



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 : 4790091776.4
Date of issue..... : 2021-10-11
Total number of pages : 126 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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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	Lyra 32 cl I (see Variants for additional models)	
Ratings	220-240 V ~ 50/60 Hz 83 W Class I IP66 IK09 t_a 50°C (see Variants for additional models)	
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) ... :	Walter Parmiani 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:	
Testing location/ address :	NERI S.p.A. 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) ... :	Walter Parmiani 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):					
Thermal tests tables of Section 12: (Enclosure 1): 31 pages					
European Group Differences and National Differences: (Enclosure 2): 2 pages					
Evaluation of LED modules as integral components according to IEC 62031:2008 + A1:2012 + A2:2014; EN 62031:2008 + A1:2013 + A2:2015: (Enclosure 3): 17 pages					
Evaluations according to Regulatory Requirements and National Conditions for the Kingdom of Saudi Arabia: (Enclosure 4): 1 page					
Evaluation according to Australia/New Zealand's National Differences: (Enclosure 5): 21 pages					
Manufacturer's Instructions: (Enclosure 6): 6 pages					
Photos: (Enclosure 7): 5 pages					
Equipment list: (Enclosure 8): 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					
<ul style="list-style-type: none"> • All countries member of CENELEC (see Enclosure 2) • Saudi Arabia (see Enclosure 4) (For information only; No National or Group Differences declared) • Evaluation according to Australia/New Zealand's National Differences (see Enclosure 5) 					
<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.

NERI Lyra 32 cl I

Made in Italy LULYR0000S000002

220V-240V~ 50/60Hz 83W Ta +50°C -35°C IP66 IK09
TIII-B 3000K 8000lm LED32 730


2100001

Made in Italy
Neri S.p.A. Via Emilia, 1622
47020 Longiano (FC) Italy

Main model

NERI LULYR00 32 cl I

Made in Italy LULYR0000S000003

220V-240V~ 50/60Hz 83W Ta +50°C -35°C IP66 IK09
TIII-B 3000K 8000lm LED32 730


2100001

Made in Italy
Neri S.p.A. Via Emilia, 1622
47020 Longiano (FC) Italy

Extended model



Some models
(See GPI)



Some models
(See GPI)

Test item particulars	
Classification of installation and use	Road LED luminaire for installation 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) / 2019-05-03 (UL test)
Date (s) of performance of tests	2019-05-08 to 2019-06-14; 2021-06-07 to 2021-06-25; 2021-08-31 2019-06-04 (UL test)
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 LED modules as light source and with an electronic control gear for LED module; intended for installation on a post top. Rated 220-240 V~, 50/60 Hz, degrees of protection IP66 and IK09, construction in insulation Class I. It is composed by an upper enclosure made of cast aluminium and a lower fork with a protective screen made of flat tempered glass. The lower fork serves also for top pole fixing.	
The main model is provided with a LED driver declared double insulated between primary and secondary circuit and with a Uopen of max 240 Vd.c., some extended models are provided with LED drivers SELV. 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.	

Additional Information:

This report is issued based on the existing CBTR Ref. No. 4788981241-4 issued on 2019-06-21 with his Amd1 and Amd2 and the relative CB Test Certificate Ref. No. DK-84997-M2-UL Dated 2021-09-06 issued by UL International Italia S.r.l., according to IEC 60598-2-3 (ed.3)+A1 with IEC 60598-1 (ed.8.1) and EN 60598-2-3:2003+A1 with EN 60598-1:2015+A1.

The previously certified models are realized with a construction in insulation class II; those listed in this CBTR have the same construction except for construction in insulation class I.

Based on previously conducted testing (most severe), due to the similarity of the products, the substance of the above mentioned report has been here reported with the following modification (related to the different requirements):

- Clause 7 has been applied, tests performed on a sample in new construction (in CTF2 stage);
- Limits for the requirements of clause 10.2.1 have been updated for Class I requirements;
- Applied values for the requirements of clause 10.2.2 have been updated for Class I requirements;
- Clause 10.3 has been updated for Class I requirements;
- In TABLE I the values for Insulation type R have been removed since not required for Class I construction.

Photobiological information:

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.:

- 4788981241.10 issued by UL International Italia S.r.l. on 2019-06-07.

For models Lyra the radiation hazard complies with the limit level for the group Risk 1 at a Dthr 2,7 m.

- **4789889617.2 issued by UL International Italia S.r.l. on 2021-08-11.**

For models LULYR00 the radiation hazard complies with the limit level for the group Risk 1.

Variants:

The main model:

Type ref.	Ratings	Photobiological classification
Lyra 32 cl I	220-240 V~ 50/60 Hz 83W Cl. I IP66 ta 50 °C (IK09)	Risk 1 at Dthr 2,7 m

extends the following models:

Type ref.	Ratings	Photobiological classification
Lyra 24 cl I	220-240 V~ 50/60 Hz 66W Cl. I IP66 ta 50 °C (IK09)	Risk 1 at Dthr 2,7 m
Lyra 16 cl I	220-240 V~ 50/60 Hz 36W Cl. I IP66 ta 50 °C (IK09)	Risk 1 at Dthr 2,7 m
LULYR00 32 cl I	220-240 V~ 50/60 Hz 83W Cl. I IP66 ta 50 °C (IK09)	Risk 1
LULYR00 24 cl I	220-240 V~ 50/60 Hz 66W Cl. I IP66 ta 50 °C (IK09)	Risk 1
LULYR00 16 cl I	220-240 V~ 50/60 Hz 36W Cl. I IP66 ta 50 °C (IK09)	Risk 1

All the models may have variants related to customers features; differences are not relevant for the safety of the luminaire. The correlated temperature colour of the light source may be 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 I	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 type="checkbox"/>	—
	b) on a mast arm	Yes <input checked="" type="checkbox"/> No <input 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		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	9,65 kg	P
	c) Overall dimensions	505 x 420 mm	P
	d) Maximum projected area if applicable	0,138 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	P
	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		P
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		N/A
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		N/A
	b) Ageing test. Temperature (°C)		N/A
3.6 (4.10)	Double or reinforced insulation		N/A
3.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Safe installation fixed luminaires		N/A
	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		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 Fixture	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Torque test: torque (Nm); part..... :	1,2 Nm; M4– Screws fixing LED driver and internal components	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	9,6 kg x 4 = 38,4 kg	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 made in Aluminium	P
3.6 (4.18.2)	- season cracking in copper		P
3.6 (4.18.3)	- corrosion of aluminium		P
3.6 (4.19)	Igniters 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

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Clause	Requirement + Test	Result - Remark	Verdict
	Class of risk group assessed according to IEC/TR 62778	Some models Risk 1, some models with E_{thr}	—
	Luminaires with E_{thr} :		P
	a) Fixed luminaires		P
	- distance x m, borderline between RG1 and RG2 .. :	2,7 m (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
	Max. temperature on adhesive material ($^{\circ}\text{C}$)		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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 \leq 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 \leq ELV		N/A
	Insulating of FELV circuits from LV supply		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 (m ²).....	0,138	P
	- used load (N).....	329,5 N (over 15m)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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 09 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	IK09	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

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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		P
3.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω :	0,12 Ω	P
	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.		P
3.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P

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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		P
3.8 (7.2.7)	Electrolytic corrosion of the earth terminal		P
3.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
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 (see Annex 1)	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

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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

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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) 0,50 mm ² (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		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).....	0,75 mm ²	P
	Insulation thickness (mm)	Double insulation	P

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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		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

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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:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
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

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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

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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		—

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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		N/A
	- thermal link.....	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- manual reset cut-out	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- auto reset cut-out	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- case of abnormal conditions		—
	- highest measured temperature of fixing point/ exposed part (°C):		—
	Ball-pressure test:		N/A
3.12.1 (-)	Temperature reduction if for outdoor use only	Also for internal use	N/A
3.12.2 (-)	(See above)		—
3.12.3 (-)	Glass covers used within the thermal limits declared by the glass manufacturer	Δt measured:10,9°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

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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..... :	See mounting instruction	—
	- 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): >100 MΩ (1 MΩ)	P
	- between current-carrying parts and mounting surface..... :	>100 MΩ (1 MΩ)	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts and metal parts of the luminaire..... :	>100 MΩ (1 MΩ)	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 MΩ (2 MΩ)	P
	- between live parts and mounting surface	> 100 MΩ (2 MΩ)	P
	- between live parts and metal parts	> 100 MΩ (2 MΩ)	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 MΩ (2 MΩ)	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): 500 V	P
	- between current-carrying parts and mounting surface..... :	500 V	P
	- between current-carrying parts and metal parts of the luminaire..... :	500 V	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
	- between live parts and mounting surface	1480 V (also secondary circuits: according to "Table X" for Uout 240 Vd.c., see GPI)	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- between live parts and metal parts	1480 V (also secondary circuits: according to "Table X" for Uout 240 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):	Protective conductor current: 0,57 mA (3,5 mA)	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	> 3,9	3,0 (#)	11.1.A
Working voltage (V)					240		—
PTI					< 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
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	> 3,9	3,0 (#)	11.1.A
Working voltage (V)					240		—
PTI					< 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Pulse voltage or U_P if applicable (kV)					—		—
Supplementary information: (#) 2,5 elevated to 3,0 as required by clause U.2							
Distance 3:							
Working voltage (V)							—
PTI					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Pulse voltage or U_P if applicable (kV)					—		—
Supplementary information:							

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

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 / FG4G4	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	
Internal wiring for primary circuit	C/D	SALCAVI	UR7R7	300/500V T 90°C 1 mm ²	T13 type PVC conforming to EN 50363-3	Tested in Luminaire	
Internal wiring for Secondary circuit	C	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 wiring for Secondary circuit	C/D	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	A	SALCAVI	H05V-U	300/500 V T 90 °C 0,5 mm ² PVC	EN 50525-2-31:2011	IMQ <HAR> Cert. n° DAT95000710	
Main Terminal block	A	ADELS CONTACT	LK 980 RZ	16A, 600V AWG 14-20 T105°C	EN 60998-1:2004 EN60998-2-2:2004	VDE Cert. n° 40021343	
Surge protective device (optional)	A	Philips	Surge Protector Class I	Uc:320Vac Up:1,5kv Uoc:10kv In:1 kA	EN 61643-11:2012+A11	KEMA-KEUR Cert.n° 31-102677 REV.1	
Surge protective device (optional)	A/D	PHOENIX CONTACT	BLT-T2-1S-320-UT	Un:100-277Vac Uc:320Vac Up:1,3kv Uoc:10kv In:5 kA ; I _L : 16A Class I	EN 61643-11:2012	KEMA-KEUR Cert. n° 2179938.01	

IEC 60598-2-3						
Clause	Requirement + Test			Result - Remark	Verdict	
Surge protective device (optional)	A/D	TCI	SPD GM CLI	Un:100-277Vac Uc:320Vac Up:1,5kv Uoc:12kv In:5 kA ; L : 16A Class I	EN 61643-11:2012+A11	KEMA-KEUR Cert. n° 31-118261
Surge protective device (optional)	A/D	Vossloh-Swabe	SP3/230/10K/i	Un:100-277Vac Uc:305Vac Up:1,5kv Uoc:10kv In:5 kA ; L : 16A Class I	EN 61643-11:2012+A11	KEMA-KEUR Cert. n° 71-102197 REV.1
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
LED controlgear	B	PHILIPS	Xi SR 150W 0.3-1.0A SNEMP 230V S240 sXt	220-240 Vac 50/60 Hz 300-1050 mA 70-214 Vdc (240 Vdc max) 150 W Tc 90°C T _{marked} „130“ (*)	IEC/EN 61347-1:2008+A1+A1 IEC/EN 61347-2-13:2014	ENEC 05 Cert. n° 2198842.01
LED controlgear	B	PHILIPS	Xi FP 110W 0.3-1.0A SNLDAE 230V C133 sXt	220-240 Vac 50/60 Hz 300-1050 mA 50-160 Vdc (230 Vdc max) 110W 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	PHILIPS	Xi LP 110W 0.3-1.0A S1 230V C133 sXt	220-240 Vac 50/60 Hz 300-1050 mA 50-160 Vdc (230 Vdc max) 110W 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	PHILIPS	Xi FP 75W 0.3-1.0A SNLDAE 230V C133 sXt	220-240 Vac 50/60 Hz 300-1050 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	ENEC 05 Cert.n° 31-101322

IEC 60598-2-3						
Clause	Requirement + Test			Result - Remark	Verdict	
LED controlgear	B	PHILIPS	Xi LP 75W 0.3-1.0A S1 230V C133 sXt	220-240 Vac 50/60 Hz 300-1050 mA 35-108 Vdc (150 Vdc max) 75 W T _c 80°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	PHILIPS	Xi SR 75W 0.3-1.0A SNEMP 230V S240 sXt	220-240 Vac 50/60 Hz 300-1050 mA 35-108 Vdc (150 Vdc max) 75 W T _c 80°C T _{marked} „130“	IEC/EN 61347-1:2008+A1+A1 IEC/EN 61347-2-13:2014	ENEC 05 Cert. n° 2198842.02
LED controlgear	B	PHILIPS	Xi LP 40W 0.2-0.7A S1 230V C123 sXt	220-240 V 50/60 Hz I _{out} :200-700 mA U _{out} 25-77 Vdc (U _{open} 100 Vdc) * 40 W t _c 85 °C T _{marked} „120“ SELV	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014+A1	ENEC 05 cert. n° 31-103018
LED controlgear	B	PHILIPS	Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt	220-240 V 50/60 Hz I _{out} :200-700 mA U _{out} 25-77 Vdc (U _{open} 100 Vdc) * 40 W t _c 85 °C T _{marked} „120“ SELV	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014+A1	ENEC 05 Cert. n° 31-102115
LED controlgear	B	PHILIPS	Xi FP 40W 0.2-0.7A SNEMP 230V C133 sXt	220-240 V 50/60 Hz I _{out} :200-700 mA U _{out} 25-77 Vdc (U _{open} 100 Vdc) * 40 W t _c 85 °C T _{marked} „120“ SELV	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014+A1	ENEC 05 Cert. n° 71-101395
(*) = declared double insulated between primary and secondary circuits and between primary circuit and accessible parts.						
LED MODULE	C	NERI	H0450	32 LEDs	IEC/EN 62031	Tested in luminaire
	C	NERI	H0449	24 LEDs	IEC/EN 62031	Tested in luminaire
	C	NERI	H0448	16 LEDs	IEC/EN 62031	Tested in luminaire
LED Chip	C	NICHIA	NVSW219xx	900mA up to 4000K T _j 150°C	IEC/EN 62031	Tested in Luminaire

IEC 60598-2-3						
Clause	Requirement + Test			Result - Remark		Verdict
LED Chip	C	CREE	XP-G2 HE	900mA up to 4000K T _j 150°C	IEC/EN 62031	Tested in Luminaire
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
LED modules terminal	A	WAGO	2061	250 V – 19 A T105°C	EN 60838-2- 2:2006+A1 EN 60838- 1:2017+A1	KEMA-KEUR Cert. n° 71-106232
LED Module	B	NERI	C0894	32 LEDs Max 1000 mA 96 W (Max 300 V)	IEC/EN 62031:2020	ENEC 15 Cert. n° ENEC-03662
LED Module	B	NERI	C0895	24 LEDs Max 1000 mA 72 W (Max 300 V)	IEC/EN 62031:2020	ENEC 15 Cert. n° ENEC-03662
LED Module	B	NERI	C0896	16 LEDs Max 1000 mA 48 W (Max 300 V)	IEC/EN 62031:2020	ENEC 15 Cert. n° ENEC-03662
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	P
	Type reference	—
	Lamp used.....	—
	Lamp control gear used.....	—
	Mounting position of luminaire	—
	Supply wattage (W)	—
	Supply current (A)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	—
	- abnormal operating mode	—
3.12 (12.4)	- test 1: rated voltage	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	—
	- 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	—
3.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit

Supplementary information:

See Enclosure 1 for all the thermal tests tables of Section 12

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		
(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	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(1 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 32	—
	Lamp used.....	LED module 32 NVSW219DT H0450 (850mA)	—
	Lamp control gear used.....	Philips Xi SR 150W 0,3-1,0A SNEMP 230V S240 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	82,6 W (240 V) 82,6 W (254 V)	—
	Supply current (A)	0,350 A (240 V) 0,331 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	51,0		80,8		140 (**)		
Lens	51,0		80,2		90		
Tc point of LED Controlgear	51,0	84,6	-		90		
Power supply (under anchorage)	51,0		63,1		75		
Power supply terminal	51,0		64,1		100		
Internal air (near SPD)	51,0		60,9		70		
Internal glass	51,0		71,3		(***)		
External glass	51,0		60,4		(***)		
Upper Body	51,0		70,9		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 2,37 W); Tsp = 150 – (4,2x2,37). (***) For reference only			
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Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(2 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 32L	—
	Lamp used.....	LED module 32 NVSW219DT H0450 (850mA)	—
	Lamp control gear used.....	Philips Xi FP 150W 0,3-1,0A SNLDAE 230V C133 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	82,3 W (240 V) 82,3 W (254 V)	—
	Supply current (A)	0,347 A (240 V) 0,328 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	51,2		80,8		140 (**)		
Lens	51,2		80,2		90		
Tc point of LED Controlgear	51,2	86,6 (#)	-		85		
Power supply (under anchorage)	51,2		63,2		75		
Power supply terminal	51,2		64,1		100		
Internal air (near SPD)	51,2		60,7		70		
Internal glass	51,2		71,3		(***)		
External glass	51,2		60,5		(***)		
Upper Body	51,2		70,9		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

(#) According to clause to 12.4.2 a) *The temperature shall not exceed the limits by more than 5 °C.*

(*) Led control-gear short circuit protected immediately operated

(**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 2,37 W);

Tsp = 150 – (4,2x2,37).

(***) For reference only

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(3 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 32	—
	Lamp used.....	LED module 32 NVSW219DT H0450 (850mA)	—
	Lamp control gear used.....	Philips Xi LP 110W 0,3-1,0A S1 230V C133 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	82,7 W (240 V) 82,7 W (254 V)	—
	Supply current (A)	0,356 A (240 V) 0,339 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	49,6		80,5		140 (**)		
Lens	49,6		79,9		90		
Tc point of LED Controlgear	49,6	87,9	-		90		
Power supply (under anchorage)	49,6		62,8		75		
Power supply terminal	49,6		63,7		100		
Internal air (near SPD)	49,6		60,1		70		
Internal glass	49,6		71,1		(***)		
External glass	49,6		60,4		(***)		
Upper Body	49,6		70,2		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 2,35 W); Tsp = 150 – (4,2x2,35). (***) For reference only			
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Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(4 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 32	—
	Lamp used.....	LED module 32 NVSW219DT H0450 (750mA)	—
	Lamp control gear used.....	Philips Xi FP 75W 0,3-1,0A SNLDAE 230V C133 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	72,1 W (240 V) 72,0 W (254 V)	—
	Supply current (A)	0,306 A (240 V) 0,290 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	52,4		77,4		141 (**)		
Lens	52,4		76,6		90		
Tc point of LED Controlgear	52,4	81,7 (#)	-		80		
Power supply (under anchorage)	52,4		61,5		75		
Power supply terminal	52,4		62,3		100		
Internal air (near SPD)	52,4		59,3		70		
Internal glass	52,4		68,4		(***)		
External glass	52,4		58,1		(***)		
Upper Body	52,4		68,2		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

(#)According to clause to 12.4.2 a) *The temperature shall not exceed the limits by more than 5 °C.*

(*) Led control-gear short circuit protected immediately operated

(**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 2,1 W);
Tsp = 150 – (4,2x2,1).

(***) For reference only

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(5 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 32	—
	Lamp used.....	LED module 32 NVSW219DT H0450 (750mA)	—
	Lamp control gear used.....	Philips Xi LP 75W 0,3-1,0A S1 230V C133 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	73,0 W (240 V) 73,2 W (254 V)	—
	Supply current (A)	0,314 A (240 V) 0,299 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	48,9		75,5		141 (**)		
Lens	48,9		74,7		90		
Tc point of LED Controlgear	48,9	83,9(#)	-		80		
Power supply (under anchorage)	48,9		60,8		75		
Power supply terminal	48,9		61,5		100		
Internal air (near SPD)	48,9		58,7		70		
Internal glass	48,9		67,0		(***)		
External glass	48,9		58,6		(***)		
Upper Body	48,9		66,8		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

(#)According to clause to 12.4.2 a) *The temperature shall not exceed the limits by more than 5 °C.*

(*) Led control-gear short circuit protected immediately operated

(**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 2,1 W);
Tsp = 150 – (4,2x2,1).

(***) For reference only

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(6 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 32	—
	Lamp used.....	LED module 32 NVSW219DT H0450 (750mA)	—
	Lamp control gear used.....	Philips Xi SR 75W 0,3-1,0A SNEMP 230V S240 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	72,2 W (240 V) 72,1 W (254 V)	—
	Supply current (A)	0,313 A (240 V) 0,298 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	49,1		74,9		141 (**)		
Lens	49,1		74,3		90		
Tc point of LED Controlgear	49,1	80,4(#)	-		80		
Power supply (under anchorage)	49,1		61,2		75		
Power supply terminal	49,1		62,1		100		
Internal air (near SPD)	49,1		59,8		70		
Internal glass	49,1		67,7		(***)		
External glass	49,1		57,0		(***)		
Upper Body	49,1		67,5		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

(#)According to clause to 12.4.2 a) *The temperature shall not exceed the limits by more than 5 °C.*

(*) Led control-gear short circuit protected immediately operated

(**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 2,1 W);
Tsp = 150 – (4,2x2,1).

(***) For reference only

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(7 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 24	—
	Lamp used.....	LED module 24 NVSW219DT H0449 (900mA)	—
	Lamp control gear used.....	Philips Xi FP 75W 0,3-1,0A SNLDAE 230V C133 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	66,0 W (240 V) 66,0 W (254 V)	—
	Supply current (A)	0,280 A (240 V) 0,266 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	50,1		75,5		139 (**)		
Lens	50,1		75,7		90		
Tc point of LED Controlgear	50,1	79,4	-		80		
Power supply (under anchorage)	50,1		60,2		75		
Power supply terminal	50,1		60,9		100		
Internal air (near SPD)	50,1		59,1		70		
Internal glass	50,1		67,0		(***)		
External glass	50,1		57,6		(***)		
Upper Body	50,1		66,7		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

(*) Led control-gear short circuit protected immediately operated

(**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 2,53 W);
Tsp = 150 – (4,2x2,53).

(***) For reference only

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(8 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 24	—
	Lamp used.....	LED module 24 NVSW219DT H0449 (900mA)	—
	Lamp control gear used.....	Philips Xi LP 75W 0,3-1,0A S1 230V C133 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	65,9 W (240 V) 65,9 W (254 V)	—
	Supply current (A)	0,285 A (240 V) 0,271 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	50,4		75,3		139 (**)		
Lens	50,4		75,4		90		
Tc point of LED Controlgear	50,4	80,7(#)	-		80		
Power supply (under anchorage)	50,4		60,4		75		
Power supply terminal	50,4		61,1		100		
Internal air (near SPD)	50,4		58,2		70		
Internal glass	50,4		67,1		(***)		
External glass	50,4		58,2		(***)		
Upper Body	50,4		66,8		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

(#)According to clause to 12.4.2 a) The temperature shall not exceed the limits by more than 5 °C.

(*) Led control-gear short circuit protected immediately operated

(**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 2,47 W);
Tsp = 150 – (4,2x2,47).

(***) For reference only

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(9 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 24	—
	Lamp used.....	LED module 24 NVSW219DT H0449 (900mA)	—
	Lamp control gear used.....	Philips Xi SR 75W 0,3-1,0A SNEMP 230V S240 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	66,4 W (240 V) 66,3 W (254 V)	—
	Supply current (A)	0,290 A (240 V) 0,276 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	50,4		75,3		139 (**)		
Lens	50,4		77,3		90		
Tc point of LED Controlgear	50,4	81,0 (#)	-		80		
Power supply (under anchorage)	50,4		60,6		75		
Power supply terminal	50,4		61,6		100		
Internal air (near SPD)	50,4		59,0		70		
Internal glass	50,4		68,0		(***)		
External glass	50,4		56,4		(***)		
Upper Body	50,4		66,8		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

(#)According to clause to 12.4.2 a) *The temperature shall not exceed the limits by more than 5 °C.*

(*) Led control-gear short circuit protected immediately operated

(**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 2,51 W);
Tsp = 150 – (4,2x2,51).

(***) For reference only

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(10 of 16)	TABLE: Thermal tests of Section 12	P	
	Type reference	Lyra 24	—
	Lamp used.....	LED module 24 NVSW219DT H0449 (570mA)	—
	Lamp control gear used.....	Philips Xi LP 40W 0,2-0,7A S1 230V C123 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	42,6 W (240 V) 42,6 W (254 V)	—
	Supply current (A)	0,182 A (240 V) 0,176 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	50,3		64,9		143 (**)		
Lens	50,3		65,1		90		
Tc point of LED Controlgear	50,3	84,6	-		85		
Power supply (under anchorage)	50,3		55,4		75		
Power supply terminal	50,3		55,9		100		
Internal air (near SPD)	50,3		54,8		70		
Internal glass	50,3		59,8		(***)		
External glass	50,3		54,2		(***)		
Upper Body	50,3		59,4		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

(*) Led control-gear short circuit protected immediately operated

(**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 1,58 W);
Tsp = 150 – (4,2x1,58).

(***) For reference only

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(11 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 24	—
	Lamp used.....	LED module 24 NVSW219DT H0449 (570mA)	—
	Lamp control gear used.....	Philips Xi FP 40W 0,2-0,7A SNLDAE 230V C123 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	42,3 W (240 V) 42,2 W (254 V)	—
	Supply current (A)	0,180 A (240 V) 0,171 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	50,2		64,9		143 (**)		
Lens	50,2		65,1		90		
Tc point of LED Controlgear	50,2	78,3	-		85		
Power supply (under anchorage)	50,2		55,5		75		
Power supply terminal	50,2		55,9		100		
Internal air (near SPD)	50,2		54,9		70		
Internal glass	50,2		60,1		(***)		
External glass	50,2		54,0		(***)		
Upper Body	50,2		59,5		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 1,58 W); Tsp = 150 – (4,2x1,58). (***) For reference only			
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Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(12 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 24	—
	Lamp used.....	LED module 24 NVSW219DT H0449 (570mA)	—
	Lamp control gear used.....	Philips Xi SR 40W 0,2-0,7A SNEMP 230V C133 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	43,4 W (240 V) 43,3 W (254 V)	—
	Supply current (A)	0,186 A (240 V) 0,176 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	50,8		65,4		143 (**)		
Lens	50,8		65,7		90		
Tc point of LED Controlgear	50,8	78,8	-		85		
Power supply (under anchorage)	50,8		55,9		75		
Power supply terminal	50,8		56,4		100		
Internal air (near SPD)	50,8		55,1		70		
Internal glass	50,8		60,5		(***)		
External glass	50,8		55,2		(***)		
Upper Body	50,8		60,0		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 1,62 W); Tsp = 150 – (4,2x1,62). (***) For reference only			
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Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(13 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 16	—
	Lamp used.....	LED module 16 NVSW219DT H0448 (700mA)	—
	Lamp control gear used.....	Philips Xi SR 40W 0,2-0,7A SNEMP 230V C133 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	36,1 W (240 V) 36,1 W (254 V)	—
	Supply current (A)	0,156 A (240 V) 0,148 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	49,6		65,7		141 (**)		
Lens	49,6		63,9		90		
Tc point of LED Controlgear	49,6	75,0	-		85		
Power supply (under anchorage)	49,6		54,6		75		
Power supply terminal	49,6		55,0		100		
Internal air (near SPD)	49,6		54,0		70		
Internal glass	49,6		62,7		(***)		
External glass	49,6		54,4		(***)		
Upper Body	49,6		58,5		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information: (*) Led control-gear short circuit protected immediately operated (**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 2 W); Tsp = 150 – (4,2x2). (***) For reference only			
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Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(14 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 16	—
	Lamp used.....	LED module 16 NVSW219DT H0448 (700mA)	—
	Lamp control gear used.....	Philips Xi FP 40W 0,2-0,7A SNLDAE 230V C123 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	35,2 W (240 V) 35,2 W (254 V)	—
	Supply current (A)	0,152 A (240 V) 0,144 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	50,6		65,3		141 (**)		
Lens	50,6		65,6		90		
Tc point of LED Controlgear	50,6	75,1	-		85		
Power supply (under anchorage)	50,6		54,5		75		
Power supply terminal	50,6		54,8		100		
Internal air (near SPD)	50,6		54,1		70		
Internal glass	50,6		62,7		(***)		
External glass	50,6		52,9		(***)		
Upper Body	50,6		58,2		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

(*) Led control-gear short circuit protected immediately operated

(**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 1,98 W);
Tsp = 150 – (4,2x1,98).

(***) For reference only

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(15 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	Lyra 16	—
	Lamp used.....	LED module 16 NVSW219DT H0448 (700mA)	—
	Lamp control gear used.....	Philips Xi LP 40W 0,2-0,7A S1 230V C123 sXt	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	35,4W (240 V) 35,4 W (254 V)	—
	Supply current (A)	0,153 A (240 V) 0,146 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	50,9		65,5		141 (**)		
Lens	50,9		63,8		90		
Tc point of LED Controlgear	50,9	76,8	-		85		
Power supply (under anchorage)	50,9		54,6		75		
Power supply terminal	50,9		54,9		100		
Internal air (near SPD)	50,9		54,2		70		
Internal glass	50,9		62,5		(***)		
External glass	50,9		53,6		(***)		
Upper Body	50,9		58,4		(***)		

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

(*) Led control-gear short circuit protected immediately operated

(**) limit calculated according to LED datasheet (Tj-max: 150 °C; Thermal res.: 4,2°C/W; PLED: ~ 1,99 W);
Tsp = 150 – (4,2x1,99).

(***) For reference only

Enclosure 1	Thermal tests tables of Section 12
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Clause	Requirement + Test	Result - Remark	Verdict
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(16 of 16)	TABLE: Thermal tests of Section 12		P
	Type reference	LULYR00 32	—
	Lamp used.....	LED module C0894 (850mA)	—
	Lamp control gear used.....	Philips Xi FP 110W 0,3-1,0A SNLDAE C133 sXt (@850mA)	—
	Mounting position of luminaire	On pole	—
	Supply wattage (W)	81,8 W (240 V) 82,0 W (254 V)	—
	Supply current (A)	0,346 A (240 V) 0,328 A (254 V)	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	50	—
	- abnormal operating mode	Short circuit of secondary (*)	—
3.12 (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	—	—
3.12 (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
LED chip solder point (Tsp)	50,2		88		121 (**)		
LED chip solder point (Tsp2)	50,2		89		121 (**)		
Lens	50,2		90		90		
Tc point of LED Controlgear	50,2	86 (#)	-		85		
Internal air	50,2		64		(***)		

Supplementary information:

(#) According to clause to 12.4.2 a) *The temperature shall not exceed the limits by more than 5 °C.*

(*) LED control-gear short circuit protected immediately operated

(**) limit calculated according to LED datasheet (Tj-max: 125 °C; Thermal res.: 1,4 °C/W; PLED: ~ 2,4 W);
Tsp = 125 – (1,4x2,4).

(***) For reference only

Enclosure 2	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 <i>(Decree of 30 December 2011 on safety regulations for the construction of high-rise buildings and their protection against fire and panic risks; Section VIII; Article GH 48, Lighting)</i> Glow-wire test for outer parts of luminaires:		N/A

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Enclosure 2	European Group Differences and National Differences		
	- 850°C for luminaires in stairways and horizontal travel paths		N/A
	- 650°C for indoor luminaires		N/A
	GB: Requirements according to United Kingdom Building Regulation		N/A

Enclosure 3	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		N/A
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)	N/A

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. H0450 24 LEDs Mod. H0449 16 LEDs Mod. H0448	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 3	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 3	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
	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 3	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 3	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	1480 V For Uopen 240 V	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 3	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 = 115 W (32 LEDs); 1,5 x P _n = 92 W (24 LEDs); 1,5 x P _n = 48 W (16 LEDs).	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
(4.11.4)	Material of current-carrying parts		P

Enclosure 3	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
(4.11.5)	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 3	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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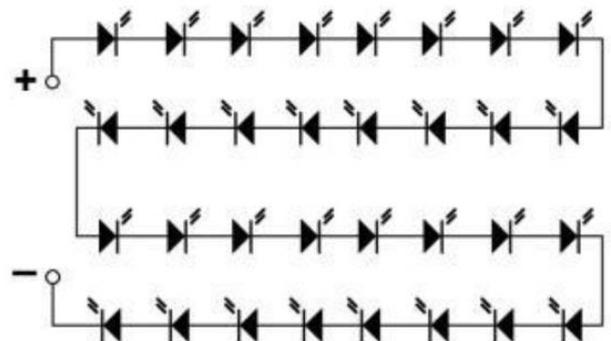
Clause	Requirement + Test	Result - Remark	Verdict
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22	PHOTOBIOLOGICAL SAFETY		P
22.1	UV radiation		N/A
	Luminous radiation not exceed 2mW/klm		N/A
22.2	Blue light hazard		P
	Assessed according to IEC TR 62778		P
22.3	Infrared radiation		N/A
	Requirements for infrared radiation when required		N/A

A	ANNEX A - TESTS		N/A
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		N/A

13 (14)	TABLE: tests of fault conditions		
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LED MODULE 32 LEDs



Enclosure 3	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 3	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 \geq 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 \geq 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							
Considered Uout 240 V							
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 3	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:					

Enclosure 3	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
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)		—
(L.3)	Classification		N/A
	Class I	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	Class II	Yes <input checked="" 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 M Ω		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 M Ω		N/A
	Between metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 M Ω		N/A
(L.8.3)	Electric strength		N/A

Enclosure 3	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
	1) Between live parts of input circuits and live parts of output circuits		N/A
	2) Over basic or supplementary insulation between:		N/A
	a) live parts having different polarity		N/A
	b) live parts and body if intended to be connected to protective earth		N/A
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord		N/A
	d) live parts and an intermediate metal part		N/A
	e) intermediate metal parts and the body		N/A
	f) each input circuit and all other input circuits		N/A
	3) Over reinforced insulation between the body and live parts		N/A
(L.9)	Construction		N/A
(L.9.1)	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		N/A
	HF transformer comply with 19 of IEC 61558-2-16		N/A
(L.10)	Components		N/A
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		N/A
(L.11)	Creepage distances 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

Enclosure 3	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
	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
	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 conformity¹⁾	
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)		—

Enclosure 3	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
(14.3.3)	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

Enclosure 3	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	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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	Pull test pin or tab terminals (4 samples); pull (N)		N/A
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(15.6.3.1)	TABLE: Contact resistance test										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 4	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 in 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 5	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 5	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 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
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 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Pulse voltage if applicable (kV)					—		—
Supplementary information:							
Distance 3:	B	2,5	1,5	11.1.B	2,5	2,4	11.1.A
Working voltage (V)					240		—
PTI					< 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Pulse voltage if applicable (kV)					—		—
Supplementary information: parts supplied by secondary circuit of LED driver (Uout max 240 Vd.c.) and double isolated from primary							

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

Enclosure 5	Australia/New Zealand's National Differences
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Ed.1.0
2017-05-17



IEC 60598_2_3K ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

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 + A1:2017		
Attachment Form No.:	AU_NZ_ND_IEC60598_2_3K		
Attachment Originator	JAS-ANZ		
Master Attachment	2017-09		
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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 <i>Add</i> 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 <i>Add</i> the following normative references: IEC 61048, Auxiliaries for lamps – Capacitors for use in tubular fluorescent and other discharge lamp circuits – General and safety requirements		—

Enclosure 5	Australia/New Zealand's National Differences
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2017-05-17



IEC 60598_2_3K ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
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	<p>IEC 61049, Auxiliaries for lamps – Capacitors for use in tubular fluorescent and other discharge lamp circuits – Performance requirements</p> <p>IEC 61995-1, Devices for the connection of luminaires for household and similar purposes – Part 1: General</p> <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) (AS/NZS 60598.1:2017)</p>		
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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>	t_a 50°C - IP66	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		—

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Clause	Requirement + Test	Result - Remark	Verdict
3.3 (1.2)	Addition <i>Add</i> the following new definitions after 1.2.86		—
	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 I	P
3.5	MARKING		—

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Clause	Requirement + Test	Result - Remark	Verdict
3.5 (3.1)	<p>Addition</p> <p>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.</p> <p>(AS/NZS 60598.1:2017)</p>		P
3.5(3.2)	<p>Variation</p> <p><i>Delete the second paragraph beginning with 'Marking may be on ballast provided...'</i></p> <p>(AS/NZS 60598.1:2017)</p>		P
(Table 3.1)	<p>Variation</p> <ol style="list-style-type: none"> 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 <p>(AS/NZS 60598.1:2017)</p>		N/A
3.5 (3.2.3)	<p>Variation</p> <p><i>Delete the text ', if other than 25 °C'.</i></p>		—
3.5 (3.2.12)	<p>Addition</p> <p>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.)</p> <p>(AS/NZS 60598.1:2017)</p>		N/A
3.5(3.2.23)	<p>Addition</p> <p>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.</p> <p>(AS/NZS 60598.1:2017)</p>		P

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Clause	Requirement + Test	Result - Remark	Verdict
3.5 (3.3.7)	<p>Variation <i>Delete</i> Clause 3.3.7 and <i>replace</i> with the following:</p> <p>3.3.7 Luminaires for use with metal halide lamps shall be provided with instructions that state the substance of the following:</p> <p>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:</p> <ul style="list-style-type: none"> — complete with its protective shield; or — with a double jacketed lamp <p>(AS/NZS 60598.1:2017)</p>		N/A
3.5 (3.3.18)	<p>Deletion <i>Delete</i> the text ', i.e. for indoor use only'.</p> <p>(AS/NZS 60598.1:2017)</p>		N/A
(3.3.21)	<p>Deletion Delete the text 'Caution, risk of electric shock' and the symbol.</p> <p>(AS/NZS 60598.1:2017)</p>		P
3.6	CONSTRUCTION		—
3.6 (4.7.2)	<p>Variation <i>Delete</i> the first paragraph and <i>replace</i> with the following:</p> <p>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.</p> <p>(AS/NZS 60598.1:2017)</p>		P
3.6 (4.8)	<p>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.</p> <p>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.</p>		N/A
	<p>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'.</p> <p>(AS/NZS 60598.1:2017)</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
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		—

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Clause	Requirement + Test	Result - Remark	Verdict
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.		—

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	<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

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Table 5.1	<p>Variation <i>Delete</i> Table 5.1 and replace with the following: 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 °</td> <td>60227 IEC 52 °</td> <td></td> </tr> <tr> <td>Ordinary class II luminaires</td> <td>60245 IEC 53 °</td> <td>60227 IEC 52 °</td> <td></td> </tr> <tr> <td>Luminaires which are other than ordinary class I and II</td> <td>60245 IEC 57 °</td> <td>60227 IEC 53 °</td> <td></td> </tr> <tr> <td>Portable rough service luminaires</td> <td>60245 IEC 66 °</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></td> <td></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>	Luminaire	Rubber	PVC	No Insulation	Ordinary class 1 luminaires	60245 IEC 51 °	60227 IEC 52 °		Ordinary class II luminaires	60245 IEC 53 °	60227 IEC 52 °		Luminaires which are other than ordinary class I and II	60245 IEC 57 °	60227 IEC 53 °		Portable rough service luminaires	60245 IEC 66 °			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 °	60227 IEC 52 °																												
Ordinary class II luminaires	60245 IEC 53 °	60227 IEC 52 °																												
Luminaires which are other than ordinary class I and II	60245 IEC 57 °	60227 IEC 53 °																												
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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																													
	(AS/NZS 60598.1:2017)																													

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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. Luminaire couplers incorporated with the luminaire shall comply with IEC 61995-1. 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
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

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3.8	PROVISION OF EARTHING		—
3.8 (7.2.11)	Variation <i>Delete</i> the third paragraph and <i>replace</i> with the following: All conductors, whether internal or external, coloured green, yellow or green/yellow combination, shall only be connected to an earthing terminal (AS/NZS 60598.1:2017)		P
3.11	PROTECTION AGAINST ELECTRIC SHOCK		—
3.11 (8.2.1)	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
	<i>Delete</i> the ninth paragraph beginning with 'Covers in fixed luminaires that cannot be removed...' (AS/NZS60598.1:2017)		—
3.11 (9.2)	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)		N/A
(Table 10.30)	Deletion Delete the second row beginning with 'Class I luminaires rated up to and including 16 A...'		—
	First column, third row, delete the word 'Metal'. (AS/NZS60598.1:2017)		—
3.12	ENDURANCE TEST AND THERMAL TEST		—

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(Table 12.1)	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.)'		—
	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 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)	Temperature measured do not exceed the values stated by producers to ensure 50000 hours of life.	P
3.15	RESISTANCE TO HEAT, FIRE AND TRACKING		—
3.15 (13.3)	Variation <i>Delete</i> Clause 13.3 and <i>replace</i> with the following: 13.3 Resistance to flame and ignition Parts of non-metallic material shall be resistant to flame and ignition. 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. 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. This Clause applies to all parts, including components, even if they have been tested to their own IEC or equivalent standard..		N/A

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	<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
	<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

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	<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>(AS/NZS 60598.1:2017)</p>		—
	Special national conditions (if any)		—
(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

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IEC 60598_2_3K ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
	<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. 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. (AS/NZS 60698.1:2017) 		N/A
(0.5.102)	<p>After Clause 0.5.101, add new Clause 0.5.102 as follows: 0.5.102 Control gear 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
	Sensor switches and similar control circuits, including those incorporated in other equipment, are considered electronic switches (see Clause 4.8). (AS/NZS 60598.1:2017)		N/A

Enclosure 5	Australia/New Zealand's National Differences
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IEC 60598_2_3K ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
3.3 (1.2.101)	<p>After Clause 1.2.91, add the following definitions:</p> <p>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</p> <p>1.2.103 installation male connector load side portion of an installation coupler which contains the male contacts</p> <p>1.2.104 installation female connector supply side portion of an installation coupler which contains the female contacts</p> <p>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)</p>		—
3.5 (3.3.101)	<p>Addition</p> <p>After Clause 3.3.22, add new Clauses 3.3.101 and 3.3.102 as follows:</p> <p>3.3.101 The instructions shall contain details of the components in the luminaire that require replacement as part of a maintenance program.</p>	No replaceable components	N/A
3.5 (3.3.102)	<p>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.</p> <p>Equipment containing one or more coin/button cell/R1 batteries shall have the safety warnings in the instructions accompanying the equipment.</p> <p>The safety warnings are not required where these batteries are not intended to be replaced or are only accessible after damaging the equipment.</p> <p>The safety warnings shall be as follows:</p>		N/A

Enclosure 5	Australia/New Zealand's National Differences
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IEC 60598_2_3K ATTACHMENT

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. NOTE 2 Battery designations are specified in IEC 60086-2. (AS/NZS 60598.1:2017)</p>		N/A
3.6 (4.101)	<p>Addition After Clause 4.32, add new Clauses as follows: 4.101.1 Small batteries 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. 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. 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. 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 5	Australia/New Zealand's National Differences
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IEC 60598_2_3K ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
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	<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> <ul style="list-style-type: none"> –..... 2 Nm, for major dimensions up to 50 mm. –..... 4 Nm, for major dimensions over 50 mm. <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>		—

Enclosure 6 Manufacturer's Instructions

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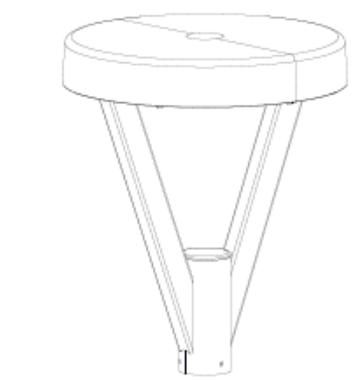
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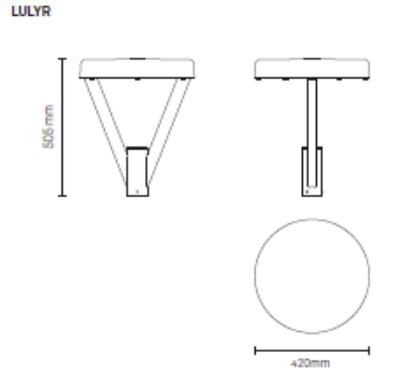
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NERI Lyra - LED
 REV. 01 - 202 1/03/24



GUIDA ALL'INSTALLAZIONE
 INSTALLATION GUIDE
 GUIDE D'INSTALLATION
 INSTALLATION SANLE TUNG
 GUIDA DE INSTALACION

Lyra



Superficie a sposta al vento / Surface exposed to wind / Surfaces exposées au vent / Windangefällige Oberfläche / Superficie expuesta al viento	0,2615m ² [1.023ft ²]
Area laterale/ Side area/ Zone latérale/ Seitlicher Bereich/ Área lateral	0,2615m ² [1.023ft ²]
Area frontale/ Front area/ Zone frontale/ Gemächsvorn/ Área frontal	0,0769m ² [0.2849ft ²]
Area superiore/ Top area/ Zone supérieure/ Oberer Bereich/ Área superior	0,126m ² [1.4689ft ²]
IP	IP
Power/ Weight/ Poids/ Gewicht/ Peso	6,8kg [15.043lb]
H _{min}	2,55 m [8.366ft]
H _{max}	>15m [49.21ft]

CONFORMITÀ / COMPLIANCE/ CONFORMITÉ / KONFORMITÄT / CUMPLIMIENTO DE NORMAS

IT - Apparecchio per illuminazione stradale conforme alle norme riportate in tabella.
 NOTA: Solo i prodotti riportanti il marchio ENEC devono essere considerati a marchio e sottoposti al controllo di produzione. Controllare sempre il marchio sul prodotto! Le caratteristiche elettriche specifiche sono riportate sull'etichetta dati posta sull'apparecchio.

EN - Street lighting appliance in compliance with the standards indicated in the table.
 NOTE: Only those products bearing the ENEC mark should be considered to be listed and covered under follow-up service. Always look for the mark on the product! Specific electrical characteristics are indicated on the data label affixed to the appliance.

FR - Appareil pour éclairage routier conforme aux normes reportées dans le tableau.
 NOTE: Seuls les produits comportant le marquage ENEC doivent être considérés comme marqués et soumis à un contrôle de production. Toujours contrôler le marquage sur le produit! Les caractéristiques électriques spécifiques sont reportées sur l'étiquette de données apposée sur l'appareil.

DE - Die Vorrichtung zur Straßenbeleuchtung entspricht den in der Tabelle beschriebenen.
 HINWEIS: Nur die Produkte mit dem ENEC-Zeichen dürfen als solche berücksichtigt werden und einer Produktionskontrolle unterzogen werden. Überprüfen Sie immer die Kennzeichnung auf dem Produkt! Die elektrischen Spezifikationen finden Sie auf dem Typenschild, das sich auf der Vorrichtung befindet.

ES - Aparato para iluminación vial conforme a las normas que figuran en la tabla.
 NOTA: Solo los productos con el sello ENEC deben considerarse marcados y sometidos al control de producción. ¡Controlar siempre que el producto cuenta con la marca! Las características eléctricas específicas se recogen en la etiqueta de datos fijada al aparato.

LVD	Directive 2014/35/EU Low Voltage Directive (LVD)
EN 60598-1	Luminaires - Part 1: General requirements and tests
EN 60598-2-2	Luminaires - Part 2-2: Particular requirements - Luminaires for road and street lighting
EMC	Directive 2014/53/EC Electromagnetic Compatibility
EN 61547	Equipment for general lighting purposes - EMC immunity requirements
EN 55015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
EN 61000-3-2	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16 A per phase)
EN 61000-3-3	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection
ErP	Directive 2006/125/CE Energy Related Product (ErP)
RoHS	Directive 2011/65/EU Restriction of the use of certain hazardous substances (RoHS)

Enclosure 6 Manufacturer's Instructions

GUIDA ALL'INSTALLAZIONE

AVVERTENZE PER L'INSTALLAZIONE
Designare l'installazione secondo le norme in vigore nel paese di installazione.
L'apparecchio deve essere utilizzato solo se è completo dello schermo di protezione.

Per maggiori informazioni, si invita a consultare le istruzioni supplementari presenti sul sito web...



INSTALLAZIONE
Assicurarsi che l'apparecchio di illuminazione sia in perfetto stato e che la tensione di funzionamento sia compatibile con la tensione di linea.

MANTENIMENTO
Può essere richiesto il servizio di un tecnico specializzato.
Le operazioni di manutenzione ordinaria vanno eseguite solo da personale specializzato.

RISCHIO FOTOBIOLOGICO
L'apparecchio di illuminazione dovrebbe essere posizionato in modo che non sia prevista un'esposizione prolungata dell'apparecchio ad una distanza inferiore di 2,35 m [3.26ft].

INSTALLATION GUIDES

INSTALLATION INFORMATION
Installation must be carried out in accordance with national standards.
The fixture must only be used when complete with safety screen.

For more information, please see the supplementary instructions on the website at www.nert.be/installationguides.



INSTALLATION
Ensure that the light fixture is in perfect condition and that the operating voltage is compatible with the line voltage.

MANTENANCE
Maintenance operations must be carried out by expert personnel only (with the appliance closed and disconnected from power supply).

PHOTOBIOLOGICAL RISK
The luminaire should be positioned so that prolonged staring into the luminaire at a distance closer than 2,35 m [3.26ft].

GUIDE D'INSTALLATION

AVERTISSEMENTS POUR L'INSTALLATION
Effectuer l'installation selon les normes en vigueur dans le pays d'installation.
L'appareil doit être utilisé uniquement si est complet de l'écran de protection.

For more information, please see the supplementary instructions published on the website...



INSTALLATION
S'assurer que le luminaire est en parfait état et que sa tension de fonctionnement est compatible avec la tension de ligne.

ENTRETIEN
Les opérations d'entretien doivent être effectuées uniquement par un personnel spécialisé.

• Nettoyage de l'écran de protection et de la structure externe par (élimination de tout éventuel matériel qui pourrait altérer le fonctionnement uniquement avec de l'eau et une éponge) ou par utilisation d'un nettoyeur à pression et d'autres produits pour le nettoyage (Fig. 7).

RISCHIO FOTO-BIOLOGICO
Il dispositivo d'illuminazione deve essere installato in modo tale da impedire un'esposizione prolungata a una distanza inferiore di 2,35 m [3.26ft].



INSTALLATIONSANLEITUNG

INSTALLATIONSANLEITUNG
Führen Sie die Installation gemäß den geltenden Normen im Einsatzland durch.
Die Vorrichtung darf nur vollständig mit dem Schutzblech verwendet werden.

Für weitere Informationen lesen Sie bitte in den zusätzlichen Anweisungen nach, die Sie auf der Website www.nert.be/installationguides.



MONTRAGE
Vérifier que le luminaire est en parfait état et que sa tension de fonctionnement est compatible avec la tension de ligne.

ENTRETIEN
Les opérations d'entretien doivent être effectuées uniquement par un personnel spécialisé.

PHOTOBIOLOGISCHES RISIKO
Die Leuchte sollte so positioniert werden, dass kein direkter Blick in die Leuchte für einen längeren Zeitraum bei einem Abstand von weniger als 2,35 m [3.26ft].



GUÍA DE INSTALACIÓN

ADVERTENCIAS PARA LA INSTALACIÓN
Leer a cabo la instalación de acuerdo con las normas vigentes en el país de instalación.
El aparato debe utilizarse únicamente si está en perfecto estado.

Para obtener más información, consulte las instrucciones adicionales en el sitio web...



INSTALACIÓN
Verificar que el aparato de iluminación esté en perfecto estado y que la tensión de funcionamiento sea compatible con la tensión de línea.

MANTENIMIENTO
Las operaciones de mantenimiento solo pueden ser realizadas por personal especializado.

RIESGO FOTOBIOLOGICO
El dispositivo de iluminación debe instalarse de manera que no sea posible una exposición prolongada del aparato a una distancia inferior a 2,35 m [3.26ft].



SIMBOLI / SYMBOLS / SIMBOLES / SYMBOLE / SIMBOLOS

IT - 1. Abbigliamento da lavoro / 2. Scarpe antinfortunistiche / 3. Casco obbligatorio / 4. Guanti da lavoro / 5. Danni ai componenti / 6. Inquinamento ambientale / 7. Nota informativa / 8. Verifica tecnica / 9. Pericolo per l'operatore / 10. Rischio fotobiologico / 11. Rischio di shock elettrico.

EN - 1. Work apparel / 2. Safety shoes / 3. Obligatory helmet / 4. Work gloves / 5. Damage to components / 6. Environmental pollution / 7. Informative note / 8. Technical check / 9. Danger for the operator / 10. Photobiological risk / 11. Risk of electric shock.

FR - 1. Équipement de travail / 2. Chaussures de sécurité / 3. Casque obligatoire / 4. Gants de travail / 5. Dommages aux composants / 6. Pollution de l'environnement / 7. Note d'information / 8. Vérification technique / 9. Danger pour l'opérateur / 10. Risque photobiologique / 11. Risque de choc électrique.

DE - 1. Arbeitsschutzeinrichtung / 2. Schutzhelm / 3. Arbeitsschutzhandschuhe / 4. Schutzhelm / 5. Schaden an den Komponenten / 6. Umweltschmutzung / 7. Informationsblatt / 8. Technische Kontrolle / 9. Gefahr für den Techniker / 10. Photobiologischer Risiko / 11. Stromschlaggefahr.

ES - 1. Ropa de trabajo obligatoria / 2. Calzado de seguridad obligatoria / 3. Casco de seguridad obligatoria / 4. Guantes de seguridad obligatoria / 5. Daños a los componentes / 6. Contaminación del medio ambiente / 7. Nota informativa / 8. Comprobación técnica / 9. Peligro para el operador / 10. Riesgo fotobiológico / 11. Riesgo de descarga eléctrica.



Enclosure 6 **Manufacturer's Instructions**

<p>INSTALLAZIONE INSTALLATION FIXATION MONTAGE</p>						
<p>MANUTENZIONE MAINTENANCE MAINTENANCE WARTUNG MANTENIMIENTO</p>						

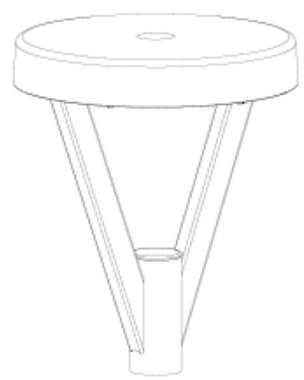
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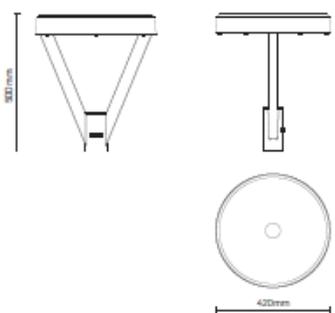
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GUIDA ALL'INSTALLAZIONE
 INSTALLATION GUIDES
 GUIDE D'INSTALLATION
 INSTALLATION SANLEITUNG
 GUIDA DE INSTALACION

Lyra
 LED
 LULYR



Superficie esposta al vento / Surface exposed to wind / Superficie expuesta al viento / Windcatching surface	0,2615m ² [1,043ft ²]
Area laterale/ Side area/ Zone latérale/ Seitlicher Bereich/ Área lateral	0,2615m ² [1,043ft ²]
Area frontale/ Front area/ Zone frontale/ Demichsvorn/ Área frontal	0,076m ² [0,285ft ²]
Area superiore/ Top area/ Zone supérieure/ Oberer Bereich/ Área superior	0,128m ² [1,469ft ²]
ESR	0,421RF
Power/ Weight/ Poids/ Gewicht/ Peso	23kg [50.7lb]
H _{min}	2,70m [8.85ft]
H _{max}	+15m [49.21ft]

CONFORMITÀ / COMPLIANCE/ CONFORMITÉ/ KONFORMITÄT / CUMPLIMIENTO DE NORMAS

IT - Apparecchio per illuminazione stradale conforme alle norme riportate in tabella, con marchio di sicurezza ENEC15 o cULus.
NOTE: Solo i prodotti riportanti il marchio ENEC o UL devono essere considerati a marchio e sottoposti al controllo di produzione. Controllare sempre il marchio sul prodotto!
 Le caratteristiche elettriche specifiche sono riportate sull'etichetta dati posta sull'apparecchio.
 EN - Street lighting appliance in compliance with the standards indicated in the table, with ENEC15 safety mark or cULus mark.
NOTE: Only those products bearing the ENEC or UL mark should be considered to be marked and covered under follow-up services. Always look for the mark on the product!
 Specific electrical characteristics are indicated in the data label affixed to the appliance.
 FR - Appareil pour éclairage routier conforme aux normes reportées dans la table, avec marquage de sécurité ENEC15 ou cULus.
NOTE : Seuls les produits comportant le marquage ENEC ou UL doivent être considérés comme marqués et soumis à un contrôle de production. Toujours contrôler le marquage sur le produit! Les caractéristiques électriques sont reportées sur l'étiquette de données apposée sur l'appareil.
 DE - Die Vorrichtung zur Straßenbeleuchtung entspricht den in der Tabelle beschriebenen.
HINWEIS: Nur die Produkte mit dem ENEC-Zeichen dürfen als solche betrachtet/geführt werden und einer Produktionskontrolle unterzogen werden. Überprüfen Sie immer die Kennzeichnung auf dem Produkt! Die elektrischen Spezifikationen finden Sie auf dem Typenschild, das sich auf der Vorrichtung befindet.
 ES - Aparato para iluminación vial conforme a las normas que figuran en la tabla, con marca de seguridad ENEC15 o cULus.
NOTA: Solo los productos con el sello ENEC o UL deben considerarse marcados y sometidos al control de producción. Controlar siempre que el producto cuenta con la marca! Las características eléctricas específicas se recogen en la etiqueta de datos fijada al aparato.



LVD	Directive 2014/35/EU Low Voltage Directive (LVD)
EN 60598-1	Luminaires - Part 1: General requirements and tests
EN 60598-2-3	Luminaires - Part 2-3: Particular requirements - Luminaires for road and street lighting
EMC	Directive 2014/53/EC Electromagnetic Compatibility
EN 61547	Equipment for general lighting purposes - EMC immunity requirements
EN 55015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
EN 61000-3-2	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16 A per phase)
EN 61000-3-3	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection
ErP	Directive 2006/25/CE Energy Related Product (ErP)
RoHS	Directive 2011/65/EU Restriction of the use of certain hazardous substances (RoHS)
UL 1598	Luminaire

Enclosure 6 Manufacturer's Instructions

GUIDA ALL'INSTALLAZIONE

AVVERTENZE PER L'INSTALLAZIONE
 Effettuare l'installazione secondo le norme in vigore nel paese di installazione. L'apparecchio deve essere utilizzato solo con il completo telaio schermo di protezione. Se lo schermo risulta danneggiato o rotto, l'apparecchio non va utilizzato. Ripristinare le condizioni originali prima di riutilizzarlo.
 L'apparecchio in CL II o CL III d'isolamento elettrico, fare attenzione che durante l'installazione, parti metalliche esposte non vadano in contatto elettrico con parti dell'installazione elettrica collegata ad un conduttore di protezione. Questo apparecchio deve essere destinato solo all'uso per il quale è stato progettato, e così l'installazione di ambienti esterni. Ogni altro uso è considerato improprio e pericoloso, ed il costruttore non può essere considerato responsabile per danni derivanti da un uso improprio e irregolare.

Per maggiori informazioni, si invita a consultare le istruzioni supplementari presenti sul sito web www.nert.be/it/guidaallinstallazione.



INSTALLAZIONE
 Assicurare che l'apparecchio di illuminazione sia in perfetto stato e che la tensione di funzionamento sia compatibile con la tensione di linea. Per garantire l'isolamento del kit dall'acqua è necessario collegare il cavo del driver all'alimentazione con un connettore o morsetto con un adeguato livello di protezione dall'ingresso di acqua (IP65), sia in classe I che in classe II (Fig. 1-2-3-4). L'apparecchio viene fornito su pila con diametro di 60mm. È risulta montato a filo su pila con diametro di 76mm (Fig. 5). Orientare l'apparecchio correttamente rispetto l'asse stradale, avendo come riferimento il logo Nert rivolto verso la strada (Fig. 6). Fissare l'apparecchio al sostegno per mezzo del due gran M6 (25mm su strada) o M8 (12mm su tunnel) (Fig. 7).

MANTENZIONE
Pulizia dello schermo
 Le operazioni di manutenzione ordinaria vanno eseguite solo da personale specializzato (se l'apparecchio chiuso è scagliato dalla rete elettrica), e riguardano:
 - pulizia schermo di protezione e struttura esterna solo con acqua e spugna (non utilizzare saponi/pulitori a pressione e altri prodotti per la pulizia) (Fig. 8).

RISCHIO FOTOBIOLOGICO
 L'apparecchio di illuminazione dovrebbe essere posizionato in modo che non sia prevista un'osservazione prolungata dell'apparecchio ad una distanza inferiore di 2,70 m (0,885ft).



INSTALLATION GUIDES

INSTALLATION INFORMATION
 Installation must be carried out in accordance with national standards. The fixture must only be used when complete with safety screen. If the screen is damaged or broken, the fixture must not be used. Restore the original condition before reusing. The fixture is installed under CL II protection standard, particular care must be taken when assembling to ensure that exposed metal parts do not come into electrical contact with parts of the electrical installation connected to a protection conductor. This light fixture must be installed only for the use for which it is designed, namely for the illumination of outdoor spaces. Any other use must be considered to be improper and dangerous, and the manufacturer cannot be held liable for any damage caused by improper and unreasonable use.

For more information, please see the supplementary instructions on the website at www.nert.be/it/installationguides.



INSTALLATION
 Ensure that the light fixture is in perfect condition and that the operating voltage is compatible with the line voltage. In order to guarantee insulation of the kit from water, the driver cable must be connected to the power supply with a connector or terminal block that has an adequate level of protection against water infiltration (IP65), both in class I and in class II (Fig. 1-2-3-4). The light fixture must be mounted on poles with diameter of 60 mm. It is flange mounted on poles with 76 mm external diameter (Fig. 5). Position the light fixture correctly in respect to the road, using the Nert logo facing the road as a reference (Fig. 6). Secure the light fixture to the support using the two grub screws (25 mm on 60 mm connection and 12 mm on 76 mm connection) (Fig. 7).

MAINTENANCE
 Maintenance operations must be carried out by expert personnel only (with the appliance closed and disconnected from power supply). These operations involve:
 - cleaning the screen and external structure for cleaning use only water and sponge (do not use high pressure water jets or other cleaning products) (Fig. 8).

PHOTOBIOLOGICAL RISK
 The luminaire should be positioned so that prolonged staring into the luminaire at a distance closer than 2,70 m (0,885ft).



GUIDE D'INSTALLATION

AVERTISSEMENTS POUR L'INSTALLATION
 Effectuer l'installation selon les normes en vigueur dans le pays d'installation. L'appareil doit être utilisé uniquement en état complet de l'écran de protection. Si l'écran est endommagé ou cassé, l'appareil ne doit pas être utilisé. Restaurer les conditions d'origine avant de l'utiliser à nouveau. L'appareil est en CL II d'isolation électrique, «base» qui, durant l'installation, les pièces métalliques exposées doivent pas en contact électrique avec les parties de l'installation électrique reliées à un conducteur de protection. Cet appareil doit être destiné uniquement à l'usage pour lequel il a été conçu, c'est-à-dire l'éclairage d'espaces extérieurs. Tout autre utilisation est considérée improprie et dangereuse, et le fabricant ne peut être tenu responsable des dommages causés par une utilisation incorrecte et abusives.

Pour en savoir plus, veuillez consulter les instructions supplémentaires publiées sur le site Internet à la page www.nert.be/fr/guidedinstallation.



INSTALLATION
 S'assurer que le luminaire est en parfait état et que sa tension de fonctionnement est compatible avec la tension de ligne. Afin de garantir l'isolation du kit à l'eau, connecter le câble du pilote à l'alimentation avec un connecteur ou un bornier ayant un niveau de protection adéquat contre la pénétration d'eau (IP65), aussi bien en classe I qu'en classe II (Fig. 1-2-3-4). L'appareil se monte sur des poteaux d'un diamètre de 60 mm. Il est monté en encastrement affleurant sur des poteaux de 76 mm de diamètre (Fig. 5). Orienter l'appareil correctement par rapport à l'axe de la route, en prenant comme référence le logo Nert tourné vers la route (Fig. 6). Fixer l'appareil au support à l'aide des deux vis sans tête (25mm sur raccord 60mm et 12 mm sur raccord 76mm) (Fig. 7).

ENTRETIEN
 Les opérations d'entretien doivent être effectuées uniquement par un personnel spécialisé, (avec l'appareil fermé et déconnecté de l'alimentation) et concernent notamment:
 - nettoyage de l'écran et de la structure externe uniquement avec de l'eau et une éponge (ne pas utiliser de jets d'eau sous haute pression ou d'autres produits de nettoyage) (Fig. 8).

- Nettoyage de l'écran de protection et de la structure externe pour l'élimination de tout éventuel matériel qui pourrait altérer le fonctionnement uniquement avec de l'eau et une éponge (ne pas utiliser d'jets d'eau sous haute pression et d'autres produits pour le nettoyage) (Fig. 8).

RISCHIO FOTO-BIOLOGICO
 Lo dispositivo d'illuminazione deve essere installato in modo da impedire un'esposizione prolungata a una distanza inferiore di 2,70 m (0,885ft).



INSTALLATIONSANLEITUNG

INSTALLATIONSANLEITUNG
 Führen Sie die Installation gemäß den geltenden Normen im Einsatzland durch. Die Vorrichtung darf nur ausschließlich der Schutzabdeckung verwendet werden. Wenn die Schutzabdeckung beschädigt oder nicht funktionstüchtig ist, darf die Vorrichtung nicht verwendet werden. Stellen Sie den ursprünglichen Zustand vor der erneuten Verwendung wieder her. Die Vorrichtung entspricht der Schutzklasse II (Schutz durch doppelte oder verstärkte Isolierung), achten Sie während der Installation darauf, dass freiliegenden Metallteile nicht in elektrischen Kontakt mit Teilen der elektrischen Anlage gelangen, die mit einem Schutzleiter verbunden sind. Diese Vorrichtung darf nur für den Zweck verwendet werden, für den diese konzipiert wurde, nämlich für die Außenbeleuchtung. Jede andere Verwendung gilt als unangemessen und gefährlich, der Hersteller haftet nicht für Schäden, die durch unzulässige und unvernünftige Verwendung verursacht werden.

Für weitere Informationen lesen Sie bitte in den zusätzlichen Anweisungen nach, die Sie auf der Website www.nert.be/de/installationsanleitung.



MONTRAGE
 Überprüfen Sie, dass sich die Lampe in einem einwandfreien Zustand befindet und dass die Schutzabdeckung für die Netzspannung geeignet ist. Muss die Schutzabdeckung mit einem Glasdeckungsgehäuse oder einer Alternative mit geeigneter Schutzart (IP65) an die Stromversorgung angeschlossen werden, um den Kontakt vor dem Eindringen von Wasser zu schützen. Diese Vorrichtung für Isolationsklasse II (Schutz durch doppelte oder verstärkte Isolierung), achten Sie während der Installation darauf, dass freiliegenden Metallteile nicht in elektrischen Kontakt mit Teilen der elektrischen Anlage gelangen, die mit einem Schutzleiter verbunden sind. Diese Vorrichtung darf nur für den Zweck verwendet werden, für den diese konzipiert wurde, nämlich für die Außenbeleuchtung. Jede andere Verwendung gilt als unangemessen und gefährlich, der Hersteller haftet nicht für Schäden, die durch unzulässige und unvernünftige Verwendung verursacht werden.

WARNTUNG
 Die Wartungsarbeiten dürfen nur von Fachpersonal ausgeführt werden und betreffen (mit dem Gerät geschlossenen und von der Stromversorgung getrennt):
 - Reinigung des Schutzschirms und des äußeren Gehäuses mit einem Entfettungsmittel (Vorsicht: vermeiden Sie die Verwendung von hochdruckwasser und keine Reinigungsprodukte verwenden) (Abb. 8).

PHOTOBIOLOGISCHES RISIKO
 Die Leuchte sollte so positioniert werden, dass kein direkter Blick in die Leuchte für einen längeren Zeitraum bei einem Abstand von weniger als 2,70 m (0,885ft).



GUÍA DE INSTALACIÓN

ADVERTENCIAS PARA LA INSTALACIÓN
 Llevar a cabo la instalación de acuerdo con las normas vigentes en el país de instalación. El aparato debe utilizarse únicamente en estado completo de la pantalla de protección. Si la pantalla es encendida dañada o rota, el aparato no debe ser utilizado. Restaurar las condiciones originales antes de su reutilización. El aparato es de CL II, en lo que respecta a su aislamiento eléctrico, durante la instalación debe prestarse atención para que las partes metálicas expuestas no entren en contacto eléctrico con partes de la instalación eléctrica conectadas a un conductor de protección. Este aparato debe utilizarse sólo para el uso para el que fue diseñado, es decir, la iluminación de ambientes exteriores. Cualquier otro uso es considerado inadecuado y peligroso, y el fabricante no puede ser considerado responsable de daños derivados de un uso indebido e impropio.

Para obtener más información, consulte las instrucciones adicionales en el sitio web www.nert.be/es/installationguides.



INSTALACIÓN
 Verificar que el aparato de iluminación está en perfecto estado y que la tensión de funcionamiento sea compatible con la tensión de línea. Para garantizar el aislamiento del kit en relación con el agua, es necesario conectar el cable del controlador a la alimentación con un conector o terminal con un nivel de protección adecuado contra el ingreso de agua (IP65), de clase I o de clase II (Fig. 1-2-3-4). El aparato se monta en postes con diámetro de 60mm, y se monta a ras con postes con diámetro de 76mm (Fig. 5). Orientar el aparato correctamente respecto del eje de la carretera, teniendo como referencia el logotipo de Nert vuelto hacia la carretera (Fig. 6). Fijar el aparato al apoyo mediante dos tornillos priorizados (25mm en unión de 60mm y 12mm en unión de 76mm) (Fig. 7).

MANTENIMIENTO
 Las operaciones de mantenimiento solo pueden ser realizadas por personal especializado (con el aparato cerrado y desconectado de la fuente de alimentación):
 - Limpieza de la pantalla de protección de la estructura externa sólo con agua y esponja (no utilizar hidrolimpiadoras a presión ni otros productos de limpieza) (Fig. 8).

RISCHIO FOTOBIOLOGICO
 La luminaria debe colocarse de manera que no sea posible una observación prolongada del aparato a una distancia inferior a 2,70 m (0,885ft).



SIMBOLI / SYMBOLS / SIMBOLES / SYMBOLE / SIMBOLOS

IT - 1. Abbigliamento da lavoro / 2. Scarpe antinfortunistiche / 3. Casco obbligatorio / 4. Guanti da lavoro / 5. Danni ai componenti / 6. Inquinamento ambientale / 7. Nota informativa / 8. Verifica tecnica / 9. Pericolo per l'operatore / 10. Rischio fotobiologico / 11. Rischio di shock elettrico.

EN - 1. Work apparel / 2. Safety shoes / 3. Obligatory helmet / 4. Work gloves / 5. Damage to components / 6. Environmental pollution / 7. Informative note / 8. Technical check / 9. Danger for the operator / 10. Photobiological risk / 11. Risk of electric shock.

FR - 1. Équipement de travail / 2. Chaussures de sécurité / 3. Casque obligatoire / 4. Gants de travail / 5. Dommages aux composants / 6. Pollution de l'environnement / 7. Note d'information / 8. Vérification technique / 9. Danger pour l'opérateur / 10. Risque photobiologique / 11. Risque de choc électrique.

DE - 1. Arbeitsschulung / 2. Schutzhelm / 3. Helmpflichtig / 4. Arbeitshandschuhe / 5. Schäden an den Komponenten / 6. Umweltschmutzung / 7. Informationsblatt / 8. Technische Kontrolle / 9. Gefahr für den Techniker / 10. Photobiologischer Risiko / 11. Stromschlaggefahr.

ES - 1. Ropa de trabajo obligatoria / 2. Calzado de seguridad obligatoria / 3. Casco de seguridad obligatoria / 4. Guantes de seguridad obligatoria / 5. Daños a los componentes / 6. Contaminación del medio ambiente / 7. Nota informativa / 8. Comprobación técnica / 9. Peligro para el operador / 10. Riesgo fotobiológico / 11. Riesgo de descarga eléctrica.



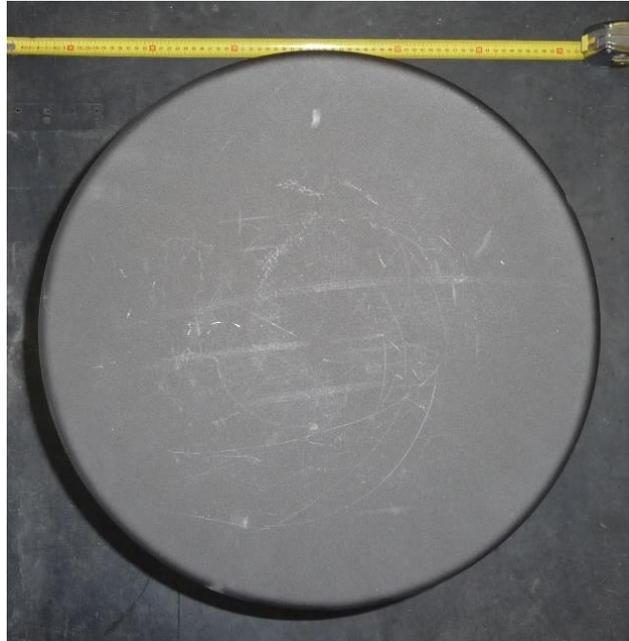
Enclosure 6 Manufacturer's Instructions

<p>INSTALLAZIONE INSTALLATION FIXATION MONTAGE MONTAJE</p>				<p>IP66</p>	<p>MANUTENZIONE MAINTENANCE MAINTENANCE WARTUNG MANTENIMIENTO</p>	<p>IP66</p>		<p>IP66</p>	
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Enclosure 7

Photos

Photograph No. 1 Upper view of the luminaire



Photograph No.2 Side view of the luminaire



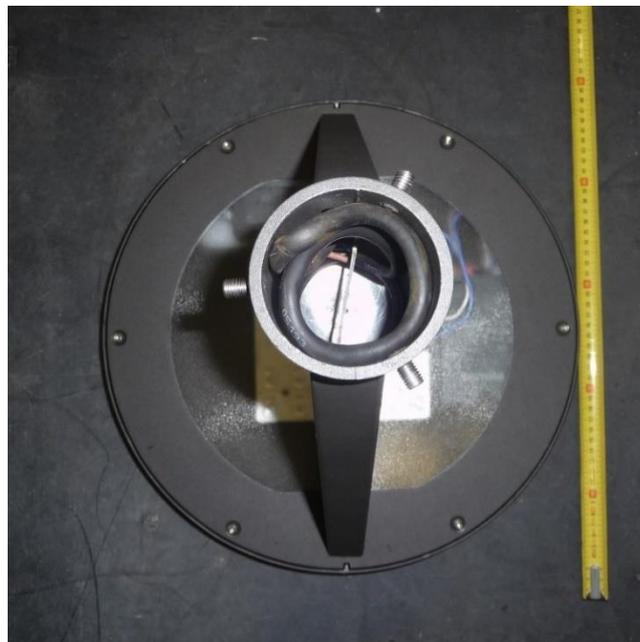
Enclosure 7

Photos

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



Photograph No. 4 Bottom view of the luminaire



Enclosure 7	Photos
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Photograph No. 5 View of internal wiring



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

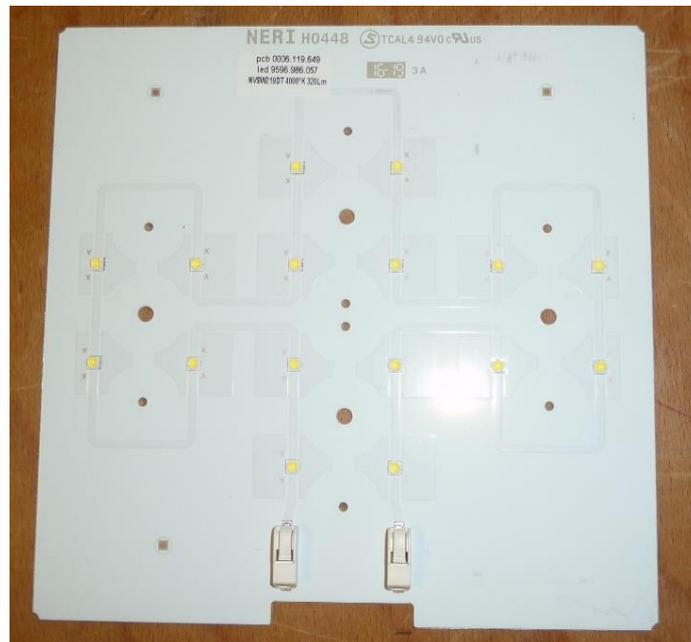


Enclosure 7 Photos

Photograph No. 7 View of the integral LED module (24 LEDs)



Photograph No. 8 View of the integral LED module (16 LEDs)



Enclosure 7

Photos

Photograph No. 9 LED module supply terminals



Enclosure 8	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	2020-03-20
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	2021-02-06
3.6	Construction	LAB026 - Caliper	0-200 mm	2020-07-15 2021-07-13	2021-07-15 2022-07-13
3.12	Endurance test and thermal tests	LAB018 – Thermal test room and acquisition system	0-300 °C	2018-12-15 2020-12-09	2019-12-15 2021-12-09
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 2020-12-14	2019-11-30 2021-12-14
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