



Report No	3873722 Rev 1		
Client	Olympia Electronics N. Lakasas - P. Arvanitidis S.A. 72nd klm Old Highway Thessaloniki Katerini, Eginio, Pieria P.C 60300 Greece		
Authority & date	Quote Number: Q715582	SMO: 3873722	Date: 21/02/2023
Items tested	KLD-30/ST/ADR		
Specification	IEC 60598-2-22:2021 used in conjunction with IEC 60598-1:2020 SASO IEC 60598-2-22:2021 used in conjunction with SASO IEC 60598-1:2020 BS EN IEC 60598-2-22:2022 used in conjunction with BS EN IEC 60598-1:2021		
Results	A type sample of the above appliance has been tested and examined to the relevant requirements of the above specification and has been found to comply with these requirements, subject to the implementation of any corrective actions detailed in this test report		
Prepared by		Luke Masters	Testing Team Leader
Authorised by		Piers Taverner	Testing Team Manager
Issue Date	15/03/23		
Conditions of issue	<p>This Test Report is issued subject to the conditions stated in current issue of 'BSI Terms of Service'. The results contained herein apply only to the particular sample(s) tested and to the specific tests carried out, as detailed in this Test Report. The issuing of this Test Report does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by BSI of any product. No extract, abridgement or abstraction from a Test Report may be published or used to advertise a product without the written consent of BSI, who reserve the absolute right to agree or reject all or any of the details of any items or publicity for which consent may be sought. This report relies upon information supplied by the client which may affect the validity of results.</p> <p>Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. Where a statement of conformity is reported the decision rule is simple acceptance unless stated otherwise. This report is issued under a flexible accreditation scope.</p> <p>This issue supersedes all previous issues. This issue, Rev 1, is issued for corrections to trademark and CBTL typographical error.</p>		





Test Report issued under the responsibility of:
BSI Assurance

TEST REPORT
IEC 60598-2-22
Luminaires
Part 2: Particular requirements
Section 22: Luminaires for emergency lighting

Report Number..... : 3873722 Rev 1
Date of issue..... : 15/03/2023
Total number of pages : 67

Name of Testing Laboratory
preparing the Report : BSI Assurance (Loughborough)

Applicant's name : Olympia Electronics
Address..... : N. Lakasas - P. Arvanitidis S.A., 72nd klm Old Highway,
Thessaloniki Katerini, Eginio, Pieria P.C 60300, Greece

Test specification:

Standard : IEC 60598-2-22:2021 used in conjunction with IEC 60598-1:2020
Test procedure : CB Scheme
Non-standard test method : N/A

TRF template used..... : IECEE OD-2020-F1:2022, Ed.1.5

Test Report Form No. : IEC60598_2_22I

Test Report Form(s) Originator : Intertek Semko AB

Master TRF : Dated 2022-12-09

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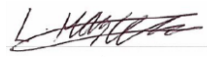

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

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

General disclaimer:

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

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Test item description	Self-contained LED emergency open area/exit sign luminaire (see variants on page 7)	
Trade Mark(s)		
Manufacturer	Olympia Electronics	
Model/Type reference	KLD-30/ST/ADR, KLIN-20/ST/ADR (see page 7 for model variants)	
Ratings	220-240 VAC, 50-60 Hz, IP54, class II, ta 5-40°C	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	BSI Assurance (Loughborough)
	Testing location/ address	Holywell Park, Ashby Road, Loughborough, Leicestershire, LE11 3AQ, United Kingdom
	Tested by (name, function, signature)	Luke Masters Testing Team Leader 
	Approved by (name, function, signature) ..	Piers Taverner – Testing Team Manager 
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
	Testing location/ address	
	Tested by (name, function, signature)	
	Approved by (name, function, signature) ..	
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
	Testing location/ address	
	Tested by (name + signature)	
	Witnessed by (name, function, signature) .	
	Approved by (name, function, signature) ..	
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
	Testing location/ address	
	Tested by (name, function, signature)	
	Witnessed by (name, function, signature) .	
	Approved by (name, function, signature) ..	
	Supervised by (name, function, signature) :	

List of Attachments (including a total number of pages in each attachment):	
Attachment 1: European Group Differences and National Differences (1 page)	
Attachment 2: Photometric Data (4 pages) Photographs of item under test (9 pages)	
Summary of testing:	
Tests performed (name of test, test clause and date test performed): The purpose of this report is to update to the latest version of BS EN IEC 60598-2-22:2022 used in conjunction with BS EN IEC 60598-1:2021. Also fulfills the requirements of SASO IEC 60598-2-22:2021 used in conjunction with SASO IEC 60598-1:2020 All other testing was performed previously and results can be found in BSI Test Report 3118648 SASO National Differences are under consideration.	Testing location: (CBTL, SPTL, CTF, Subcontractor) BSI Assurance (Loughborough) Holywell Park Ashby Road Loughborough Leicestershire LE11 3AQ United Kingdom
Summary of compliance with National Differences (List of countries addressed):	
CENELEC Countries	
<input checked="" type="checkbox"/> The product fulfils the requirements of IEC 60598-2-22:2021 used in conjunction with IEC 60598-1:2020, SASO IEC 60598-2-22:2021 used in conjunction with SASO IEC 60598-1:2020 and BS EN IEC 60598-2-22:2022 used in conjunction with BS EN IEC 60598-1:2021.	

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:

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

<p>KLD-30/ST/ADR 220-240V ~ /50-60Hz RATED POWER: 3.9W/4.4VA BATTERY: 3.6V/1.5Ah (Ni-MH) LUMINOSITY: 110lm X 1 A B C F F G 1 8 0</p>		<p>t 5-40°C t, 40°C IP54</p>	    MADE IN GREECE
<p>KLD-22/ST/ADR 220-240V ~ /50-60Hz RATED POWER: 3.9W/4.4VA BATTERY: 3.6V/1.5Ah (Ni-MH) LUMINOSITY: 110lm X 1 A B C E F G 1 8 0</p>		<p>t 5-40°C t, 40°C IP54</p>	    MADE IN GREECE
<p>KLR-20/ST/ADR 220-240V ~ /50-60Hz RATED POWER: 3.9W/4.4VA BATTERY: 3.6V/1.5Ah (Ni-MH) LUMINOSITY: 110lm X 1 A B C E F G 1 8 0</p>		<p>t 5-40°C t, 40°C IP54</p>	    MADE IN GREECE
<p>KLD-22/ST 220-240V ~ /50-60Hz RATED POWER: 3.9W/4.4VA BATTERY: 3.6V/1.5Ah (Ni-MH) LUMINOSITY: 110lm X 1 A E F G 1 8 0</p>		<p>t 5-40°C t, 40°C IP54</p>	    MADE IN GREECE
<p>KLD-30/ST 220-240V ~ /50-60Hz RATED POWER: 3.9W/4.4VA BATTERY: 3.6V/1.5Ah (Ni-MH) LUMINOSITY: 110lm X 1 A E F G 1 8 0</p>		<p>t 5-40°C t, 40°C IP54</p>	    MADE IN GREECE
<p>KLR-20/ST 220-240V ~ /50-60Hz RATED POWER: 3.9W/4.4VA BATTERY: 3.6V/1.5Ah (Ni-MH) LUMINOSITY: 110lm X 1 A E F G 1 8 0</p>		<p>t 5-40°C t, 40°C IP54</p>	    MADE IN GREECE
<p>KLIN-20/ST/ADR 220-240V ~ /50-60Hz RATED POWER: 3.9W/4.4VA BATTERY: 3.6V/1.5Ah (Ni-MH) LUMINOSITY: 250lm X 1 1 A B C E F 6 0</p>		<p>t 5-40°C t, 40°C IP54</p>	    MADE IN GREECE
<p>KLIN-20/ST/ADR 220-240V ~ /50-60Hz RATED POWER: 3.9W/4.4VA BATTERY: 3.6V/1.5Ah (Ni-MH) LUMINOSITY: 77lm X 1 1 A B C E F 1 8 0</p>		<p>t 5-40°C t, 40°C IP54</p>	    MADE IN GREECE
<p>KLIN-20/ST/ADR 220-240V ~ /50-60Hz RATED POWER: 3.9W/4.4VA BATTERY: 3.6V/1.5Ah (Ni-MH) LUMINOSITY: 12lm X 1 1 A B C E F 4 8 0</p>		<p>t 5-40°C t, 40°C IP54</p>	    MADE IN GREECE

Test item particulars	: LED, self-contained, maintained/non-maintained emergency luminaires, open area/exit sign
Classification of installation and use	: Class II, IP54, suitable for mounting on normally flammable surfaces, normal use.
Supply Connection	: Connected to fixed wiring via connector terminal
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	: BSI Assurance (Loughborough)
Date of receipt of test item	: 22/02/2023
Date (s) of performance of tests	: 22/02/2023 – 24/02/2023
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC60598-2-22:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)	: Olympia Electronics N. Lakasas - P. Arvanitidis S.A., 72nd klm Old Highway, Thessaloniki Katerini, Eginio, Pieria P.C 60300, Greece

General product information and other remarks:

The KLD-30/ST/ADR and KLIN-20/ST/ADR are self-contained, maintained, emergency luminaires. KLD is an emergency exit sign and KLIN is an open area emergency luminaire.

Three different exit sign legends can be fitted to the main unit of KLD luminaire.

The luminaires can be surface mounted, recessed mounted or suspended using a range of mounting brackets. Both have plastic construction enclosure housing 2711195 control gear with SMD LED light source soldered directly to PCB, and Ni-MH battery pack. Maintained or non-maintained operation mode and duration of emergency lighting can be selected from 1 h, 3 h or 8 h and is achieved by setting the dip switch DS1.

All models have manual test buttons and automatic test functions. Models with ADR suffix are also addressable and utilise GR-6600/ADR module.

All models are suitable for direct mounting onto normally flammable material, IP54 rated and directly connected to fixed wiring via terminal block provided.

KLD-30/ST/ADR and KLIN-20/ST/ADR were tested as the representative samples of the models listed below. The models differ in exit sign size and its construction.

Model	Ratings	Addressable?	Exit Sign or Open area
KLD – 30/ST	220 – 240 V AC, 50 – 60 Hz, IP54	No	Exit sign
KLD – 30/ST/ADR	220 – 240 V AC, 50 – 60 Hz, IP54	Yes	Exit sign
KLD – 22/ST	220 – 240 V AC, 50 – 60 Hz, IP54	No	Exit sign
KLD – 22/ST/ADR	220 – 240 V AC, 50 – 60 Hz, IP54	Yes	Exit sign
KLR – 20/ST	220 – 240 V AC, 50 – 60 Hz, IP54	No	Exit sign
KLR – 20/ST/ADR	220 – 240 V AC, 50 – 60 Hz, IP54	Yes	Exit sign
KLIN – 20/ST/ADR	220 – 240 V AC, 50 – 60 Hz, IP54	Yes	Open area
KLIN – 20/ST	220 – 240 V AC, 50 – 60 Hz, IP54	No	Open area

Accessories for installation tested in this report:

Bracket code	Description	Supplied with luminaire?
N/A	Wall mounting	Yes
N/A	Ceiling mounting	Yes
A – 2133	Wall Mounting	No
A – 2520/PL/ST	Recess mounting	No
A – 2132	Ceiling mounting	No
A – 2136	Hanging installation	No

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
22.4 (0)	GENERAL TEST REQUIREMENTS		P
22.4 (0.3)	More sections applicable..... :	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Section/s:	—
22.4 (0.5)	Components	(See Annex 1)	—
22.4 (0.7)	Information for luminaire design in light sources standards		—
22.4 (0.7.2)	Light source safety standard		—
	Luminaire design in the light source safety standard		P
22.4 (-)	Part providing normal lighting, test according to relevant part of IEC 60598-2		P
22.4 (-)	Adjacent part fulfils relevant part of this part 2		N/A
22.4 (-)	Self-contained portable emergency luminaires, requirements according Annex E	(See Annex E)	N/A
22.5 (2)	CLASSIFICATION OF LUMINAIRES		P
22.5 (2.2)	Type of protection	Class II	P
22.5 (2.3)	Degree of protection..... :	IP54	—
22.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
22.5 (2.5)	Luminaire for normal use	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
22.5 (-)	Classified as luminaire suitable for direct mounting on normally flammable surfaces		P
22.5 (-)	Classification code according Annex B	(See Annex B)	P
22.6 (3)	MARKING		P
22.6 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
22.6 (3.3)	Additional information		P
	Language of instructions	English	P
22.6 (3.3.1)	Combination luminaires		N/A
22.6 (3.3.2)	Nominal frequency in Hz	50/60 Hz	P
22.6 (3.3.3)	Operating temperature		N/A
22.6 (3.3.5)	Wiring diagram		N/A
22.6 (3.3.6)	Special conditions		N/A
22.6 (3.3.7)	Metal halide lamp luminaire – warning		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
22.6 (3.3.8)	Limitation for semi-luminaires		N/A
22.6 (3.3.9)	Power factor and supply current		P
22.6 (3.3.10)	Suitability for use indoors		P
22.6 (3.3.11)	Luminaires with remote control		N/A
22.6 (3.3.12)	Clip-mounted luminaire – warning		N/A
22.6 (3.3.13)	Specifications of protective shields		N/A
22.6 (3.3.14)	Symbol for nature of supply		N/A
22.6 (3.3.15)	Rated current of socket outlet		N/A
22.6 (3.3.16)	Rough service luminaire		N/A
22.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N/A
22.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
22.6 (3.3.19)	Protective conductor current in instruction if applicable		N/A
22.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
22.6 (3.3.21)	Non replaceable and non-user replaceable light sources information provided		P
22.6 (3.3.22)	Controllable luminaires, classification of insulation provided		P
22.6 (3.3.23)	Luminaires without control gear provided with necessary information for selection of appropriate component		N/A
22.6 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
22.6 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided		N/A
22.6 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		P
22.6 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
22.6.1 (-)	Supply voltage	220 – 240V	P
22.6.2 (-)	Classification according to annex B	(see Annex B)	P
22.6.3 (-)	Correct replacement lamp		N/A
22.6.4 (-)	Range of ambient temperatures	5 – 40 °C	P
22.6.5 (-)	Fuse ratings and/or indicator lamps		N/A
22.6.6 (-)	Facilities to simulate normal supply failure	Test Button	P
22.6.7 (-)	Marking with details about nature of ESSS		P
22.6.7.1 (-)	Marked with correct battery replacement		P
	Non-replaceable batteries		N/A
22.6.7.2 (-)	Battery marked with date of manufacture		P
	Space provided on battery label		P
22.6.7.3 (-)	Marked with correct EDLC replacement		N/A
	Non-replaceable EDLC		N/A
22.6.9 (-)	Correct lamp replacement for combined emergency luminaires		N/A
	Green dot with min 5 mm diameter		N/A
	Instruction leaflet 22.6.10 – 22.6.12 and 22.6.14 – 22.6.16		N/A
22.6.10 (-)	Replacement of ESSS or luminaire		P
	Details for correct ESSS replacement		P
	ESSS is not user serviceable, information provided		P
22.6.11 (-)	Details of test facilities		P
22.6.12 (-)	Details of connection leads		N/A
22.6.14 (-)	Details of device which changes the mode of operation	Dip switch DS1	P
22.6.15 (-)	Photometric data available according 22.17		P
22.6.16 (-)	Any normal preparation procedure		P
22.6.17 (-)	Marking in 22.6.1, 22.6.2, 22.6.7.1 (2 nd paragraph), 22.6.7.3 (2 nd paragraph) and 22.6.20 visible on installed luminaire		P
	Marking in 22.6.5, 22.6.7.1 (1 st paragraph), 22.6.7.3 (1 st paragraph) and 22.6.9 visible during maintenance		P
22.6.18 (-)	Provided with warning if intended for external plug and socket connections		N/A
22.6.19 (-)	Instruction leaflet specifies if lamp and/or ESSS is/are non-replaceable		P
22.6.20 (-)	Marking if luminaire mounted on lighting track systems		N/A
	Photometric data in instruction leaflet		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
22.6.21 (-)	Rated charge time lower than 24 h, information in instruction leaflet provided		P
22.6.22 (-)	Allowed time for rest/remote inhibiting mode, information in instruction leaflet provided		P

22.7 (4)	CONSTRUCTION		P
22.7 (4.2)	Components replaceable without difficulty		P
22.7 (4.3)	Wireways smooth and free from sharp edges		N/A
22.7 (4.4)	Lamp holders		N/A
22.7 (4.4.1)	Integral lamp holder		N/A
22.7 (4.4.2)	Wiring connection		N/A
22.7 (4.4.3)	Lamp holder for end-to-end mounting		N/A
22.7 (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
	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
22.7 (4.4.5)	Peak pulse voltage		N/A
22.7 (4.4.6)	Centre contact		N/A
22.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
22.7 (4.4.8)	Lamp connectors		N/A
22.7 (4.4.9)	Caps and bases correctly used		N/A
22.7 (4.4.10)	Light source for lamp holder or connection according to IEC 60061 not connected another way		N/A
22.7 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
22.7 (4.6)	Terminal blocks		N/A
	Tails		N/A
	Unsecured blocks		N/A
22.7 (4.7)	Terminals and supply connections		P
22.7 (4.7.1)	Contact to metal parts		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
22.7 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		N/A
22.7 (4.7.3)	Terminals for supply conductors		P
22.7 (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
22.7 (4.7.4)	Terminals other than supply connection		N/A
22.7 (4.7.5)	Heat-resistant wiring/sleeves		N/A
22.7 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
22.7 (4.8)	Switches		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
22.7 (4.9)	Insulating lining and sleeves		N/A
22.7 (4.9.1)	Retainment		N/A
	Method of fixing		N/A
22.7 (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
22.7 (4.10)	Double or reinforced insulation		P
22.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
22.7 (4.10.2)	Assembly gaps:		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- not coincidental		P
	- no straight access with test probe		P
22.7 (4.10.3)	Retention of insulation:		P
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		P
	- sleeves retained in position		N/A
	- lining in lamp holder		N/A
22.7 (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
22.7 (4.11)	Electrical connections and current-carrying parts		P
22.7 (4.11.1)	Contact pressure		N/A
22.7 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
22.7 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
22.7 (4.11.4)	Material of current-carrying parts		P
22.7 (4.11.5)	No contact to wood or mounting surface		P
22.7 (4.11.6)	Electro-mechanical contact systems		N/A
22.7 (4.12)	Screws and connections (mechanical) and glands		P
22.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Torque test: torque (Nm); part..... :	Bracket fixing screw: Diameter = 4.2 mm Column 2 Torque = 1.8 Nm	P
	Torque test: torque (Nm); part..... :		N/A
	Torque test: torque (Nm); part..... :		N/A
22.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
22.7 (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
22.7 (4.12.5)	Screwed glands; force (Nm)..... :		N/A
22.7 (4.13)	Mechanical strength		P
22.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)		P
	- other parts; energy (Nm)..... :		N/A
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
22.7 (4.13.2)	Metal parts have adequate mechanical strength		N/A
22.7 (4.13.3)	Straight test finger		N/A
22.7 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
22.7 (4.13.6)	Tumbling barrel		N/A
22.7 (4.14)	Suspensions, fixings and means of adjusting		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.7 (4.14.1)	Mechanical load:		P
	A) four times the weight		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
22.7 (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
22.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles.....		N/A
	- strands broken		N/A
	- electric strength test afterwards		N/A
22.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
22.7 (4.14.5)	Guide pulleys		N/A
22.7 (4.14.6)	Strain on socket-outlets		N/A
22.7 (4.15)	Flammable materials		P
	- glow-wire test 650°C	See Test Table 22.15 (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		N/A
	- thermal protection		N/A
	- electronic circuits exempted		N/A
22.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		P

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Clause	Requirement + Test	Result - Remark	Verdict
	a) construction		P
	b) temperature sensing control		N/A
	c) surface temperature		N/A
22.7 (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
22.7 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
22.7 (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
22.7 (4.16.3)	Design to satisfy the test of 12.6	(See clause 12.6)	N/A
22.7 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
22.7 (4.18)	Resistance to corrosion		N/A
22.7 (4.18.1)	- rust-resistance		N/A
22.7 (4.18.2)	- season cracking in copper		N/A
22.7 (4.18.3)	- corrosion of aluminum		N/A N/A
22.7 (4.19)	Igniters compatible with ballast		N/A
22.7 (4.20)	Rough service vibration		N/A
22.7 (4.21)	Protective shield		N/A
22.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
22.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
22.7 (4.21.3)	No direct path		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.7 (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
22.7 (4.22)	Attachments to lamps not cause overheating or damage		N/A
22.7 (4.23)	Semi-luminaires comply Class II		N/A
22.7 (4.24)	Photobiological hazards		P
22.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
22.7 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778		—
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2 .. :		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
22.7 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
22.7 (4.26)	Short-circuit protection		N/A
22.7 (4.26.1)	Adequate means of uninsulated accessible SELV / PELV parts		N/A
22.7 (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
22.7 (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

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Clause	Requirement + Test	Result - Remark	Verdict
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
22.7 (4.28)	Fixing of thermal sensing control		N/A
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material (°C) :		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
22.7 (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
22.7 (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
22.7 (4.31)	Insulation between circuits		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		P
22.7 (4.31.1)	SELV or PELV circuits		N/A
	Used SELV/PELV source		N/A
	Voltage ≤ ELV		N/A
	Insulating of SELV/PELV circuits from LV supply		N/A
	Insulating of SELV/PELV circuits from other non SELV/PELV circuits		N/A
	Insulating of SELV/PELV circuits from FELV		N/A
	Insulating of SELV/PELV circuits from other SELV/PELV circuits		N/A
	SELV/PELV circuits insulated from accessible parts according Table X.1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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
22.7 (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 does not have protective conductor contact		N/A
22.7 (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
22.7 (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
22.7 (4.33)	Luminaire powered via information technology communication cabling		N/A
	Requirements for Class III luminaire		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		P
	Luminaire does not create any hazard from overvoltage	(See Annex 2)	P
22.7 (4.34)	Electromagnetic fields (EMF)		P
	No harmful electromagnetic fields		P
22.7 (4.35)	Protection against moving fan blades		P
	Test with a standard test finger		P
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		P
	Blades rounded with radius ≥ 0.5 mm and:		P
	-hardness less than D60 Shore		P
	-peripheral speed less than 15 m/s		P
	-input power of fan ≤ 2 W at rated voltage		P
22.7 (4.36)	Track-mounted luminaires		N/A
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019		N/A
24.7 (-)	Luminaire with automatic testing system complies with IEC 62034 as identified in Annex K of IEC 61347-2-7		N/A
22.7.1 (-)	No glow starters in circuit in start of or during the emergency mode		N/A
22.7.2 (-)	Lamp control gears comply with relevant part 2 of IEC 61347 and additional safety requirements for electronic controlgear for emergency lighting in appropriate annex of standards		P
22.7.3 (-)	Protective device disconnects luminaire in case of failure		N/A
22.7.4 (-)	Impact test min. 0,35 Nm		P
22.7.5 (-)	Circuit separation (self-contained lum.)		P
22.7.6 (-)	Circuit separation (centrally supplied lum.)		P
22.7.7 (-)	Charging device		P
	Indicator lamp and colour		N/A
22.7.8 (-)	ESSS meet requirements in Annex A	(See Annex A)	P
	ESSS designed to provide duration for at least four years		P
	ESSS only for emergency function		P
22.7.10 (-)	No switch in self-contained emergency luminaire between ESSS and emergency lighting lamps		

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Clause	Requirement + Test	Result - Remark	Verdict
	No manual/non-self-resetting switch in self-contained and central supplied emergency luminaire isolating emergency circuits from mains supply		P
22.7.11 (-)	Failure of lamp(s) not impair operation of ESSS		N/A
22.7.12 (-)	Batteries in self-contained emergency luminaire comply with cl. 23 of IEC 61347-2-7 if applicable		P
22.7.13 (-)	No influence in emergency mode in self-contained emergency luminaire by short-circuit, contact to earth or interruption in normal supply wiring		P
22.7.14 (-)	Self-contained emergency luminaire with remote inhibiting and/or rest mode meet requirements of cl. 25 of IEC 61347-2-7		P
22.7.19 (-)	Lamp voltage in self-contained emergency luminaire with tungsten filament lamps not exceed 1,05 rated voltage		N/A
22.7.20 (-)	Battery in self-contained emergency luminaire according control gear manufacturers specification and Annex A		P
22.7.21 (-)	ESSS and chargers within self-contained emergency luminaire or in remote box		P
22.7.22 (-)	Remote box in self-contained emergency luminaire complies with same requirements as for the luminaire		N/A
22.7.23 (-)	Locking system for emergency luminaire on track system used for display lighting requires aid of tool		N/A
22.7.24 (-)	Adequate space around EDLC		P
	Creepage/clearances are not reduced		P

22.8 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
22.8 (11.2.1)	Impulse withstands category (Normal category II)	Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>	—
	Category III according to Annex U		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
22.8 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 22.8 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with \hat{U}_{OUT} and f_{UOUT} according to IEC 61347-1, clause 7.1, item w	See Test Table 22.8 (11.2) II	N/A
	- Requirements according to IEC 60664-4 for control gear not covered by IEC 61347	See Test Table 22.8 (11.2) II	N/A
22.8 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 22.8 (11.2) I	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_p	See Test Table 22.8 (11.2) II	N/A
	- Requirements according to IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 22.8 (11.2) II	N/A

P

22.9 (7)	PROVISION FOR EARTHING N/A		N/A
22.9 (7.2.1 + 7.2.3)	Acc N/A essible metal parts		N/A
	Meta N/A I parts in contact with supporting surface		N/A
	Resistance < 0,5 Ω :		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Protective earth makes contact first		N/A
	Terminal blocks with integrated screwless protective earthing contacts tested according to Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
22.9 (7.2.2 + 7.2.3)	Protective earth continuity in joints, etc.		N/A
22.9 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
22.9 (7.2.5)	Protective earth terminal integral part of connector socket		N/A
22.9 (7.2.6)	Protective earth terminal adjacent to mains terminals		N/A
22.9 (7.2.7)	Electrolytic corosion of the protective earth terminal		N/A
22.9 (7.2.8)	Material of protective earth terminal		N/A
	Contact surface bare metal		N/A
22.9 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
22.9 (7.2.11)	Protective earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
22.9 (7.2.12)	PELV circuit connected to protective earth for functional purpose		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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

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

22.11 (5)	EXTERNAL AND INTERNAL WIRING		P
22.11 (5.2)	Supply connection and external wiring		P
22.11 (5.2.1)	Means of connection		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
22.11 (5.2.2)	Type of cable		N/A
	Nominal cross-sectional area (mm ²)		N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
22.11 (5.2.3)	Type of attachment, X, Y or Z		N/A
22.11 (5.2.5)	Type Z not connected to screws		N/A
22.11 (5.2.6)	Cable entries:		N/A
	- suitable for introduction		N/A
	- adequate degree of protection		N/A
22.11 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
22.11 (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

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Clause	Requirement + Test	Result - Remark	Verdict
22.11 (5.2.9)	Locking of screwed bushings		N/A
22.11 (5.2.10)	Cord anchorage:		N/A
	- covering protected from abrasion		N/A
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
22.11 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A 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
22.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
22.11 (5.2.10.3)	Tests:		N/A
	- impossible to push cable; unsafe		N/A
	- pull test: 25 times; pull (N)		N/A
	- torque test: torque (Nm)		N/A
	- displacement ≤ 2 mm		N/A
	- no movement of conductors		N/A
	- no damage of cable or cord		N/A
	- function independent of electrical connection		N/A
22.11 (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 ≤ 25 V RMS/60V DC		N/A
	- Ordinary Class III luminaire supplied with PELV ≤ 12 V RMS/30V DC		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Other than ordinary Class III luminaire supplied with voltage $\leq 12V$ RMS/30V DC		N/A
	Pull test of 30N		N/A
22.11 (5.2.11)	External wiring passing into luminaire		N/A
22.11 (5.2.12)	Looping-in terminals		N/A
22.11 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
22.11 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
22.11 (5.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)		N/A
22.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Appliance inlet or connector systems (IEC 61984)		N/A
22.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
22.11 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
22.11 (5.3)	Internal wiring		P
22.11 (5.3.1)	Internal wiring of suitable size and type		N/A
	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
22.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm ²).....		N/A
	Insulation thickness (mm)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Extra insulation added where necessary		N/A
22.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Cross-sectional area (mm ²)..... :		P
22.11 (5.3.1.3)	Double or reinforced insulation for class II		P
22.11 (5.3.1.4)	Conductors without insulation		N/A
22.11 (5.3.1.5)	SELV/PELV current-carrying parts		N/A
22.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
22.11 (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°		N/A
22.11 (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
22.11 (5.3.4)	Joints and junctions effectively insulated		N/A
22.11 (5.3.5)	Strain on internal wiring		N/A
22.11 (5.3.6)	Wire carriers		N/A
22.11 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
22.11 (5.4)	Test to determine suitability of conductors having a reduced cross-sectional area		N/A
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(See Annex 2)	N/A
	No damage to luminaire wiring after test		N/A
22.11.1 (-)	Permanently connected		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

22.12 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
22.12 (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		N/A
	Double-ended high-pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
22.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
22.12 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
22.12 (8.2.3.b)	BC lamp holder of metal in class I luminaires shall be connected to protective earth		N/A
22.12 (8.2.3.c)	SELV 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
	- interrupted DC voltage (V)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- touch current if applicable (mA)		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V).....		N/A
	- voltage under load/ no-load DC (V).....		N/A
	- interrupted DC voltage (V)		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
22.12 (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
22.12 (8.2.4)	Portable luminaire has protection independent of supporting surface		N/A
22.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
22.12 (8.2.6)	Covers reliably secured		P
22.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 μ F not exceed 50 V 1 min after disconnection		P
	Portable luminaire with capacitor > 0,1 μ F (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 μ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A
22.13 (12)	ENDURANCE TEST AND THERMAL TEST		P
22.13 (-)	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 22.14		—
22.13 (12.2)	Selection of lamps and ballasts		—
	Lamp used according to Annex B	(Lamp used see Annex 2)	—
	Control gear if separate and not supplied	(Control gear used see Annex 2)	—

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Clause	Requirement + Test	Result - Remark	Verdict
22.13 (12.3)	Endurance test		P
	a) mounting-position		—
	b) test temperature (°C)		—
	c) total duration (h)		—
	d) supply voltage (V)		—
	d) if not equipped with control gear, constant voltage/current (V) or (A)		—
22.13 (12.3.1d)	d) Class III luminaires powered via information technology communication cable:		P
	- voltage under normal operation (V).....		—
	- voltage under abnormal operation (V).....		—
	e) luminaire ceases to operate		—
	f) luminaire with constant light output function		P
22.13 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		N/A
	- no damage to track system		P
	- marking legible		P
	- no cracks, deformation etc.		P
22.13 (12.4)	Thermal test (normal operation)	(See Annex 2)	P
22.13 (12.5)	Thermal test (abnormal operation)	(See Annex 2)	P
22.13 (12.6)	Thermal test (failed lamp control gear condition):		N/A
22.13 (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
22.13 (12.6.2)	Temperature sensing control		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- case of abnormal conditions		—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C)		N/A
	- track-mounted luminaires		N/A
22.13 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
22.13 (12.7.1)	Luminaire without temperature sensing control		N/A
22.13 (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 22.16 (13.2.1)	N/A
22.13 (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 22.16 (13.2.1)	N/A
22.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
22.13 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link..... : Yes <input type="checkbox"/> No <input type="checkbox"/>		—
	- manual reset cut-out : Yes <input type="checkbox"/> No <input type="checkbox"/>		—
	- auto reset cut-out : Yes <input type="checkbox"/> No <input type="checkbox"/>		—
	- case of abnormal conditions :		—
	- highest measured temperature of fixing point/ exposed part (°C): :		—
	Ball-pressure test: :	See Test Table 22.16 (13.2.1)	N/A
22.13.1 (-)	Endurance test for self-contained luminaire		P
	Operate satisfactory during 50 supply switching		P
22.13.2 (-)	Thermal test 12.4 to 12.5 in IEC 60598-1	(See Annex 2)	P
22.13.3 (-)	Conditions of tests		—
22.13.4 (-)	Battery discharge		—
	EDLC discharge		—
22.13.5 (-)	Reduced temperature		—
22.13.6 (-)	Additional thermal test	(See Annex 2)	P
22.13.7 (-)	Provide Vmin according to Clause 20 of IEC 61347-2-7 at the end of operation		P

22.14 (9)	RESISTANCE TO DUST AND MOISTURE		P
22.14 (-)	If IP > IP 20 the order of tests as specified in clause 22.12		P
22.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... : IP		—
	- mounting position during test :		—
	- fixing screws tightened; torque (Nm) :		—
	- tests according to clauses..... :		—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		P
	b) no talcum in dust-tight luminaire		N/A
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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)		P
	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		N/A
	g) no damage of protective shield or glass envelope		N/A
22.14 (9.3)	Humidity test 48 h		P

22.15 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
22.15 (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):		N/A
	SELV/PELV:		N/A
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface		N/A
	- between current-carrying parts and metal parts of the luminaire		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity	500 V .d.c. for 1 min Min lim = 2 MΩ Measured Ω = >10 GΩ	P
	- between live parts and mounting surface	500 V .d.c. for 1 min Min lim = 4 MΩ Measured Ω = >10 GΩ	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- between live parts and metal parts	500 V .d.c. for 1 min Min lim = 4 MΩ Measured Ω = >10 GΩ	P
	- between live parts of different polarity through action of a switch.....		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N/A
	- Insulation bushings as described in Section 5		N/A
22.15 (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):		N/A
	SELV/PELV:		N/A
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface.....		N/A
	- between current-carrying parts and metal parts of the luminaire.....		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity		P
	- between live parts and mounting surface		P
	- between live parts and metal parts		P
	- between live parts of different polarity through action of a switch.....		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N/A
	- Insulation bushings as described in Section 5		N/A
22.15 (10.3)	Touch current (mA).....	TC max limit = 0.7mA TC = 0.004 mA	P
	Protective conductor current (mA).....		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.16 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
22.16 (13.2.1)	Ball-pressure test	See Test Table 22.16 (13.2.1)	P
22.16 (13.3.1)	Needle-flame test (10 s)	See Test Table 22.16 (13.3.1)	P
22.16 (13.3.2)	Glow-wire test (650°C)	See Test Table 22.16 (13.3.2)	P
22.16 (13.4)	Proof tracking test (IEC 60112)	See Test Table 22.16 (13.4)	N/A
22.17 (-)	PHOTOMETRIC DATA		P
22.17.1 (-)	Intensity distribution data provided		P
22.17.2 (-)	If declared values in cd/1 000 lm, reference flux in emergency mode provided		P
22.17.3 (-)	At least 50% of level declared photometric data 5 s after failure of supply		P
	100% of level declared photometric data		P
	- after 60 s		P
	- after 0,5 s after failure of supply if high-risk task-area lighting		N/A
	Photometric measurements according to CIE 121 SP1		P
	LED luminaires measurements according to CIE S025		P
	All values at least minimum declared data		P
22.17.4 (-)	Colour-rendering index		P
22.17.5 (-)	Internally illuminated emergency safety sign meets requirements of ISO 30061		P
	Luminance of permanently illuminated safety sign meets requirements of ISO 30061		N/A
	Luminance measurements according Annex C only	(See Annex C)	P
22.18 (-)	CHANGEOVER OPERATION		P
	Changeover device complies with Clause 21 of IEC 61347-2-7	See TR 3118644	P
22.19 (-)	HIGH TEMPERATURE OPERATION		P
	Operation at 70°C		P
	Relative light outputs		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.20 (-)	BATTERY CHARGERS FOR SELF-CONTAINED EMERGENCY LUMINAIRES		P
	Devices for recharging batteries comply with Clause 22 of IEC 61347-2-7		P
22.21 (-)	TEST DEVICES FOR EMERGENCY OPERATION		P
22.21.1 (-)	Self-contained luminaire provided with test facility		P
22.21.2 (-)	Remote testing device not influence proper function of safety illumination		N/A
22.21.3 (-)	Indicators colour according to IEC 60073		P

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Clause	Requirement + Test	Result - Remark	Verdict

22.8 (11.2)	TABLE I: Creepage distances and clearances							P
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages							P
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*							P
	Insulation type **	Measured clearance	Required		Measured creepage	Required		
			clearance	*Table		creepage	*Table	
Distance 1:	B	1.5 mm	1.5 mm	111B	13.5 mm	2.5 mm	11.1A	
Working voltage (V)					240	—		
PTI					< 600 <input checked="" type="checkbox"/>	≥ 600 <input type="checkbox"/>	—	
Pulse voltage or U_P if applicable (kV)						—		
Supplementary information:								
Distance 2:	R	5.4 mm	3.0 mm	11.1B	32 mm	5.0 mm	11.1A	
Working voltage (V)					240	—		
PTI					< 600 <input checked="" type="checkbox"/>	≥ 600 <input type="checkbox"/>	—	
Pulse voltage or U_P if applicable (kV)						—		
Supplementary information:								
Distance 3:	R	16.2 mm	3.0 mm	11.1B	28.0 mm	5.0 mm	11.1A	
Working voltage (V)					240	—		
PTI					< 600 <input checked="" type="checkbox"/>	≥ 600 <input type="checkbox"/>	—	
Pulse voltage or U_P if applicable (kV)						—		
Supplementary information:								

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

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Clause	Requirement + Test				Result - Remark		Verdict
22.8 (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 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Peak value of the working voltage \hat{U}_{out} if applicable (kV)							—
Supplementary information:							
Distance 2:							
Working voltage (V)							—
Frequency if applicable (kHz)							—
PTI					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Peak value of the working voltage \hat{U}_{out} if applicable (kV)							—
Supplementary information:							
Distance 3:							
Working voltage (V)							—
Frequency if applicable (kHz)							—
PTI					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Peak value of the working voltage \hat{U}_{out} if applicable (kV)							—
Supplementary information:							

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

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Clause	Requirement + Test	Result - Remark	Verdict
22.16 (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)
Enclosure	Makrolon	75	0.5
Supplementary information:			

22.16 (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
Mains Terminal	KAIFENG ELECTRONIC	10	No	0	P
Supplementary information:					

22.16 (13.3.1)	TABLE: glow-wire test (IEC 60695-2-11)				P
Glow wire temperature 650 °C					---
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict	
Enclosure	Makrolon	No	0	P	
Supplementary information:					

22.16 (13.3.1)	TABLE: glow-wire test (IEC 60695-2-11)				P
Glow wire temperature 850 °C					---
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict	
Enclosure	Makrolon	No	14.5	P	
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

22.16 (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:				

	Annex A: ESSSs for self-contained emergency luminaires			P
A.1	General			P
	Type of ESSSs	Ni-MH		P
	Other battery/EDLC types conform to relevant standard	1500mAh		P
A.2	Safety and lifetime			P
	ESSS conform to relevant standard			P
	Luminaire operates within specific tolerances			P
A.3	Charge capacity			P
A.4	Sealed nickel cadmium batteries			N/A
A.4.1	Battery conforms to IEC 61951-1			N/A
A.4.2.a	Maximum surface temperature of the battery °C			N/A
A.4.2.b	Maximum overcharge rate 0,08 C ₅ A			N/A
A.4.2.c	Minimum ambient temperature of the cells 5 °C			N/A
A.4.2.d	Maximum discharge rates			N/A
A.5	Sealed nickel metal-hydride batteries			P
A.5.1	Battery conforms to IEC 61951-2			P
A.5.2.a	Maximum case temperature of the battery °C	36 °C		P
A.5.2.b	Maximum overcharge rate 0,08 C ₅ A			P
A.5.2.c	Minimum ambient temperature of the cells 5 °C			P
A.5.2.d	Maximum discharge rates			P
A.6	Valve regulated lead acid batteries			N/A
A.6.1	Battery conforms to relevant part of IEC 60869-21 or IEC 61056-1			N/A
A.6.2.a	Maximum surface temperature of the battery °C			N/A

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Clause	Requirement + Test	Result - Remark	Verdict
A.6.2.b	Maximum recharge current 0,4 C ₂₀		N/A
A.6.2.c	Maximum discharge rates		N/A
A.6.2.d	Maximum r.m.s. ripple current 0,1 C ₂₀		N/A
A.6.2.e	Minimum ambient temperature of the cells 5 °C		N/A
A.7	Lithium iron phosphate (LiFePO₄), lithium nickel manganese cobalt oxide (Li(NiCoMn)O₂), lithium titanate oxide (LTO) batteries		N/A
A.7.1	Cells conform to IEC 62620 and IEC 62133-2		N/A
A.7.2	Battery conforms to following subclauses IEC 62133-2:		N/A
	-7.2.2 – Case stress at high ambient temperature (battery)		N/A
	-7.3.2 – External short-circuit (battery)		N/A
	-7.3.6 – Over-charging of battery		N/A
	-9.2 – Battery marking		N/A
	-9.4 – Other information		N/A
A.7.3	Battery conforms to following subclauses IEC 62620:		N/A
	-5.3 – Battery designation		N/A
	-6.3.1 – Discharge performance at +25 °C		N/A
	--6.3.2 – Discharge performance at low temperature		N/A
	-6.3.3 – High rate permissible current		N/A
	-6.5 – Cell and battery internal resistance		N/A
	-6.6.2 – Endurance in storage at constant voltage (permanent charge life)		N/A
A.7.4	Conformity of similar lithium battery:		N/A
	-Battery constructed of identical cells		N/A
	-Same cell quantity and electrical configuration		N/A
	Battery connected by cable and plug:		N/A
	-plug provides equivalent connection		N/A
	-cable resistance no higher than in reference battery		N/A
	Battery pack with protection device:		N/A
	-DC resistance of battery system equal or less than in reference sample		N/A
	-evidence of equivalent design of protection circuit is provided		N/A
	Addition or removal of mounting bracket		N/A
A.7.5	Battery built-in protection device for luminaires designed for battery replacement		N/A

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Clause	Requirement + Test	Result - Remark				Verdict
	Protection device incorporated in battery/lamp control gear for luminaires designed for non-replaceable battery:					N/A
	- battery is not accessible during normal operation/installation					N/A
	-position of battery pack/cell					N/A
	- Marking "Do not remove"					N/A
	- Battery is secured					N/A
	- Protection device not contained within battery, assessed as part of control gear					N/A
A.7.6	Maximum surface temperature of battery not exceed temperature stated by manufacturer or Table 3 IEC 61347-2-7					N/A
A.8	EDLC					N/A
A.8.1	EDLC conforms to relevant requirements of IEC 62391-1 and IEC 62391-2					N/A
A.8.2	Operations limits of EDLC:					N/A
	- Maximum continuous surface temperature in accordance with manufacture`s declared temperature					N/A
	- Maximum charge voltage in accordance with manufacture`s declared voltage					N/A
A.8.3	Designed duration time with consideration to capacitance degradation					N/A
A.9	Maximum surface temperature					P
	Measured after 48 hrs from start of recharge					P
	Measured after twice rated charge time (minimum of 12 hrs) , if manufacturer declares lower charging time					P
A.10	Alternative operating parameters					N/A
A.11	ESSS replacement					N/A
Annex B: Luminaire classification						P
	Classified and marked according to Annex B.....:	X	1	ABCE FG	60	P
Annex C: Luminance measurements						P
C.1	Contrast measurements					P
C.2	On site photometric tests					P
	According to Annex C of ISO 3864-4					P
	Measured values not less than specified in this standard					P

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Clause	Requirement + Test	Result - Remark	Verdict
	Annex E: Requirements for self-contained portable emergency luminaires		N/A
E.5	Classification of luminaires		N/A
	Base unit and portable emergency luminaires with mains-voltage supplied integrated charger of Class I or Class II		N/A
	Self-contained portable emergency luminaire without integrated mains-voltage supplied charger of Class III		N/A
E.5.1	Classified according to construction		—
E.5.1.a	Control unit contained in the self-contained portable emergency luminaire	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
E.5.1.b	Part of the control unit remains in the base unit	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
E.5.2	Classified according to operation		—
E.5.2.a	Automatic initiation with manual control	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
E.5.2.b	Automatic initiation with automatic control	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
E.5.2.c	Manual control	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
E.5.3	Classified according to photometric performance		—
	Distribution measured according to IEC TR 61341		N/A
E.5.3.a	Narrow beam angels not greater than 15°		N/A
E.5.3.b	Medium beam angels between 15° and 25°		N/A
E.5.3.c	Wide beam angels greater than 25°		N/A
E.5.3.d	Variable beam angels – state the range of angels		N/A
E.6	Marking		N/A
E.6.1	Marking visible after installation		N/A
	Marking on both parts if separate charging device		N/A
	Class II symbol only on the charger if separate charging device		N/A
E.6.2	Instruction for electrical, mechanical and use according classification		N/A
E.6.3	Warning notice on both parts to return the luminaire to base unit for recharging after use		N/A
E.6.4	Instruction with photometric data		N/A
E.7	Construction		N/A
E.7.1	Control unit completely contained in the luminaire or part of the control unit in the base unit		N/A
E.7.2	Mechanical strength tests according 4.13 of IEC 60598-1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Mechanical strength tests according 4.13.4 of IEC 60598-1 of portable section		N/A
E.7.3	Base unit permanently connected to unswitched supply		N/A
E.7.4	Integral manual switch used to switch the unit between inhibit mode and emergency mode and vice versa		N/A
	Recharging before supply voltage reach 0,85 times nominal value		N/A
E.7.5	Integral over current protection device connected immediately after the terminals connecting to the supply		N/A
E.7.6	Power supply connection between the luminaire and its base unit made without a tool		N/A
	Connecting devices according to relevant standard		N/A
E.7.7	No access to live parts during or after connection or disconnection		N/A
E.7.8	Supply cable disconnected from the portable part before use		N/A
E.7.9	Connection between the portable part and the charger mechanically interlocked to prevent incorrect polarized connection		N/A
E.7.10	At least two independent replaceable lamps if incandescent lamps		N/A
E.7.11	Colour rendering index of any emergency lamps R_a 40 or better		N/A
E.7.12	Audible and/or visible warning on re-instatement of normal supply		N/A
E.7.13	Failure of the mains supply the luminaire operate in emergency mode or an indicator identify the location of the luminaire		N/A
	Load $\leq 0,01C_5/h$ of ESSS if indicator is used		N/A
E.7.14	Indicator gives warning of low ESSS capacity remaining		N/A
E.7.15	Adequate stability		N/A
	Test at an angle of 15° to the horizontal		N/A
E.7.16	Adequate stability to illuminate the task area on non-horizontal surface		N/A
	Test at an angle of 15° to the horizontal		N/A
E.8	Changeover operation		N/A
	Requirements according 22.7.10 excluded if integral manual switch		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Design avoids switching of charger whilst holding the luminaire		N/A
E.9	High temperature operation		—
	Ambient temperature of 40°C in Clause 22.19		—
E.10	Thermal test		—
	Test made with portable part either placed on dull black painted wooden floor or rest against a dull black painted wooden wall		—

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

ANNEX 1	TABLE: Critical components information					
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
Control gear / LED PCB	C	Olympia Electronics	2711195	220 -240 Vac, 50/60 Hz	BS EN 61347-2-7:2012+A1:2019 BS EN 61347-2-13:2014+A1:2016	BSI Test Report: 3118644
Mains terminal block	A	KAIFENG ELECTRONIC	KF332=5.0mm	300V/16A	UL 1977 EN 60512-1-1:2002	UL 305844
Battery pack	C	Olympia Electronics	A-965/HT 3 HRMU 15/51	3.6 V, 1500 mAh, 75 mA/ con. current 0°C - 55°C	IEC 62133-1:2017	Dekra cert: 4353855.50
Battery wiring	C	JT	3385#20	20AWG 105°C 600 V	IEC 60598-2-22:2014+A1:2017	Tested in application
Battery connector	C	JT	PHR-2P	2 way connector	IEC 60598-2-22:2014+A1:2017	Tested in application
Enclosure	C	Makrolon	RW6265	Polycarbonate, white	IEC 60598-2-22:2014+A1:2017	Tested in application
Safety sign	C	NUDEC PETg	Polymethylmethacrylate acrylic sheet, Polyethylenterephthalate copolymer sheet	Polymethylmethacrylate, Polyethylenterephthalate	IEC 60598-2-22:2014+A1:2017	Tested in application

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 authorized by the test house
- C - Integrated component tested together with the appliance
- D - Alternative component

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

ANNEX 2	TABLE: Thermal tests of Section 12		PP
	Type reference	KLD-30/ST/ADR KLIN-20/ST/ADR	—
	Lamp used.....	LED	—
	Lamp control gear used	Built-in	—
	Mounting position of luminaire	Surface mounted	—
	Supply wattage (W)	3.5 W	—
	Supply current (A)	16.5mA	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	N/A	—
	- abnormal operating mode	Clause 22.13.6 short circuit on battery charging circuit	—
22.13 (12.4)	- test 1: rated voltage	N/A – passes at higher voltage in test 2	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	254.4 V a.c	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	N/A – no socket outlets	—
	Through wiring or looping-in wiring loaded by a current of A during the test	N/A – no through wiring, not for looping in	—
22.13 (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	264 V a.c	—

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

Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Live supply insulation	40	-	44.2		90	43.6	90
Battery positive insulation	40	-	44.4	-	90	43.9	90
Mains terminal	40	-	46.7	-	90	46.0	90
Mounting surface	40	-	45.7	-	90	45.3	130
Supply cable insulation	40	-	44.0	-	90	43.3	90
Test button	40	-	42.4	-	90	42.5	95
Exit button	40	-	47.0	-	90	47.5	90
Supplementary information:							

KLD-30/ST/ADR - 1 hour rated duration emergency operation:

Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Live supply insulation	40	-	42.4		90	-	-
Battery positive insulation	40	-	47.1	-	90	-	-
Mains terminal	40	-	43.8	-	90	-	-
Mounting surface	40	-	41.9	-	90	-	-
Supply cable insulation	40	-	40.6	-	90	-	-
Test button	40	-	43.3	-	95	-	-
Exit button	40	-	52.7	-	90	-	-
Supplementary information: 1 hour rated duration							

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

KLD-30/ST/ADR - 8 hour rated duration emergency operation:

Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Live supply insulation	40	-	40.2		90	-	-
Battery positive insulation	40	-	41.6	-	90	-	-
Mains terminal	40	-	40.5	-	90	-	-
Mounting surface	40	-	40.2	-	90	-	-
Supply cable insulation	40	-	40.1	-	90	-	-
Test button	40	-	40.5	-	95	-	-
Exit button	40	-	41.9	-	90	-	-
Supplementary information: 8 hour rated duration							

KLIN 20/ST/ADR - Normal/abnormal operation:

Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Live supply insulation	40	-	45.2		90	-	90
Battery positive insulation	40	-	46.4	-	90	-	90
Mains terminal	40	-	47.3	-	90	-	90
Mounting surface	40	-	43.0	-	90	-	130
Supply cable insulation	40	-	43.9	-	95	-	95
Test button	40	-	43.5	-	90	-	90
Exit button	40	-	55.6	-	90	-	90
Supplementary information:							

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

KLIN-20/ST/ADR - 1 hour rated duration emergency operation:

Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Live supply insulation	40	-	44.2		90	-	-
Battery positive insulation	40	-	46.2	-	90	-	-
Mains terminal	40	-	46.0	-	90	-	-
Mounting surface	40	-	42.6	-	90	-	-
Supply cable insulation	40	-	43.9	-	90	-	-
Test button	40	-	43.8	-	95	-	-
Exit button	40	-	51.9	-	90	-	-
Supplementary information: 1 hour rated duration							

KLIN-20/ST/ADR - 8 hour rated duration emergency operation:

Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Live supply insulation	40	-	45.6		90	-	-
Battery positive insulation	40	-	45.1	-	90	-	-
Mains terminal	40	-	46.4	-	90	-	-
Mounting surface	40	-	42.7	-	90	-	-
Supply cable insulation	40	-	43.5	-	90	-	-
Test button	40	-	43.1	-	95	-	-
Exit button	40	-	52.1	-	90	-	-
Supplementary information: 8 hour rated duration							

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

ANNEX 3	Screw terminals (part of the luminaire)		N/A
(14)	SCREW TERMINALS		N/A
(14.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm ²)..... :		—
(14.3.3)	Conductor space (mm)..... :		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread) :	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		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

IEC 60598-2-2			
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

IEC 60598-2-2			
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										
	Voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV)										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop after 50th alt. 100th cycle										
	Max. allowed voltage drop (mV)										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Continued ageing: voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV)										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Continued ageing: voltage drop after 50th alt. 100th cycle										
	Max. allowed voltage drop (mV)										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
Supplementary information:											

IEC 60598-2-22 Attachment			
Clause	Requirement + Test	Result - Remark	Verdict

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ATTACHMENT TO TEST REPORT IEC 60598-2-22 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Luminaires Part 2: Particular requirements Section 22: Luminaires for emergency lighting			
Differences according to..... EN 60598-2-22:2014 used in conjunction with EN 60598-1:2015, AMD1:2018			
Annex Form No..... EU_GD_IEC60598_2_22G			
Annex Form Originator IMQ S.p.A.			
Master Annex Form..... 2019-03-08			
Copyright © 2019 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.			
	CENELEC COMMON MODIFICATIONS (EN)		P
22.7 (4)	CONSTRUCTION		N/A
22.7 (4.11.6)	Electro-mechanical contact systems		N/A
22.11 (5)	EXTERNAL AND INTERNAL WIRING		N/A
22.11 (5.2.2)	Cables equal to EN 50525		N/A
	Replace table 5.1 – Supply cord		N/A
22.13 (12)	ENDURANCE TESTS AND THERMAL TESTS		N/A
22.13 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		N/A
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
(3.3)	DK: power supply cords of class I luminaires with label		N/A
(4.5.1)	DK: socket-outlets		N/A
(5.2.1)	CY, DK, FI, GB: type of plug		N/A
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A
	FR: Safety requirements for high buildings (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)		N/A
	Glow-wire test for outer parts of luminaires:		
	- 850°C for luminaires in stairways and horizontal travel paths		N/A
	- 650°C for indoor luminaires		N/A
	GB: Requirements according to United Kingdom Building Regulation		N/A

IEC 60598-2-22 Attachment 2

Clause	Requirement + Test	Result - Remark	Verdict
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Photometric Data – 8h rated duration setting

Product Name	KLIN-20/ST/ADR
Part/Serial Number	N/A
Type of Product	LED Emergency Light
Base Type	Not Applicable - Luminaire
Driver Type	None (LAB PSU)
Test Time	30 mins
Operating Orientation	Base Up
Test Orientation	Base Up
Ambient Temperature	25.4°C
Manufacturer	Olympia Electronics
Date of Manufacture	Not Available
Thermal Management	Passive
Dimmable	No
Pre-Burning Time	0 hours
Stabilisation Time	20 mins
Humidity	<65% RH
Averaging Applied	NONE



Driver Details		
Manufacturer		N/A
Model		N/A
Part/Serial #		N/A
Rated Voltage		N/A
Output	Current	N/A
	Voltage	N/A

Photometric Measurements	
Luminous Flux	77 lm
Luminous Efficacy	N/A

Dimension	Sample	Luminous Opening
Diameter/Width	35 mm	35 mm
Length	260 mm	250 mm
Height/Depth	60 mm	10 mm

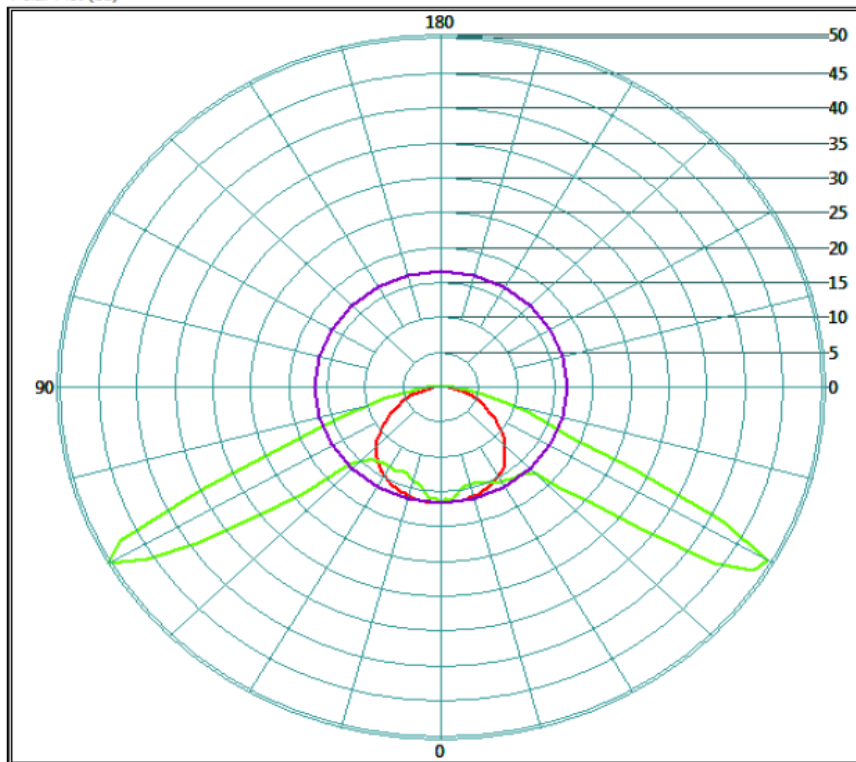
Electrical Measurements	
Frequency	DC
Voltage	3.6 V
Current	N/A
Power	N/A
Power Factor	N/A
Apparent Power	N/A

IEC 60598-2-22 Attachment 2

Clause	Requirement + Test	Result - Remark	Verdict
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Goniophotometric Measurements		
Beam Angle	Horizontal	135°
	Vertical	119°
On-axis Intensity		17 cd
Peak Intensity		51 cd
Peak Direction	Horizontal	90°
	Vertical	60°

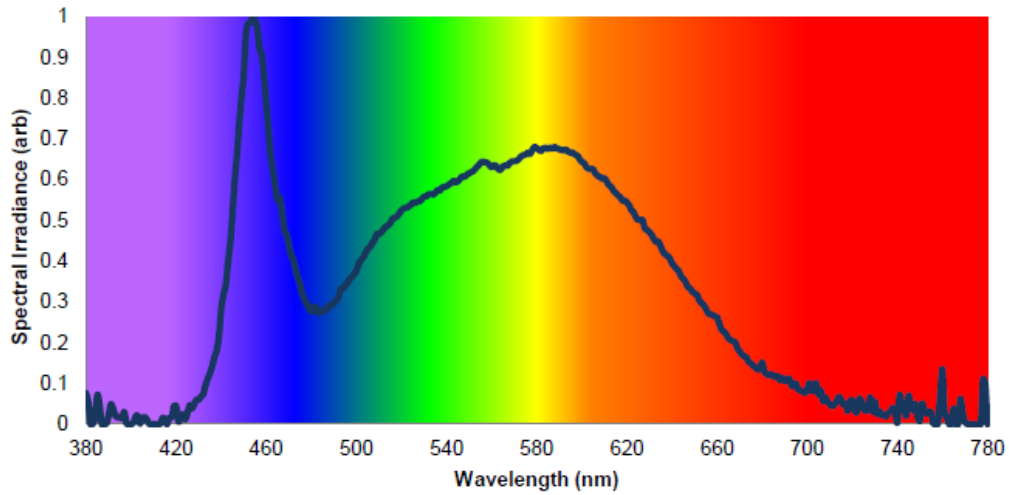
Polar Plot (cd)



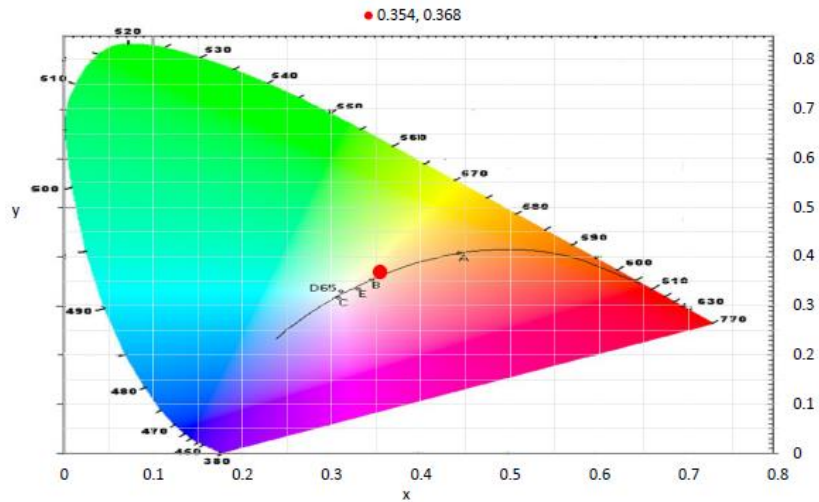
Mounting Height (m)	Beam Width (m)		Projected Illuminance (lux)
	C0-C180 plane	C90-270 plane	
0.5	2.4	1.7	66
1	4.9	3.4	17
2	9.7	6.7	4
3	14.6	10.1	2
4	19.5	13.5	1
5	24.4	16.9	1
7.5	36.5	25.3	0
10	48.7	33.7	0
20	97.4	67.5	0

IEC 60598-2-22 Attachment 2			
Clause	Requirement + Test	Result - Remark	Verdict

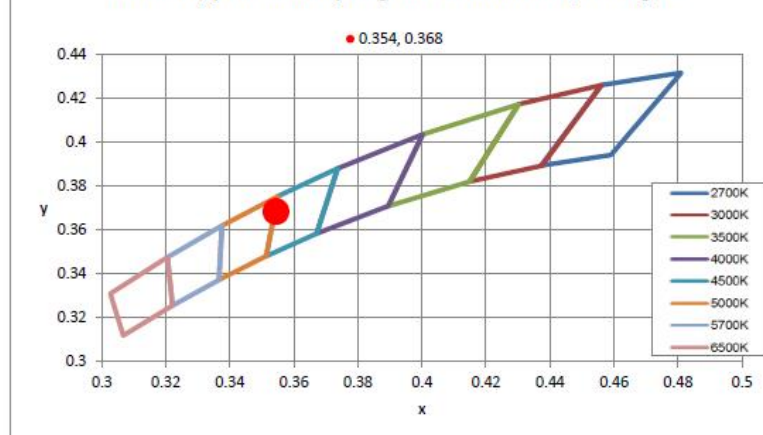
Spectral Irradiance versus Wavelength



CIE 1931 Colour Chart



CIE 1931 x, y Chromaticity Diagram - Nominal CCT Quadrangles



IEC 60598-2-22 Attachment 2

Clause	Requirement + Test	Result - Remark	Verdict
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Colour Rendering Index Detail			
R1	80	R8	65
R2	90	R9	5
R3	95	R10	74
R4	79	R11	77
R5	79	R12	53
R6	84	R13	83
R7	87	R14	98

Colorimetric Details	
CCT	4734K
CRI (Ra)	82

Chromaticity Coordinates		
CIE 1931	x	0.3544
	y	0.3683
CIE 1960	u	0.2112
	v	0.3293
CIE 1976	u'	0.2112
	v'	0.4939
Duv		0.0043

Battery Operation

Time after mains disconnect	On-axis Intensity	Luminous Flux	Battery Voltage
5 seconds	3 cd	12.4 lm	4.257 V
60 seconds	3 cd	12.4 lm	4.245 V
480 minutes	3 cd	12.3 lm	3.852 V

The product assessed (and any products using the same LED package or module under the same or lower conditions if it is below Risk Group 2) is classified as:

RG1

For a product rated RG2 or higher, the following E_{thr} and related RG1 Distance are calculated.

E_{thr} : N/A

RG1 Distance: N/A

IEC 60598-2-22 Attachment 2

Clause	Requirement + Test	Result - Remark	Verdict
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Photographs of item under test



KLD-30/ST/ADR - Front view



KLD-30/ST/ADR - Mounting side

IEC 60598-2-22 Attachment 2			
Clause	Requirement + Test	Result - Remark	Verdict



KLD-30/ST/ADR - Profile view



KLD-30/ST/ADR - Ratings, indicators, and test button

IEC 60598-2-22 Attachment 2

Clause	Requirement + Test	Result - Remark	Verdict
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KLD-22/ST/ADR model



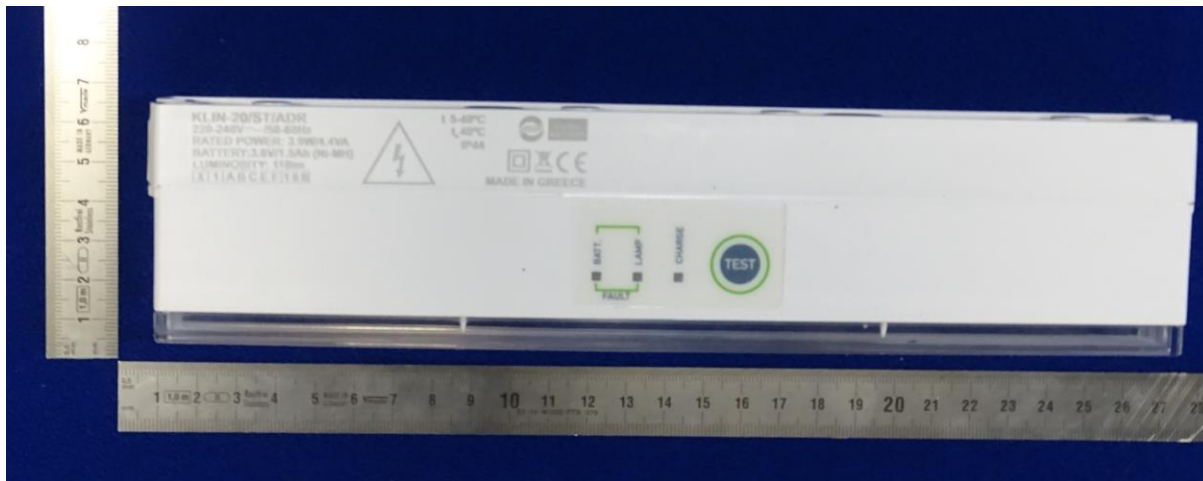
KLR-20/ST/ADR model



IEC 60598-2-22 Attachment 2

Clause	Requirement + Test	Result - Remark	Verdict
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KLIN-20/ST/ADR model



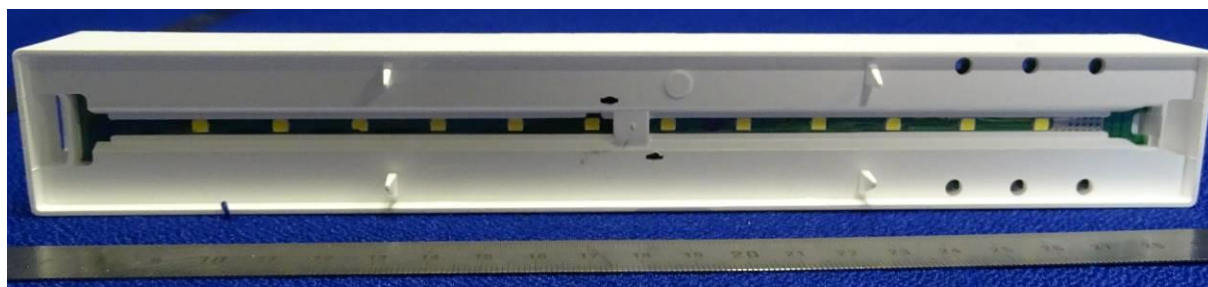
KLIN-20/ST/ADR model (alternative view)



IEC 60598-2-22 Attachment 2			
Clause	Requirement + Test	Result - Remark	Verdict



Internal layout



Light source

IEC 60598-2-22 Attachment 2			
Clause	Requirement + Test	Result - Remark	Verdict



Control gear primary side



Control gear secondary side / light source

IEC 60598-2-22 Attachment 2

Clause	Requirement + Test	Result - Remark	Verdict
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Battery pack

REF: A-965/HT
 3 HRMU 15/51
 3 HT AA 1500
 TYPE: 3,6V/1500mAh
 PERM.CH: 75mA /CON. CURRENT

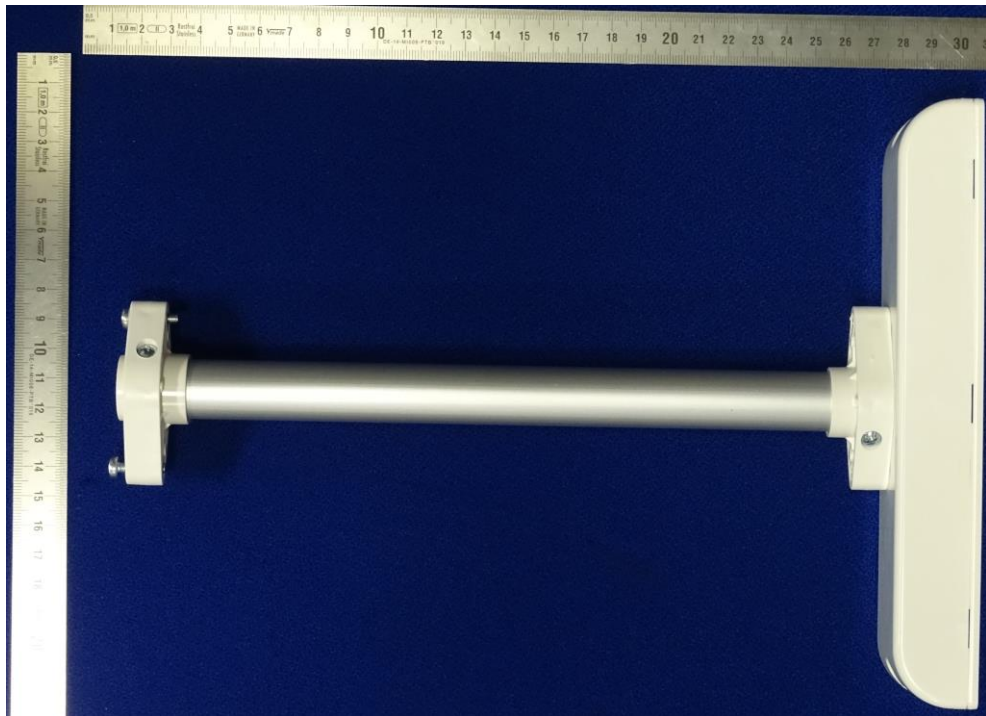


Ni-MH 0°C~55°C
 HIGH TEMPERATURE
 DO NOT INCINERATE / DO NOT DISPOSE
 COMMISSIONING DATE: _____
 SEALED RECHARGEABLE NiMH BATTERIES



Battery label

IEC 60598-2-22 Attachment 2			
Clause	Requirement + Test	Result - Remark	Verdict



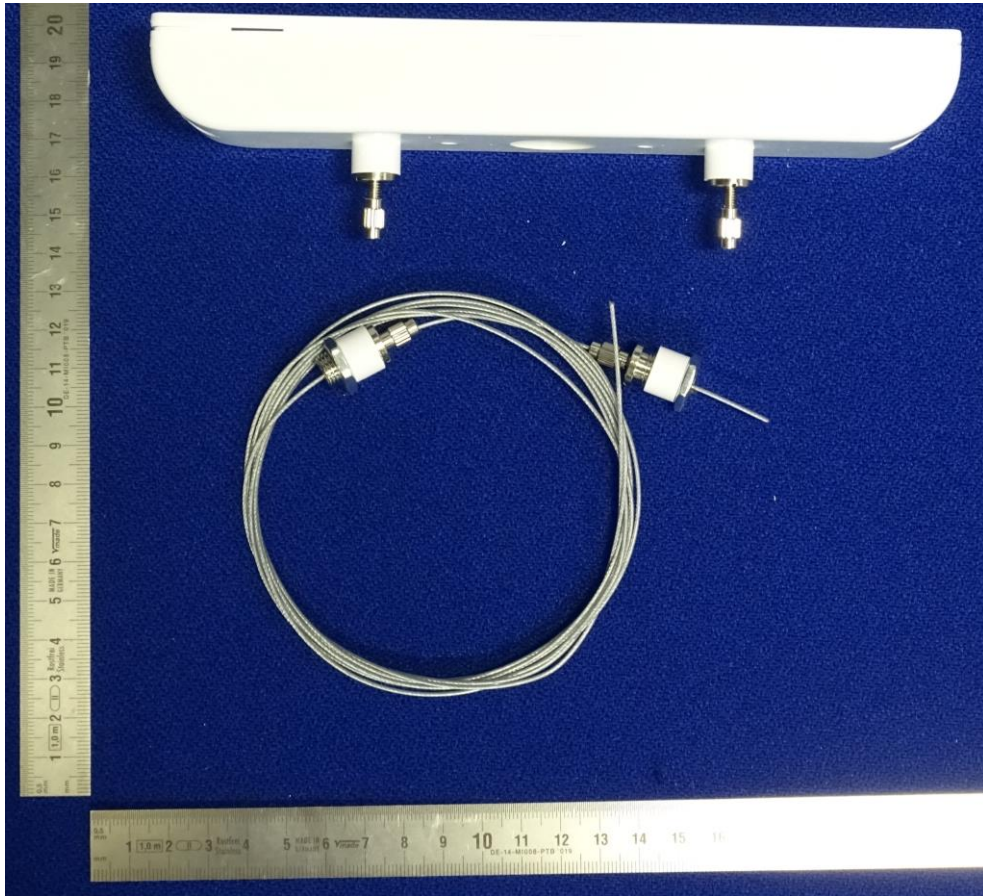
Mounting bracket A-2132



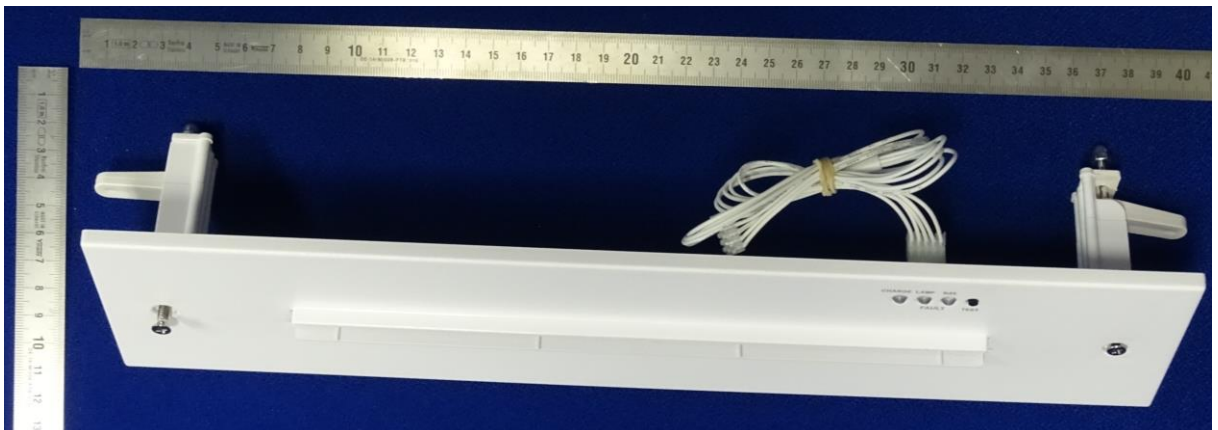
Mounting bracket A-2133

IEC 60598-2-22 Attachment 2			
Clause	Requirement + Test	Result - Remark	Verdict

Mounting bracket A-2136



Mounting bracket A-2520/PL/ST



*****END OF REPORT*****