



Test Report issued under the responsibility of:



TEST REPORT
IEC 60598-2-3
Luminaires
Part 2: Particular requirements
Section 3: Luminaires for road and street lighting

Report Number.....: 4788981241.3
Date of issue.....: 2019-07-22
Total number of pages 103 including attachments

**Name of Testing Laboratory
preparing the Report.....:** UL International Italia S.r.l.

Applicant's name NERI S.p.A.
Address SS Emilia, 1622 – Longiano (FC) 47020 - Italy

Test specification:

Standard.....: IEC 60598-2-3:2002, AMD1:2011 used in conjunction with
IEC 60598-1:2014, AMD1:2017
Test procedure CB Scheme
Non-standard test method N/A

Test Report Form No.: IEC60598_2_3L
Test Report Form(s) Originator: Intertek Semko AB
Master TRF.....: Dated 2018-03-09

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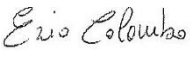


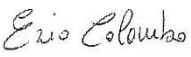
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Test item description..... :	Luminaire for road and street lighting	
Trade Mark..... :	NERI	
Manufacturer	NERI S.p.A. SS Emilia, 1622 – Longiano (FC) 47020 - Italy	
Model/Type reference	Light Lang 32+32 (see page 6 for variants)	
Ratings	220-240 V ~ 50/60 Hz 150W Class II IP66 IK08 t_a 50°C (see page 6 for variants)	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	UL International Italia S.r.l.
Testing location/ address..... :		Via delle Industrie, 5 & 6 – 20061 Carugate (MI) – Italy
Tested by (name, function, signature)..... :		Marco Caroli Project Handler 
Approved by (name, function, signature).... :		Ezio Colombo Reviewer 
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Approved by (name, function, signature).... :		
<input checked="" type="checkbox"/>	Testing procedure: CTF Stage 2:	NERI S.p.A.
Testing location/ address..... :		SS Emilia, 1622 – Longiano (FC) 47020 - Italy
Tested by (name + signature)		Simone Zoffoli Tester 
Witnessed by (name, function, signature) . :		Marco Caroli Project Handler 
Approved by (name, function, signature).... :		Ezio Colombo Reviewer 
<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):				
European Group Differences and National Differences		(Enclosure 1): 2 pages		
Evaluation of LED modules as integral components according to IEC/EN 62031:2008 + A1 + A2		(Enclosure 2): 17 pages		
Evaluations according to Regulatory Requirements and National Conditions for the Kingdom of Saudi Arabia		(Enclosure 3): 1 page		
Evaluation according to Australia/New Zealand's National Differences		(Enclosure 4): 19 pages		
Manufacturer's Instructions.....		(Enclosure 5): 2 pages		
Photos		(Enclosure 6): 5 pages		
Equipment list		(Enclosure 7): 1 page		
Summary of testing:				
Tests performed (name of test and test clause):				Testing location:
3.5	Marking	Applicable	Pass	NERI S.p.A. SS Emilia, 1622 Longiano (FC) 47020 Italy
3.6	Construction	Applicable	Pass	
3.7	Creepage distances and clearances	Applicable	Pass	
3.8	Provision for earthing	Applicable	Pass	
3.9	Terminals	Applicable	Pass	
3.10	External and internal wiring	Applicable	Pass	
3.11	Protection against electric shock	Applicable	Pass	
3.12	Endurance test and thermal tests	Applicable	Pass	
3.13	Resistance to dust and moisture (IPx6)	Applicable	Pass	
3.14	Insulation resistance and electric strength	Applicable	Pass	
3.15	Resistance to heat, fire and tracking	Not Applicable	N/A	
3.13	Resistance to dust and moisture (IP6x)	Applicable	Pass	UL International Italia S.r.l. Via delle Industrie, 5 & 6 -20061 Carugate (MI) Italy
TEST RESULTS WERE FAVOURABLE				
The measurement uncertainties stated in this Test Report are estimated according to the Quality Procedure MP02-A1. If requested, NERI S.p.A. will be able to estimate the uncertainty contribution for all the quantities stated in this Test Report				
Summary of compliance with National Differences:				
List of countries addressed				
- All countries member of CENELEC (Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom) (see "Enclosure 1")				
- Kingdom of Saudi Arabia (see "Enclosure 3")				
- Australia/New Zealand (see "Enclosure 4")				
<input checked="" type="checkbox"/> The product fulfils the requirements of EN 60598-2-3:2003 + A1:2011 used in conjunction with EN 60598-1:2015 +A1:2018.				

Copy of marking plate:

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



Test item particulars :	
Classification of installation and use : Road LED luminaire for on a post top	
Supply Connection : Terminal block	
Possible test case verdicts:	
- test case does not apply to the test object.....: N/A	
- test object does meet the requirement.....: P (Pass)	
- test object does not meet the requirement.....: F (Fail)	
Testing..... :	
Date of receipt of test item : N/A (CTF stage 2) / 2019-05-06 (UL tests)	
Date (s) of performance of tests : 2019-05-13 to 2019-06-12 / 2019-06-04 (UL tests)	
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 checked="" type="checkbox"/> comma / <input type="checkbox"/> 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 IEC 60598-1:	
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) : NERI S.p.A. Via delle Querce 4 – Longiano (FC) 47020 - Italy	

General product information:

Luminaire for road and street lighting provided with one or two LED modules as light source and with one or two electronic control gear for LED module; intended for installation on a post top.

Rated 220-240 V~, 50/60 Hz, 150W, degrees of protection IP66 and IK08, construction in insulation Class II.

It is composed by an enclosure made of cast aluminum and a protective screen made of flat tempered glass.

In the upper part are fitted: LED modules, wiring plates, control gear and auxiliary devices.

Lower part consists of a fork bracket to be fitted on pole top and in which are fixed the screens and the internal reflectors. When only one source is present the unused portion of the glass screen is substituted by a metal plate.

All models are provided with a LED driver declared double insulated between primary and secondary circuit and with a Uopen of max 300 Vd.c.

The tests of clause 10 and clause 11 have been performed according to Annex X of IEC 60598-1:2014 considering the requirement of a basic insulation complying with Uout as the worst condition.

Additionally, for the requirement of Clause 11, table U1 of Annex U has been applied to the measures (overcategory III considered).

Additional information:

The LED module and the product configuration are the same of the Luminaire that has been evaluated to check the photobiological effects in accordance with the standard IEC TR 62778:2014.

The results are laid down in the test reports No.:

- 4788981241.8 issued by UL International Italia S.r.l. on 2019-06-07.

The radiation hazard complies with the limit level for the group Risk 1 at a Dthr 2,60 m.

Variants:

The main model:

Type ref.:	Cat. Ref.:	Ratings
Light Lang 32+32	Light Lang (ready) 32+32	220-240 V~ 50/60 Hz 150 W Class II IP66 ta 50 °C (IK08)

extends the following models:

Type ref.:	Cat. Ref.:	Ratings
Light Lang 32+16	Light Lang (ready) 32+16	220-240 V~ 50/60 Hz 113 W Class II IP66 ta 50 °C (IK08)
Light Lang 32	Light Lang (basic) 32	220-240 V~ 50/60 Hz 77W Class II IP66 ta 50 °C (IK08)
Light Lang 16+16	Light Lang (ready) 16+16	220-240 V~ 50/60 Hz 72W Class II IP66 ta 50 °C (IK08)
Light Lang 16	Light Lang (basic) 16	220-240 V~ 50/60 Hz 36W Class II IP66 ta 50 °C (IK08)

Each model has other variants which are internally identified, related to customers features and not affecting safety but the correlated temperature color of the light source limited up to 4000K.

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

3.2 (0)	GENERAL TEST REQUIREMENTS		—
3.2 (0.3)	More sections applicable..... :	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Section/s:	—
3.2 (0.5)	Components	(see Annex 1)	—
3.2 (0.7)	Information for luminaire design in light sources standards		—
3.2 (0.7.2)	Light source safety standard	IEC/EN 62031	—
	Luminaire design in the light source safety standard	Integral LED module	N/A

3.4 (2)	CLASSIFICATION OF LUMINAIRES		P
3.4 (2.2)	Type of protection	Class II	P
3.4 (2.3)	Degree of protection..... :	IP 66	—
3.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
3.4 (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"/>	—
3.4 (-)	Modes of installation of road or street lighting		—
	a) on a pipe	Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	—
	b) on a mast arm	Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	—
	c) on a post top	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	d) on span or suspension wires	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	e) on a wall	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

3.5 (3)	MARKING		P
3.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
3.5 (3.3)	Additional information		P
	Language of instructions		P
3.5 (3.3.1)	Combination luminaires		N/A
3.5 (3.3.2)	Nominal frequency in Hz	50/60 Hz	P
3.5 (3.3.3)	Operating temperature	t_a 50 °C	P
3.5 (3.3.5)	Wiring diagram		P
3.5 (3.3.6)	Special conditions		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
3.5 (3.3.8)	Limitation for semi-luminaires		N/A
3.5 (3.3.9)	Power factor and supply current		N/A
3.5 (3.3.10)	Suitability for use indoors	See Annex 2	P
3.5 (3.3.11)	Luminaires with remote control		N/A
3.5 (3.3.12)	Clip-mounted luminaire – warning		N/A
3.5 (3.3.13)	Specifications of protective shields		N/A
3.5 (3.3.14)	Symbol for nature of supply	~	P
3.5 (3.3.15)	Rated current of socket outlet		N/A
3.5 (3.3.16)	Rough service luminaire		N/A
3.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N/A
3.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
3.5 (3.3.19)	Protective conductor current in instruction if applicable	Class II luminaire	N/A
3.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
3.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided	Non user replaceable light sources	P
3.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
3.5 (3.3.23)	Luminaire without controlgear provided with necessary information for selection of appropriate component		N/A
3.5 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
3.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
3.5 (-)	Additional information in instruction leaflet		P
	a) Design attitude		P
	b) Weight	17 kg	P
	c) Overall dimensions	770 x 585	P
	d) Maximum projected area if applicable	0,269 m ²	P
	e) Cross-sectional area of wires if applicable		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

	f) Suitability for indoors use	See Annex 2	N/A
	g) Dimensions of the compartment		N/A
	h) Torque setting to be applied to bolts or screws	See enclosure 3	P
	i) Maximum mounting height	More than 15 m	P

3.6 (4)	CONSTRUCTION		P
3.6 (4.2)	Components replaceable without difficulty	No user replaceable components	N/A
3.6 (4.3)	Wireways smooth and free from sharp edges		P
3.6 (4.4)	Lampholders		N/A
3.6 (4.4.1)	Integral lampholder		N/A
3.6 (4.4.2)	Wiring connection		N/A
3.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
3.6 (4.4.4)	Positioning		N/A
	- pressure test (N)		—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N)		—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
3.6 (4.4.5)	Peak pulse voltage		N/A
3.6 (4.4.6)	Centre contact		N/A
3.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
3.6 (4.4.8)	Lamp connectors		N/A
3.6 (4.4.9)	Caps and bases correctly used		N/A
3.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
3.6 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
3.6 (4.6)	Terminal blocks		N/A
	Tails		N/A
	Unsecured blocks		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.7)	Terminals and supply connections		P
3.6 (4.7.1)	Contact to metal parts	Terminal block	P
3.6 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		N/A
3.6 (4.7.3)	Terminals for supply conductors		P
3.6 (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
3.6 (4.7.4)	Terminals other than supply connection	See Annex 1	P
3.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
3.6 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
3.6 (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
3.6 (4.9)	Insulating lining and sleeves		N/A
3.6 (4.9.1)	Retainment		N/A
	Method of fixing :		-
3.6 (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		P
	b) Ageing test. Temperature (°C) :		N/A
3.6 (4.10)	Double or reinforced insulation		P
3.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Safe installation fixed luminaires		P
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
3.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
3.6 (4.10.3)	Retention 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
3.6 (4.10.4)	Protective impedance device		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
3.6 (4.11)	Electrical connections and current-carrying parts		P
3.6 (4.11.1)	Contact pressure		P
3.6 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
3.6 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
3.6 (4.11.4)	Material of current-carrying parts		P
3.6 (4.11.5)	No contact to wood or mounting surface		N/A
3.6 (4.11.6)	Electro-mechanical contact systems	Supply terminal block	N/A
3.6 (4.12)	Screws and connections (mechanical) and glands		P
3.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part..... :	2,5 Nm; M6– Screws closing Luminaire	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Torque test: torque (Nm); part..... :	1,2 Nm; M4– Screws fixing LED driver, wiring plate and reflector	P
	Torque test: torque (Nm); part..... :	0,5 Nm; M3– Screws used for fixing lenses and LED module	P
	Torque test: torque (Nm); part..... :	8 Nm; M8 – Screws used for fixing luminaire body to pole mounting means	P
3.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
3.6 (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
3.6 (4.12.5)	Screwed glands; force (Nm)..... :		N/A
3.6 (4.13)	Mechanical strength		P
3.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)	0,5 (Glass)	P
	- other parts; energy (Nm)..... :	0,7(Frame)	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
3.6 (4.13.2)	Metal parts have adequate mechanical strength		P
3.6 (4.13.3)	Straight test finger	30 N	P
3.6 (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
3.6 (4.13.6)	Tumbling barrel		N/A
3.6 (4.14)	Suspensions, fixings and means of adjusting		P
3.6 (4.14.1)	Mechanical load:		P
	A) four times the weight	17 Kg x 4 = 68	P
	B) torque 2,5 Nm		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	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
3.6 (4.14.2)	Load to flexible cables		N/A
	Mass (kg)		—
	Stress in conductors (N/mm ²)		N/A
	Mass (kg) of semi-luminaire		N/A
	Bending moment (Nm) of semi-luminaire		N/A
3.6 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles..... :		N/A
	- strands broken		N/A
	- electric strength test afterwards		N/A
3.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
3.6 (4.14.5)	Guide pulleys		N/A
3.6 (4.14.6)	Strain on socket-outlets		N/A
3.6 (4.15)	Flammable materials		P
	- glow-wire test 650°C	See Test Table 3.15 (13.3.2)	P
	- spacing ≥30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
3.6 (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
3.6 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear	(compliance with Section 12)	N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
3.6 (4.16.1)	Lamp control gear spacing:		P
	- spacing 35 mm		P
	- spacing 10 mm		N/A
3.6 (4.16.2)	Thermal protection:		P
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear	See Annex 1 for details	P
3.6 (4.16.3)	Design to satisfy the test of 12.6		N/A
3.6 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
3.6 (4.18)	Resistance to corrosion		P
3.6 (4.18.1)	- rust-resistance	Luminaire body made of painted aluminum.	P
3.6 (4.18.2)	- season cracking in copper		P
3.6 (4.18.3)	- corrosion of aluminium		P
3.6 (4.19)	Ignitors compatible with ballast		N/A
3.6 (4.20)	Rough service vibration		N/A
3.6 (4.21)	Protective shield		N/A
3.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
3.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
3.6 (4.21.3)	No direct path		N/A
3.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment..... :	See Test Table 3.15 (13.3.2)	N/A
3.6 (4.22)	Attachments to lamps not cause overheating or damage		N/A
3.6 (4.23)	Semi-luminaires comply Class II		N/A
3.6 (4.24)	Photobiological hazards		P
3.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
3.6 (4.24.2)	Retinal blue light hazard		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Class of risk group assessed according to IEC/TR 62778		—
	Luminaires with E_{thr} :		P
	a) Fixed luminaires		P
	- distance x m, borderline between RG1 and RG2 .. :	2,60 m (32+32 LEDs worst condition)	P
	- marking and instruction according 3.2.23		P
	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
3.6 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
3.6 (4.26)	Short-circuit protection		N/A
3.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N/A
3.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
3.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		N/A
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
3.6 (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

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Max. temperature on adhesive material (°C) :		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
3.6 (4.29)	Luminaires with non-replaceable light source		N/A
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
3.6 (4.30)	Luminaires with non-user replaceable light source		P
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		P
	Minimum two fixing means	Six screws provided	P
3.6 (4.31)	Insulation between circuits		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
3.6 (4.31.1)	SELV circuits		P
	Used SELV source	Separately approved SELV LED controlgear (some models)	P
	Voltage ≤ ELV		P
	Insulating of SELV circuits from LV supply		P
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A
	SELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage ≤ ELV		

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
3.6 (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:		P
	- conductive parts are connected together		P
	- test according 7.2.3		P
	- conductive part not cause an electric shock in case of an insulation fault		P
	- 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
3.6 (4.32)	Overvoltage protective devices		P
	Comply with IEC 61643-11	Optional (see Annex 1)	P
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
3.6.1 (-)	At least IP X3 or X5 respectively. IP	IP 66	P
	Column-integrated luminaires:		N/A
	- parts below 2,5 m. IP		N/A
	- parts above 2,5 m. IP		N/A
3.6.2 (-)	Suspension on span wires		N/A
3.6.3 (-)	Means for attaching the luminaire or external parts to its support appropriate to the weight		P
3.6.3.1 (-)	Static load test		P
	- drag coefficient.....	1,2	P
	- loaded area (m²).....	0,269	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- used load (N).....:	642 N (over 15m)	P
	- measured deformation (cm/m)	No deformation	P
	- no rotation		P
3.6.4 (-)	Adjustable lampholders		N/A
3.6.5 (-)	Luminaires installed above 5 m, glass covers shall be:		P
	a) glass that fractures into small pieces (test according to 3.6.5.1), or		N/A
	b) glass having a high impact shock resistance (test according to 3.6.5.2), or	The glass withstands the test for IK 08 degree	P
	c) protected by any means to retain glass fragments		N/A
	For tunnel luminaires 3.6.5.1 apply		N/A
	Method of protection declared by the manufacturer		N/A
3.6.5.1 (-)	Protection by the use of glass that fractures into small pieces		N/A
	- number of particles is more than 40.....:		N/A
3.6.5.2 (-)	Protection by the use of high impact resistant glass		P
3.6.5.2.1 (-)	Glass covers have high mechanical strength		P
	Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample	IK08	P
3.6.5.2.2 (-)	Glass covers not break into large pieces		P
	- test according 3.6.5.1, number of particles is more than 20	>50	P
3.6.6 (-)	Connection compartment of column-integrated luminaire		N/A
	- provides adequate space		N/A
	- means for attachment		N/A
	- means for attachment of metal corrosion-resistant		N/A
3.6.7 (-)	Compliance with ISO standard or other		N/A
3.6.8 (-)	Doors of column-integrated luminaires:		N/A
	- corrosion-resistant		N/A
	- opening only possible for an authorized person		N/A
	- impact test 5 Nm		N/A
	- sample show no damage		N/A
3.6.9 (-)	Column-integrated luminaire:		N/A
	- dimension of the cable entry slot (mm)		N/A
	- cable path from the slot to the connection compartment (mm)		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

	- cable path free from obstruction that might cause abrasion of the cable		N/A
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3.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
3.7 (11.2.1)	Impulse withstand category (Normal category II)	Category II <input type="checkbox"/> Category III <input checked="" type="checkbox"/>	—
	Category III according Annex U		P
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
3.7 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 3.7 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with \hat{U}_{OUT} and f_{UOUT} according IEC 61347-1, clause 7.1, item w	See Test Table 3.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 3.7 (11.2) II	N/A
3.7 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 3.7 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P	See Test Table 3.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 3.7 (11.2) II	N/A

3.8 (7)	PROVISION FOR EARTHING		N/A
3.8 (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 groove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
3.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A
3.8 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
3.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
3.8 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
3.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
3.8 (7.2.8)	Material of earth terminal		N/A
	Contact surface bare metal		N/A
3.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
3.8 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
3.8.1 (-)	Attachment prevented from rotation		N/A

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

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

3.10 (5)	EXTERNAL AND INTERNAL WIRING		P
3.10 (5.2)	Supply connection and external wiring		P
3.10 (5.2.1)	Means of connection :	Terminal block	P
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment		N/A
3.10 (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
3.10 (5.2.3)	Type of attachment, X, Y or Z		N/A
3.10 (5.2.5)	Type Z not connected to screws		N/A
3.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
3.10 (5.2.8)	Insulating bushings:		P
	- suitably fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- tubes or guards made of insulating material	Insulating material	P
3.10 (5.2.9)	Locking of screwed bushings		N/A
3.10 (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 cables into knots etc.		P
	- insulating material or lining		P
3.10 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
3.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
3.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) : See clause 3.10.1		P
	- torque test: torque (Nm) : See clause 3.10.1		P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- no damage of cable or cord		P
	- function independent of electrical connection		P
3.10 (5.2.11)	External wiring passing into luminaire		N/A
3.10 (5.2.12)	Looping-in terminals		N/A
3.10 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
3.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
3.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector according relevant IEC standard		N/A
3.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
3.10 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
3.10 (5.3)	Internal wiring		P
3.10 (5.3.1)	Internal wiring of suitable size and type	0,75 mm ² (in primary circuit) AWG22 (in secondary circuit)	P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A)		N/A
	- temperatures	(see Annex 2)	N/A
	Green-yellow for earth only		N/A
3.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm ²).....	0,75m ²	P
	Insulation thickness (mm)	Double insulation	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Extra insulation added where necessary		P
3.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Cross-sectional area (mm ²)..... :		N/A
3.10 (5.3.1.3)	Double or reinforced insulation for class II		P
3.10 (5.3.1.4)	Conductors without insulation		N/A
3.10 (5.3.1.5)	SELV current-carrying parts		P
3.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
3.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		N/A
3.10 (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
3.10 (5.3.4)	Joints and junctions effectively insulated		N/A
3.10 (5.3.5)	Strain on internal wiring		N/A
3.10 (5.3.6)	Wire carriers		N/A
3.10 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
3.10 (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
3.10.1 (-)	Cord anchorage if applicable		P
	- pull test: 25 times; pull (N)	60	P
	- torque test: torque (Nm)	0,25	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
3.11 (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, 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 starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		P
	Protection in any position		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
3.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
3.11 (8.2.3.a)	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/A
3.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
3.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load (V)..... :		N/A
	- no-load voltage (V)..... :		N/A
	- touch current if applicable (mA) :		N/A
	One conductive part insulated if required		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Other than ordinary luminaire:		N/A
	- nominal 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
3.11 (8.2.4)	Portable luminaire has protection independent of supporting surface		N/A
3.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
3.11 (8.2.6)	Covers reliably secured		P
3.11 (8.2.7)	Luminaire other than below with capacitor > 0,5 μ F not exceed 50 V 1 min after disconnection		N/A
	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

3.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
3.12.2 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 3.13		—
3.12 (12.2)	Selection of lamps and ballasts		—
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Controlgear if separate and not supplied	(Controlgear used see Annex 2)	—
3.12 (12.3)	Endurance test		P
	a) mounting-position	See mounting instruction	—
	b) test temperature (°C)	60	—
	c) total duration (h)	240	—
	d) supply voltage (V)	1,1 x 240 V = 264 V	—
	d) if not equipped with controlgear, constant voltage/current (V) or (A)	-	—
	e) luminaire ceases to operate	-	—
3.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- marking legible		P
	- no cracks, deformation etc.		P
3.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
3.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	P
3.12 (12.6)	Thermal test (failed lamp control gear condition):		N/A
3.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A)		—
	- case of abnormal conditions		—
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un		—
	- measured mounting surface temperature (°C) at 1,1 Un		N/A
	- calculated mounting surface temperature (°C)		N/A
	- track-mounted luminaires		N/A
3.12 (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
3.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
3.12 (12.7.1)	Luminaire without temperature sensing control		N/A
3.12 (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		—

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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 3.15 (13.2.1)	N/A
3.12 (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
3.12 (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
3.12 (12.7.2)	Luminaire with temperature sensing control		P
	- thermal link	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	- manual reset cut-out	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	- auto reset cut-out	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	- case of abnormal conditions	Short circuit of secondary circuit	—
	- highest measured temperature of fixing point/exposed part (°C):	LED Driver fixed on a metal plate	—
	Ball-pressure test:		N/A
3.12.1 (-)	Temperature reduction if for outdoor use only	See annex 2	P
3.12.2 (-)	(See above)		—
3.12.3 (-)	Glass covers used within the thermal limits declared by the glass manufacturer	Δt measured: 14°C	P
3.13 (9)	RESISTANCE TO DUST AND MOISTURE		P
3.13.1 (-)	If IP > IP 20 the order of tests as specified in clause 3.12		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... :	IP 66	—
	- mounting position during test..... :	On a post top	—
	- fixing screws tightened; torque (Nm)..... :	—	—
	- tests according to clauses..... :	9.2.2 - 9.2.7	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		P
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N/A
	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 or pressure watertight luminaire		N/A
	e) no contact with live parts (IP 2X)		N/A
	e) no entry into enclosure (IP 3X and IP 4X)		N/A
	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		P
3.13 (9.3)	Humidity test 48 h		P

3.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
3.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø..... :		—
	Insulation resistance (MΩ)..... :		—
	SELV		P
	- between current-carrying parts of different polarity :	For models with SELV controlgears (see GPI): >100MΩ (1MΩ)	P
	- between current-carrying parts and mounting surface..... :	>100MΩ (1MΩ)	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts and metal parts of the luminaire :	>100M Ω (1M Ω)	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 :	> 100 M Ω (2 M Ω)	P
	- between live parts and mounting surface :	> 100 M Ω (4 M Ω)	P
	- between live parts and metal parts :	> 100 M Ω (4 M Ω)	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 :	> 100 M Ω (2 M Ω)	P
	- Insulation bushings as described in Section 5 :		N/A
3.14 (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		P
	- between current-carrying parts of different polarity :	For models with SELV controlgears (see GPI): 500V	P
	- between current-carrying parts and mounting surface..... :	500V	P
	- between current-carrying parts and metal parts of the luminaire :	500V	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 :		N/A
	Other than SELV		P
	- between live parts of different polarity :	1480 V	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- between live parts and mounting surface	2960 V; secondary circuits: 3200 V (according to "Table X" for Uout 300 Vd.c., see GPI)	P
	- between live parts and metal parts	2960 V; secondary circuits: 3200 V (according to "Table X" for Uout 300 Vd.c., see GPI)	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.....	1480 V	P
	- Insulation bushings as described in Section 5		N/A
3.14 (10.3)	Touch current or protective conductor current (mA):	touch current: 0,65 mA (0,7mA)	P

3.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		N/A
3.15 (13.2.1)	Ball-pressure test	See Test Table 3.15 (13.2.1)	N/A
3.15 (13.3.1)	Needle-flame test (10 s)	See Test Table 3.15 (13.3.1)	N/A
3.15 (13.3.2)	Glow-wire test (650°C)	See Test Table 3.15 (13.3.2)	N/A
3.15 (13.4)	Proof tracking test (IEC 60112)	See Test Table 3.15 (13.4)	N/A

IEC 60598-2-3							
Clause	Requirement + Test				Result - Remark		Verdict
3.7 (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	> 3,9	3,0	U1	> 4,5	3,0 (#)	11.1.A
Working voltage (V)					240		—
PTI					< 600 ☒ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV)					—		—
Supplementary information: (#) 2,5 elevated to 3,0 as required by clause U.2							
Distance 2:	S	> 3,9	3,0	U1	> 4,5	3,0 (#)	11.1.A
Working voltage (V)					240		—
PTI					< 600 ☒ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV)					—		—
Supplementary information: (#) 2,5 elevated to 3,0 as required by clause U.2							
Distance 3:	R	5,9	5,5	U.1	5,9	5,5 (#)	11.1.A
Working voltage (V)					240		—
PTI					< 600 ☒ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV)					—		—
Supplementary information: (#) 5,0 elevated to 5,5 as required by clause U.2							
Distance 4:	B	> 3,9	3.0	U.1	> 3,9	3,0 (#)	11.1.A
Working voltage (V)					300		—
PTI					< 600 ☒ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV)					—		—
Supplementary information: parts supplied by secondary circuit of LED driver (Uout max 300 Vd.c.);							

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

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

3.7 (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.

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

3.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			N/A
Allowed impression diameter (mm) :		2		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

3.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Supplementary information:					

3.15 (13.3.2)	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
Plastic lenses on LED module, PMMA	LEDIL		NO	0	P
Supplementary information: No flames. Test performed for clause 4.15					

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

3.15 (13.4)	TABLE: Proof tracking test (IEC 60112)				N/A
Test voltage PTI		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
Supplementary information:					

IEC 60598-2-3			
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⁾	
Internal wiring for primary circuit	A	SILTEK	UG4G4	450/700 V T 180 °C 0,75 mm ²	Properties equivalent to EN 60228	CSv-IMQ Cert. n° CA01.00289	
Internal wiring for primary circuit	C/D	COLOSIO	RD17	300/500 V T 90 °C 0,75 mm ² PVC covered with an additional PVC sleeve	IEC/EN 60598; EN 50525:2011	Tested in luminaire; IMQ <HAR> for the core Cert. n° DAT95005315	
Main terminal block	A	ADELS CONTACT	500	400V 24A 2,5mm ² T85	IEC/EN 60598-1:2004 IEC/EN 60998-2-1:2004	VDE Cert. n° 40021791	
Surge protective device (optional)	A	Philips	Surge Protector Class II	255V – 50/60Hz Tc 80°C	EN 61643-11:2012	KEMA KEUR Cert.n° 31-102677	
Dimming control (optional)	A	ALGORAB	P5-SLC	230V - 50Hz 20mA – Ta 70°C	IEC/EN 61347-1:2015 IEC/EN 61347-2-11:2001	ENEC 17 Cert.n° NO4301	
Internal wiring for Secondary circuit	C	VER CAVI	Style 1569	T105°C 22 AWG 300 V STYLE 1569	IEC/EN 60598-1 ANSI/UL 224	Tested in Luminaire Also UL certified (E140367)	
Internal wiring for Secondary circuit	C/D	TE CO TECNOLOGIA COMMERCIALE SPA	Style 1569	T105°C 22 AWG 300 V STYLE 1569	IEC/EN 60598-1 ANSI/UL 224	Tested in Luminaire Also UL certified (E244280)	
Internal connector	A	JST	XHP-6	6P 3A 250V T 85°C	IEC/EN 61984:2009	TUV Cert. n° J 50014297	
LED controlgear	B	PHILIPS	Xi FP 165W 0.3-1.0A SNLDAE 230V C170 sXt	220-240 Vac 50/60 Hz 300-1050 mA Set at max 800mA 80-235 Vdc (270 Vdc max) 150 W Tc 90°C T _{marked} „130“ (*)	IEC/EN 61347-1:2008+A1+A2 IEC/EN 61347-2-13:2014	ENEC 05 Cert. n° 2192466.02	

IEC 60598-2-3						
Clause	Requirement + Test			Result - Remark		Verdict
LED controlgear	B	PHILIPS	Xi LP 165W 0.3-1.0A S1 230V C170 sXt	220-240 Vac 50/60 Hz 500-1500 mA Set at max 850mA 80-235 Vdc (300 Vdc max) 165 W Tc 85°C T _{marked} „130“	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014	ENEC 05 Cert. n° 31-100166
LED controlgear	B/D	PHILIPS	Xi FP 110W 0.2-0.7A SNLDAE 230V C133 sXt	220-240 Vac 50/60 Hz 200-700 mA Set at max 550 mA 70-220 Vdc (300 Vdc max) 75 W Tc 85°C T _{marked} „130“	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014+A1	ENEC 05 Cert. n° 31-102940
LED controlgear	B/D	PHILIPS	Xi LP 110W 0.2-0.7A S1 230V C133 sXt	220-240 Vac 50/60 Hz 200-700 mA Set at max 550 mA 70-220 Vdc (300 Vdc max) 75 W Tc 90°C T _{marked} „130“	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014+A1	ENEC 05 Cert. n° 31-105242
LED controlgear	B/D	Philips	Xi FP 75W 0.3-1.0A SNLDAE 230V C133 sXt	220-240 Vac 50/60 Hz 300-1050 mA Set at max 800 mA 35-108 Vdc (150 Vdc max) 75 W Tc 80°C T _{marked} „130“	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014+A1	ENEC 05 Cert.n° 31-102391
LED controlgear	B/D	Philips	Xi LP 75W 0.3-1.0A S1 230V C133 sXt	220-240 Vac 50/60 Hz 300-1050 mA Set at max 800 mA 35-108 Vdc (150 Vdc max) 75 W Tc 80°C T _{marked} „130“	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014+A1	ENEC 05 Cert. n° 31-105242

IEC 60598-2-3						
Clause	Requirement + Test			Result - Remark		Verdict
LED controlgear	B/D	Philips	Xi FP 40W 0.2-0.7A SNLDAE 230V S175 sXt	220-240 Vac 50/60 Hz 200-700 mA Set at max 700 mA 25-77 Vdc (100 Vdc max) 40 W Tc 85°C T _{marked} „130“	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014+A1	ENEC 05 Cert n° 31-102332
LED controlgear	B/D	Philips	Xi LP 40W 0.2-0.7A S1 230V S175 sXt	220-240 Vac 50/60 Hz 200-700 mA Set at max 700 mA 23-77 Vdc (90 Vdc max) 40 W Tc 80°C T _{marked} „130“	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014+A1	ENEC 05 Cert n° 31-102676
(*) = declared double insulated between primary and secondary circuits and between primary circuit and accessible parts.						
LED MODULE	C	NERI	H0792	32 LEDs	IEC/EN 62013	Tested in luminaire
	C	NERI	H0791	16 LEDs	IEC/EN 62013	Tested in luminaire
LED Chip	C	NICHIA	NVSLE21AT	2000 mA _{max} 3000/4000K T _j 135°C	IEC/EN 62031	Tested in Luminaire
Internal connector	A	JST	XHP-6	6P 3A 250V T 85°C	IEC/EN 61984:2009	TUV Cert. n° J 50014297
LED module PWB	C	ITEQ	IT-859GTA	T110 – V0	IEC/EN 62031	Tested in luminaire also UL certified E178114
LED module PWB	C/D	Ventec	VT-4B3	T130 – V0	IEC/EN 62031	Tested in luminaire also UL certified E214381
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. The codes above have the following meaning: A - The component is replaceable with another one, also certified, with equivalent characteristics B - The component is replaceable if authorised by the test house C - Integrated component tested together with the appliance D - Alternative component						

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12		(1 of 8)	P			
	Type reference	Lang 32+32	—				
	Lamp used.....	2 x H0792 (800mA)	—				
	Lamp control gear used.....	Philips Xi FP 165W 0,3-1,0A SNLDAE 230V C170 sXt	—				
	Mounting position of luminaire	On a post top	—				
	Supply wattage (W)	150,7 W (240 V) 150,6 W (254 V)	—				
	Supply current (A)	0,637 A (240 V) 0,604 A (254 V)	—				
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—				
	- abnormal operating mode	Short circuit of secondary (*)	—				
1.12 (12.4)	- test 1: rated voltage	240 V	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	254,4 V	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	—	—				
	Through wiring or looping-in wiring loaded by a current of A during the test	—	—				
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	264 V	—				
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Tc point of LED Controlgear	51,0	86,8	-		90		
LED chip solder point (Tsp)1	51,0		92,0		130(**)		
LED chip solder point (Tsp)2	51,0		92,9		130(**)		
Lens	51,0		87,8		90		
Lens	51,0		88,9		90		
LED module connector	51,0		80,7		85		
LED module connector	51,0		81,4		85		
Power supply (under anchorage)	51,0		61,0		75		
Terminal supply	51,0		64,3		85		
Reflector	51,0		77,2		80		

IEC 60598-2-3							
Clause	Requirement + Test			Result - Remark			Verdict
Internal air	51,0		63,5		(**)		
Internal Glass	51,0		69,0		(**)		
External Glass	51,0		55,2		(**)		
Upper frame	51,0		69,8		(**)		
Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 135 °C; Thermal res.: 0,6°C/W; PLED: ~ 2,2 W); $T_{sp} = 135 - (0,6 \times 2,2)$. (***) For reference only							

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12 (2 of 8)		P				
	Type reference :	Lang 32+32	—				
	Lamp used..... :	2 x H0792 (800mA)	—				
	Lamp control gear used..... :	Philips Xi LP 165W 0,3-1,0A S1 230V C170 sXt	—				
	Mounting position of luminaire :	On a post top	—				
	Supply wattage (W) :	152,5 W (240 V) 152,5 W (254 V)	—				
	Supply current (A) :	0,644 A (240 V) 0,620 A (254 V)	—				
	Temperatures in test 1 - 4 below are corrected for ta (°C) :	50	—				
	- abnormal operating mode :	Short circuit of secondary (*)	—				
1.12 (12.4)	- test 1: rated voltage :	240 V	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	254,4 V	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :	—	—				
	Through wiring or looping-in wiring loaded by a current of A during the test :	—	—				
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	264 V	—				
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Tc point of LED Controlgear	50,1	84,5	-		85		
LED chip solder point (Tsp)1	50,1		92,0		130(**)		
LED chip solder point (Tsp)2	50,1		92,8		130(**)		
Lens	50,1		87,8		90		
Lens	50,1		88,7		90		
LED module connector	50,1		81,2		85		
LED module connector	50,1		78,8		85		
Power supply (under anchorage)	50,1		61,9		75		
Terminal supply	50,1		64,7		85		
Reflector	50,1		77,2		80		

IEC 60598-2-3							
Clause	Requirement + Test			Result - Remark			Verdict
Internal air	50,1		63,6		(**)		
Internal Glass	50,1		69,2		(**)		
External Glass	50,1		55,3		(**)		
Upper frame	50,1		67,6		(**)		
Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 135 °C; Thermal res.: 0,6°C/W; PLED: ~ 2,2 W); Tsp = 135 – (0,6x2,2). (***) For reference only							

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12 (3 of 8)		P				
	Type reference :	Lang 32+32	—				
	Lamp used..... :	2 x H0792 (550mA)	—				
	Lamp control gear used..... :	Philips Xi FP 110W 0,2-0,7A SNLDAE 230V C133 sXt	—				
	Mounting position of luminaire :	On a post top	—				
	Supply wattage (W) :	104,5 W (240 V) 104,4 W (254 V)	—				
	Supply current (A) :	0,440 A (240 V) 0,416 A (254 V)	—				
	Temperatures in test 1 - 4 below are corrected for ta (°C) :	50	—				
	- abnormal operating mode :	Short circuit of secondary (*)	—				
1.12 (12.4)	- test 1: rated voltage :	240 V	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	254,4 V	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :	—	—				
	Through wiring or looping-in wiring loaded by a current of A during the test :	—	—				
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	264 V	—				
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Tc point of LED Controlgear	50,4	81,0	-		85		
LED chip solder point (Tsp)1	50,4		77,6		134(**)		
LED chip solder point (Tsp)2	50,4		77,3		134(**)		
Lens	50,4		74,7		90		
Lens	50,4		75,3		90		
LED module connector	50,4		70,0		85		
LED module connector	50,4		67,9		85		
Power supply (under anchorage)	50,4		57,3		75		
Terminal supply	50,4		59,6		85		
Reflector	50,4		67,8		80		

IEC 60598-2-3							
Clause	Requirement + Test			Result - Remark			Verdict
Internal air	50,4		57,7		(**)		
Internal Glass	50,4		62,7		(**)		
External Glass	50,4		52,3		(**)		
Upper frame	50,4		62,2		(**)		
Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 135 °C; Thermal res.: 0,6°C/W; PLED: ~ 1,52 W); $T_{sp} = 135 - (0,6 \times 1,52)$. (***) For reference only							

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12 (4 of 8)		P				
	Type reference :	LANG 32+32	—				
	Lamp used..... :	2 x H0792 (550mA)	—				
	Lamp control gear used..... :	Philips Xi LP 110W 0,2-0,7A S1 230V C133 sXt	—				
	Mounting position of luminaire :	On a post top	—				
	Supply wattage (W) :	103,7 W (240 V) 103,6 W (254 V)	—				
	Supply current (A) :	0,443 A (240 V) 0,420 A (254 V)	—				
	Temperatures in test 1 - 4 below are corrected for ta (°C) :	50	—				
	- abnormal operating mode :	Short circuit of secondary (*)	—				
1.12 (12.4)	- test 1: rated voltage :	240 V	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	254,4 V	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :	—	—				
	Through wiring or looping-in wiring loaded by a current of A during the test :	—	—				
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	264 V	—				
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Tc point of LED Controlgear	49,6	77,2	-		90		
LED chip solder point (Tsp)1	49,6		78,8		134(**)		
LED chip solder point (Tsp)2	49,6		79,0		134(**)		
Lens	49,6		77,2		90		
Lens	49,6		75,0		90		
LED module connector	49,6		69,7		85		
LED module connector	49,6		68,9		85		
Power supply (under anchorage)	49,6		57,4		75		
Terminal supply	49,6		60,1		85		
Reflector	49,6		67,6		80		

IEC 60598-2-3							
Clause	Requirement + Test			Result - Remark			Verdict
Internal air	49,6		58,2		(**)		
Internal Glass	49,6		62,7		(**)		
External Glass	49,6		52,2		(**)		
Upper frame	49,6		61,7		(**)		
Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 135 °C; Thermal res.: 0,6°C/W; PLED: ~ 1,49 W); Tsp = 135 – (0,6x1,49). (***) For reference only							

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12 (5 of 8)		P				
	Type reference :	Lang 32+32	—				
	Lamp used..... :	2 x H0792 (800mA)	—				
	Lamp control gear used..... :	2 x Philips Xi FP 75W 0,3-1,0A SNLDAE 230V C133 sXt	—				
	Mounting position of luminaire :	On a post top	—				
	Supply wattage (W) :	149,3 W (240 V) 149,1 W (254 V)	—				
	Supply current (A) :	0,633 A (240 V) 0,597 A (254 V)	—				
	Temperatures in test 1 - 4 below are corrected for ta (°C) :	50	—				
	- abnormal operating mode :	Short circuit of secondary (*)	—				
1.12 (12.4)	- test 1: rated voltage :	240 V	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	254,4 V	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :	—	—				
	Through wiring or looping-in wiring loaded by a current of A during the test :	—	—				
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	264 V	—				
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Tc point of LED Controlgear 1	51,3	78,3	-		80		
Tc point of LED Controlgear 2	51,3	75,2	-		80		
LED chip solder point (Tsp)1	51,3		91,8		133 (**)		
LED chip solder point (Tsp)2	51,3		93,0		133 (**)		
Lens	51,3		86,9		90		
Lens	51,3		88,2		90		
LED module connector	51,3		79,7		85		
LED module connector	51,3		80,1		85		
Power supply (under anchorage)	51,3		62,0		75		
Terminal supply	51,3		64,9		85		

IEC 60598-2-3							
Clause	Requirement + Test			Result - Remark			Verdict
Reflector	51,3		76,8		80		
Internal air	51,3		68,6		(**)		
Internal Glass	51,3		68,6		(**)		
External Glass	51,3		55,3		(**)		
Upper frame	51,3		69,6		(**)		
Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 135 °C; Thermal res.: 0,6°C/W; PLED: ~ 2,16 W); $T_{sp} = 135 - (2,16 \times 0,6)$. (***) For reference only							

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12 (6 of 8)		P				
	Type reference :	Lang 32+32	—				
	Lamp used..... :	2 x H0792 (800mA)	—				
	Lamp control gear used..... :	2 x Philips Xi FP 75W 0,3-1,0A S1 230V C133 sXt	—				
	Mounting position of luminaire :	On a post top	—				
	Supply wattage (W) :	153,7 W (240 V) 153,0 W (254 V)	—				
	Supply current (A) :	0,658 A (240 V) 0,622 A (254 V)	—				
	Temperatures in test 1 - 4 below are corrected for ta (°C) :	50	—				
	- abnormal operating mode :	Short circuit of secondary (*)	—				
1.12 (12.4)	- test 1: rated voltage :	240 V	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	254,4 V	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :	—	—				
	Through wiring or looping-in wiring loaded by a current of A during the test :	—	—				
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	264 V	—				
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Tc point of LED Controlgear 1	50,3	79,7	-		80		
Tc point of LED Controlgear 2	50,3	79,2	-		80		
LED chip solder point (Tsp)1	50,3		89,8		133 (**)		
LED chip solder point (Tsp)2	50,3		88,9		133 (**)		
Lens	50,3		85,7		90		
Lens	50,3		86,7		90		
LED module connector	50,3		79,2		85		
LED module connector	50,3		81,0		85		
Power supply (under anchorage)	50,3		61,7		75		
Terminal supply	50,3		65,0		85		

IEC 60598-2-3							
Clause	Requirement + Test			Result - Remark			Verdict
Reflector	50,3		75,7		80		
Internal air	50,3		68,6		(**)		
Internal Glass	50,3		69,0		(**)		
External Glass	50,3		55,1		(**)		
Upper frame	50,3		68,5		(**)		
Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 135 °C; Thermal res.: 0,6°C/W; PLED: ~ 2,2 W); $T_{sp} = 135 - (0,6 \times 2,2)$. (***) For reference only							

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12 (7 of 8)		P				
	Type reference :	Lang 16+16	—				
	Lamp used..... :	N°2 LED module 16 LED NVSLE21AT NICHIA H0791 (700mA)	—				
	Lamp control gear used..... :	2 x Philips Xi FP 40W 0,2-0,7A SNLDAE 230V S175 sXt	—				
	Mounting position of luminaire :	On a post top	—				
	Supply wattage (W) :	71,6 W (240 V) 71,3 W (254 V)	—				
	Supply current (A) :	0,305 A (240 V) 0,289 A (254 V)	—				
	Temperatures in test 1 - 4 below are corrected for ta (°C) :	50	—				
	- abnormal operating mode :	Short circuit of secondary (*)	—				
1.12 (12.4)	- test 1: rated voltage :	240 V	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	254,4 V	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :	—	—				
	Through wiring or looping-in wiring loaded by a current of A during the test :	—	—				
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	264 V	—				
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Tc point of LED Controlgear 1	50,0	76,4	-		85		
Tc point of LED Controlgear 2	50,0	80,1	-		85		
LED chip solder point (Tsp)1	50,0		75,1		133 (**)		
LED chip solder point (Tsp)2	50,0		75,8		133 (**)		
Lens	50,0		69,2		90		
Lens	50,0		67,9		90		
LED module connector	50,0		63,0		85		
LED module connector	50,0		63,3		85		
Power supply (under anchorage)	50,0		55,3		75		

IEC 60598-2-3							
Clause	Requirement + Test			Result - Remark			Verdict
Terminal supply	50,0		57,6		85		
Reflector	50,0		61,6		80		
Internal air	50,0		55,8		(**)		
Internal Glass	50,0		59,9		(**)		
External Glass	50,0		50,4		(**)		
Upper frame	50,0		57,6		(**)		
Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 135 °C; Thermal res.: 0,6°C/W; PLED: ~ 2,03 W); Tsp = 135 – (0,6x2,03). (***) For reference only							

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12 (8 of 8)		P				
	Type reference :	Lang 16+16	—				
	Lamp used..... :	2 x H0791 (700mA)	—				
	Lamp control gear used..... :	2 x Philips Xi LP 40W 0,2-0,7A S1 230V S175 sXt	—				
	Mounting position of luminaire :	On a post top	—				
	Supply wattage (W) :	72,2 W (240 V) 72,1 W (254 V)	—				
	Supply current (A) :	0,307 A (240 V) 0,291 A (254 V)	—				
	Temperatures in test 1 - 4 below are corrected for ta (°C) :	50	—				
	- abnormal operating mode :	Short circuit of secondary (*)	—				
1.12 (12.4)	- test 1: rated voltage :	240 V	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	254,4 V	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :	—	—				
	Through wiring or looping-in wiring loaded by a current of A during the test :	—	—				
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	264 V	—				
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Tc point of LED Controlgear 1	51,2	77,5	-		80		
Tc point of LED Controlgear 2	51,2	74,3	-		80		
LED chip solder point (Tsp)1	51,2		76,9		133 (**)		
LED chip solder point (Tsp)2	51,2		76,0		133 (**)		
Lens	51,2		68,4		90		
Lens	51,2		68,1		90		
LED module connector	51,2		63,0		85		
LED module connector	51,2		63,2		85		
Power supply (under anchorage)	51,2		55,7		75		
Terminal supply	51,2		57,7		85		

IEC 60598-2-3							
Clause	Requirement + Test			Result - Remark			Verdict
Reflector	51,2		61,6		80		
Internal air	51,2		57,2		(**)		
Internal Glass	51,2		59,6		(**)		
External Glass	51,2		50,8		(**)		
Upper frame	51,2		57,1		(**)		
Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 135 °C; Thermal res.: 0,6°C/W; PLED: ~ 2,03 W); $T_{sp} = 135 - (2,03 \times 0,6)$. (***) For reference only							

IEC 60598-2-3			
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 60598-2-3			
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

IEC 60598-2-3										
Clause	Requirement + Test					Result - Remark				Verdict
	Terminal size and rating									N/A
15.6.2	Mechanical tests									N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) :									N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) :									N/A
(15.6.3)	Electrical tests									N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1									N/A
(15.6.3.1) (15.6.3.2)	TABLE: Contact resistance test / Heating tests									N/A
	Voltage drop (mV) after 1 h									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop of two inseparable joints									N/A
	Voltage drop after 10th alt. 25th cycle									N/A
	Max. allowed voltage drop (mV) :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop after 50th alt. 100th cycle									N/A
	Max. allowed voltage drop (mV) :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 10th alt. 25th cycle									N/A
	Max. allowed voltage drop (mV) :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 50th alt. 100th cycle									N/A
	Max. allowed voltage drop (mV) :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
Supplementary information:										

Enclosure 1	European Group Differences and National Differences
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IEC60598_2_3L - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60598-2-3 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Luminaires Part 2: Particular requirements Section 3: Luminaires for road and street lighting			
Differences according to: EN 60598-2-3:2003, AMD1:2011 used in conjunction with EN 60598-1:2015, AMD1:2018			
Annex Form No.: EU_GD_IEC60598_2_3L Annex Form Originator: Intertek Semko AB Master Annex Form: 2018-12-07			
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	CENELEC COMMON MODIFICATIONS (EN)		—
3.6 (4)	CONSTRUCTION		N/A
3.6 (4.11.6)	Electro-mechanical contact systems		N/A
3.10 (5)	EXTERNAL AND INTERNAL WIRING		N/A
3.10 (5.2.2)	Cables equal to EN 50525		N/A
	Replace table 5.1 – Supply cord		N/A
3.12 (12)	ENDURANCE TESTS AND THERMAL TESTS		P
3.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		P
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
(3.3)	DK: power supply cords of class I luminaires with label		N/A
(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) Glow-wire test for outer parts of luminaires:		N/A
	- 850°C for luminaires in stairways and horizontal travel paths		N/A
	- 650°C for indoor luminaires		N/A

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Enclosure 1	European Group Differences and National Differences
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IEC60598_2_3L - ATTACHMENT			
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Clause	Requirement + Test	Result - Remark	Verdict
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	GB: Requirements according to United Kingdom Building Regulation		N/A
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Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
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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		—
	Built-in module	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Independent module	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Integral module	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		—

7	MARKING		P
7.1	Mandatory markings for built-in or independent modules		P
	a) mark of origin		P
	b) model number, type reference	32 LEDs Mod. H0792 16 LEDs Mod. H0791	P
	c1) constant voltage module; rated supply voltage and supply frequency		N/A
	c2) constant current module; rated supply current and supply frequency		P
	d) nominal power		N/A
	e) indication of connections, wiring diagram		N/A
	f) value of t_c and place on the module	Only for reference (if any)	P
	g) E_{thr} if required	See enclosure 3	P
	h) symbol for built-in modules		N/A
	i) heat transfer temperature t_d		N/A
	j) power for heat-conduction P_d		N/A
	k) working voltage for insulation		N/A
7.2	Location of marking		P
	- marking of a), b), c) and f) on the modules		N/A

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
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	- marking of d), e), g), h), i) and j) on the modules or data sheet		N/A
	- marking of k) in manufactures literature		N/A
	- integral modules a) to g) in literature		P
7.3	Durable and legibility of marking		N/A
	- marking of a), b), c) and f) legible after test with water		N/A
	- marking of d) to j) inspection of compliance		N/A

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

9 (9)	PROVISION FOR PROTECTIVE EARTHING		N/A
- (9.1)	Provisions for protective earthing		N/A
	Terminal complying with clause 8		N/A
	Locked against loosening and not possible to loosen by hand		N/A
	Not possible to loosen clamping means unintentionally on screwless terminals		N/A
	Earthing via means of fixing		N/A
	Earthing terminal only used for the earthing of the control gear		N/A
	All parts of material minimizing the danger of electrolytic corrosion		N/A
	Made of brass or equivalent material		N/A
	Contact surface bare metal		N/A
- (9.2)	Provision for functional earthing		N/A
	Comply with clause 8 and 9.1		N/A
- (9.3)	Earth contact via the track on the printed board		N/A

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
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	Test with a current of 25 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω) at ≥ 10 A according 7.2.3 of IEC 60598-1: $< 0,5 \Omega$		N/A
- (9.4)	Earthing of built-in lamp controlgear		N/A
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1		N/A
	Earthing terminal only for earthing the built-in controlgear		N/A
- (9.5)	Earthing via independent controlgear		N/A
- (9.5.1)	Earth connection to other equipment		N/A
	Looping or through connection, conductor min. 1,5 mm ² and of copper or equivalent		N/A
	Protective earthing wires in line with 5.3.1.1 and clause 7		N/A
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N/A
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal and each of the accessible metal parts at ≥ 10 A according 7.2.3 of IEC 60598-1: $< 0,5 \Omega$		N/A
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N/A

10 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		P
- (10.1)	Controlgear protected against accidental contact with live parts		N/A
- (A2)	The current flowing between the part concerned and earth is measured and does not exceed 0,7 mA (peak) or 2 mA d.c.		N/A
- (A2)	For frequencies above 1 kHz, the current does not exceed 0,7 mA (peak) multiplied by the value of the frequency in kilohertz or 70 mA (peak)		N/A
- (A3)	The voltage between the part concerned and any accessible part is measured and does not exceed 34 V (peak).....		N/A
- (10.1)	Lacquer or enamel not used for protection or insulation		N/A
	Adequate mechanical strength on parts providing protection		P
- (10.2)	Capacitors $> 0,5 \mu\text{F}$: voltage after 1 min (V): < 50 V		N/A

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
- (10.3)	Controlgear providing SELV		N/A
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear	Only for models with SELV controlgears	P
	No connection between output circuit and the body or protective earthing circuit		N/A
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N/A
	SELV outputs separated by at least basic insulation		N/A
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of IEC 61347-1		N/A
- (10.4)	Accessible conductive parts in SELV circuits		N/A
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		N/A
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. :		N/A
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
11 (11)	MOISTURE RESISTANCE AND INSULATION		P
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (M Ω):		P
	For basic insulation ≥ 2 M Ω :	> 5 M Ω	P
	For double or reinforced insulation ≥ 4 M Ω :		N/A
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N/A
12 (12)	ELECTRIC STRENGTH		P
	Immediately after clause 11 electric strength test for 1 min		P

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
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	Basic insulation for SELV, test voltage 500 V		N/A
	Working voltage ≤ 50 V, test voltage 500 V		N/A
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		P
	Basic insulation, 2U + 1000 V	1600 V For Uopen 300 Vd.c.	P
	Supplementary insulation, 2U + 1000 V		N/A
	Double or reinforced insulation, 4U + 2000 V		N/A
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N/A

13 (14)	FAULT CONDITIONS		P
- (14)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	N/A
- (14.1)	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)	P
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		P
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (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:		P
	The insulation resistance ≥ 1 M Ω	> 1 M Ω	P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite	Tested in Luminaire	N/A
- (14.6)	Relevant fault condition tests with high-power supply		N/A

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
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13.2	Overpower condition		P
	Module withstands overpower condition >15 min.	1,5 x P _n (140W)=210W (32+32LEDs at 1200mA); 1,5 x P _n (72,2W)= 108W (16+16 LEDs at 1050mA).	P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P

15	CONSTRUCTION		P
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P

16 (16)	CREEPAGE DISTANCES AND CLEARANCES		P
- (16)	Creepage and distances and clearances in compliance with IEC 61347-1	(see appended table)	P
	Insulating lining of metallic enclosures		N/A
	Basic insulation on printed boards tested according to clause 14		N/A
	Distances subjected to both sinusoidal voltage as non-sinusoidal pulses not less than value in Table 16		N/A
	Creepage distances not less than minimum clearance		N/A
16 (-)	Conductive accessible parts in compliance with applicable parts of IEC 60598-1	(see appended table)	P

17 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		P
	Cl. 17 refer to Cl. 17 of IEC 61347-1 which refer to Cl. 4.11 and 4.12 of IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		—
(4.11)	Electrical connections		N/A
(4.11.1)	Contact pressure		N/A
(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


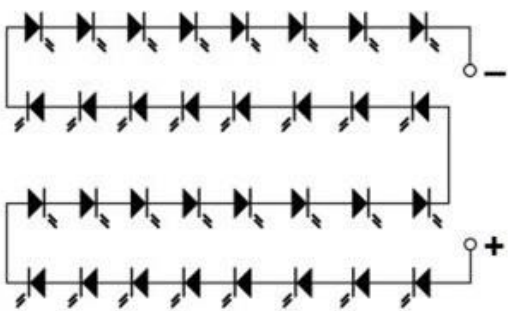
Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood or mounting surface		P
(4.11.6)	Electro-mechanical contact systems		N/A
(4.12)	Mechanical connections and glands		P
(4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:	0,50; Ø 3 mm	P
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
(4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm)		N/A
	- lampholder; torque (Nm)		N/A
	- push-button switches; torque 0,8 Nm		N/A
(4.12.5)	Screwed glands; force (Nm).....:		N/A
18 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
- (18.1)	Ball-pressure test	See Test Table 18 (18.1)	N/A
- (18.3)	Glow-wire test (650°C)	See Test Table 18 (18.3)	N/A
- (18.4)	Needle-flame test (10 s)	See Test Table 18 (18.4)	N/A
- (18.5)	Proof tracking test	See Test Table 18 (18.5)	P
19 (19)	RESISTANCE TO CORROSION		N/A
	- test according 4.18.1 of IEC 60598-1		N/A
	- adequate varnish on the outer surface		N/A
20	INFORMATION FOR LUMINAIRE DESIGN		N/A
	Information in Annex D (informative)		—
21	HEAT MANAGEMENT		N/A
21.1	General		N/A
	Exchangeability is safeguarded by cap or base		N/A
21.2	Heat-conducting foil and paste		N/A
	Heat-conducting foil delivered with the module if necessary		N/A

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
22	PHOTOBIOLOGICAL SAFETY		P
22.1	UV radiation		N/A
	Luminous radiation not exceed 2mW/klm		N/A
22.2	Blue light hazard		P
	Assessed according to IEC TR 62778		P
22.3	Infrared radiation		N/A
	Requirements for infrared radiation when required		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

13 (14)	TABLE: tests of fault conditions	
<p style="text-align: center;">LED MODULE 32 LEDs (M0405)</p>  		

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
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n°	Schematic	Short circuit	Open circuit	Effects	Result
1	LED chip		X	The LED module does not operate. No hazard, No damage after restoring.	P
2	LED chip	X		LED module operates except the LED in short circuit. No hazard, No damage after short circuit removal.	P

The fault condition tests performed on this LED module will extend all the LED modules, involved in this certification, that are realized with the same materials and intended for the same working current or lower, with less LED chips.

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
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16 (16)	TABLES: Creepage distances and clearances						N/A	
Table 3	Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages						N/A	
RMS working voltage (V) not exceeding		50	150	250	500	750	1000	
Creepage distances								
Required basic insulation, PTI ≥ 600		0,6	0,8	1,5	3	4	5,5	
Measured								
Required basic insulation, PTI < 600		1,2	1,6	2,5	5	8	10	
Measured								
Required supplementary insulation PTI ≥ 600		-	0,8	1,5	3	4	5,5	
Measured								
Required supplementary insulation PTI < 600		-	1,6	2,5	5	8	10	
Measured								
Required reinforced insulation		-	3,2	5	6	8	11	
Measured								
Clearances								
Required basic insulation		0,2	0,8	1,5	3	4	5,5	
Measured								
Required supplementary insulation		-	0,8	1,5	3	4	5,5	
Measured								
Required reinforced insulation		-	1,6	3	6	8	11	
Measured								
Table 4	Minimum distances (mm) for non-sinusoidal pulse voltages						N/A	
Rated pulse voltage (peak kV)		2,0	2,5	3,0	4,0	5,0	6,0	8,0
Required clearances		1,0	1,5	2	3	4	5,5	8
Measured								
Rated pulse voltage (peak kV)		10	12	15	20	25	30	40
Required clearances		11	14	18	25	33	40	60
Measured								
Rated pulse voltage (peak kV)		50	60	80	100	-	-	-
Required clearances		75	90	130	170	-	-	-
Measured								

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
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18 (18.1)	TABLE: Ball Pressure Test of Thermoplastics			N/A
Allowed impression diameter (mm) :				—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

18 (18.3)	TABLE: Glow-wire test				N/A
Glow wire temperature		650°C			—
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No)					
Supplementary information:					

18 (18.4)	TABLE: Needle-flame test				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Supplementary information:					

18 (18.5)	TABLE: Proof tracking test				P
Test voltage PTI		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
VT-4B3	VENTEC	P	P	P	P
IT-859GTA	ITEQ	P	P	P	P
Supplementary information:					
ANNEX 1	SELV-operated LED modules				N/A
	Cl. 5.5 refer to ANNEX I of IEC 61347-2-13 which refer to ANNEX L of IEC 61347-1 (clause numbers between parentheses refer to ANNEX L of IEC 61347-1)				—

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
(L.3)	Classification		N/A
	Class I	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	Class II	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	Class III	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	non-inherently short circuit proof controlgear	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	inherently short circuit proof controlgear	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	fail safe controlgear	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	non-short-circuit proof controlgear	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
(L.4)	Marking		N/A
	Adequate symbols are used		N/A
(L.5)	Protection against electric shock		N/A
	Comply with 9.2 of IEC 61558-1		N/A
(L.6)	Heating		N/A
	No excessive temperatures in normal use		N/A
	Value if capacitor tc marked		—
	Winding insulation classified as Class		—
	Comply with tests of clause 14 of IEC 61558-1 with adjustments		N/A
(L.7)	Short-circuit and overload protection		N/A
	Comply with tests of clause 15 of IEC 61558-1 with adjustments		N/A
(L.8)	Insulation resistance and electric strength		N/A
(L.8.1)	Conditioned 48 h between 91 % and 95 %		N/A
(L.8.2)	Insulation resistance		N/A
	Between input- and output circuits not less than 5 MΩ		N/A
	Between metal parts of class II convertors which are separated from live parts by basic insulation only and the body not less than 5 MΩ		N/A
	Between metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 MΩ		N/A
(L.8.3)	Electric strength		N/A
	1) Between live parts of input circuits and live parts of output circuits		N/A
	2) Over basic or supplementary insulation between:		N/A
	a) live parts having different polarity		N/A

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
	b) live parts and body if intended to be connected to protective earth		N/A
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord		N/A
	d) live parts and an intermediate metal part		N/A
	e) intermediate metal parts and the body		N/A
	f) each input circuit and all other input circuits		N/A
	3) Over reinforced insulation between the body and live parts		N/A
(L.9)	Construction		N/A
(L.9.1)	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		N/A
	HF transformer comply with 19 of IEC 61558-2-16		N/A
(L.10)	Components		N/A
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		N/A
(L.11)	Creepage distances and clearances		N/A
	1. Insulation between input and output circuits, basic insulation:		N/A
	a) measured values \geq specified values (mm)		N/A
	b) measured values \geq specified values (mm)		N/A
	c) measured values \geq specified values (mm)		N/A
	2. Insulation between input and output circuits, double or reinforced insulation:		N/A
	a) measured values \geq specified values (mm)		N/A
	b) measured values \geq specified values (mm)		N/A
	c) measured values \geq specified values (mm)		N/A
	3. Insulation between adjacent <u>output</u> circuits		N/A
	- measured values \geq specified values (mm)		N/A
	4. Insulation between terminals for external connection:		N/A
	- measured values \geq specified values (mm)		N/A
	5. Basic or supplementary insulation:		N/A
	a) measured values \geq specified values (mm)		N/A
	b) measured values \geq specified values (mm)		N/A
	c) measured values \geq specified values (mm)		N/A
	d) measured values \geq specified values (mm)		N/A
	e) measured values \geq specified values (mm)		N/A
	6. Reinforced insulation or insulation:		N/A

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
	Between body and output circuit: measured values \geq specified values (mm)		N/A
	Between body and output circuit if provision against transient voltages: measured values \geq specified values (mm)		N/A
	7. Distance through insulation:		N/A
	a) measured values \geq specified values (mm)		N/A
	b) measured values \geq specified values (mm)		N/A
	c) measured values \geq specified values (mm)		N/A

ANNEX 2		TABLE: Critical components information					N/A
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
See Annex 1 of the main Report							
Supplementary information:							
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.							
The codes above have the following meaning:							
A - The component is replaceable with another one, also certified, with equivalent characteristics							
B - The component is replaceable if authorised by the test house							
C - Integrated component tested together with the appliance							
D - Alternative component							

ANNEX 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

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
(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

Enclosure 2	Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015
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Clause	Requirement + Test	Result - Remark	Verdict
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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
(15.5.2)	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 external wiring		N/A
	Terminal size and rating		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)		N/A

Enclosure 3	Evaluations according to Regulatory Requirements and National Conditions for the Kingdom of Saudi Arabia
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Clause	Requirement + Test	Result - Remark	Verdict
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RATED VOLTAGE AND FREQUENCY			—
	Rated voltage or rated voltage range, for equipment intended to be connected to the supply mains, shall cover:		—
	- for single-phase: 220 V, or 230 V, or 127 V for spare parts and components only	Rated 220-240 V	P
	- for multi-phase: 380 V or 400 V		N/A
	Rated frequency or frequency range shall cover 60 Hz	Rated 50/60 Hz	P
POWER CORDS AND PLUGS			—
	Where applicable, electrical equipment shall be supplied with the following plug type:		—
	IEC Type G plugs configurations in conformity with SASO 2203 and/or BS 1363		N/A
MARKING AND INSTRUCTIONS			—
	All products must bear an un-removable fixed indication for the country of origin. Acceptable wordings are "Made in..." or "Manufactured in..."	"Made in Italy" on the label	P
	Markings on the name plate shall be either in Arabic or English language or both.		P
	When provided, the instructions for installation and user manuals shall be in Arabic <u>and</u> English for all equipment intended for household and similar use.		N/A
	When provided, the instructions for installation and user manuals shall be in Arabic <u>or</u> English for all non-household equipment intended for use by trained professionals.	Will be provided also in Arabic	P
	Any pictures, text or objects that are offensive to the Islamic religion shall not appear on the product, markings or accompanying instructions.		P
	Pictures, text or objects that are offensive to the Islamic religion shall not appear on the product packaging too, but packages are not in scope of the present investigation.		

Enclosure 4	Australia/New Zealand's National Differences
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Clause	Requirement + Test	Result - Remark	Verdict
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Gap analysis between IEC 60598-1, Ed. 8.1 (2017) and IEC 60598-1, Ed. 8.0 (2014) to meet the IEC standard edition mentioned in AUSTRALIA/NEW ZEALAND National Differences			
0	GENERAL TEST REQUIREMENTS		—
0.1	Information for luminaire design considered	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Lamp standard:	—
0.3	More sections applicable	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Section/s:	—

11	CREEPAGE DISTANCES AND CLEARANCES		P
11.2	Creepage distances and clearances	See Table 11.2	P
	Impulse withstand category (Normal category II) (Category III Annex U, Table U.1)	Category II <input type="checkbox"/> Category III <input checked="" type="checkbox"/>	—

5	EXTERNAL AND INTERNAL WIRING		N/A
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

12	ENDURANCE TEST AND THERMAL TEST		N/A
12.3	Endurance test:		N/A
	- mounting-position		—
	- test temperature (°C).....		—
	- total duration (h)		—
	- supply voltage: Un factor; calculated voltage (V) ...:		—
	- lamp used.....		—

Enclosure 4	Australia/New Zealand's National Differences
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Clause	Requirement + Test	Result - Remark	Verdict
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TABLE 11.2: Creepage distances and clearances							P
	Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages						P
	Applicable part of IEC 60598-1 Table 11.1* and 11.2*						P
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	B	> 3,9	3	U.1	> 3,9	3	U.1
Working voltage (V)					240 V		—
PTI					< 600 ☒ ≥ 600 ☐		—
Pulse voltage if applicable (kV)					—		—
Supplementary information:							
Distance 2:	S	> 3,9	3	U.1	> 3,9	3	U.1
Working voltage (V)					240 V		—
PTI					< 600 ☒ ≥ 600 ☐		—
Pulse voltage if applicable (kV)					—		—
Supplementary information:							
Distance 3:	R	6	6	U.1	6	6	U.1
Working voltage (V)					240 V		—
PTI					< 600 ☒ ≥ 600 ☐		—
Pulse voltage if applicable (kV)					—		—
Supplementary information:							
Distance 4:	B	>3,9	3,4	U.1	>3,9	3,4	U.1
Working voltage (V)					300		—
PTI					< 600 ☒ ≥ 600 ☐		—
Pulse voltage if applicable (kV)					—		—
Supplementary information: parts supplied by secondary circuit of LED driver (Uout max 300 Vd.c.) and double isolated from primary							

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

Enclosure 4	Australia/New Zealand's National Differences
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Clause	Requirement + Test	Result - Remark	Verdict
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ATTACHMENT TO TEST REPORT IEC 60598-2-3 (AUSTRALIA/NEW ZEALAND) NATIONAL DIFFERENCES (LUMINAIRES) (Part2.2 Particular requirements—Recessed luminaires)			
Differences according to.....:		AS/NZS 60598.2.3:2015 AS/NZS 60598.1:2017	
Attachment Form No.....:		AU_NZ_ND_IEC60598_2_3K	
Attachment Originator		JAS-ANZ	
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	National Differences		—
Appendix ZZ	Variations to IEC 60598-1 Ed 8.0 (2014) Normative		—
ZZ1	Scope This Appendix sets out variations between this Standard and IEC 60598-1, Ed. 8.0 (2014) and additional requirements to cover issues that have not been addressed by the International Standard (AS/NZS 60598.1:2017)		—
	Variations to IEC 60598-2-3, ED.3.1 (2011) form the Australian/New Zealand variations for the purposes of the IECEE Scheme for recognition of testing to standards for safety of electrical equipment (the CB Scheme). They are listed in this Appendix for easy reference and will be published in the CB bulletin (AS/NZS 60598.2.3:2015)		—
ZZ2	Variations		—
3.1	Scope and object		—
3.1 (0.1)	Addition Add the following text at the end of Clause 0.1 Where the term “lamp” is used in this Standard, it is taken to include electric light sources. LED light sources are subject to the same test parameters as “other discharge lamps”. (AS/NZS 60598.1:2017)		—
	NOTE Portable rechargeable battery operated luminaires should comply with Annex B, ‘Appliances powered by rechargeable batteries’ of AS/NZS 60335.1, Household and similar electrical appliances—Safety, Part 1: General requirements (IEC 60335-1 ED. 5, MOD). In addition, portable, rechargeable, battery-operated luminaires with lithium ion batteries should have overvoltage protection (AS/NZS 60598.1:2017)		—
0.2	Normative references		—
(0.2)	Addition Add the following normative references: IEC 61048, Auxiliaries for lamps – Capacitors for use in tubular fluorescent and other discharge lamp circuits – General and safety requirements IEC 61049, Auxiliaries for lamps – Capacitors for use in tubular fluorescent and other discharge lamp circuits – Performance requirements IEC 61995-1, Devices for the connection of luminaires for household and similar purposes – Part 1: General		—

Enclosure 4	Australia/New Zealand's National Differences		
Clause	Requirement + Test	Result - Remark	Verdict
	<p>ISO 8124-1, Safety of toys – Part 1: Safety aspects related to mechanical and physical properties</p> <p>AS/NZS 3112, Approval and test specification—Plugs and socket-outlets</p> <p>AS/NZS 3120, Approval and test specification—Cord extension sockets</p> <p>AS/NZS 3133, Approval and test specification—Air-break switches</p> <p>AS/NZS 3191, Electric flexible cords</p> <p>AS/NZS 60335.2.29, Household and similar electrical appliances—Safety, Part 2.29: Particular requirements for battery chargers</p> <p>AS/NZS 60669, Switches for household and similar fixed electrical installations (series)</p> <p>AS/NZS 60695.2.11, Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products (IEC 60695-2-11:2000, MOD)</p> <p>AS/NZS 60695.11.5, Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance</p> <p>AS/NZS 60884.1, Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</p> <p>AS/NZS 61058.1, Switches for appliances, Part 1: General requirements (IEC 61058-1, Ed.3.1 (2000), MOD)</p> <p>AS/NZS 61347, Lamp controlgear (series)</p> <p>AS/NZS 61558, Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V (series)</p> <p>(AS/NZS 60598.1:2017)</p>		

Enclosure 4		Australia/New Zealand's National Differences	
Clause	Requirement + Test	Result - Remark	Verdict
3.2	General test requirements and verification		
3.2 (0.4.2)	<p>Addition</p> <p>After the first paragraph, <i>insert</i> the following text:</p> <p>In Australia, for equipment, other than class III equipment, that is intended for connection to the supply mains and not marked with:</p> <ul style="list-style-type: none"> — a rated voltage of at least 240 V for single-phase equipment or a rated voltage of at least 415 V for three-phase equipment; or — a rated voltage range that includes 240 V for single-phase equipment and 415 V for three-phase equipment, the rated voltage is equal to 240 V for single-phase equipment and 415 V for three-phase equipment, and the upper limit of the voltage range is equal to 240 V for single-phase equipment and 415 V for three-phase equipment. <p>(AS/NZS 60598.1:2017)</p>	220-240 V	P
3.2	<p>Addition</p> <p>After the second paragraph, <i>add</i> the following text:</p> <p>In Australia, the declared ambient temperature t_a shall be 40 °C or above, for the thermal tests of Clause 3.12.</p> <p>In Australia and New Zealand, the IP rating for water tests of Clause 3.12 or 3.13 shall be IPX4.</p> <p>(AS/NZS 60598.2.3:2015)</p>	IP65	P
0.5	Components of luminaires		—
(0.5)	<p>Addition</p> <p><i>Insert</i> the following text as the first paragraph:</p> <p>Throughout this document, where there is a relevant Australian/New Zealand Standard, it replaces the IEC Standard unless otherwise specified</p> <p>(AS/NZS 60598.1:2017)</p>		—
(0.5.2A)	<p>Addition</p> <p><i>Add</i> the following new Clause after Clause 0.5.2</p> <p>0.5.2A Capacitors</p> <p>Capacitors shall comply with Clause 4.2A.</p> <p>(AS/NZS 60598.1:2017)</p>		N/A
3.3	DEFINITIONS		—
3.3 (1.2)	<p>Addition</p> <p><i>Add</i> the following new definitions after 1.2.86</p>		—

Enclosure 4		Australia/New Zealand's National Differences	
Clause	Requirement + Test	Result - Remark	Verdict
	1.2.87 installation coupler connecting device consisting of an installation female connector and an installation male connector provided with retaining means for permanent connection not intended to be engaged or disengaged under load nor to be engaged or disengaged other than during first installation, during maintenance of the wiring system or during re-configuration of the wiring system		—
	1.2.88 installation male connector load side portion of an installation coupler which contains the male contacts		—
	1.2.89 installation female connector supply side portion of an installation coupler which contains the female contacts		—
	1.2.90 installation coupler system family of installation couplers consisting of one or more installation female connectors compatible by mechanical coding features with one or more installation male connectors, with the same ratings produced according to the specification of one manufacturer (AS/NZS 60598.1:2017)		—
3.4	CLASSIFICATION OF LUMINAIRES		—
3.4 (2.2)	Addition At the end of Clause 2.2, insert the following text: Class 0 luminaires are not permitted in Australia or New Zealand (AS/NZS 60598.1:2017)	Class II	P
3.5	MARKING		—
3.5 (3.1)	Addition After the first paragraph, insert the following text: In Australia and New Zealand, instructions and other texts required by this Standard shall at least be written in English. Compliance is checked by inspection. (AS/NZS 60598.1:2017)		P

Enclosure 4		Australia/New Zealand's National Differences	
Clause	Requirement + Test	Result - Remark	Verdict
3.5(3.2)	Variation <i>Delete the second paragraph beginning with 'Marking may be on ballast provided...'. (AS/NZS 60598.1:2017)</i>		P
(Table 3.1)	Variation 1. Second column, second row, delete Item 3.2.21. 2. Third column, second row, add the following new item: 3.2.21 The relevant symbol for luminaires not suitable for covering with thermally insulating material (AS/NZS 60598.1:2017)		N/A
3.5 (3.2.3)	Variation <i>Delete</i> the text ' , if other than 25 °C'.		—
3.5 (3.2.12)	Addition At the end of the Clause, insert the following text: In Australia, luminaires for household use and similar with supply cords that are not fitted with a plug shall be marked with a cord tag with the symbol for “must be installed by a licensed electrician”. (Refer to Figure ZZ1.) (AS/NZS 60598.1:2017)		N/A
3.5(3.2.23)	Addition At the end of the Clause, <i>insert</i> the following text: The additional information shall include the symbol "Do not stare at the operating light source" (see Figure 1) along with an explanation of the symbol. (AS/NZS 60598.1:2017)		P
3.5 (3.3.7)	Variation <i>Delete</i> Clause 3.3.7 and <i>replace</i> with the following: 3.3.7 Luminaires for use with metal halide lamps shall be provided with instructions that state the substance of the following: To avoid potential unsafe lamp failure, the luminaire shall be switched off for at least 30 minutes at least once a week. In addition, the luminaire shall be operated: — complete with its protective shield; or — with a double jacketed lamp (AS/NZS 60598.1:2017)		N/A
3.5 (3.3.18)	Deletion <i>Delete</i> the text ' , i.e. for indoor use only'. (AS/NZS 60598.1:2017)		N/A
(3.3.21)	Deletion Delete the text 'Caution, risk of electric shock' and the symbol. (AS/NZS 60598.1:2017)		P

Enclosure 4		Australia/New Zealand's National Differences	
Clause	Requirement + Test	Result - Remark	Verdict
3.6	CONSTRUCTION		—
3.6 (4.7.2)	Variation <i>Delete</i> the first paragraph and <i>replace</i> with the following: 4.7.2 Terminals shall be located or shielded in such a way that, if a wire of a stranded conductor escapes from a terminal when the conductors are fitted, there is no risk of contact between live parts and metal parts that can be touched with the standard test finger, nor shall it be possible to touch a live free wire with the standard test finger when the luminaire is fully assembled for use or open for the replacement of replaceable light sources or starters. (AS/NZS 60598.1:2017)		P
3.6 (4.8)	Variation After the third paragraph, <i>insert</i> the following text: Switches shall comply with AS/NZS 3133, the AS/NZS 60669 series or AS/NZS 61058.1. Switches that indicate an off position shall have contacts with an air break and comply with AS/NZS 3133, AS/NZS 60669.1 or AS/NZS 61058.1.		N/A
	Fourth paragraph, <i>delete</i> the text 'IEC 61058-1' and replace with 'AS/NZS 60669.2.1 or IEC 61058-1 classified for 10,000 operating cycles'. (AS/NZS 60598.1:2017)		N/A
3.6 (4.10.4)	Variation First paragraph, <i>delete</i> the last sentence and replace with the following: If the working voltage does not exceed the rated voltage of the capacitor, accessible conductive parts separated from live parts by double or reinforced insulation, as above, may be bridged by a single Y1 capacitor with qualification approval as specified in IEC 60384-14. (AS/NZS 60598.1:2017)		N/A
3.6 (4.14.6)	After the first paragraph, insert the following text: A fixed socket-outlet complying with AS/NZS 3112 or AS/NZS 60884.1 is used for the following test. (AS/NZS 60598.1:2017)		N/A
3.6 (4.32)	Addition At the end of the Clause, <i>insert</i> the following text: Metal oxide varistors shall comply with the requirements of AS/NZS 3100 for metal oxide varistors incorporated in accessories. NOTE The test and assessment is conducted on any circuits connected between phases (between actives and between actives and neutral) and circuits connected between phases and earth (actives-to-earth and neutral-to-earth). (AS/NZS 60598.1:2017)		N/A

Enclosure 4		Australia/New Zealand's National Differences	
Clause	Requirement + Test	Result - Remark	Verdict
3.6.1	In Australia and New Zealand, all luminaires shall have protection against ingress of moisture of at least IPX4, except for tunnel-lighting luminaires and glazing of column-integrated luminaires with an open-sided external part, for which IPX5 is required. (AS/NZS 60598.2.3:2015)	IP66	P
3.10	EXTERNAL AND INTERNAL WIRING		—
3.10(5.2.1)	<p>Variation</p> <p>1. <i>Delete</i> the first paragraph and <i>replace</i> with the following:</p> <p>Luminaires shall be provided with only one of the following means of connection and isolation to the supply.</p> <p>Fixed luminaires:</p> <ul style="list-style-type: none"> — device for the connection of luminaires; — terminals; — plug for engagement with socket-outlets; — connecting lead (tails); in accordance with Clause 4.6 requirements; — supply cord — supply cord and plug; — adapter for engagement with supply tracks; — appliance inlet; — installation coupler; — luminaire coupler; <p>Portable luminaires:</p> <ul style="list-style-type: none"> — supply cord with plug; — appliance inlet. — inlet plug complying with AS/NZS 3120. <p>Track-mounted luminaires:</p> <ul style="list-style-type: none"> — adaptor; — connector. 	Terminals provided into the luminaire	P
	<i>Delete</i> the second and third paragraph.		—

Enclosure 4		Australia/New Zealand's National Differences	
Clause	Requirement + Test	Result - Remark	Verdict
	<p>3. <i>After</i> Note 3, <i>insert</i> the following text:</p> <p>In Australia, non-portable luminaires with a supply cord shall be fitted with a plug complying with AS/NZS 3112 or a coupler complying with its standard, except where the luminaire has markings and instructions that comply with Clause 3.2.12, in which case, a plug or coupler is not required. However, for other than portable luminaires a plug is not required if the luminaire has markings and instructions in accordance with Clause 3.2.12.</p> <p>The plug portion of a luminaire with integral pins shall comply with the relevant requirements of AS/NZS 3112.</p> <p>NOTE 4 PVC-insulated connection cords should not be used with outdoor luminaires in cold alpine locations.</p> <p>(AS/NZS 60598.1:2017)</p>		N/A
3.10 (5.2.2)	<p>Variation</p> <p>1. <i>Delete</i> the first paragraph and <i>replace</i> with the following:</p> <p>Supply cords used as a means of connection to the supply, when supplied by the luminaire manufacturer, shall be at least equal in their mechanical and electrical properties to those specified in IEC 60227 and IEC 60245, as indicated in Table 5.1, or AS/NZS 3191, and shall be capable of withstanding, without deterioration, the highest temperature to which they may be exposed under normal conditions of use.</p>		N/A
	<p>2. <i>Delete</i> the third paragraph and <i>replace</i> with the following:</p> <p>To provide adequate mechanical strength, the nominal cross-sectional area of the conductors shall be not less than:</p> <p>— 0,75 mm²;</p> <p>APPENDIX ZA1,0 mm² for portable rough service luminaires.</p> <p>(AS/NZS 60598.1:2017)</p>		N/A

Enclosure 4	Australia/New Zealand's National Differences
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Clause	Requirement + Test	Result - Remark	Verdict
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Table 5.1	<p>Variation</p> <p><i>Delete</i> Table 5.1 and replace with the following:</p> <p>Table 5.1 — Supply cord</p> <table border="1"> <thead> <tr> <th>Luminaire</th><th>Rubber</th><th>PVC</th><th>No Insulation</th></tr> </thead> <tbody> <tr> <td>Ordinary class 1 luminaires</td><td>60245 IEC 51 ^c</td><td>60227 IEC 52 ^c</td><td></td></tr> <tr> <td>Ordinary class II luminaires</td><td>60245 IEC 53 ^c</td><td>60227 IEC 52 ^c</td><td></td></tr> <tr> <td>Luminaires which are other than ordinary class I and II</td><td>60245 IEC 57 ^c</td><td>60227 IEC 53 ^c</td><td></td></tr> <tr> <td>Portable rough service luminaires</td><td>60245 IEC 66 ^c</td><td></td><td></td></tr> <tr> <td>Class III or with SELV circuits luminaires (up to 25 V a.c./60 V d.c.)</td><td colspan="2"></td><td>Un-insulated conductor ^b</td></tr> <tr> <td>Class III or with SELV circuits luminaires (above 25 V a.c./60 V d.c.), including 50 V a.c./120 V d.c.</td><td colspan="2">Unsheathed basic insulated conductor</td><td></td></tr> </tbody> </table> <p>a. For indoor use only. b. AS/NZS 3000 may restrict the use of un-insulated conductors in certain special installations. c For supply voltages greater than 250 V, higher voltage grade cables and cords than those given in the above table may be necessary</p> <p>(AS/NZS 60598.1:2017)</p>		Luminaire	Rubber	PVC	No Insulation	Ordinary class 1 luminaires	60245 IEC 51 ^c	60227 IEC 52 ^c		Ordinary class II luminaires	60245 IEC 53 ^c	60227 IEC 52 ^c		Luminaires which are other than ordinary class I and II	60245 IEC 57 ^c	60227 IEC 53 ^c		Portable rough service luminaires	60245 IEC 66 ^c			Class III or with SELV circuits luminaires (up to 25 V a.c./60 V d.c.)			Un-insulated conductor ^b	Class III or with SELV circuits luminaires (above 25 V a.c./60 V d.c.), including 50 V a.c./120 V d.c.	Unsheathed basic insulated conductor			N/A
Luminaire	Rubber	PVC	No Insulation																												
Ordinary class 1 luminaires	60245 IEC 51 ^c	60227 IEC 52 ^c																													
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3.10 (5.2.16)	<p>Addition</p> <p><i>At the end of the Clause, insert the following text:</i> Class II luminaires for fixed wiring incorporating an appliance coupler shall not have means to allow further luminaires to be connected by cascading including connection by looping-in.</p> <p>Luminaire couplers incorporated with the luminaire shall comply with IEC 61995-1.</p> <p>Luminaires incorporating installation couplers may have means to allow further luminaires to be connected by cascading provided the through wiring is rated for the current rating of the installation coupler.</p> <p>(AS/NZS 60598.1:2017)</p>		N/A																												

Enclosure 4		Australia/New Zealand's National Differences	
Clause	Requirement + Test	Result - Remark	Verdict
3.10 (5.2.18)	<p>Variation</p> <p><i>Delete</i> Clause 5.2.18 and <i>replace</i> with the following:</p> <p>5.2.18 All portable luminaires with a supply cord shall be fitted with a plug complying with AS/NZS 3112. Other luminaires with a supply cord shall be fitted with a plug complying with AS/NZS 3112, unless they have the warning specified by Clause 3.2.12.</p> <p>(AS/NZS 60598.1:2017)</p>		N/A
3.10 (5.3.1)	<p>Variation</p> <p>Delete the third paragraph and replace with the following:</p> <p>Internal wires coloured green, yellow or green/yellow combination shall be used for making protective earth connections only. Functional earth connections shall not be made by wires coloured green, yellow or green/yellow combination.</p> <p>NOTE 101 Internal wires of other colours are not precluded from making protective earthing connections.</p>		P
3.10 (5.3.1.3)	<p>Variation</p> <p><i>Delete</i> Clause and <i>replace</i> with the following:</p> <p><i>In class II luminaires, where the internal wiring has a live conductor and the wiring insulation may touch accessible metal parts under normal operating conditions, the insulation, at least at the places of contact, shall comply with the requirements for double or reinforced insulation, e.g. by applying sheathed cables or sleeves.</i> (AS/NZS 60598.1:2017)</p>		N/A
3.8	PROVISION OF EARTHING		—
3.8 (7.2.11)	<p>Variation</p> <p><i>Delete</i> the third paragraph and <i>replace</i> with the following:</p> <p>All conductors, whether internal or external, coloured green, yellow or green/yellow combination, shall only be connected to an earthing terminal</p> <p>(AS/NZS 60598.1:2017)</p>		N/A
3.11	PROTECTION AGAINST ELECTRIC SHOCK		—

Enclosure 4		Australia/New Zealand's National Differences	
Clause	Requirement + Test	Result - Remark	Verdict
3.11 (8.2.1)	<p>Variation Variation <i>Delete</i> the first two paragraphs including Note 1 and <i>replace</i> with the following: Luminaires shall be so constructed that their live parts and basic insulation are not accessible when the luminaire has been installed and wired as in normal use. Live parts shall not be accessible when the luminaire is opened as necessary for user cleaning or maintenance, or for replacement of lamps, replaceable light sources or (replaceable) starters, even if the operation cannot be achieved by hand. Luminaires with non-replaceable light sources are subjected to the tests of Clause 4.29 prior to applying the tests and inspections of Section 8 of this Standard. NOTE 1 Examples of parts with basic insulation are cables intended for internal wiring, controlgear for building-in, etc. This does not apply to the non-current-carrying parts of lamp caps that comply with the relevant IEC safety standard.</p>		P
	<p><i>Delete</i> the ninth paragraph beginning with 'Covers in fixed luminaires that cannot be removed...' (AS/NZS60598.1:2017)</p>		—
3.11 (9.2)	<p>After Note 1, insert the following new Note: NOTE 101 A designation of IPX7 or IPX8 is considered unsuitable for exposure to water jets (designated by IPX5 or IPX6) and may not comply with requirements for second numeral 5 or 6 unless it is dual coded. (AS/NZS60598.1:2017)</p>		N/A
(Table 10.30)	<p>Deletion Delete the second row beginning with 'Class I luminaires rated up to and including 16 A...'. (AS/NZS60598.1:2017)</p>		—
	<p>First column, third row, delete the word 'Metal'. (AS/NZS60598.1:2017)</p>		—
3.12	ENDURANCE TEST AND THERMAL TEST		—
(Table 12.1)	<p>First column, first row, <i>delete</i> the text— 'Case (of capacitor, starting device, electronic ballast or convertor, etc.)' and replace with the following: 'Case (of control gear, capacitor, starting device, electronic ballast or convertor, etc.)'</p>		—
	<p>Addition <i>Add</i> the following new Note after Table 12.1 NOTE 101 Luminaire manufacturers should consider the maximum ambient air temperature in the vicinity of components such as starting devices and electronic ballasts or converters. Component performance specifications advise manufacturers to mark or supply life data as maximum ambient air temperature based on 50,000 h. This t-life is often marked as ta and is the</p>	<p>Temperature measured do not exceed the values stated by producers to ensure 50000 hours of life.</p>	P

Enclosure 4		Australia/New Zealand's National Differences	
Clause	Requirement + Test	Result - Remark	Verdict
	temperature of the air in the vicinity of the component and is not related to the luminaire ta. As such, luminaire manufacturers should measure air temperature in the vicinity of such components, within the luminaire, as even those complying with their tc point measurements can still fail prematurely if t-life is exceeded. (AS/NZS 60598.1:2017)		
3.15	RESISTANCE TO HEAT, FIRE AND TRACKING		—
3.15 (13.3)	<p>Variation <i>Delete</i> Clause 13.3 and <i>replace</i> with the following:</p> <p>13.3 Resistance to flame and ignition</p> <p>Parts of non-metallic material shall be resistant to flame and ignition.</p> <p>For materials other than ceramic, compliance is checked by the tests of 13.3.1 and 13.3.2, and 13.3.3 as appropriate.</p> <p>This requirement does not apply to decorative trims, knobs, wiring insulation and other parts not likely to be ignited or to propagate flames from inside the luminaire.</p> <p>This Clause applies to all parts, including components, even if they have been tested to their own IEC or equivalent standard..</p>		N/A
	<p>13.3.1 Parts of non-metallic material supporting connections that could become an ignition source, and parts of non-metallic material within a distance of 3 mm of such connections, shall withstand the glow wire test.</p> <p>Welded connections, soldered connections on printed circuit boards and other connections carrying less than 0.2 A during normal operation are not considered to be an ignition source.</p> <p>The test apparatus, test procedure and criteria shall be those specified in AS/NZS 60695.2.11.</p> <p>The glow wire is heated to 750 °C and applied to one test sample for 30 s.or glowing of the sample shall extinguish within 30 s of withdrawing the glow-wire, and any burning or molten drop shall not ignite a single layer of tissue paper specified in 4.187 of ISO 4046-4:2002, spread out horizontally 200 mm ± 5 mm below the sample.</p>		N/A

Enclosure 4		Australia/New Zealand's National Differences	
Clause	Requirement + Test	Result - Remark	Verdict
	<p>13.3.2 <i>All other parts of non-metallic material which do not support connections that could become an ignition source, but provide protection against electric shock or maintain creepage and clearances, shall withstand the glow wire test.</i></p> <p><i>The test apparatus, test procedure and criteria shall be those specified in AS/NZS 60695.2.11.</i></p> <p><i>The glow wire is heated to 650 °C and applied to one test sample for 30 s.</i></p>		N/A
	<p>13.3.3 During the application of the glow wire test of Clause 13.3.1 and 13.3.2, if a flame is produced that persists for longer than 2 s, the luminaire is further tested as follows:</p> <p>The needle-flame test of AS/NZS 60695.11.5 is applied to non-metallic parts that encroach within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm above the point of application of the glow wire.</p> <p>Parts shielded by a barrier that meets the needle-flame test of AS/NZS 60695.11.5 are not tested.</p> <p><i>NOTE This requires the needle flame to be applied to all parts likely to be impinged upon by the glow-wire flame within the hypothetical envelope of a vertical cylinder positioned above the point of application of the glow-wire. This applies to all parts unless there is a barrier that passes the needle-flame test and is within the cylinder and would protect the part from the glow-wire flame.</i></p>		N/A
Bibliography	<p>Addition</p> <p><i>Add the following new informative references:</i></p> <p><i>IEC 60252, AC motor capacitors (all parts)</i></p> <p><i>AS/NZS 60335.1, Household and similar electrical appliances—Safety, Part 1: General requirements (IEC 60335-1 Ed. 5, MOD)</i></p> <p><i>(AS/NZS 60598.1:2017)</i></p>		—
	Special national conditions (if any)		—

Enclosure 4		Australia/New Zealand's National Differences	
Clause	Requirement + Test	Result - Remark	Verdict
(0.5.101)	<p>After Clause 0.5.4, add new Clause 0.5.101 as follows:</p> <p>0.5.101 Capacitors</p> <p>Capacitors shall be of a type to ensure that any capacitor failure results in a failsafe outcome (i.e. the capacitor type will fail in the open-circuit mode only and is protected against fire or shock hazard).</p> <p>Capacitors (other than those incorporated in control gear that comply with the relevant standard) shall comply with one of the following:</p>		N/A
	Capacitors likely to be permanently subjected to the supply voltage, used for radio interference suppression or for voltage dividing shall comply with IEC 60384-14		N/A
	<ul style="list-style-type: none"> Other capacitors shall be not less than Type B capacitors with metal body and break action protection in accordance with IEC 61048 and IEC 61049. A capacitor complying with EIA-456-A, Metallized Film Dielectric Capacitors for Alternating Current Applications, shall comply with IEC 61049 and IEC 61048:2006 excluding the endurance test of 18.1.1. <p>NOTE Capacitors of Class S2 (formerly referred to as P2) of IEC 60252 (all parts) do not meet the safety requirements of a Type B capacitor.</p> <p>(AS/NZS 60698.1:2017)</p>		N/A
(0.5.102)	<p>After Clause 0.5.101, add new Clause 0.5.102 as follows:</p> <p>0.5.102 Control gear</p> <p>Power supplies shall comply with the relevant part 2 of the AS/NZS 61558 series</p>		N/A
	Control gear shall comply with the relevant part 2 of the AS/NZS 61347 series		P
	Battery chargers used for lighting other than emergency lighting shall comply with AS/NZS 60335.2.29.		N/A
	<p>Sensor switches and similar control circuits, including those incorporated in other equipment, are considered electronic switches (see Clause 4.8).</p> <p>(AS/NZS 60598.1:2017)</p>		N/A

Enclosure 4		Australia/New Zealand's National Differences	
Clause	Requirement + Test	Result - Remark	Verdict
3.3 (1.2.101)	After Clause 1.2.91, add the following definitions: 1.2.101 installation coupler connecting device consisting of an installation female connector and an installation male connector provided with retaining means for permanent connection not intended to be engaged or disengaged under load nor to be engaged or disengaged other than during first installation, during maintenance of the wiring system or during re-configuration of the wiring system 1.2.103 installation male connector load side portion of an installation coupler which contains the male contacts 1.2.104 installation female connector supply side portion of an installation coupler which contains the female contacts 1.2.105 installation coupler system family of installation couplers consisting of one or more installation female connectors compatible by mechanical coding features with one or more installation male connectors, with the same ratings produced according to the specification of one manufacturer (AS/NZS 61058.1:2017)		—
3.5 (3.3.101)	Addition After Clause 3.3.22, add new Clauses 3.3.101 and 3.3.102 as follows: 3.3.101 The instructions shall contain details of the components in the luminaire that require replacement as part of a maintenance program.	No replaceable components	N/A
3.5 (3.3.102)	3.3.102 The instructions for luminaires, including for remotes or other accessories containing coin/button cell batteries and batteries designated R1, shall include the safety warnings below. Equipment containing one or more coin/button cell/R1 batteries shall have the safety warnings in the instructions accompanying the equipment. The safety warnings are not required where these batteries are not intended to be replaced or are only accessible after damaging the equipment. The safety warnings shall be as follows:		N/A

Enclosure 4	Australia/New Zealand's National Differences		
Clause	Requirement + Test	Result - Remark	Verdict
	<ul style="list-style-type: none"> – CAUTION: Do not ingest battery—Chemical burn hazard [or equivalent wording]. – [The remote control supplied with] this product contains a coin/button cell battery. If the coin/button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death. – Keep new and used batteries away from children. – If the battery compartment does not close securely, stop using the product and keep it away from children. – If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention. <p>NOTE 1 Coin/button cell batteries are small, single cell devices having a diameter greater than their height.</p> <p>NOTE 2 Battery designations are specified in IEC 60086-2. (AS/NZS 60598.1:2017)</p>		N/A
3.6 (4.101)	<p>Addition</p> <p>After Clause 4.32, add new Clauses as follows:</p> <p>4.101.1 Small batteries</p> <p>Batteries that fit wholly within the small parts cylinder as specified in Clause 5.2 of ISO 8124-1 shall not be removable without the aid of a tool.</p> <p>Luminaires intended for children under the age of three, or parts of such luminaires that contain batteries, shall not fit wholly within the small parts cylinder as specified in Clause 5.2 of ISO 8124-1.</p> <p>For luminaires or parts of luminaires containing batteries that fit wholly within the small parts cylinder as specified in Clause 5.2 of ISO 8124-1, the batteries shall not be accessible without the aid of a tool.</p>		N/A
	<p>Compliance is checked by inspection and by the following test.</p> <p>A force is applied without jerks for 10 s in the most unfavourable direction to parts likely to be weak. The force is as follows:</p> <ul style="list-style-type: none"> – push force, 50 N; – pull force; 30 N; – if the shape of the part is such that the fingertips cannot easily slip off, 50 N; – if the projection of the part that is gripped is less than 10 mm in the direction of removal, 30 N. <p>The push force is applied by test probe 11 of IEC 61032. The pull force is applied by a suitable means, such as a suction cup, so that the test results are not affected. While the force is being applied, the test fingernail of Figure 7 of AS/NZS 60335.1 is inserted in any aperture or joint with a force of 10 N. The fingernail is then slid sideways with a force of 10 N but is not twisted or used as a lever.</p>		N/A


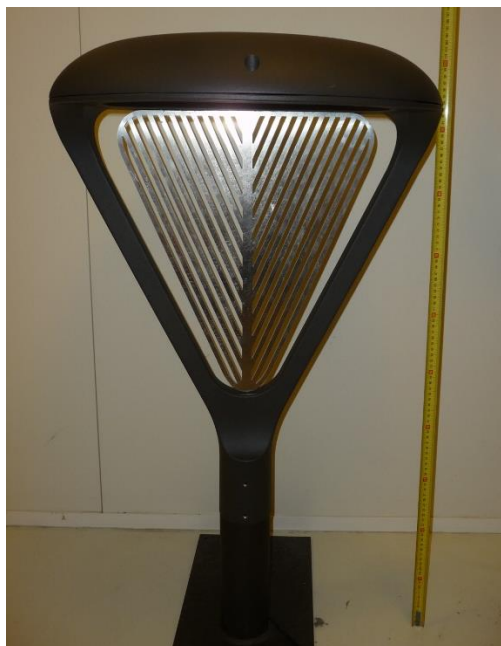
Enclosure 4		Australia/New Zealand's National Differences		
Clause	Requirement + Test		Result - Remark	Verdict
	<p>If the shape of the part is such that an axial pull is unlikely, the pull force is not applied but the test fingernail is inserted in any aperture or joint with a force of 10 N and is then pulled for 10 s by means of the loop with a force of 30 N in the direction of removal.</p> <p>If the part is likely to be twisted, the following torque is applied at the same time as the pull or push force:</p> <p>—..... 2 Nm, for major dimensions up to 50 mm.</p> <p>—..... 4 Nm, for major dimensions over 50 mm.</p> <p>This torque is also applied when the test fingernail is pulled by means of the loop. If the projection of the part that is gripped is less than 10 mm, the torque is reduced by 50 %.</p> <p>NOTE The types and dimensions of batteries are specified in IEC 60086-2.</p> <p>(AS/NZS 60598.1:2017)</p>			N/A
3.6 (4.101.2)	<p>Addition</p> <p>4.101.2 Battery compartment fasteners</p> <p>If screws or similar fasteners are used to secure a door or cover providing access to the battery compartment, the screw or similar fastener shall be captive to ensure that it remains with the door, cover or equipment.</p> <p>Compliance is checked by inspection and by the following test.</p> <p>A force of 20 N is applied to the screw or similar fastener without jerks for a duration of 10 s in any direction.</p> <p>(AS/NZS 60598.1:2017)</p>			N/A
Figure ZZ1	 <p>Figure ZZ1 (AS/NZS 60598.1:2017)</p>			—

Figure ZZ1 (AS/NZS 60598.1:2017) — Must be installed by a licensed electrician

Enclosure 6

Photos

Photograph No. 1 Side view of the luminaire**Photograph No.2 Side view of the luminaire**

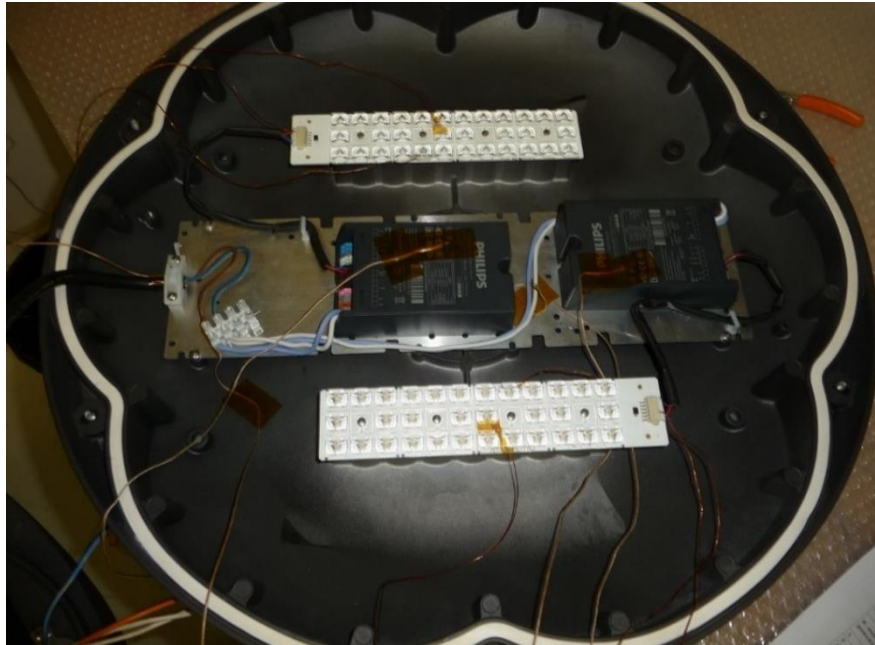
Enclosure 6

Photos

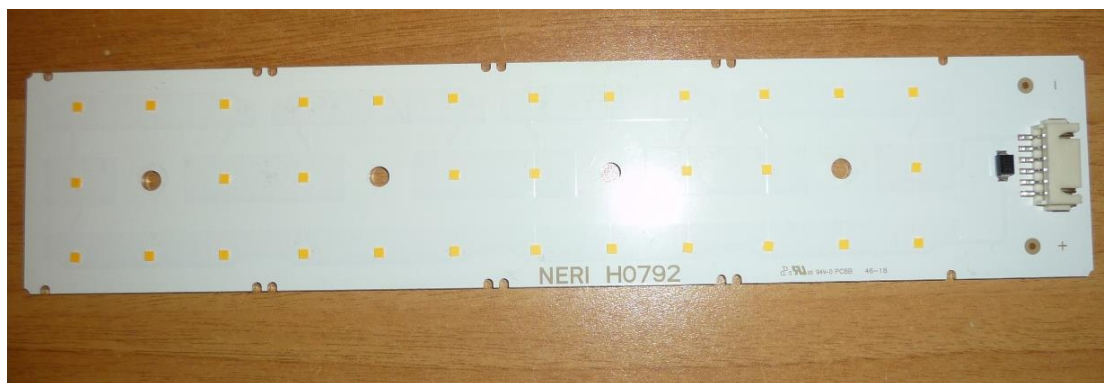
Photograph No. 3 Rear view of the luminaire, pole fixing means**Photograph No. 4 Bottom view of the luminaire**

Enclosure 6	Photos
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Photograph No. 5 View of one metal plate for LED driver fixture and internal wiring

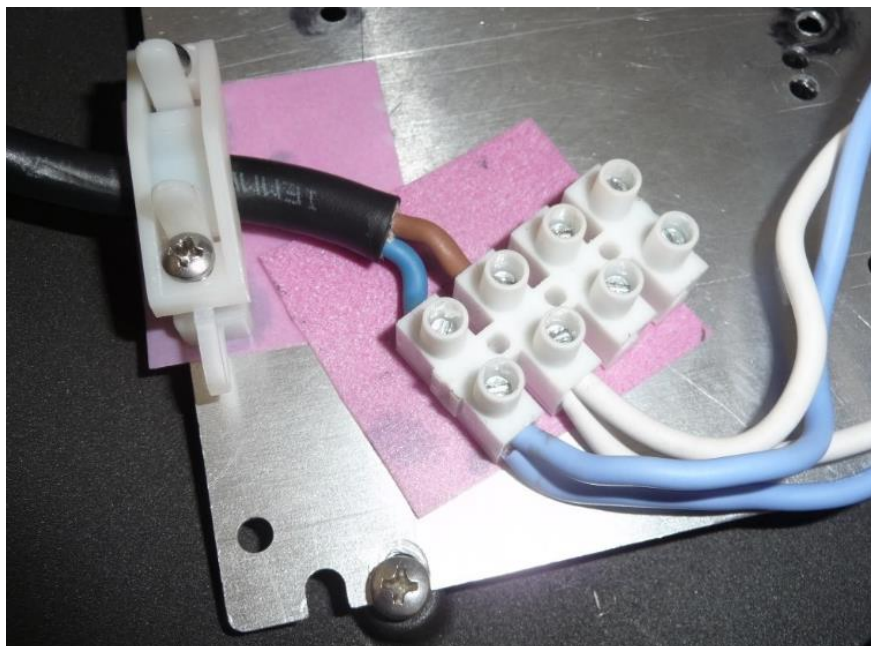


Photograph No. 6 View of the LED module (32 LEDs)



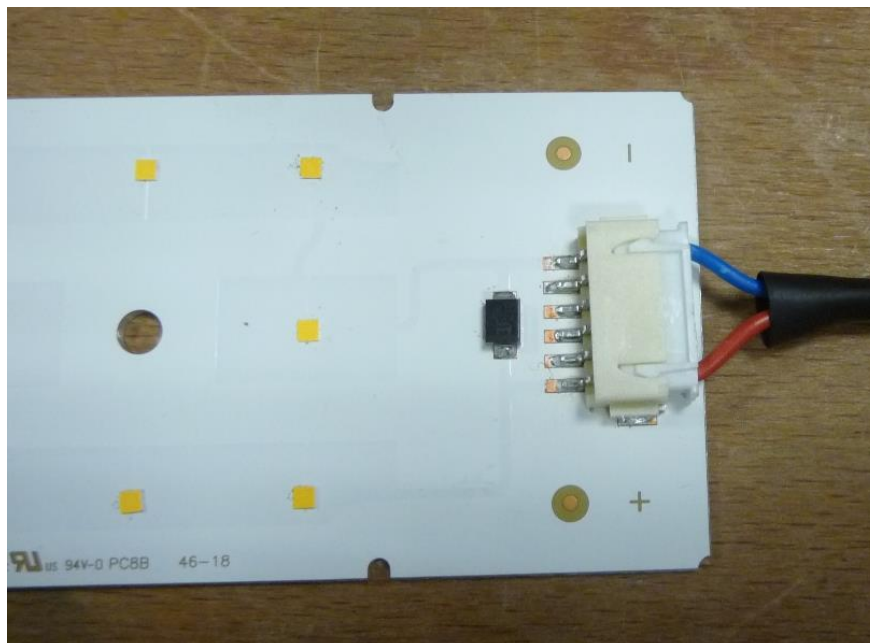
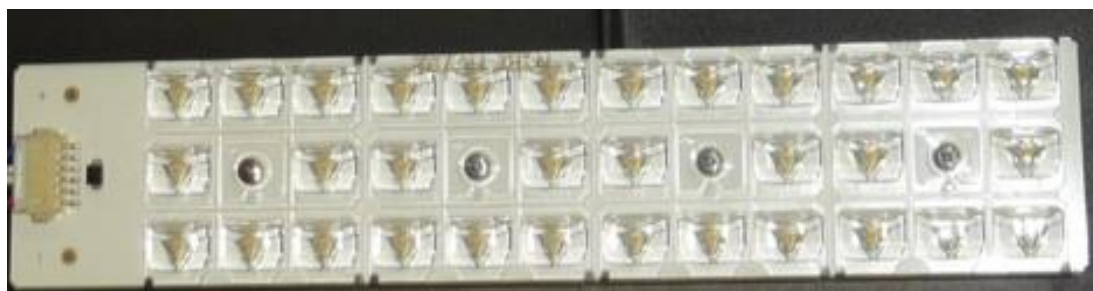
Enclosure 6

Photos

Photograph No. 7 View of the LED module (16 LEDs)**Photograph No. 8 Main Terminal block and cord anchorage**

Enclosure 6

Photos

Photograph No. 9 LED module supply terminals**Photograph No. 10 Plastic lenses over LED module**

Enclosure 7	Equipment List
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Clause	Measurement	Testing / measuring equipment / materials used	Range used	Calibration Date [Year-Month-Day]	
				Last	Due
3.6	Construction	LAB001 - Dynamometric wrench	0-12 Nm	2019-02-20	2020-02-20
3.6	Construction	LAB002 - Dynamometric driver	100-500 cNm	2018-09-20	2020-09-20
3.6	Construction	LAB003 – Dynamometric screwdriver	20-120 cNm	2018-09-20	2019-09-20
3.11	Protection against electric shock	LAB004 – Test finger	Ø 50 mm (max)	2017-08-07	2019-08-07
3.13	Solid-object-proof luminaire test	LAB007 - Test probe	Ø 1 mm	2017-08-07	2019-08-07
3.13	Solid-object-proof luminaire test	LAB008 - Test probe	Ø 2,5 mm	2017-08-07	2019-08-07
3.12	Endurance test and thermal test	LAB010- DMM Yokogawa 7552	0-1000mA 0-200Vdc	2018-11-29	2019-11-29
3.6	Construction	LAB012 – Digital scale	0-30 kg	2019-02-06	2020-02-06
3.12	Endurance test and thermal tests	LAB018 – Thermal test room and acquisition system	0-300 °C	2018-12-15	2019-12-15
3.12	Endurance test and thermal tests	LAB019 – Endurance test room and acquisition system	0-300 °C	2018-12-15	2019-12-15
3.15	Resistance to heat, fire and tracking	LAB020 - Ball pressure apparatus	20N - Ø 5mm	2017-08-03	2019-08-03
3.6	Construction	LAB022 - Set IK mass (n°5)	1J – 20J	2017-07-12	2019-07-12
3.14	Insulation resistance and electric strength	LAB017 – Electrical safety tester GLP-2e (2051)	0-5 kV 0-100 mA 0-10 MΩ	2018-11-30	2019-11-30
3.6	Construction	LAB026 - Caliper	0-200 mm	2018-06-25	2019-06-25
3.6	Construction	LAB033 – Hammer spring	0,2 – 1 Nm	2019-04-05	2021-04-05
3.12	thermal tests and input-test	LAB030 - Wattmeter	0-300V ac/dc 0-2A ac/dc 0-300W ac/dc 0-60Hz	2018-09-21	2019-09-21
3.13	Resistance to dust, solid objects and moisture	LAB048 – Flow meter	20-190 l/m	2019-04-05	2020-04-05