Test Report issued under the responsibility of:

DEKRA

TEST REPORT
IEC 60598-2-2
Luminaires
Part 2: Particular requirements:
Section Two – Recessed luminaires

Report Number.....:	2167492.50
Date of issue .....:	2014-02-17
Total number of pages.....	49
Applicant's name .....:	Techcomlight B.V.
Address .....:	Boylestraat 46, 6718 XM Ede, The Netherlands
Test specification:	
Standard.....:	IEC 60598-2-2(ed.3):2011 used in conjunction with IEC 60598-1(ed.7):2008
Test procedure.....:	CB Scheme
Non-standard test method……..:	N/A
Test Report Form No.....:	IEC60598_2_2C
Test Report Form(s) Originator ....:	Intertek Semko AB
Master TRF .....:	2013-02

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 CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description .....:	Recessed luminaire with LED light source
Trade Mark.....:	SmartLED or TechLED
Manufacturer .....:	Techcomlight B.V. Boylestraat 46, 6718 XM Ede, The Netherlands
Model/Type reference .....:	see general product information
Ratings .....:	220-240 V, 50 Hz, Class II, IP40, ta: 35 °C

Testing procedure and testing location:	
☒ **CB Testing Laboratory:**	DEKRA Certification B.V.
Testing location/ address .....:	Meander 1051, 6825 MJ Arnhem, The Netherlands
☐ **Associated CB Laboratory:**	
Testing location/ address .....:	
Tested by (name + signature)..... :	L.N.H. Huynh
Approved by (+ signature) ..... :	A.P. van der Veen
☐ Testing procedure: TMP	
Testing location/ address .....:	
Tested by (name + signature)..... :	
Approved by (+ signature) ..... :	
☐ Testing procedure: WMT	
Testing location/ address .....:	
Tested by (name + signature)..... :	
Witnessed by (+ signature)..... :	
Approved by (+ signature) ..... :	
☐ Testing procedure: SMT	
Testing location/ address .....:	
Tested by (name + signature)..... :	
Approved by (+ signature) ..... :	
Supervised by (+ signature)..... :	

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

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
- Full type testing according to EN/IEC 60598-2-2 requirements. -Power supplies comply the EN/IEC 61347-2-13 requirements. - LED Module of 10000 LM is tested as part of the appliance and complies the EN/IEC 62031 requirement. See appendix 1. - Photo-biological testing according to EN/IEC 62471 • Non-GLS • Risk-group – 1	DEKRA Certification B.V. Meander 1051, 6825 MJ Arnhem The Netherlands

Summary of compliance with National Differences:

List of countries addressed: N/A

☐ The product fulfils the requirements of …… (insert standard number and edition and delete the text in parenthesis or delete the whole sentence if not applicable).

Copy of marking plate

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

Example of the markings (note that type no. is subject to change. For correct type no. see General Product Information):

CE

Name	Type	Un	f	P_{max}	$PLED_{max}$	Class II	IP code	t_a
TechLED	**D820001-160**	**220-240Vac**	**50 Hz**	**30 W**	**24 W**	⧈	**IP 40**	**35°C**

Test item particulars ..... :	
Classification of installation and use ..... :	Class II
Supply Connection ..... :	With tails
Possible test case verdicts:	
- test case does not apply to the test object ..... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
Testing ..... :	
Date of receipt of test item ..... :	2013-11-14
Date (s) of performance of tests ..... :	2014-01-06 – 2014-02-18

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 Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

Clause numbers between brackets refer to clauses in IEC 60598-1

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :

☐ Yes
☒ Not applicable

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... :	Techcomlight B.V. Boylestraat 46, 6718 XM Ede The Netherlands

General product information:

Description:	Trademark:	
	SmartLED	TechLED
	Type Designation:	
25 cm diameter with lens	160DS-2000 LM	160DS-2000 LM
35 cm diameter with lens	290DS-3000 LM	290DS-3000 LM
53 cm diameter (round) with lens	330/750DS-10000 LM DS-O SA	330/750DS-10000 LM DS-O SA
53 cm diameter (square) with lens	330/750DS-10000 LM DS-C SA	330/750DS-10000 LM DS-C SA
53 cm diameter (round) without lens	330/750DS-10000 LM DS-O WA	330/750DS-10000 LM DS-O WA
53 cm diameter (square) without lens	330/750DS-10000 LM DS-C WA	330/750DS-10000 LM DS-C WA

- All 53 cm diameter luminaires can be only operated in combination with power supply Ecxd 700.058 of Vossloh-Schwabe.
- The 25 cm and the 35 cm luminaires can be only operated in combination with power supply OTp DALI 45/220-240/700 HD FAN of OSRAM.
- The light controls/sensors have not been evaluated with the end product but can be delivered with the products.
- All power supplies have a SELV output circuit.

Remarks:

- Photo-biological safety was only performed on the 330/750DS-10000 LM… version(s). The type of risk group for the other models shall be declared by the manufacturer.

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

2.3 (0)	**GENERAL TEST REQUIREMENTS**		**P**
2.3 (0.1)	Information for luminaire design considered	Standard Yes ☐ No ☒	—
2.3 (0.3)	More sections applicable.....:	Yes ☐ No ☒	—

2.5 (2)	**CLASSIFICATION**		**P**
2.5 (2.2)	Type of protection .....:	Class II	—
2.5 (2.3)	Degree of protection.....:	IP40	—
2.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces.....:	Yes ☒ No ☐	—
2.5 (2.5)	Luminaire for normal use .....:	Yes ☒ No ☐	—
	Luminaire for rough service .....:	Yes ☐ No ☒	—

2.6 (3)	**MARKING**		**P**
2.6 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
2.6 (3.3)	Additional information		P
	Language of instructions		P
2.6 (3.3.1)	Combination luminaires		N/A
2.6 (3.3.2)	Nominal frequency in Hz	50 Hz	P
2.6 (3.3.3)	Operating temperature		P
2.6 (3.3.4)	Symbol or warning notice		N/A
2.6 (3.3.5)	Wiring diagram		P
2.6 (3.3.6)	Special conditions		N/A
2.6 (3.3.7)	Metal halide lamp luminaire – warning		N/A
2.6 (3.3.8)	Limitation for semi-luminaires		N/A
2.6 (3.3.9)	Power factor and supply current		N/A
2.6 (3.3.10)	Suitability for use indoors		P
2.6 (3.3.11)	Luminaires with remote control		N/A
2.6 (3.3.12)	Clip-mounted luminaire – warning		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.6 (3.3.13)	Specifications of protective shields		N/A
2.6 (3.3.14)	Symbol for nature of supply		
2.6 (3.3.15)	Rated current of socket outlet		N/A
2.6 (3.3.16)	Rough service luminaire		N/A
2.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N/A
2.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
2.6 (3.3.19)	Protective conductor current in instruction if applicable		N/A
2.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
2.6 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
2.7 (4)	**CONSTRUCTION**		**P**
2.7 (4.2)	Components replaceable without difficulty		P
2.7 (4.3)	Wireways smooth and free from sharp edges		P
2.7 (4.4)	Lampholders		N/A
2.7 (4.4.1)	Integral lampholder		N/A
2.7 (4.4.2)	Wiring connection		N/A
2.7 (4.4.3)	Lampholder for end-to-end mounting		N/A
2.7 (4.4.4)	Positioning		N/A
	- pressure test (N) ..... :		N/A
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N) ..... :		N/A
	After test the lampholder have not moved from its position and show no permanent deformation		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.4.5)	Peak pulse voltage		N/A
2.7 (4.4.6)	Centre contact		N/A
2.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
2.7 (4.4.8)	Lamp connectors		N/A
2.7 (4.4.9)	Caps and bases correctly used		N/A
2.7 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
2.7 (4.6)	Terminal blocks		N/A
	Tails		N/A
	Unsecured blocks		N/A
2.7 (4.7)	Terminals and supply connections		P
2.7 (4.7.1)	Contact to metal parts		N/A
2.7 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
2.7 (4.7.3)	Terminals for supply conductors		P
2.7 (4.7.3.1)	Welded connections:		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.8.2		N/A
	- electrical test according to 15.9		N/A
	- heat test according to 15.9.2.3 and 15.9.2.4		N/A
2.7 (4.7.4)	Terminals other than supply connection		N/A
2.7 (4.7.5)	Heat-resistant wiring/sleeves		P
2.7 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.8)	Switches:		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with 61058-1 for electronic switches		N/A
2.7 (4.9)	Insulating lining and sleeves		P
2.7 (4.9.1)	Retainement		P
	Method of fixing..... :	Bushing	P
2.7 (4.9.2)	Insulated linings and sleeves		P
	Resistant to a temperature > 20 °C to the wire temperature or		P
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C)..... :		N/A
2.7 (4.10)	Insulation of Class II luminaires		P
2.7 (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
	Interference suppression capacitors according to IEC 60384-14		N/A
2.7 (4.10.2)	Assembly gaps:		P
	- not coincidental		P
	- no straight access with test probe		P
2.7 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
2.7 (4.11)	Electrical connections		P
2.7 (4.11.1)	Contact pressure		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
2.7 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
2.7 (4.11.4)	Material of current-carrying parts		P
2.7 (4.11.5)	No contact to wood or mounting surface		P
2.7 (4.11.6)	Electro-mechanical contact systems		N/A
2.7 (4.12)	Mechanical connections and glands		P
2.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part ..... :		N/A
	Torque test: torque (Nm); part ..... :		N/A
	Torque test: torque (Nm); part ..... :		N/A
2.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
2.7 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm)..... :		N/A
	- lampholder; torque (Nm)..... :		N/A
	- push-button switches; torque 0,8 Nm..... :		N/A
2.7 (4.12.5)	Screwed glands; force (Nm) ..... :		N/A
2.7 (4.13)	Mechanical strength		P
2.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :	0,2 Nm	P
	- other parts; energy (Nm) ..... :	0,35 Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.13.3)	Straight test finger		N/A
2.7 (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
2.7 (4.13.6)	Tumbling barrel		N/A
2.7 (4.14)	Suspensions and adjusting devices *)		N/A
2.7 (4.14.1)	Mechanical load:		N/A
	A) four times the weight		N/A
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm)..... :		N/A
	D) load track-mounted luminaires		N/A

*) not tested

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	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
2.7 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) ..... :		N/A
	Stress in conductors (N/mm²) ..... :		N/A
	Mass (kg) of semi-luminaire ..... :		N/A
	Bending moment (Nm) of semi-luminaire ..... :		N/A
2.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles ..... :		N/A
	- strands broken		N/A
	- electric strength test afterwards		N/A
2.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
2.7 (4.14.5)	Guide pulleys		N/A
2.7 (4.14.6)	Strain on socket-outlets		N/A
2.7 (4.15)	Flammable materials:		N/A
	- glow-wire test 650 °C		N/A
	- spacing ≥ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		N/A
	- thermal protection		N/A
	- electronic circuits exempted		N/A
2.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear	(compliance with Section 12)	N/A
2.7 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
2.7 (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
2.7 (4.16.3)	Design to satisfy the test of 12.6	(see 12.6)	N/A
2.7 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
2.7 (4.18)	Resistance to corrosion:		N/A
2.7 (4.18.1)	- rust-resistance		N/A
2.7 (4.18.2)	- season cracking in copper		N/A
2.7 (4.18.3)	- corrosion of aluminium		N/A
2.7 (4.19)	Ignitors compatible with ballast		N/A
2.7 (4.20)	Rough service vibration		N/A
2.7 (4.21)	Protective shield:		N/A
2.7 (4.21.1)	Shield fitted		N/A
	Shield of glass if tungsten halogen lamps		N/A
2.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
2.7 (4.21.3)	No direct path		N/A
2.7 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment		N/A
2.7 (4.22)	Attachments to lamps		N/A
2.7 (4.23)	Semi-luminaires comply Class II		N/A
2.7 (4.24)	UV radiation for tungsten halogen lamps and metal halide lamps (Annex P)		N/A
2.7 (4.25)	No sharp point or edges		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.26)	Short-circuit protection:		N/A
2.7 (4.26.1)	Uninsulated accessible SELV parts		N/A
2.7 (4.26.2)	Short-circuit test		N/A
2.7 (4.26.3)	Test chain according to Figure 29		N/A
2.7 (4.27)	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A

2.8 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Working voltage (V) ..... :	240 V	—
	Voltage form	Sinusoidal ☒ Non-sinusoidal ☐	—
	PTI	< 600 ☒ ≥ 600 ☐	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II ☒ Category III ☐	—
	Rated pulse voltage (kV) ..... :	N/A	—
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm)..... :	cr > 2,5 mm cl > 1,5 mm	P
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm)..... :	cr > 5 mm cl > 3 mm	P
	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm)..... :		N/A
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm)..... :		N/A
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm)..... :	cr > 5 mm cl > 3 mm	P

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

2.9 (7)	**PROVISION FOR EARTHING**		**N/A**
2.9 (7.2.1 + 7.2.3)	Accessible metal parts		N/A
	Metal 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
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
2.9 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N/A
2.9 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
2.9 (7.2.5)	Earth terminal integral part of connector socket		N/A
2.9 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
2.9 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
2.9 (7.2.8)	Material of earth terminal		N/A
	Contact surface bare metal		N/A
2.9 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
2.9 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A

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

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

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

2.11 (5)	**EXTERNAL AND INTERNAL WIRING**		**P**
2.11 (5.2)	Supply connection and external wiring		P
2.11 (5.2.1)	Means of connection ..... :	Plug via LED power supply	P
2.11 (5.2.2)	Type of cable..... :	H05V-K	P
	Nominal cross-sectional area (mm²) ..... :	min. 0,5 mm^2	P
	Cables equal to IEC 60227 or IEC 60245		P
2.11 (5.2.3)	Type of attachment, X, Y or Z		P
2.11 (5.2.5)	Type Z not connected to screws		N/A
2.11 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
2.11 (5.2.7)	Cable entries through rigid material have rounded edges		P
2.11 (5.2.8)	Insulating bushings:		P
	- suitably fixed		P
	- material in bushings		P
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
2.11 (5.2.9)	Locking of screwed bushings		P
2.11 (5.2.10)	Cord anchorage:	via the power supply	P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.11 (5.2.10.1)	Cord anchorage for type X attachment:		P
	a) at least one part fixed		P
	b) types of cable		P
	c) no damaging of the cable		P
	d) whole cable can be mounted		P
	e) no touching of clamping screws		P
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		P
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
2.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
2.11 (5.2.10.3)	Tests: Improved independent LED power supply		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) ..... :		P
	- torque test: torque (Nm) ..... :		P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P
2.11 (5.2.11)	External wiring passing into luminaire		P
2.11 (5.2.12)	Looping-in terminals		N/A
2.11 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
2.11 (5.2.14)	Mains plug same protection		P
	Class III luminaire plug		N/A
2.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Appliance couplers of class II type		N/A
2.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.11 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
2.11 (5.3)	Internal wiring		N/A
2.11 (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 earth only		N/A
2.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm²) ..... :		N/A
	Insulation thickness		N/A
	Extra insulation added where necessary		N/A
2.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Adequate cross-sectional area and insulation thickness		N/A
2.11 (5.3.1.3)	Double or reinforced insulation for class II		P
2.11 (5.3.1.4)	Conductors without insulation		N/A
2.11 (5.3.1.5)	SELV current-carrying parts		P
2.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
2.11 (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

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.11 (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
2.11 (5.3.4)	Joints and junctions effectively insulated		N/A
2.11 (5.3.5)	Strain on internal wiring		N/A
2.11 (5.3.6)	Wire carriers		N/A
2.11 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
2.12 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		**P**
2.12 (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 and adjustable luminaires		N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, within arm's reach, on wall-mounted luminaires		N/A
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
2.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.12 (8.2.3.a)	Class II luminaire:		P
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
2.12 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
2.12 (8.2.3.c)	Class III luminaires with exposed SELV parts:		N/A
	Ordinary luminaire:		N/A
	- touch current ..... :		N/A
	- no-load voltage..... :		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage ..... :		N/A
2.12 (8.2.4)	Portable luminaire have protection independent of supporting surface		N/A
2.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
2.12 (8.2.6)	Covers reliably secured		P
2.12 (8.2.7)	Discharging of capacitors ≥ 0,5 μF		P
	Portable plug connected luminaire with capacitor		N/A
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		N/A

2.13 (12)	**ENDURANCE TEST AND THERMAL TEST**		**P**
2.13 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 2.14		—
2.13 (12.3)	Endurance test:		P
	- mounting-position..... :	Normal as use	—
	- test temperature (°C)..... :	45 °C	—
	- total duration (h)..... :	240 hrs	—

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- supply voltage: Un factor; calculated voltage (V):		—
	- lamp used ..... :		—
2.13 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
2.13 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
2.13 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	P
2.13 (12.6)	Thermal test (failed lamp control gear condition):		N/A
2.13 (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
2.13 (12.6.2)	Temperature sensing control		N/A
	- 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
2.13 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
2.13 (12.7.1)	Luminaire without temperature sensing control		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.13 (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:		N/A
	- part tested; temperature (°C) ..... :		N/A
	- part tested; temperature (°C) ..... :		N/A
2.13 (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:		N/A
	- part tested; temperature (°C) ..... :		N/A
	- part tested; temperature (°C) ..... :		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
2.13 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link	Yes ☐ No ☐	—
	- manual reset cut-out	Yes ☐ No ☐	—
	- auto reset cut-out	Yes ☐ No ☐	—
	- case of abnormal conditions		—
	- highest measured temperature of fixing point/exposed part (°C):..... :		—
	Ball-pressure test:		N/A
	- part tested; temperature (°C)..... :		N/A
	- part tested; temperature (°C)..... :		N/A
2.13.1 (-)	Wiring, for connection to the supply, not reach unsafe temperature		N/A
	- measured temperature of the cable (°C) ..... :		N/A

2.14 (9)	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**		**P**
2.14 (-)	If IP > IP 20 the order of the test specified in clause 2.13		—
2.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP ..... :	IP40	—
	- mounting position during test..... :	As normal use	—
	- fixing screws tightened; torque (Nm)..... :	N/A	—
	- tests according to clauses ..... :	9.2.0	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		N/A
	c) no trace of water on current-carrying parts or SELV parts or where it could become a hazard		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	d) i) For luminaires without drain holes – no water entry		N/A
	d) ii) For luminaires with drain holes – no hazardous water entry		N/A
	e) no water in watertight luminaire		N/A
	f) no contact with live parts (IP 2X)		P
	f) no entry into enclosure (IP 3X and IP 4X)		N/A
	f) no contact with live parts (IP3X and IP4X)		N/A
	g) no trace of water on part of lamp requiring protection from splashing water		N/A
	h) no damage of protective shield or glass envelope		N/A
2.14 (9.3)	Humidity test 48 h		P
2.15 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		**P**
2.15 (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)		—
	SELV:		P
	- between current-carrying parts of different polarity ..... :		N/A
	- between current-carrying parts and mounting surface ..... :	> 50 MΩ– input LED module – metal part	P
	- between current-carrying parts and metal parts of the luminaire..... :	> 50 MΩ– input LED module – metal part	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :		N/A
	- Insulation bushings as described in Section 5 .. :		N/A
	Other than SELV:		P
	- between live parts of different polarity..... :		N/A
	- between live parts and mounting surface..... :	> 50 MΩ – input driver – metal part	P
	- between live parts and metal parts ..... :	> 50 MΩ – input driver – metal part	P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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
2.15 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V):		P
	SELV:		P
	- between current-carrying parts of different polarity ..... :		N/A
	- between current-carrying parts and mounting surface..... :	500 V – input LED module – metal part	P
	- between current-carrying parts and metal parts of the luminaire..... :	500 V – input LED module – metal part	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :		N/A
	- Insulation bushings as described in Section 5 .. :		N/A
	Other than SELV:		N/A
	- between live parts of different polarity..... :		N/A
	- between live parts and mounting surface..... :	2960 V – input driver metal part of luminaire	P
	- between live parts and metal parts ..... :	2960 V – input driver metal part of luminaire	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
2.15 (10.3)	Touch current or protective conductor current (mA)..... :	< 0,1 mA	P

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

2.16 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**N/A**
2.16 (13.2.1)	Ball-pressure test:		N/A
	- part tested; temperature (°C) ..... :		N/A
	- part tested; temperature (°C) ..... :		N/A
2.16 (13.3.1)	Needle flame test (10 s):		N/A
	- part tested ..... :		N/A
	- part tested ..... :		N/A
2.16 (13.3.2)	Glow-wire test (650°C):		N/A
	- part tested ..... :		N/A
	- part tested ..... :		N/A
2.16 (13.4.1)	Tracking test:		N/A
	- part tested ..... :		N/A
	- part tested ..... :		N/A

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

	ANNEX 1: components	**P**

object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
LED Driver	B	Vossloh Schwabe	Ecxd 700.058	220-240 V, 50/60 Hz	EN 61347-1, EN 61347-2-13	VDE
LED Driver	B	OSRAM	OTp DALI 45/220-240/700 HD FAN	220-240 V, 176-276 Vdc 0/50/60 Hz	EN 61347-1, EN 61347-2-13	ENEC
LED Module	B	Vossloh Schwabe	LUGA Industrial, WU-M-443-xxxxK	100 W	IEC 62031	*
LED Module	B	OSRAM	PrevaLED Cor Z2 LEP-3000-XXX-C-Z2	Max. 31 W	-	Zhaga
LED Module	B	OSRAM	PrevaLED Cor Z2 LEP-2000-XXX-C-Z2	Max. 28 W	-	Zhaga
Fan	A	IceLED	IceLED Xtra 550 Modular	12 Vdc	-	*
Fan	A	SYNJET	PAR20	5 Vdc	-	*
Sensor	A	Vossloh Schwabe	MultiSensor SM Ref-no: 186191	-	EN 61347-1, EN 61347-2-11	ENEC
Sensor	A	Vossloh Schwabe	Light control S Ref-no: 186210	220-240 Vac, 0/50-60Hz	EN 61347-1, EN 61347-2-11	ENEC
Control	A	Vossloh Schwabe	Light control L Ref-no: 186189	220-240 Vac, 0/50-60 Hz	EN 61347-1, EN 61347-2-11	ENEC
Wiring	A	several	-	-	-	* or <HAR>

*) Tested as of the appliance.

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

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

	Type reference ..... :	SMARTLED 35 cm	—
	Lamp used..... :	As delivered	—
	Lamp control gear used ..... :	OSRAM – OTp DALI 45/220-240/700 HD FAN	—
	Mounting position of luminaire..... :	As normal use	—
	Supply wattage (W) ..... :	37	—
	Supply current (A)..... :	0,2	—
	Calculated power factor ..... :	-	—
	Table: measured temperatures corrected for ta = 35 °C:		P
	- abnormal operating mode ..... :	FAN blocked	—
	- test 1: rated voltage ..... :	240 V	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	254 V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... :	N/A	—
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage..... :	240 V – FAN blocked	—
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	N/A	—

temperature (°C) of part	Clause 12.4 – normal				Clause 12.5 – abnormal	
	test 1	test 2	test 3	limit	test 4	limit
Heatsink LED module	89	89	-	ref	99	ref
Plastic cover inside	46	47	-	90	46	90
Wiring to LED Module	85	85	-	90	90	90
tc_driver	80	81	-	80	76	80

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

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

	Type reference ..... :	SMARTLED 53 cm	—
	Lamp used..... :	As delivered	—
	Lamp control gear used ..... :	VS – Ecxd 700.058	—
	Mounting position of luminaire..... :	As normal use	—
	Supply wattage (W) ..... :	103 W	—
	Supply current (A)..... :	0,5	—
	Calculated power factor ..... :	-	—
	Table: measured temperatures corrected for ta = 35 °C:		P
	- abnormal operating mode ..... :	FAN blocked	—
	- test 1: rated voltage ..... :	240 V	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	254 V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... :	N/A	—
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage..... :	240 V – FAN blocked	—
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	N/A	—

temperature (°C) of part	Clause 12.4 – normal				Clause 12.5 – abnormal	
	test 1	test 2	test 3	limit	test 4	limit
Heatsink LED module	65	65	-	ref	94	ref
Plastic cover inside	56	56	-	90	47	90
Wiring to LED Module	59	59	-	90	78	90
tc_driver	82	82	-	80	74	80

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 (mm²)..... :		N/A
(14.3.3)	Conductor space (mm) ..... :		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread) . :		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
(15.5.1)	Terminals internal wiring		N/A
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples)….:		N/A
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples)……:		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.6)	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

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

	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) ..... :		N/A
(15.7)	Terminals external wiring		N/A
	Terminal size and rating		N/A
(15.8.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) ..... :		N/A
	Pull test pin or tab terminals (4 samples); pull (N) ..... :		N/A
(15.9)	Contact resistance test		N/A
	Voltage drop (mV) after 1 h		N/A

terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

	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)										

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

	ANNEX 5: National Differences for (country name) or Group Differences	**N/A**

	CENELEC COMMON MODIFICATIONS (EN)		N/A
1.5 (3)	**MARKING**		N/A
1.5 (3.3.101)	Adequate warning on the package		N/A
1.10 (5)	**EXTERNAL AND INTERNAL WIRING**		N/A
1.10 (5.2.1)	Connecting leads		N/A
	- without a means for connection to the supply		N/A
	- terminal block specified		N/A
	- relevant information provided		N/A
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1		N/A
1.10 (5.2.2)	Cables equal to HD21 S2 or HD22 S2		N/A

ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		**N/A**
(3.3)	DK: power supply cord with label		N/A
	IT: warning label on Class 0 luminaire		N/A
(4.5.1)	DK: socket-outlets		N/A
(5.2.1)	CY, DK, FI, SE, GB: type of plug		N/A

ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		**N/A**
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A
(13.3)	DK: Needle flame test during 30 s		N/A
(13.3)	GB: Requirements according to United Kingdom Building Regulation		N/A
(13.3.2)	FR: Glow-wire test 850°C alt. 750°C for luminaires in premises open to public or 960°C for luminaires in emergency exits		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

Appendix 1:
Examination of LED Module – Vossloh Schwabe – LUGA Industrial, WU-M-443-xxxxK (10000 LM), according IEC 62031 as part of the luminaire.

4	**GENERAL REQUIREMENTS**		**P**
4.4	Integral modules tested assembled in the luminaire		P
4.5	Independent modules complies with requirements in IEC 60598-1		N/A

5	**GENERAL TEST REQUIREMENTS**		**P**
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex 1)	N/A
	General conditions for tests in Annex A	(see Annex A)	P

6	**CLASSIFICATION**		**P**
	Built-in module .....:	Yes ☐ No ☒	—
	Independent module .....:	Yes ☐ No ☒	—
	Integral module .....:	Yes ☒ No ☐	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		—

7	**MARKING**	**N/A**

8	**TERMINALS**		**P**
	Screw terminals according section 14 of IEC 60598-1:		**N/A**
	Separately approved; component list	(see Annex 2)	N/A
	Part of the luminaire	(see Annex 3)	N/A
	Screwless terminals according section 15 of IEC 60598-1:		**N/A**
	Separately approved; component list	(see Annex 2)	N/A
	Part of the luminaire	(see Annex 4)	N/A
	Connectors according IEC 60838-2-2:		**P**
	Separately approved; component list	(see Annex 2)	P

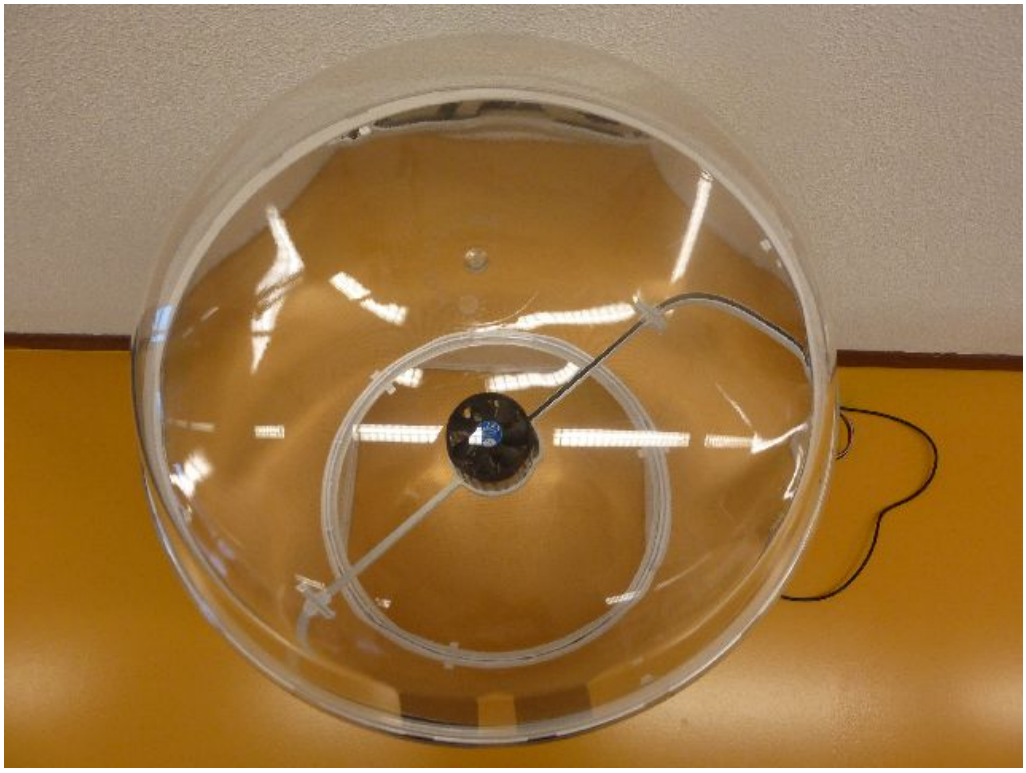
IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
9 (9)	**PROVISION FOR PROTECTIVE EARTHING**		**N/A**
10 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		**N/A**
11 (11)	**MOISTURE RESISTANCE AND INSULATION**	**Tested in appliance**	**P**
12 (12)	**ELECTRIC STRENGTH**	**Tested in appliance**	**P**
13 (14)	**FAULT CONDITIONS**		**P**
- (14)	When operated under fault conditions the controlgear:		N/A
	- does not emit flames or molten material		N/A
	- does not produce flammable gases		N/A
	- protection against accidental contact not impaired		N/A
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	N/A
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)	(see appended table)	N/A
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		N/A
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	N/A
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	N/A
- (14.5)	After the tests has been carried out on three samples:		N/A
	The insulation resistance $\geq$ 1 MΩ .....:		N/A
	No flammable gases		N/A
	No accessible parts have become live		N/A

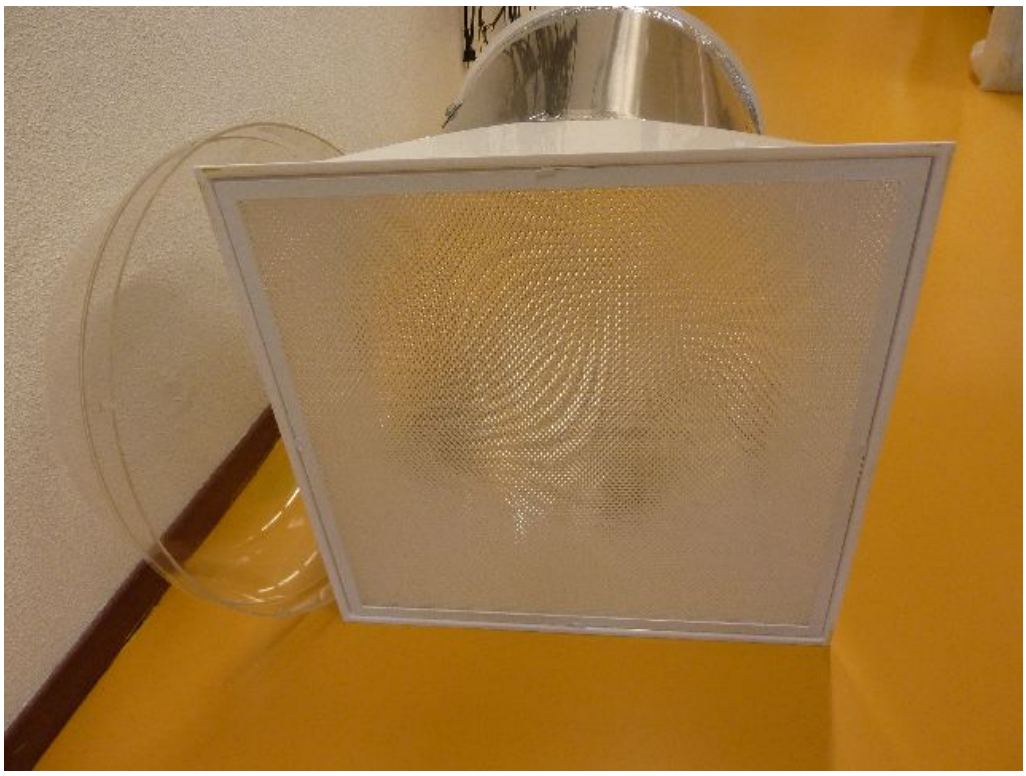
IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		N/A
- (14.6)	Relevant fault condition tests with high-power supply		—
13.2	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
	During the tests, tissue paper, spread below module, does not ignite		N/A
15	**CONSTRUCTION**		**N/A**
16	**CREEPAGE DISTANCES AND CLEARANCES Tested in appliance**		**N/A**
17 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		**P**
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		P
(4.11)	Electrical connections		P
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
(4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood or mounting surface		P
(4.11.6)	Electro-mechanical contact systems		N/A
(4.12)	Mechanical connections and glands		N/A
(4.12.1)	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: torque (Nm); part ..... :		N/A
	Torque test: torque (Nm); part ..... :		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Torque test: torque (Nm); part ..... :		N/A
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
(4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm)..... :		N/A
	- lampholder; torque (Nm)..... :		N/A
	- push-button switches; torque 0,8 Nm..... :		N/A
(4.12.5)	Screwed glands; force (Nm) ..... :		N/A
18 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**N/A**
19 (19)	**RESISTANCE TO CORROSION**		**N/A**
20	**INFORMATION FOR LUMINAIRE DESIGN**		**N/A**
	Information in Annex D		—
21	**HEAT MANAGEMENT**		**N/A**
14	**TABLE: tests of fault conditions**		**N/A**
A	**ANNEX A - TESTS**		**P**
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		P

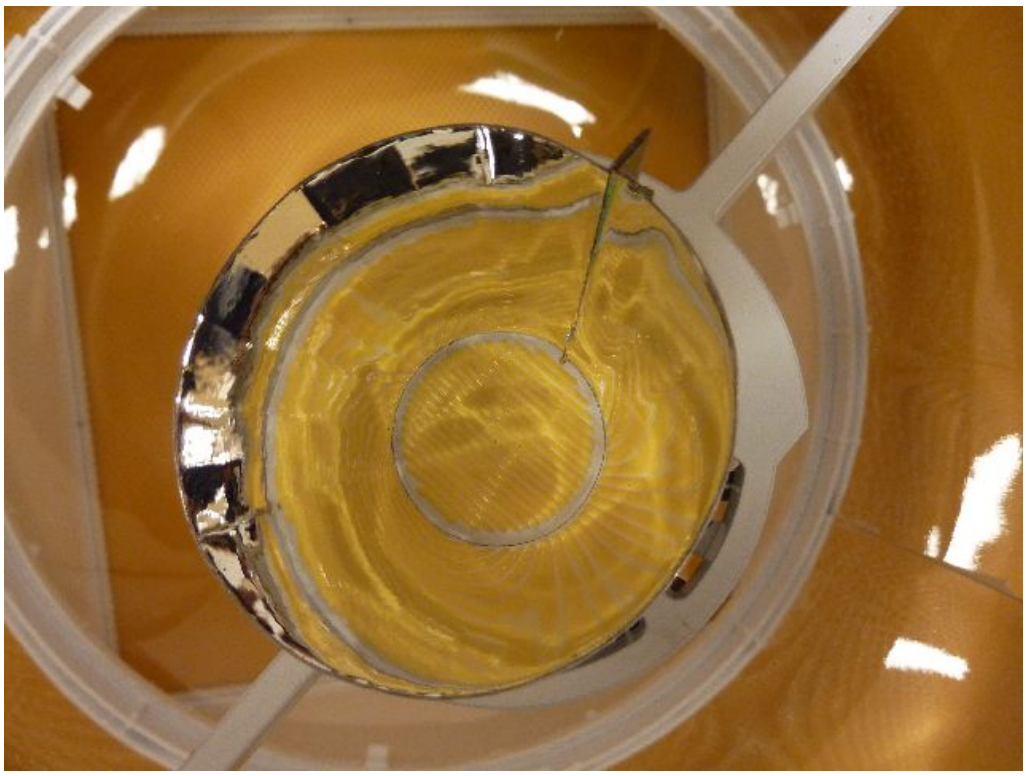
Pictures:

SmartLED with 53 cm diameter

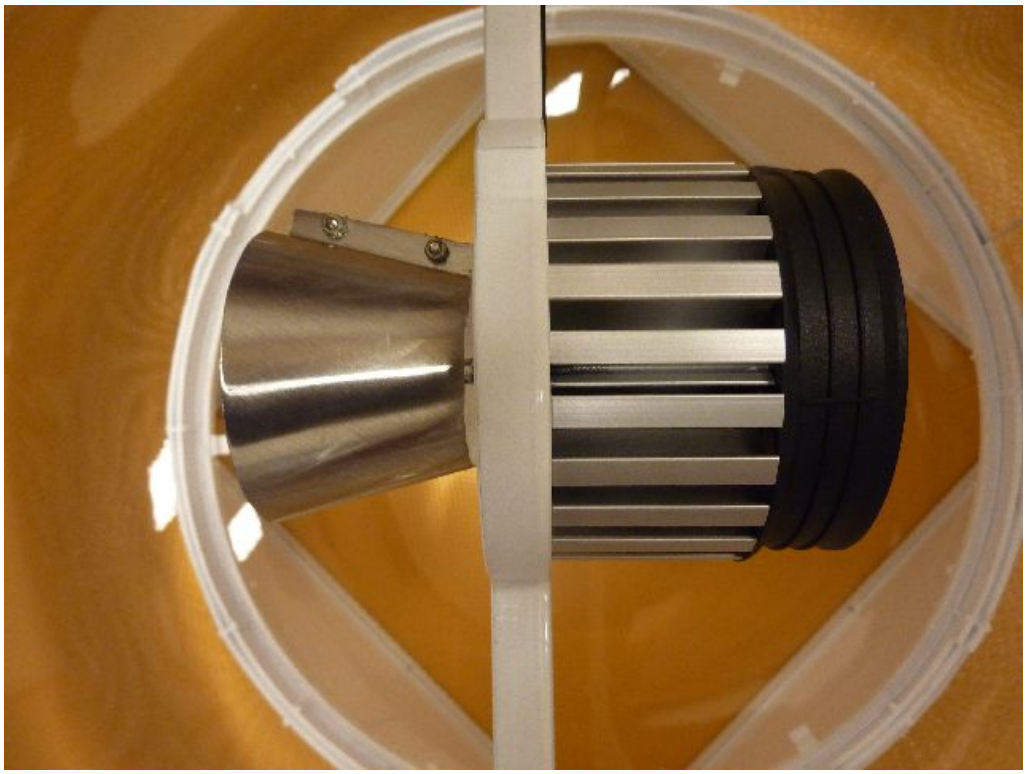


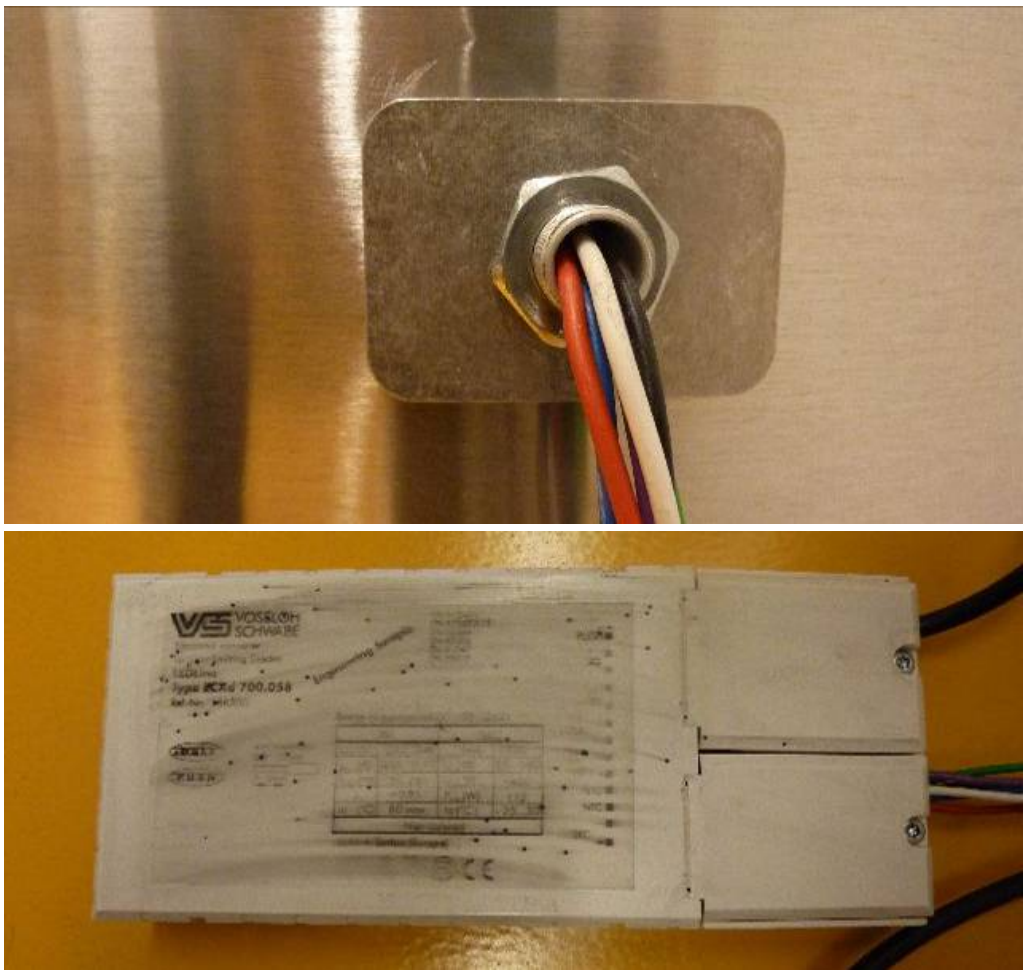



LED
Xtra Ultra
Input Voltage 12Vdc
CE

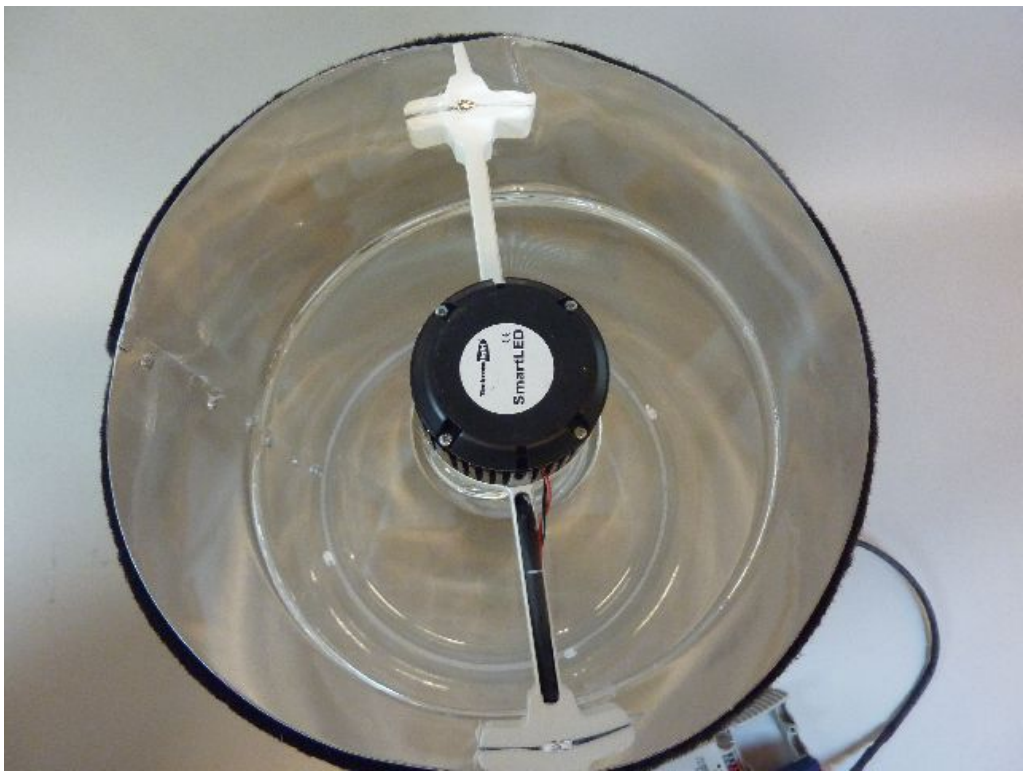


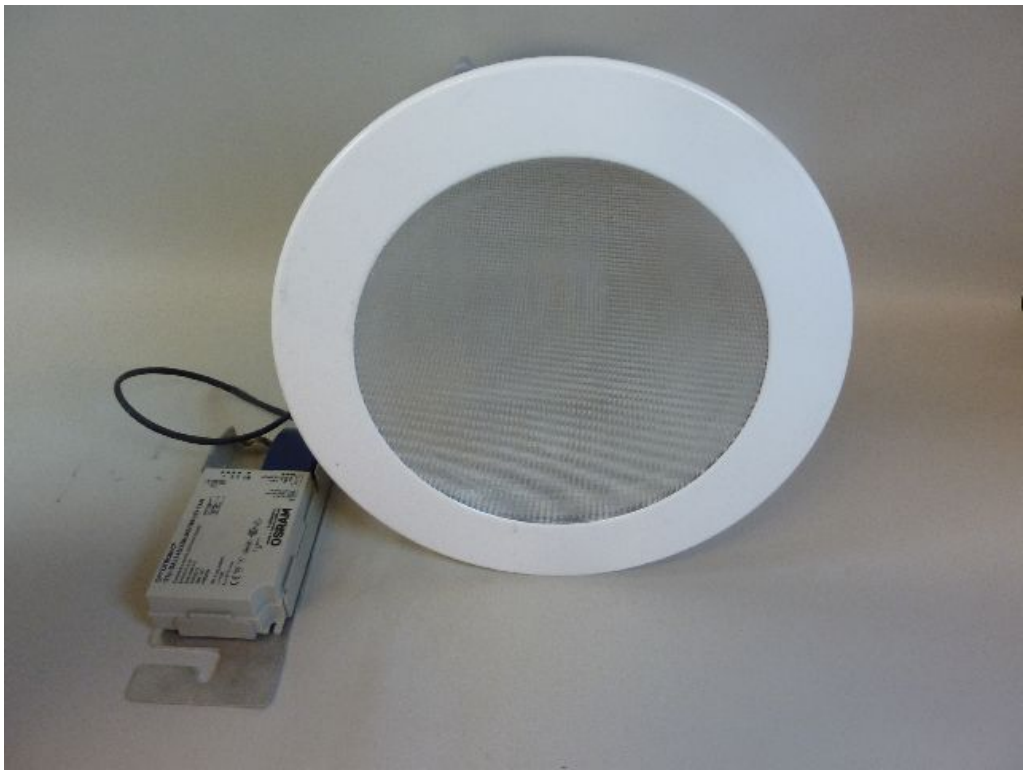
LED module 10000 LM

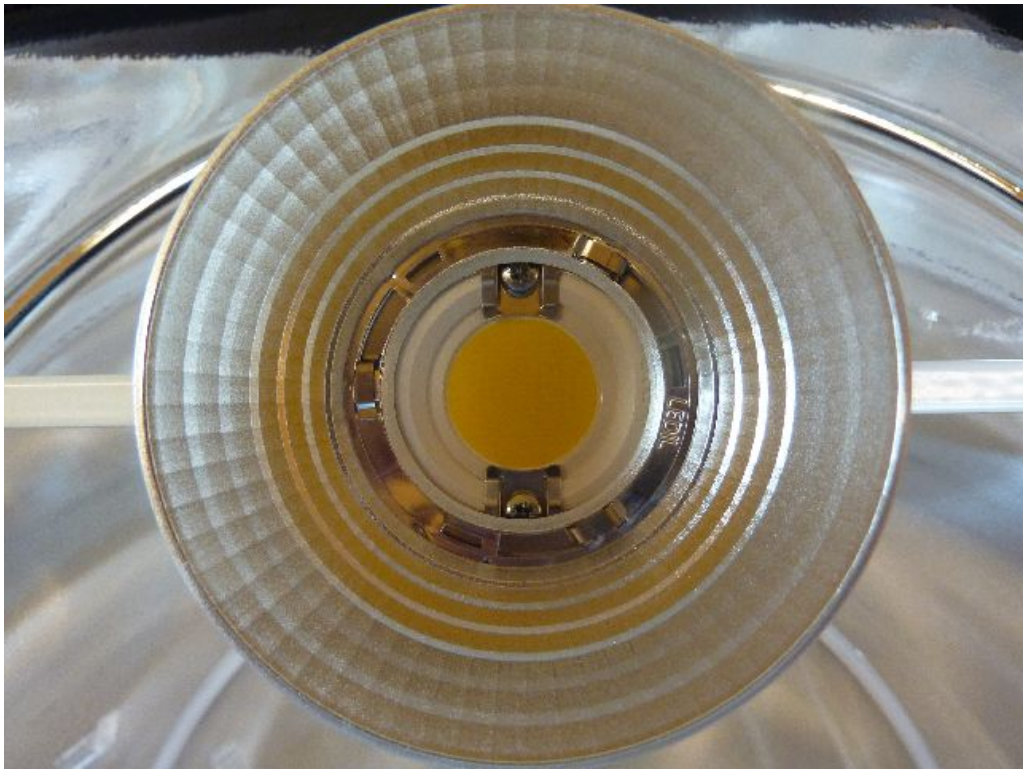



VS
VOSSLOH SCHWABE

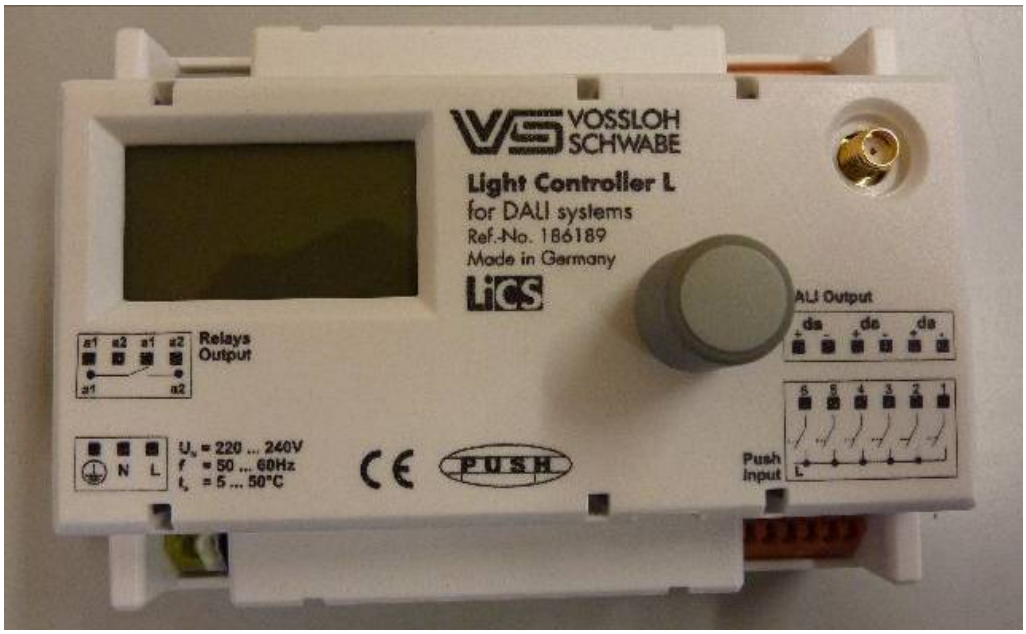
SmartLED with 25 and 35 cm diameter


SmartLED

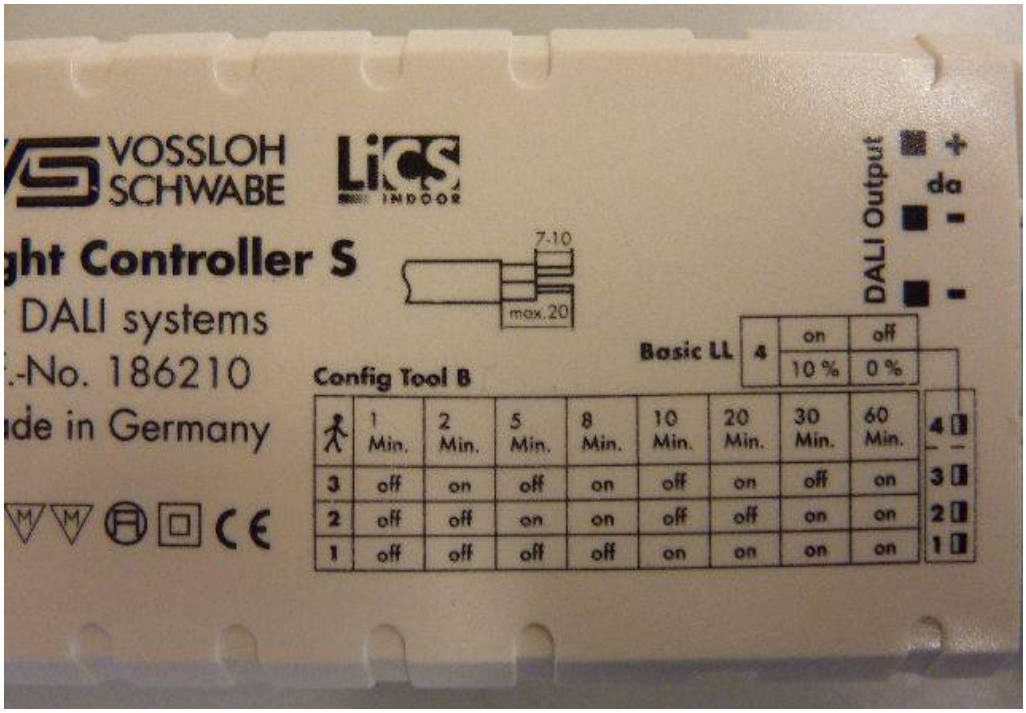


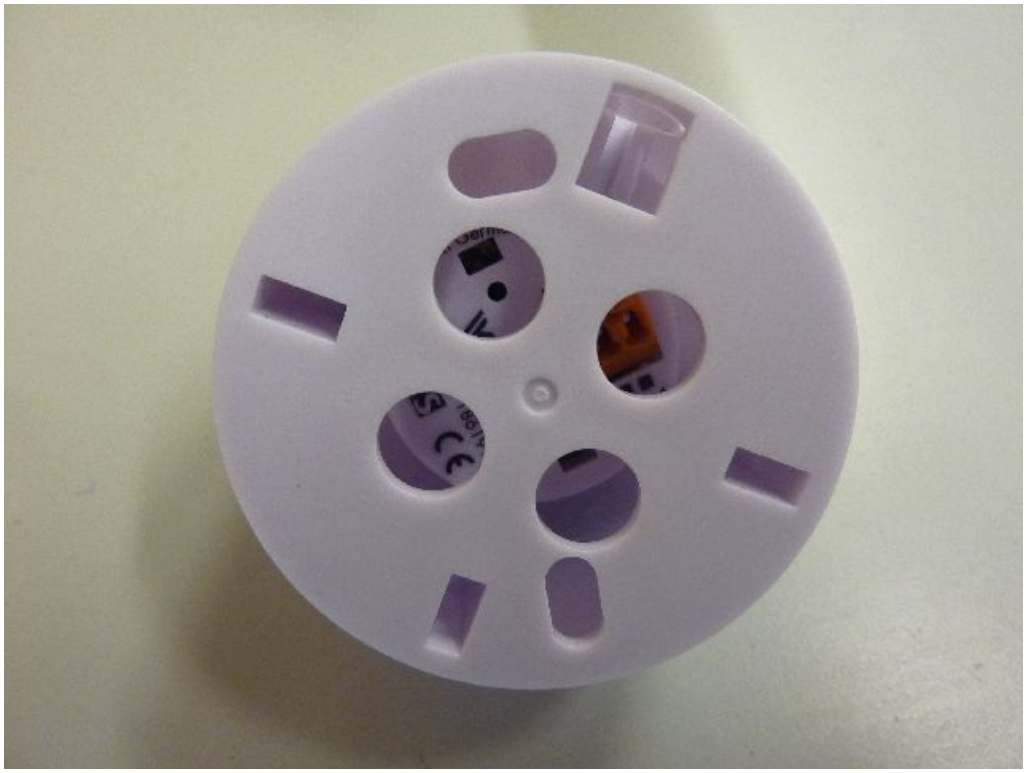


Light controller

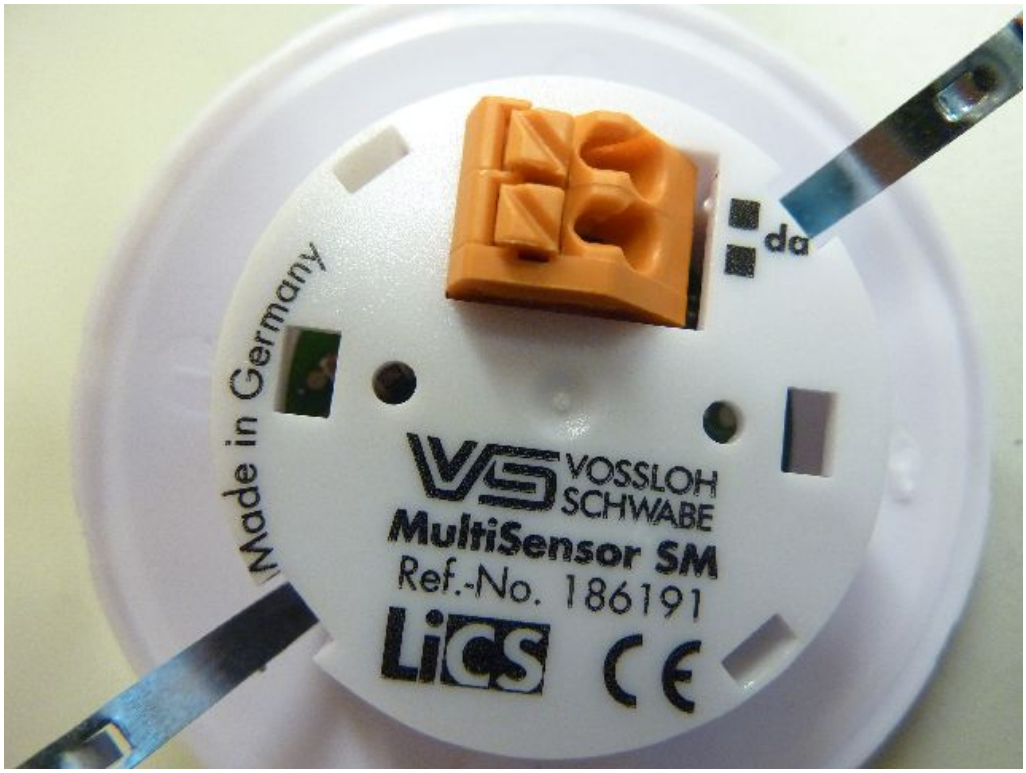



Config Tool A
On
Off
1
2
3
4
*Set LL for constant light regulation
VOSSLOH SCHWABE
LiCS INDOOR
Light Controller S
for DALI systems
Ref.-No. 186210
Made in Germany
7-10
max.20
Config Tool B
1 Min.
2 Min.
5 Min.
8 Min.
3 off on off
2 off off on
1 off off off
Set LL/ Push
U_n = 220 ... 240V t_a = 0 ... 50°C
f_n = 0/50 ... 60Hz t_c = 65°C
tc
CE


VOSSLOH SCHWABE
LiCS INDOOR
ght Controller S
DALI systems
-No. 186210
de in Germany
7-10
max.20
DALI Output
+
da
-
-
Basic LL
4
on
off
10 %
0 %
Config Tool B
1 Min.
2 Min.
5 Min.
8 Min.
10 Min.
20 Min.
30 Min.
60 Min.
3 off on off on off on off on
2 off off on on off off on on
1 off off off off on on on on
4
3
2
1
CE




Made in Germany
MultiSensor SM
Ref.-No. 186197


Made in Germany
da
VOSSLOH
SCHWABE
MultiSensor SM
Ref.-No. 186191
LiCS
CE