Un: 12,0 V; 0 A; 0 W	
			Output: protected	
	ta = ...		25.0°C	
Temperature (°C) of Part	Cl. 15.1		Cl. 15.2	
	Test 1(°C)	Limit ³⁾	Test 2(°C)	Limit ³⁾
Input terminal	60,4	110	56,9	--
Output terminal	59,8	110	56,9	--
Connector	34,0	Ref	35,6	--
N1	60,1	130	59,4	--
PCB	48,7	130	49,9	--
Q8	81,6	130	74,9	--
Relay	57,0	Ref	58,3	--
tc point	45,6	60	46,0	110
Mounting surface	59,9	90	57,3	110
Ambient	25,0	--	25,0	--

15.1	TABLE: test of transformer heating (☒ Constant voltage ☐ Constant current)
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Clause	Requirement + Test	Result - Remark	Verdict
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	Type reference:.....	KZQ-1712LV-K		
15.2	Test 1: Normal Operation			
	1,0Un (for built in type) times rated voltage:.....	1,0Un: 12,0 V; 6,58 A; 78,96 W		
		Output: 11,41 V; 6,57 A; 75,07 W		
	ta = ...	25.0°C		
15.3	Test 2: Abnormal Operation: Short-circuit the output according to L.7			
	1.1 or 0.9times rated voltage:	Un: 12,0 V;0 A; 0 W		
		Output: protected		
	ta = ...	25.0°C		
Temperature (°C) of Part	Cl. 15.1		Cl. 15.2	
	Test 1(°C)	Limit ³⁾	Test 2(°C)	Limit ³⁾
Input terminal	47,6	110	44,9	--
Output terminal	54,1	110	50,7	--
PCB	71,0	130	64,3	--
Q3	65,7	130	59,8	--
tc point	49,4	60	45,9	110
Mounting surface	55,3	90	54,3	110
Output wire	58,0	90	53,0	--
Ambient	25,0	--	25,0	--

16 (16)		TABLE: creepage distance and clearance (mm)				SELV part		N/A
Applicable part of IEC 61347-1 Table 7 – 11*								
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required		
			clearance	*Table		creepage	*Table	
Distance 1:	-	-	-	-	-	-	-	
Working voltage (V).....					-		—	
Frequency if applicable (kHz).....					-		—	
PTI					< 600 ☐ ≥ 600 ☐		—	
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)					-		—	
Pulse voltage if applicable (kV)					-		—	
Supplementary information:-								
Distance 2:	-	-	-	-	-	-	-	
Working voltage (V).....					-		—	
Frequency if applicable (kHz).....					-		—	
PTI					< 600 ☐ ≥ 600 ☐		—	
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)					-		—	
Pulse voltage if applicable (kV)					-		—	
Supplementary information:-								
Distance 3:	-	-	-	-	-	-	-	

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Clause	Requirement + Test	Result - Remark	Verdict
Working voltage (V).....: -			
Frequency if applicable (kHz).....: -			
PTI: < 600 ☐ ≥ 600 ☐			
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV): -			
Pulse voltage if applicable (kV): -			
Supplementary information:-			

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

18 (18.1)	TABLE: Ball Pressure Test			P
Allowed impression diameter (mm)		2	—	
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
PCB	See main report	125	1,24	
Terminal block	See main report	125	1,41	
connector	See main report	125	1,41	
Supplementary information:N/A				

18 (18.2)	TABLE: Test of printed boards				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (s)	Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
Supplementary information: --					

18 (18.3)	TABLE: Glow-wire test				P
Glow wire temperature :			650°C		—
Object/ Part No./ Material	Manufacturer/ trademark		Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
Enclosure	See main report		No	No burning	P
--	--		--	--	--
--	--		--	--	--
Supplementary information: --					

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Clause	Requirement + Test	Result - Remark	Verdict
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18 (18.4)	TABLE: Needle-flame test				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (s)	Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
PCB	See main report	10s	No	No burning	P
Terminal block	See main report	10s	No	No burning	P
connector	See main report	10s	No	No burning	P
Supplementary information: --					

18 (18.5)	TABLE: Proof tracking test				N/A
Test voltage PTI		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
Supplementary information: --					

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Clause	Requirement + Test	Result - Remark	Verdict
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(A)	ANNEX A - TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK		N/A
(A.1)	Comply with A.2 or A.3		N/A
(A.2)	Voltage ≤ 35 V peak or ≤ 60 V d.c. :		N/A
(A.3)	If voltage measured according Clause A.2 exceeds the limit value; touch current does not exceed 0,7 mA (peak) or 2 mA d.c. :		N/A
	Comply with Annex G.2 of IEC 60598-1		N/A

(C)	ANNEX C – PARTICULAR REQUIREMENTS FOR ELECTRONIC LAMP CONTROLGEAR WITH MEANS OF PROTECTION AGAINST OVERHEATING		N/A
(C3)	GENERAL REQUIREMENTS		N/A
(C3.1)	Thermal protection means integral with the convertor, protected against mechanical damage		N/A
	Renewable only by means of a tool		N/A
	If function depending on polarity, for cord-connected equipment protection means in both leads		N/A
	Thermal links comply with IEC 60691		N/A
	Electrical controls comply with IEC 60730-2-3		N/A
(C3.2)	No risk of fire by breaking (clause C7)		N/A
(C5)	CLASSIFICATION		N/A
	a) automatic resetting type		—
	b) manual resetting type		—
	c) non-renewable, non-resetting type		—
	d) renewable, non-resetting type		—
	e) other type of thermal protection; description :		—
(C6)	MARKING		N/A
(C6.1)	Symbol for temperature declared thermally protected ballasts		N/A
(C6.2)	Declaration of the type of protection provided		N/A
(C7)	LIMITATION OF HEATING		N/A
(C7.1)	Preselection test:		N/A
	Test sample placed for at least 12 h in an oven having temperature ($t_c - 5$) K		N/A
	No operation of the protection device		N/A
(C7.2)	Functioning of protection means:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Normal operation of the sample in a test enclosure according to Annex D at an ambient temperature such that ($t_c +0$; -5) °C is obtained		N/A
	No operation of the protection device		N/A
	Introducing of the most onerous test condition determined during test of clause 14.2 to 14.5		N/A
	Output of windings connected to the mains supply short-circuited, and other part of the controlgear operated under normal conditions		N/A
	Increasing of the current through the windings continuously until operation of the protection means		N/A
	Continuous measuring of the highest surface temperature		N/A
	Ballasts according to C5 a) or C5 e) operated until stable conditions are achieved		N/A
	Automatic-resetting thermal protectors working 3 times		N/A
	Ballasts according to C5 b) working 6 times		N/A
	Ballasts according to C5 c) and C5 d) working once		N/A
	Highest temperature does not exceed the marked value		N/A
	Any overshoot of 10% over the marked value within 15 min		N/A
	After 15 min value not exceed marked value		N/A
(D)	ANNEX D – REQUIREMENTS FOR CARRY OUT THE HEATING TESTS OF THERMALLY PROTECTED LAMP CONTROLGEAR		N/A
	Tests in C7 performed in accordance with Annex D, if applicable		N/A
(F)	ANNEX F - DRAUGHT-PROOF ENCLOSURE		P
	Draught-proof enclosure in accordance with the description		P
	Dimensions of the enclosure		P
	Other design; description		P
(H)	ANNEX H - TESTS		P
	All tests performed in accordance with the advice given in Annex H, if applicable		P

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Clause	Requirement + Test	Result - Remark	Verdict

(I)	ANNEX I – ADDITIONAL REQUIREMENTS FOR BUILT-IN MAGNETIC BALLASTS WITH DOUBLE OR REINFORCED INSULATION		N/A
(I.6)	Symbol on ballasts with double or reinforced insulation		N/A
	Symbol explained in manufacturers catalogue		N/A
(I.9)	No protective earthing terminal		N/A
(I.12)	Devices for limiting the temperature bridged		—
	After the test according clause 13		N/A
	At least six of seven ballast start the lamp and the current not exceed 115%		N/A
	Insulation resistance not less than 4 MΩ between winding and case for all ballasts		N/A
	All ballasts withstand electric strength test reduced to 35% of values in Table 1 of IEC 61347-1		N/A
(I.15)	Built-in ballasts with double or reinforced insulation comply with corresponding values of creepage and clearances in IEC 60598-1		N/A

(L)	ANNEX L: PARTICULAR ADDITIONAL REQUIREMENTS FOR CONTROLGEARS PROVIDING SELV		N/A
(L.3)	Classification		N/A
	Class I	Yes ☐ No ☒	—
	Class II	Yes ☐ No ☒	—
	Class III	Yes ☐ No ☒	—
	non-inherently short circuit proof controlgear	Yes ☐ No ☒	—
	inherently short circuit proof controlgear	Yes ☐ No ☒	—
	fail safe controlgear	Yes ☐ No ☒	—
	non-short-circuit proof controlgear	Yes ☐ No ☒	—
(L.4)	Marking		N/A
	Adequate symbols are used		N/A
(L.5)	Protection against electric shock		N/A
	Comply with clause 9.2 of IEC 61558-1		N/A
(L.6)	Heating		N/A
	No excessive temperatures in normal use		N/A
	Value if capacitor t _c marked		—
	Winding insulation classified as Class		—
	Comply with tests of clause 14 of IEC 61558-1 with adjustments		N/A
(L.7)	Short-circuit and overload protection		N/A
	Comply with tests of clause 15 of IEC 61558-1 with adjustments		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
(L.8)	Insulation resistance and electric strength		N/A
(L.8.1)	Conditioned 48 h between 91 % and 95 %		N/A
(L.8.2)	Insulation resistance		N/A
	Between input- and output circuits not less than 5 MΩ :		N/A
	Between metal parts of class II convertors which are separated from live parts by basic insulation only and the body not less than 5 MΩ :		N/A
	Between metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 MΩ :		N/A
(L.8.3)	Electric strength		N/A
	1) Between live parts of input circuits and live parts of output circuits :		N/A
	2) Over basic or supplementary insulation between:		N/A
	a) live parts having different polarity :		N/A
	b) live parts and body if intended to be connected to protective earth :		N/A
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord :		N/A
	d) live parts and an intermediate metal part .. :		N/A
	e) intermediate metal parts and the body :		N/A
	f) each input circuit and all other input circuits :		N/A
	3) Over reinforced insulation between the body and live parts :		N/A
(L.9)	Construction		N/A
(L.9.1)	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		N/A
	HF transformer comply with 19 of IEC 61558-2-16		N/A
(L.10)	Components		N/A
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		N/A
(L.11)	Creepage distances, clearances and distances through insulation		N/A
	Creepage distances and clearances not less than in Clause 16		N/A
	Distance through insulation according Table L.5 in IEC 61347-1		N/A
	1) Basic distance through insulation		N/A
	Required distance (mm) :		—
	Measured (mm) :		N/A
	Supplementary information		—
	2) Supplementary distance through insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	Required distance (mm)		—
	Measured (mm)		N/A
	Supplementary information		—
	3) Reinforced distance through insulation		N/A
	Required distance (mm)		—
	Measured (mm)		N/A
	Supplementary information		—

(N)	ANNEX N: REQUIREMENTS FOR INSULATION MATERIALS USED FOR DOUBLE OR REINFORCED INSULATION		N/A
(N.4)	General requirements		N/A
(N.4.1)	Material comply with IEC 60085 and IEC 60216 series		N/A
(N.4.2)	Solid insulation		N/A
	Electric strength test at least 5 kV or 1,35 x test voltage in Table N.1		N/A
	If not classified according IEC 60085 and IEC 60216 series: Electric strength test increased 10 % of 5,5 kV or 1,5 x test voltage in Table N.1		N/A
(N.4.3)	Thin sheet insulation		N/A
(N.4.3.1)	Thickness and composition of thin sheet insulation		N/A
	- Inside the ballast and not subjected to handling or abrasion during the production and during maintenance		N/A
	- Non-separated layers: Min. 3 layers and fulfil mandrel test of 150N		N/A
	- Separated layers: Min. 2 layers and each layer fulfil mandrel test of 50N		N/A
	- Separated layers (alternative): Min. 3 layers and 2/3 of the layers fulfil mandrel test of 100N		N/A
(N.4.3.2)	Mandrel test (electric strength test during mechanical stress)		N/A
	Electric strength test after mandrel test:		N/A
	- Non-separated layers: min. 5 kV or 1,35 x test voltage in Table N.1		N/A
	- 2/3 of min. 3 separated layers: min. 5 kV or 1,25 x test voltage in Table N.1		N/A
	- one of 2 separated layers: min. 5 kV or 1,25 x test voltage in Table N.1		N/A
	No flashover or breakdown occurred		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
(O)	ANNEX O: ADDITIONAL REQUIREMENTS FOR BUILT-IN ELECTRONIC CONTROLGEAR WITH DOUBLE OR REINFORCED INSULATION		N/A
(O.6)	Marking		N/A
	Marking according clause 7 (7)	See clause 7	N/A
	Special symbol		N/A
	Meaning of the special symbol explained in catalogue		N/A
(O.7)	Protection against accidental contact with live parts		N/A
	Requirements of clause 8 (10)	See clause 8	N/A
	Test finger not possible to make contact with basic insulated metal parts		N/A
(O.8)	Terminals		N/A
	Clause 9 (8)	See clause 9	N/A
(O.9)	Provision for earthing		N/A
	Functional earthing terminals comply with clause 9 of part 1		N/A
	No protective earthing terminal		N/A
(O.10)	Moisture resistance and insulation		N/A
	Clause 11 (11)	See clause 11	N/A
(O.11)	Electric strength		N/A
	Clause 12 (12)	See clause 12	N/A
(O.13)	Fault conditions		N/A
	Clause 14 (14)	See clause 14	N/A
	End of test, between live part and accessible metal parts or external parts of insulating material in contact with the supporting surface comply with dielectric strength test reduced to 35 % of values according Table 1 in part 1		N/A
	Insulation resistance according to O.10 between live part and accessible metal parts or external parts of insulating material in contact with the supporting surface not less than 4 MΩ		N/A
(O.14)	Construction		N/A
	Clause 17 (15)	See clause 17	N/A
	Accessible metal parts insulated from live parts by double or reinforced insulation		N/A
	Live part insulated from supporting surface in contact with external faces by double or reinforced insulation		N/A
(O.15)	Creepage distances and clearances		N/A
	Clause 18 (16)	See clause 18	N/A
	Comply with corresponding values for luminaries in IEC 60598-1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
(O.16)	Screws, current-carrying parts and connections		N/A
	Clause 19 (17)	See clause 19	N/A
(O.17)	Resistance to heat and fire		N/A
	Clause 20 (18)	See clause 20	N/A
(O.18)	Resistance to corrosion		N/A
	Clause 21 (19)	See clause 21	N/A
(P)	Creepage distances and clearances and distance through isolation (DTI) for lamp controlgear which are protected against pollution by the use of coating or potting		N/A
(P.1)	General		N/A
	P.2 applies if creepage distances less than the minimum in Table 7 and 8		N/A
	P.3 applies if clearance less than the minimum in Table 9, 10 and 11		N/A
(P.2)	Creepage distances		N/A
(P.2.2)	Minimum creepage distances for working voltages and rated voltages with frequencies up to 30 kHz (Table P.1)		N/A
	Basic or supplementary insulation:		N/A
	Required creepage		—
	Measured		N/A
	Supplementary information		—
	Reinforced insulation:		N/A
	Required creepage		—
	Measured		N/A
	Supplementary information		—
(P.2.3)	Creepage distances for working voltages with frequencies above 30 kHz (Table P.2)		N/A
	Voltage $\hat{U}_{out}$ kV		—
	Frequency		—
	Required distance.....		—
	Measured		N/A
	Supplementary information		—
(P.2.4)	Compliance with the required creepage distances		N/A
(P.2.4.1)	Compliance in accordance with 16.3.3 and test according P.2.4.2		N/A
(P.2.4.3)	Electrical tests after conditioning		N/A
(P.2.4.3.1)	Insulation resistance and electric strength according Clause 11 and 12		N/A
(P.3)	Distance through isolation		N/A
(P.3.4)	Electrical tests after conditioning		N/A
(P.3.4.1)	Insulation resistance and electric strength according Clause 11 and 12		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

(P.3.4.2)	Impulse voltage dielectrical test		N/A
	Basic or supplementary insulation:		N/A
	Working/rated voltage		—
	Impulse voltage		N/A
	Supplementary information		—
	Reinforced insulation:		N/A
	Working/rated voltage		—
	Impulse voltage		N/A
	Supplementary information		—

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1 TABLE: Critical components information						Refer to main report	P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
--	--	--	--	--	--	--	
Description:							
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--	--	--	--	--	--	--	
Description:							
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Description:							
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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

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Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 2	Screw terminals (part of the luminaire)		N/A
(14)	SCREW TERMINALS		N/A
(14.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm ²) :		—
(14.3.3)	Conductor space (mm) :		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread) :	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		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
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ANNEX 3	Screwless terminals (part of the luminaire)		N/A
(15)	SCREWLESS TERMINALS		N/A
(15.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5)	Terminals and connections for internal wiring		N/A
(15.5.1)	Mechanical tests		N/A
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:		N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....:		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples).....:		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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