



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.** .....: **4789818846.1**  
**Date of issue**.....: 2021-04-20  
**Total number of pages** .....: 78 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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<b>Test item description</b> .....	Luminaire for road and street lighting	
<b>Trade Mark</b> .....	<b>NERI</b>	
<b>Manufacturer</b> .....	NERI S.p.A. SS Emilia, 1622 – Longiano (FC) 47020 - Italy	
<b>Model/Type reference</b> .....	<b>NEBULA S PR</b> (see GPI for variants)	
<b>Ratings</b> .....	220-240 V ~ 50/60 Hz 24 W Class II IP66 t <sub>a</sub> 25°C (see GPI for variants)	
<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>		
<input checked="" type="checkbox"/>	<b>CB Testing Laboratory:</b>	<b>UL International Italia S.r.l.</b>
<b>Testing location/ address</b> .....		Via delle Industrie, 5 & 6 – 20061 Carugate (MI) – Italy
<b>Tested by (name, function, signature)</b> .....		Marco Caroli Project Handler 
<b>Approved by (name, function, signature)</b> ...		Ezio Colombo Reviewer 
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 1:</b>	
<b>Testing location/ address</b> .....		
<b>Tested by (name, function, signature)</b> .....		
<b>Approved by (name, function, signature)</b> ...		
<input checked="" type="checkbox"/>	<b>Testing procedure: CTF Stage 2:</b>	
<b>Testing location/ address</b> .....		<b>NERI S.p.A.</b> <b>SS Emilia, 1622 – Longiano (FC) 47020 - Italy</b>
<b>Tested by (name + signature)</b> .....		Simone Zoffoli Tester 
<b>Witnessed by (name, function, signature) .:</b>		Marco Caroli Project Handler 
<b>Approved by (name, function, signature)</b> ...		Ezio Colombo Reviewer 
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 3:</b>	
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 4:</b>	
<b>Testing location/ address</b> .....		
<b>Tested by (name, function, signature)</b> .....		
<b>Witnessed by (name, function, signature) .:</b>		
<b>Approved by (name, function, signature)</b> ...		
<b>Supervised by (name, function, signature) :</b>		

<b>List of Attachments (including a total number of pages in each attachment):</b>				
<b>Thermal tests of Section 12 .....</b>		(Enclosure 1): 6 pages		
<b>European Group Differences and National Differences .....</b>		(Enclosure 2): 1 page		
<b>Evaluation of LED modules as integral components according to IEC 62031:2018; EN IEC 62031:2020 .....</b>		(Enclosure 3): 7 pages		
<b>Manufacturer's Instructions.....</b>		(Enclosure 4): 18 pages		
<b>Photos .....</b>		(Enclosure 5): 5 pages		
<b>Equipment list .....</b>		(Enclosure 6): 1 page		
<b>Summary of testing:</b>				
<b>Tests performed (name of test and test clause):</b>				<b>Testing location:</b>
3.5	Marking	Applicable	Pass	<b>NERI S.p.A.</b> 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	Not Applicable	N/A	
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	<b>UL International Italia S.r.l.</b> Via delle Industrie, 5 & 6 – 20061 Carugate (MI) – Italy
<b>TEST RESULTS WERE FAVOURABLE</b>				
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				
<b>Summary of compliance with National Differences:</b>				
<b>List of countries addressed</b>				
<ul style="list-style-type: none"> <li>• <b>All countries member of CENELEC</b> (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom) (see "Enclosure 2")</li> </ul>				
<input checked="" type="checkbox"/> <b>The product fulfils the requirements of EN 60598-2-3:2003 + A1:2011 used in conjunction with EN 60598-1:2015 +A1:2018.</b>				

**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.



Label on luminaire body

On packaging the following sentence:

**"Terminal block not included. Installation must be performed by a qualified person."**

<b>Test item particulars .....</b> :	
<b>Classification of installation and use .....</b> : Road LED luminaire for pole or wall installation	
<b>Supply Connection .....</b> : Tails	
<b>.....</b> :	
<b>Possible test case verdicts:</b>	
- 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)	
<b>Testing.....</b> :	
<b>Date of receipt of test item .....</b> : N/A (CTF stage 2); 2021-02-24 (UL lab.)	
<b>Date (s) of performance of tests .....</b> : 2021-01-27 to 2021-02-26; 2021-03-11 UL tests	
<b>General remarks:</b>	
<p>"(See Enclosure #)" refers to additional information appended to the report.</p> <p>"(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</p> <p>Clause numbers between brackets refer to clauses in IEC 60598-1</p>	
<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60598-1:</b>	
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"/> <b>Yes</b> <input checked="" type="checkbox"/> <b>Not applicable</b>
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies) .....</b> : 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 pole fixing or on a device for wall installation. Rated 220V-240V~, 50/60Hz, 44W, degrees of protection IP66, construction in insulation Class II. It is composed by four main parts: central part is a threaded tube which is closed by two caps.

One cap is provided of an opening fitted with a glass screen and the other is fully composed of aluminum and serve also for fixing the wiring plate.

On the back of this part there is a structural frame for luminaire fixing to pole or wall.

All models are provided with SELV LED drivers.

Two models are provided by a separately approved LED source (COB) and one with an integral LED module.

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

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

**Additional information:**

The Luminaires have 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.:

For models NEBULA S PR:

- 4789818846.2-1 issued by UL International Italia S.r.l. on 2021-04-20.

The radiation hazard complies with the limit level for the group **Risk 1 at a Dthr 2,39 m.**

For models NEBULA S ST:

- 4789818846.2-2 issued by UL International Italia S.r.l. on 2021-04-20.

The radiation hazard complies with the limit level for the group **Risk 1 at a Dthr 1,09 m.**

For models NEBULA S RGBW:

- 4789818846.4-3-Amd1 issued by UL International Italia S.r.l. on 2021-04-20.

The radiation hazard complies with the limit level for the group **Risk 1 at a Dthr 5,35 m**

**Variants:**

The main model series Nova S:

Type ref.	Ratings	LEDs n°	Installation
<b>NEBULA S PR</b>	220-240 V~ 50/60 Hz 24W Class II IP66 ta 25 °C	8	Side fixing

extends the following models:

Type ref.	Ratings	LEDs n°	Installation
<b>NEBULA S ST</b>	220-240 V~ 50/60 Hz 19W Class II IP66 ta 25 °C	1	Side fixing
<b>NEBULA S RGBW</b>	220-240 V~ 50/60 Hz 23W Class II IP66 ta 25 °C	3	Side fixing

All the models may have variants related to customers features; differences are not relevant for the safety of the luminaire.

For models NEBULA S ST and NEBULA S PR the CCT of the light source may be up to 4000K.

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

<b>3.2 (0)</b>	<b>GENERAL TEST REQUIREMENTS</b>		—
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)	—
<b>3.2 (0.7)</b>	<b>Information for luminaire design in light sources standards</b>		—
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

<b>3.4 (2)</b>	<b>CLASSIFICATION OF LUMINAIRES</b>		<b>P</b>
3.4 (2.2)	Type of protection .....	Class II	P
3.4 (2.3)	Degree of protection..... :	IP 66	—
3.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces .....	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
3.4 (2.5)	Luminaire for normal use .....	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service .....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
3.4 (-)	Modes of installation of road or street lighting		—
	a) on a pipe	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	b) on a mast arm	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	c) on a post top	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	d) on span or suspension wires	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	e) on a wall	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—

<b>3.5 (3)</b>	<b>MARKING</b>		<b>P</b>
3.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
3.5 (3.3)	Additional information	See Enclosure 3	P
	Language of instructions	Italian checked, will be provided in the language of the destination country	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	$t_a$ 25 °C	P
3.5 (3.3.5)	Wiring diagram		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.5 (3.3.6)	Special conditions		N/A
3.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
3.5 (3.3.8)	Limitation for semi-luminaires		N/A
3.5 (3.3.9)	Power factor and supply current		N/A
3.5 (3.3.10)	Suitability for use indoors	See annex 2	P
3.5 (3.3.11)	Luminaires with remote control		N/A
3.5 (3.3.12)	Clip-mounted luminaire – warning		N/A
3.5 (3.3.13)	Specifications of protective shields		N/A
3.5 (3.3.14)	Symbol for nature of supply	~	P
3.5 (3.3.15)	Rated current of socket outlet		N/A
3.5 (3.3.16)	Rough service luminaire		N/A
3.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N/A
3.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
3.5 (3.3.19)	Protective conductor current in instruction if applicable	Class II luminaire	N/A
3.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
3.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided	Non user replaceable light sources	P
3.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
3.5 (3.3.23)	Luminaire without controlgear provided with necessary information for selection of appropriate component		N/A
3.5 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
3.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
3.5 (-)	Additional information in instruction leaflet		P
	a) Design attitude	Pole or Wall	P
	b) Weight	3,0 kg	P
	c) Overall dimensions	385 x 106 mm	P
	d) Maximum projected area if applicable	0,041 m <sup>2</sup>	P



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

	e) Cross-sectional area of wires if applicable		N/A
	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		P
	i) Maximum mounting height	More than 15 m	P

<b>3.6 (4)</b>	<b>CONSTRUCTION</b>		<b>P</b>
3.6 (4.2)	Components replaceable without difficulty	Non user replaceable components	N/A
3.6 (4.3)	Wireways smooth and free from sharp edges		P
<b>3.6 (4.4)</b>	<b>Lampholders</b>		<b>N/A</b>
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
<b>3.6 (4.5)</b>	<b>Starter holders</b>		<b>N/A</b>
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
<b>3.6 (4.6)</b>	<b>Terminal blocks</b>		<b>N/A</b>
	Tails		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Unsecured blocks		N/A
<b>3.6 (4.7)</b>	<b>Terminals and supply connections</b>		<b>P</b>
3.6 (4.7.1)	Contact to metal parts		P
3.6 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		N/A
3.6 (4.7.3)	Terminals for supply conductors		P
3.6 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A
3.6 (4.7.4)	Terminals other than supply connection	See Annex 1	P
3.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
3.6 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
<b>3.6 (4.8)</b>	<b>Switches</b>		<b>N/A</b>
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
<b>3.6 (4.9)</b>	<b>Insulating lining and sleeves</b>		<b>N/A</b>
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
<b>3.6 (4.10)</b>	<b>Double or reinforced insulation</b>		<b>P</b>

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		P
	Safe installation fixed luminaires		P
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
3.6 (4.10.2)	Assembly gaps:		P
	- not coincidental		P
	- no straight access with test probe		P
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
<b>3.6 (4.11)</b>	<b>Electrical connections and current-carrying parts</b>		<b>P</b>
3.6 (4.11.1)	Contact pressure		N/A
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		P
3.6 (4.11.6)	Electro-mechanical contact systems		N/A
<b>3.6 (4.12)</b>	<b>Screws and connections (mechanical) and glands</b>		<b>P</b>
3.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Torque test: torque (Nm); part..... :	1,2 Nm; M4– Screws fixing internal component	P
	Torque test: torque (Nm); part..... :	0,5 Nm; M3– Screws used for fixing Holder (Nebula ST and PR) and PCB for Nebula RGBW	P
	Torque test: torque (Nm); part..... :		N/A
3.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
3.6 (4.12.4)	Locked connections:		P
	- 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)..... :	14 mm; 3,25	P
<b>3.6 (4.13)</b>	<b>Mechanical strength</b>		<b>P</b>
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
<b>3.6 (4.14)</b>	<b>Suspensions, fixings and means of adjusting</b>		<b>P</b>
3.6 (4.14.1)	Mechanical load:		P
	A) four times the weight	3,0 x 4 = 12 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 <sup>2</sup> ) .....		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
<b>3.6 (4.15)</b>	<b>Flammable materials</b>		<b>P</b>
	- 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
<b>3.6 (4.16)</b>	<b>Luminaires for mounting on normally flammable surfaces</b>		<b>P</b>
	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
<b>3.6 (4.17)</b>	<b>Drain holes</b>		<b>N/A</b>
	Clearance at least 5 mm		N/A
<b>3.6 (4.18)</b>	<b>Resistance to corrosion</b>		<b>P</b>
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)	Ignitors compatible with ballast		N/A
3.6 (4.20)	Rough service vibration		N/A
<b>3.6 (4.21)</b>	<b>Protective shield</b>		<b>N/A</b>
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
<b>3.6 (4.24)</b>	<b>Photobiological hazards</b>		<b>P</b>
3.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
3.6 (4.24.2)	Retinal blue light hazard		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Class of risk group assessed according to IEC/TR 62778 .....		—
	Luminaires with $E_{thr}$ :		P
	a) Fixed luminaires		P
	- distance x m, borderline between RG1 and RG2 .. :	2,39 m (NEBULA S PR) 1,09 m (NEBULA S ST) 5,35 m (NEBULA S RGBW)	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
<b>3.6 (4.25)</b>	<b>Mechanical hazard</b>		<b>P</b>
	No sharp point or edges		P
<b>3.6 (4.26)</b>	<b>Short-circuit protection</b>		<b>N/A</b>
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
<b>3.6 (4.27)</b>	<b>Terminal blocks with integrated screwless earthing contacts</b>		<b>N/A</b>
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 $\Omega$		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 $\Omega$		N/A
	Voltage drop test, resistance < 0,05 $\Omega$		N/A
<b>3.6 (4.28)</b>	<b>Fixing of thermal sensing control</b>		<b>N/A</b>
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Max. temperature on adhesive material (°C) ..... :		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
<b>3.6 (4.29)</b>	<b>Luminaires with non-replaceable light source</b>		<b>N/A</b>
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
<b>3.6 (4.30)</b>	<b>Luminaires with non-user replaceable light source</b>		<b>N/A</b>
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N/A
	Minimum two fixing means	SELV supply of LED modules	N/A
<b>3.6 (4.31)</b>	<b>Insulation between circuits</b>		<b>P</b>
	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
<b>3.6 (4.31.1)</b>	<b>SELV circuits</b>		<b>P</b>
	Used SELV source	Separately approved SELV LED controlgear (All models)	P
	Voltage ≤ ELV		P
	Insulating of SELV circuits from LV supply		P
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV	double	P
	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
<b>3.6 (4.31.2)</b>	<b>FELV circuits</b>		<b>P</b>
	Used FELV source		N/A
	Voltage ≤ ELV	DALI	P



IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulating of FELV circuits from LV supply	basic	P
	FELV 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
	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
<b>3.6 (4.32)</b>	<b>Overvoltage protective devices</b>		<b>P</b>
	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 .....	IP66	P
	Column-integrated luminaires:		N/A
	- parts below 2,5 m. IP .....		N/A
	- parts above 2,5 m. IP .....		N/A
3.6.2 (-)	Suspension on span wires		N/A
3.6.3 (-)	Means for attaching the luminaire or external parts to its support appropriate to the weight		P
3.6.3.1 (-)	Static load test		P
	- drag coefficient.....	1,2	P
	- loaded area (m²).....	0,041	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- used load (N).....:	97,9 N (over 15m)	P
	- measured deformation (cm/m) .....	No deformation	P
	- no rotation		P
3.6.4 (-)	Adjustable lampholders		N/A
3.6.5 (-)	Luminaires installed above 5 m, glass covers shall be:		P
	a) glass that fractures into small pieces (test according to 3.6.5.1), or		N/A
	b) glass having a high impact shock resistance (test according to 3.6.5.2), or		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		P
	- number of particles is more than 40.....:	> 44	P
3.6.5.2 (-)	Protection by the use of high impact resistant glass		N/A
3.6.5.2.1 (-)	Glass covers have high mechanical strength		N/A
	Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample		N/A
3.6.5.2.2 (-)	Glass covers not break into large pieces		N/A
	- test according 3.6.5.1, number of particles is more than 20 .....		N/A
3.6.6 (-)	Connection compartment of column-integrated luminaire		N/A
	- provides adequate space		N/A
	- means for attachment		N/A
	- means for attachment of metal corrosion-resistant		N/A
3.6.7 (-)	Compliance with ISO standard or other .....		N/A
3.6.8 (-)	Doors of column-integrated luminaires:		N/A
	- corrosion-resistant		N/A
	- opening only possible for an authorized person		N/A
	- impact test 5 Nm		N/A
	- sample show no damage		N/A
3.6.9 (-)	Column-integrated luminaire:		N/A
	- dimension of the cable entry slot (mm) .....		N/A
	- cable path from the slot to the connection compartment (mm) .....		N/A

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

	- cable path free from obstruction that might cause abrasion of the cable		N/A
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<b>3.7 (11)</b>	<b>CREEPAGE DISTANCES AND CLEARANCES</b>		<b>P</b>
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

<b>3.8 (7)</b>	<b>PROVISION FOR EARTHING</b>		<b>N/A</b>
3.8 (7.2.1 + 7.2.3)	Accessible metal parts		N/A
	Metal parts in contact with supporting surface		N/A
	Resistance < 0,5 $\Omega$ ..... :		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a groove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
3.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A
3.8 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A

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

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

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

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

<b>3.10 (5)</b>	<b>EXTERNAL AND INTERNAL WIRING</b>		<b>P</b>
<b>3.10 (5.2)</b>	<b>Supply connection and external wiring</b>		<b>P</b>
3.10 (5.2.1)	Means of connection ..... :	Tails	P
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV $\leq 25$ V a.c./60 V d.c. or protected from outdoor environment		N/A
3.10 (5.2.2)	Type of cable ..... :	H05RN-F	P
	Nominal cross-sectional area (mm <sup>2</sup> ) ..... :	2 x 1mm <sup>2</sup>	P
	Cables equal to IEC 60227 or IEC 60245		P
3.10 (5.2.3)	Type of attachment, X, Y or Z	Y	P
3.10 (5.2.5)	Type Z not connected to screws		N/A
3.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
3.10 (5.2.8)	Insulating bushings:		P
	- suitably fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- tubes or guards made of insulating material	insulating material (PG)	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		P
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 $\leq 2$ mm		P
	- no movement of conductors		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- no damage of cable or cord		P
	- function independent of electrical connection		P
3.10 (5.2.11)	External wiring passing into luminaire		N/A
3.10 (5.2.12)	Looping-in terminals		N/A
3.10 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
3.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
3.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector according relevant IEC standard		N/A
3.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
3.10 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
<b>3.10 (5.3)</b>	<b>Internal wiring</b>		<b>P</b>
3.10 (5.3.1)	Internal wiring of suitable size and type	1 x 1 mm <sup>2</sup> (in primary circuit) 1 x 0,519 mm <sup>2</sup> (AWG 20 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 <sup>2</sup> ).....	1 mm <sup>2</sup>	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulation thickness (mm) ..... :	Double insulation	P
	Extra insulation added where necessary		P
3.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Cross-sectional area (mm <sup>2</sup> )..... :	1 x 0,519 mm <sup>2</sup> (AWG 20)	P
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		P
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		P
	Wire ends tinned: no cold flow		N/A
<b>3.10 (5.4)</b>	<b>Test to determine suitability of conductors having a reduced cross-sectional area</b>		<b>N/A</b>
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	N/A
	No damage to luminaire wiring after test		N/A
3.10.1 (-)	Cord anchorage if applicable		P
	- pull test: 25 times; pull (N) .....:	60	P
	- torque test: torque (Nm) .....:	0,25	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
<b>3.11 (8)</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK</b>		<b>P</b>
3.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		N/A
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		P
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		N/A
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		P
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		N/A
	Double-ended high-pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
3.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
3.11 (8.2.3.a)	Class II luminaire:		P
	- basic insulated metal parts not accessible during starter or lamp replacement		P
	- basic insulation not accessible other than during starter or lamp replacement		P
	- glass protective shields not used as supplementary insulation		P
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



IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	One conductive part insulated if required		N/A
	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 $\mu$ F not exceed 50 V 1 min after disconnection		N/A
	Portable luminaire with capacitor > 0,1 $\mu$ F (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 $\mu$ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A
<b>3.12 (12)</b>	<b>ENDURANCE TEST AND THERMAL TEST</b>		<b>P</b>
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		—
<b>3.12 (12.2)</b>	<b>Selection of lamps and ballasts</b>		<b>—</b>
	Lamp used according Annex B	(see Annex 2)	—
	Controlgear if separate and not supplied	(Controlgear used see Annex 2)	—
<b>3.12 (12.3)</b>	<b>Endurance test</b>		<b>P</b>
	a) mounting-position ..... :	On a mast arm	—
	b) test temperature (°C) ..... :	35	—
	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

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
<b>3.12 (12.4)</b>	<b>Thermal test (normal operation)</b>	(see Annex 2)	P
<b>3.12 (12.5)</b>	<b>Thermal test (abnormal operation)</b>	(see Annex 2)	P
<b>3.12 (12.6)</b>	<b>Thermal test (failed lamp control gear condition):</b>		<b>N/A</b>
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
<b>3.12 (12.7)</b>	<b>Thermal test (failed lamp control gear in plastic luminaires):</b>		<b>N/A</b>
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

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- case of abnormal conditions .....		—
	- measured winding temperature (°C): at 1,1 Un .....		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un .....		—
	- calculated temperature of fixing point/exposed part (°C) .....		—
	Ball-pressure test .....	See Test Table 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		P
3.12.2 (-)	(See above)		—
3.12.3 (-)	Glass covers used within the thermal limits declared by the glass manufacturer	Δt measured: 15,1°C	P

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

<b>3.13 (9)</b>	<b>RESISTANCE TO DUST AND MOISTURE</b>		<b>P</b>
3.13.1 (-)	If IP > IP 20 the order of tests as specified in clause 3.12		P
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

<b>3.14 (10)</b>	<b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>		<b>P</b>
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 :	>100 MΩ (1 MΩ)	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts and mounting surface..... :	>100 MΩ (1 MΩ)	P
	- 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 (4 MΩ)	P
	- between live parts and metal parts .....	> 100 MΩ (4 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 :	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 .....	2960 V	P
	- between live parts and metal parts .....	2960 V	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- between live parts of different polarity through action of a switch .....		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....	1480 V	P
	- Insulation bushings as described in Section 5 .....		N/A
3.14 (10.3)	Touch current or protective conductor current (mA):	touch current: 0,69 mA (0,7mA)	P
<b>3.15 (13)</b>	<b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>		<b>N/A</b>
3.15 (13.2.1)	Ball-pressure test .....	See Test Table 3.15 (13.2.1)	N/A
3.15 (13.3.1)	Needle-flame test (10 s) .....	See Test Table 3.15 (13.3.1)	N/A
3.15 (13.3.2)	Glow-wire test (650°C) .....	See Test Table 3.15 (13.3.2)	N/A
3.15 (13.4)	Proof tracking test (IEC 60112) .....	See Test Table 3.15 (13.4)	N/A

IEC 60598-2-3							
Clause	Requirement + Test				Result - Remark		Verdict
3.7 (11.2)	TABLE I: Creepage distances and clearances						P
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages						P
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*						P
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	B	> 3,9	3,0	U1	> 4,5	3,0 (#)	11.1.A
Working voltage (V) .....					240		—
PTI .....					< 600 ☒      ≥ 600 ☐		—
Pulse voltage or $U_P$ if applicable (kV) .....					—		—
Supplementary information: (#) 2,5 elevated to 3,0 as required by clause U.2							
Distance 2:	S	> 3,9	3,0	U1	> 4,5	3,0 (#)	11.1.A
Working voltage (V) .....					240		—
PTI .....					< 600 ☒      ≥ 600 ☐		—
Pulse voltage or $U_P$ if applicable (kV) .....					—		—
Supplementary information: (#) 2,5 elevated to 3,0 as required by clause U.2							
Distance 3:	R	5,9	5,5	U.1	5,9	5,5 (#)	11.1.A
Working voltage (V) .....					240		—
PTI .....					< 600 ☒      ≥ 600 ☐		—
Pulse voltage or $U_P$ if applicable (kV) .....					—		—
Supplementary information: (#) 5,0 elevated to 5,5 as required by clause U.2							
Distance 4:	B	>1,95	1,5	U.1	>2,1	1,6	11.1.A
Working voltage (V) .....					120 Vd.c. (Uopen)		—
PTI .....					< 600 ☒      ≥ 600 ☐		—
Pulse voltage or $U_P$ if applicable (kV) .....					—		—
Supplementary information: For secondary circuit supplied by SELV ( $U_{out} \leq 60$ Vd.c.) the Electric strength test of clause 10.2 is considered sufficient.							

\*\* 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:				

<b>3.15 (13.3.1)</b>	<b>TABLE: Needle-flame test (IEC 60695-11-5)</b>				<b>N/A</b>
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 lens on LED	LEDIL (Gabriella CA16202-MIDI-S)		No	0	P
Plastic lens on LED	LEDIL (C15035 STRADELLA-8-T3)		No	0	P
Supplementary information: No flames					
Test performed for compliance with clause 4.15					

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

<b>3.15 (13.4)</b>	<b>TABLE: Proof tracking test (IEC 60112)</b>			<b>N/A</b>
<b>Test voltage PTI .....</b>		175 V		—
<b>Object/ Part No./ Material</b>	<b>Manufacturer/ trademark</b>	<b>Withstand 50 drops without failure on three places or on three specimens</b>		<b>Verdict</b>
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 <sup>1)</sup>	
Supply cable	A	SALCAVI	H05RN-F	300/500V 2 x 1mm <sup>2</sup>	EN 50525-2-21 :2011	IMQ<HAR> Cert.n° SN.P0009V	
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	Vossloh	SPC/230/10K/i	Max 305 V 16 A 5KA 10KV Surge Protector Class II and III	EN 61643-11:2012	KEMA-KEUR Cert n° 71-108365	
Internal wiring for primary circuit	A	SILTEK	UG4G4	450/700 V T 180 °C 1 mm <sup>2</sup>	Properties equivalent to EN 60228	CSv-IMQ Cert. n° CA01.00289	
Internal wiring for Secondary circuit	C/D	SALCAVI	20AWG	T105°C 20 AWG 300 V UL STYLE 1569	IEC/EN 60598-1	Verified in Luminaire Also UL E132504	
LED controlgear (for models NEBULA ST-PR)	B	PHILIPS	Xi FP 40W 0,3-1,0A SNLDAE 230V S175 sXt	230V 50/60Hz 300-1050mA 20-54Vdc (60Vdc max) 40W Tc90°C T <sub>maeked</sub> 120°C	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014+A1	ENEC05 Cert. n° 31-109871	
LED controlgear (for models NEBULA ST-PR)	B/D	PHILIPS	Xi LP 40W 0,3-1,0A S1 230V S175 sXt	230V 50/60Hz 300-1050mA 20-54Vdc (60Vdc max) 40W Tc 80°C T <sub>maeked</sub> 130°C	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014+A1	ENEC05 Cert.n° 31-102676	
LED controlgear (for models NEBULA RGBW)	B	ELDOLED	POWERdrive 50S-M4Z0X	120-250 Vac 50/60 Hz 150-1400 mA Set at max 520 mA 2-55 Vdc SELV	IEC/EN 61347-1:2015 IEC/EN 61347-2-13:2014	ENEC 05 Cert. n° 71-114259 REV1	

IEC 60598-2-3						
Clause	Requirement + Test			Result - Remark		Verdict
LED COB (NEBULA ST and PR)	B	LUMILEDS	LUXEON COB 1211	Up to 4000K CRI 70 I <sub>max</sub> 1600 mA	IEC/EN 62031:2008+A1+A2	ENEC 18 Cert. n° HN 69254954
LED holder (for COB in NEBULA ST and PR)	C	BJB	47.360.2100.50	3A -150Vdc T110°C	EN60838-1:2017-10+A1:2017	VDE 40047483
LED module (NEBULA RGBW):						
LED module PWB (Nebula RGBW)	A	ITEQ	IT-859GTA	T110 – V0	IEC/EN 62031	Verified in luminaire also UL certified E178114
LED Chip	C	CREE XM-L	H1302	6LEDs	IEC/EN 62031	Tested in Luminaire
LED modules terminal	A	JST	S4B-XH-SM4-TB	4P 3A 250V T 85°C	EN 61984:2009 IEC 61984:2008	TÜV Rheinland Cert. n.: J 50014297
LED module (NEBULA ST):						
LED module PWB (Nebula ST)	A	ITEQ	IT-859GTA	T110 – V0	IEC/EN 62031	Verified in luminaire also UL certified E178114
LED Chip	C	NICHIA	NVSLE21AT	200mA <sub>max</sub> 3000/4000K T <sub>j</sub> 135°C	IEC/EN 62031	Tested in Luminaire
LED modules terminal	A	WAGO	2060-451/998-404	250V 9A T105	EN 60838-1:2004 +A1+A2 EN 60838-2-2:2006+A1	KEMA-KEUR cert. n.: 2168246.01
Supplementary information:						
<sup>1)</sup> 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	
<b>ANNEX 2</b>	<b>TABLE: Thermal tests of Section 12</b>						—
	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 $t_a$ (°C) .....					—	
	- abnormal operating mode .....					—	
1.12 (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 .....					—	
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current .....					—	
<b>Temperature measurements (°C)</b>							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Supplementary information:							
<b>See Enclosure 1 for all Thermal tests of section 12</b>							

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

<b>ANNEX 3</b>	<b>Screw terminals (part of the luminaire)</b>		<b>N/A</b>
<b>(14)</b>	<b>SCREW TERMINALS</b>		<b>N/A</b>
(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 <sup>2</sup> )..... :		—
(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
<b>ANNEX 4</b>	<b>Screwless terminals (part of the luminaire)</b>		<b>N/A</b>
<b>(15)</b>	<b>SCREWLESS TERMINALS</b>		<b>N/A</b>
(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:										



<b>Enclosure 1</b>	<b>Thermal tests of Section 12</b>
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Clause	Requirement + Test	Result - Remark	Verdict
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	TABLE: Thermal tests of Section 12		(1 of 3)	P			
	Type reference .....	Nebula S PR		—			
	Lamp used.....	Luxeon COB 1211		—			
	Lamp control gear used.....	Philips Xi LP 40W 0,3-1,0A S1 230V S175 sXt		—			
	Mounting position of luminaire .....	On a mast arm		—			
	Supply wattage (W) .....	23,9 W (240 V) 23,9 W (254 V)		—			
	Supply current (A) .....	0,135 A (240 V) 0,132 A (254 V)		—			
	Temperatures in test 1 - 4 below are corrected for ta (°C) .....	25		—			
	- abnormal operating mode .....	Short circuit of driver output (*)		—			
1.12 (12.4)	- test 1: rated voltage .....	240 V		—			
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current .....	254,4 V		—			
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage .....	—		—			
	Through wiring or looping-in wiring loaded by a current of A during the test .....	—		—			
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current .....	264 V		—			
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
LED COB (Tsp)	24,5		104		121(**)		
Holder COB	24,5		98		110		
Lens	24,5		69,3		180		
T.c.point of LED Controlgear	24,5	70,3	-		80		
T.C. point of SPD	24,5		50,1		80		
Internal air	24,5		50,4		(***)		
Power supply (under anchorage)	24,5		41,3		75		
Terminal supply	24,5		44,5		105		
Internal glass	24,5		59,4		(***)		
External glass	24,5		44,3		(***)		

<b>Enclosure 1</b>	<b>Thermal tests of Section 12</b>
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Clause	Requirement + Test	Result - Remark	Verdict
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Tc point of LED alternate Controlgear Philips Xi FP 40W 0,3- 1,0A SNLDAE 230V S175 sXt	24,5	69,3	-		90		
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Supplementary information:

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

(\*\*) limit calculated according to LED datasheet (Tj-max: 125 °C; Thermal res.: 0,18°C/W; PLED: ~ 21 W);  
Tsp = 125 – (0,18x21).

(\*\*\*) For reference only

<b>Enclosure 1</b>	<b>Thermal tests of Section 12</b>
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Clause	Requirement + Test	Result - Remark	Verdict
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	TABLE: Thermal tests of Section 12 (2 of 3)		P				
	Type reference ..... :	Nebula S ST	—				
	Lamp used..... :	Nichia NVSLE21AT x 8	—				
	Lamp control gear used..... :	Philips Xi FP 40W 0,3-1,0A SNLDAE 230V S175 sXt	—				
	Mounting position of luminaire ..... :	On mast arm	—				
	Supply wattage (W) ..... :	18,5 W (240 V) 18,5 W (254 V)	—				
	Supply current (A) ..... :	0,088 A (240 V) 0,085 A (254 V)	—				
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	25	—				
	- abnormal operating mode ..... :	Short circuit of driver output (*)	—				
1.12 (12.4)	- test 1: rated voltage ..... :	240 V	—				
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	254,4 V	—				
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... :	—	—				
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	—	—				
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	264 V	—				
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
LED COB	24,5		101		133 (**)		
PCB terminal block	24,5		95		105		
Optic (lenses)	24,5		98 (#)		90		
T.c.point of LED Controlgear (FP)	24,5	60,5	-		90		
T.c. point of SPD	24,5		53,0		80		
Internal air	24,5		51,4		(***)		
Power supply (under anchorage)	24,5		38,0		75		
Terminal supply	24,5		42,1		105		
Internal glass	24,5		54,1		(***)		
External glass	24,5		42,6		(***)		

<b>Enclosure 1</b>	<b>Thermal tests of Section 12</b>
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Clause	Requirement + Test	Result - Remark	Verdict
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T.c.point of LED Controlgear (LP) Philips Xi LP 40W 0,3-1,0A S1 230V S175 sXt	24,5	64,5	-		80		
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Supplementary information:

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

(\*\*) limit calculated according to LED datasheet (Tj-max: 135 °C; Thermal res.: 0,6°C/W; PLED: ~ 1,93 W);  
Tsp = 135 – (0,6x1,93).

(\*\*\*) For reference only

(#) temperature accepted due to the 10°C reduction as for Clause 3.12.1 of IEC 60598-2-3:2002+A1.

<b>Enclosure 1</b>	<b>Thermal tests of Section 12</b>
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Clause	Requirement + Test	Result - Remark	Verdict
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	TABLE: Thermal tests of Section 12		(3 of 3)	P			
	Type reference .....	Nebula S RGBW		—			
	Lamp used.....	3 LED CREE XM-L		—			
	Lamp control gear used.....	ELDOLEDpowerdrive 50S-M4Z0X		—			
	Mounting position of luminaire .....	On mast arm		—			
	Supply wattage (W) .....	23,3 W (240 V) 23,3 W (254 V)		—			
	Supply current (A) .....	0,107 A (240 V) 0,102 A (254 V)		—			
	Temperatures in test 1 - 4 below are corrected for ta (°C) .....	25		—			
	- abnormal operating mode .....	Short circuit of driver output (*)		—			
1.12 (12.4)	- test 1: rated voltage .....	240 V		—			
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current .....	254,4 V		—			
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage .....	—		—			
	Through wiring or looping-in wiring loaded by a current of A during the test .....	—		—			
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current .....	264 V		—			
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
LED chip solder point	25,3		97,9		129(**)		
Lens	25,3		68,2		90		
T.c.point of LED controlgear	25,3	68,4	-		80		
T.c. point of SPD	25,3		42,5		80		
Internal air	25,3		50,0		(***)		
Terminal supply	25,3		40,6		105		
Power supply (under anchorage)	25,3		40,2		75		
Internal glass	25,3		41,5		(***)		
External glass	25,3		31,6		(***)		
Main body	25,3		38,2		(***)		

<b>Enclosure 1</b>	<b>Thermal tests of Section 12</b>
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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.:3,5°C/W; PLED: ~ 5,9 W);  
Tsp = 150 – (3,5x5,9).

(\*\*\*) For reference only

<b>Enclosure 2</b>	<b>European Group Differences and National Differences</b>
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IEC60598_2_3L ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
<b>ATTACHMENT TO TEST REPORT</b> <b>IEC 60598-2-3</b> <b>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b> Luminaires Part 2: Particular requirements Section 3: Luminaires for road and street lighting			
<b>Differences according to</b> ..... : EN 60598-2-3:2003, AMD1:2011 used in conjunction with EN 60598-1:2015, AMD1:2018			
<b>Annex Form No.</b> ..... : EU_GD_IEC60598_2_3L <b>Annex Form Originator</b> ..... : Intertek Semko AB <b>Master Annex Form</b> ..... : 2018-12-07			
<b>Copyright © 2018 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.</b>			
	<b>CENELEC COMMON MODIFICATIONS (EN)</b>		—
<b>3.6 (4)</b>	<b>CONSTRUCTION</b>		<b>N/A</b>
3.6 (4.11.6)	Electro-mechanical contact systems		N/A
<b>3.10 (5)</b>	<b>EXTERNAL AND INTERNAL WIRING</b>		<b>N/A</b>
3.10 (5.2.2)	Cables equal to EN 50525		N/A
	Replace table 5.1 – Supply cord		N/A
<b>3.12 (12)</b>	<b>ENDURANCE TESTS AND THERMAL TESTS</b>		<b>P</b>
3.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		P
<b>ZB</b>	<b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>		—
(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
<b>ZC</b>	<b>ANNEX ZC, NATIONAL DEVIATIONS (EN)</b>		—
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A
	FR: Safety requirements for high buildings (Decree of 30 December 2011 on safety regulations for the construction of high-rise buildings and their protection against fire and panic risks; Section VIII; Article GH 48, Lighting)  Glow-wire test for outer parts of luminaires:		N/A
	- 850°C for luminaires in stairways and horizontal travel paths		N/A
	- 650°C for indoor luminaires		N/A
	GB: Requirements according to United Kingdom Building Regulation		N/A

<b>Enclosure 3</b>	<b>Evaluation of LED modules as integral components according to IEC 62031:2018; EN IEC 62031:2020</b>
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Clause	Requirement + Test	Result - Remark	Verdict
<b>4</b>	<b>GENERAL REQUIREMENTS</b>		—
4.2	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"/>	—
4.6	Independent modules comply with requirements in IEC 60598-1:2014/AMD1:2017		N/A
4.8	Modules with integrated controlgear providing SELV comply with requirements according to IEC 61347-1:2015/AMD1:2017 clause L.5 to L.11.	(see Annex 1)	N/A

<b>6</b>	<b>MARKING</b>		<b>P</b>
<b>6.2</b>	<b>Contents of marking for built-in and for independent LED modules</b>		<b>N/A</b>
	a) mark of origin		N/A
	b) model number, type reference	3 LEDs CREE XM-L Mod. H1303 (Model S RGBW) 8 LEDs NICHIA NVSLE21AT Mod. H1464 (Model S ST)	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) rated 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)	N/A
	g) $E_{thr}$ if required	D <sub>thr</sub> declared in instruction	P
<b>6.5</b>	<b>Marking of integral LED modules</b>		<b>P</b>
	- information in 6.2 a) to g) in data sheet, leaflet or website		P

<b>7</b>	<b>TERMINALS</b>		<b>P</b>
<b>7.1</b>	<b>Integral terminals</b>		<b>P</b>
	Screw terminals comply with section 14 of IEC 60598-1	(see Annex 3)	N/A
	Screwless terminals comply with section 15 of IEC 60598-1	(see Annex 4)	N/A
<b>7.2</b>	<b>Terminals other than integral terminals</b>		<b>P</b>



<b>Enclosure 3</b>	<b>Evaluation of LED modules as integral components according to IEC 62031:2018; EN IEC 62031:2020</b>
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Clause	Requirement + Test	Result - Remark	Verdict
	Separately approved; component list	(see Annex 2 of main report)	P
	Ratings suit the conditions		P
	Satisfy additional relevant requirements of this standard		N/A

<b>8 (9)</b>	<b>EARTHING</b>	<b>N/A</b>
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<b>9 (10)</b>	<b>PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS</b>	<b>N/A</b>
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<b>10 (11)</b>	<b>MOISTURE RESISTANCE AND INSULATION</b>	<b>P</b>
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ):	P
	For basic insulation $\geq 2 \text{ M}\Omega$ .....: > 5 MΩ	P
	For double or reinforced insulation $\geq 4 \text{ M}\Omega$ .....:	N/A
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1	N/A

<b>11 (12)</b>	<b>ELECTRIC STRENGTH</b>	<b>P</b>
	Immediately after clause 11 electric strength test for 1 min	P
	Basic insulation for SELV, test voltage 500 V	500V (SELV) P
	Working voltage $\leq 50 \text{ V}$ , test voltage 500 V	N/A
	Working voltage $> 50 \text{ V} \leq 1000 \text{ V}$ , test voltage (V):	N/A
	Basic insulation, $2U + 1000 \text{ V}$	N/A
	Supplementary insulation, $2U + 1000 \text{ V}$	N/A
	Double or reinforced insulation, $4U + 2000 \text{ V}$	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

<b>12 (14)</b>	<b>FAULT CONDITIONS</b>	<b>P</b>
- (14.1)	When operated under fault conditions the controlgear:	P
	- does not emit flames or molten material	P
	- does not produce flammable gases	P

<b>Enclosure 3</b>	<b>Evaluation of LED modules as integral components according to IEC 62031:2018; EN IEC 62031:2020</b>
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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)	(see appended table)	N/A
- (14.3)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.5)	Short-circuit across electrolytic capacitors	(see appended table)	N/A
	Short-circuit or interruption of SPDs	(see appended table)	N/A
- (14.6)	After the tests has been carried out on three samples:		P
	The insulation resistance $\geq 1 \text{ M}\Omega$ ..... :	$> 1 \text{ M}\Omega$	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 the luminaire as in normal installation	N/A
- (14.7)	Relevant fault condition tests with high-power a.c. supply and in turn to a d.c. supply		—
<b>12.2</b>	<b>Overpower condition</b>		<b>P</b>
	Module withstands overpower condition $>15 \text{ min.}$	$1,5 \times P_n (15,6 \text{ W}) = 20,3\text{W}$ $1,5 \times P_n (17,7 \text{ W}) = 26,6\text{W}$	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

<b>14 (15)</b>	<b>CONSTRUCTION</b>		<b>P</b>
<b>- (15.1)</b>	<b>Wood, cotton, silk, paper and similar fibrous material</b>		<b>P</b>
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
<b>- (15.2)</b>	<b>Printed circuits</b>		<b>N/A</b>
	Printed circuits used as internal connections complies with clause 14		N/A

<b>Enclosure 3</b>	<b>Evaluation of LED modules as integral components according to IEC 62031:2018; EN IEC 62031:2020</b>
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Clause	Requirement + Test	Result - Remark	Verdict
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<b>15 (16)</b>	<b>CREEPAGE DISTANCES AND CLEARANCES</b>		<b>P</b>
<b>- (16.1)</b>	<b>General</b>		<b>P</b>
	Creepage distances and clearances according to 16.2 and 16.3		<b>P</b>
	Controlgears providing SELV comply with additional requirements in Annex L		<b>N/A</b>
	Insulating lining of metallic enclosures		<b>N/A</b>
	Controlgear protected against pollution comply with Annex P		<b>N/A</b>
<b>- (16.2)</b>	<b>Creepage distances</b>		<b>P</b>
<b>- (16.2.2)</b>	Minimum creepage distances for working voltages		<b>P</b>
	Creepage distances according to Table 7	(see table in main report)	<b>P</b>
<b>- (16.2.3)</b>	Creepage distances for working voltages with frequencies above 30 kHz		<b>N/A</b>
	Creepage distances according to Table 8	(see appended table)	<b>N/A</b>
<b>- (16.3)</b>	<b>Clearances</b>		<b>P</b>
<b>- (16.3.2)</b>	Clearances for working voltages		<b>P</b>
	Clearances distances according to Table 9	(see table in main report)	<b>P</b>
<b>- (16.3.3)</b>	Clearances for ignition voltages and working voltages with higher frequencies		<b>N/A</b>
	Clearances distances for basic or supplementary insulation according to Table 10		<b>N/A</b>
	Clearances distances for reinforced insulation according to Table 11		<b>N/A</b>

<b>16 (17)</b>	<b>SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS</b>		<b>P</b>
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		<b>—</b>
<b>(4.11)</b>	<b>Electrical connections</b>		<b>P</b>
<b>(4.11.1)</b>	Contact pressure		<b>N/A</b>
<b>(4.11.2)</b>	Screws:		<b>N/A</b>
	- self-tapping screws		<b>N/A</b>
	- thread-cutting screws		<b>N/A</b>
<b>(4.11.3)</b>	Screw locking:		<b>N/A</b>
	- spring washer		<b>N/A</b>
	- rivets		<b>N/A</b>
<b>(4.11.4)</b>	Material of current-carrying parts		<b>P</b>

<b>Enclosure 3</b>	<b>Evaluation of LED modules as integral components according to IEC 62031:2018; EN IEC 62031:2020</b>
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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
<b>(4.12)</b>	<b>Mechanical connections and glands</b>		<b>P</b>
(4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part ..... :	0,50; M3	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

<b>17 (18)</b>	<b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>		<b>N/A</b>
- (18.1)	Ball-pressure test ..... :	See Test Table 17 (18.1)	N/A
- (18.2)	Test of printed boards ..... :	See Test Table 17 (18.2)	N/A
- (18.3)	Glow-wire test (650°C) ..... :	See Test Table 17 (18.3)	N/A
- (18.4)	Needle-flame test (10 s) ..... :	See Test Table 17 (18.4)	N/A
- (18.5)	Proof tracking test ..... :	See Test Table 17 (18.5)	N/A

<b>18</b>	<b>RESISTANCE TO CORROSION</b>		<b>N/A</b>
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<b>20</b>	<b>HEAT MANAGEMENT</b>		<b>N/A</b>
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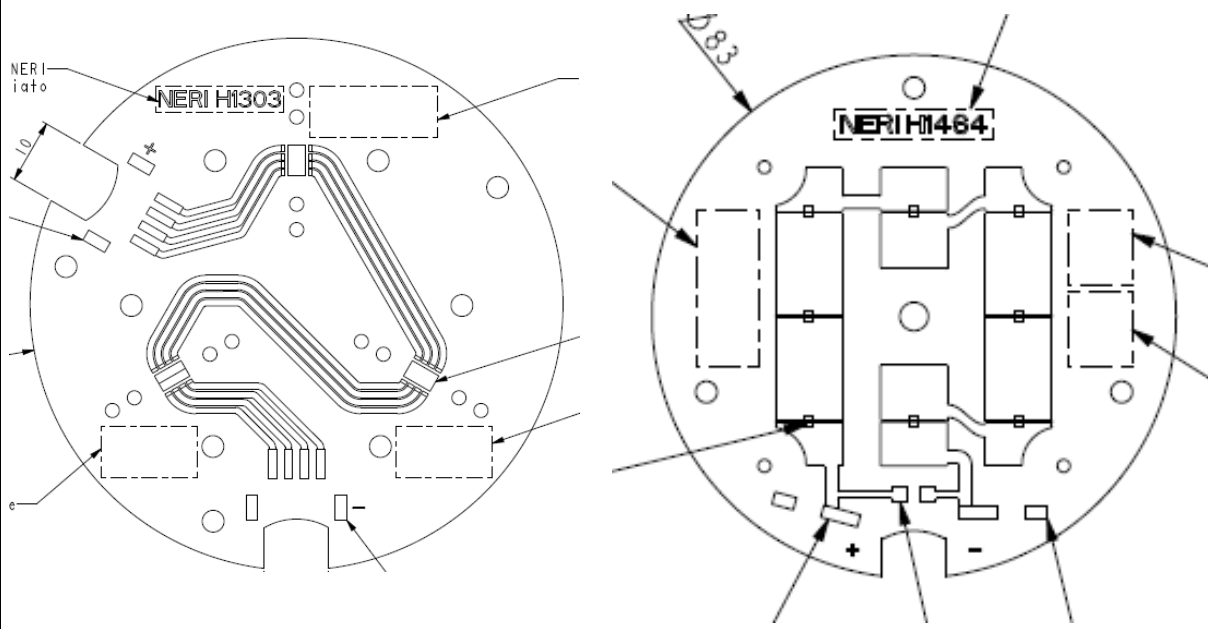
<b>22</b>	<b>PHOTOBIOLOGICAL SAFETY</b>		<b>P</b>
<b>22.1</b>	<b>UV radiation</b>		<b>N/A</b>
	Luminous radiation not exceed 2mW/klm		N/A
<b>22.2</b>	<b>Blue light hazard</b>		<b>P</b>
	Assessed according to IEC TR 62778	See Additional information	P
<b>22.3</b>	<b>Infrared radiation</b>		<b>N/A</b>
	Requirements for infrared radiation when required		N/A

<b>Enclosure 3</b>	<b>Evaluation of LED modules as integral components according to IEC 62031:2018; EN IEC 62031:2020</b>
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Clause	Requirement + Test	Result - Remark	Verdict
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<b>A</b>	<b>ANNEX A - TESTS</b>		<b>N/A</b>
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		N/A

<b>12 (14)</b>	<b>TABLE: tests of fault conditions</b>	<b>P</b>
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<p>LED Module for model Nebula S RGBW (left) and for model Nebula S ST (right)</p> 				
Schematic ref.	Short circuit	Open circuit	Effect	Result
One LED chip		X	The LED module does not operate. No hazard, No damage after restoring.	P
One LED chip	X		LED chip OFF, others LEDs ON. No hazard no high temperature; LED module works correctly after circuit restoring.	P
<b>Supplementary information:</b>				

<b>(A)</b>	<b>ANNEX A - TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK</b>	<b>N/A</b>
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<b>ANNEX 1</b>	<b>LED MODULES WITH INTEGRAL CONTROLGEAR PROVIDING SELV</b>	<b>N/A</b>
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<b>ANNEX 2</b>	<b>TABLE: Critical components information</b>	<b>N/A</b>
See Annex 1 of the main report		

<b>16 (16)</b>	<b>TABLES: Creepage distances and clearances</b>	<b>N/A</b>
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<b>Enclosure 3</b>	<b>Evaluation of LED modules as integral components according to IEC 62031:2018; EN IEC 62031:2020</b>
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Clause	Requirement + Test	Result - Remark	Verdict
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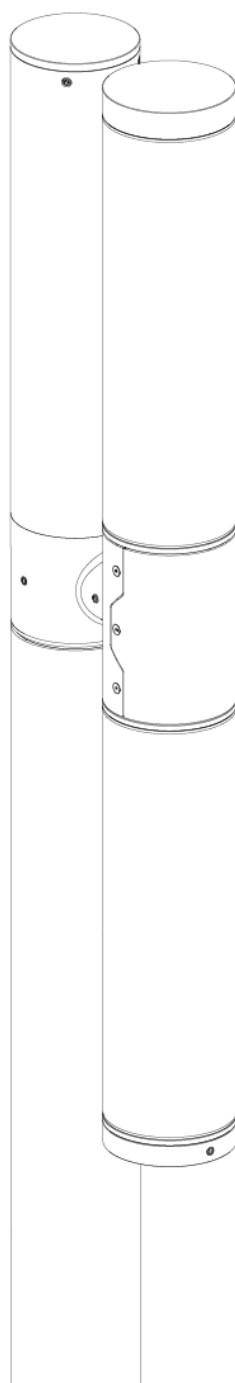
<b>Verified in the main report</b>			
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<b>ANNEX 1</b>	<b>SELV-operated LED modules</b>	<b>N/A</b>
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Enclosure 4	Manufacturer's Instructions
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# NERI

Nebula S  
LED  
Z013.0103



GUIDA ALL'INSTALLAZIONE  
INSTALLATION GUIDES  
GUIDE D'INSTALLATION  
INSTALLATIONSANLEITUNG  
GUÍA DE INSTALACIÓN

<b>Enclosure 4</b>	<b>Manufacturer's Instructions</b>
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**IT** – Questo manuale va letto e conservato con molta attenzione.  
**EN** – This manual should be read with attention and kept with great care.  
**FR** – Ce manuel doit être lu très attentivement et soigneusement conservé.  
**DE** – Die Anleitung sollte mit großer Aufmerksamkeit gelesen und aufbewahrt werden.  
**ES** – Este manual se debe leer con detenimiento y conservar cuidadosamente.



## Enclosure 4 Manufacturer's Instructions

**INTRODUZIONE**  
**INTRODUCTION**  
**INTRODUCTION**  
**EINLEITUNG**  
**INTRODUCCIÓN**

**IT** – Neri SpA è impegnata costantemente nella ricerca e progettazione di prodotti di alta qualità, lunga durata e sicurezza. Questo manuale intende presentare le metodiche di installazione corrette dei corpi illuminanti, ponendosi come guida nei confronti di installatori professionali. A tale scopo questo manuale va letto con molta attenzione.

**EN** – Neri SpA is constantly committed to research and design for products of high quality, durability and safety. This manual aims to present correct installation procedures for light fixtures as a guide for professional installers. To this end the manual should be read with extreme attention.

**FR** – Neri SpA a toujours eu pour objectif la recherche et la conception de produits de haute qualité, offrant longévité et sécurité. Ce manuel, qui présente les modes d'installation corrects des armatures d'éclairage, est un guide à l'adresse des installateurs professionnels. Il doit donc être lu très attentivement.

**DE** – Die Neri SpA ist konstant um Forschung und Entwicklung zeitbeständiger und sicherer Produkte von hoher Qualität bemüht. Dieses Handbuch stellt die korrekten Installationsmethoden für die Leuchtkörper bereit und bietet sich gegenüber professionellen Installateuren als ein Ratgeber an. Deswegen sollte dies Handbuch sehr aufmerksam gelesen werden.

**ES** – Neri SpA trabaja de continuo en el estudio y proyección de productos de alta calidad, larga duración y seguridad. Este manual presentará los métodos de instalación correcta de los cuerpos de iluminación, siendo una guía para instaladores profesionales. Por ello, este manual debe leerse con gran detenimiento.

**SIMBOLI**  
**SYMBOLS**  
**SYMBOLES**  
**SYMBOLE**  
**SÍMBOLOS**

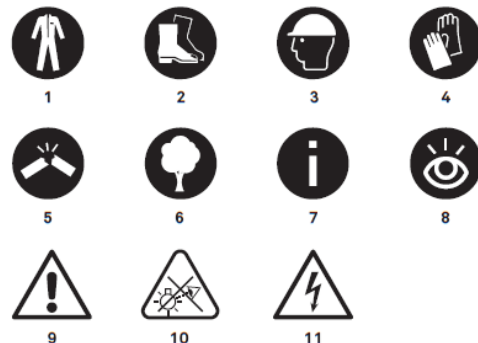
**IT** – 1. Abbigliamento da lavoro/ 2. Scarpe antinfortunistiche/ 3. Casco obbligatorio/ 4. Guanti da lavoro/ 5. Danni ai componenti/ 6. Inquinamento ambientale/ 7. Nota informativa/ 8. Verifica tecnica/ 9. Pericolo per l'operatore/ 10. Rischio fotobiologico/ 11. Rischio di shock elettrico.

**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. Vêtements 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. Arbeitskleidung/ 2. Schutzschuhe/ 3. Helmpflicht/ 4. Arbeitshandschuhe/ 5. Schäden an den Komponenten/ 6. Umweltverschmutzung/ 7. Informationsblatt/ 8. Technische Kontrolle/ 9. Gefahr für den Techniker/ 10. Photobiologische Risiko/ 11. Stromschlaggefahr.

**ES** – 1. Ropa de trabajo obligatoria/ 2. Calzado de seguridad obligatorio/ 3. Casco de seguridad obligatorio/ 4. Guantes de seguridad obligatorios/ 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.

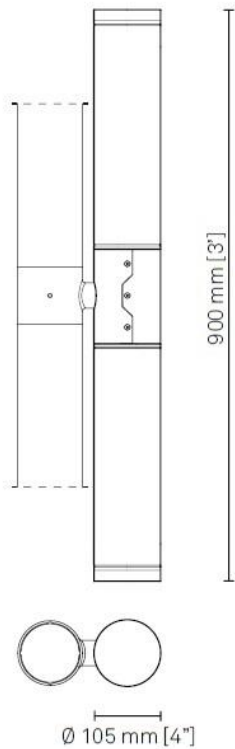


Enclosure 4

Manufacturer's Instructions

Nebula S  
LED

Cod. LUNEB (CE, ENEC)



Superficie esposta al vento / Surface exposed to wind / Surfaces exposées au vent /  
Windangriffsfläche / Superficie expuesta al viento

Area laterale / Side area / Zone latérale / Seitlicher Bereich / Área lateral	0,094 m² [1.01 ft²]
---	---------------------

Area frontale / Front area / Zone frontale / Bereich vorn / Área frontal	0,094 m² [1.01 ft²]
--	---------------------

Area superiore / Top area / Zone supérieure / Oberer Bereich / Área superior	0,011 m² [0.11 ft²]
--	---------------------

EPA	0.85 ft²
-----	----------

Peso / Weight / Poids / Gewicht / Peso	8,0 kg [17.63 lb]
--	-------------------

d <sub>in</sub>	RGBW 5,35 m - PR 2,39 m - ST 1,09 m
-----------------	-------------------------------------

H installazione / H installation / H instalación	
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H min.	3,0 m [9.84 ft]
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## Enclosure 4 Manufacturer's Instructions

## GUIDA ALL'INSTALLAZIONE

IT

## GUIDA ALL'INSTALLAZIONE IT

## AVVERTENZE PER L'INSTALLAZIONE

Eseguire l'installazione secondo le norme in vigore nel paese d'installazione. L'apparecchio deve essere utilizzato solo se completo dello schermo di protezione. Se lo schermo risultasse danneggiato l'apparecchio non va utilizzato. Ripristinare le condizioni originali prima del suo riutilizzo. L'apparecchio è in CL II (o CL I) d'isolamento elettrico, durante l'installazione le parti metalliche esposte non devono entrare in contatto elettrico con parti dell'installazione elettrica collegate ad un conduttore di protezione. Questo apparecchio deve essere destinato solo all'uso per il quale è stato progettato, e cioè l'illuminazione 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 inadeguato e irragionevole. Per maggiori informazioni, si invita a consultare le istruzioni supplementari presenti sul sito alla pagina [www.neri.biz/guidainstallazione](http://www.neri.biz/guidainstallazione).



Movimentare il prodotto con attenzione in quanto gli urti possono danneggiarlo.

## Installazione

Controllare la corretta installazione del palo e dei suoi componenti. Il dispositivo di fissaggio del corpo illuminante deve essere come mostrato nel disegno (Fig. 1). Svitare i quattro dadi (M4), le due rondelle piane e le due rondelle dentellate (Fig. 2). Verificare che il corpo illuminante da installare sia come mostrato nel disegno (Fig. 3). Svitare le sei viti (M4) (Fig. 4) e rimuovere le tre cover nella parte centrale del corpo illuminante (Fig. 5).

## Regolazione dell'inclinazione del corpo illuminante.

In caso di installazione con inclinazione a step di 0°, ±30°, ±45° utilizzare i due piastrini presenti sul corpo illuminante per impostare la posizione desiderata (Fig. 6-7). Nel caso di installazione con un valore di inclinazione diverso dallo standard proposto (step 0°, ±30°, ±45°) è necessario svitare le quattro viti (M4) e rimuovere i due piastrini (Fig. 8-9). La regolazione libera consentita è di ±45° (Fig. 8-10).

Il corpo illuminante è dotato di un sistema di regolazione ottico.

L'emissione luminosa del corpo illuminante è come rappresentata nel disegno (Fig. 11). Passare alla Fase 5 (Connessione elettrica) per la configurazione standard.

## Regolazione del sistema ottico del corpo illuminante.

L'emissione luminosa del corpo illuminante è come rappresentata nel disegno (Fig. 11). Per modificare la direzione dell'emissione luminosa seguire i seguenti passaggi (la rotazione ammissibile è di ±90°) (Fig. 12). Svitare le sei viti (M4) (Fig. 4) e rimuovere le tre cover nella parte centrale del corpo illuminante (Fig. 5). Svitare i sei dadi (M6) e le tre rondelle (Fig. 13-14). Allontanare il corpo illuminante (Fig. 15) e svitare il telaio esterno (Fig. 16). Allentare il pressacavo (Fig. 17) e svitare le tre viti (M4) e le tre rondelle dentellate (Fig. 18). Ruotare il gruppo cablaggio fino a raggiungere la configurazione desiderata (la rotazione ammissibile è di ±90°) (Fig. 19). Avvitare le due viti (M4) e le due rondelle dentellate (Fig. 20). Stringere il pressacavo (Fig. 21) e avvitare il telaio esterno (Fig. 22) riposizionando il corpo illuminante nella posizione iniziale (Fig. 23). In caso di configurazione con due sorgenti luminose ripetere i passaggi precedenti.

## Connessione elettrica

Far scorrere il cavo di alimentazione all'interno del palo fino a raggiungere la morsetteria (Fig. 24-26-27). Per facilitare il passaggio del cavo di alimentazione mantenere l'asola del palo allineata con il dispositivo di fissaggio (Fig. 25). In caso di configurazione con due sorgenti luminose ripetere il passaggio precedente (Fig. 24-26-27). In caso di sorgente RGBW ripetere il passaggio precedente e connettere il cavo DMX. Se il cavo flessibile esterno di questo apparecchio risultasse danneggiato deve essere sostituito esclusivamente dal produttore, dal suo agente di servizio o da una persona qualificata per evitare pericoli.

Avvitare i quattro dadi (M4), le due rondelle piane e le due rondelle dentellate (Fig. 28). Ad operazione conclusa il corpo illuminante deve essere come mostrato nel

disegno (esempi con inclinazione 0° e 45° - Fig. 29-30).

Posizionare le tre cover nella parte centrale del corpo illuminante (Fig. 31) e avvitare le sei viti (M4) (Fig. 32). Ad operazione conclusa il corpo illuminante deve essere come mostrato nel disegno (Fig. 33). In caso di configurazione con più corpi illuminanti ripetere i passaggi dalla fase 1.

## Dispositivi anti-abbagliamento

Per l'installazione dei dispositivi anti-abbagliamento seguire le seguenti istruzioni: Svitare le due viti (M6) alla base del corpo illuminante (Fig. 34) e rimuovere l'elemento terminale (Fig. 35). Avvicinare l'accessorio (disponibile in versione 30° e 45°) alla base del corpo illuminante (Fig. 36-37) e avvitare le due viti (M6) (Fig. 38-39). In caso di configurazione con due accessori ripetere i passaggi precedenti.

## Schermi rifrattori

Per l'installazione degli schermi rifrattori seguire le seguenti istruzioni: Svitare l'anello terminale posto all'estremità del corpo illuminante tramite le due viti (M6) (Fig. 40). Posizionare lo schermo rifrattore scelto nella posizione desiderata (Fig. 41) e avvitare l'anello tramite le due viti (M6) (Fig. 42).

## MANUTENZIONE

## Pulizia dello schermo

Le operazioni di manutenzione ordinaria vanno eseguite solo da personale specializzato (ad apparecchio chiuso e scollegato dalla rete elettrica), e riguardano: • pulizia schermo di protezione e struttura esterna solo con acqua e spugna (non utilizzare idropulitrici a pressione e altri prodotti per la pulizia) (Fig. 43).

## 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



RGBW 5,35 m  
PR 2,39 m  
ST 1,09 m

## RISCHIO SHOCK ELETTRICO



Enclosure 4	Manufacturer's Instructions
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INSTALLATION PROCEDURE

EN

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 conditions before reusing.

The fixture is installed under CL II protection standards, particular care must be taken while 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 was 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.

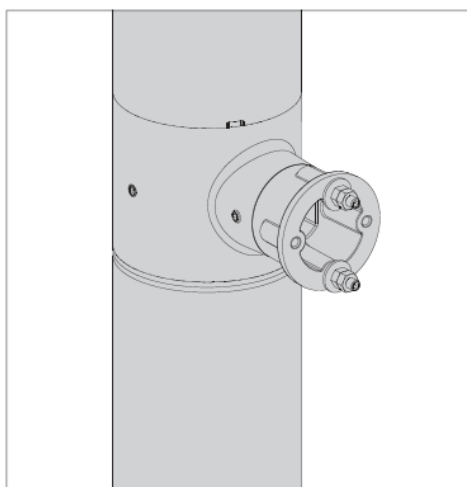
For more information, please see the supplementary instructions on the website at [www.neri.biz/installationguides](http://www.neri.biz/installationguides).



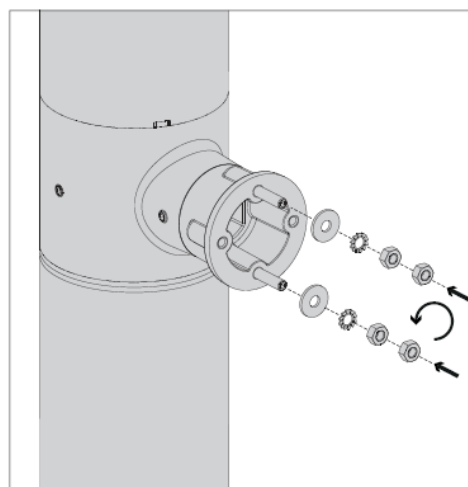
Handle the products with extreme care as impact can cause visible damage.

**Enclosure 4    Manufacturer's Instructions**

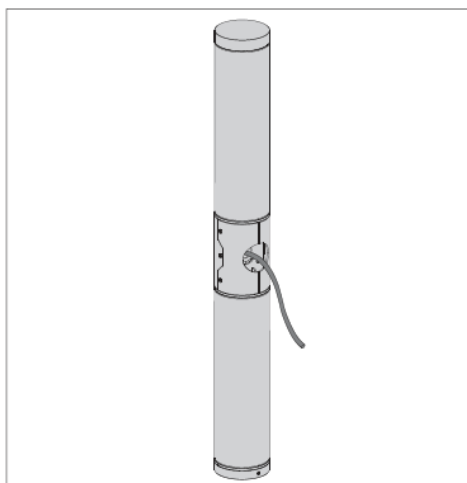
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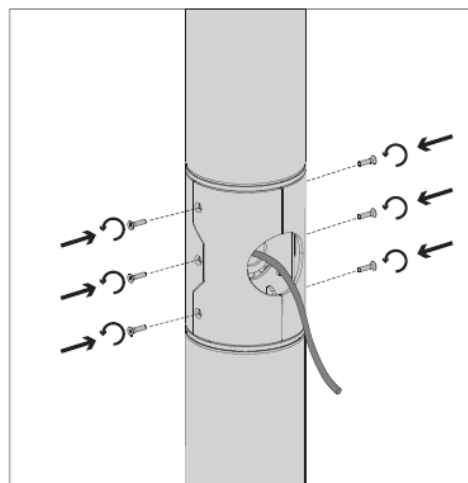
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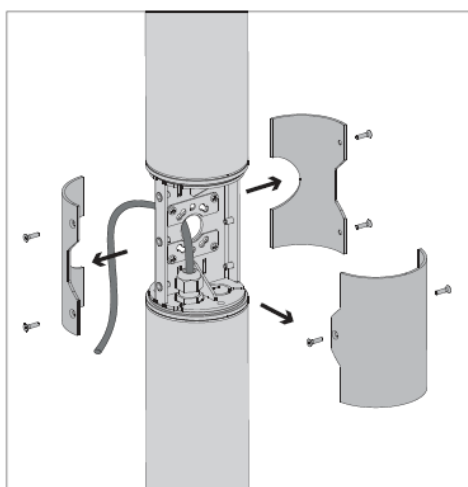
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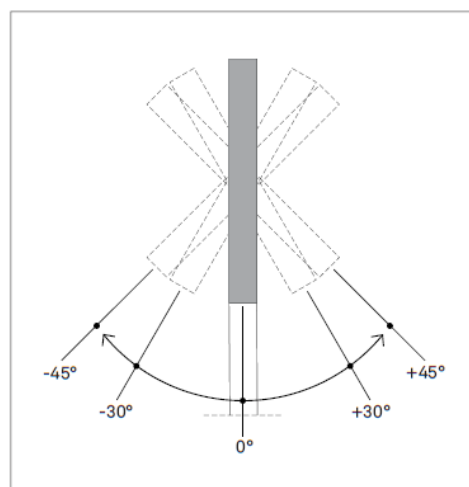
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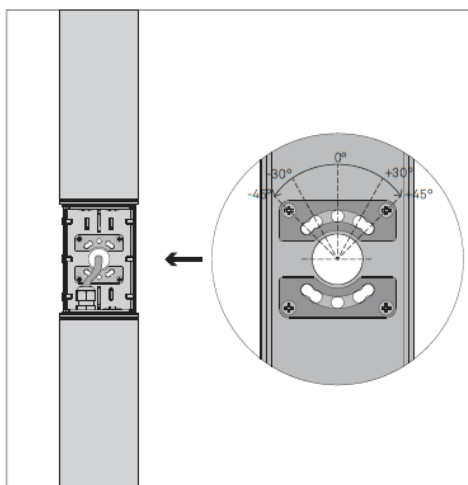
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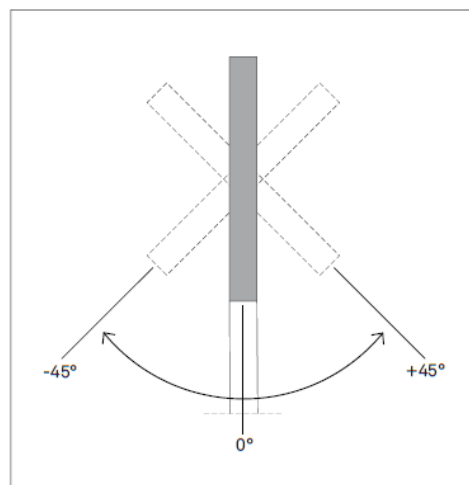
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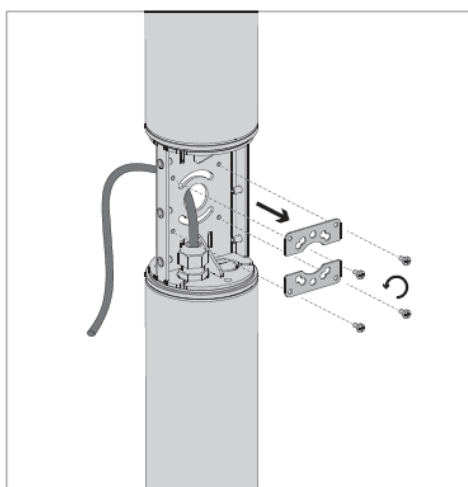
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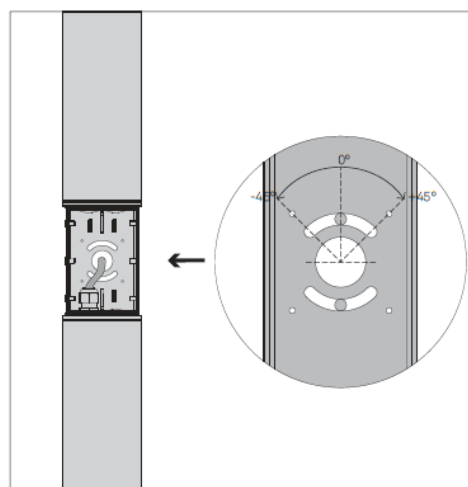
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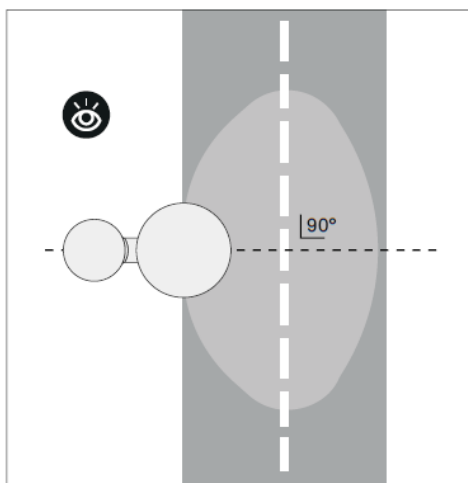
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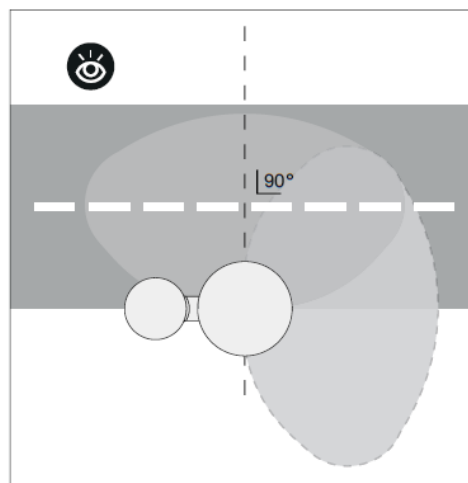
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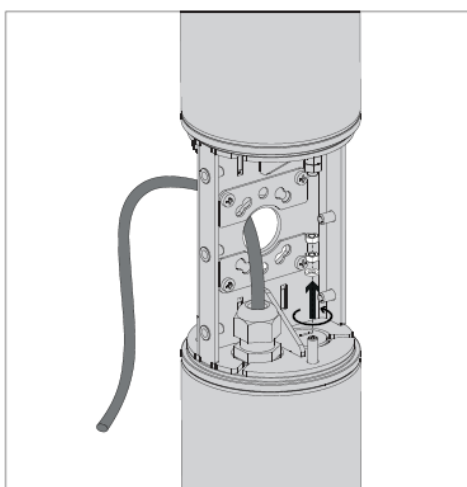
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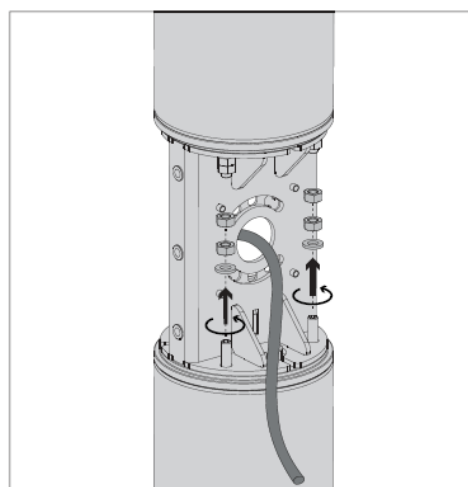
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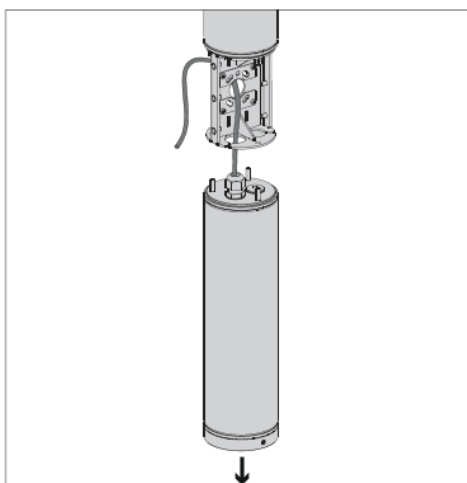
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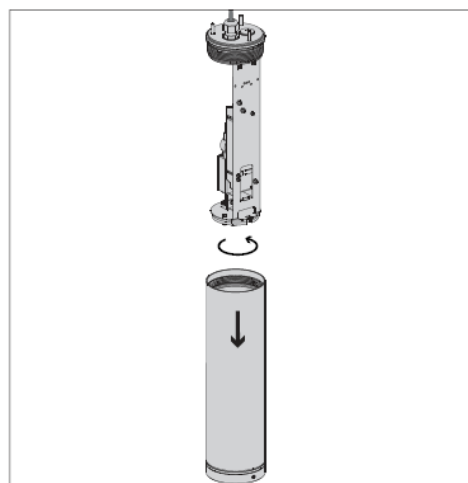
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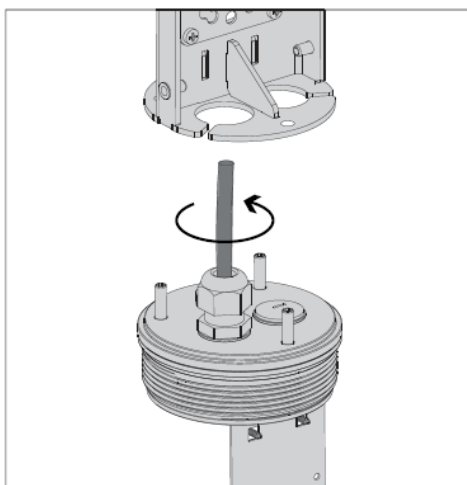


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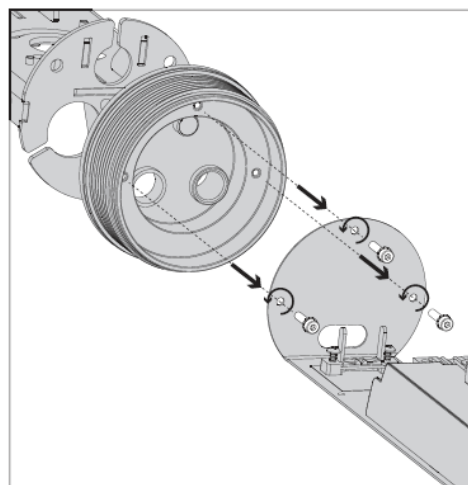


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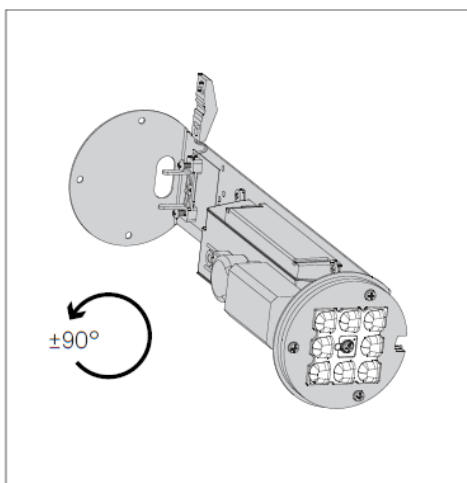
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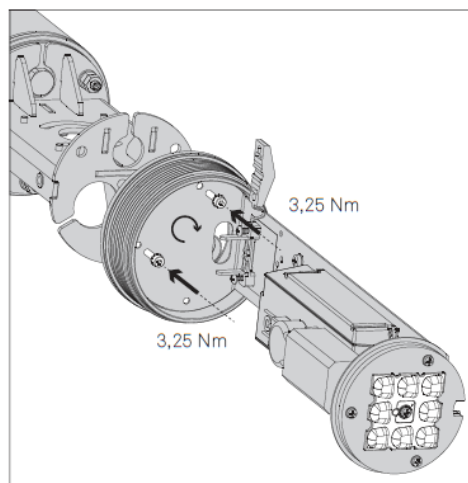
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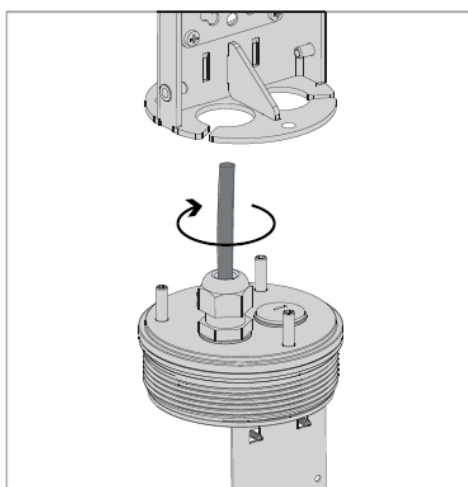
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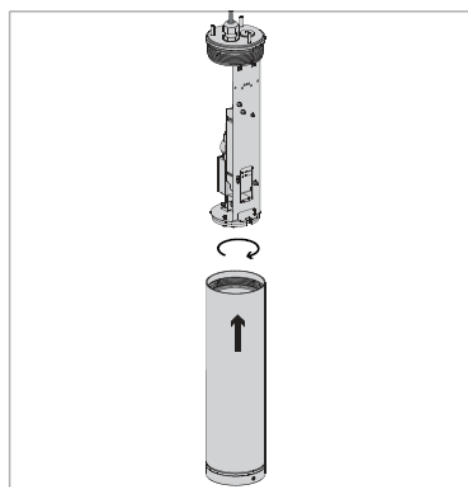
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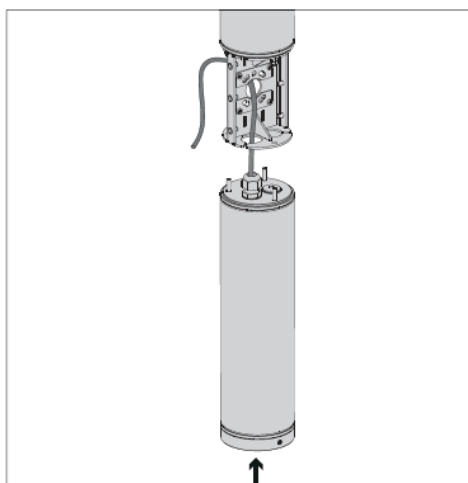
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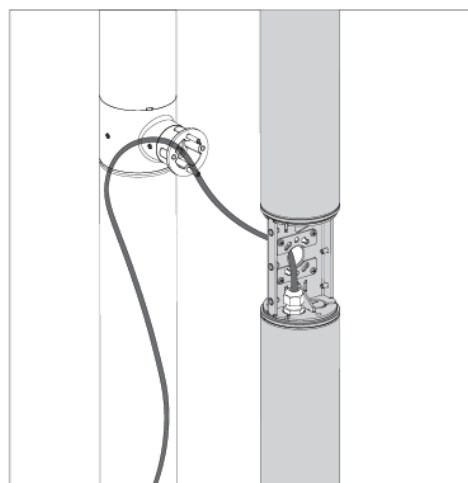
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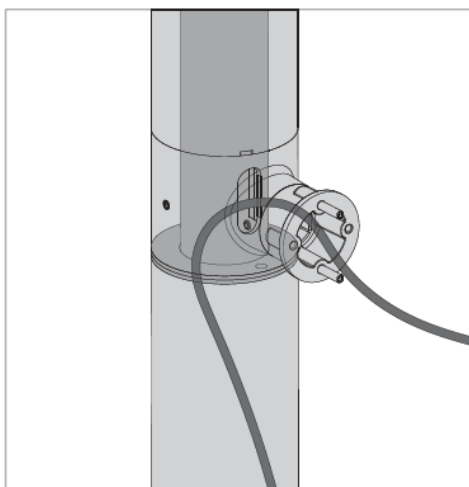
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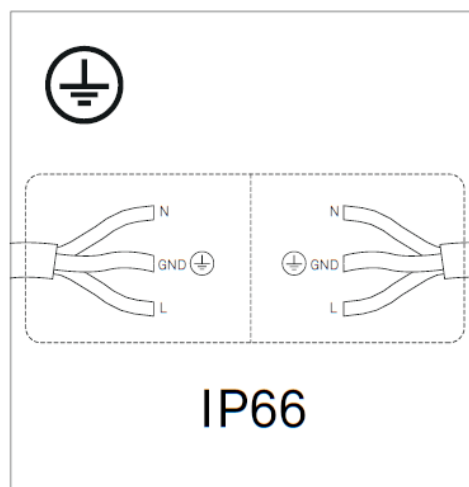
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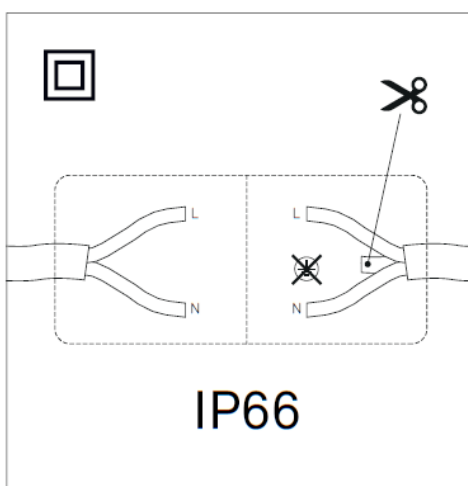
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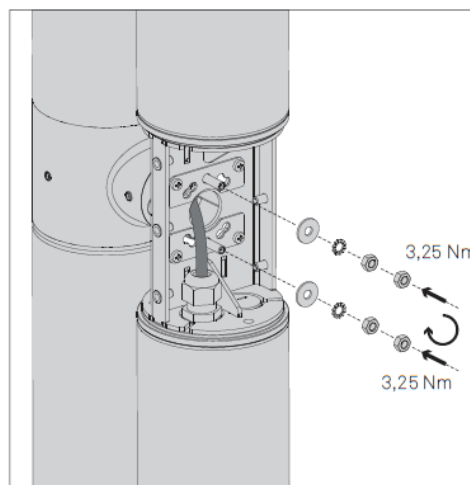
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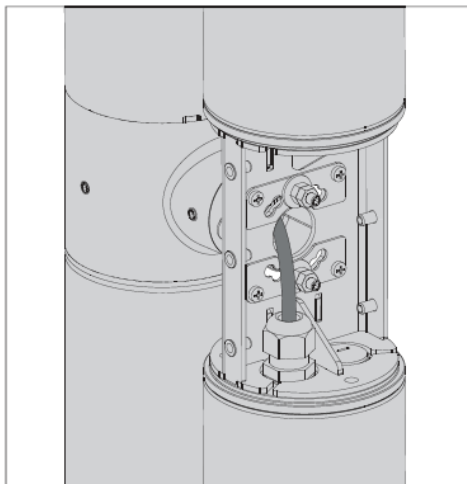
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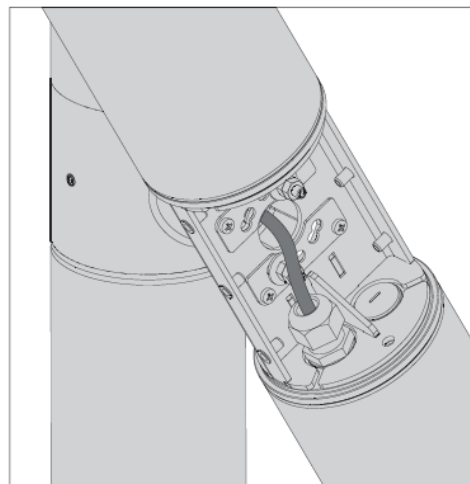
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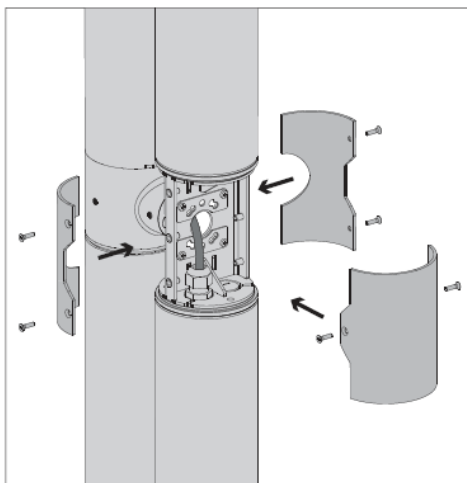
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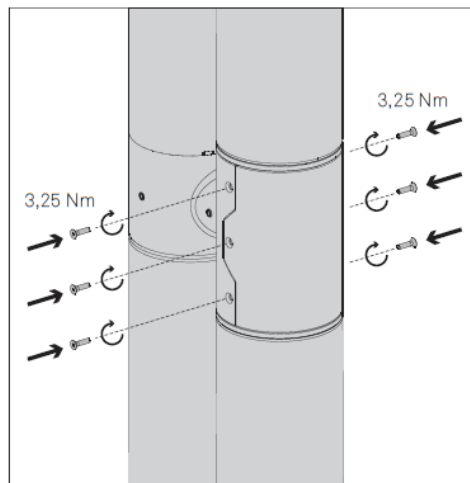
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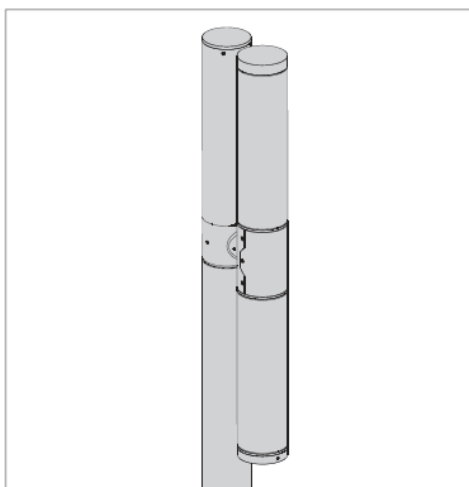
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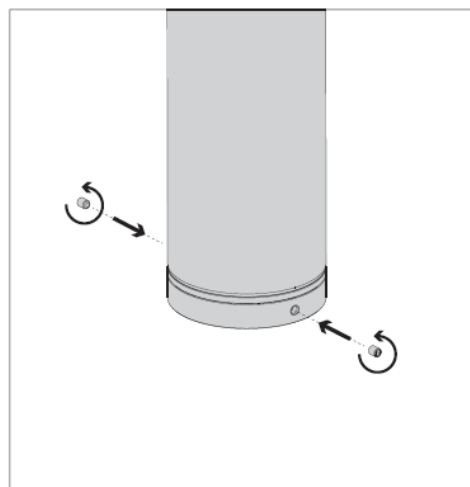
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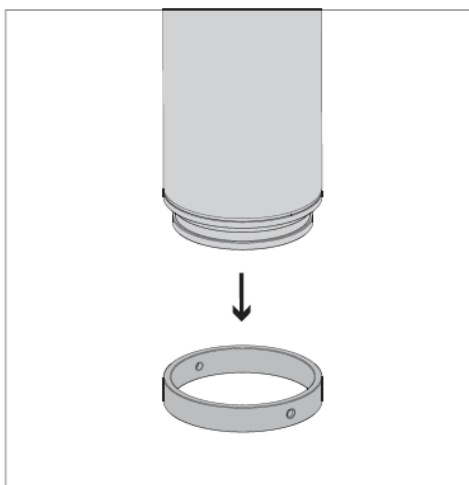
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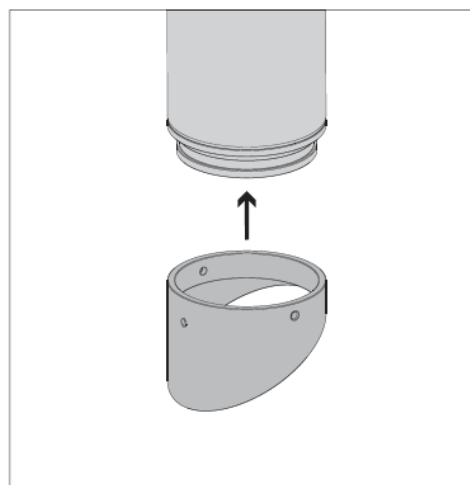
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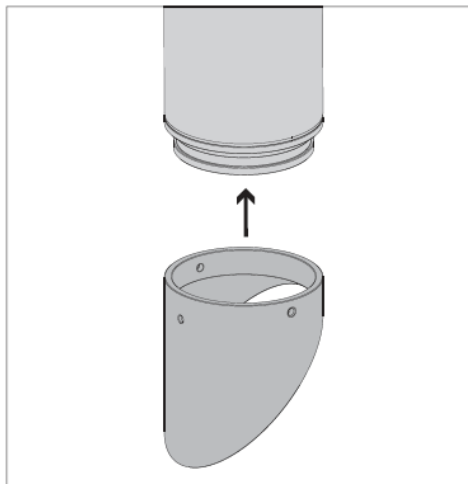
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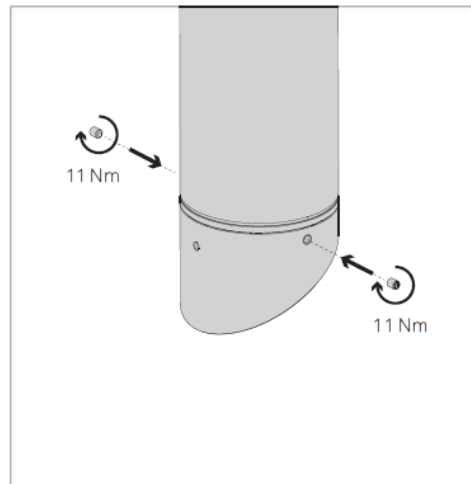
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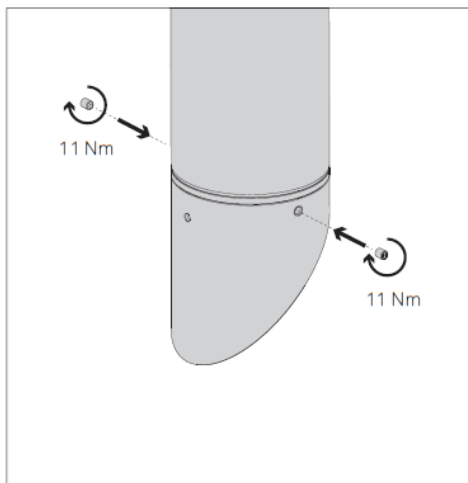
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37



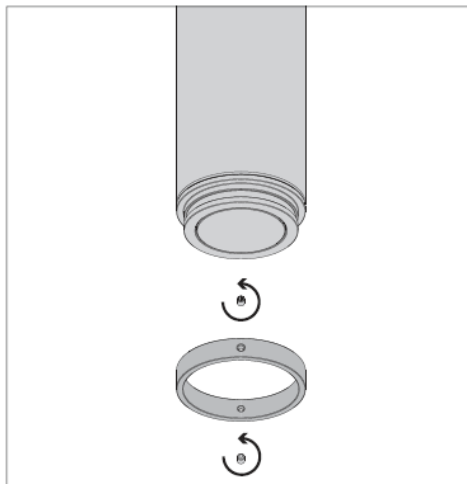
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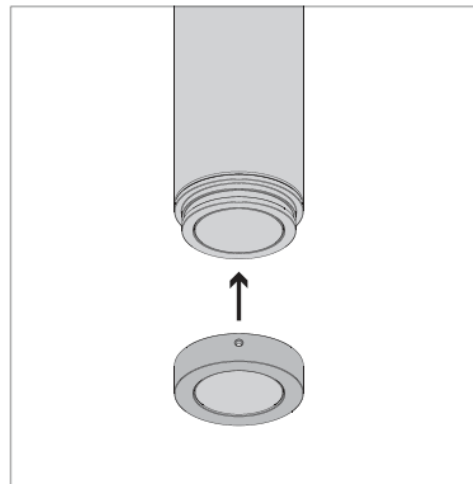
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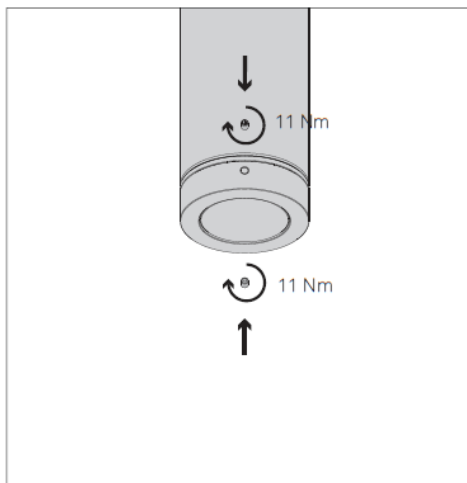
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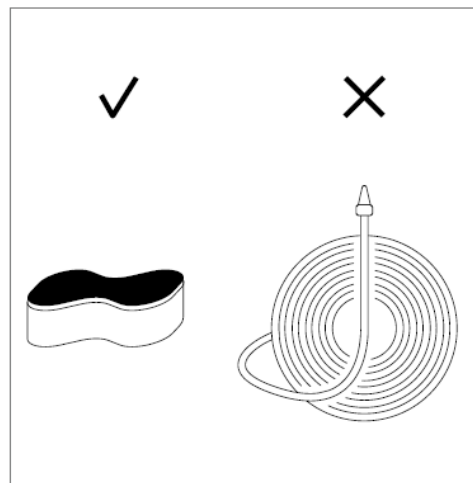
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41



42



43

Enclosure 4	Manufacturer's Instructions
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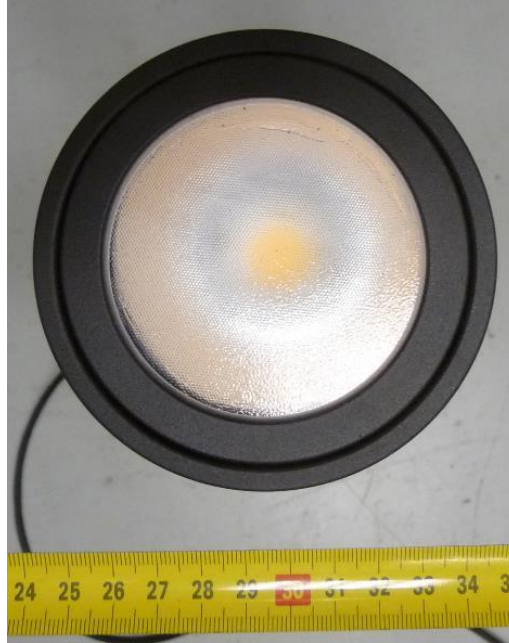
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## Enclosure 5

## Photos

**Photograph No.1 Upper view of the luminaire (NEBULA PR)****Photograph No.2 Upper view of the luminaire (NEBULA RGBW)**

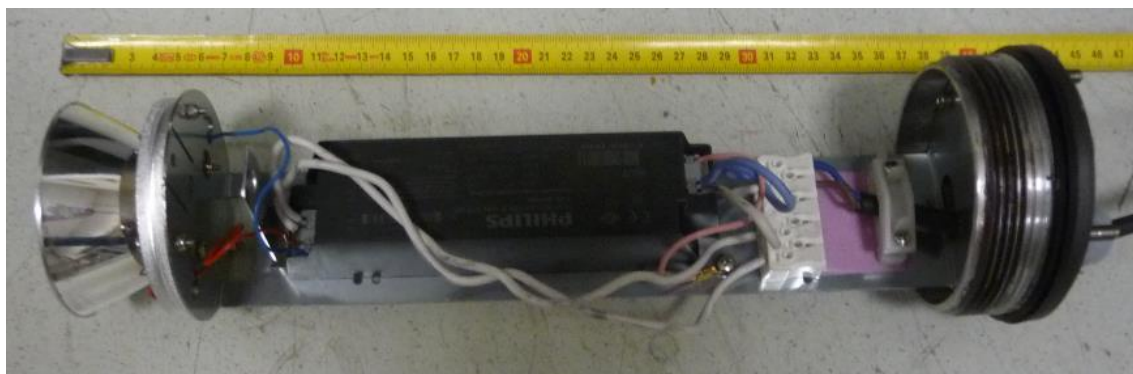
## Enclosure 5

## Photos

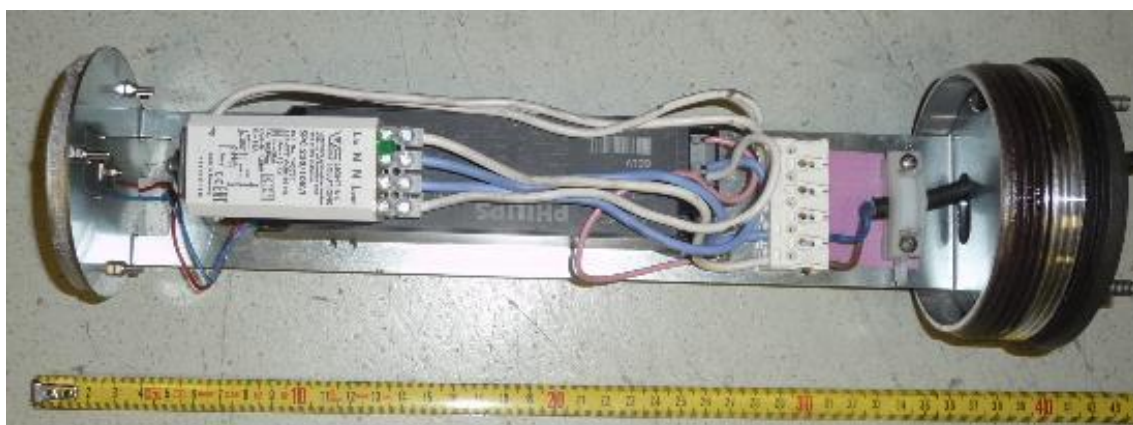
**Photograph No.3 Side view of the luminaire (NEBULA ST-PR-RGBW)****Photograph No. 4 Bottom view of the luminaires (NEBULA ST-PR)**

Enclosure 5	Photos
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**Photograph No. 5 Upper view of heat sink, LED driver fixture and internal wiring NEBULA PR**

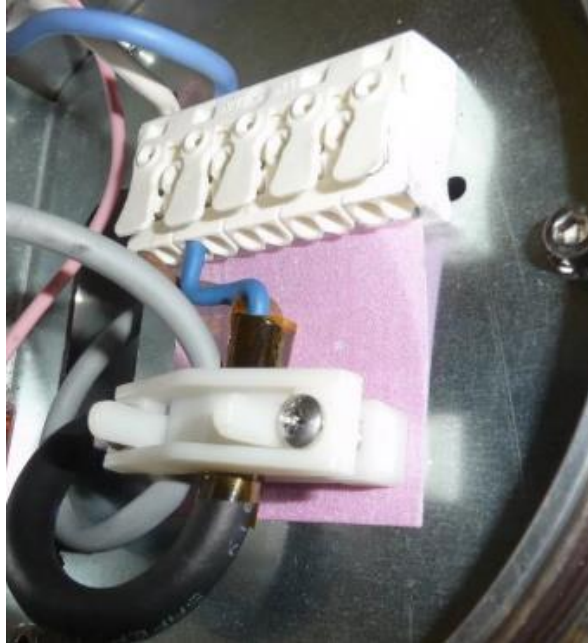


**Photograph No. 6 Overview of heat sink, LED driver fixture and internal wiring NEBULA ST**

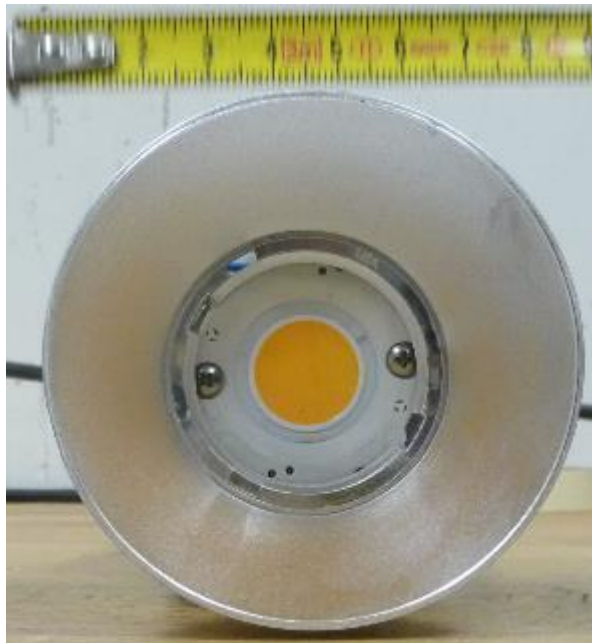


Enclosure 5	Photos
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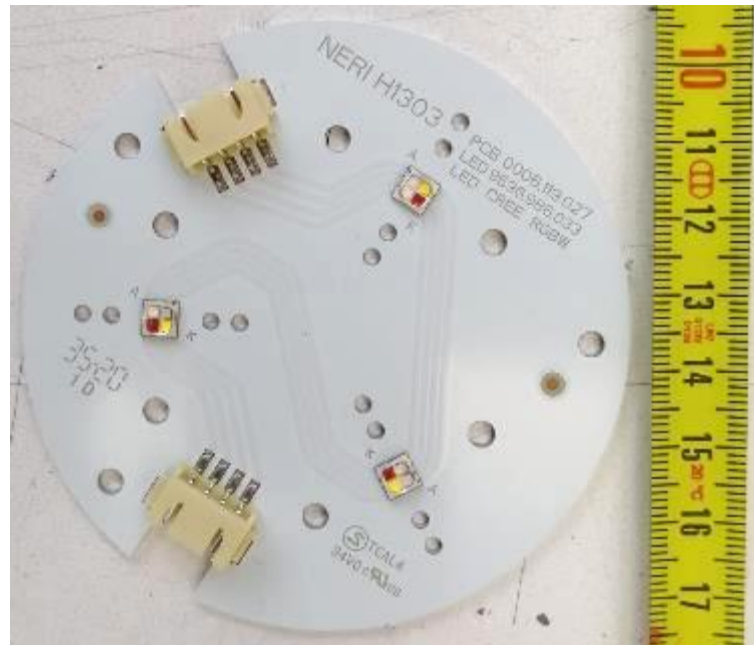
**Photograph No. 7 Main Terminal block and cord anchorage**



**Photograph No. 8 Reflector over COB LED in NEBULA PR**



Enclosure 5	Photos
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**Photograph No. 9 LED module NEBULA RGBW**

<b>Enclosure 6</b>	<b>Equipment List</b>
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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	2020-03-04	2021-03-04
3.6	Construction	LAB002 - Dynamometric driver	100-500 cNm	2020-09-23	2022-09-23
3.6	Construction	LAB003 – Dynamometric screwdriver	20-120 cNm	2020-09-23	2022-09-23
3.11	Protection against electric shock	LAB004 – Test finger	Ø 50 mm (max)	2019-08-16	2021-08-16
3.13	Solid-object-proof luminaire test	LAB007 - Test probe	Ø 1 mm	2019-08-16	2021-08-16
3.13	Solid-object-proof luminaire test	LAB008 - Test probe	Ø 2,5 mm	2019-08-16	2021-08-16
3.12	Endurance test and thermal test	LAB010- DMM Yokogawa 7552	0-1000mA 0-200Vdc	2020-12-14	2021-12-14
3.6	Construction	LAB012 – Digital scale	0-30 kg	2020-02-26	2021-02-26
3.12	Endurance test and thermal tests	LAB018 – Thermal test room and acquisition system	0-300 °C	2020-12-09	2021-12-09
3.12	Endurance test and thermal tests	LAB019 – Endurance test room and acquisition system	0-300 °C	2020-12-09	2021-12-09
3.15	Resistance to heat, fire and tracking	LAB020 - Ball pressure apparatus	20N - Ø 5mm	2019-08-16	2021-08-19
3.6	Construction	LAB022 - Set IK mass (n°5)	1J – 20J	2019-07-18	2021-07-18
3.14	Insulation resistance and electric strength	LAB017 – Electrical safety tester GLP-2e (2051)	0-5 kV 0-100 mA 0-10 MΩ	2020-12-14	2021-12-14
3.6	Construction	LAB026 - Caliper	0-200 mm	2020-07-15	2021-07-15
3.6	Construction	LAB033 – Hammer spring	0,2 – 1 Nm	2019-04-05	2021-04-05
3.12	thermal tests and input-test	LAB011 - Wattmeter	0-600V ac/dc 0-20A ac/dc 0-300W ac/dc 0-60Hz	2020-09-29	2021-09-29
3.13	Resistance to dust, solid objects and moisture	LAB048 – Flow meter	10-120 l/m	2019-07-08	2021-07-08
	ALL	LAB023 - Chronometer	0-3600s	2020-09-25	2021-09-25