

## DECLARATIE DE CONFORMITATE - CE

Noi, SCHRÉDER ROMANIA S.R.L., cu sediul în Cluj - Napoca, str. Corneliu Coposu nr. 167a, Jud. Cluj, România, înregistrată la Registrul Comerțului cu nr. J12/1759/1998, membră a SCHRÉDER GROUP GIE, în calitate de producători de aparate de iluminat marca SCHRÉDER

Declarăm pe propria răspundere că aparatul de iluminat: **SKIDO LED**

Echipare:

6 LED-uri de Mare Putere (High Power LED) monocromatic

Caracteristici principale:

Balast: Electronic

Etanșeitate compartiment optic: IP 65

Etanșeitate compartiment aparataj: IP 65

Tensiune nominală: 230 V – 50 Hz

Clasa electrică: I

Tipul laboratorului de testare: SMT (Supervised Manufacturer's Testing)

**este produs în conformitate cu următoarele standarde:**

CEI EN 60598-1 – 2005/05 (CEI 34-21 VIII ed.)

CEI EN 60598-2-1 – 1997/10 (CEI 34-23 II ed.)

CEI EN 60598-2-3 – 2003/10 (CEI 34-33 II ed.)

De asemenea acesta este în conformitate și cu standardele:

CEI EN 55015 – 2008/04 (CEI 110-2 VI ed.)

CEI EN 61000-3-2 – 2007/04 (CEI 110-31 IV ed.)

CEI EN 61000-3-3/A1 – 2002/05 (CEI 110-28;V1)

CEI EN 61000-3-3 – 1997/06 (CEI 110-28 I ed.)

CEI EN 61547 – 1996/07 (CEI 34-75)

CEI EN 61547/A1 – 2001/08 (CEI 34-75;V1)

Data aplicării marcajului CE: 14

Produsul este realizat în conformitate cu directivele 2006/95/CE – Joasă Tensiune, 2002/95/CE - RoHS și 2002/96/CE – DEEE.

SCHRÉDER ROMANIA S.R.L.  
Director Comercial,  
Ovidiu GROZA

Eliberat,  
Aprilie 2019, Cluj-Napoca



# Lumen maintenance report

## LED information

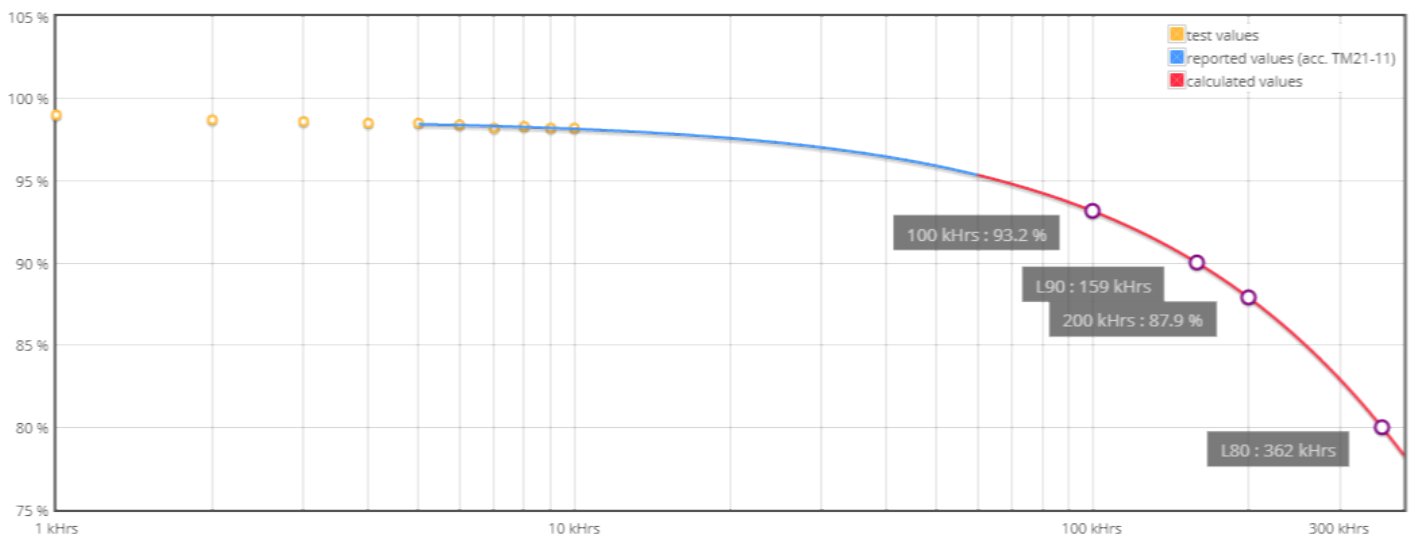
**LED type** LH351C  
**LED current** 1000 mA  
**Ts** 55°C  
**Description** SLED-19-031

## Projection data

**Test duration** 10000 hrs **α** 5.811E-007  
**Time used for projection** 5000 to 10000hrs **β** 0.987

L (%)	Time (kHrs)
80.0	362
87.9	200
90.0	159
93.2	100

## Projection graphic



LxB50 results according to LM-80 and TM-21-11 procedures and norms.

LxBy results derived from LxB50 according to IEC 62717 Annex C.

# Laboratory Service PHYSICAL TEST REPORT



R-Tech  
Rue de Mons 3 – B-4000 Liège – Belgium  
Tel.: +32 4 224 71 40 – Fax: +32 4 224 25 90  
Member of Schröder Group

**Subject:** SKIDO 6 led's @ 1,05 A - class I protection

Sample n°: P-E15329

**Test purpose:** EMC tests according to EN 55015 & EN 61547 Standards

**Remarks:**

Test request n°: P-D15613

Folder n°: P-F14083

**TEST CONDITIONS:**

Operator: EMC - ULg

**Test Summary**

EN 55015 & EN 61547 Standards

**Emission**

Standard	Limit / Level	Result	
		PASS	FAIL
EN 55015 Conducted Emission 9kHz- 30 MHz		X	
EN 55015 Annex B 30 MHz – 300 MHz		X	

**Immunity**

Standard	Limit / Level	Result	
		PASS	FAIL
EN 61000-4-5	0.5 to 4 kV M.D. & M.C. Criteria B required	X	

**Driver:** Mean-Well PLD-25-1050 @ 1050mA

**EMC Auxiliaries:** Varistor

**CONCLUSIONS:**

SKIDO 6 led's driven @ 1.05A by Mean Well PLD-25-1050 driver complies with the CISPR/EN 55015 and EN 61547 Standards.

**Remark:** Surge protection tested OK up to 4 KV for both Common and Differential modes  
(Max ULg facilities)

Duplicate to: Mr M. Thijs  
LAB 16/09/2015  
L. Maghe

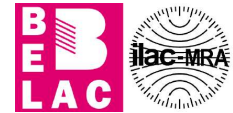
//P-15CR613

## LED Flux measurement

FORM-L-41 ED1 REV 2

Date : **16-01-19**

Operator : **FCE**



Filename : **2019\_53.xml**

**226 - TEST**

**NBN EN ISO/IEC 17025 : 2005**

### LEDs

Trademark : **Samsung**

Entry number : **39R004-3**

Type : **LH351C**

Power (Catalogue) : **0,00** W

BIN Description : **40-70M-4-TB-RB**

Flux : **0** lm/LED

Part number : **Unknown**

Color or CCT (Theoretical) : **NW**

Number of LEDs : **6**

### Lenses

Trademark : **None**

Type : **None**

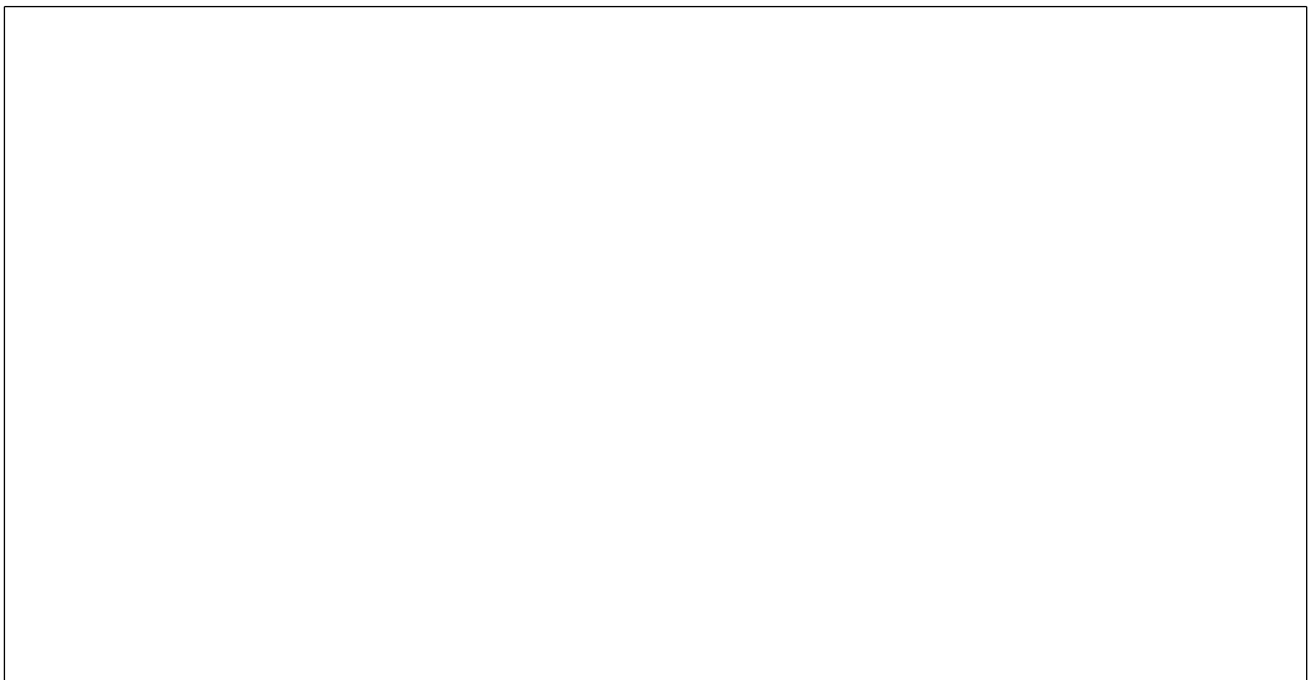
### Power & Print

Type : **DELTA SM400-AR-4**

Print description : **00-71-626 A - Voltana 0**

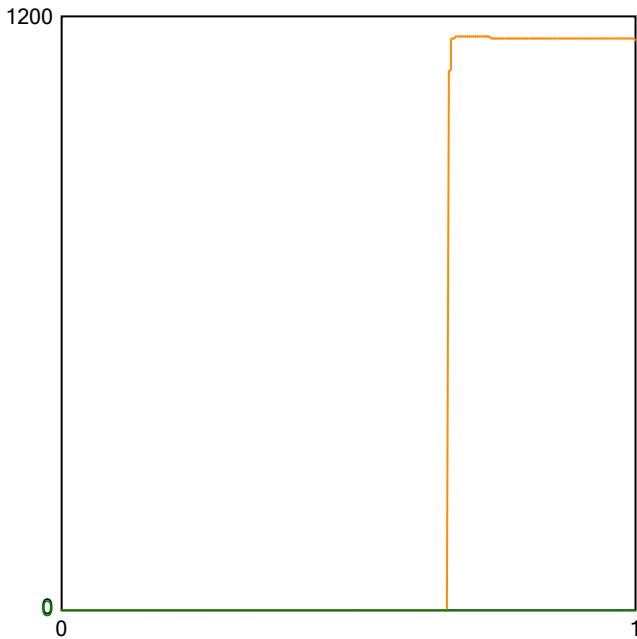
Active

### Picture



### Sphere photometric measurement

Maximum flux : **1161** lumens



### Operating condition

Position in sphere :



Ambient sphere T ° : **24,6**

### Electrical measurement

#### ● Secondary electrical measurement

Voltage : **16,80** V

Current : **0,350** A

Power : **5,87** Watt

→ LEDs light efficiency at 25° :

**197,6** lm/W

**193,5** lm/Led

#### ● Primary electrical measurement

Voltage : **N/A** V

Current : **N/A** A

Power : **N/A** Watt

Cos φ : **N/A**

→ Driver losses : **N/A** %

→ LEDS & Driver light efficiency :

**N/A** lm/W

Description :

Flux @25°/350mA - pcb Voltana 0 - 6 Samsung LH351C - pcb N°3

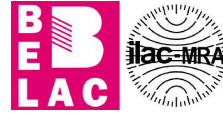
Comment :

FORM-L-41 ED1 REV 2



226 - TEST

Approved by :



Colorimetry

File Preset Options Extra Calibration Info

Preset: CRI

Auto: ref: illuminant - Planckian radiator, CCT= 3871 K

Auto: ref: illuminant - Planckian radiator, CCT= 3871 K

R1=68.5	R8=47.2	R15=60.1
R2=80.4	R9=39.7	
R3=90.5	R10=54.9	
R4=70.7	R11=67.4	
R5=69.2	R12=48.4	
R6=73.0	R13=70.7	
R7=78.9	R14=94.8	

Chromaticity difference DC= 2.2E-4

JIS color sample

Re=72.29 (mean value of R1 - R8)

Re=62.33 (mean value of R1 - R15)

Target

Calibration File: #1 no accessory

Measurement Mode: Radiance

Weighting Function: None

Average: 1

Measurement

Cont: 10

Hold Integration Time

Quick mode

Transfer data to table

auto

Luminance  $L_v$  1.963E+2 cd/m<sup>2</sup>

Radiance  $L_e$  5.556E-1 W/m<sup>2</sup>

Corr. Color Temp CCT 3872 K

Chromaticity x 0.3862 y 0.3800

Chromaticity u' 0.2276 v' 0.5039


QUIT

**RTECH-PHOTOMETRY LABORATORY**

Testreport : Measurement of luminous intensity distribution related to the standard  
NBN-EN 13032-1; NBN-EN 13032-4; CIE 121-1996; CIE S 025/E; IES LM-79-08 and procedures PT-P-01  
and PT-P-02  
rue de Mons, 3 B-4000 LIEGE - Tel : 04/224.71.40 - Fax : 04/224.25.90  
Measurement for Schröder group.

**LED**

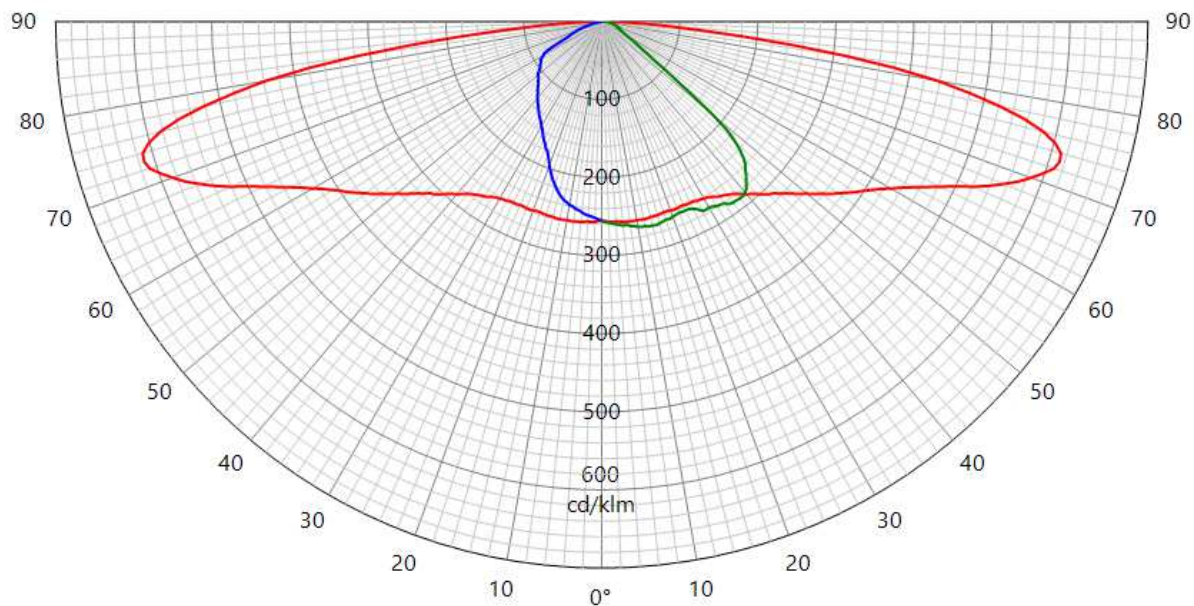
Origin R-Tech	Production Schröder TOV	Luminaire SKIDO	Inclination 0°	Request # FD39062
Source				
Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung	Reference LH351C	# LEDs 6
Reflector # 5122				
Master	Reflector Schröder TOV-Ukraine Led assembly Road lighting Assembled 0,0°			No 5122
Protector Refractor Lens				
Protector Lens	integrated lenses Schröder 5122 PC			
Laboratory observation				
SKIDO fitted with 6 Samsung LH351C Used flux for efficient matrix calculation, measured in sphere @350mA / 25°C: 1161 lm - CCT= 3872K - CRI= 72,29 (see sphere test report 2019/53 on appendix)				
Purpose DOC	Sample date 08-01-2019		Sample # 39R004	
Observation				
DOC Skido with optic 5122				
Flux coefficient multiplier (only for efficiency matrix): From 350 to 700 mA : 1,842 From 350 to 1050 mA : 2,562				
Fixture powered with DC power supply from the lab for matrix @350mA Fixture powered with driver MeanWell PLD-16-700B for matrix @700mA Fixture powered with driver MeanWell PLD-25-1050 for matrix @1050mA				
Notes				
The publication of this report in another form than the original one is not allowed without agreement of the laboratory. This report concerns type tests on one or a series of specimens.				

Asked by GGS	Measured by CLD	Approved by RLABO	Appendix 1	  <b>226-TEST</b> NBN EN ISO/IEC 17025 : 2005	<b>42935</b>
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### LUMINOUS INTENSITY DIAGRAM

Origin <b>R-Tech</b>	Production <b>Schröder TOV</b>	Luminaire <b>SKIDO</b>	Inclination <b>0°</b>	Request # <b>FD39062</b>		
Source	Type <b>LED</b>	BIN <b>40-70M-4-TB-RB</b>	Trademark <b>Samsung</b>	Reference <b>LH351C</b>	# LEDs <b>6</b>	Reflector <b>5122</b>
Reflector	<b>Schröder TOV-Ukraine Led assembly Road lighting Assembled 0,0°</b>			No	<b>5122</b>	
Matrices	<b>429351</b>			$\Phi$ 0-90° = 1033lm - 90-180° = 1lm		<b>Absolute measurement</b>
Protector Refractor Lens	Protector <b>integrated lenses</b> Lens <b>6 x Schröder 5122 PC</b>					
Observation	in total flux @350mA  Electrical measurement on LED (#1): Voltage = 17,24 V Current = 0,350 A Power = 6,03 W  Driver #1 : See observations for driver details - PCB 00-71-626 A					

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	613	73	S	255	24,9°	25-03-2019	
90	288	38	D				
270	255	0	G				



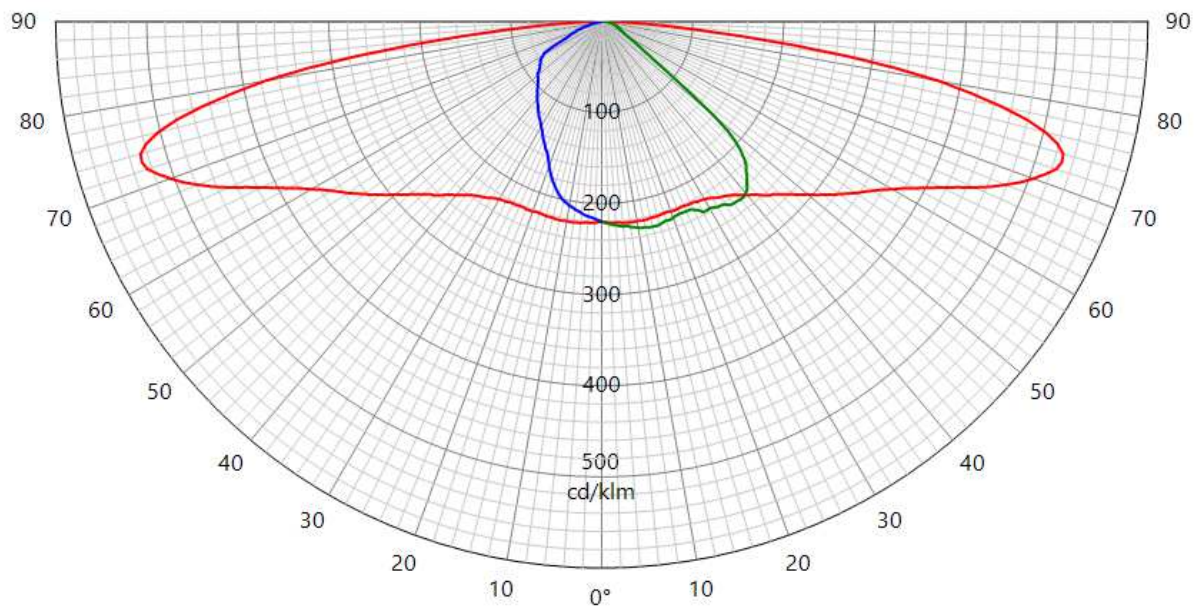
**42935**



### LUMINOUS INTENSITY DIAGRAM

Origin <b>R-Tech</b>	Production <b>Schröder TOV</b>	Luminaire <b>SKIDO</b>	Inclination <b>0°</b>	Request # <b>FD39062</b>		
Source	Type <b>LED</b>	BIN <b>40-70M-4-TB-RB</b>	Trademark <b>Samsung</b>	Reference <b>LH351C</b>	# LEDs <b>6</b>	Reflector <b>5122</b>
Reflector	<b>Schröder TOV-Ukraine Led assembly Road lighting Assembled 0,0°</b>			No	<b>5122</b>	
Matrices	<b>429352</b> $\eta$ 0-90° = 89,0% - 90-180° = 0,1%			Relative measurement		
Protector Refractor Lens	Protector <b>integrated lenses</b> Lens <b>6 x Schröder 5122 PC</b>					
Observation	in efficiency @350mA .  Electrical measurement on LED (#1) : Voltage = 17,24 V     Current = 0,350 A     Power = 6,03 W  Driver #1 : See observations for driver details - PCB 00-71-626 A					

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	528	73	S	220	24,9°	25-03-2019	
90	248	38	D				
270	220	0	G				

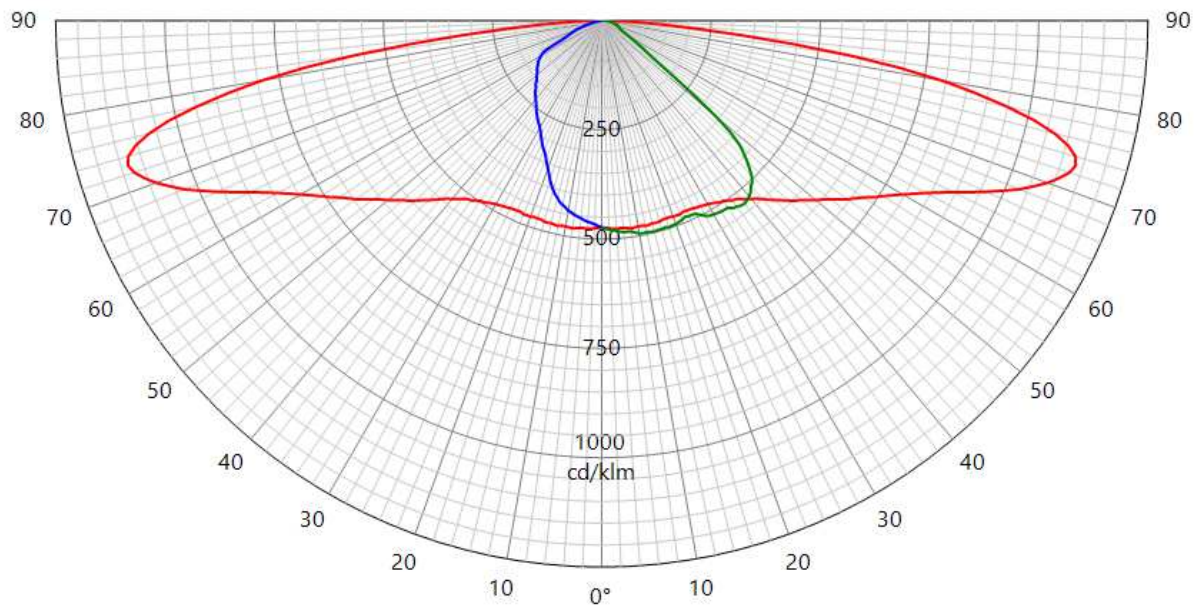


**42935**

### LUMINOUS INTENSITY DIAGRAM

Origin <b>R-Tech</b>		Production <b>Schröder TOV</b>		Luminaire <b>SKIDO</b>		Inclination <b>0°</b>	Request # <b>FD39062</b>
Source	Type <b>LED</b>	BIN <b>40-70M-4-TB-RB</b>	Trademark <b>Samsung</b>	Reference <b>LH351C</b>	# LEDs <b>6</b>	Reflector <b>5122</b>	
Reflector	<b>Schröder TOV-Ukraine Led assembly Road lighting Assembled 0,0°</b>					No	<b>5122</b>
Matrices	<b>429353</b> $\Phi$ 0-90° = 1904lm - 90-180° = 2lm					Absolute measurement	
Protector Refractor Lens	Protector <b>integrated lenses</b> Lens <b>6 x Schröder 5122 PC</b>						
Observation	in total flux @700mA.  Electrical measurement on LED (#1): Voltage = 18,20 V    Current = 0,701 A    Power = 12,76 W Electrical measurement on driver (#1): Voltage = 230,00 V    Current = 0,068 A    Power = 15,21 W    PF = 0,971  <b>Total luminaire power = 15,21 W : Lm/Watt = 125,35 lm/W</b>  Driver #1 : See observations for driver details - PCB 00-71-626 A						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	1134	73	S	473	24,9°	25-03-2019	
90	531	38	D				
270	473	0	G				

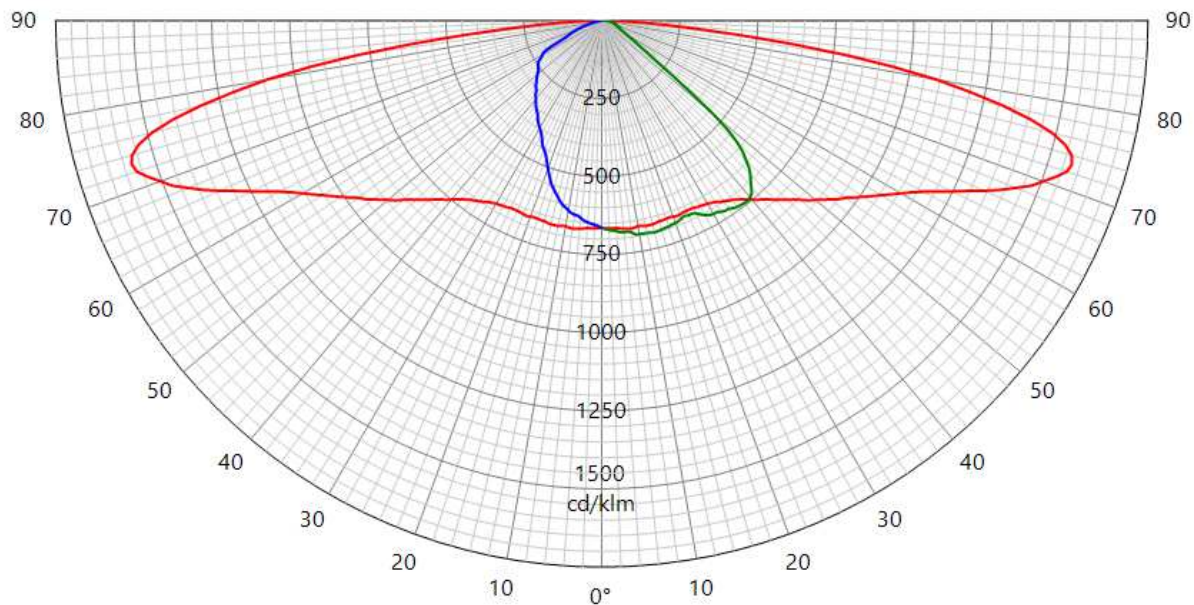


**42935**

### LUMINOUS INTENSITY DIAGRAM

Origin <b>R-Tech</b>	Production <b>Schröder TOV</b>	Luminaire <b>SKIDO</b>	Inclination <b>0°</b>	Request # <b>FD39062</b>		
Source	Type <b>LED</b>	BIN <b>40-70M-4-TB-RB</b>	Trademark <b>Samsung</b>	Reference <b>LH351C</b>	# LEDs <b>6</b>	Reflector <b>5122</b>
Reflector	<b>Schröder TOV-Ukraine Led assembly Road lighting Assembled 0,0°</b>			No	<b>5122</b>	
Matrices	<b>429354</b>			<b>Φ 0-90° = 2648lm - 90-180° = 3lm</b>		<b>Absolute measurement</b>
Protector Refractor Lens	Protector <b>integrated lenses</b> Lens <b>6 x Schröder 5122 PC</b>					
Observation	in total flux @1050mA.  Electrical measurement on LED (#1): Voltage = 18,97 V    Current = 1,061 A    Power = 20,22 W Electrical measurement on driver (#1): Voltage = 230,00 V    Current = 0,108 A    Power = 24,14 W    PF = 0,975 <b>Total luminaire power = 24,14 W : Lm/Watt = 109,81 lm/W</b>  Driver #1 : See observations for driver details - PCB 00-71-626 A					

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	1575	73	S	664	24,9°	25-03-2019	
90	743	39	D				
270	664	0	G				



**42935**

## CONFORMITY STATEMENT

### Measurement fulfil Standards:

NBN-EN 13032-1  
NBN-EN 13032-4  
NBN-EN 17025:2005  
CIE 121-1996  
LM79-08  
CIE S 025

### Measurement quantities measured:

Light distribution in relative or absolute photometry  
Led alone cold lumen package  
Led CCT and CRI  
Power consumption of the fitting  
Lm/watt

### Electrical measurement, if not specified:

Primary values are AC with 50Hz frequency  
Secondary values on SSL are DC

CCT, CRI and chromaticity coordinates: are measured in Ulbricht sphere.  
If specified Main test report refer to sphere extra test report.

Light distribution are measured on gonio. If not otherwise specified, measurement is done at 50 Hz

Number of hours operated prior to measurement: if not otherwise specified, 0 hours (no aging).

Stabilization time: If not otherwise specified, a minimal stabilization time of 0.5 hour is applied; and measurement will start when it exists no more variation above 0.5% in 15 minutes

Total operating time of the product including stabilization:  
45 minutes have to be added by measurement.  
Minimal operating time is 75 minutes

Luminous intensity distribution: available on electronic file with  
.mat format (internal Schröder format)  
.ldt format (European standard)  
.IES format (American standard)

Statement of uncertainties (K=2, 95% of confidence level):  
Uncertainties calculated based on a typical Schröder fitting and PCBA

Intensity measurement: +/- 3%  
Angle: +/- 0.5°  
Flux: +/- 2.5%  
Electrical DC  
Power: +/- 0.25%  
Voltage: +/- 0.15%  
Current: +/- 0.15%  
Electrical AC  
Power: +/- 0.15%  
Voltage: +/- 0.3%  
Current: +/- 0.3%  
Temperature: +/- 0.65%

ISP2000	JETI	
CCT:	+/- 5%	+/-7.5%
CRI:	+/- 2%	+/-2.75%
x/y:	+/- 2%	+/-4.6%

lm/Watt: +/-3.5%

Measuring instruments in use:

#### Gonio 1

Type C with Moving mirror

Manufacturer: LMT Lichtmesstechnik GmbH Berlin, Helmholtzstrasse 9 10587 Berlin, Germany

Type: GO-DS 2000

Calibration: traceable to PTB (Physikalisch-Technische Bundesanstalt D-Braunschweig) and METAS (Federal Institute of Metrology, CH-Bern)

Photometric test distance: By default 10 meter, on request 30 meter.

#### Gonio 2

Type C

Manufacturer: Technoteam Bildverarbeitung, Werner-von-Siemens-Strasse 5 98693 Ilmenau, Germany

Calibration: traceable to BIPM (Bureau International des Poids et Mesures F-Sèvres)

Photometric test distance: Near Field

#### Sphere n°1

4p geometry

Manufacturer: LMT Lichtmesstechnik GmbH, Helmholtzstrasse 9 10587 Berlin, Germany

Type: UL2000 + U1000 V-Lambda photometer

Calibration: traceable to BIPM (Bureau International des Poids et Mesures F-Sèvres)

#### Sphere n°2

4p geometry

Manufacturer: Instrument Systems GmbH, Neumarkter Str. 83, 81673 Muenchen, Germany

Type ISP2000 + Spectroradiometer CAS120 and CAS140

Calibration: traceable to NIST

#### Colorimetric portable spectroradiometer

Manufacturer: JETI Technische Instrumente GmbH, Tatzendpromenade 2 07745 Jena

Type: SPECBOS 1201

Calibration: traceable to NIST

#### Multimeters

Manufacturer: Agilent

Type: 34401A

Calibration: traceable to BIPM (Bureau International des Poids et Mesures F-Sèvres)

#### Wattmeters

Manufacturer: Yokogawa

Type: WT210 and WT310

Calibration: traceable to BIPM (Bureau International des Poids et Mesures F-Sèvres)

#### Thermometers

Amarell Precision

Type: Liquid in glass N63833

Calibration: traceable to LBT (Laboratoire Belge de Thermométrie)

# Lumen maintenance report

## LED information

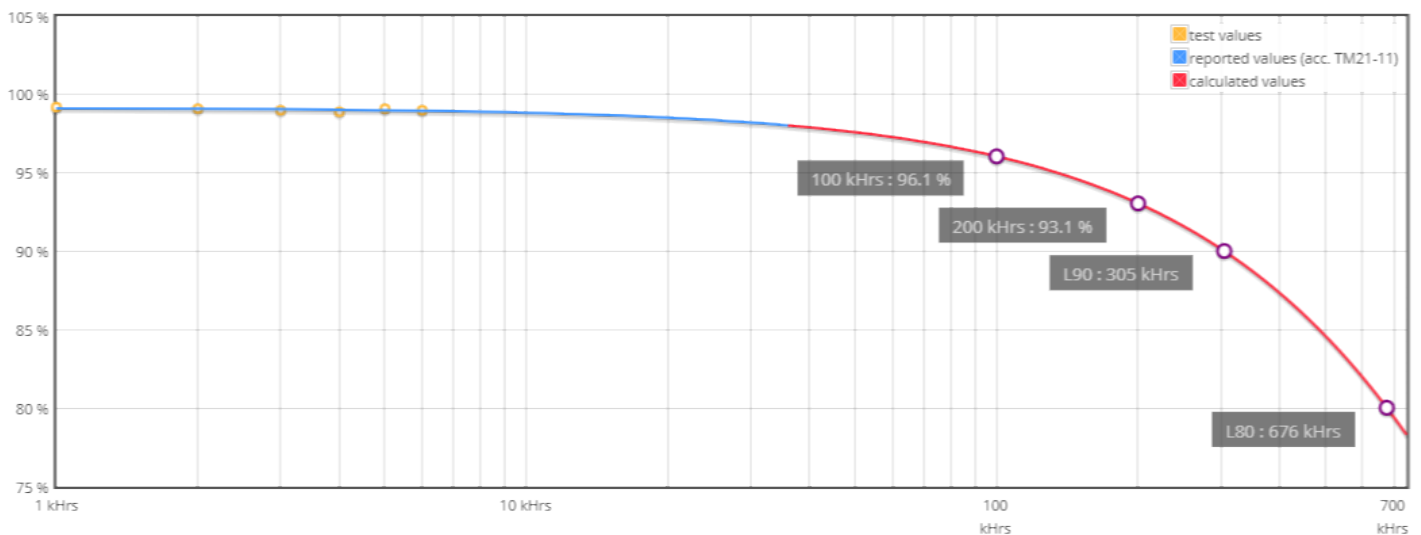
LED type	LH351C
LED current	700 mA
Ts	55°C
Description	SLED-18-015

## Projection data

Test duration	6000 hrs	$\alpha$	3.172E-007
Time used for projection	1000 to 6000hrs	$\beta$	0.992

L (%)	Time (kHrs)
80.0	677
90.0	305
93.1	200
96.1	100

## Projection graphic



LxB50 results according to LM-80 and TM-21-11 procedures and norms.

LxBy results derived from LxB50 according to IEC 62717 Annex C.



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 .....: TGM-VA EE 36464 SFT-1  
Date of issue .....: 2016-01-21  
Total number of pages..... 40

Name of Testing Laboratory preparing the Report.....: Staatliche Versuchsanstalt – TGM  
Elektrotechnik und Elektronik

Applicant’s name.....: Schröder SA  
Address .....: Rue de Lusambo 67, 1190 Brussels , Belgium

**Test specification:**

Standard.....: IEC 60598-2-3:2002 (Third Edition) + A1:2011 used in conjunction with IEC 60598-1:2014 (Eighth Edition)  
Test procedure .....: CB Scheme , ENEC  
Non-standard test method.....: N/A

Test Report Form No.....: IEC60598\_2\_3J  
Test Report Form(s) Originator.....: Intertek Semko AB  
Master TRF .....: 2014-09

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<b>Test item description</b> .....	Luminaire for road and street lighting	
<b>Trade Mark</b> .....		
<b>Manufacturer</b> .....	Tungsram-Schreder ZRT Topart 2, 2084 Pilisszentivan-Hungary	
<b>Model/Type reference</b> .....	SKIDO	
<b>Ratings</b> .....	100-240V, 50/60Hz, Cl.I, IP65, IK08, Ta 50°C	
<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>		
<input checked="" type="checkbox"/>	<b>CB Testing Laboratory:</b>	Staatliche Versuchsanstalt – TGM Elektrotechnik und Elektronik 
<b>Testing location/ address</b> .....		A-1200 Wien, Wexstrasse 19-23
<input type="checkbox"/>	<b>Associated CB Testing Laboratory:</b>	
<b>Testing location/ address</b> .....		
<b>Tested by (name, function, signature)</b> .....		Ing. Jahangir NOORI 
<b>Approved by (name, function, signature)</b> ..		Mag. Thomas THUN 
<input type="checkbox"/>	<b>Testing procedure: TMP/CTF Stage 1:</b>	
<b>Testing location/ address</b> .....		
<b>Tested by (name, function, signature)</b> .....		
<b>Approved by (name, function, signature)</b> ..		
<input type="checkbox"/>	<b>Testing procedure: WMT/CTF Stage 2:</b>	
<b>Testing location/ address</b> .....		
<b>Tested by (name + signature)</b> .....		
<b>Witnessed by (name, function, signature)</b> . :		
<b>Approved by (name, function, signature)</b> .. :		
<input type="checkbox"/>	<b>Testing procedure: SMT/CTF Stage 3 or 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> :		




<p><b>List of Attachments (including a total number of pages in each attachment):</b></p> <p>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES see pages 35-36 /40</p>	
<p><b>Summary of testing:</b></p> <p>Full test performed on type SKIDO representing also for the other types pictures see pages 37-40</p>	
<p><b>Tests performed (name of test and test clause):</b></p> <p>all clause</p>	<p><b>Testing location:</b></p> <p>Staatliche Versuchsanstalt – TGM Elektrotechnik und Elektronik A-1200 Wien, Wexstrasse 19-23</p>
<p><b>Summary of compliance with National Differences:</b></p> <p><b>List of countries addressed</b></p> <p>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES see pages 35-36 /40</p> <p><input checked="" type="checkbox"/> The product fulfils the requirements of EN 60598-1:2015 and EN 60598-2-3: 2003+A1:2011</p>	

**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.

**SKIDO**  
 SKID01-00-CW002D2-5122AS-PC03-V02D0094-CC3C-0000-L1-N0-0S  
 SKID|BL\_1050mA|CW|NAR5122|WOPro|WOPro|H32-42|No OC 10|No Dim|  
 No CLO|230V\_50Hz|CL\_EU|No PhC|No Se|No Dis|Eq Wa P|Fus|SPD|Wa TS|  
 No LSV|No To TC05\_H07RN\_F\_3G1.5  
**Ra: 7001T**  
**LED 23W Ta=50°C**  
 100-240V 50/60Hz IP65/IP65(OPT) IK08  
 013788/3  
 E16021/24  
 JAN 16

  
 MADE IN UCRATINI  
 EU contact: Schneider-ATECH  
 Rue de Monre 3 - 4000 Lange  
 Belgium




<b>Test item particulars</b> .....:	
<b>Classification of installation and use</b> .....: Cl.I	
<b>Supply Connection</b> .....: screw terminal .....:	
<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> ..... : 2015-09-14	
<b>Date (s) of performance of tests</b> ..... : cw-41-51/2015	
<b>General remarks:</b>  <b>Distance d = 200mm: RG2, • Distance d ≥ 1,27m: RG1, • Distance d = „500Lux“ ≈ 2m: RG0</b>	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.	
<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC60598-2:</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"/> Yes <input checked="" type="checkbox"/> Not applicable
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies)</b> ..... : Schreder TOV Vul.Mykulynetska 468, 46000 Ternopil UKRAINE	
<b>General product information:</b> Luminaires for road and street lighting for installation on a pipe or on a mast arm. Body aluminium, protector Polycarbonate. LED Module and LED Driver. Means of connection: screw terminal <b>Power ratings ±5%</b>  <b>The luminaire should be positioned so that prolonged staring into the luminaire at a distance closer than 1,27 m is not expected.</b>	

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

3.2 (0)	GENERAL TEST REQUIREMENTS		P
3.2 (0.1)	Information for luminaire design considered .....	Standard Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
3.2 (0.3)	More sections applicable.....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

3.4 (2)	CLASSIFICATION		P
3.4 (2.2)	Type of protection .....	Class I	—
3.4 (2.3)	Degree of protection.....	IP 65	—
3.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces .....	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
3.4 (2.5)	Luminaire for normal use .....	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service .....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
3.4 (-)	Modes of installation of road or street lighting		—
	a) on a pipe	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	b) on a mast arm	Yes <input checked="" type="checkbox"/> No <input checked="" 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 type="checkbox"/> No <input checked="" type="checkbox"/>	—

3.5 (3)	MARKING		P
3.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
3.5 (3.3)	Additional information		P
	Language of instructions		P
3.5 (3.3.1)	Combination luminaires		N/A
3.5 (3.3.2)	Nominal frequency in Hz		P
3.5 (3.3.3)	Operating temperature		P
3.5 (3.3.4)	Symbol or warning notice		P
3.5 (3.3.5)	Wiring diagram		P
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

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.5 (3.3.10)	Suitability for use indoors		N/A
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		N/A
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	X	P
3.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
3.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
3.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
3.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		P
	Cautionary symbol		P
3.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
3.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
3.5 (-)	Additional information in instruction leaflet		P
	a) Design attitude		P
	b) Weight		P
	c) Overall dimensions		P
	d) Maximum projected area if applicable		P
	e) Cross-sectional area of wires if applicable		P
	f) Suitability for indoors use		N/A
	g) Dimensions of the compartment		N/A
	h) Torque setting to be applied to bolts or screws		N/A
	i) Maximum mounting height		P
<b>3.6 (4)</b>	<b>CONSTRUCTION</b>		P
3.6 (4.2)	Components replaceable without difficulty		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.3)	Wireways smooth and free from sharp edges		P
<b>3.6 (4.4)</b>	<b>Lampholders</b>	LED-MODULE	N/A
3.6 (4.4.1)	Integral lampholder		N/A
3.6 (4.4.2)	Wiring connection		P
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>		N/A
	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
	Unsecured blocks		N/A
<b>3.6 (4.7)</b>	<b>Terminals and supply connections</b>		P
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		P
3.6 (4.7.3)	Terminals for supply conductors		N/A
3.6 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A

<b>IEC 60598-2-3</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.8.2		N/A
	- electrical test according to 15.9		N/A
	- heat test according to 15.9.2.3 and 15.9.2.4		N/A
3.6 (4.7.4)	Terminals other than supply connection		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>		N/A
	- 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>		N/A
3.6 (4.9.1)	Retainment		N/A
	Method of fixing .....		—
3.6 (4.9.2)	Insulated linings and sleeves:		N/A
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C) .....		N/A
<b>3.6 (4.10)</b>	<b>Double or reinforced insulation</b>		N/A
3.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
3.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
3.6 (4.10.3)	Retainment of insulation:		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		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		P
3.6 (4.11.2)	Screws:		P
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
3.6 (4.11.3)	Screw locking:		P
	- spring washer		P
	- rivets		N/A
3.6 (4.11.4)	Material of current-carrying parts		P
3.6 (4.11.5)	No contact to wood or mounting surface		N/A
3.6 (4.11.6)	Electro-mechanical contact systems		N/A
<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
	Torque test: torque (Nm); part.....	1,8 Nm housing	P
	Torque test: torque (Nm); part.....	0,5 Nm terminal	P
	Torque test: torque (Nm); part.....	1,2 Nm earth terminal	P
	Torque test: torque (Nm); part.....	0,5 Nm LED-Driver	P
	Torque test: torque (Nm); part.....	1,2 Nm LED-Module	P
	Torque test: torque (Nm); part.....	1,2 Nm housing	P
3.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
3.6 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm) .....		N/A
	- lampholder; torque (Nm) .....		N/A
	- push-button switches; torque 0,8 Nm .....		N/A
3.6 (4.12.5)	Screwed glands; force (Nm).....		N/A
<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 Nm	P
	- other parts; energy (Nm).....	0,7 Nm	P



IEC 60598-2-3			
Clause	Requirement + Test		Verdict
	1) live parts		P
	2) linings		P
	3) protection		P
	4) covers		P
3.6 (4.13.3)	Straight test finger		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	1,378kg + 4x1,378=6,890kg	P
	B) torque 2,5 Nm		P
	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 .....		—
	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

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
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 $\geq 30$ 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
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		P
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
3.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 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		P
3.6 (4.18.2)	- season cracking in copper		P
3.6 (4.18.3)	- corrosion of aluminium		P
3.6 (4.19)	Igniters compatible with ballast		N/A
3.6 (4.20)	Rough service vibration		N/A
<b>3.6 (4.21)</b>	<b>Protective shield</b>		<b>N/A</b>

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
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)	See Test Report MA 39-VFA 2016-0209.01/B2	P
3.6 (4.24.2)	Retinal blue light hazard	RG0 with minimum distance "500Lux" 2,0m	P
	Luminaires with $E_{thr}$ :		P
	a) Fixed luminaires		P
	- distance x m, borderline between RG1 and RG2 .....	For RG2 distance 0,2m For RG1 minimum distance 1,27m	P
	- marking and instruction according 3.2.23		N/A
	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

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
<b>3.6 (4.28)</b>	<b>Fixing of thermal sensing control</b>		N/A
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material (°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>P</b>
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		P
	Minimum two fixing means		P
<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
3.6 (4.31.1)	SELV circuits		P
	Used SELV source		P
	Voltage ≤ ELV		P
	Insulating of SELV circuits from LV supply		N/A
	Insulating of SELV circuits from other non SELV circuits		P
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	SELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage $\leq$ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.3)	Other circuits		P
	Other circuits insulated from accessible parts according Table X.1		P
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together		P
	- test according 7.2.3 of above		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>		N/A
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6.1 (-)	At least IP X3 or X5 respectively. IP .....	IP65	P
	Column-integrated luminaires:		P
	- parts below 2,5 m. IP .....		N/A
	- parts above 2,5 m. IP .....	IP65	P
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		N/A
3.6.3.1 (-)	Static load test		P
	- drag coefficient.....	1,225kg/m <sup>3</sup>	P
	- loaded area (m <sup>2</sup> ).....	0,0398m <sup>2</sup>	P
	- used load (N).....	59,237N	P
	- measured deformation (cm/m) .....	0,9cm/m	P
	- no rotation		P
3.6.4 (-)	Adjustable lampholders		N/A
3.6.5 (-)	Luminaires installed above 5 m, glass covers shall be:		N/A
	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		N/A
	c) protected by any means to retain glass fragments		N/A
	For tunnel luminaires 3.6.5.1 apply		N/A
	Method of protection declared by the manufacturer		N/A
3.6.5.1 (-)	Protection by the use of glass that fractures into small pieces		N/A
	- number of particles is more than 40.....		N/A
3.6.5.2 (-)	Protection by the use of high impact resistant glass		P
3.6.5.2.1 (-)	Glass covers have high mechanical strength	protector Polycarbonate	P
	Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample	IK08	P
3.6.5.2.2 (-)	Glass covers not break into large pieces		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

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Clause	Requirement + Test	Result - Remark	Verdict
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
	- cable path free from obstruction that might cause abrasion of the cable		N/A

3.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
3.7 (11.2)	Creepage distances and clearances.....:	See Table 3.7 (11.2)	P
	Working voltage (V).....:	100-240V	—
	Rated pulse voltage (kV).....:	2,5 KV	—
	Voltage form.....:	Sinusoidal <input checked="" type="checkbox"/> Non-sinusoidal <input type="checkbox"/>	—
	PTI.....:	< 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>	—

3.8 (7)	PROVISION FOR EARTHING		P
3.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω.....:	< 0,3 Ω	P
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a groove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		P

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Clause	Requirement + Test	Result - Remark	Verdict
3.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		P
3.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
3.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
3.8 (7.2.6)	Earth terminal adjacent to mains terminals		P
3.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
3.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
3.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
3.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		N/A
3.8.1 (-)	Attachment prevented from rotation		N/A

<b>3.9 (14)</b>	<b>SCREW TERMINALS</b>		P
	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>		N/A
	Separately approved; component list..... :	(see Annex 1)	N/A
	Part of the luminaire .....	(see Annex 4)	N/A

<b>3.10 (5)</b>	<b>EXTERNAL AND INTERNAL WIRING</b>		P
<b>3.10 (5.2)</b>	<b>Supply connection and external wiring</b>		<b>P</b>
3.10 (5.2.1)	Means of connection .....	screw terminal	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..... :		N/A
	Nominal cross-sectional area (mm <sup>2</sup> ) .....		N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
3.10 (5.2.3)	Type of attachment, X, Y or Z		N/A
3.10 (5.2.5)	Type Z not connected to screws		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
3.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
3.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
3.10 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
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:		P
	a) at least one part fixed		P
	b) types of cable		P
	c) no damaging of the cable		P
	d) whole cable can be mounted		P
	e) no touching of clamping screws		P
	f) metal screw not directly on cable		P
	g) replacement without special tool		P
	Glands not used as anchorage		P
	Labyrinth type anchorages		N/A
3.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
3.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) ..... : 80N		P
	- torque test: torque (Nm)..... : 0,35 Nm		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- displacement $\leq$ 2 mm		P
	- no movement of conductors		P
	- 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		P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A) .....		N/A
	- temperatures .....	(see Annex 2)	P
	Green-yellow for earth only		P
3.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm <sup>2</sup> ).....	0,75mm <sup>2</sup> and 1,5mm <sup>2</sup>	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Insulation thickness		P
	Extra insulation added where necessary		N/A
3.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Adequate cross-sectional area and insulation thickness		P
3.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A
3.10 (5.3.1.4)	Conductors without insulation		N/A
3.10 (5.3.1.5)	SELV current-carrying parts		P
3.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
3.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		N/A
3.10 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
3.10 (5.3.4)	Joints and junctions effectively insulated		N/A
3.10 (5.3.5)	Strain on internal wiring		N/A
3.10 (5.3.6)	Wire carriers		N/A
3.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
3.10.1 (-)	Cord anchorage if applicable		P
	- pull test: 25 times; pull (N) .....	80 N	P
	- torque test: torque (Nm) .....	0,35 Nm	P
<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		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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	LED-Module	P
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		N/A
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
3.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
3.11 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
3.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
3.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- touch current .....		N/A
	- no-load voltage.....		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage .....		N/A
3.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		N/A
3.11 (8.2.5)	Compliance with the standard test finger or relevant probe		N/A
3.11 (8.2.6)	Covers reliably secured		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.11 (8.2.7)	Discharging of capacitors $\geq 0,5 \mu\text{F}$		N/A
	Portable plug connected luminaire with capacitor		N/A
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		N/A
<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		—
3.12 (12.3)	Endurance test:		<b>P</b>
	- mounting-position..... :	Acc. to mounting instruction	—
	- test temperature (°C) ..... :	50°C	—
	- total duration (h) ..... :	240h	—
	- supply voltage: Un factor; calculated voltage (V)... :	1,1 Un 264V	—
	- lamp used..... :	00-16-725 (Nichia 219C CW )	—
3.12 (12.3.2)	After endurance test:		<b>P</b>
	- no part unserviceable		<b>P</b>
	- luminaire not unsafe		<b>P</b>
	- no damage to track system		N/A
	- marking legible		<b>P</b>
	- no cracks, deformation etc.		<b>P</b>
3.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	<b>P</b>
3.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	N/A
3.12 (12.6)	Thermal test (failed lamp control gear condition):		N/A
3.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :		—
	- case of abnormal conditions ..... :		—
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un ..... :		—
	- measured mounting surface temperature (°C) at 1,1 Un..... :		N/A
	- calculated mounting surface temperature (°C) ..... :		N/A
	- track-mounted luminaires		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.12 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions .....		—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C) .....		N/A
	- track-mounted luminaires		N/A
3.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
3.12 (12.7.1)	Luminaire without temperature sensing control		N/A
3.12 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W .....		—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions .....		—
	- Ballast failure at supply voltage (V) .....		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- case of abnormal conditions .....		—
	- 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 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 .....	See Table 3.15 (13.2.1)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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: .....	See Table 3.15 (13.2.1)	N/A
3.12.1 (-)	Temperature reduction if for outdoor use only		N/A
3.12.2 (-)	(See above)		—
3.12.3 (-)	Glass covers used within the thermal limits declared by the glass manufacturer		N/A

<b>3.13 (9)</b>	<b>RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE</b>		P
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:		—
	- classification according to IP.....	IP65	—
	- mounting position during test.....	Acc. to mounting instruction	—
	- fixing screws tightened; torque (Nm) .....	-	—
	- tests according to clauses.....	9.2.2 and 9.2.6	—
	- 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
	d) i) For luminaires without drain holes – no water entry		P
	d) ii) For luminaires with drain holes – no hazardous water entry		N/A
	e) no water in watertight luminaire		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	f) no contact with live parts (IP 2X)		N/A
	f) no entry into enclosure (IP 3X and IP 4X)		N/A
	f) no contact with live parts (IP3X and IP4X)		N/A
	g) no trace of water on part of lamp requiring protection from splashing water		N/A
	h) no damage of protective shield or glass envelope		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		N/A
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface.....		N/A
	- between current-carrying parts and metal parts of the luminaire.....		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N/A
	- Insulation bushings as described in Section 5 .....		N/A
	Other than SELV		P
	- between live parts of different polarity .....	>2,6 MΩ	P
	- between live parts and mounting surface .....	>2,6 MΩ	P
	- between live parts and metal parts .....	>2,6 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.....	>2,6 MΩ	P
	- Insulation bushings as described in Section 5 .....	>2,6 MΩ	P
3.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	Luminaires with manual ignitors		N/A
	Test voltage (V) .....		N/A
	SELV		N/A
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface .....		N/A
	- between current-carrying parts and metal parts of the luminaire .....		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....		N/A
	- Insulation bushings as described in Section 5 .....		P
	Other than SELV		P
	- between live parts of different polarity .....	1480V	P
	- between live parts and mounting surface .....	1480V	P
	- between live parts and metal parts .....	1480V	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 .....	1480V	P
	- Insulation bushings as described in Section 5 .....	1480V	P
3.14 (10.3)	Touch current or protective conductor current (mA) :	0,212mA	P

<b>3.15 (13)</b>	<b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>		P
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)	P
3.15 (13.4)	Proof tracking test (IEC 60112) .....	See Test Table 3.15 (13.4)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.7 (11.2)	TABLES: Creepage distances and clearances						P
<b>Table 11.1</b>	<b>Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages</b>						
RMS working voltage (V) not exceeding	50	150	250	500	750	1000	
<b>Creepage distances</b>							
Required basic insulation, PTI $\geq$ 600	0,6	0,8	1,5	3	4	5,5	
Measured			>3,25				
Required basic insulation, PTI < 600	1,2	1,6	2,5	5	8	10	
Measured							
Required supplementary insulation PTI $\geq$ 600	-	0,8	1,5	3	4	5,5	
Measured							
Required supplementary insulation PTI < 600	-	1,6	2,5	5	8	10	
Measured							
Required reinforced insulation	-	3,2	5	6	8	11	
Measured							
<b>Clearances</b>							
Required basic insulation	0,2	0,8	1,5	3	4	5,5	
Measured			>1,95				
Required supplementary insulation	-	0,8	1,5	3	4	5,5	
Measured							
Required reinforced insulation	-	1,6	3	6	8	11	
Measured							
<b>Table 11.2</b>	<b>Minimum distances (mm) for non-sinusoidal pulse voltages</b>						<b>N/A</b>
Rated pulse voltage (peak kV)	2,0	2,5	3,0	4,0	5,0	6,0	8,0
Required clearances	1,0	1,5	2	3	4	5,5	8
Measured							
Rated pulse voltage (peak kV)	10	12	15	20	25	30	40
Required clearances	11	14	18	25	33	40	60
Measured							
Rated pulse voltage (peak kV)	50	60	80	100	-	-	-
Required clearances	75	90	130	170	-	-	-
Measured							

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Clause	Requirement + Test	Result - Remark	Verdict

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

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

3.15 (13.3.2)	<b>TABLE: Glow-wire test (IEC 60695-2-11)</b>				P
<b>Glow wire temperature .....</b>		650°C			—
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
protector polycarbonate	schreder	4 s	No	0	P
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No)..... :					yes
Supplementary information:					

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

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1	TABLE: Critical components information					P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
Internal wiring	A	Helukabel	H05VV-F	3x1,5 mm <sup>2</sup>	EN 50525	VDE
Varistor	A	Littelfuse	V275LA40AP (P275L40)	275V AC, 369V DC tc 85°C	IEC 60950	VDE (116895)
Fuse-	A	Littelfuse	.800	T 800mA , 250V	IEC/EN 60127	VDE
Terminal	A	Adels-Contact	500..	450V 0,75-2,5mm <sup>2</sup> T100°C	IEC/EN 60998	VDE
LED converter	B	Mean Well Enterprises Co. Ltd	PLD-25-1050	90-295 VAC 127-417V DC 25,2W tc:70°C Vout:35V	IEC/ EN 61347-2-13	ENEC 17
LED converter	B	Mean Well Enterprises Co. Ltd	PLD-16-700	90-295 VAC 127-417V DC 16,8W tc:70°C Vout:35V	IEC/ EN 61347-2-13	ENEC 17
Fuse-holder for miniature cartridge fuse	B	Adels-Contact	503 SI	400V 1,0-2,5mm <sup>2</sup> T100°C	IEC/EN 60127	VDE
LED-Module	C	Zollner Elektronik AG	Nichia 219C CW 00-16-725	Max 1050mA 19,2V	IEC/EN 62031	TGM VA EE 36464 SFT-2
LED	C	Nichia	NVSW219 CT	1050mA RG 2 at 500lux RG0	IEC/EN 62471 IEC /TR 62778	See Test Report MA 39-VFA 2016-0209.01/B2

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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12			P			
	Type reference .....	SKIDO		—			
	Lamp used.....	00-16-725 (Nichia 219C CW )		—			
	Lamp control gear used.....	PLD-25-1050		—			
	Mounting position of luminaire .....	mast arm mounting		—			
	Supply wattage (W).....	22,3W		—			
	Supply current (A) .....	0,105A		—			
	Calculated power factor.....	0,92		—			
	Table: measured temperatures corrected for ta = 50 °C:			P			
	- abnormal operating mode .....	--		—			
	- test 1: rated voltage.....	240 V		—			
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage .....	1,06Un (254,4V)		—			
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage .....	--		—			
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage .....	--		—			
	Through wiring or looping-in wiring loaded by a current of A during the test .....	--		—			
Temperature measurements, (°C)							
Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
LED Driver tc	50°C	65°C	N/A	N/A	70°C	N/A	N/A
Internal wiring	50°C	N/A	61°C	N/A	90°C	N/A	N/A
Internal wiring by LED-Module	50°C	N/A	62°C	N/A	90°C	N/A	N/A
external wiring	50°C	N/A	59°C	N/A	75°C	N/A	N/A
screw terminal	50°C	N/A	59°C	N/A	90°C	N/A	N/A
connector by LED Module	50°C	N/A	61°C	N/A	80°C	N/A	N/A
Supplementary information:							

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

ANNEX 3	Screw terminals (part of the luminaire)		N/A
<b>(14)</b>	<b>SCREW TERMINALS</b>		N/A
(14.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm <sup>2</sup> )..... :		—
(14.3.3)	Conductor space (mm)..... :		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread)..... :	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm)..... :		N/A
	Torque (Nm)..... :		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N)..... :		N/A
(14.4.8)	Without undue damage		N/A

ANNEX 4	Screwless terminals (part of the luminaire)		N/A
<b>(15)</b>	<b>SCREWLESS TERMINALS</b>		N/A
(15.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5.1)	Terminals internal wiring		N/A
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples) .....		N/A
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples) .....		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples)..... :		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples)..... :		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... :		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) .....		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) .....		N/A
(15.6)	Terminals external wiring		N/A
	Terminal size and rating		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....		N/A
	Pull test pin or tab terminals (4 samples); pull (N) .....		N/A

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

(15.6.3.1)	TABLE: Contact resistance test										N/A
	Voltage drop (mV) after 1 h										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											N/A
	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)											N/A
	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)											N/A
	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)											N/A
	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)											N/A
											N/A
Supplementary information:											

+



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

<b>ATTACHMENT TO TEST REPORT 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 + A1:2011 used in conjunction with EN 60598-1:2015			
<b>Annex Form No.</b> ..... : EU_GD_IEC60598_2_3J			
<b>Annex Form Originator</b> ..... : OVE			
<b>Master Annex Form</b> ..... : 2015-02			
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<b>CENELEC COMMON MODIFICATIONS (EN)</b>		
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<b>3.5 (3)</b>	<b>MARKING</b>		<b>P</b>
3.5 (3.3.101)	For luminaires not supplied with terminal block: Adequate warning on the package		P

<b>3.6 (4)</b>	<b>CONSTRUCTION</b>		<b>P</b>
<b>3.6 (4.11.6)</b>	Electro-mechanical contact systems		N/A

<b>3.10 (5)</b>	<b>EXTERNAL AND INTERNAL WIRING</b>		<b>P</b>
<b>3.10 (5.2.1)</b>	Connecting leads		P
	- without a means for connection to the supply		N/A
	- terminal block specified		N/A
	- relevant information provided		N/A
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1		N/A
<b>3.10 (5.2.2)</b>	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

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

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
(3.3)	DK: power supply cords of class I luminaires with label		N/A
(4.5.1)	DK: socket-outlets		N/A
(5.2.1)	CY, DK, FI, GB: type of plug		N/A

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A
	FR: Safety requirements for high buildings  (Arrêté du 30 décembre 2011 portant règlement de sécurité pour la construction des immeubles de grande hauteur et leur protection contre les risques d'incendie et de panique; Section VIII; Article GH 48, Eclairage)  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

### Type List

Type	Input current at 230V 50Hz [A]	Luminaire max. power [W]	LED Current [mA]
SKIDO SKID 6L_700mA CW .... ....	0,07	15	700
SKIDO SKID 6L_1050mA CW .... ....	0,10	23	1050

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



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



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



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



TRF No. IEC60598\_2\_3J



# LICENCE

**No. 21158 - Issue No 2**

Issued to:  
Applicant:  
**R-Tech**  
**Rue de Mons, 3**  
**4000 LIEGE**  
**Belgium**

Licensee:  
**Schreder S.A.**  
**Rue de Lusambo, 67**  
**1190 BRUXELLES**  
**Belgium**



Product : road, square and street lighting  
Trade name(s) : SCHREDER  
Type(s)/model(s) : SKIDO

The product and any acceptable variation thereto is specified in the annex to this licence and the documents therein referred to.

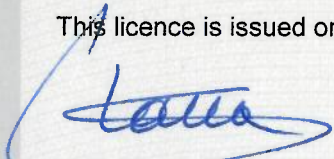
SGS CEBEC hereby declares that the above-mentioned product has been certified on the basis of:

- a type test according to the standard specified in annex
- an inspection of the production location
- a certification agreement with the number 1173

SGS CEBEC hereby grants the right to use the CEBEC certification mark

The ENEC/CEBEC certification mark may be applied to the product as specified in this licence for the duration of the ENEC/CEBEC certification agreement and under the conditions of the ENEC/CEBEC certification agreement.

This licence is issued on: 23/04/2019

  
ir. C. Lana,  
Certification Manager

© Only integral publication of this certificate, including the annex, is allowed  
This certificate is only valid combined with the publication on the following web address: [www.sgs.com/ee](http://www.sgs.com/ee)



## SPECIFICATION OF THE CERTIFIED PRODUCT

### Product data

Product	:	road, square and street lighting
Trade name(s)	:	SCHREDER
Type(s)/Model(s)	:	SKIDO
description	:	Street lighting luminaire
rated voltage (Un)	:	220-240 V
nature of supply	:	AC
rated frequency	:	50-60 Hz
rated power	:	max 24 W
temperature limit (t max)	:	Ta 40°C (indoor), Ta 50°C (outdoor)
class	:	class I
degree of protection	:	IP65
mechanical load	:	IK08
rated current (In)	:	max. 1000 mA
lamp(s)	:	LED Nichia 219C, LG G4TOP, SAMSUNG LH351C

## TESTS

### Test requirements

EN 60598-1:2015 + A1:2018  
EN 60598-2-3:2003 + A1:2011

### Test results

The test results are laid down in certification file 630020/02.

### Remarks

This certificate is based on test reports Nos. TGM-VA EE 36464 SFT-1 and P1533-I.

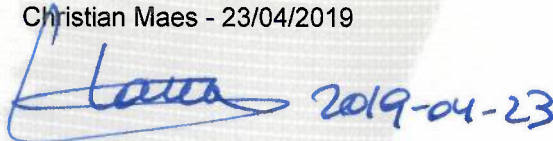


**Conclusion**

The examination proved that all certification requirements were met.

Reviewed by, project leader : Christian Maes - 23/04/2019

Certification Manager :

A handwritten signature in blue ink, followed by the date '2019-04-23'.

## FACTORY LOCATION(S)

Schreder TOV  
Vul. Mykulynetska 46B  
46000 TERNOPIIL  
Ukraine

Schreder (China) Lighting Industrial Co., Ltd  
No.40 Xinye 2 Street, Tianjin Economic Technological Development Zone West Zone,  
300462 Tianjin City, P.R.China  
China

Socelec S.A.  
Av. de Roanne, 66  
Poligono Industrial "EL HENARES"  
19180 MARCHAMALO (GUADALAJARA)  
Spain

Schröder Iluminação S.A.  
Rua da Fraternidade Operária, n° 3  
2795-491 CARNAXIDE, OEIRAS  
Portugal

Comatelec S.A.  
Z.I.  
18400 SAINT FLORENT S/CHER  
France

Schröder Hungary Plc.  
Tópart 2  
2084 PILISSZENTIVAN  
Hungary

# Laboratory Service PHYSICAL TEST REPORT



**R-Tech**  
Rue de Mons 3 – B-4000 Liège – Belgium  
Tel.: +32 4 224 71 40 – Fax: +32 4 224 25 90  
Member of Schröder Group

**Subject:** SKIDO 6 led's

Sample n°: P-E15365

**Test purpose:** Electrical measurements @ 1.05A and 700mA

**Remarks:**

Test request n°: P-D15545

Folder n°: P-F14083

## **TEST CONDITIONS:**

**Operator:** CLOSSET Frédéric

**Driver:** 1.05A: Mean Well PLD-25-1050  
700mA: Mean Well PLD-16-700

**Load:** 6 Led's CW 5700K  
Typical Vf: @ 1.05 A: 3,00 V  
@ 700 mA: 2,91 V

**Power Supply:**

Elgar Tw 3500-4

Supply voltage: 230 V 50 Hz

**Measurement device:**

Fluke Norma 4000 (HF Powermeter, User 10, filter OFF)

## **CONCLUSIONS:**

@ 1.05A:

- Efficiency: 81 %
- PF: 0.96
- THD: 12.7%

@ 700 mA

- Efficiency: 83%
- PF: 0.97
- THD: 13.2%

Duplicate to: Mr M. Thijs

LAB 20/07/2015

L. Maghe

A handwritten signature in blue ink, appearing to read "Maghe", with a stylized flourish at the end.

**//P-15CR545**

# Laboratory Service PHYSICAL TEST REPORT



**R-Tech**  
Rue de Mons 3 – B-4000 Liège – Belgium  
Tel.: +32 4 224 71 40 – Fax: +32 4 224 25 90  
Member of Schröder Group

**Subject: I.S. SKIDO (hand mounted by HUS)**

Sample n°: P-E13088

From: HUS

**Test purpose: Mechanical impact resistance test following IEC/EN 62262 Standard**

**Remarks:**

Test request n°: P-D13182

Folder n°: P-F13034

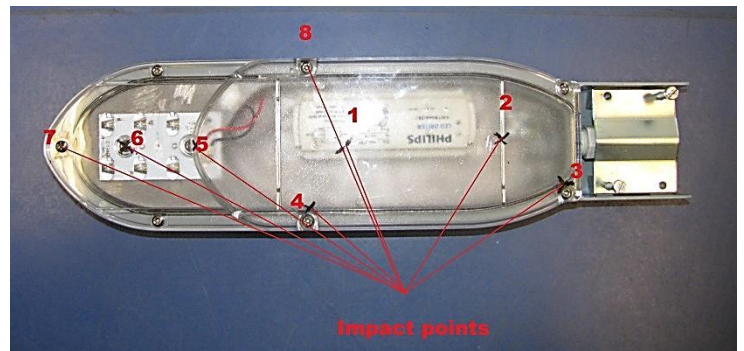
## TEST CONDITIONS:

Operator: BOMBIL Patrick

I.S. Skido with PC protector  
Info material not received

### At pendulum hammer

5+3 impact points distributed on protector surface  
One impact on each point



## Test

**IK05** : Impact energy: 0,7 joules  
Hammer weight: 0,2 kg  
Height of fall: 35 cm

**IK06** : Impact energy: 1 joule  
Hammer weight: 0,5 kg  
Height of fall: 22 cm

**IK07** : Impact energy: 2 joule  
Hammer weight: 0,5 kg  
Height of fall: 40 cm

**IK08** : Impact energy: 5 joules  
Hammer weight: 1,7 kg  
Height of fall: 29,4 cm

## Result

OK, nothing to indicate

OK, nothing to indicate

OK, nothing to indicate

OK for the protector, but a deformation of the alu sheet clamp allows the release of the fitting. See pictures here after.

## CONCLUSIONS:

SKIDO satisfies the IK07 test in accordance with IEC/EN 62262 Standard.

Duplicate to: MM C. Horvath, C. Marville, Y. Borlez

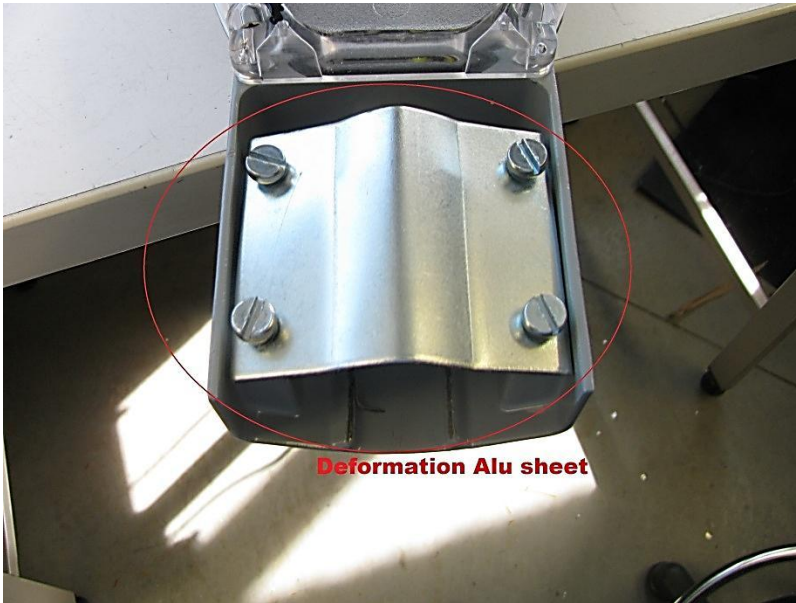
LAB 19/04/2013

J.P. Harchies

P-13E182



**I.S. SKIDO (hand made by HUS)**



# Laboratory Service PHYSICAL TEST REPORT



**R-Tech**  
Rue de Mons 3 – B-4000 Liège – Belgium  
Tel.: +32 4 224 71 40 – Fax: +32 4 224 25 90  
Member of Schröder Group

**Subject: Serial 0 SKIDO 6 led's Nichia @ 700 mA**

Sample n°: P-E13112

**From:** INK

**Test purpose: Tightness test IP65 following IEC/EN 60598-1 Standard**

**Remarks:**

Test request n°: P-D13207

Folder n°: P-F13045

**TEST CONDITIONS:**

**Operator:** BOMBIL Patrick

Test	Result
<b>IP6X</b> : -Luminaire switched ON until stable T° -Talcum n suspension (blowing ON) -After 1', luminaire OFF -Talcum for 3 hours	OK
<b>IPX5</b> : - Luminaire switched ON until stable T° - Luminaire switched OFF and immediately sprayed with water jet - Hose $\Phi$ 6,3 mm - Water pressure: 300 gr/cm <sup>2</sup> - Spraying distance: 3 m - Test duration: 15 minutes	OK

**Remark:** Silicone gasket remains strongly marked even after a long time the protector removed.

**CONCLUSIONS:**

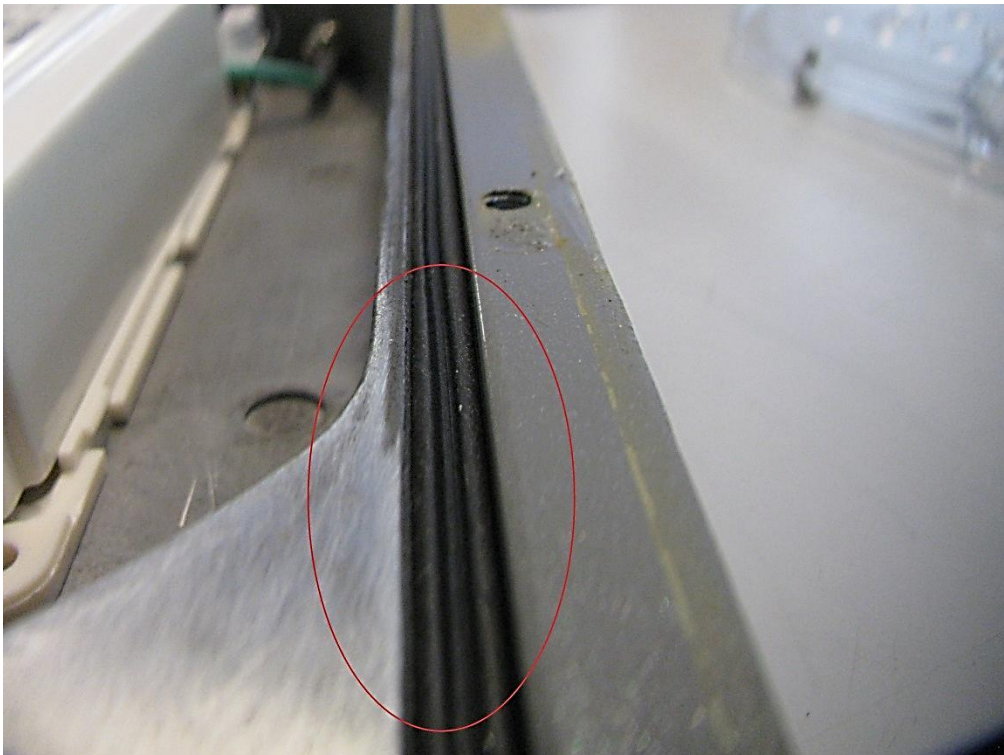
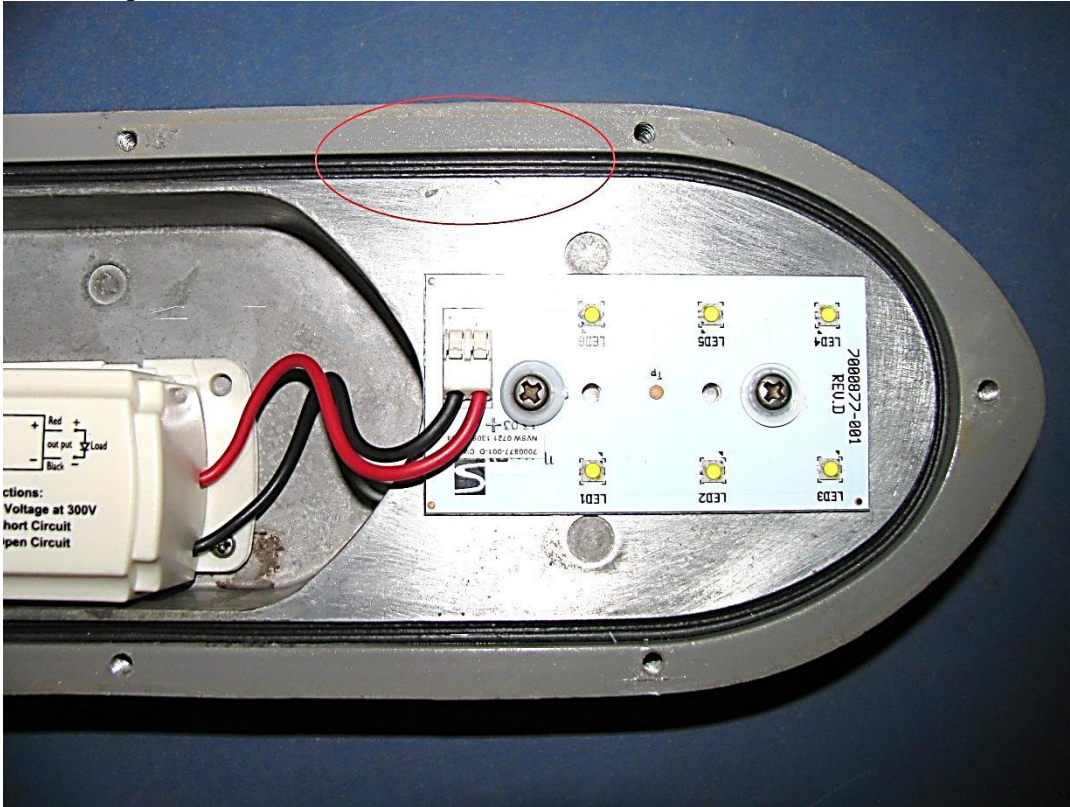
SKIDO 6 led's @ 700 mA satisfies the IP65 test following IEC/EN 60598-1 Standard

Duplicate to: MM C. Faujdar, P. Shah, S. Pujari, C. Horvath, C. Marville, Y. Borlez  
LAB 14/05/2013  
J.P. Harchies

**P-13E207**

**Serial 0 SKIDO 6 led's Nichia @ 700 mA**

Gasket aspect after endurance test



# Laboratory Service PHYSICAL TEST REPORT



**R-Tech**  
Rue de Mons 3 – B-4000 Liège – Belgium  
Tel.: +32 4 224 71 40 – Fax: +32 4 224 25 90  
Member of Schröder Group

**Subject:** SKIDO 6 led's

Sample n°: P-E15365

**Test purpose:** Thermal test evaluation @ 1.05A and 700mA following IEC/EN 60598-1 Std

**Remarks:**

Test request n°: P-D15544

Folder n°: P-F14083

**TEST CONDITIONS:**

**Operator:** CLOSSET Frédéric

**Load:** 6 led's

**Driver:** Test 1A: Mean Well PLD-25-1050

Test 700mA: Mean Well PLD-16-700

Tc 70 °C

**Measurement device:**

Yokogawa TX10: thermal measurement

Yokogawa WT 210: primary EM

Fluke 87: secondary and led's EM

**Junction Temperature measurement method**

Junction temperature measurement by base temperature measurement and electrical measurement.

$$T^{\circ}_j = T^{\circ}_b + R_{jb} \times P_{led}$$

**CONCLUSIONS:**

**@ 1,05A:** Ta (IEC): 35 °C  
Tq (IEC): 25 °C

**@ 700 mA:** Ta (CEI): 50 °C  
Tq (CEI): 40 °C

Tq given for driver full load

T° given without wind effect to comply with IEC 62722-2-1

Duplicate to: Mr M. Thijs

LAB 01/07/2015

L. Maghe

//P-15CR544

A handwritten signature in blue ink, appearing to read "Maghe".









# SKIDO

## 5122

<b>Optic</b>	5122
<b>Protector</b>	Integrated lenses
<b>Source</b>	6 Samsung LH351C
<b>Matrix</b>	429352



### Characteristics

							
395	101	54	1.2	IP 65	IK 08	I EU	0.033
Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Tightness level*	Impact resistance*	Electrical class*	CxS (m <sup>2</sup> )

\* According to IEC-EN60598 and IEC-EN62262

### Features

The efficient LED alternative to low-power fluorescent lighting

- Compact and versatile
- Maximised savings in energy and maintenance costs
- Integrated lenses for performing photometry
- ThermiX® for long lasting performance
- Wide operating temperatures from -20° up to 50°C
- Wide operating voltage range: 198-264V
- Easy to install
- Surge protection 10kV (optional)

### Types of application

- Square and park
- Residential road
- Urban road

### Information for 1000 lm matrix

<b>Efficacy (%)</b>	89.1	<b>G Class (EN 13201-2)</b>	Unclassified	<b>I 70-80-90-95 (cd)</b>	509 - 384 - 7 - 4
<b>DLOR (%)</b>	89.0	<b>G* (EN 13201 2015)</b>	Unclassified	<b>CIE flux code N 1→5 (%)</b>	35.8 - 69.0 - 92.2 - 99.9 - 89.1
<b>ULOR (%)</b>	0.1	<b>Imax (cd)</b>	528	<b>Gradient 90°</b>	32cd
<b>ULR (%)</b>	0.1	<b>Aperture 0-180°</b>	51 - 51	<b>Gradient 270°</b>	9cd
<b>Incl ULR 4%</b>	-40/32°	<b>Aperture 90-270°</b>	X - X		

## Photometrical characteristics

LED count	Colour code	Current (mA)	Luminaire power (W)	Source flux (lm)	Luminaire output flux (lm)	Luminaire efficacy (lm/W)	Peak (cd)	BUG Rating	Voltage (V)
Ambient temp = 25°									
6	NW 740	700	15	2100	1871	125	110	B1 U1 G1	230
6	NW 740	1050	23	2921	2603	113	1543	B1 U1 G1	230

*Tolerance on flux +- 7% - Tolerance on power +- 5%*

## Summary

### CONCEPT

Luminaire specifically designed for LEDs

Recommended installation height: between 3.00 and 6.00m

For optimal heat dissipation, the driver and LED engine are in separate compartments and juxtaposed in a horizontal section

### HOUSING & FINISH

- Housing in high-pressure, die-cast aluminium, polyester powder coated
- Protector in UV resistant polycarbonate
- Colour: RAL grey 7037

### INSTALLATION

- Lateral fixation with stainless steel clamp diameter 32-42mm, tightened with 4 stainless steel screws M8
- Supplied with out-going cable (0.3m length 3G1<sup>2</sup> or 3G1.5<sup>2</sup>) for easy installation

### OPTICAL UNIT

- Flatbed PCB with acrylic lens overlay principle
- CRI > 70
- ULOR: 0%

### LED lumen depreciation

- Lifetime residual flux @ Tq=25°C @ 50.000 hrs: 700mA: 90%

### ELECTRICAL

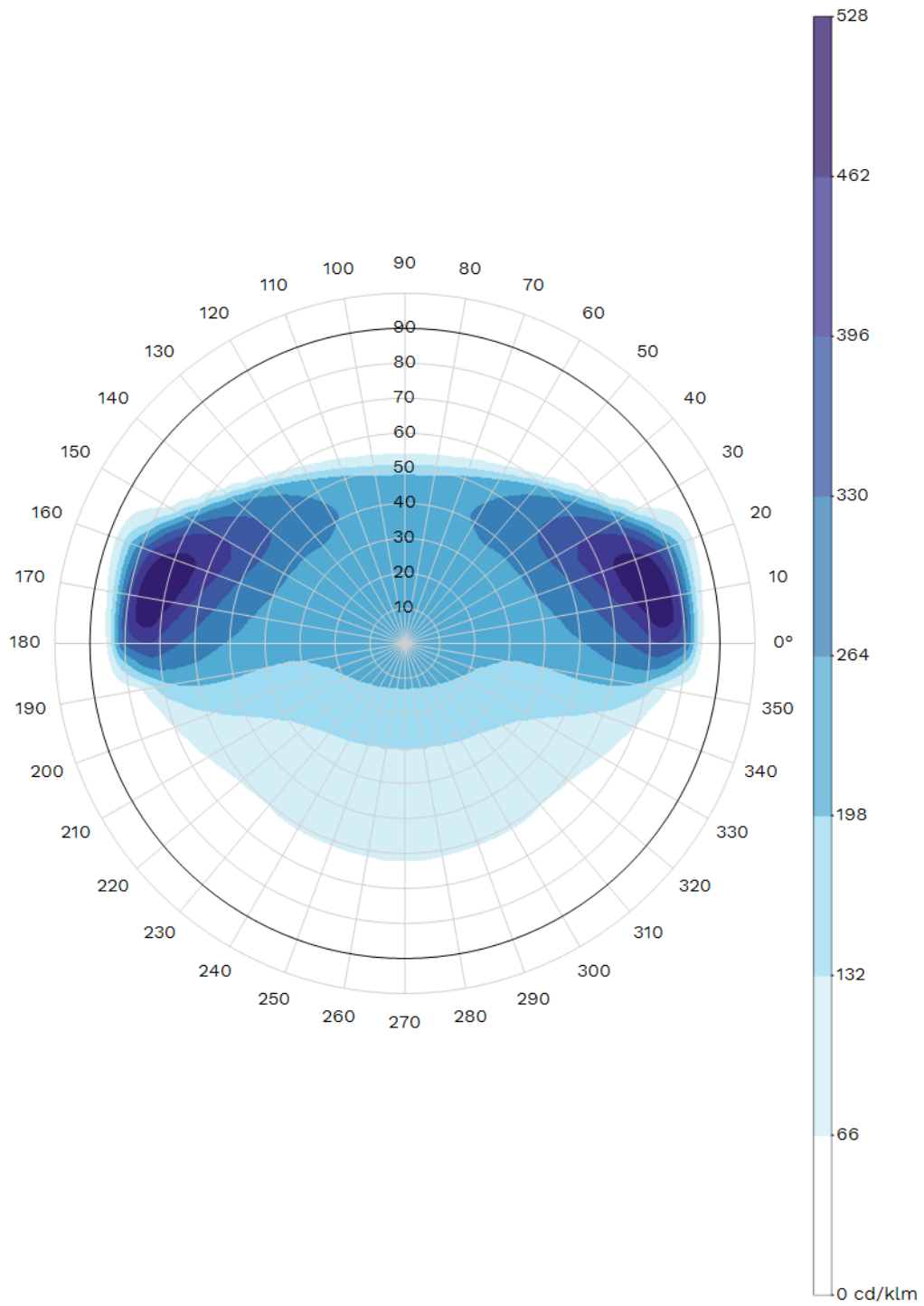
- Class I
- Input voltage: 230V - 50Hz
- Power factor > 90% at full load
- Surge protection: 4kV minimum, optional 10kV & 15kV

### STANDARDS & CERTIFICATIONS

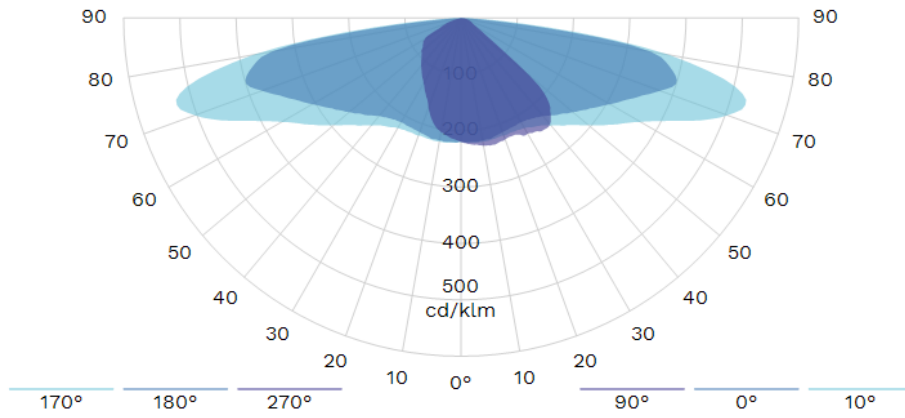
- CE
- ENEC
- LM79-80
- ROHS
- All measurements in ISO17025 accredited laboratory

### OPTIONS

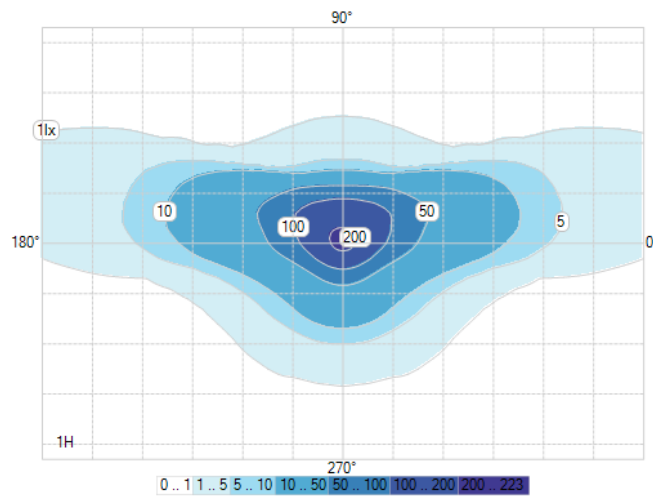
- Other RAL or AKZO colours



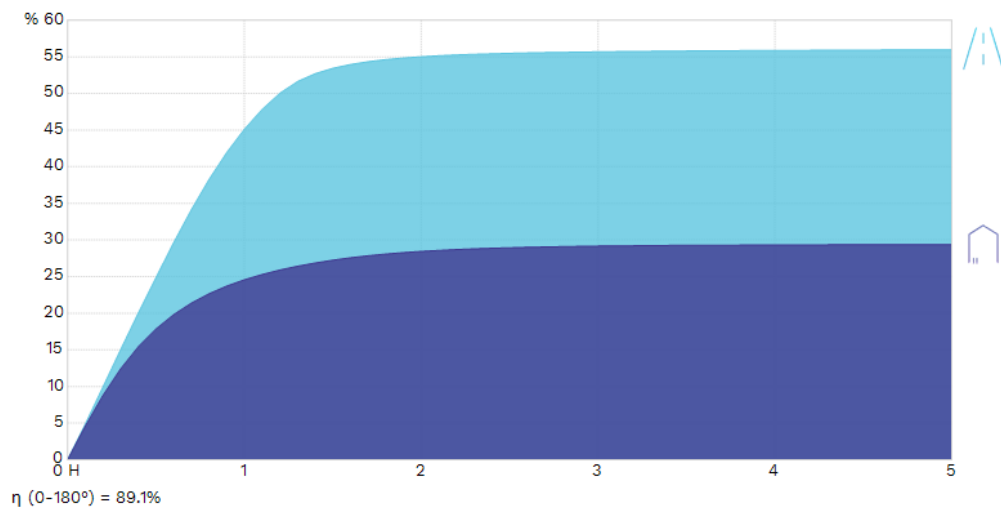
Polar/Cartesian diagram



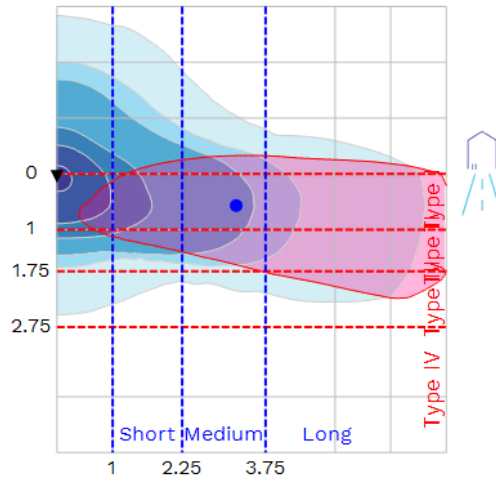
Isolux



K-Curve

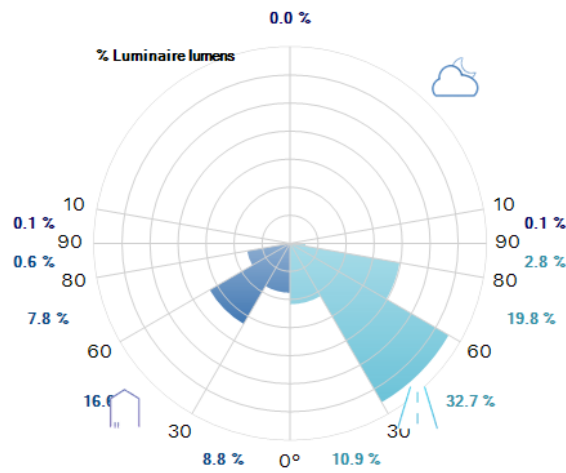


IES Roadway Classification / Nema Classification

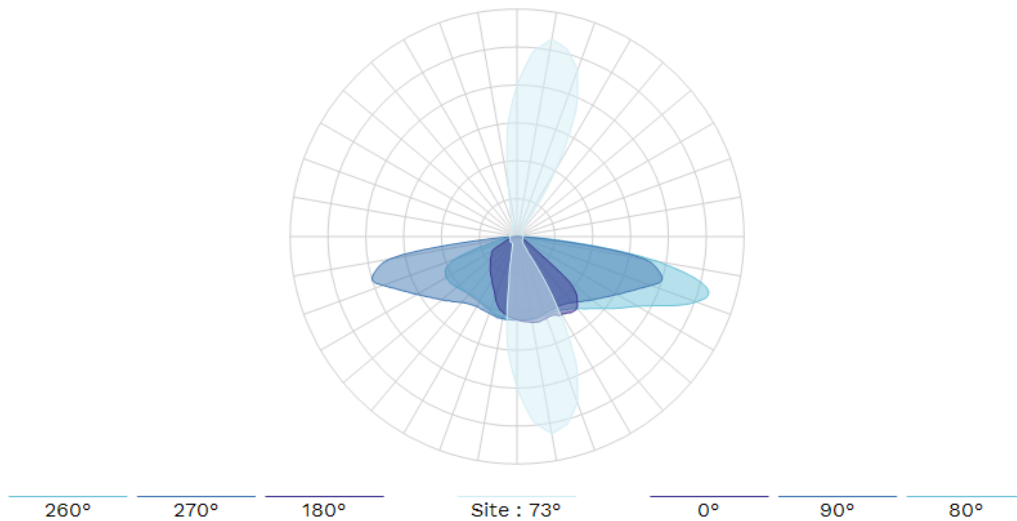


III - Medium

Luminaire classification system (LCS)





Intensity diagram in max Cone and in CPlane



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**TEST REPORT SUMMARY**

<b>Report Reference No.</b> .....	TGM-VA EE 36464 ECS
Date of issue .....	2016-01-21
Tested by (name + signature) .....	Ing. J. Noori 
Witnessed by (name + signature) .....	
Approved by (name + signature) .....	Mag. Thomas THUN 
Supervised by (name + signature) .....	
<b>Testing Laboratory</b> .....	Staatliche Versuchsanstalt – TGM / Elektrotechnik und Elektronik
Address .....	A-1200 Wien, Wexstrasse 19-23
Testing procedure .....	<input checked="" type="checkbox"/> ENEC/CCA-TL <input type="checkbox"/> IEC/IEC-CBTL <input type="checkbox"/> TMP <input type="checkbox"/> WMT <input type="checkbox"/> SMT
<b>Testing location</b> .....	As above
Address .....	
<b>Applicant</b> .....	Schröder SA
Address .....	1190 Brussels , Belgium , Rue de Lusambo 67
<b>Manufacturer</b> .....	Tungsram-Schröder Világítási Berendezések Zrt Tópart 2
Address .....	2084 Pilisszentivan HUNGARY
<b>Product</b> .....	Luminaire for road and street lighting
Model/Type reference .....	SKIDO
Trademark .....	Schröder SA
Ratings .....	100-240V, 50/60Hz, Cl.I, IP65, IK08, Ta 50°C
Certification Scheme .....	<input checked="" type="checkbox"/> ENEC <input type="checkbox"/> CCA <input type="checkbox"/> Other: _____
<b>Standard(s)</b> .....	<b>EN 60598-2-3: 2003+A1:2011 used in conjunction with EN 60598-1:2015</b>
<input type="checkbox"/> The text of the a.m. European Standard was approved by CENELEC under the Unique Acceptance Procedure and is identical with the corresponding IEC Publication. <input checked="" type="checkbox"/> The text of the a.m. European Standard was approved by CENELEC with agreed common modifications and is <u>not</u> identical with the corresponding IEC Publication.	
This EN test report consists of the following parts:	
<input checked="" type="checkbox"/> <b>IEC TRF No. IEC60598_2_3J...</b> :	Report Reference No.....: TGM-VA EE 36464 SFT-1
<input checked="" type="checkbox"/> <b>CENELEC-Addendum Form No. EU_GD_ IEC60598_2_3J.....</b> :	Report Reference No. or Annex No...: See Test Report TGM-VA EE 36464 SFT-1
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