



Safety Test Report

Report No.: HB-091E-0546/16

Product : Rise Wall Lamp

Model/Type : 502005, 502006, 502007, 502008, 502009

Brand Name : Normann Copenhagen

Applicant : Normann Copenhagen Aps

Application No. : 2016102802

Date of Issue : 2016.11.24

Standards : EN 60598-2-1:1989
EN 60598-1:2015

Zhongshan Bontek Compliance Testing Laboratory Co., Ltd.

Tongyi Industrial Zone Dongxing East Road, Guzhen Town
Zhongshan City, Guangdong Province, China

TEST REPORT IEC 60598-2-1 Luminaires Part 2: Particular requirements Section One – Fixed general purpose luminaires	
Report No.	HB-091E-0546/16
Application No.	2016102802
Testing Laboratory	Zhongshan Bontek Compliance Testing Laboratory Co., Ltd.
Address	Tongyi Industrial Zone Dongxing East Road, Guzhen Town, Zhongshan City, Guangdong Province, China
Applicant's name	Normann Copenhagen Aps
Address	Østerbrogade 70, 2100 Copenhagen, Denmark
Test specification:	
Standards	EN 60598-2-1:1989 use in conjunction with EN 60598-1:2015
Test procedure	CE-LVD
Non-standard test method .	--
Test Report Form No.	HB-4M-091E-1
TRF Originator	LTS
Master TRF	2015-10
Test item description	Rise Wall Lamp
Trade Mark	Normann Copenhagen
Model/Type reference	502005, 502006, 502007, 502008, 502009
Ratings	220-240V~, 50Hz

Summary of testing:

The submitted samples are found to comply with the requirements of:

- EN 60598-2-1:1989
- EN 60598-1:2015

Tested by (signature): Zhaoyi Deng

Reviewed by (signature): Lechun Guan

Approved by (signature): Zhaofu Peng

Date of issue: 2016.11.24


General remarks:

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

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see Appendix #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

Clause numbers between brackets of main report refer to clauses in EN 60598-1.

Main report:

Page 1 to 28 for EN 60598-2-1 test report

Attachment 1:

Page 29 to 32 for photo documentation.

Test item particulars:

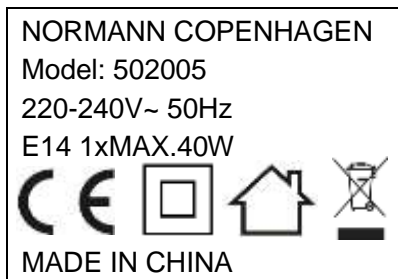
Equipment mobility.....: Fixed
Operating condition.....: 25°C
Class of equipment.....: Class II
Degree of protection.....: IP20
Mass of equipment.....: 0.4kg
Supply connect.....: Flexible cord fitted with plug

Possible test case verdicts:

-test case does not apply to the test object.....: N (not applicable)
-test object does meet the requirement.....: P (Pass)
-test object does not meet the requirement.....: F (Fail)

Testing:

Date of receipt of test item.....: Oct. 28, 2016
Date (s) of performance of tests.....: Oct. 28 to Nov. 10, 2016

Copy of marking plate:


Remark: The label sticks on lamp shade.

220-240V~ 50Hz
E14 MAX 40W

Remark: The label sticks on lampholder

General product information:

1. The products are class II fixed luminaires, IP20, suitable for indoor used only.
2. All models are the same except for color. Therefore, all tests were performed on 502005.
3. Input: 220-240V~, 50Hz, E14, 1 x Max40W.

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

1.2 (0)	GIECERAL INTRODUCTION		P
1.2 (0.3.1)	Information for luminaire design considered	Standard Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
1.2 (0.3.2)	More sections applicable	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
1.4 (2)	CLASSIFICATION		P
1.4 (2.2)	Type of protection (Class 0 excluded).....	Class II	—
1.4 (2.3)	Degree of protection	IP20	—
1.4 (2.4)	Luminaire suitable for non-combustible surfaces:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Luminaire suitable for normally flammable surfaces	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire suitable to be covered by insulating material	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
1.4 (2.5)	Luminaire for normal use	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

1.5 (3)	MARKING		P
1.5 (3.2)	Marking shall be visible on the outside of the luminaire or behind a cover.	On the body	P
	Marking shall be visible during installation.		P
	Marking shall be visible after the installation.		P
1.5 (3.3)	Additional information		P
	Language of instructions	English	P
1.5 (3.3.1)	Combination luminaires		N
1.5 (3.3.2)	Nominal frequency in Hz	50Hz	P
1.5 (3.3.3)	Operating temperature	25°C	N
1.5 (3.3.4)	Symbol or warning notice		N
1.5 (3.3.5)	Wiring diagram		N
1.5 (3.3.6)	Special conditions		N
1.5 (3.3.7)	Metal halide lamp luminaire - warming		N
1.5 (3.3.8)	Limitation for semi-luminaires		N
1.5 (3.3.9)	Power factor and the supply current		P
1.5 (3.3.10)	Suitability for use "indoors"		P
1.5 (3.3.11)	Luminaires with remote control gear		N
1.5 (3.3.12)	A warning for clip-mounted luminaire		N
1.5 (3.3.13)	The specifications of all protective shields		N
1.5 (3.3.14)	Symbol for nature of supply	~	P
1.5 (3.3.15)	The rated current of socket outlet		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5 (3.3.16)	The information about rough service luminaire		N
1.5 (3.3.17)	The mounting instructions for type Y, type Z and some type X attachments	Type Z	P
1.5 (3.3.18)	Information about non-ordinary luminaires with PVC supply cord		N
1.5 (3.3.19)	Protective conductor current in instruction if applicable		N
1.5 (3.3.20)	Information to advise the correct installation for wall mounted and adjustable luminaires.		N
1.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		N
	Cautionary symbol		N
1.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N
1.5 (3.4)	Test of marking		P
	Test with water	Rubbing with water for 15s	P
	Test with hexane	Rubbing with petroleum spirit for 15s	P
	Legible after test	Still legible	P
	Label attached	No curling	P

1.6 (4)	CONSTRUCTION		P
1.6 (4.2)	Components replaceable without difficulty		N
1.6 (4.3)	Wireways smooth and free from sharp edges		P
1.6 (4.4)	Lampholders		P
1.6 (4.4.1)	Integral lampholder		P
1.6 (4.4.2)	Wiring connection		P
1.6 (4.4.3)	Lampholder for end-to-end mounting		N
1.6 (4.4.4)	Positioning		P
	- pressure test (N)	--	N
	- bending test (N)	1.2Nm for E14 lampholder	P
1.6 (4.4.5)	Peak pulse voltage		N
1.6 (4.4.6)	Centre contact point		N
1.6 (4.4.7)	Parts incorporated in rough service luminaires resistance to tracking		N
1.6 (4.4.8)	Lamp connectors		N
1.6 (4.4.9)	Caps and bases shall be correctly used		N
1.6 (4.4.10)	Light source for lampholder or connection according to IEC 60061 not connected another way		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.5)	Starter holders		N
	Starter holder in luminaires other than class II		N
	Starter holder of class II construction		N
1.6 (4.6)	Terminal blocks		N
	Connecting leads (tails)		N
	Unsecured terminal blocks		N
1.6 (4.7)	Terminals and supply connections		N
1.6 (4.7.1)	Contact to metal parts		N
1.6 (4.7.2)	Test 8mm live conductor		N
	Test 8mm earth conductor		N
1.6 (4.7.3)	Terminals for supply conductor.		N
1.6 (4.7.3.1)	Welding method and material		N
	- stranded or solid conductor		N
	- spot welding		N
	- Welding between wires		N
	- Type Z attachment		N
	- mechanical test according to 15.6.2		N
	- electrical test according to 15.6.3		N
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N
1.6 (4.7.4)	Terminals other than supply connection		N
1.6 (4.7.5)	Heat-resisting wiring/sleeves		N
1.6 (4.7.6)	Multi-pole plug and socket		N
	- test at 30 N		N
1.6 (4.8)	Switches:		P
	- adequate rating and fixing		P
	- Switches in flexible cables or cords and switched lampholders shall not be used in non-ordinary luminaires.		N
	- polarized supply		P
	- compliance with 61058-1 for electronic switches		N
1.6 (4.9)	Insulating lining and sleeves		P
1.6 (4.9.1)	Retainment		P
1.6 (4.9.2)	Insulated linings and sleeves		P
	a) & c) Insulation resistance and electric strength		P
	b) Ageing test. Temperature (°C): --		N
1.6 (4.10)	Double and reinforced insulation		P
1.6 (4.10.1)	For metal encased class II luminaires, contact between:		P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- mounting surfaces and parts with basic insulation only, - accessible metal parts and basic insulation shall be prevented.		
	The wiring includes internal and external wiring of the luminaire, and fixing wiring of the installation.		P
	Degree of protection against electric shock of class II shall not be impaired.		P
	The interference suppression capacitors shall comply with the requirements according to IEC 60384-14 and the method of their connection shall be in accordance with 8.6 of IEC 60065.		N
1.6 (4.10.2)	Assembly gaps greater than 0.3 mm:		P
	- neither be coincidental with any gap in basic insulation, nor be straight access to live parts		P
	- Openings larger than 0.3 mm in double or in reinforced insulation shall be so designed that live parts cannot be touched with the conical pin of test probe 13.		P
	The required degree of protection against electric shock shall be in accordance with the IP classification of the luminaire.		P
1.6 (4.10.3)	Retainment of insulation		P
	- either be fixed so that they cannot be removed without being seriously damaged;		P
	- or be unable to be replaced in an incorrect position		N
	The sleeving and lining shall be retained in position by positive means		P
1.6 (4.10.4)	Protective impedance device		N
	Accessible conductive parts bridge by resistors or capacitors		N
1.6 (4.11)	Electrical connections and current-carrying parts		P
1.6 (4.11.1)	Contact pressure		P
1.6 (4.11.2)	Screws:		N
	- self-tapping screws		N
	- thread-cutting screws		N
	- at least two self-tapping screws		N
1.6 (4.11.3)	Screws and rivets shall be locked against loosening		N
	- Spring washers		N
	- rivets		N
1.6 (4.11.4)	Material of current-carrying parts	Copper used	P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.11.5)	No direct contact with the mounting surface or wood.		P
1.6 (4.11.6)	Electro-mechanical contact systems		N
	After the test, the samples shall show		N
	- no wear impairing their further use;		N
	- no deterioration of enclosures or barriers		N
	- no loosening of electrical or mechanical connections		N
1.6 (4.12)	Screws and connections (mechanical) and glands		P
1.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N
	Torque test: torque (Nm); part: Fix lampholder: 3.0mm, 0.5Nm		P
	Torque test: torque (Nm); part:		N
	Torque test: torque (Nm); part:		N
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N
1.6 (4.12.4)	Locked connections		P
	- fixed arms: torque (Nm): 2.5Nm		P
	- lampholder: torque (Nm);: 1.2Nm		P
	- push-button switches: torque 0.8 Nm:		N
1.6 (4.12.5)	Torque test of screwed glands, and after the test, the luminaire and glands shall show no damage.		N
1.6 (4.13)	Mechanical strength		P
1.6 (4.13.1)	Impact test:		P
	- fragile parts: energy (Nm);: --		N
	- other parts: energy (Nm);: 0.35Nm		P
	a) live parts		P
	b) linings		N
	c) protection		P
	d) covers		N
1.6 (4.13.3)	Straight test finger.	30N	P
1.6 (4.13.4)	Rough service luminaires		N
	- IP54 or higher		N
	a) fixed		N
	b) hand-held		N
	c) delivered with a stand		N
	d) for temporary installations and suitable for mounting on a stand		N
1.6 (4.13.6)	Tumbling barrel		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.14)	Suspensions and means of adjustment		P
1.6 (4.14.1)	Mechanical suspension shall have adequate factors of safety.		P
	A) suspended luminaires: four times the weight:	$4 \times 0.4 = 1.6\text{kg}$	P
	B) rigid suspension luminaires: torque 2.5 Nm:		N
	C) rigid suspension brackets: bracket arm; bending moment(Nm)		N
	D) load track-mounted luminaires:		N
	E) clip-mounted luminaires, glass-shelve. Thickness(mm)		N
1.6 (4.14.2)	Load to flexible cables		N
	Mass (kg)		N
	Stress in conductors (N/mm ²)		N
	Semi-luminaire – mass (kg).....		N
	Semi-luminaire – bending moment (Nm)		N
1.6 (4.14.3)	Adjusting devices:		N
	- flexing test; number of cycles.....		N
	- strands broken		N
	- electric strength test afterwards		N
1.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N
1.6 (4.14.5)	Guide pulleys		N
1.6 (4.14.6)	Strain on socket-outlets		N
1.6 (4.15)	Flammable materials		P
1.6 (4.15.1)	- glow-wire test 650 °C		P
	- spacing ≥ 30 mm		N
	- screen withstanding test of 13.3.1		N
	- screen dimensions		N
	- no fiercely burning material		P
	- thermal protection		N
	- electronic circuits exempted		N
1.6 (4.15.2)	Luminaires made of thermoplastic material shall withstand temperature rises.		N
	a) construction		N
	b) temperature sensing control		N
	c) surface temperature.		N
1.6 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	Luminaires classified as suitable for mounting on a normally flammable surface shall comply with one of the following requirements of 4.16.1, 4.16.2, or 4.16.3.		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.16.1)	Lamp control gear spacing:		N
	- spacing 10 mm		N
	- spacing 35 mm		N
1.6 (4.16.2)	Thermal protection:		N
	- in lamp control gear		N
	- external		N
	- fixed position		N
	- temperature marked lamp control gear		N
1.6 (4.16.3)	"F" curve measured	(see 12.6)	N
1.6 (4.17)	Drain holes		N
	Clearance at least 5mm		N
1.6 (4.18)	Resistance to corrosion:		N
1.6 (4.18.1)	- resistant to rust		N
1.6 (4.18.2)	- resistant to stress corrosion		N
1.6 (4.18.3)	- resistant to corrosion		N
1.6 (4.19)	Ignitors compatible with ballast		N
1.6 (4.20)	Rough service vibration		N
1.6 (4.21)	Protective shield:		N
1.6 (4.21.1)	Shield fitted		N
1.6 (4.21.2)	Particles from a shattering lamp cannot impair safety		N
1.6 (4.21.3)	No direct path		N
1.6 (4.21.4)	Impact test on shield		N
1.6 (4.22)	Attachments to lamps		N
1.6 (4.23)	Semi-luminaires comply class II		N
1.6 (4.24)	Photobiological hazards		N
1.6 (4.24.1)	UV radiation for tungsten halogen lamps and metal halide lamps (Annex P)		N
1.6 (4.24.2)	Retinal blue light hazard		N
	Retinal blue light hazard		N
	Luminaires with Ethr		N
	a) fixed luminaries		N
	- distance xm, borderline between RG1 and RG2		N
	- marking and instruction according 3.2.23		N
	b) portable and handheld luminaires		N
	- marking according to 3.2.23 if TG1 exceeded at 200mm according to IEC/TR 62778		N
	Portable luminaires for children IEC 60598-2-10 and mains socket outlet nightlights IEC		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	60598-2-12 not exceed RG1 at 200mm according to IEC/TR 62778		
1.6 (4.25)	No sharp point or edges		P
1.6 (4.26)	Short-circuit protection:		N
1.6 (4.26.1)	Uninsulated accessible SELV parts		N
1.6 (4.26.2)	Short-circuit test		N
1.6 (4.26.3)	Test chain according to Figure 29		N
1.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		N
1.6 (4.28)	Fixing of thermal sensing control		N
	Non plug-in or easily replaceable type		N
	Reliably kept in position		N
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N
	Not outside the luminaire enclosure		N
	Test of adhesive fixing		N
1.6 (4.29)	Luminaires with non-replaceable light source		N
	Not possible after parts have been opened by hand or tools		N
1.6 (4.30)	Luminaires with non-user replaceable light source		N
	If protective cover provide protection against electric shock and marked with "caution, electric shock risk" symbol, minimum two fixing means		N
1.6 (4.31)	Insulation between circuits		N
	Circuits insulated from LV supply fulfil 4.31.1-4.31.3		N
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil 4.31.1-4.31.3		N
1.6 (4.31.1)	SELV circuits		N
	Sources used to supply SELV circuits		N
	Voltage not higher the limits of ELV		N
	Insulation from LV supply, non SELV circuits, FELV circuits, SELV circuits and accessible conductive parts		N
	Plugs and socket-outlets in SELV systems		N
1.6 (4.31.2)	FELV circuits		N
	Sources used to supply FELV circuits		N
	Voltage not higher the limits of ELV		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulation from LV supply, FELV circuits, SELV circuits and accessible conductive parts		N
	Plugs and socket-outlets in FELV systems		N
1.6 (4.31.3)	Other circuits		N
	Insulation between circuits in accordance with the requirements in table X.1		N
	Equipotential bonding used in class II construction to protect against indirect contacts with live parts:		N
	- all conductive parts are connected together		N
	- test in 7.2.3 to check reliability		N
	- accessible conductive parts cannot cause electric shock in case of insulation fault		N
	- for master/slave applications, equipotential bonding used to prevent dangerous voltages		N
1.6 (4.32)	Overvoltage protective devices		N
	Comply with IEC 61643-11		N
	External to controlgear and connected to earth:		N
	- only in fixed luminaires, and		N
	- only connected to protective earth		N

1.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
	Working voltage (V)	240V	—
	Voltage form	Sinusoidal <input checked="" type="checkbox"/> Non-sinusoidal <input type="checkbox"/>	—
	PTI	< 600 <input checked="" type="checkbox"/> > 600 <input type="checkbox"/>	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>	—
	Rated pulse voltage (kV)	--	—
	(1) Live parts of different polarity: cr: 2.5 (mm); cl: 1.5 (mm)	cr : >3.0mm; cl: > 3.0 mm	P
	(2) Live parts and accessible metal parts: cr: 5.0 (mm); cl: 3.0 (mm)	cr : >5.0mm; cl: > 5.0 mm	P
	(3) Parts becoming live due to the breakdown of basic insulation and metal parts: cr (mm); cl (mm)		N
	(4) Outer surface of a flexible cord or cable and an accessible metal part: cr (mm); cl (mm)		N
	(5) Not used		—

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

	(6) Current-carrying parts and supporting surface: cr: 5.0 (mm); cl: 3.0 (mm)	cr : >5.0mm; cl: > 5.0 mm	P
--	---	---------------------------	---

1.8 (7.2)	PROVISION FOR EARTHING		N
1.8 (7.2.1 + 7.2.3)	Accessible metal parts		N
	Metal parts in contact with supporting surface		N
	Resistance < 0.5 Ω		N
	Two self-tapping screws used		N
	Thread-forming screws		N
	Thread forming screw used in a grove		N
	Earth makes contact first		N
	Build-in controlgear earthing by fixing		N
	Luminaire not earthing by build-in luminaire		N
1.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N
1.8 (7.2.4)	Locking of clamping means		N
	Compliance with 4.7.3		N
1.8 (7.2.5)	Earth terminal integral part of connector socket.		N
1.8 (7.2.6)	Earth terminal adjacent to mains terminals		N
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N
1.8 (7.2.8)	Material of earth terminal and the screw.		N
	Contact surface shall be bare metal.		N
1.8 (7.2.10)	Class II luminaire for looping-in		N
	Double and reinforced insulation to functional earth		N
1.8 (7.2.11)	Earthing core coloured green-yellow.		N
	Length of earth conductor		N

1.9 (14)	SCREW TERMINALS		N
	General requirements and basic principles		N
	Mechanical tests of different screws		N
1.9 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		N
	General requirements		N
	General instructions on tests		N
	Terminal and connections for internal wiring		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.10 (5)	EXTERNAL AND INTERNAL WIRING		P
1.10 (5.2)	Supply connection and other external wiring		P
1.10 (5.2.1)	Means of connection: Plug		P
	Connecting leads (EN)		N
	- without a means for connection to the supply		N
	- terminal block specified		N
	- relevant information provided		N
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of part 1		N
1.10 (5.2.2)	Type of cable: See annex 1		P
	Cable equal to HD21 S2 or HD22 S2 (EN)		P
	Nominal cross-sectional area (mm ²): See annex 1		P
1.10 (5.2.3)	Type of attachment, X, Y, or Z	Type Z	P
1.10 (5.2.5)	Type Z not connected to screws		P
1.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
1.10 (5.2.7)	Cable entries through rigid material shall have smoothly rounded edges		P
1.10 (5.2.8)	Insulating bushings:		N
	- suitably fixed		N
	- material in bushings		N
	- material not likely to deteriorate		N
	- tubes or guards made of insulating material		N
1.10 (5.2.9)	Locking of screwed bushing		N
1.10 (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 cable or cord into knots etc.		P
	- insulating material or lining		P
1.10 (5.2.10.1)	Cord anchorage for type X attachment:		N
	a) at least one part fixed		N
	b) types of cord		N
	c) no damaging of the cable		N
	d) whole cable can be mounted		N
	e) no touching of clamping screws		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	f) metal screw not directly on cable		N
	g) replacement without special tool		N
	Glands not used as anchorage		N
	Labyrinth type anchorages		N
1.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment	Type Z	P
1.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N).....: 60N		P
	- torque test: torque (Nm): 0.15Nm		P
	- displacement ≤ 2 mm		P
	- no noticeable movement of conductors		P
	- no damage of cable or cord		P
1.10 (5.2.11)	External wiring passing into luminaire		P
1.10 (5.2.12)	Looping-in terminals		N
1.10 (5.2.13)	Wire ends not tinned		P
	Wire end tinned: no cold flow		N
1.10 (5.2.14)	Mains plug same protection		P
	Class III luminaire plug		N
1.10 (5.2.16)	Appliance inlets (IEC 60320)		N
	Appliance couplers of class II type		N
1.10 (5.2.17)	No standardized interconnecting cables properly assembled		N
1.10 (5.2.18)	Used plug in accordance with		P
	- IEC 60083		N
	- other standard		P
1.10 (5.3)	Internal wiring		P
1.10 (5.3.1)	Internal wiring of a suitable size and type	See annex 1	P
	Through wiring		N
	- not delivered/ mounting instruction		N
	- factory assembled		N
	- socket outlet loaded (A): --		N
	- temperatures.....: --		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Green-yellow for earth only		N
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm ²).....: See annex 1		P
	Insulation thickness		P
	Extra insulation added where necessary		P
1.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N
	Adequate cross-sectional area and insulation thickness		N
1.10 (5.3.1.3)	Double or reinforced insulation for class II		P
1.10 (5.3.1.4)	Conductors without insulation		N
1.10 (5.3.1.5)	SELV current-carrying parts		N
1.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N
1.10 (5.3.2)	Sharp edges etc.;		P
	No moving parts of switches etc.;		P
	Joints, raising/lowering devices		N
	Telescopic tubes etc.		N
	No twisting over 360 °		P
1.10 (5.3.3)	Insulating bushing		P
	- suitable fixed		P
	- material in bushing		P
	- material not likely to deteriorate		P
	- cable with protective sheath		P
1.10 (5.3.4)	Joints and junctions effectively insulated		P
1.10 (5.3.5)	Strain on internal wiring.		P
1.10 (5.3.6)	Wire carriers		N
1.10 (5.3.7)	Wire end not tinned		N
	Wire end tinned: no cold flow		P

1.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
1.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable and adjustable		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	luminaires		
	Basic insulated parts not accessible with Ø 50 mm probe from outside, within arm's reach, on wall-mounted luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N
	Basic insulation only accessible under lamp or starter replacement		P
	Protection in any position		P
	Double-ended tungsten filament lamp		N
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		N
	Relevant warning according to 3.2.18 fitted to the luminaire		N
1.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N
1.11 (8.2.3)	Class II luminaire:		P
	- basic insulated metal parts not accessible during starter or lamp replacement		P
	- basic insulation not accessible other than during starter or lamp replacement		P
	- glass protective shields not used as supplementary insulation		N
	Class I luminaire with BC lampholder		N
	Class III luminaire only connect to a SELV source		N
1.11 (8.2.4)	Portable luminaire:		N
	- protection independent of supporting surface		N
	- terminal block completely covered		N
1.11 (8.2.5)	Compliance with standard test finger or relevant probe		P
1.11 (8.2.6)	Covers reliably secured		N
1.11 (8.2.7)	Discharging of capacitors $\geq 0.5\mu\text{F}$		N
	Portable plug connected luminaire with capacitor		N
	Other plug connected luminaire with capacitor		N
	Discharge device on or within capacitor		N
	Discharge device mounted separately		N
1.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
1.12 (12.3)	Endurance test:		P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- mounting-position.....:	As in normal use	—
	- test temperature (°C).....:	35°C	—
	- total duration (h).....:	240 h	—
	- supply voltage: Un factor; calculated voltage (V).....:	1.05U (rated power is reached at U)	—
	- lamp used.....:	Incandescent lamp	—
1.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N
	- marking legible		P
	- no cracks, deformation etc.		P
1.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
1.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	N
1.12 (12.6)	Thermal test (failed in lamp control gear):		N
1.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A).....:	--	N
	- case of abnormal conditions.....:	--	N
	- electronic lamp control gear.....:	--	N
	- measured mounting surface temperature (°C) at 1,1 times rated voltage.....:	--	N
	- calculated mounting surface temperature (°C).....:	--	N
	- track-mounted luminaires		N
1.12 (12.6.2)	Temperature sensing control		N
	- case of abnormal conditions.....:	--	—
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measure mounting surface temperature (°C)		N
	- track-mounted luminaires		N
1.12 (12.7)	Thermal test in regard to fault conditions in lamp control gear or electronic device incorporated in thermoplastic luminaires		N
1.12 (12.7.1)	Test for luminaire without temperature sensing control		N
1.12(12.7.1.1)	Test for luminaire incorporating ballast(s) of fluorescent lamps with a lamp load ≤ 70W		N
	Test method 12.7.1.1 or Annex W.....:	--	—

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Test according to 12.7.1.1:		N
	- The ballast under test shall be supplied directly at 1.1 times the rated supply voltage, in normal operation with the relevant lamp (s) in the circuit (up to the end of the test).		—
	- The supply voltage to the ballast under test shall be increased by 20 % of the rated supply voltage and left for a period of 15 min.		—
	- If no failure of the ballast occurs during the period, the supply voltage to the ballast under test shall be increased repeatedly in steps of 10 % of the rated supply voltage at 15 min intervals until ballast failure occurs.		N
	- After the ballast failure, the luminaire shall be allowed to cool to ambient temperature.		N
	Annex W provides an alternative method to the tests. The reference is given in 12.7.1.1		N
1.12 (12.7.1.2)	Test for luminaires incorporating discharge lamp, fluorescent lamps (> 70W), transformer of power > 10 VA		N
	- 20% of the lamp circuits in the luminaire and not less than one lamp circuit shall be subjected to abnormal conditions		—
	- The circuit which have the most thermal influence on the fixing point and exposed parts shall be chosen and other lamp circuits shall be operated at rated voltage under normal conditions.		—
	- The circuit subjected to abnormal conditions, shall be operated at 0, 9, 1, 0 and 1,1 times the rated voltage.		—
1.12 (12.7.1.3)	Test for luminaires with inherently short-circuit proof transformer of power ≤ 10 VA		N
	- The fault test shall be carried out to small transformers with power up to 10 VA; at the end of the first period of 4 h, the secondary winding shall be short circuited.		—
	- The short circuit shall be allowed to continue until transformer failure occurs;		N
1.12 (12.7.2)	Test for luminaires with temperature sensing control internal/external to the ballast or transformer		N
	- The circuits subjected to abnormal conditions shall be operated with a slowly and steadily increasing current through the windings, until the temperature sensing control operates.		—
	- Time intervals and increments in current shall be such that the thermal equilibrium between		—

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	winding temperatures and temperature of fixing points and most thermally exposed parts is achieved as far as practicable.		
	- For luminaires fitted out with manual-reset thermal cut-outs, the test shall be repeated six times, allowing 30 min intervals between tests. At the end of each 30 min interval, the cut-out shall be reset.		—

1.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		P
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP.....:	IP20	P
	- mounting position during test.....:	As normal use	—
	- fixing screws tightened; torque (Nm)	--	—
	- tests according to clauses.....:	9.2.0	—
	- electric strength test afterwards:		P
	a) no deposit in dust-proof luminaire		N
	b) no talcum in dust-tight luminaire		N
	c) no trace of water on current-carrying parts or SELV parts		N
	d) i) For luminaires without drain holes – no water entry		N
	d) ii) For luminaires with drain holes – can drain effectively, no hazardous water entry		N
	e) no water in watertight luminaire		N
	f) i)no contact with live parts (IP 2X)		P
	f) ii)no entry into enclosure (IP 3X and IP 4X)		N
	f) iii)no contact with live parts (IP3X and IP4X)		N
	g) no trace of water on part of lamp requiring protection from splashing water		N
	h) no damage of a protective shield or glass envelope		N
1.13 (9.3)	Humidity test 48 h	25°C, 93%	P

1.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRIECGTH		P
1.14 (10.2.1)	Insulation resistance test		P
	SELV:		N
	- between current-carrying parts of different polarity		N

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts and the mounting surface		N
	- between current-carrying parts and metal parts of the luminaire		N
	- between outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N
	- insulation bushing as described in section 5 ..		N
	Other than SELV:		P
	- between live parts of different polarity	> 100MΩ	P
	- between live parts and mounting surface	> 100MΩ	P
	- between live parts and metal parts	> 100MΩ	P
	- between live parts of different polarity through action of a switch	> 100MΩ	P
	- between outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N
	- insulation bushing as described in section 5 ..		N
1.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N
	Luminaires with manual ignitors		N
	Test voltage (V) of insulation of parts of SELV:		N
	- between current-carrying parts of different polarity		N
	- between current-carrying parts and the mounting surface		N
	- between current-carrying parts and metal parts of the luminaire		N
	- between outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N
	- insulation bushing as described in section 5 ..		N
	Other than SELV:		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	1480V	P

IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- between outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....:		N
	- insulation bushing as described in section 5 ..:		N
1.14 (10.3)	Leakage current (mA).....:	0	P
1.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		N
1.15 (13.2.1)	Ball-pressure test:		N
	- part tested; temperature (°C)		N
	- part tested; temperature (°C)		N
1.15 (13.3.1)	Needle flame test (10 s):		N
	- part tested		N
	- part tested		N
1.15 (13.3.2)	Glow-wire test (650 °C):		N
	- part tested		N
	- part tested		N
1.15 (13.4)	Resistance to tracking		N
1.15 (13.4.1)	- part tested		N

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

	ANNEX 1: components	P
--	---------------------	---

object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
Plug	B			250VAC, 2.5A	EN 50075	VDE 40024012
Supply cord	B			2x0.75mm ²	EN 50525-2-11	VDE 40022346
Switch	B			250V, 2A, 1E4, T55	EN 61058-1 EN 61058-2-1	VDE 40023915
Heat shrinkable tube	B			600V, 150°C	--	UL E180908
E14 lampholder	B			250V, 2A	EN 60238	VDE 40033864

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

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

	ANNEX 2: temperature measurements, thermal tests of Section 12		P
--	---	--	---

	Type reference.....	30018	—				
	Lamp used	Incandescent lamp	—				
	Lamp control gear used.....	--	—				
	Mounting position of luminaire.....	As normal use	—				
	Power (W)	110.3W					
	Current (A)	0.474A					
	Power factor.....	1					
	Table: measured temperatures corrected for ta = 25 °C:		P				
	- abnormal operating mode	--	—				
	- test 1: rated voltage	--	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage	1.05Pn	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage.....	--	—				
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage	--	—				
	Through wiring or looping-in wiring loaded by a current of A during the test	--	—				
temperature (°C) of part		Clause 12.4 – normal			Clause 12.5 – abnormal		
		test 1	test 2	test 3	limit	test 4	limit
Plug (parts grip by hand)		--	28.6	--	75	--	--
Plug (interface)		--	30.1	--	70	--	--
Switch		--	26.6	--	55	--	--
Supply cord			56.9		90		
Enclosure (wood)			100.3		Ref.		
Lamp shade (inside)			80.9		Ref.		
Rim of E14 lampholder		--	112.6	--	135	--	--
Internal wire at 10mm away from E14 lampholder		--	79.9	--	120	--	--
Mounting surface		--	43.4	--	90	--	--

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

	ANNEX 3: screw terminals (part of the luminaire)		N
--	---	--	---

(14)	SCREW TERMINALS		N
(14.2)	Type of terminal	--	—
	Rated current (A)	--	—
(14.3.2.1)	One or more conductors		N
(14.3.2.2)	Special preparation		N
(14.3.2.3)	Terminal size		N
	Cross-sectional area (mm ²)	--	N
(14.3.3)	Conductor space (mm)	--	N
(14.4)	Mechanical tests		N
(14.4.1)	Minimum distance		N
(14.4.2)	Cannot slip out		N
(14.4.3)	Special preparation		N
(14.4.4)	Nominal diameter of thread (metric ISO thread)		N
	External wiring		N
	No soft metal		N
(14.4.5)	Corrosion		N
(14.4.6)	Nominal diameter of thread (mm)	--	N
	Torque (Nm)	--	N
(14.4.7)	Between metal surfaces		N
	Lug terminal		N
	Mantle terminal		N
	Pull test; pull (N)	--	N
(14.4.8)	Without undue damage		N

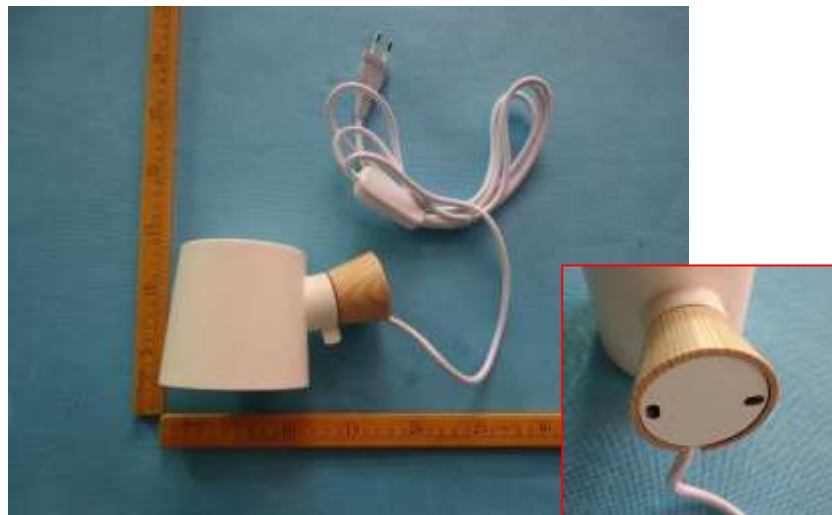
IEC 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict

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

(15)	SCREWLESS TERMINALS		N
(15.2)	Type of terminal	--	—
	Rated current (A)	--	—
(15.3.1)	Material		N
(15.3.2)	Clamping		N
(15.3.3)	Stop		N
(15.3.4)	Unprepared conductors		N
(15.3.5)	Pressure on insulating material		N
(15.3.6)	Clear connection method		N
(15.3.7)	Clamping independently		N
(15.3.8)	Fixed in position		N
(15.3.10)	Conductor size		N
	Type of conductor		N
(15.5.1)	Terminals internal wiring		N
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples).....		N
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....		N
	Insertion force not exceeding 50 N		N
	Permanent connections: pull-off test (20 N)		N
(15.5.2)	Electrical tests		N
	Voltage drop (mV) after 1 h (4 samples)	--	N
	Voltage drop of two inseparable joints	--	N
	Number of cycles	--	—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples)	--	N
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples)	--	N
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....	--	N
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples).....	--	N
(15.6)	Terminals external wiring		N
	Terminal size and rating		N
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)	--	N

IEC 60598-2-1										
Clause	Requirement + Test							Result - Remark		Verdict
	Pull test pin or tab terminals (4 samples); pull (N)							--		N
(15.6.3)	Contact resistance test									N
	Voltage drop (mV) after 1 h									N
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop of two inseparable joints									N
	Voltage drop after 10th alt. 25th cycle									N
	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
	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
	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
	Max. allowed voltage drop (mV)							--		—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

Attachment 1: Photo Documentation



Picture 1: whole view of 502005



Picture 2: top view



Picture 3: bottom view

Attachment 1: Photo Documentation



Picture 4: plug

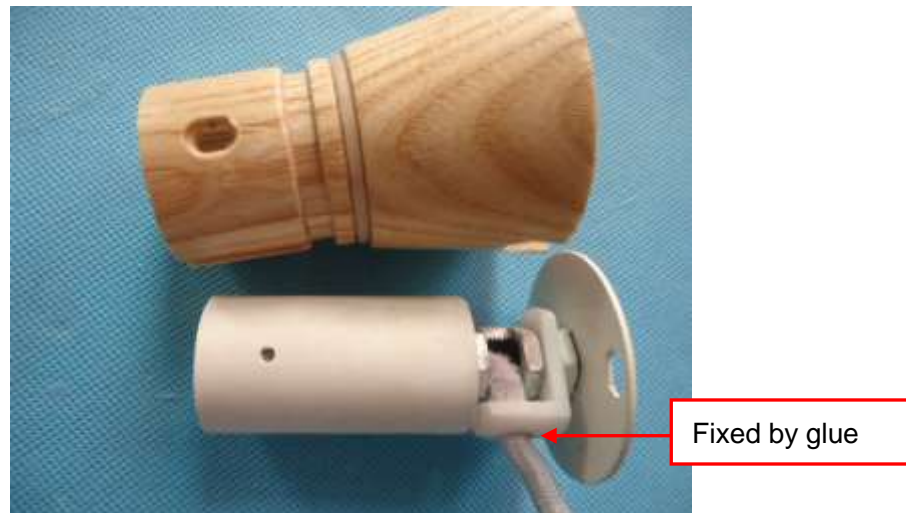


Picture 5: switch

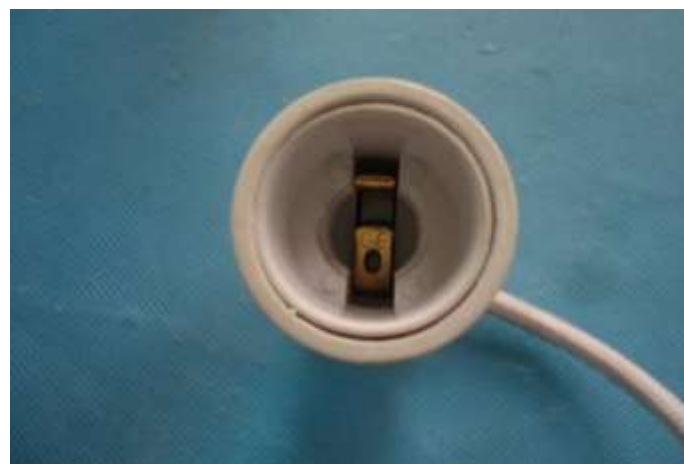


Picture 6: construction

Attachment 1: Photo Documentation



Picture 7: cord anchorage



Picture 8: E14 lampholder



Picture 9: internal view of lampholder

--- END OF TEST REPORT ---