

# VOLTANA

ILUMINAT CU LEDURI,  
POTRIVIT ORICUI



EFICIENTIZAREA COSTURILOR

PERFORMANȚĂ RIDICATĂ

BENEFICII REMARCABILE

NU NECESITĂ ÎNTREȚINERE

**Schröder**



# VOLTANA



## CEA MAI NOUĂ, RENTABILĂ ȘI PERFORMANTĂ GAMĂ DE APARATE DE ILUMINAT, CARE ÎȘI ACOPERĂ INVESTIȚIA ÎN TIMP

POSSIBILITATEA DE A RECUPERA INVESTIȚIA RAPID, PENTRU ILUMINAREA ORICĂRUI TIP DE PEISAJ URBAN SAU RURAL, A STAT LA BAZA DEZVOLTĂRII GAMEI VOLTANA. DEVIZA NOASTRĂ ESTE: „ILUMINATUL CU LED ESTE PENTRU ORICINE”.

### **CALITATE FĂRĂ COMPROMISURI**

Bazate pe modulul LED LensoFlex®2, aparatele de iluminat Voltana furnizează soluții de iluminat durabile, care scad semnificativ consumul de energie și îmbunătățesc nivelul de iluminat.

### **INVESTIȚII MINIME**

Disponibil în 5 dimensiuni, cu flux luminos cuprins între 900 de lumeni și 23.900 lumeni, având numeroase distribuții luminoase de înaltă eficiență și diverse opțiuni pentru control, gama Voltana întâmpină toate nevoile de iluminat urban și rutier, cu investiții minime.

### **RECUPERARE RAPIDĂ, ECONOMII DE DURATĂ**

Cu o durată de viață de 100.000 de ore, Voltana permite evitarea a 4, până la 6 schimbări ale lămpilor, comparativ cu sursele de iluminat convenționale. În perioada în care, pentru aparatele cu lămpi, ar fi necesară înlocuirea aparatului de iluminat, Voltana câștigă deja bătălia pentru scăderea costurilor totale, față de soluțiile HID. În primul rând, Voltana recuperează investiția, apoi continuă să ofere beneficii substanțiale, pentru o lungă perioadă de timp.



VOLTANA 0

VOLTANA 1

VOLTANA 2

VOLTANA 3

VOLTANA 4

VOLTANA 5

**ZONE PIETONALE**

Străzi, alei și piste  
\de biciclete



20/50W

**STRADAL**

Străzi rezidențiale

Spații comune, zone  
comerciale din mediul  
urban



70W



100W

**CĂI DE CIRCULAȚIE**

Căi de circulație  
din mediul rural

Căi de circulație  
din mediul urban



150W



250W

substituit HID



VOLTANA 0



VOLTANA 1



VOLTANA 2



VOLTANA 3



VOLTANA 4



VOLTANA 5

ALTE MEDII ÎN CARE VOLTANA OFERĂ BENEFICII-CHEIE PENTRU CLIENT



FACILITĂȚI DE TRANSPORT



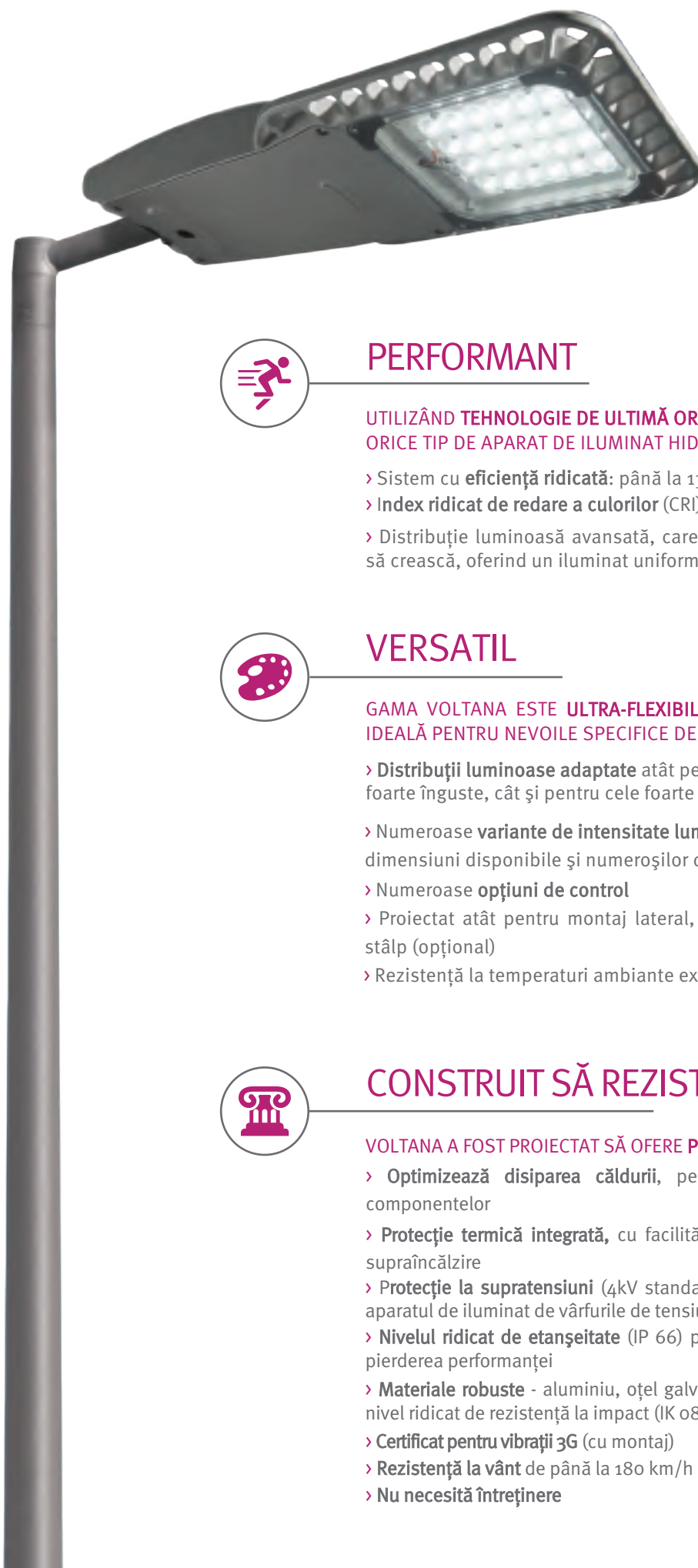
ZONE INDUSTRIALE



ZONE COMERCIALE



FACILITĂȚI SPORTIVE



## PERFORMANT

UTILIZÂND **TEHNOLOGIE DE ULTIMĂ ORĂ**, VOLTANA SURCLASEAZĂ ORICE TIP DE APARAT DE ILUMINAT HID:

- > Sistem cu **eficiență ridicată**: până la 130 lm/ W
- > **Index ridicat de redare a culorilor (CRI) > 70**
- > Distribuție luminoasă avansată, care permite ca spațiul dintre stâlpi să crească, oferind un iluminat uniform



## VERSATIL

GAMA VOLTANA ESTE **ULTRA-FLEXIBILĂ**, ASTFEL CĂ OFERĂ SOLUȚIA IDEALĂ PENTRU NEVOILE SPECIFICE DE ILUMINAT:

- > **Distribuții luminoase adaptate** atât pentru zonele și căile de circulație foarte înguste, cât și pentru cele foarte largi
- > Numeroase **variante de intensitate luminoasă**, mulțumită celor 6 dimensiuni disponibile și numeroșilor curenți conductori
- > Numeroase **opțiuni de control**
- > Proiectat atât pentru montaj lateral, cât și pentru fixarea în vârf de stâlp (opțional)
- > Rezistență la temperaturi ambiante extreme, de până la 55°C



## CONSTRUIT SĂ REZISTE

VOLTANA A FOST PROIECTAT SĂ OFERE **PERFORMANȚĂ PE TERMEN LUNG**

- > **Optimizează disiparea căldurii**, pentru a crește durata de viață a componentelor
- > **Protecție termică integrată**, cu facilități de reducere a fluxului, în caz de supraîncălzire
- > **Protecție la supratensiuni** (4kV standard, 10 kV opțional) pentru a proteja aparatul de iluminat de vârfurile de tensiune
- > **Nivelul ridicat de etanșeitate** (IP 66) previne distrugerea componentelor & pierderea performanței
- > **Materiale robuste** - aluminiu, oțel galvanizat și sticlă securizată, pentru un nivel ridicat de rezistență la impact (IK 08)
- > **Certificat pentru vibrații 3G** (cu montaj)
- > **Rezistență la vânt** de până la 180 km/h
- > **Nu necesită întreținere**



## CONFORM

GAMA VOLTANA A FOST **CERTIFICATĂ** DE CELE MAI PRETENȚIOASE ORGANISME EUROPENE ȘI AMERICANE:

- > ENEC
- > ETL / UL
- > date despre iluminatul cu LEDuri



## DEZVOLTARE DURABILĂ

DE LA ÎNCEPUT, APARATUL VOLTANA A FOST DEZVOLTAT PENTRU A **PROTEJA MEDIUL**

- > **Materiale reciclabile** (aluminiu, oțel și sticlă)
- > **Profil destinat protejării mediului** (PEP) pentru scăderea ampretei ecologice
- > **Emisii de CO<sub>2</sub> reduse** (economie și întreținere)
- > Fără poluare luminoasă (**ULOR 0%**), mulțumită distribuției luminoase precise



## SOCIAL

VOLTANA ADUCE NUMEROASE **BENEFICII COLECTIVE**

- > Vizibilitate îmbunătățită, cu lumină albă, care oferă **contrast ridicat**
- > **Siguranță ridicată**, pentru pietoni și pentru conducătorii auto
- > Opțional, iluminat la cerere, pentru a oferi lumină atunci când și acolo unde este cu adevărat necesară
- > **Mai puține interferențe în trafic**, datorită faptului că nu este necesară întreținerea și datorită posibilității de monitorizare
- > Contribuie la **administrarea eficientă a finanțelor** și la consumul responsabil de energie



## PRECIS

CU 6 DIMENSIUNI DISPONIBILE, VOLTANA RĂSPUNDE EXACT **NEVOILOR SPECIFICE**

- > **Investiție optimizată**, cu minimum de resurse
- > **Adaptare precisă** la nevoile reale
- > **Design uniform** pentru întregul proiect
- > **Ușor de utilizat** pentru instalator (opțional, poate fi furnizat pre-cablat)



## INTELIGENT

CU NUMEROASE **OPȚIUNI DE CONTROL**, VOLTANA OFERĂ OPORTUNITĂȚI PENTRU CREAREA DE SCENARII DE ILUMINAT NELIMITATE ȘI PENTRU **ÎMBUNĂTĂȚIREA MANAGEMENTULUI OPERAȚIONAL**

- > Disponibil cu profil **DALI 1-10 V** sau **profil de reducere personalizat**
- > **Flux Luminos Constant (CLO)**, pentru compensarea automată a deprecierei fluxului
- > Poate funcționa într-o **rețea independentă** limitată sau în **rețeaua unui oraș**, prin comunicație fără fir. Scenariile pot fi îmbunătățite prin **senzori externi**.\*
- > Disponibil cu **fotocelulă** sau **priză NEMA P7**, pentru a opera în noua platformă Owlet IoT

\* indisponibil pentru Voltana 0

# CARACTERISTICI - CHEIE

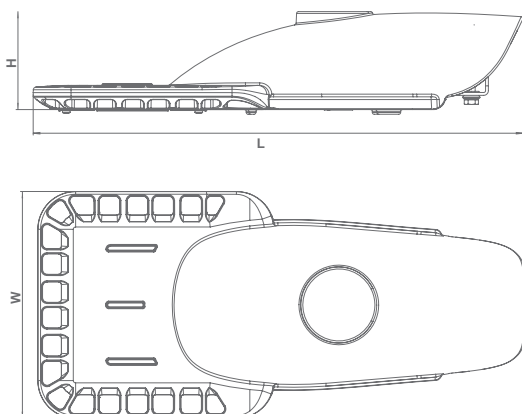
	Voltana 0	Voltana 1	Voltana 2	Voltana 3	Voltana 4	Voltana 5
Flux luminos standard (gamă) <sup>(*)</sup>	700 - 2,500lm	800 - 3,000lm	1,800 - 6,100lm	2,700 - 9,200lm	3,700 - 12,700lm	7,500 - 25,200lm
Consum de energie (W) <sup>(*)</sup>	8 - 30W	10 - 31W	20 - 56W	28 - 82W	36 - 110W	70 - 215W
Flux rezidual pe durata de viață @ t <sub>q</sub> 25°C	Curent până la 700mA: up to 95%   Curent de la 701mA până la 1A: până la 90%					@100,000h
Temperatură de culoare	alb cald sau neutru					
Etanș. compartiment optic	IP 66 <sup>(**)</sup>					
Etanș. placă echip. control	IP 66 <sup>(**)</sup>					
Rezistență la impact (sticlă)	IK 08 <sup>(***)</sup>					
Putere nominală	120 - 277V - 50 - 60Hz					
Clasă electrică	EU I sau II <sup>(**)</sup>					
Înălțimea de instalare	4 - 12m					
Materiale	Aluminiu turnat sub presiune					
Difuzor	Sticlă (polycarbonat pentru unele variante ale Voltana 0)					
Culoare	RAL 7038 Orice altă culoare din paletarul RAL, la cerere					

<sup>(\*)</sup> Fluxul inițial și consumul de curent al aparatului sunt valori orientative, pentru temperatură ambientală de 25°C. Fluxul real depinde de condițiile de mediu (de exemplu, temperatură) și poate varia, în anumite configurații. Valorile comunicate sunt supuse modificărilor, conform evoluției tehnologice. Pentru a verifica dacă acest document cuprinde ultimele informații disponibile, vă rugăm să vizitați [www.schreder.com](http://www.schreder.com)

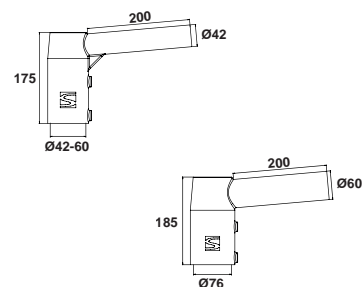
<sup>(\*\*)</sup> conform standardului IEC - EN 60598 (doar Voltana 0 este disponibil cu Clasa I) - <sup>(\*\*\*)</sup> conform standardului IEC - EN 62262

## DIMENSIUNI | GREUTATE

	Voltana 0	Voltana 1	Voltana 2	Voltana 3	Voltana 4	Voltana 5
L	416mm	501mm	518mm	641mm	555mm	705mm
W	156mm	181mm	240mm	240mm	380mm	480mm
H	91mm	87mm	108mm	111mm	112mm	109mm
 KG	2.6kg	4kg	5kg	6kg	8kg	12kg

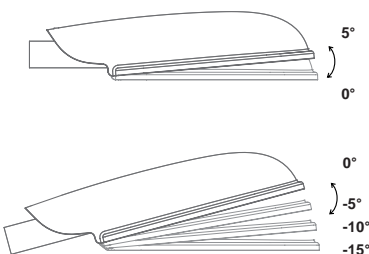


## ADAPTOR VÂRF DE STÂLP

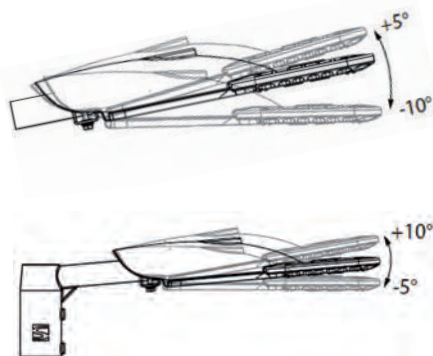


## REGLAJE UNGHI ÎNCLINARE

### VOLTANA 0

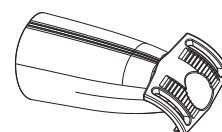


### VOLTANA 1 - 5



## MONTAJ UNIVERSAL

(OPȚIONAL PENTRU VOLTANA 0-1-2-3-4)



Ø 32 - 48mm

Ø 42 - 60mm

Ø 76mm

# ÎNLOCUIȚI-VĂ ACTUALUL SISTEM DE ILUMINAT ȘI FACEȚI ECONOMII IMEDIAT, CU VOLTANA!

Prin simpla înlocuire a aparatelor de iluminat cu lămpi pe bază de sodiu cu aparatele Voltana, economiile de energie devin impresionante. În varianta plug-and-play, opțiunile de control - care nu sunt disponibile sau sunt foarte limitate în cazul aparatelor HPS - nu sunt incluse. În funcție de diferite scenarii, aceste opțiuni pot crește semnificativ economiile de energie, oferind, în același timp, siguranță și confort pentru toți utilizatorii și îmbunătățind managementul operațional al întregului sistem.

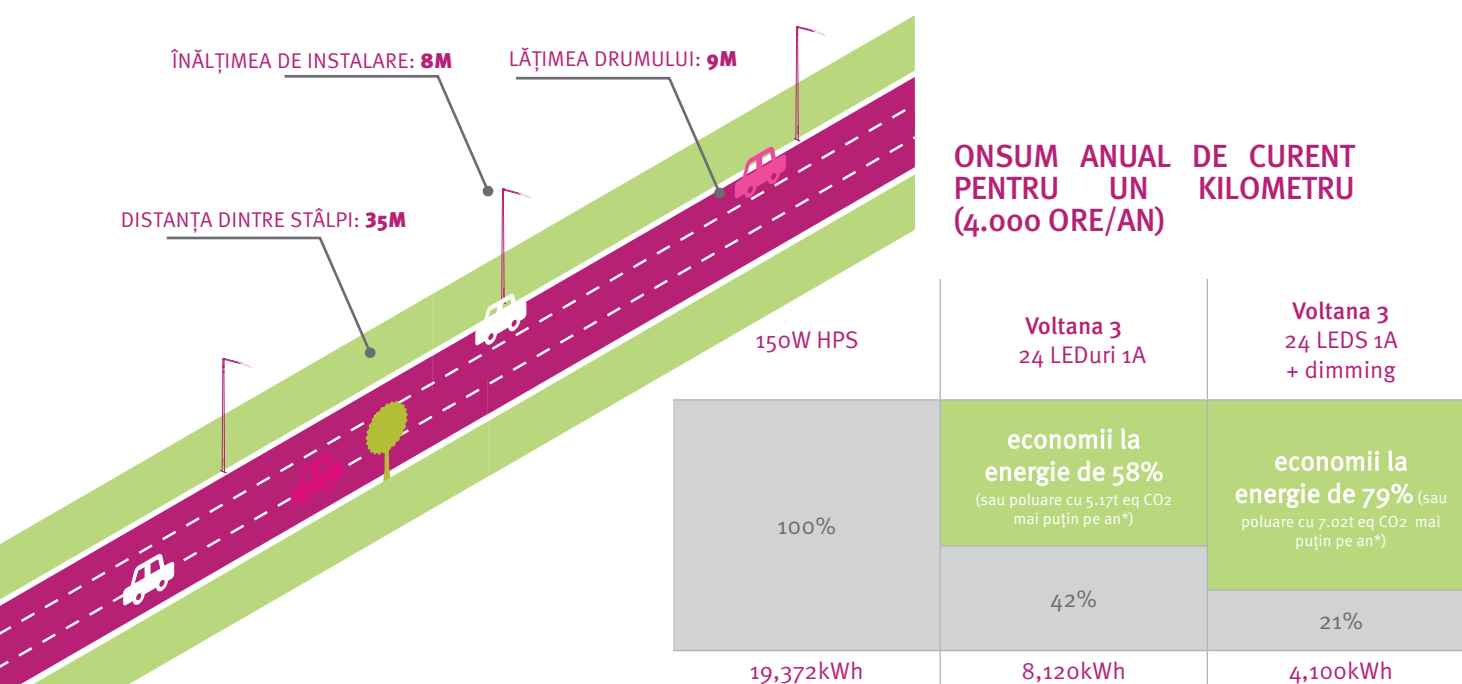
zone pietonale P5-P2		zone pietonale P1		căi de circulație clasificate M6-M5		căi de circulație clasificate M4		căi de circulație clasificate M3		căi de circulație clasificate M2	
aparat HPS 70W	Voltana 1	aparat HPS 100W	Voltana 2	aparat HPS 100W	Voltana 2	aparat HPS 150W	Voltana 3	aparat HPS 150W	Voltana 4	aparat HPS 250W	Voltana 5
	economii de <b>67%</b>		economii de <b>56%</b>		economii de <b>56%</b>		economii de <b>58%</b>		economii de <b>45%</b>		economii de <b>35%</b>
78W <sup>(*)</sup>		110W <sup>(*)</sup>		110W <sup>(*)</sup>		167W <sup>(*)</sup>		167W <sup>(*)</sup>		280W <sup>(*)</sup>	
	26W <sup>(*)</sup>		48W <sup>(*)</sup>		48W <sup>(*)</sup>		70W <sup>(*)</sup>		92W <sup>(*)</sup>		180W <sup>(*)</sup>

(\*) Consum de energie total al sistemului

## STUDIU DE CAZ

# FLEXIBILITATEA DE CARE AVEȚI NEVOIE, PENTRU SCĂDEREA CHELTUIELILOR DE 5 ORI

Cu o investiție minimă (24 de LEDuri, versiunea 1A), Voltana 3 oferă o soluție extrem de competitivă - comparativ cu aparatele de iluminat de 150W, cu lămpi pe bază de sodiu- pentru a ilumina o cale de circulație clasificată M3 (conform standardului CIE 115), cu o recuperare a investiției în mai puțin de 4 ani și economii de energie de până la 79%.



\* conform cu echivalentul european de 0.46kg eq Co<sub>2</sub>/kWh



SIGURANȚĂ



STARE DE BINE



DEZVOLTARE DURABILĂ



ECONOMII



SOLUȚII



Drepturi de autor © Schréder S.A., 2017 - Editor Executiv: Stéphane Halleux - RTech, S.A. - Rue de Mons 3 - B-4000, Liège (Belgia) - informațiile, descrierile și ilustrațiile prezente au caracter pur orientativ. Mulțumită dezvoltării continue, am putea fi nevoiți să modificăm caracteristicile produselor noastre, fără notificare. Cum acestea pot prezenta caracteristici diferite, în funcție de cerințele fiecărei țări, vă invităm să ne consultați.





## DECLARAȚIE DE CONFORMITATE



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, în calitate de furnizori de aparate de iluminat marca SCHRÉDER

Declarăm pe propria răspundere că aparatul de iluminat: **VOLTANA 0**

**Versiune:** max. 8 LED-uri  
**Clasă electrică:** I sau II  
**Balast:** electronic  
**Tensiune nominală:** 230V / 50Hz  
**Caracteristici:** Max. 1000mA  
**Etanșeitate compartiment optic:** IP 66  
**Etanșeitate compartiment aparataj:** IP 66

Cu condiția ca acesta să fie instalat, întreținut și utilizat în conformitate cu standardele de instalare și instrucțiunile producătorului. Este în conformitate cu următoarele directive sau standarde:

- EN 60598-1 (2015)
- EN 60598-2-1 (1979)
- EN 60598-2-3 (2003 + A1 2011)
- EN 61547 (2009)
- EN 61347 (2015)
- EN 55015 (2013)
- EN 61000-3-2 (2014) & 3-3 (2013)
- EN 62471 (2008)
- EN 62493 (2010)
- Directiva 2014/30/EU
- Directiva 2014/35/EU
- Directiva 2009/125/EC
- Directiva 2012/19/EU
- Directiva 2003/108/EC
- Directiva RoHS 2011/65/EU (RoHS 2)
- R.D. 1890/2008, 14 Noiembrie
- R.D. 154/1.995, 3 Februarie
- R.D. 842/2002, 2 August

SCHRÉDER ROMANIA S.R.L.  
Director General,

Alexandru SIRCA

Eliberat,  
Martie 2019, Cluj-Napoca

# Lumen maintenance report

## LED information

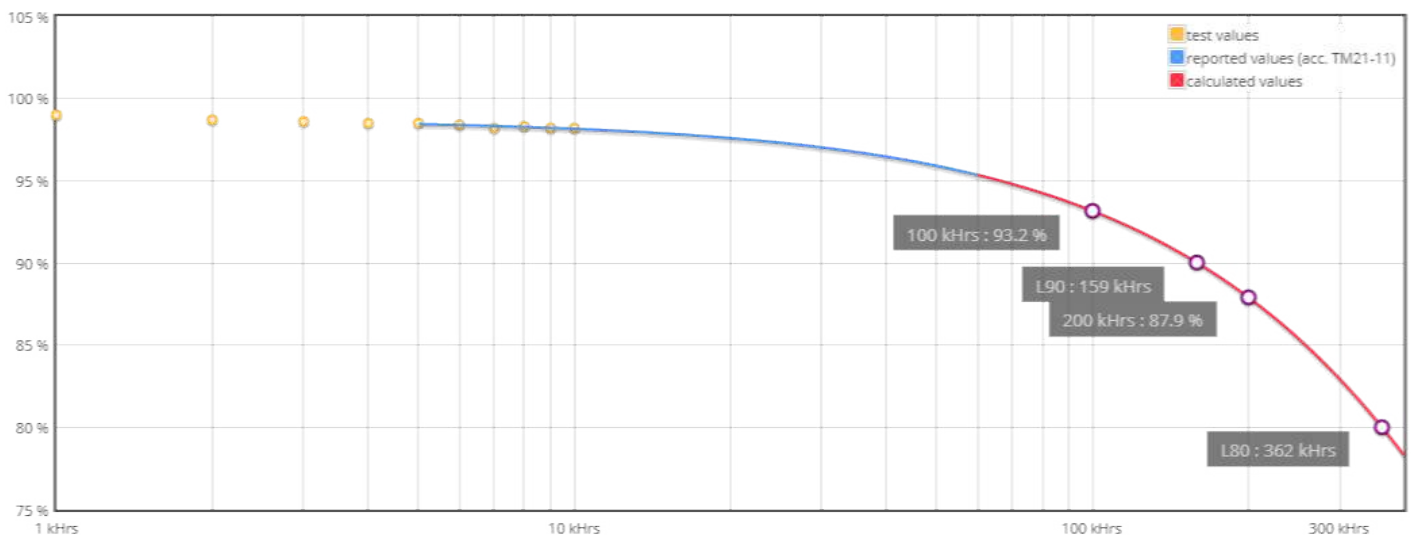
LED type	LH351C
LED current	1000 mA
Ts	55°C
Description	SLED-19-031

## Projection data

Test duration	10000 hrs	$\alpha$	5.811E-007
Time used for projection	5000 to 10000hrs	$\beta$	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.

## LED Flux measurement

FORM-L-41 ED1 REV 2

Date : **16-01-19**

Operator : **FCE**

Filename : **2019\_52.xml**



**226 - TEST**

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

### LEDs

Trademark : **Samsung**

Entry number : **39R004-2**

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**

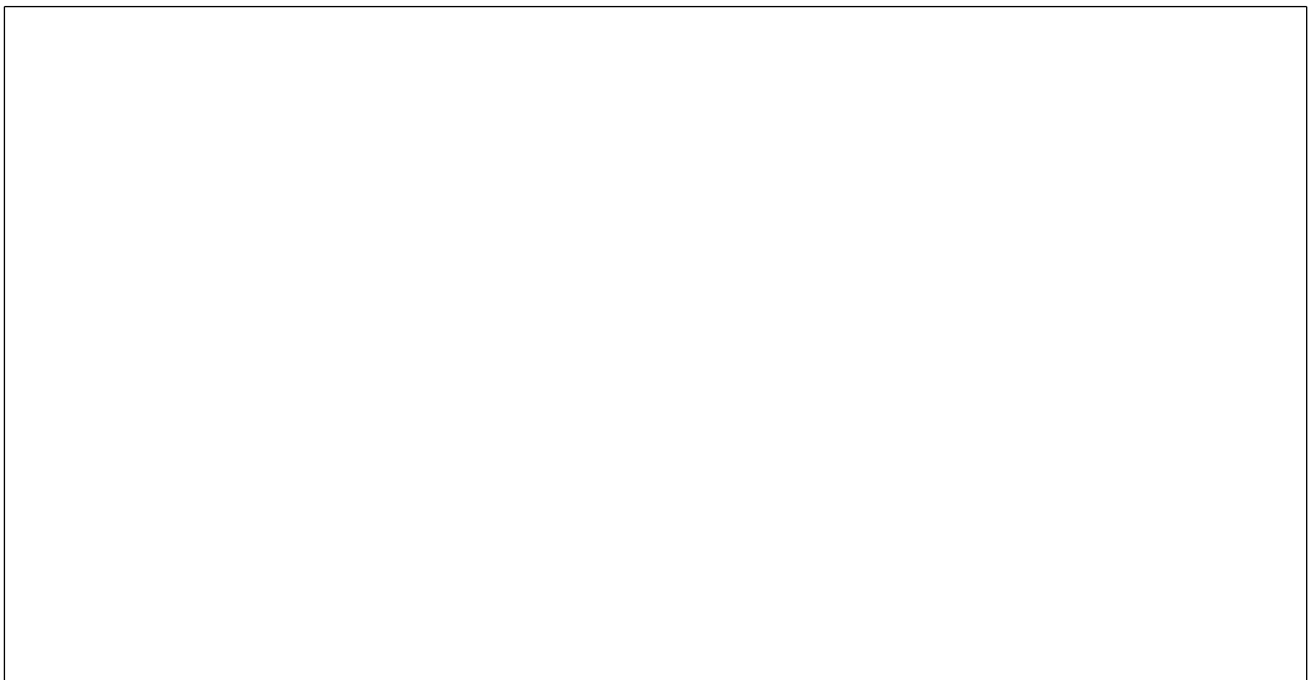
### Power & Print

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

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

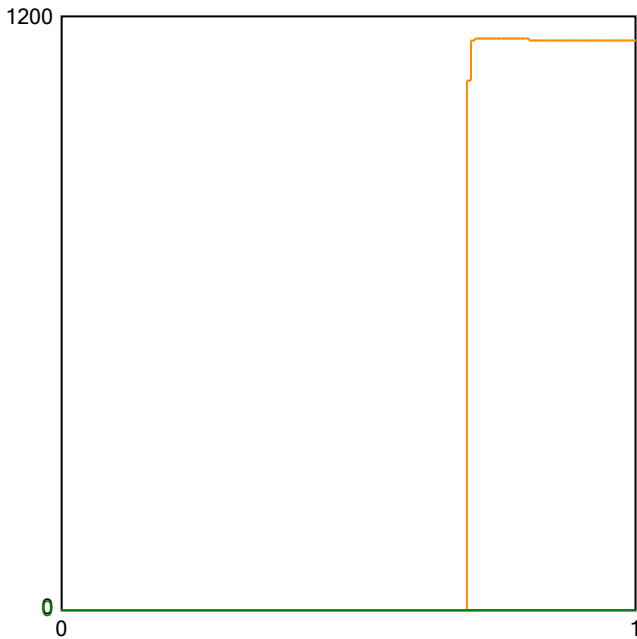
Active

### Picture



### Sphere photometric measurement

Maximum flux : **1157** lumens



#### Operating condition

Position in sphere :



Ambient sphere T ° : **24,6**

### Electrical measurement

#### ● Secondary electrical measurement

Voltage : **16,93** V

Current : **0,350** A

Power : **5,92** Watt

→ LEDs light efficiency at 25° :

**195,4** lm/W

**192,9** 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°2

Comment :

FORM-L-41 ED1 REV 2



226 - TEST

Approved by :

LED 2019/52 2/3



Colorimetry

File Preset Options Extra Calibration Info

Preset: CRI

Auto: ref: illuminant - Planckian radiator, CCT= 3859 K

Auto: ref: illuminant - Planckian radiator, CCT= 3859 K

Auto: ref: illuminant - Planckian radiator, CCT= 3859 K

Chromaticity difference DC= 6.2E+4

JIS color sample

CRI color samples

Auto: ref: illuminant - Planckian radiator, CCT= 3859 K

Auto: ref: illuminant - Planckian radiator, CCT= 3859 K

Re=72, R4=72, Re=62

Target

Calibration File: #1 no accessory

Measurement Mode: Radiance

Weighting Function: None

Average: 1

Measurement

Cont: 10

Hold Integration Time

Quick mode

#1

Transfer data to table

auto

Luminance  $L_v$  1.898E+2  $\frac{cd}{m^2}$

Radiance  $L_e$  5.383E-1  $\frac{W}{m^2 \cdot sr}$

Corr. Color Temp CCT 3859 K

Chromaticity x 0.3864 y 0.3793

Chromaticity u' 0.2280 v' 0.5036

Re= 62.37 (mean value of R1 - R15)

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**

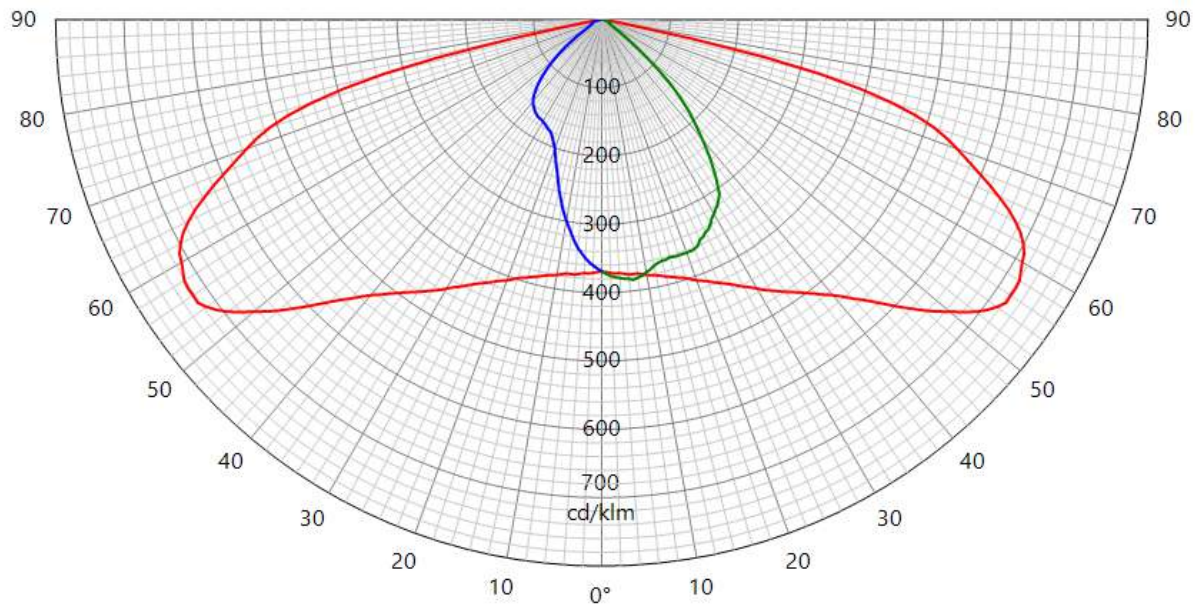
Origin TUNGSRAM-Schröder Zrt. Hungary	Production TUNGSRAM-Schröder Zrt. Hungary	Luminaire VOLTANA 0	Inclination 0°	Request # FD39022
Source				
Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung	Reference LH351C	# LEDs 6
Reflector 5206	Master -			Reflector No 5206
DKI Led assembly Road lighting Injected 0.0°				
Protector Refractor Lens				
Protector integrated lenses				
Lens DKI 5206 PC				
Laboratory observation				
VOLTANA 0 with 6 Samsung LH 351C Used flux for efficiency matrix calculation = 1157lm - CCT = 3859K - CRI = 72,26 (see sphere test report 2019/52 on appendix).				
Purpose DOC	Sample date 08-01-2019		Sample # 39R004	
Observation				
DOC Voltana 0 with lenses 5206				
Flux coefficient multiplier (only for efficiency matrix):				
From 350 to 500 mA : 1,379				
From 350 to 700 mA : 1,846				
From 350 to 1000mA: 2,450				
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 RCA	Measured by CLD	Approved by RLABO	Appendix 1	  <b>226-TEST</b> NBN EN ISO/IEC 17025 : 2005	<b>42572</b>
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### LUMINOUS INTENSITY DIAGRAM

Origin <b>TUNGSRAM-Schröder Zrt. Hungary</b>		Production <b>TUNGSRAM-Schröder Zrt. Hungary</b>		Luminaire <b>VOLTANA 0</b>		Inclination <b>0°</b>		Request # <b>FD39022</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>5206</b>			
Reflector	<b>DKI Led assembly Road lighting Injected 0.0°</b>				No	<b>5206</b>			
Matrices	<b>425721</b>		$\Phi$ 0-90° = 1040lm - 90-180° = 0lm			Absolute measurement			
Protector Refractor Lens	Protector <b>integrated lenses</b> Lens <b>6 x DKI 5206 PC</b>								
Observation	<p>Matrix in total flux @350 mA</p> <p>Light losses due to thermal stabilisation : 1%</p> <p>Electrical measurement on LED (#1) : Voltage = 16.83 V    Current = 0.350 A    Power = 5.88 W</p> <p>Electrical measurement on driver (#1) : Voltage = 230.00 V    Current = 0.037 A    Power = 7.98 W    PF = 0.936</p> <p><b>Total luminaire power = 7.98 W : Lm/Watt = 130.30 lm/W</b></p> <p>Driver #1 : Philips Xitanium FP 22W 0.3-1.0A SNLDAE 230V S175 sXt S175 sxt PCB 00-71-626 A</p>								

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
15 - 165	723	55	S	369	24.9°	07-02-2019	
90	384	7	D				
270	369	0	G				

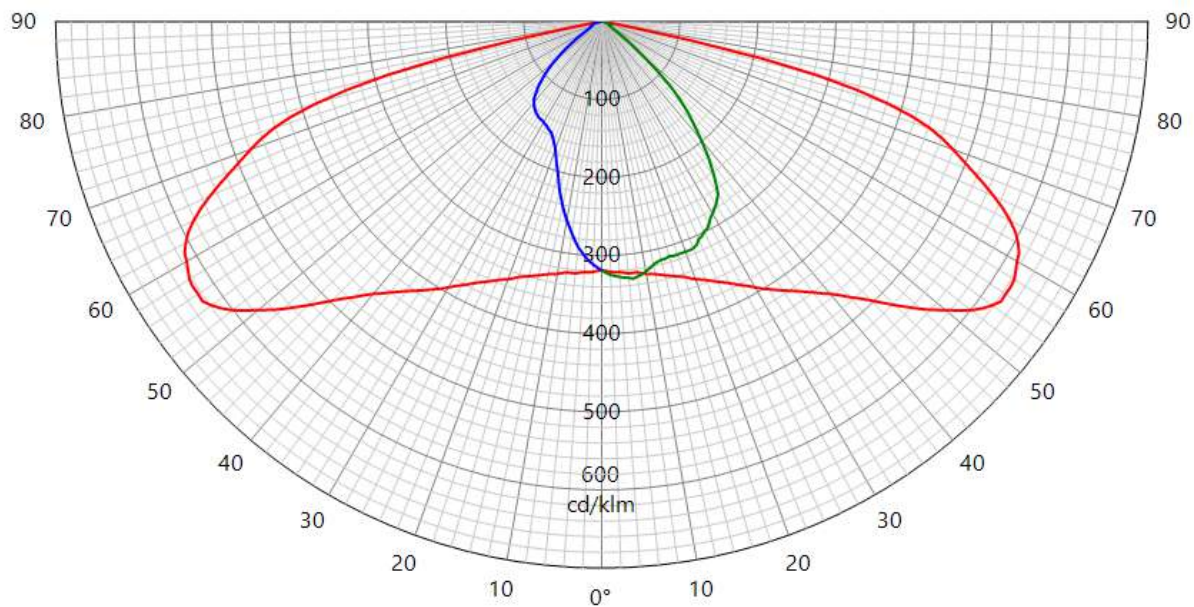


**42572**

### LUMINOUS INTENSITY DIAGRAM

Origin <b>TUNGSRAM-Schröder Zrt. Hungary</b>		Production <b>TUNGSRAM-Schröder Zrt. Hungary</b>		Luminaire <b>VOLTANA 0</b>		Inclination <b>0°</b>		Request # <b>FD39022</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>5206</b>			
Reflector	<b>DKI Led assembly Road lighting Injected 0.0°</b>				No	<b>5206</b>			
Matrices	<b>425722</b>		$\eta$ 0-90° = 89.9% - 90-180° = 0.0%			Relative measurement			
Protector Refractor Lens	Protector <b>integrated lenses</b> Lens <b>6 x DKI 5206 PC</b>								
Observation	<p>Matrix in efficiency @350 mA</p> <p>Light losses due to thermal stabilisation : 1%</p> <p>Electrical measurement on LED (#1) : Voltage = 16.83 V    Current = 0.350 A    Power = 5.88 W</p> <p>Electrical measurement on driver (#1) : Voltage = 230.00 V    Current = 0.037 A    Power = 7.98 W    PF = 0.936</p> <p><b>Total luminaire power = 7.98 W</b></p> <p>Driver #1 : Philips Xitanium FP 22W 0.3-1.0A SNLDAE 230V S175 sXt S175 sxt PCB 00-71-626 A</p>								

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
15 - 165	625	55	S	319	24.9°	07-02-2019	
90	332	7	D				
270	319	0	G				



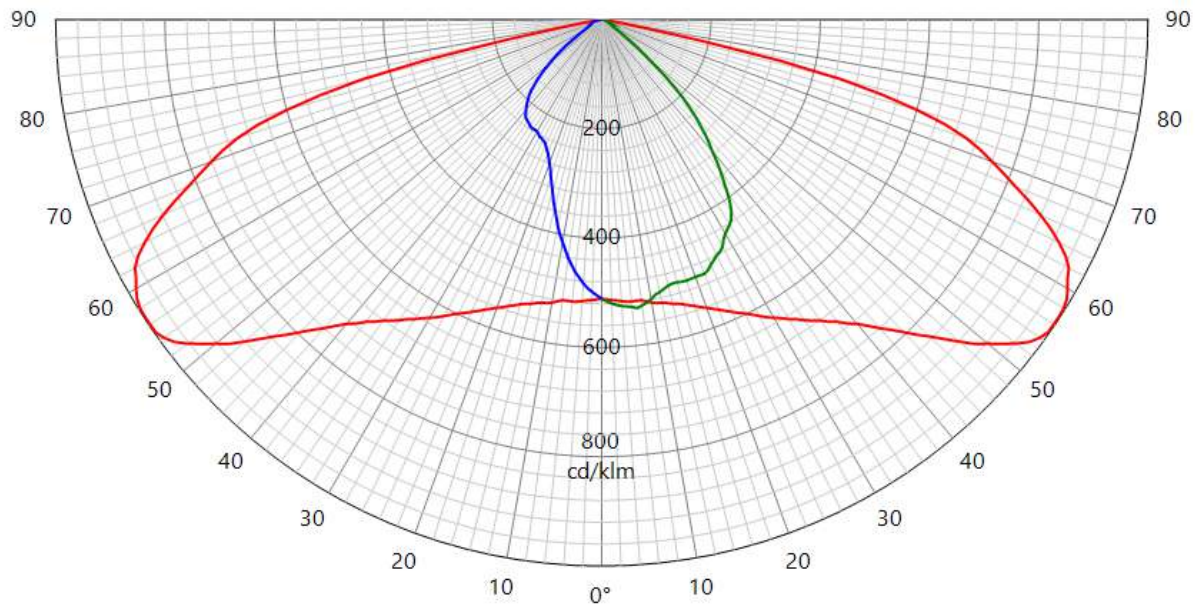
**42572**



### LUMINOUS INTENSITY DIAGRAM

Origin <b>TUNGSRAM-Schröder Zrt. Hungary</b>		Production <b>TUNGSRAM-Schröder Zrt. Hungary</b>		Luminaire <b>VOLTANA 0</b>		Inclination <b>0°</b>		Request # <b>FD39022</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>5206</b>			
Reflector	<b>DKI Led assembly Road lighting Injected 0.0°</b>				No	<b>5206</b>			
Matrices	<b>425723</b>		$\Phi$ 0-90° = 1434lm - 90-180° = 0lm			Absolute measurement			
Protector Refractor Lens	Protector <b>integrated lenses</b> Lens <b>6 x DKI 5206 PC</b>								
Observation	<p>Matrix in total flux @500 mA</p> <p>Light losses due to thermal stabilisation : 1.7%</p> <p>Electrical measurement on LED (#1) : Voltage = 17.15 V    Current = 0.500 A    Power = 8.58 W</p> <p>Electrical measurement on driver (#1) : Voltage = 230.00 V    Current = 0.050 A    Power = 10.97 W    PF = 0.962</p> <p><b>Total luminaire power = 10.97 W : Lm/Watt = 130.70 lm/W</b></p> <p>Driver #1 : Philips Xitanium FP 22W 0.3-1.0A SNLDAE 230V S175 sXt S175 sxt PCB 00-71-626 A</p>								

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
15 - 165	998	57	S	511	24.9°	07-02-2019	
90	532	7	D				
270	511	0	G				

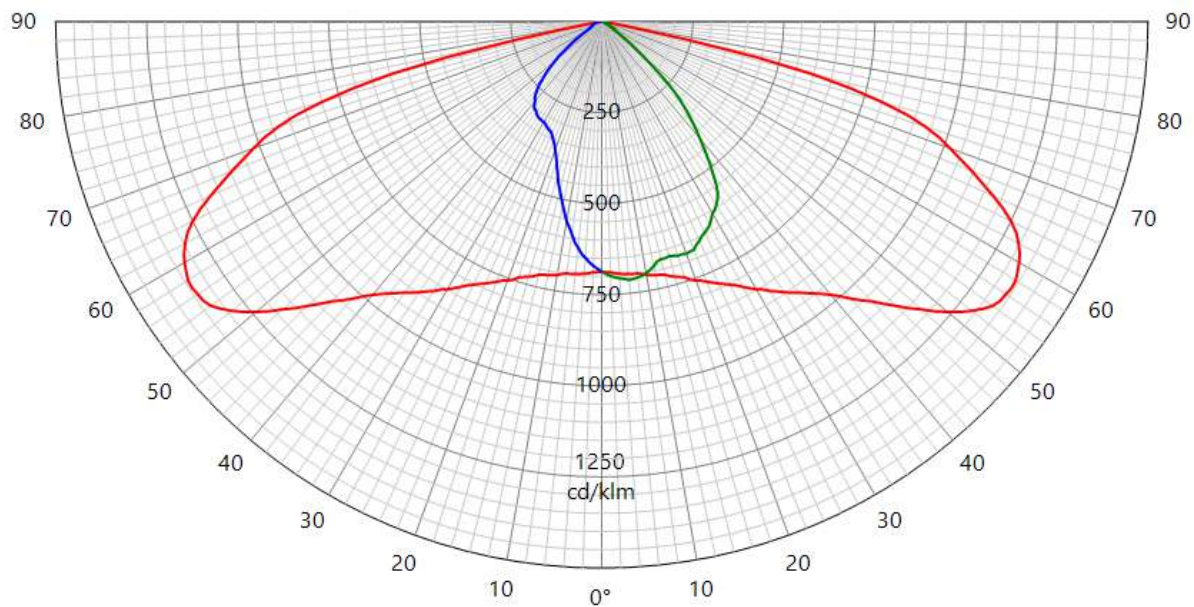


**42572**

### LUMINOUS INTENSITY DIAGRAM

Origin <b>TUNGSRAM-Schröder Zrt. Hungary</b>		Production <b>TUNGSRAM-Schröder Zrt. Hungary</b>		Luminaire <b>VOLTANA 0</b>		Inclination <b>0°</b>		Request # <b>FD39022</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>5206</b>			
Reflector	<b>DKI Led assembly Road lighting Injected 0.0°</b>				No	<b>5206</b>			
Matrices	<b>425724</b>		$\Phi$ 0-90° = 1919lm - 90-180° = 0lm			Absolute measurement			
Protector Refractor Lens	Protector <b>integrated lenses</b> Lens <b>6 x DKI 5206 PC</b>								
Observation	<p>Matrix in total flux @700 mA</p> <p>Light losses due to thermal stabilisation : 2,6 %</p> <p>Electrical measurement on LED (#1) : Voltage = 17.51 V    Current = 0.700 A    Power = 12.27 W</p> <p>Electrical measurement on driver (#1) : Voltage = 230.00 V    Current = 0.067 A    Power = 15.15 W    PF = 0.977</p> <p><b>Total luminaire power = 15.15 W : Lm/Watt = 126.68 lm/W</b></p> <p>Driver #1 : Philips Xitanium FP 22W 0.3-1.0A SNLDAE 230V S175 sXt S175 sxt PCB 00-71-626 A</p>								

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
15 - 165	1342	57	S	686	24.9°	07-02-2019	
90	713	6	D				
270	686	0	G				

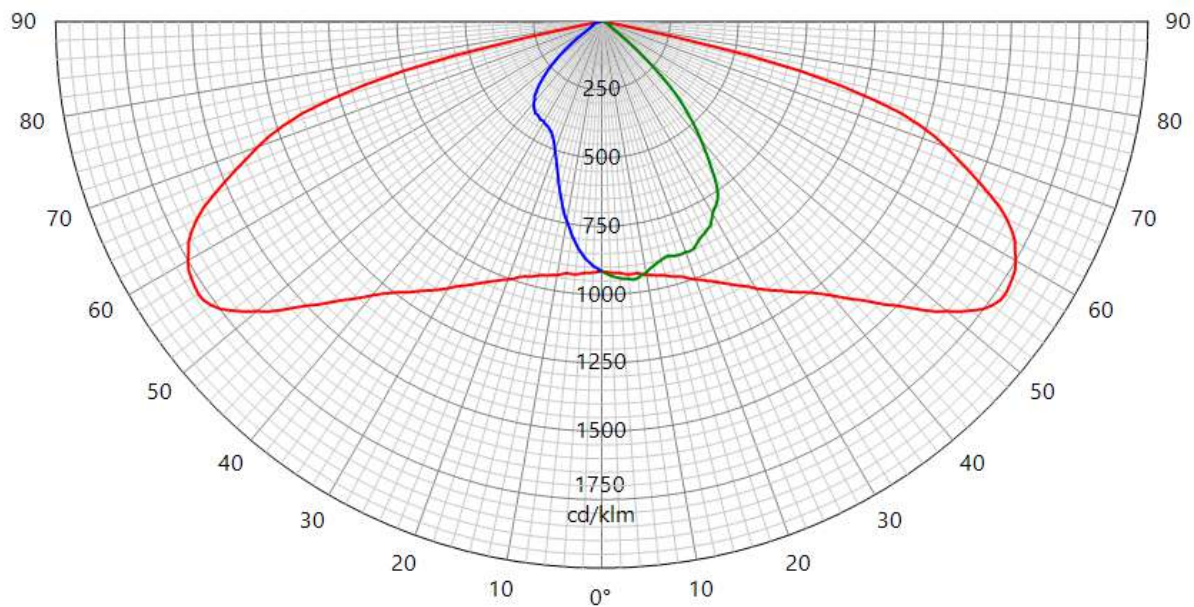


**42572**

### LUMINOUS INTENSITY DIAGRAM

Origin <b>TUNGSRAM-Schröder Zrt. Hungary</b>		Production <b>TUNGSRAM-Schröder Zrt. Hungary</b>		Luminaire <b>VOLTANA 0</b>		Inclination <b>0°</b>		Request # <b>FD39022</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>5206</b>			
Reflector	<b>DKI Led assembly Road lighting Injected 0.0°</b>				No	<b>5206</b>			
Matrices	<b>425725</b>		$\Phi$ 0-90° = 2548lm - 90-180° = 0lm			Absolute measurement			
Protector Refractor Lens	Protector <b>integrated lenses</b> Lens <b>6 x DKI 5206 PC</b>								
Observation	<p>Matrix in total flux @1000 mA</p> <p>Light losses due to thermal stabilisation : 3,7 %</p> <p>Electrical measurement on LED (#1) : Voltage = 17.96 V    Current = 1.000 A    Power = 17.96 W</p> <p>Electrical measurement on driver (#1) : Voltage = 230.00 V    Current = 0.096 A    Power = 21.80 W    PF = 0.987</p> <p><b>Total luminaire power = 21.80 W : Lm/Watt = 116.87 lm/W</b></p> <p>Driver #1 : Philips Xitanium FP 22W 0.3-1.0A SNLDAE 230V S175 sXt S175 sxt PCB 00-71-626 A</p>								

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
15 - 165	1783	56	S	914	24.9°	07-02-2019	
90	952	7	D				
270	914	0	G				



**42572**

## 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

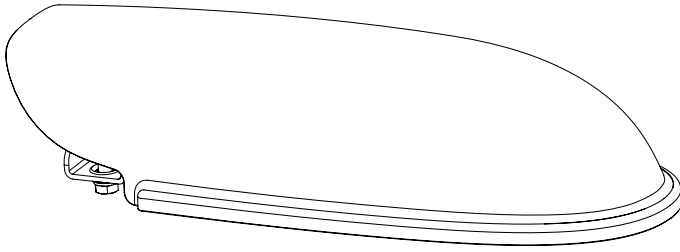
Type: Liquid in glass N63833

Calibration: traceable to LBT (Laboratoire Belge de Thermométrie)

# Schröder

## VOLTANA 0

### Installation instructions

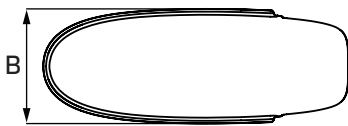
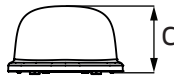
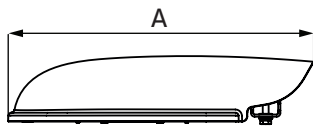
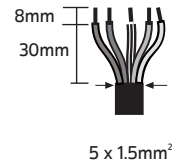
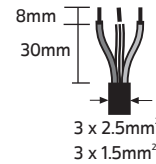
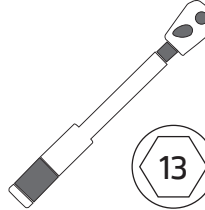
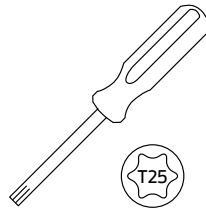
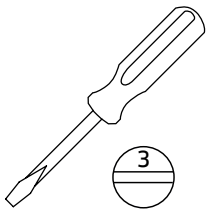


350-1250mA  
8-38W

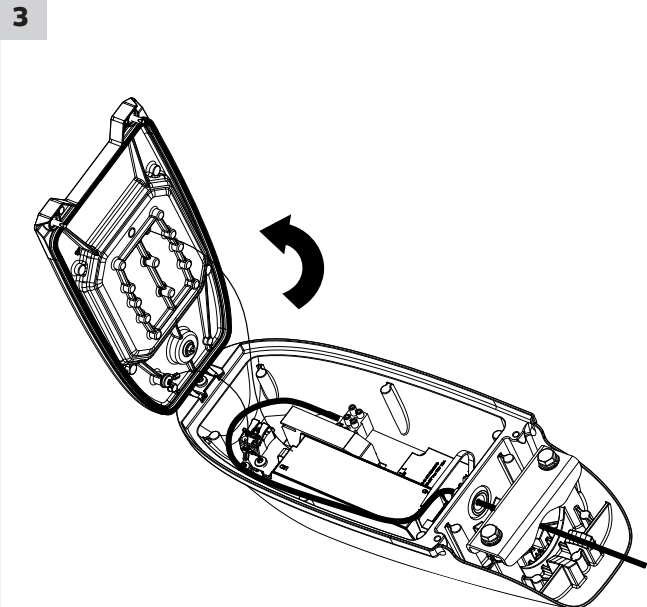
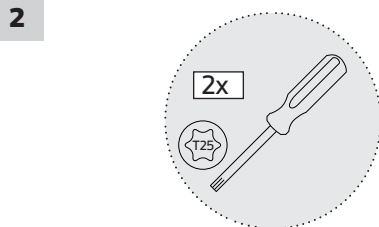
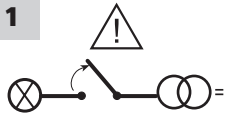
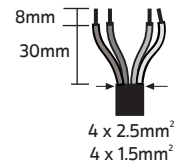
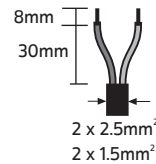
220-240V  
50/60Hz

**IP**  
**66**

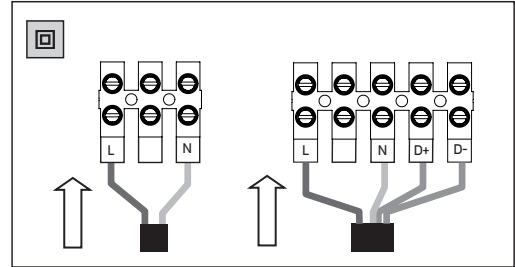
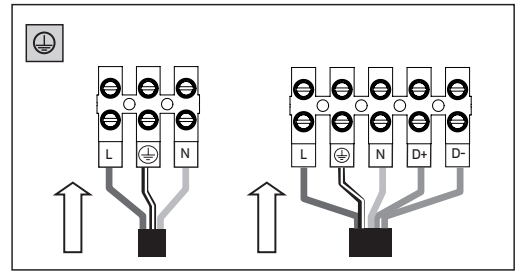
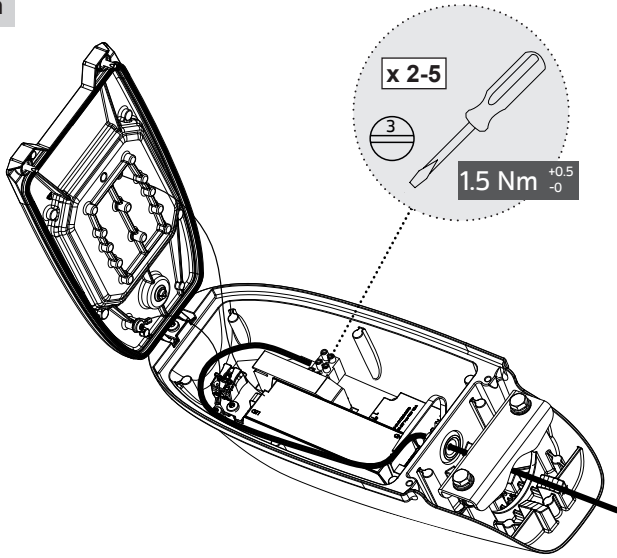
**IK**  
**08**



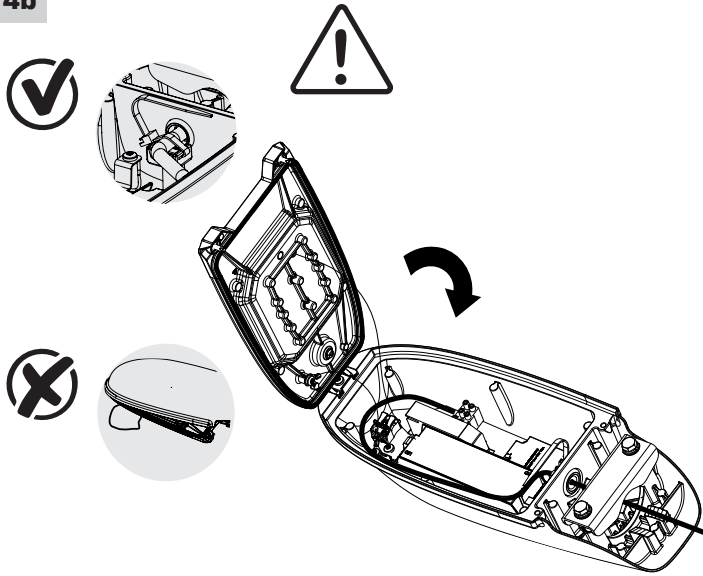
Voltana0	
A	416mm
B	156mm
C	91mm
	2.6kg
CxS	0.012m <sup>2</sup>



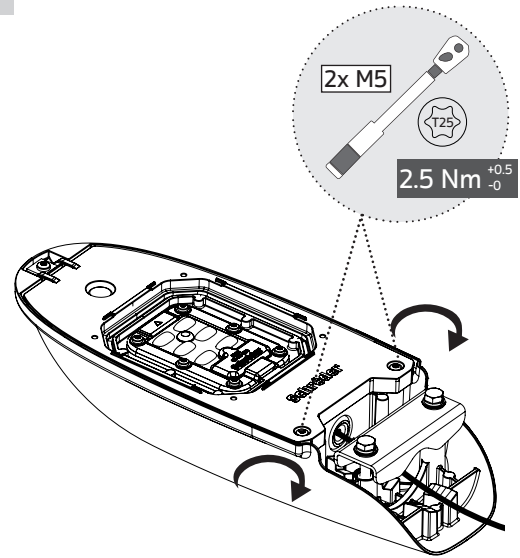
4a



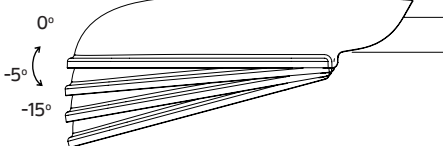
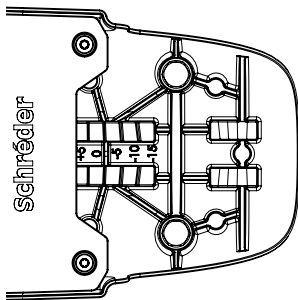
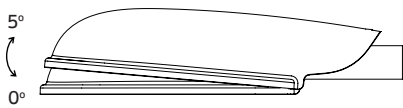
4b



4c

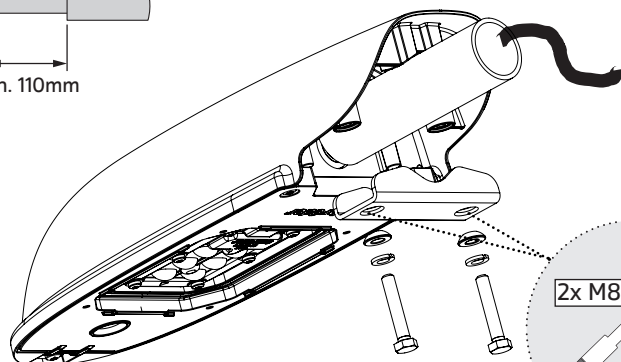
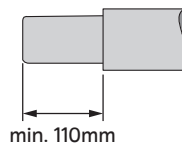


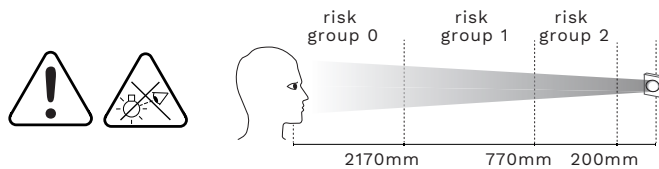
5



- 2x M8 x 70
- 2x M8 x 45

	Ø42	Ø48	Ø60
-10°			
-5°	M8 x 45		
0°	M8 x 45		M8 x 70
+5°	M8 x 45		M8 x 70





<p><b>SAFETY INSTRUCTIONS</b> The light source contained in this luminaire shall only be replaced by the manufacturer or his service agent or a similar qualified person. Always switch off the power prior to installation, maintenance or repair activities.</p> <p><b>RISK GROUP 2 - CAUTION!</b> Hazardous optical radiation may be emitted from this product. Do not stare at the luminaire when operating as it may be harmful to the eyes. The luminaire should be positioned so that prolonged staring at the luminaire at a distance of less than 0.77m is not expected.</p> <p>In case of PVC insulated mains cable, the installer MUST ensure that the WHOLE cable is protected against climatic conditions, especially UV rays and rain, by making sure that the cable is contained inside the luminaire and pole</p> <p><b>Y-connection:</b> In case of damage to the wire, it has to be replaced only by the manufacturer, distributor or by an expert, to avoid risks.</p>	<p><b>ISTRUZIONI DI SICUREZZA</b> La sorgente di luce contenuta in questo sistema di illuminazione dovrà essere sostituita solo dal produttore, dal suo agente di servizio o da una persona con qualifica similare.</p> <p>Staccare sempre il filo della corrente prima di iniziare operazioni di installazione, manutenzione o riparazione.</p> <p><b>GRUPPO DI RISCHIO 2 - ATTENZIONE!</b> Questo prodotto può emettere radiazioni ottiche potenzialmente pericolose. Non fissare la sorgente accesa. Potrebbe essere dannoso per gli occhi. L'apparecchio dovrebbe essere posizionato in modo da non permettere di fissare a lungo l'apparecchio a una distanza inferiore di 0.77m.</p> <p>In caso di cavo di alimentazione isolato in PVC, l'installatore DEVE garantire che il cavo INTERO sia protetto dalle condizioni climatiche, in particolare dai raggi UV e dalla pioggia, assicurandosi che il cavo sia contenuto all'interno del corpo illuminante e del palo</p> <p><b>Collegamento Y:</b> in caso di danneggiamento, il cavo deve essere sostituito esclusivamente dal costruttore, dal distributore o da un tecnico esperto per evitare rischi.</p>	<p><b>VEILIGHEIDSIJNSTRUCTIES</b> De lichtbron in deze armatuur dient uitsluitend door de fabrikant, diens onderhoudsvertegenwoordiger of een persoon met vergelijkbare kwalificaties te worden vervangen.</p> <p>Schakel altijd de stroom uit voordat u aan installatie, onderhoud of reparaties begint.</p> <p><b>RISICOGROEP 2 - LET OP!</b> Bij dit product kan eventueel gevaarlijke optische straling voorkomen. Staar niet in de brandende lamp. Dit kan schadelijk zijn voor de ogen. Het armatuur moet worden geplaatst zodat staren in het armatuur op een afstand kleiner dan 0.77meter niet verwacht wordt.</p> <p>In het geval van PVC-geïsoleerde voedingskabels MOET de installateur ervoor zorgen dat de GEHELE kabel wordt beschermd tegen klimaatomstandigheden, met name UV-stralen en regen, door ervoor te zorgen dat de kabel zich in het armatuur en de paal bevindt</p> <p><b>Y-verbinding:</b> in geval van schade aan de draad dient deze te worden vervangen door de fabrikant, de distributeur of door een expert, om risico's te vermijden.</p>	<p><b>SIKKERHEDSIJNSTRUKTIONER</b> Lyskilden i dette armatur må kun udskiftes af producenten, af en vedligeholdelsesvirksomhed udeget af producenten eller af en tilsvarende kvalificeret virksomhed.</p> <p>Sluk altid for strømmen inden påbegyndelse af installation, vedligeholdelse eller reparation.</p> <p><b>Risikogrupper 2 - ADVARSEL!</b> Produktet kan muligvis udsende farlig optisk stråling. Kig ikke direkte ind i armaturet under drift, det kan være skadeligt for øjnene. Armaturet skal placeres således så langvarig stirren ind i armaturet, på en afstand der er tættere end 0.77m, undgåes.</p> <p>I tilfælde af PVC-isoleret ledning SKAL elektrikereren sikre, at HELE kablet er beskyttet mod klimatiske forhold, dette gælder især UV-stråler og regn. Elektrikereren skal derfor sørge for, at kablet forbliver inde i armaturet og masten.</p> <p><b>Type Y montering:</b> Hvis det eksterne kabel eller ledning på dette armatur er beskadiget, må det kun udskiftes af producenten eller af en kvalificeret partner til producenten eller tilsvarende kvalificeret person, for at undgå skader.</p>
<p><b>SICHERHEITSHINWEISE</b> Die Lichtquelle in dieser Leuchte darf nur vom Hersteller bzw. von dessen Kundendienst oder einer ähnlich qualifizierten Person ausgetauscht werden.</p> <p>Schalten Sie die Stromversorgung vor Installations-, Wartungs- und Reparaturarbeiten stets ab.</p> <p><b>Risikogrupper 2 - VORSICHT!</b> Von diesem Produkt kann möglicherweise gefährliche optische Strahlung ausgehen. Es ist darauf zu achten, dass man im eingeschalteten Zustand der Leuchte nicht innerhalb einer Distanz von 0.77m direkt in die Leuchte schaut. Dies könnte schädlich für Ihre Augen sein.</p> <p>Bei Verwendung eines PVC-isolierten Netzkabels MUSST der Installateur sicherstellen, dass das GESAMTE Kabel vor klimatischen Bedingungen - insbesondere vor UV-Strahlen und Regen - geschützt ist, indem sichergestellt wird, dass das Kabel in der Leuchte und dem Mast verschlossen ist</p> <p><b>Y-Verbindung:</b> Falls die Leitung beschädigt ist, darf diese nur vom Hersteller, dem Händler oder einem Experten ersetzt werden, um Risiken zu vermeiden.</p>	<p><b>ISTRUKCJA BEZPIECZEŃSTWA</b> Die Lichtquelle in dieser Leuchte darf nur vom Hersteller bzw. von dessen Kundendienst oder einer ähnlich qualifizierten Person ausgetauscht werden.</p> <p>Przed rozpoczęciem instalacji, konserwacji lub naprawy należy bezwzględnie odłączyć zasilanie elektryczne.</p> <p><b>GRUPA RYZYKA 2 - OSTRZEŻENIE</b> Produkt może emitować niebezpieczne promieniowanie optyczne szkodliwe dla oczu. Nie należy patrzeć bezpośrednio na pracującą źródło światła. Oprawa powinna być tak zamontowana, aby jej długotrwała obserwacja była możliwa z odległości nie mniejszej niż 0.77m.</p> <p>W przypadku kabla sieciowego izolowanego PCV instalator MUSI upewnić się, że kabel CAŁY jest chroniony przed warunkami klimatycznymi, w szczególności przed promieniowaniem UV i deszczem, upewniając się, że kabel znajduje się wewnątrz oprawy i stupa.</p> <p><b>Połączenie Y:</b> ze względów bezpieczeństwa uszkodzony przewód powinien zostać wymieniony wyłącznie przez producenta, dystrybutora lub wykwalifikowanego elektryka.</p>	<p><b>инструкция безопасности</b> замену источника света для этого светильника должен выполнять только проивзводитель, сервисный агент производителя или специалист с аналогичной квалификацией.</p> <p>Перед проведением установки, сервисного обслуживания или ремонта всегда отключайте питание устройства.</p> <p><b>ГРУППА РИСКА 2 - ВНИМАНИЕ!</b> Возможно опасное оптическое излучение от этого изделия. Не смотрите на источник света. Может быть вредно для глаз. Светильник должен быть расположен таким образом, чтобы было невозможно смотреть на него с расстояния менее 0.77м.</p> <p>В случае кабеля питания с ПВХ изоляцией, монтажник ДОЛЖЕН обеспечить защиту ВСЕГО кабеля от воздействия климатических условий, особенно от ультрафиолетовых лучей и дождя, убедившись, что кабель находится внутри светильника и опоры.</p> <p><b>Подключение Y:</b> в случае повреждения кабеля его замена производится только производителем, дистрибутором или экспертом.</p>	<p><b>INSTRUCIUNI DE EXPLOATARE</b> Sursa de lumină din acest corp de iluminat trebuie înlocuită numai de producător sau de reprezentantul său de service sau o persoană ce deține calificări similare.</p> <p>Opriți întotdeauna alimentarea electrică înainte de lucrările de instalare, întreținere sau reparații.</p> <p><b>GRUP DE RISC 2 - ATENȚIE!</b> Este posibil ca acest produs să emită radiații optice periculoase. Nu priviți direct înspre lampa aflată în stare de funcționare. Acest lucru poate fi dăunător ochilor. Aparatul de iluminat trebuie să fie poziționat astfel încât să nu fie posibil, în mod normal, privitul direct înspre lampă, la o distanță mai mică de 0.77m.</p> <p>În cazul cablului de alimentare cu izolație din PVC, instalatorul TREBUIE să se asigure că TOT cablul este protejat împotriva condițiilor climatice, mai ales împotriva razelor UV și a ploii, asigurându-se că acest cablu este plasat în interiorul aparatului de iluminat și al stălpului</p> <p><b>Conexiune Y:</b> În caz de deteriorare a firului, acesta trebuie înlocuit numai de către producător, distribuitor sau un expert, pentru evitarea riscurilor.</p>
<p><b>INSTRUCTIONS DE SECURITE</b> La source lumineuse contenue dans ce luminaire doit être uniquement remplacée par le fabricant, son agent de maintenance ou une autre personne disposant des qualifications appropriées.</p> <p>Mettez toujours l'appareil hors tension avant toute opération d'installation, d'entretien ou de réparation.</p> <p><b>RISQUE GROUPE 2 - ATTENTION !</b> Ce produit émet potentiellement des rayons dangereux pour la vue. Regarder directement la source lumineuse et de manière continue pourrait causer des lésions aux yeux. Le luminaire doit être installé de façon à ne pas pouvoir regarder la source lumineuse directement de manière continue à moins de 0.77m.</p> <p>Dans le cas d'un câble secteur isolé en PVC, l'installateur DOIT s'assurer que le câble ENTIER est protégé contre les conditions climatiques, en particulier les rayons UV et la pluie, en s'assurant que le câble est contenu à l'intérieur du luminaire et du poteau</p> <p><b>Connexion Y:</b> si le câble est endommagé, il ne peut être remplacé que par le fabricant, par le distributeur ou par un expert, afin d'éviter tout risque.</p>	<p><b>INSTRUCCIONES DE SEGURIDAD</b> Solo el fabricante, un agente del servicio técnico o persona con cualificación similar puede sustituir la fuente de luz de este sistema de iluminación.</p> <p>Apague siempre el interruptor de alimentación antes de realizar tareas de instalación, mantenimiento o reparación.</p> <p><b>GRUPO DE RIESGO 2 - ¡PRECAUCIÓN!</b> radiación óptica posiblemente peligrosa emitida por este producto. No mire a la lámpara en funcionamiento. Puede ser dañino para los ojos. El sistema de iluminación debe instalarse de modo que la mirada fija prolongada a la luminaria, a una distancia menor de 0.77m no se espere.</p> <p>En el caso de un cable aislado de PVC, el instalador DEBE asegurarse de que todo el cable esté protegido contra las condiciones climáticas, especialmente los rayos UV y la lluvia, asegurándose de que el cable esté dentro de la luminaria y el poste</p> <p><b>Conexión en Y:</b> si el cable se daña, solo debe reemplazarlo el fabricante, un distribuidor o un experto para evitar riesgos.</p>	<p><b>INSTRUÇÕES DE SEGURANÇA</b> A fonte de luz no interior deste candeeiro deve ser substituída apenas pelo fabricante, pelo seu técnico de assistência ou por uma pessoa com qualificação equivalente.</p> <p>Desligue sempre a alimentação antes de proceder a actividades de instalação, manutenção ou reparação.</p> <p><b>GRUPO DE RISCO 2 - ATENÇÃO!</b> Possível risco ótico por radiação emitida a partir deste produto. Não olhar para a luz em funcionamento. Pode ser prejudicial para os olhos. A luminária deve ser posicionada de modo a que não seja expectável um olhar prolongado para a luminária em funcionamento a uma distância inferior a 0.77m.</p> <p>No caso de cabo de alimentação com isolamento em PVC, o instalador DEVE assegurar que TODO o cabo é protegido das condições climáticas, especialmente raios UV e chuva, certificando-se que o cabo está contido dentro da luminária e da coluna.</p> <p><b>Ligação Y:</b> em caso de danos no fio, este tem de ser substituído apenas pelo fabricante, distribuidor ou por um técnico especializado, para evitar riscos.</p>	<p><b>SÄKERHETSINSTRUKTIONER</b> Ljuskällan som monteras i denna armatur får endast ersättas av en Schröder-anställd eller annan kvalificerad person.</p> <p>Stäng alltid av strömmen före installation, underhåll eller reparation.</p> <p><b>Risikgrupp 2 - VARNING!</b> Eventuellt farligt optisk strålning från denna produkt. Stirra ej på driftlampan. Kan vara skadligt för ögonen. Armaturen bör placeras så att långvarig stirrande in i armaturen på ett avstånd som är närmare än 0.77m ej är möjligt.</p> <p>Vid PVC-isolerad kabel måste installatören se till att hela kabeln är skyddad mot klimatförhållanden, särskilt UV-strålar och regn, genom att se till att kabeln monteras inuti armaturen och stolpen</p> <p><b>Typ Y-anslutning:</b> Om den externa kabeln eller ledningen på denna armatur är skadad, får den endast bytas ut av tillverkaren eller av en servicepartner till tillverkaren eller motsvarande kvalificerad person, för att undvika skador</p>
<p><b>BIZTONSÁGI ÚTMUTATÓ</b> A lámpatestben található fényforrást kizárólag a gyártó, szervizképviseelő vagy hivatalos szakszerviz szakembere cserélheti ki.</p> <p>A szerelés, karbantartás és javítás előtt minden esetben végezzen áramtalanítást.</p> <p><b>KOCKÁZATI CSOPORT 2 - VIGYÁZATI!</b> A berendezés veszélyes optikai sugárzást bocsáthat ki! Ne nézzék bele a bekapcsolt lámpatestbe! Szemet károsító hatás léphet fel. A lámpatestet egy ajánlott pozícionálni, hogy rálátás esetén a lámpatest ne legyen 0.77m-nél közelebb!</p> <p>PVC szigetelésű tápkábel esetén a telepítőnek biztosítania KELL, hogy a TELJES kábel védett legyen az éghajlati viszonyoktól, különösen az UV sugárzástól és az esőtől, ügyelve arra, hogy a kábel a lámpatest és az oszlop belsejében legyen.</p> <p><b>Y-csatlakozó:</b> A sérült vezetékét kizárólag a gyártó, forgalmazó vagy szakember cserélheti ki a kockázatok elkerülése végett.</p>	<p><b>安全守则</b> 该灯具内的光源仅可由维修人员、指定代理商或具备相应资质的人员进行更换。 在安装、维护和维修灯具之前必须首先切断电源。 <b>风险群体 2 - 注意!</b> 有害的光学射线有可能从产品中发出。不要凝视正在工作的光源。有可能对眼睛产生危害。灯具应始终按合理位置安装。尽可能避免长时间在0.77米以内凝视。 <b>Y类附件:</b> 如果灯具外部电缆被破坏，电缆必须由制造商或服务代理商或者有资质的人员及时更换从而避免伤害。</p>	<p><b>інструкція безпеки</b> Джерело світла, що міститься у цьому світильнику, повинен замінювати лише виробник, його сервісний агент або кваліфікована особа. Завжди вимикайте живлення перед встановленням, доглядом або ремонтом. <b>ГРУПА РИЗИКУ 2 - УВАГА!</b> Можливість небезпечного оптичного випромінювання від цього продукту. Уникайте прямого погляду на вмищене джерело світла. Може бути шкідливо для очей. Світильник має бути розташований так, щоб уникнути його тривалого споглядання з відстані ближче, ніж 0.77м. У випадку кабелю живлення із ПВХ ізоляцією, монтажник ПОВИНЕН забезпечити захист ВСЬОГО кабелю від впливу кліматичних умов, особливо від ультрафіолетових променів та дощу, переконатися, що кабель знаходиться всередині світильника та опори</p>	<p><b>UPUTSTVA</b> Izvor svetla u ovom rasvetnom telu može da zameni samo proizvođač, njegov servisni agent ili na služben način kvalifikovana osoba.</p> <p>Uvek isključite napajanje pre instalacije, održavanja ili popravke.</p> <p><b>GRUPA RIZIKA 2 - PAŽNJA!</b> Proizvod može emitovati štetno optičko zračenje. Izbegavati vizuelni kontakt sa svetlosnim izvorom dok je u radu. Moguće oštećenje vida. Svetliku treba pozicionirati tako da se ne očekuje duži vizuelni kontakt sa izvorom sa razdaljinu manje od 0.77m.</p> <p>U slučaju napojnog kabla sa PVC izolacijom, izvođač MORA obezbediti zaštitu CELOG kabela od klimatskih uslova, posebno UV zračenja i kiše, tako što će osigurati da se kabal nalazi unutar svetiljke i stupa.</p> <p><b>Y-veza:</b> U slučaju oštećenja žice zamenu mora da obavi isključivo proizvođač, distributer ili stručnjak kako bi se izbegao rizik.</p>
<p><b>تعليمات السلامة:</b> في حالة الحاجة لتغير مصدر الضوء، يتم ذلك من خلال الشركة المصنعة او الوكيل الممثل لعل ذلك او شخص مؤهل لذلك. دائما افضل الدائرة الكهربائية قبل تركيب او صيانة الجهاز. تحذير: هذا المنتج مصنف ضمن مجموعة الخطر 2 خطر. انبعاث اشعاع ضوئي، لا تنظر مباشرة الى الجهاز و هو مضاء لان ذلك مؤذي للعين. الجهاز يجب ان يركب بشكل يضمن ان التحديق بمصدر الضوء من مسافة اقل من 0.77 م غير متوقفة. يجب على الشخص الذي يوصل الجهاز بالدائرة الكهربائية التأكد من ان محمي من التيارات المناخية و خاصة الاشعة فوق البنفسجية و لمطر من خلال التأكد ان الكابل محوي بدائل العودة والجهاز في حالة الحاجة لتغير الملائك الداخلي، يتم ذلك من خلال الشركة المصنعة او الوكيل الممثل لعل ذلك او شخص مؤهل لذلك. دائما افضل الدائرة الكهربائية قبل تركيب او صيانة الجهاز.</p>			

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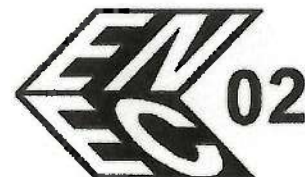
# LICENCE

No. 20254 replaces No.20142

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, street, flood lighting  
Trade name(s) : SCHREDER  
Type(s)/model(s) : VOLTANA0 6 LED xx, VOLTANA0 8 LED xx

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

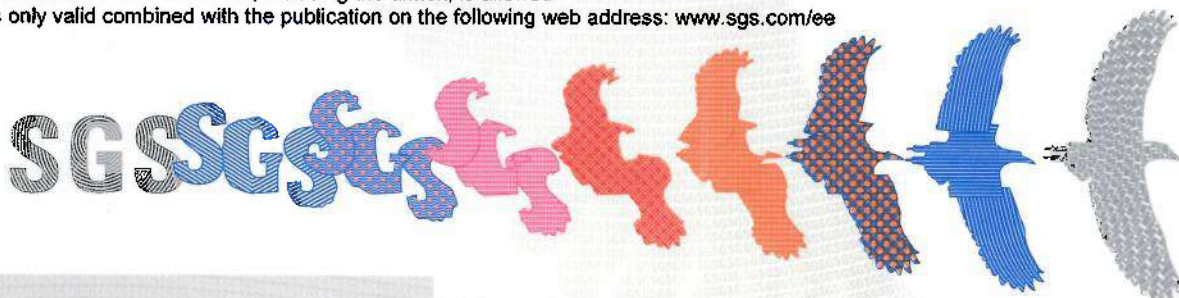
SGS CEBEC hereby grants the right to use the CEBEC certification mark

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: 15/03/2017

Ir. C. Lana,  
Certification Manager

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## SPECIFICATION OF THE CERTIFIED PRODUCT

### Product data

Product	:	road, square, street, flood lighting
Trade name(s)	:	SCHREDER
Type(s)/Model(s)	:	VOLTANA0 6 LED xx, VOLTANA0 8 LED xx
description	:	Street lighting
rated voltage (Un)	:	200-240 V
rated frequency	:	50-60 Hz
class	:	class I
degree of protection	:	IP66
additional information	:	IK08
rated output current (In out)	:	max. 1050 mA

### Additional information

xx = Color Temperature can be :  
 NW neutral white  
 CW cool white  
 WW warm white

### Product data - type VOLTANA0 6 LED xx

rated power	:	8-10-15-23 W
lamp(s)	:	6 LED
temperature class	:	Ta max.50°C

### Product data - type VOLTANA0 8 LED xx

rated power	:	11-14-20-31 W
lamp(s)	:	8 LED
temperature class	:	Ta max. 40°C

## TESTS

### Test requirements

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

**Test results**

The test results are laid down in test report(s) ref. P-1560-1a

**Remarks**

This certificate is based on test reports Nos. P1560-1a

**Conclusion**

The examination proved that all test requirements were met.

Checked by, project leader : Christian Maes - 15/03/2017

Department Manager,  
Product Certification :

Certification Manager :



Handwritten signature and date: *Maes 2017-03-15*

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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.....: P1560-la  
 Date of issue .....: 2017-03-03  
 Total number of pages ..... 45+2

Name of Testing Laboratory preparing the Report.....: R-TECH

Applicant's name.....: R-TECH  
 Address.....: Rue de Mons, 3,B-4000 LIEGE

**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  
 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> .....	Street lighting
<b>Trade Mark</b> .....	SCHREDER
<b>Manufacturer</b> .....	SCHREDER
<b>Model/Type reference</b> .....	VOLTANA 0
<b>Ratings</b> .....	120-240 V, 50-60 Hz, Cl. I , IP66, LED, IK08 (glass), IK08 (lenses). Version with 6 & 8 led's ; Max. 23 & max.31 W. Led: Max 1050 mA

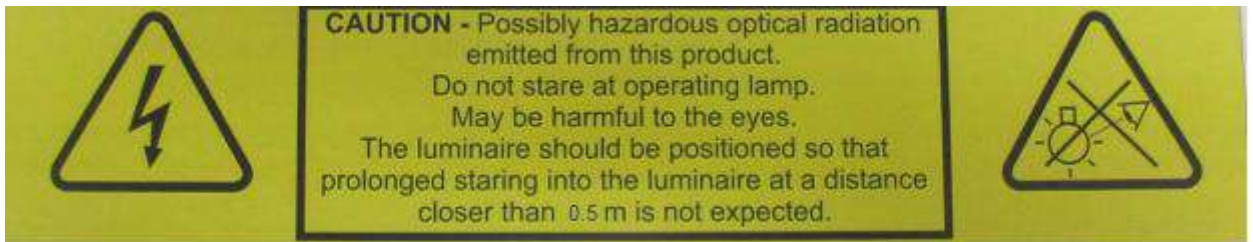
<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>		
<input type="checkbox"/>	<b>CB Testing Laboratory:</b>	
Testing location/ address .....		
<input type="checkbox"/>	<b>Associated CB Testing Laboratory:</b>	
Testing location/ address .....		
Tested by (name, function, signature) .....		
Approved by (name, function, signature)...		
<input type="checkbox"/>	<b>Testing procedure: TMP/CTF Stage 1:</b>	
Testing location/ address .....		
Tested by (name, function, signature) .....		
Approved by (name, function, signature)...		
<input type="checkbox"/>	<b>Testing procedure: WMT/CTF Stage 2:</b>	
Testing location/ address .....		
Tested by (name + signature) .....		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature)...		
<input checked="" type="checkbox"/>	<b>Testing procedure: SMT/CTF Stage 3 or 4:</b>	R-Tech
Testing location/ address .....		Rue de Mons, 3,B-4000 LIEGE
Tested by (name, function, signature) .....		Laurent Maghe 
Witnessed by (name, function, signature) . :		Christian Maes 
Approved by (name, function, signature)...		Cheuvart Geoffrey 
Supervised by (name, function, signature) :		

<p><b>List of Attachments (including a total number of pages in each attachment):</b></p> <p>EU deviations</p> <p>Picture s</p> <p>Instructions</p>	
<p><b>Summary of testing: full test</b></p>	
<p><b>Tests performed (name of test and test clause):</b></p> <p>IEC 60598-2-3:2002 (Third Edition) + A1:2011 used in conjunction with IEC 60598-1:2014 (Eighth Edition)</p>	<p><b>Testing location:</b></p> <p>R-tech sa Rue de Mons, 3 B-4000 LIEGE Belgium.</p>
<p><b>Summary of compliance with National Differences: Europe</b></p> <p><b>List of countries addressed</b></p> <p><input checked="" type="checkbox"/> <b>The product fulfils the requirements of</b></p> <p>IEC 60598-2-3: 2002 (third Edition) + A1:2011 used in conjunction with IEC 60598-1: 2014 (Eighth Edition). EN 60598-2-3: 2003 + A1:2011 used in conjunction with EN 60598-1:2014.</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.



<b>Test item particulars</b> ..... :	
<b>Classification of installation and use</b> ..... : Class I	
<b>Supply Connection</b> ..... : Connector	
..... :	
<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> .....: October 2016	
<b>Date (s) of performance of tests</b> .....: February 2017	
<b>General remarks:</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 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 checked="" type="checkbox"/> <b>Yes</b> <input 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 (ie s)</b> .....	
Comatelec S.A. Z.I. F-18400 SAINT FLORENT S/CHER France	Socelec S.A. Av. de Roanne, 66 Poligono Industrial "EL HENARES" 19180 MARCHAMALO (GUADALAJARA),Spain
Schröder Iluminação S.A. Apartado, 132 2790-076 CARNAXIDE,Portugal	Schröder do Brasil Iluminação Ltda. Rua Iracema Lucas, 415 Distrito Industrial Vinhedo 13280-000 SAO PAULO,Brazil
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
Tungsram-Schröder Világítási Berendezések Zrt Tópart 2 2084 PILISSZENTIVAN,Hungary	

**General product information:**

Ta following Leds current :

LED Count	Current (mA)	Power (W)	Ta (°C)	Ta with EMI filter(°C)
6	350	8	50	35
	500	10	50	30
	700	15	50	30
	1050	23	35	20
8	350	11	40	/
	500	14	40	/
	700	20	40	/
	1050	31	30	/

Color Temperature can be :

NW neutral white

CW cool white

WW warm white

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 66	—
3.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces .....	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
3.4 (2.5)	Luminaire for normal use .....	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service .....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
3.4 (-)	Modes of installation of road or street lighting		—
	a) on a pipe	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	b) on a mast arm	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	c) on a post top	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	d) on span or suspension wires	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	e) on a wall	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

3.5 (3)	MARKING		
3.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
3.5 (3.3)	Additional information		P
	Language of instructions		P
3.5 (3.3.1)	Combination luminaires		N/A
3.5 (3.3.2)	Nominal frequency in Hz	50-60 Hz	P
3.5 (3.3.3)	Operating temperature		N/A
3.5 (3.3.4)	Symbol or warning notice		N/A
3.5 (3.3.5)	Wiring diagram		N/A
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	0.91	P

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		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		
	a) Design attitude	See attached Installation Notice	P
	b) Weight	See attached Installation Notice	P
	c) Overall dimensions	See attached Installation Notice	P
	d) Maximum projected area if applicable	See attached Installation Notice	P
	e) Cross-sectional area of wires if applicable		N/A
	f) Suitability for indoors use		N/A
	g) Dimensions of the compartment		N/A
	h) Torque setting to be applied to bolts or screws	See attached Installation Notice	P
	i) Maximum mounting height	>6 m	P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
<b>3.6 (4)</b>	<b>CONSTRUCTION</b>		
3.6 (4.2)	Components replaceable without difficulty		N/A
3.6 (4.3)	Wireways smooth and free from sharp edges		P
<b>3.6 (4.4)</b>	<b>Lampholders</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>		
	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>		
	Tails	Provided with internal connector	N/A
	Unsecured blocks	Fixed	N/A
<b>3.6 (4.7)</b>	<b>Terminals and supply connections</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		P
3.6 (4.7.3)	Terminals for supply conductors		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.7.3.1)	Welded method and material		
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.8.2		N/A
	- electrical test according to 15.9		N/A
	- heat test according to 15.9.2.3 and 15.9.2.4		N/A
3.6 (4.7.4)	Terminals other than supply connection		N/A
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>		
	- 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>		
3.6 (4.9.1)	Retainment		N/A
	Method of fixing .....		—
3.6 (4.9.2)	Insulated linings and sleeves:		
	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>		
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:		
	- not coincidental		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- no straight access with test probe		N/A
3.6 (4.10.3)	Retention of insulation:		
	- 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>		
3.6 (4.11.1)	Contact pressure		P
3.6 (4.11.2)	Screws:		
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
3.6 (4.11.3)	Screw locking:		
	- 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		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>		
3.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part .....: 2Nm (case)		P
	Torque test: torque (Nm); part .....: 1.2Nm (drivers)		N/A
	Torque test: torque (Nm); part .....: 1.2Nm (glass)		N/A
3.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
3.6 (4.12.4)	Locked connections:		
	- fixed arms; torque (Nm) .....:		P
	- lampholder; torque (Nm) .....:		N/A
	- push-button switches; torque 0,8 Nm .....:		N/A
3.6 (4.12.5)	Screwed glands; force (Nm) .....:		P
<b>3.6 (4.13)</b>	<b>Mechanical strength</b>		
3.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm) .....: IK08 (glass) IK08 (lenses)		P
	- other parts; energy (Nm) .....:		P
	1) live parts		P



IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	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		
	- 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>		
3.6 (4.14.1)	Mechanical load:		
	A) four times the weight		N/A
	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:		
	- 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>IEC 60598-2-3</b>			
Clause	Requirement + Test	Result - Remark	Verdict
<b>3.6 (4.15)</b>	<b>Flammable materials</b>		
	- glow-wire test 650°C.....:	See Test Table 3.15 (13.3.2)	N/A
	- 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		
	a) construction		P
	b) temperature sensing control	110	P
	c) surface temperature		N/A
<b>3.6 (4.16)</b>	<b>Luminaires for mounting on normally flammable surfaces</b>		
	No lamp control gear .....	(compliance with Section 12)	N/A
3.6 (4.16.1)	Lamp control gear spacing:		
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
3.6 (4.16.2)	Thermal protection:		
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		P
3.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	P
<b>3.6 (4.17)</b>	<b>Drain holes</b>		
	Clearance at least 5 mm		N/A
<b>3.6 (4.18)</b>	<b>Resistance to corrosion</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>		
3.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	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>		
3.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		P
3.6 (4.24.2)	Retinal blue light hazard		
	Luminaires with $E_{thr}$ :		
	a) Fixed luminaires		P
	- distance x m, borderline between RG1 and RG2 ...:	RG2@20cm RG1@50cm RG0@500cm	P
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		
	- 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>		
	No sharp point or edges		P
<b>3.6 (4.26)</b>	<b>Short-circuit protection</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>		
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	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>		
	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>		
	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>		
	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>		
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3	SELV/IEC 61347-2-13	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>		P
	Used SELV source		P
	Voltage ≤ ELV		P
	Insulating of SELV circuits from LV supply	Double/reinforced	P
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A
	SELV circuits insulated from accessible parts according Table X.1		P

<b>IEC 60598-2-3</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	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>		
	Used FELV source		N/A
	Voltage ≤ 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
<b>3.6 (4.31.3)</b>	<b>Other circuits</b>		
	Other circuits insulated from accessible parts according Table X.1		N/A
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		
	- conductive parts are connected together		N/A
	- test according 7.2.3 of above		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- 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>		
	Comply with IEC 61643-11	CB	P
	External to controlgear and connected to earth:		
	- only in fixed luminaires		P
	- only connected to protective earth		P
<b>3.6.1 (-)</b>	At least IP X3 or X5 respectively. IP .....	IP66	P
	Column-integrated luminaires:		

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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		
	- drag coefficient .....	0.2563	P
	- loaded area (m <sup>2</sup> ).....	0.014m <sup>2</sup>	P
	- used load (N) .....	0.2N	P
	- measured deformation (cm/m) .....	0cm/m	P
	- no rotation		P
3.6.4 (-)	Adjustable lampholders		N/A
3.6.5 (-)	Luminaires installed above 5 m, glass covers shall be:		
	a) glass that fractures into small pieces (test according to 3.6.5.1), or	Safety Glass	P
	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 .....	48	P
3.6.5.2 (-)	Protection by the use of high impact resistant glass		P
3.6.5.2.1 (-)	Glass covers have high mechanical strength		P
	Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample	Glass : IK08 Lenses : IK08	P
3.6.5.2.2 (-)	Glass covers not break into large pieces		P
	- test according 3.6.5.1, number of particles is more than 20 .....	50	P
3.6.6 (-)	Connection compartment of column-integrated luminaire		
	- 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:		

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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:		
	- 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) .....	120-240 V	—
	Rated pulse voltage (kV) .....	/	—
	Voltage form .....	Sinusoidal <input checked="" type="checkbox"/> Non-sinusoidal <input type="checkbox"/>	—
	PTI .....	< 600 <input type="checkbox"/> ≥ 600 <input checked="" type="checkbox"/>	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II <input type="checkbox"/> Category III <input type="checkbox"/>	—

3.8 (7)	PROVISION FOR EARTHING		
3.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω .....		P
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		P
	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
3.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		P
3.8 (7.2.4)	Locking of clamping means		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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		P
3.8 (7.2.6)	Earth terminal adjacent to mains terminals		P
3.8 (7.2.7)	Electrolytic corrosion of the earth terminal		P
3.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
3.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
3.8 (7.2.11)	Earthing core coloured green-yellow		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>		P
	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>3.10 (5.2)</b>	<b>Supply connection and external wiring</b>		<b>P</b>
3.10 (5.2.1)	Means of connection.....	Internal connector	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 .....	H07RN-F (if provided)	P
	Nominal cross-sectional area (mm <sup>2</sup> ).....	1,5 mm <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		N/A
3.10 (5.2.5)	Type Z not connected to screws		N/A
3.10 (5.2.6)	Cable entries:		
	- suitable for introduction		P



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Clause	Requirement + Test	Result - Remark	Verdict
	- 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:		
	- 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:		
	- 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:		
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
3.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
3.10 (5.2.10.3)	Tests:		
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) .....: 60		P
	- torque test: torque (Nm) .....: 0.25Nm		P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- no damage of cable or cord		P
	- function independent of electrical connection		N/A
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)		P
	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		
	- IEC 60083		N/A
	- other standard		N/A
<b>3.10 (5.3)</b>	<b>Internal wiring</b>		
3.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A) .....:		N/A
	- temperatures .....: (see Annex 2)		N/A
	Green-yellow for earth only		N/A
3.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		
	Cross-sectional area (mm <sup>2</sup> ) .....:		P
	Insulation thickness		P
	Extra insulation added where necessary		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		
	Adequate cross-sectional area and insulation thickness		N/A
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		P
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:		
	- 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		P
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) .....	60 N	P
	- torque test: torque (Nm) .....	0.25 Nm	P
<b>3.11 (8)</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK</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		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		N/A
	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:		
	- 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:		
	Ordinary luminaire:		
	- touch current .....		N/A
	- no-load voltage.....		N/A
	Other than ordinary luminaire:		
	- 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		P
3.11 (8.2.6)	Covers reliably secured		P

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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) .....	35°C	—
	- total duration (h) .....	240 H	—
	- supply voltage: Un factor; calculated voltage (V)....:		—
	- lamp used .....		—
3.12 (12.3.2)	After endurance test:		
	- 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)	<b>P</b>
3.12 (12.6)	Thermal test (failed lamp control gear condition):		
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		
	- 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:		
	- 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:		
	- 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		
	- 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 .....	IP66	—
	- mounting position during test .....	Acc. to mounting instruction	—
	- fixing screws tightened; torque (Nm) .....	Acc. to mounting instruction	—
	- tests according to clauses .....		—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		P
	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		P
	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		P

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Clause	Requirement + Test	Result - Remark	Verdict
	f) no contact with live parts (IP 2X)		P
	f) no entry into enclosure (IP 3X and IP 4X)		P
	f) no contact with live parts (IP3X and IP4X)		P
	g) no trace of water on part of lamp requiring protection from splashing water		N/A
	h) no damage of protective shield or glass envelope		N/A
3.13 (9.3)	Humidity test 48 h		P

<b>3.14 (10)</b>	<b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>		P
3.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø .....		—
	Insulation resistance (MΩ) .....		—
	SELV		
	- between current-carrying parts of different polarity :	>1,3 Mohm	P
	- between current-carrying parts and mounting surface .....	>1,3 Mohm	P
	- between current-carrying parts and metal parts of the luminaire .....	>1,3 Mohm	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		
	- between live parts of different polarity .....	>2,6 Mohm	P
	- between live parts and mounting surface .....	>2,6 Mohm	P
	- between live parts and metal parts .....	>2,6 Mohm	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 Mohm	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



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

3.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		
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

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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			>2				
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			>2				
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>						
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							

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

3.15 (13.2.1)	<b>TABLE: Ball Pressure Test of Thermoplastics</b>			<b>N/A</b>
<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>				<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)	<b>TABLE: Glow-wire test (IEC 60695-2-11)</b>				<b>N/A</b>
<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
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow -wire, and any burning or molten drop did not ignite the underlying parts (Yes/No) .....					
Supplementary information:					

3.15 (13.4)	<b>TABLE: Proof tracking test (IEC 60112)</b>				<b>N/A</b>
<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:					

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>
Drivers	A	Meanwell	APC-8E Series	8W 50-60Hz 0,25-0,7A 200-240V Tc=75°C	IEC 61347-2-13	CB
Drivers	A	Meanwell	PLM-12 Series	12W 50-60Hz 0,35-1,05A 110-240V Tc=75°C	IEC 61347-2-13 IEC 62384	TUV
Drivers	A	Meanwell	PLM-25 Series	25W 50-60Hz 0,35-1,05A 110-240V Tc=80°C	IEC 61347-2-13 IEC 62384	TUV
Drivers	A	Meanwell	PLD-16 Series	17W 50-60Hz 0,35-1,4A 200-240V Tc=70°C	IEC 61347-2-13	CB
Drivers	A	Meanwell	PLD-25 Series	25W 50-60Hz 0.35/0.7/1.05/1.4A 100-240Vac Tc=70°C	IEC 61347-2-13	CB
Drivers	A	Meanwell	PLD-40 Series	40W 50-60Hz 0.35-1.75A 200-240Vac Tc=90°C	IEC 61347-2-13	CB
Driver	A	LG	PISE-A027M	27W 0,2-1A 120-277V 50-60Hz Tc=80°C	IEC 61347-2-13	CB / UL
Driver	A	LG	PISE-A027A	27W 1A 120-277V 50-60Hz Tc=80°C	IEC 61347-2-13	CB / UL
Drivers	A	Moons	PU025H Series	25W 50-60Hz 0,35-2,1A 100-240V Tc=90°C	IEC 61347-2-13	TUV
Drivers	A	PHILIPS	Xi LP/FP 22W 0,3-1,0A 230V S175 sXt	22W 50-60Hz 0,3-1,05A 198-264V Tc=85°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi FP/LP 40W 0,3-1,0A 230V S175 sXt	40W 50-60Hz 0,3-1,05A 198-264V Tc=90°C	IEC 61347-2-13	CB
Drivers	A	TRIDONIC	LCI 27W	27W 50-60Hz 1A 220-240V Tc=70°C	IEC 61347-2-13	OVE
EMI filter	A	TE connectivity	Corcom 2FB3	I <sub>max</sub> 2A V <sub>max</sub> = 250Vac/d Tc 50°C	IEC 60939-2	VDE
Surge protection Device	A	CITEL	MLPC1-230L-R	277 V, T85 10kA 20KV (DM) 120KV (CM)	IEC 61643-11	ENEC
VDR	A	Littelfuse	TM0V	275 Vac Tc=85°C 10kA	IEC 61051-2-2	VDE
FUSE HOLDER	A	Mersen	10x38mm CCR8-10 Series	20-32A 400V	IEC 60269-1 & -2	ENEC
FUSE HOLDER	A	ADELS	403/503 SI	400V 10A 5x20mm	IEC 60127-1 & -6	VDE
FUSE	A	Mersen	FR10 10x38mm	0.5-32A 400-500V	IEC 60269-1 & -2	ENEC
FUSE	A	Littelfuse	5x20mm 213 Series	0.2-6.3A 250V	IEC 60269-1 & -2	VDE
Terminal	A	ADELS	500 Series	0.5-4mm <sup>2</sup> 450V	EN 60998-1&2-2	VDE
Terminal	A	ADELS	900-07 & 08	0.5-4mm <sup>2</sup> 450V	EN 60998-1&2-2	VDE / UL
Terminal	A	WIELAND	ST18, GST18I	12-16A 250V 0,75-2,5mm <sup>2</sup>	EN 60998-1&2-2	VDE / UL

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

Led Modules	A	LG	6 Leds LG3535 G4TOP@1050 mA 8 Leds LG3535 G4TOP @1000 mA	RG2@20cm RG1@40cm RG0@325cm	IEC/EN 62031- 62471	Tested in appliance
Led Modules	A	LG	6 Leds LG3535 G4L@1050 mA	RG2@20cm RG1@50cm RG0@500cm	IEC/EN 62031- 62471	Tested in appliance

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

<b>IEC 60598-2-3</b>			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ANNEX 2</b>	<b>TABLE: Temperature measurements, thermal tests of Section 12</b>		
	Type reference .....	VOLTANA-0	—
	Lamp used .....	6 Led's LG3535	—
	Lamp control gear used .....	MeanWell PLM-25 @ 1050mA	—
	Mounting position of luminaire .....	Horizontal	—
	Supply wattage (W) .....		—
	Supply current (A) .....		—
	Calculated power factor .....		—
	Table: measured temperatures corrected for ta = 35 °C:		
	- abnormal operating mode .....		—
	- test 1: rated voltage .....		—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage .....		—
	- 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 .....		—

<b>Temperature measurements, (°C)</b>							
Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Convertor Tc	35	78			80		
VDR x 3 Tc	35	52			85		
Supply wiring	35	52			90		
Led Module	35	76			85		
Terminal	35	52			110		
Internal wiring	35	52			90		

Supplementary information:  
Corrected for Ta 35 °C

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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12		
	Type reference .....	VOLTANA-0	—
	Lamp used .....	6 Led's LG3535	—
	Lamp control gear used .....	PLD-16 @ 700 mA	—
	Mounting position of luminaire .....	Horizontal	—
	Supply wattage (W) .....		—
	Supply current (A) .....		—
	Calculated power factor .....		—
	Table: measured temperatures corrected for $t_a = 50 \text{ }^\circ\text{C}$ :		
	- abnormal operating mode .....		—
	- test 1: rated voltage .....		—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage .....		—
	- 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, ( $^\circ\text{C}$ )							
Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Convertor Tc	50	70			70		
VDR x 3 Tc	50	60			85		
Supply wiring	50	60			90		
Led Module	50	75			85		
Terminal	50	60			110		
Internal wiring	50	60			90		

Supplementary information:  
Corrected for  $T_a 50 \text{ }^\circ\text{C}$

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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12		
	Type reference .....	VOLTANA-0	—
	Lamp used .....	8 Led's LG3535	—
	Lamp control gear used .....	LCI 27W @ 1000mA	—
	Mounting position of luminaire .....	Horizontal	—
	Supply wattage (W) .....		—
	Supply current (A) .....		—
	Calculated power factor .....		—
	Table: measured temperatures corrected for ta = 30 °C:		
	- abnormal operating mode .....		—
	- test 1: rated voltage .....		—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage .....		—
	- 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
Convertor Tc	30	64			70		
SPD Tc	30	53			85		
Supply wiring	30	53			90		
Led Module	30	80			85		
Terminal	30	53			110		
Internal wiring	30	53			90		

Supplementary information:  
Corrected for Ta 30°C



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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12		
	Type reference .....	VOLTANA-0	—
	Lamp used .....	8 Led's LG3535	—
	Lamp control gear used .....	Philips 40W @ 1050mA	—
	Mounting position of luminaire .....	Horizontal	—
	Supply wattage (W) .....		—
	Supply current (A) .....		—
	Calculated power factor .....		—
	Table: measured temperatures corrected for ta = 35 °C:		
	- abnormal operating mode .....		—
	- test 1: rated voltage .....		—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage .....		—
	- 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
Convertor Tc	30	84			90		
SPD Tc	30	53			85		
Supply wiring	30	53			90		
Led Module	30	74			85		
Terminal	30	53			110		
Internal wiring	30	53			90		

Supplementary information:  
Corrected for Ta 35°C

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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12		
	Type reference .....	VOLTANA-0	—
	Lamp used .....	6 Led's LG3535	—
	Lamp control gear used.....	Moons @ 1050mA (MeanWell @ 350mA)	—
	Mounting position of luminaire .....	Horizontal	—
	Supply wattage (W).....		—
	Supply current (A).....		—
	Calculated power factor.....		—
	Table: measured temperatures corrected for ta = 20 °C (35°C):		
	- abnormal operating mode.....		—
	- test 1: rated voltage .....		—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage .....		—
	- 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
Convertor Tc	20 (35°C)	42 (57)			90 (75)		
SPD Tc	20 (35°C)	33 (38)			85		
Supply wiring	20 (35°C)	33 (38)			90		
Led Module	20 (35°C)	74 (45)			85		
Terminal	20 (35°C)	33 (38)			110		
Internal wiring	20 (35°C)	33 (38)			90		
EMI filter	(35°C)	(45)			50		

Supplementary information:  
Corrected for Ta 20°C (35°C)

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

<b>ANNEX 3</b>	<b>Screw terminals (part of the luminaire)</b>		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) .....		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

<b>ANNEX 4</b>	<b>Screwless terminals (part of the luminaire)</b>		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	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	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	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	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	10
voltage drop (mV)											
Supplementary information:											

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

**Installation notice and Pictures**

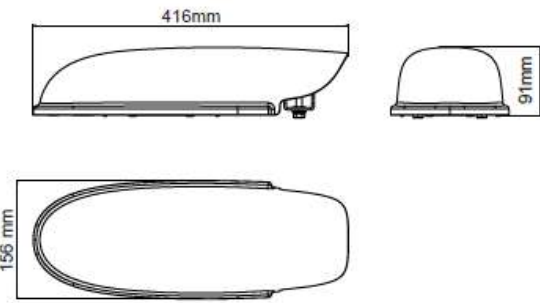


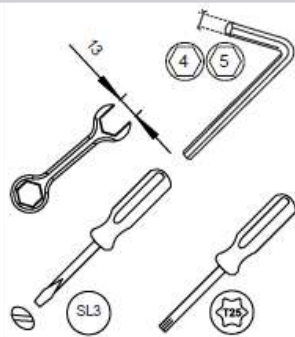
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**IK**  
08

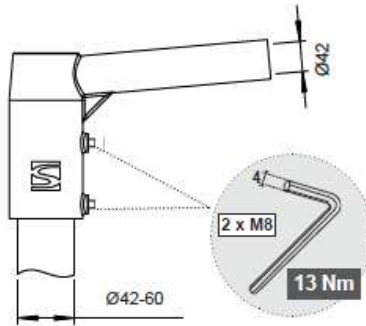
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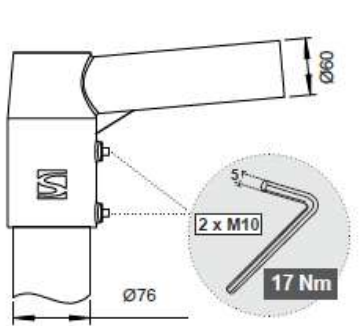
<b>ENG</b>	The light source fitted in this luminaire shall only be replaced by a Schröder employee or agent or a similar qualified person.	<b>UKR</b>	Джерело світла, встановлене в цій світельнику, підлягає заміні лише працівником спеціалізованої фірми.	<b>NLD</b>	De lichtbron in dit verlichtingsarmatuur zal alleen vervangen worden door een (toeleverings) agent of vergelijkbaar getoetste persoon van Schröder.	<b>RON</b>	Sursa de lumină încorporată în acest aparat de iluminat va fi înlocuită doar de către un angajat al Schröder, de un agent al companiei sau de o persoană cu calificări similare.
<b>SPA</b>	La fuente de luz instalada en este luminaria solo puede ser sustituida por Schröder o un agente cualificado.	<b>ITA</b>	La sorgente luminosa montata in questo apparecchio potrà essere sostituita esclusivamente da un addetto Schröder o da una persona perentri qualificata.	<b>DEU</b>	Die eingebaute Lichtquelle in der Leuchte sollte nur von einem Schröder Mitarbeiter oder Vertreter oder einer ähnlichen qualifizierten Person ersetzt werden.	<b>HUN</b>	A lámpatestő szerelt fényforrás (LED-modul) cseréjét csak a gyártó, annak szerelői szakszolgálat, vagy erre kiképzett szakember végezheti!
<b>FRA</b>	La source de lumière intégrée dans ce luminaire peut uniquement être remplacée par un employé de Schröder, un agent ou une autre personne qualifiée.	<b>POL</b>	Źródło światła zamontowane w tej oprawie może być tylko wymienione przez pracownika Schröder lub przez inną wykwalifikowaną osobę.	<b>POR</b>	A fonte de luz montada nesta luminária só pode ser substituída por um funcionário ou agente da Schröder ou por profissional qualificado autorizado para o efeito.	<b>SRP</b>	Zamenu svetilnega izvora ugrađenog u ovoj svetiljki će izvršiti samo Schröder-ov radnik, ovlašćeni predstavnici ili slična stručna osoba.
<b>CHI</b>	该灯具内的光源仅可由施耐德员工、指定代理商或具备类似资质的人员进行更换。	<b>VIE</b>	Nguồn sáng được lắp đặt bên trong bộ đèn này chỉ được thay thế bởi nhân viên Schröder hoặc đại lý hoặc người có trình độ tương đương.	<b>RUS</b>	Источник света, установленный в этом светильнике, должен заменяться только сотрудниками Schröder, или специалистами аналогичной квалификации.	<b>SLK</b>	Výmena svetelného zdroja (LED modulu) je možná len výrobcom, resp. len ním vyškolenými osobami!





**A**





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

**1**

**2**

**3**

**4**

**5**

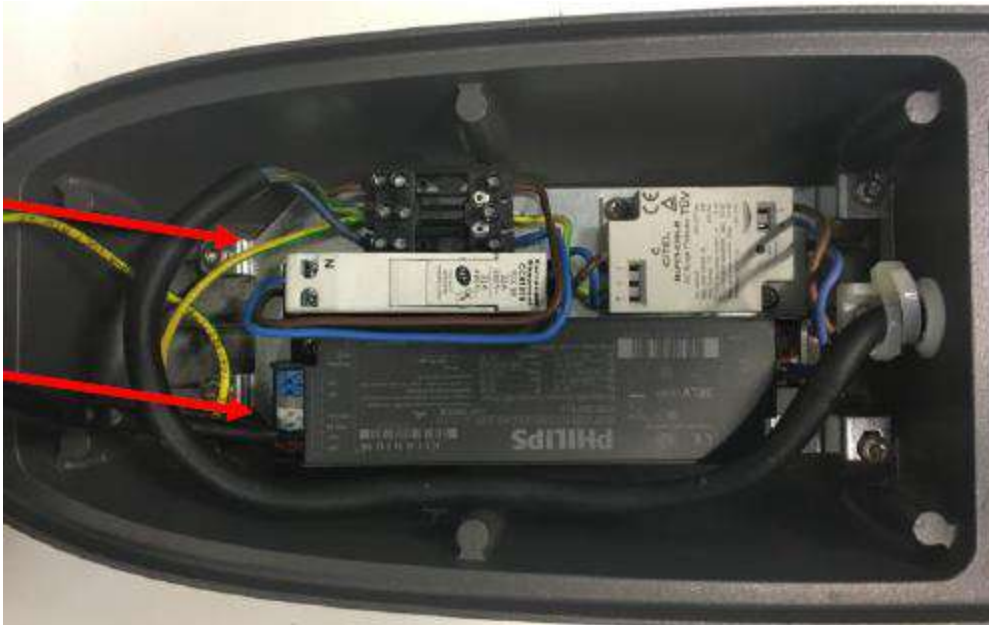
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-15°	M8 x 45	M8 x 70	
-10°			
-5°			
0°			
+5°			

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





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



## IEC60598\_2\_3K - ATTACHMENT

Clause	Requirement – Test	Result - Remark	Verdict
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**ATTACHMENT TO TEST REPORT IEC 60598-2-3**  
**EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**  
**LUMINAIRES**  
**PART 2: PARTICULAR REQUIREMENTS**  
**SECTION 3: LUMINAIRES FOR ROAD AND STREET LIGHTING**

**Differences according to** ..... : EN 60598-2-3:2003 + A1:2011 used in conjunction with EN 60598-1:2015

**Annex Form No.** ..... : EU\_GD\_IEC60598\_2\_3K

**Annex Form Originator** ..... : IMQ S.p.A.

**Master Annex Form**..... : 2016-12

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	<b>CENELEC COMMON MODIFICATIONS (EN)</b>	<b>P</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	N/A

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

<b>3.10 (5)</b>	<b>EXTERNAL AND INTERNAL WIRING</b>	
3.10 (5.2.1)	Connecting leads	N/A
	- without a means for connection to the supply	N/A
	- terminal block specified	N/A
	- relevant information provided	N/A
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1	N/A
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>	
3.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring	N/A

<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

## IEC60598\_2\_3K - ATTACHMENT

Clause	Requirement – Test	Result - Remark	Verdict
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(5.2.1)	CY, DK, FI, GB: type of plug		
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<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  (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:		
	- 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

# 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:** VOLTANA-0 / 6 led's / Moons PU025H105AQ 0-10V driver

Sample n°: P-E16371, P-E16375

**Test purpose:** Electrical measurements @ 1.05A

**Remarks:**

Test request n°: P-D16542

Folder n°: P-F16041

**TEST CONDITIONS:**

Operator: CLOSSET Frédéric

Load: 6 Led's  
Typical Vf: 3,1 V

Driver: Moon's PU025H105AQ\_0-10V Series

Power supply: Elgar ET3500 230V 50Hz

Measurement device: Fluke Norma 4000 HF power meter

**CONCLUSIONS:**

PF: 0.97

Efficiency: 82.1 %

THD: 9.1 %

Harmonics we are under the 25W => no measurements



Duplicate to: Mr M. Thijs  
LAB 05/10/2016  
L. Maghe

//P-16CR542

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

# 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:** VOLTANA-0 8 led's class II PHILIPS driver 40 W

Sample n°: P-E17149

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

**Remarks:**

Test request n°: P-D17187

Folder n°: P-F16041

**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	
EN 61000-3-2	Class C a)	X	

**Immunity**

Standard	Limit / Level	Result	
		PASS	FAIL
EN 61000-4-2	4 kV at contact 2, 4 & 8 kV in the air Criteria B required	X	
EN 61000-4-3	3 V/m 80 MHz – 1 GHz AM 80 % 1 kHz Criteria A required	X	
EN 61000-4-4	1 kV 5 kHz Criteria B required	X	
EN 61000-4-5	0.5 & 1 kV MD Criteria C required	X	
EN 61000-4-5	Complementary levels 2, 4, 8 & 10 in MD Criteria C required	X	
EN 61000-4-6	3 V 150 kHz – 80 MHz AM 80 % 1 kHz Criteria A required	X	
EN 61000-4-11	0% U 0.5 period 70% U 10 periods Criteria B/C required	X	

**VOLTANA-0 8 led's class II PHILIPS driver 40 W**

**Driver:** Philips FP 40W 0.3-1A

**EMC Auxiliaries:** Varistors

---

**CONCLUSIONS:**



VOLTANA 0 8 led's driven by PHILIPS FP 40 W driver complies with the CISPR/EN 55015 and EN 61547 Standards.

**Remark:** Surge protection tested OK up to 10 KV for Differential mode for the equipment with eventual Fuse replacement.

---

Duplicate to: Mr Ph. Verbeeck  
LAB 24/04/2014  
G. Cheuvart

//P-17CR187

# 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:** VOLTANA-0 with Glass protector

Sample n°: P-E16420

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

**Remarks:**

Test request n°: P-D16604

Folder n°: P-F16041

**TEST CONDITIONS:**

Operator: BOMBIL Patrick

Glass thickness: 5 mm

**At pendulum hammer**

5 impact points distributed on protector surface

1 impact on clamp

One impact on each point

**Test on 5 samples**

**Test**

**Result**

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

OK for the 5 samples for all tested points

**CONCLUSIONS:**



VOLTANA 0 equipped with glass protector complies with IK08 test following IEC/EN 62262 Standard.

Duplicate to: Mr M. Thijs  
LAB 07/11/2016  
L. Maghe

**//P-16CR604**

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

# 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:** VOLTANA-0 equipped with 5205 & 5206 lenses

Sample n°: P-E16393, P-E16460

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

**Remarks:**

Test request n°: P-D16655

Folder n°: P-F16041

**TEST CONDITIONS:**

Operator: BOMBIL Patrick

VOLTANA-0 equipped with 6 led's

**At pendulum hammer**

5+2 impact points distributed on lens protector surface

One impact on each point

**Test on 5 samples**

**Test**

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

**Result**

OK for all tested samples

**CONCLUSIONS:**



VOLTANA 0 equipped with 5205 & 5206 lenses complies with IK08 test following IEC/EN 62262 Standard.

Duplicate to: Mr M. Thijs  
LAB 23/11/2016  
L. Maghe

//P-16CR655

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



# 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:** VOLTANA 0 – 8 led's – Flat glass protector

Sample n°: P-E16377, P-E16394

**Test purpose:** Tightness test IP66 following IEC/EN 60598-1 Standard

**Remarks:**

Test request n°: P-D16575

Folder n°: P-F16041

**TEST CONDITIONS:**

Operator: BOMBIL Patrick

VOLTANA-0 8 led's with flat glass protector

**Pre-conditioning:** endurance test

Test	Result
<b><u>IP6X</u></b> : -Luminaire switched ON until stable T° -Talcum in suspension (blowing ON) -After 1', luminaire OFF -Talcum for 3 hours	OK
<b><u>IPX6</u></b> : - Luminaire switched ON until stable T° - Luminaire switched OFF and immediately sprayed with water jet - Hose $\Phi$ 12,5 mm - Water pressure: 1 kg/cm <sup>2</sup> - Spraying distance: 3 m - Duration of test: 3 minutes	OK

**CONCLUSIONS:**



VOLTANA-0 8 led's with flat glass protector complies with IP66 test following IEC/EN 60598-1 Standard.

Duplicate to: Mr M. Thijs  
LAB 21/11/2016  
L. Maghe

//P-16CR575

# 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:** VOLTANA 0 – 6 led's NW @ 1050 mA

Sample n°: P-E16418

**Test purpose:** Photobiological safety tests following IEC-EN 62471 Standard

**Remarks:**

Test request n°: P-D17045

Folder n°: P-F16041

**TEST CONDITIONS:**

Operator: Laborelec

**VOLTANA 0 – 6 led's NW @ 1050 mA**



**Test program:**

Spectral radiance and irradiance measurements of the device under test in the following wavelength ranges:

- 200 to 400 nm : « Actinic UV skin & eye » irradiance
- 315 to 400 nm : « Eye UV-A » irradiance
- 300 to 700 nm : « Blue Light » radiance
- 380 to 1400 nm : « Thermal Retinal » radiance
- 780 to 1400 nm : « Thermal Retinal » radiance (weak visual stimulus)

Determination of the Risk Group classification for each hazard and recommendation about the marking of the product.

**CONCLUSIONS:**

RG2 @ 20 cm

RG1 @ 30 cm

Duplicate to: Mr Ph. Verbeeck  
LAB 08/06/2017  
G. Cheuvart

**//P-17CR045**

A handwritten signature in blue ink, appearing to read "Cheuvart", written over a blue scribble.

## Thermal Test LED

### General information

Subject : VOLTANA 0 - 8 LEDs Oram 50 W driver  
Created on : 08/11/2018  
Validated on : 21/11/2018  
Test number : D180791  
Reference norm : IEC/EN 60598-1 Standard  
Sample(s) : E180590  
Folder : P-F16041

### Test conditions

Luminaire : VOLTANA 0  
Number of LED : 8

Driver : Optotronic OT50/120-277/1A2 2DIM LT2 P / 00-14-565  
Driver info : Tc (max: 80°C)  
Driver current (mA) : 1250  
SPD : Vossloh Lighting Solutions SPC3 230/10 K

Measurements devices :  
Fluke Norma 4000 - HF Powermeter - (E110) : Electrical measurements  
Keithley 2701 (E097) – Ethernet Multimeter/Data Acquisition System :  
Thermal & VF led measurements

Power Supply :  
APT 300XAC AC power supply (E096)  
Supply voltages: 230 V 50 Hz


Junction Temperature measurement method : Junction temperature measurement by base temperature measurement and electrical measurement.  $T^j = T^b + R_{jb} \times P_{led}$

Operator : MESPOUILLE Loic



IMG\_0885

### Conclusion

 Informative

Ta: 40°C limited by lenses and driver; according IEC 60598-2-3 and IEC 60598-2-5 (outdoor use only)

Ta: 30°C limited by lenses and driver; indoor use and UL standard

Tq: 15°C limited by lenses and driver; according IEC 62722-2-1

Tq given for 100 khrs of lifetime

Validated by : Duplicate to : BOS Peter  
GHYSENS Gilles LAB : 22/11/2018

//CR180791

1/1

