

# Lumen maintenance report

## LED information

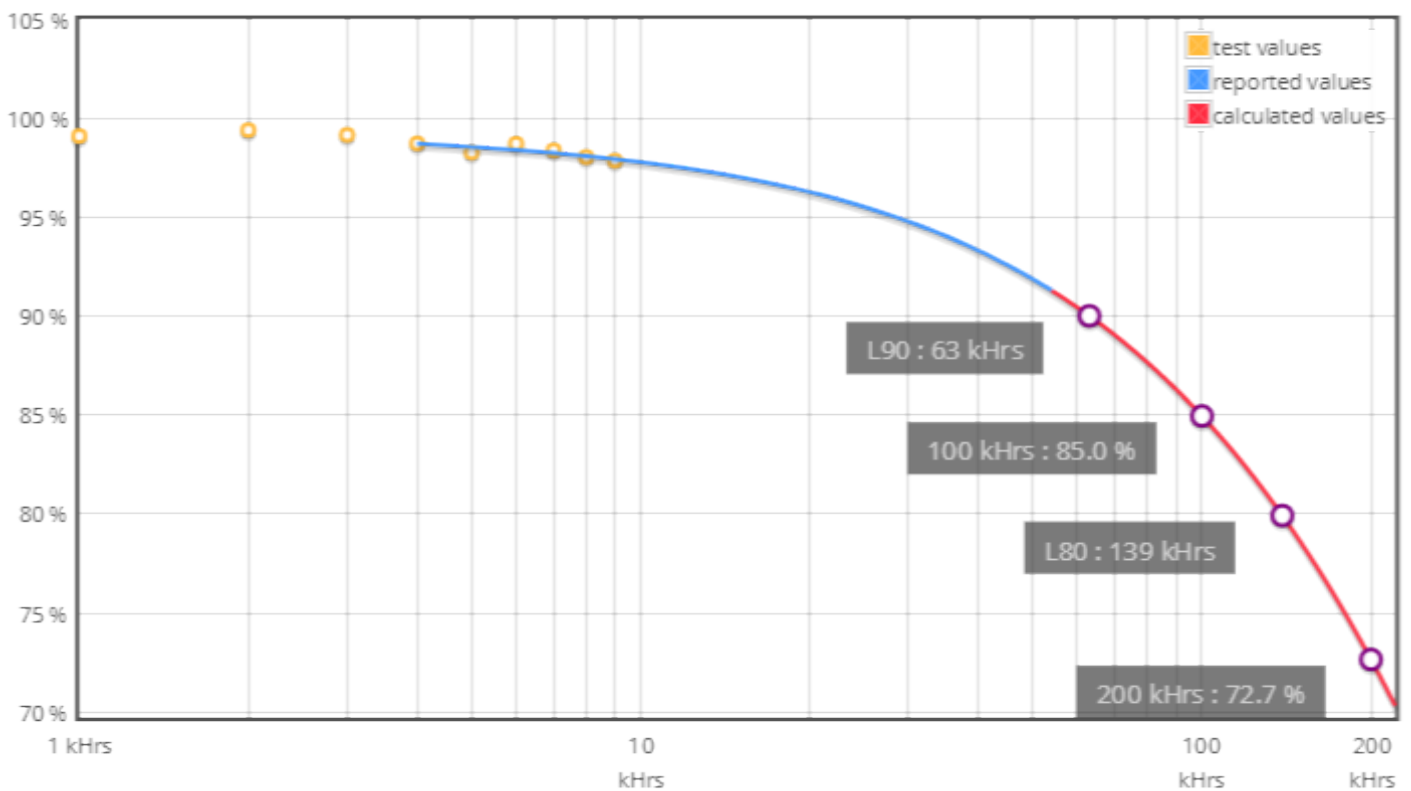
**LED type** 3535 Gen4  
**LED current** 1000 mA  
**Ts** 55°C  
**Description** KILT1401-U00009-24

## Projection data

**Test duration** 9000 hrs **α** 1.564E-006  
**Time used for projection** 4000 to 9000hrs **β** 0.993

L (%)	Time (kHrs)
72.7	200
80.0	138
85.0	100
90.0	63

## Projection graphic



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

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



**A U T O R I Z A R E**

Către: **PRIMĂRIA S.OLIȘCANI, R - NUL ȘOLDĂNEȘTI**

Noi, **SCHRÉDER ROMANIA S.R.L.**, cu sediul in Cluj - Napoca, str. Corneliu Coposu, nr. 167A, înregistrată la Registrul Comerțului cu nr. J12 / 1759 / 1998, în calitate de producători de aparate de iluminat public de tipul:

- Aparat de iluminat Schröder, tip **VOLTANA 2 5102 16 LED 1000mA NW 56W**
- Aparat de iluminat Schröder, tip **VOLTANA 2 5162 16 LED 1000mA NW 57W**
- Aparat de iluminat Schröder, tip **VOLTANA 0 5205 6 LED 1050mA NW 22W**
- Aparat de iluminat Schröder, tip **VOLTANA 0 5206 6 LED 1050mA NW 22W**

autorizăm prin prezenta pe furnizorul **COMELEC LUX S.R.L.**, să livreze produsele mai sus menționate.

Prin prezenta garantăm calitatea și performanțele produselor oferite și autorizăm pe **COMELEC LUX S.R.L.**, să asigure pentru produsele respective îndeplinirea obligațiilor care decurg din contractul de furnizare, referitoare la serviciile de instalare și punere în funcțiune, de întreținere și de asistență tehnică.

Data completării: 18.03.2019

Producător  
**SCHRÉDER ROMANIA S.R.L.**  
Director Comercial,

Ovidiu GROZA

**Schröder Romania S.R.L.**

RO, Cluj-Napoca, 400228 | Str. Corneliu Coposu, Nr. 167A  
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info.romania@schreder.com | www.schreder.com

CIF RO11210601 | RC J12/1759/1998

IBAN RO77FTSB6448000037001RON, BNP PARIBAS | Capital social 133.150 RON

Certificat MI



Membru în



Membru fondator



## CERTIFICAT DE GARANȚIE

Nr. 024/ 18.03.2019

Producător/ Furnizor: **SCHRÉDER ROMANIA S.R.L.**

Beneficiar: **Primăria s.Olișcani,r-nul Șoldănești**

Data livrării: pe perioada de valabilitate a: **“Lucrari de extindere a sistemului de iluminat stradal s. Olișcani”**

Termen de garanție:

- Aparat de iluminat Schröder, tip **VOLTANA 2 5102 16 LED 1000mA NW 56W**  
5 ani, de la data livrării,
- Aparat de iluminat Schröder, tip **VOLTANA 2 5162 16 LED 1000mA NW 57W**  
5 ani de la data livrării
- Aparat de iluminat Schröder, tip **VOLTANA 0 5205 6 LED 1050mA NW 22W**  
5 ani de la data livrării
- Aparat de iluminat Schröder, tip **VOLTANA 0 5206 6 LED 1050mA NW 22W**  
5 ani de la data livrării

Condiții de asigurare a garanției:

- **Se asigură garanție** pentru orice defecțiune a produsului generată de vicii ascunse care nu au putut fi detectate la momentul recepției de către Beneficiar.
- **Nu se asigură garanție** pentru viciile aparente după data recepției de către Beneficiar.
- Utilizarea necorespunzătoare a produsului și orice intervenție asupra sa **duce la pierderea garanției**.
- **Nu se asigură garanție** pentru materialele consumabile ( varistori, fuzibili).
- **Nu se asigură garanție** dacă acest certificat nu este însoțit de originalul sau copia facturii de achiziție.

La livrare se predau Beneficiarului instrucțiuni de instalare, de punere în funcțiune, utilizare, întreținere, manipulare, depozitare și transport.

SCHRÉDER ROMANIA S.R.L.  
Director Comercial,

Ovidiu GROZA



Eliberat,  
martie 2019, Cluj-Napoca

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Membru fondato



## DECLARATIE DE CONFORMITATE - CE

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

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

Echipare:

LED-uri de Mare Putere (High Power LED): 6 sau 8 LED-uri

Caracteristici principale:

Balast: Electronic

Etanșeitate compartiment optic: IP 66

Etanșeitate compartiment aparataj: IP 66

Tensiune nominală: 230 V – 50 Hz

Clasa electrică: I sau II

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

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

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

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

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

De asemenea acesta este în conformitate și cu standardele:

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

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

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

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

CEI EN 61547 – 1996/07 (CEI 34-75)

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

Data aplicării marcajului CE: 17

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

SCHRÉDER ROMANIA S.R.L.

Director Comercial,  
Ovidiu GROZA



Eliberat,  
Ianuarie 2019, Cluj-Napoca

**Schröder Romania S.R.L.**

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## DECLARATIE DE CONFORMITATE - CE

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Declarăm pe propria răspundere că aparatul de iluminat: **VOLTANA 2**

Echipare:

LED-uri de Mare Putere (High Power LED): 16 LED-uri

Caracteristici principale:

Balast: Electronic

Etanșeitate compartiment optic: IP 66

Etanșeitate compartiment aparataj: IP 66

Tensiune nominală: 230 V – 50 Hz

Clasa electrică: I sau II

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

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

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

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

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

De asemenea acesta este în conformitate și cu standardele:

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SCHRÉDER ROMANIA S.R.L.

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Ovidiu GROZA



Eliberat,  
Ianuarie 2019, Cluj-Napoca

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Membru fondator



**DECLARATIE DE CALITATE**

Nr. 044/ 18.03.2019

Producător/Furnizor: SCHRÉDER ROMANIA S.R.L  
Beneficiar: **PRIMĂRIA S. OLIȘCANI, R. ȘOLDĂNEȘTI**

În conformitate cu prevederile legale privind calitatea produselor livrate, SCHRÉDER ROMANIA S.R.L. declară pe propria răspundere că produsele care vor fi livrate în cadrul : **“Extinderea sistemului de iluminat stradal din s.Olișcani,r-nul Șoldănești”** în concordanță cu Declarația de conformitate 044/ 18.03.2019, îndeplinesc condițiile de calitate prevăzute în documentația tehnică cu care vor fi livrate produsele.

SCHRÉDER ROMANIA S.R.L.  
Director Comercial,

Eliberat,  
martie 2019, Cluj-Napoca

Ovidiu GROZA



## DECLARAȚIE DE CONFORMITATE

Nr. 044/ 18.03.2019

Noi, SCHRÉDER ROMANIA S.R.L., cu sediul în Cluj - Napoca, str. Corneliu Coposu, nr. 167A, înregistrată la Registrul Comerțului cu nr. J12/1759/1998, asigurăm, garantăm și declarăm pe propria răspundere, conform prevederilor legale aflate în vigoare privind regimul produselor care pot pune în pericol viața, sănătatea, securitatea muncii și protecția mediului, că următoarele produse:

- Aparat de iluminat Schröder, tip **VOLTANA 2 5162 16 LED 700mA NW 38W 389092**
- Aparat de iluminat Schröder, tip **VOLTANA 2 5162 16 LED 500mA NW 27W 389092**
- Aparat de iluminat Schröder, tip **VOLTANA 0 5205 6 LED 1050mA NW 23W 394882**
- Aparat de iluminat Schröder, tip **VOLTANA 0 5136 8 LED 700mA NW 20W 395222**
- Aparat de iluminat Schröder, tip **VOLTANA 0 5205 6 LED 700mA NW 15W 394882**

care vor fi livrate în cadrul contractului "**Extinderea sistemului de iluminat stradal din s.Olișcani,r-I Șoldănești**", nu pun în pericol viața, sănătatea, securitatea muncii și nu produc un impact negativ asupra mediului, în situația în care sunt instalate și utilizate conform destinației.

SCHRÉDER ROMANIA S.R.L.

Director Comercial,

Ovidiu GROZA



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## OFERTA TEHNICA

privind organizarea si desfășurarea procedurii ce are ca obiect:

### LUCRĂRI DE EXTINDERE A SISTEMULUI DE ILUMINAT PUBLIC STRADAL S. OLIȘCANI

#### 1. OBIECTUL CERERII DE OFERTE

Procedura are ca obiect extinderea sistemului de iluminat public existent din s. Olișcani, r-ul Șoldanești. Procedura aplicata pentru atribuirea contractului de achiziție publica este "Cererea ofertelor de pret" si se desfășoara in conformitate cu actele normative in vigoare.

#### 2.ORGANIZATORUL PROCEDURII:

Denumirea autorității contractante : Primaria s. Olișcani, r-ul Șoldanești

Adresa: s. Olișcani, r-ul Șoldanești

Nr. Telefon: 027244236

E-mail: primariaoliscani@mail.ru

#### 3.CONDIȚII DE PARTICIPARE LA CONCURS:

**3.1** Oferta tehnica pentru: Furnizare si montaj, de stalpi, cablu de alimentare si aparate de iluminat echipate cu surse LED – pentru extinderea sistemului de iluminat public - s. s. Olișcani, r-ul Șoldanești corespunde normelor de iluminat si standardelor in vigoare.

#### 4. OBIECTUL CONTRACTULUI

**Lucrari de extindere a sistemului de iluminat public existent (suplimentar la proiectul implimentat)**

*1. Montarea pe tronsonul strazii Ștefan cel Mare:*

- Instalarea a 51 piloni beton armat
- Corpuri de iluminat de tip LED VOLTANA 2 16 LEDS 1000mA NW 56 W - 27 buc
- Console metalice 27 buc.

*2. Montarea pe tronsonul str. Mihai Eminescu :*

- Instalarea aditionala a 2 piloni de beton armat

*3. Montarea pe tronsonul str. Ion Daghi:*

- Instalare a 14 piloni beton armat
  - Corpuri de iluminat de tip LED VOLTANA 0 6 LEDS 1050mA NW 23 W - 8 buc
- Console metalice 8 buc

*4. Montarea pe tronsonul Appendix str. Ștefancel Mare:*

- Corpuri de iluminat de tip LED VOLTANA 0 6 LEDS 1050mA NW 23 W - 3 buc
- Console metalice - 3 buc.

**4.1** Extinderea sistemului de iluminat public stradal se va face prin:

- a) achiziționarea și montarea a 67 piloni de beton armat pe transoanele mentionate.
- b) achiziționarea și montarea aparate de iluminat echipate cu surse LED pe stâlpi existenti (sau nou montați după caz), impartite pe clase ale sistemului de iluminat conform descrierii de mai jos:

- Situația 1 - clasă de iluminat M5: 27 aparate de iluminat de tipul 1
- Situația 1 - clasă de iluminat M6: 11 aparate de iluminat de tipul 2

și cuprinde furnizarea corpurilor de iluminat, consoalelor, cleme de conexiune, cablu de alimentare,etcetera în conformitate cu specificațiile tehnice, precum și montajul acestora pe stâlpii LEAI-0.4kV și LEC-0.4kV.

- Pentru Situația 1 aparatele de iluminat vor fi de tip VOLTANA 2 16 LEDS 1000mA NW 56 W ca adaugare la cele existente, pentru a mentine uniformitatea estetica, simplificarea mentenantei, exploatarea optimă, uniformitatea percepției vizuale.
  - Pentru Situația 2 aparatele de iluminat vor fi echipate cu surse LED, de tip VOLTANA 0 6 LEDS 1050mA NW 23 W, cu puterea 23W conform profilului transversal descris mai jos.

Configurația și cerințele pentru situație este descrisă mai jos:

### **Situația 2 : Starda auxiliara**

#### **clasă de iluminat M6:**

- Montaj : unilateral
- Distanța între stâlpi : 35 m
- Lățime carosabil : 6 m
- Retrageră stâlp : 1 m
- Înălțime montaj aparat de iluminat : 7.5 m
- Lungime braț : 1 m
- Unghi înclinare : 10°
- Factor de menținere : 0.85

**Cantitățile de lucrări și utilaj necesare sunt prezentate detaliat în Lista cantităților de licrări anexată.**

Toate lucrările se vor executa în conformitate cu instrucțiunile specifice fiecărei categorii elaborate, cu respectarea prevederilor din normele și legile în vigoare la data execuției.

### **5.1 Fisa tehnica pentru aparate de iluminat cu LED.**

#### **VOLTANA 0 6 LEDS 1050mA NW 23 W**

- Grad de protecție minim IP 66 pentru compartimentul optic
- Grad de protecție minim IP 66 pentru compartimentul aparataj
- Rezistență la șoc minim IK 08, pentru întreg aparatul de iluminat
- Carcasa realizată din aluminiu sau alt aliaj metalic rezistent la coroziune , dimensionată astfel încât să îndeplinească și funcția de radiator pasiv pentru LED
- Distribuția luminoasă va fi de tip stradal și nu va fi influențată de apariția unor defecte asupra LEDurilor; fiecare LED va avea asociată o lentilă specifică care reproduce distribuția luminoasă completă a aparatului
- Durata de viață minim 100000 ore cu păstrarea a minim 70% din fluxul luminos inițial
- Randamentul luminos al aparatului de iluminat va fi minim 75%
- Blocul electronic, compatibil cu tipul sursei de lumină utilizată, asigurarea funcționării la minim un factor de putere de 0,90
- Protecție împotriva electrocutării Clasă I
- Aparatele de iluminat vor fi echipate cu surse de iluminat având temperatura de culoare cuprinsă între 4000K+/-500K
- Funcționare la temperaturi între -20 și +40 grade Celsius
- Prevăzut cu protecție la descărcări atmosferice minim 4kV
- Garanție producător minim 5 ani.

## 5.2 Brațe de prindere

### Cerințe tehnice minime impuse pentru brațe și coliere de prindere aparate de iluminat stradal

- Material: țevă de oțel protejată de corozie, având diametru minim  $\varnothing 32\text{mm}$
- Dimensiuni: în funcție de geometria străzii, lungimea minimă a brațului pe orizontală 500mm; lungimea maximă nu va depăși  $\frac{1}{4}$  din înălțimea de montaj
- Unghiuri de înclinare: în funcție de soluția aleasă dar nu mai mari de  $10^\circ$  față de planul orizontal
- Prinderea concozelor pe stâlpi se va face în brățări pereche cu șuruburi

## 5.3 Componente electrotehnice

Pentru montaj de utilizat numai materiale și utilaje certificate conform legislației în vigoare. Pentru Situația 2 se admite înlocuirea materialelor și componentelor electrotehnice preconizate în specificația proiectului tehnic cu analogice.

## 5.5 Documente care să ateste respectarea condițiilor tehnice

### 5.6.1 Corpuri de iluminat

- Prospect tehnic/fișă de catalog aparat de iluminat în limba română
- Certificat de conformitate emis de un organism terț acreditat
- Declarații de conformitate CE producător, din care să rezulte caracteristicile tehnice solicitate și conformitatea cu standardele EN60598
- Declarații de calitate producător
- Certificat de garanție
- Declarații RoHS producător
- Raport de încercări IP pentru fiecare tip de aparat de iluminat, emis de un organism recunoscut. Se va face dovada acreditării laboratoarelor care a emis raportul.
- Teste IK pentru fiecare tip de aparat de iluminat, emis de un organism recunoscut. Se va face dovada acreditării laboratoarelor care a emis raportul.
- Teste EMC pentru fiecare tip de aparat de iluminat, emis de un organism recunoscut. Se va face dovada acreditării laboratoarelor care a emis raportul.
- Test termic pentru fiecare tip de aparat de iluminat, emis de un organism recunoscut. Se va face dovada acreditării laboratoarelor care a emis raportul.
- Raport de încercare/testare fotometrică pentru fiecare tip de aparat de iluminat, emis de un organism recunoscut. Se va face dovada acreditării laboratoarelor care a emis raportul.

Produsele și componentele oferite trebuie să fie marcate corespunzător documentațiilor prezentate.

***Îndeplinirea cerințelor tehnice minime anunțate mai sus este obligatorie, nerespectarea acestora atrage descalificarea ofertelor respective.***

## 6. PREZENTARE OFERTĂ TEHNICĂ :

**6.1** Prezentat pentru examinare **fișe tehnice**, care să conțină o coloană cu cerințele caietului de sarcini și o coloană cu caracteristicile echipamentelor oferite. Caracteristicile echipamentelor oferite trebuie să îndeplinească întocmai sau să fie superioare celor solicitate. Declarațiile ofertanților vor fi dovedite prin prezentarea de certificate de conformitate sau alte documente avizate din care să reiasă cele declarate.

**6.2** Prezentat pentru examinare raport de calcule luminotehnice și descrierea programelor luminotehnice utilizate, pentru configurațiile de cai de circulație martor – situația 2 din prezenta documentație.

## 7. Garanții oferite:

- lucrări de construcții montaj: 2 ani;
- aparate de iluminat: 5 ani;
- 

**Prezentul Caiet de sarcini este parte integrantă din contractul de achiziție publică.**

Client:  
Primaria s. Oliscani, r-ul  
Soldanesti

Adresă proiect:  
s. Oliscani, r-ul Soldanesti

Data:  
19.03.2019

s. Oliscani, r-ul Soldanesti

027244236  
primariaoliscani@mail.ru

## LUCRĂRI DE EXTINDERE A SISTEMULUI DE ILUMINAT PUBLIC STRADAL S. OLISCANI



## Cuprins

### LUCRĂRI DE EXTINDERE A SISTEMULUI DE ILUMINAT PUBLIC STRADAL S. OLISCANI

#### LUCRĂRI DE EXTINDERE A SISTEMULUI DE ILUMINAT PUBLIC STRADAL S. OLISCANI

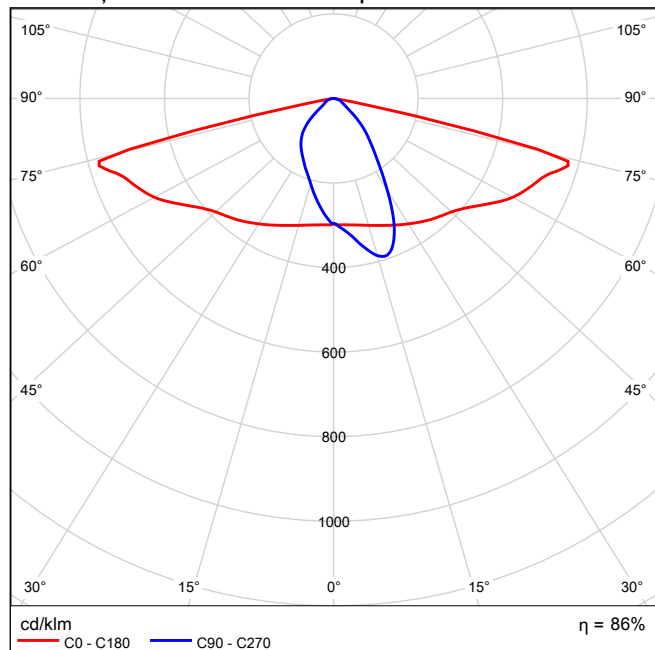
Schröder - VOLTANA 0 / 5205 / 6 LEDs 1000mA NW / 394882 (1x6 LEDs 1000mA NW).....	3
Schröder - VOLTANA 2 / 5102 / 16 LEDs 1000mA NW / 356052 (1x16 LEDs 1000mA NW).....	4
Str. Ion Daghi: Alternativă 1	
Rezultatele planificării.....	5
Str. Ion Daghi: Alternativă 1 / Str. Ion Daghi (M5)	
Izolării.....	6
Str. Stefan cel Mare: Alternativă 2	
Rezultatele planificării.....	7
Str. Stefan cel Mare: Alternativă 2 / Str. Stefan cel Mare (M6)	
Izolării.....	8

## Schröder VOLTANA 0 / 5205 / 6 LEDs 1000mA NW / 394882 1x6 LEDs 1000mA NW



Randament luminos: 86.09%  
 Fluxul luminos al lămpii: 2257 lm  
 Flux luminos corpuri de iluminat: 1943 lm  
 Putere: 22.0 W  
 Clasificarea corpurilor de iluminat conform DIN: A40  
 Clasificarea corpurilor de iluminat conform BZ: BZ 5/2.50/BZ 4  
 Clasificarea corpurilor de iluminat conform UTE: 0.86D  
 Clasificarea corpurilor de iluminat conform CIE: 100  
 Cod flux CIE: 50 81 97 100 86

### Distribuția luminoasă 1 / LVK polar



### CONCEPT

Family of 6 road LED luminaires

Recommended installation height: between 4m and 12m  
 For optimal heat dissipation, the driver and LED engine are in separate compartments and juxtaposed in a horizontal section

### HOUSING & FINISH

- Housing in high-pressure, die-cast aluminium, polyester powder coated
- Colour: RAL 7038

### INSTALLATION

- Luminaire can be fixed by side-entry with a clamp, suitable for 42-60mm diameter
- Built-in inclination steps: -10°, -5°, 0°, 5°
- Post-top adapter diameter 48-60mm or 76mm, tightened with 2 stainless steel screws
- Direct access to the driver compartment with screws for easy maintenance on-site

### OPTICAL UNIT

- Protected against lens degradation by 5mm thick extra-clear hardened glass
- Flatbed PCB with acrylic lens overlay principle
- Various photometric distributions: from narrow road to motorway, medium and large area
- CRI > 70
- ULOR: 0%

### LED lumen depreciation

- Lifetime residual flux @ Tq=25°C @ 100.000 hrs: 350mA & 500mA: 90%; 700mA: 80%; 1A: 70%

### ELECTRICAL

- Class I or Class II
- Input voltage: 120-277V - 50-60Hz
- Power factor > 90% at full load
- Surge protection: 4kV minimum (10kV + 10kA optional)
- Thermal protection on LED PCBA (see Thermix concept)

### STANDARDS & CERTIFICATIONS

- CE
- ENEC
- LM79-80
- ROHS
- Certified for 3G vibration
- All measurements in ISO17025 accredited laboratory

### OPTIONS

- Other RAL or AKZO colours
- Back Light control system
- OWLET remote management
- Custom dimming profile
- Photocell

## Schröder VOLTANA 2 / 5102 / 16 LEDs 1000mA NW / 356052 1x16 LEDs 1000mA NW



Randament luminos: 85.59%

Fluxul luminos al lămpii: 5965 lm

Flux luminos corpuri de iluminat: 5105 lm

Putere: 56.0 W

Clasificarea corpurilor de iluminat conform DIN: A40

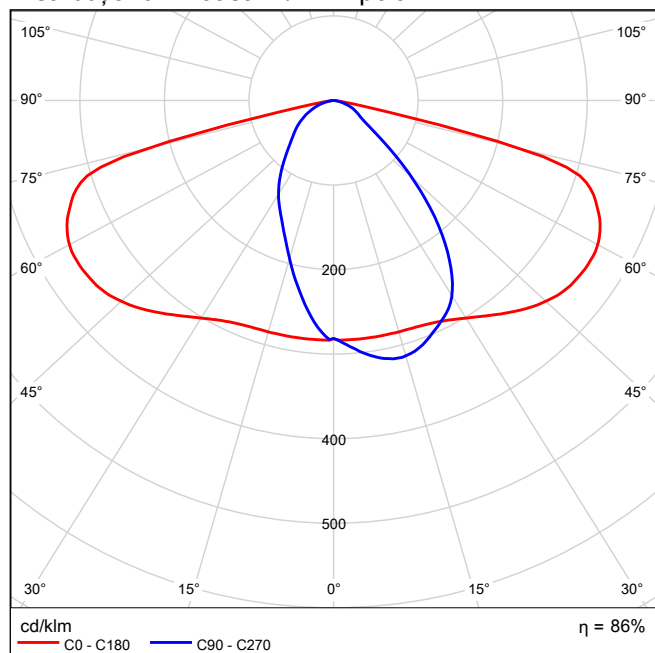
Clasificarea corpurilor de iluminat conform BZ: BZ 6/0.75/BZ 5

Clasificarea corpurilor de iluminat conform UTE: 0.86E

Clasificarea corpurilor de iluminat conform CIE: 100

Cod flux CIE: 45 78 97 100 86

## Distribuția luminoasă 1 / LVK polar



## CONCEPT

Family of 6 road LED luminaires

Recommended installation height: between 4m and 12m

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

## HOUSING &amp; FINISH

•Housing in high-pressure, die-cast aluminium, polyester powder coated

•Colour: RAL 7038

## INSTALLATION

•Luminaire can be fixed by side-entry with a clamp, suitable for 42-60mm diameter

•Built-in inclination steps:  $-10^\circ$ ,  $-5^\circ$ ,  $0^\circ$ ,  $5^\circ$

•Post-top adapter diameter 48-60mm or 76mm, tightened with 2 stainless steel screws

•Direct access to the driver compartment with screws for easy maintenance on-site

## OPTICAL UNIT

•Protected against lens degradation by 5mm thick extra-clear hardened glass

•Flatbed PCB with acrylic lens overlay principle

•Various photometric distributions: from narrow road to motorway, medium and large area

•CRI > 70

•ULOR: 0%

## LED lumen depreciation

•Lifetime residual flux @  $T_q=25^\circ\text{C}$  @ 100.000 hrs: 350mA & 500mA: 90%; 700mA: 80%; 1A: 70%

## ELECTRICAL

•Class I or Class II

•Input voltage: 120-277V - 50-60Hz

•Power factor > 90% at full load

•Surge protection: 4kV minimum (10kV + 10kA optional)

•Thermal protection on LED PCBA (see Thermix concept)

## STANDARDS &amp; CERTIFICATIONS

•CE

•ENEC

•LM79-80

•ROHS

•Certified for 3G vibration

•All measurements in ISO17025 accredited laboratory

## OPTIONS

•Other RAL or AKZO colours

•Back Light control system

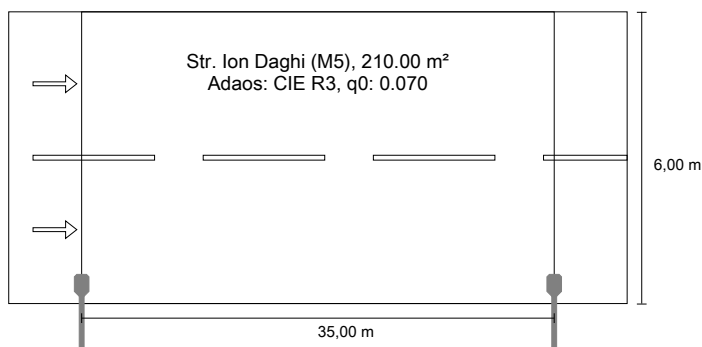
•OWLET remote management

•Custom dimming profile

•Photocell

Str. Ion Daghi până la EN 13201:2015

Schröder VOLTANA 2 / 5102 / 16 LEDs 1000mA NW / 356052



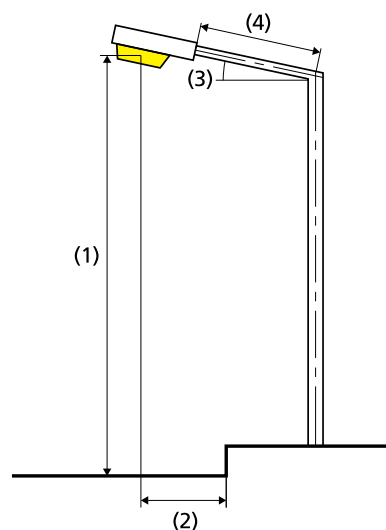
Rezultate pentru câmpurile de evaluare  
Factorul de menținere: 0.85

Str. Ion Daghi (M5)

Lm [cd/m <sup>2</sup> ] ≥ 0.50	U <sub>0</sub> ≥ 0.35	U <sub>I</sub> ≥ 0.40	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.76	✓ 0.47	✓ 0.70	✓ 13	✓ 0.43

Rezultate pentru indicatorii de eficiență energetică

Indicatorul densității de putere (Dp)	0.024 W/lxm <sup>2</sup>
Densitatea consumului de energie	
Aranjament: VOLTANA 2 / 5102 / 16 LEDs 1000mA NW / 356052 (224.0 kWh/an)	1.1 kWh/m <sup>2</sup> an



Lampă:	1x16 LEDs 1000mA NW
Flux luminos (corp de iluminat):	5105.21 lm
Flux luminos (lampă):	5965.00 lm
Ore de lucru	
4000 h:	100.0 %, 56.0 W
W/km:	1624.0
Aranjament:	Pe o parte Jos
Distanță stâlp:	35.000 m
Înclinare consolă (3):	0.0°
Lungime consolă (4):	1.000 m
Înălțimea deasupra planului util (1):	7.500 m
Ieșirea în consolă a punctului de lumină (2):	0.350 m

ULR:	0.00
ULOR:	0.00
Valori maxime ale intensității luminoase	
La 70°:	596 cd/klm
La 80°:	127 cd/klm
La 90°:	0.00 cd/klm
Clasă intensitate luminoasă:	G*2

Orice direcție ce formează unghiul dat cu verticala în jos a corpurilor de iluminat instalate pentru utilizare.

Aranjamentul respectă clasa cu indici de orbire D.5

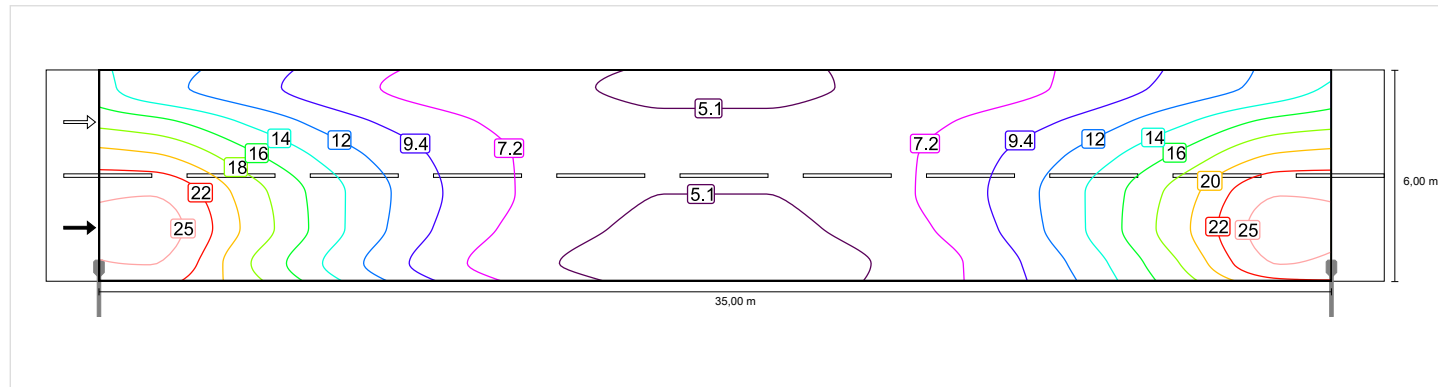


## Str. Ion Daghi (M5)

Factorul de menținere: 0.85  
Raster: 12 x 6 Puncte

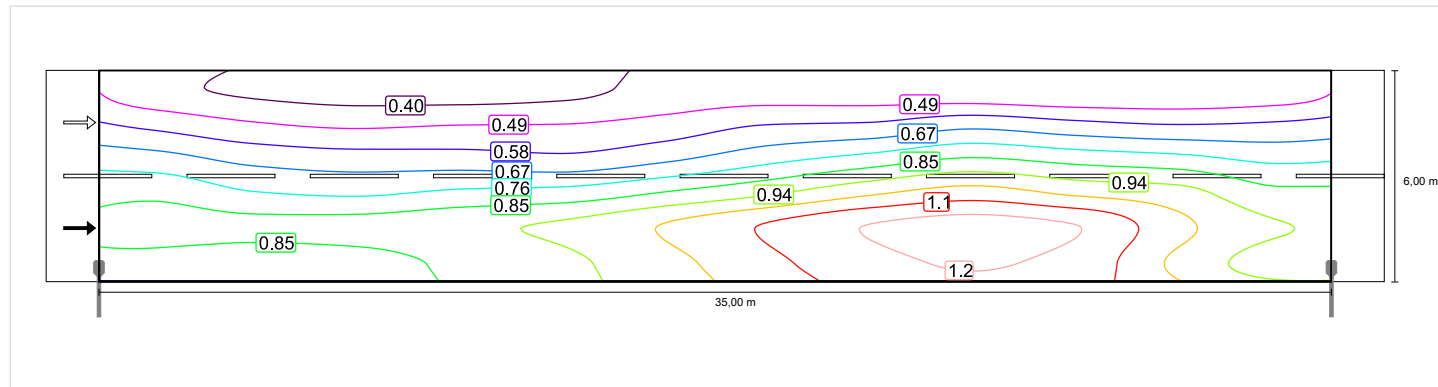
Lm [cd/m <sup>2</sup> ] ≥ 0.50	U <sub>o</sub> ≥ 0.35	U <sub>I</sub> ≥ 0.40	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.76	✓ 0.47	✓ 0.70	✓ 13	✓ 0.43

### Iluminare orizontală



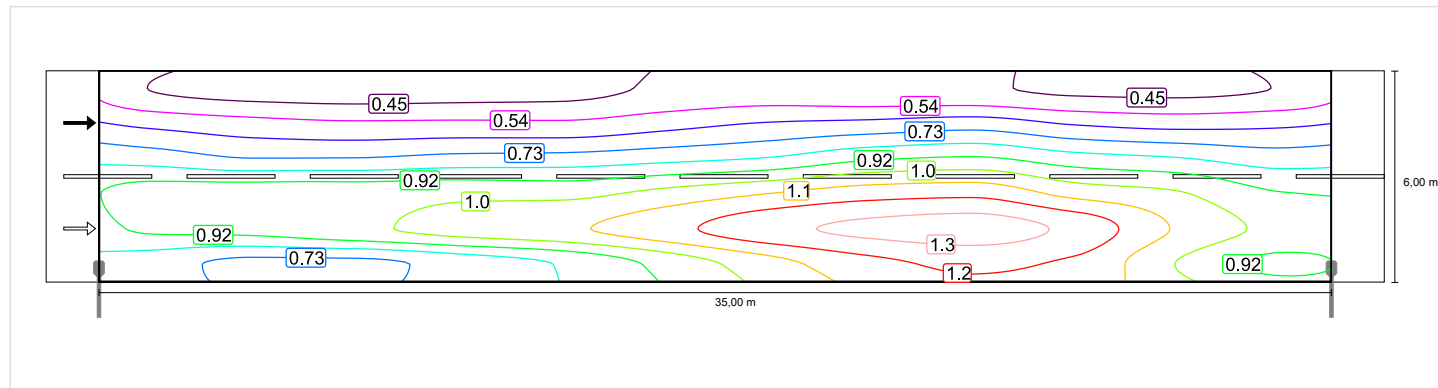
### Observator 1

#### Densitate a luminii cu carosabil uscat



### Observator 2

#### Densitate a luminii cu carosabil uscat



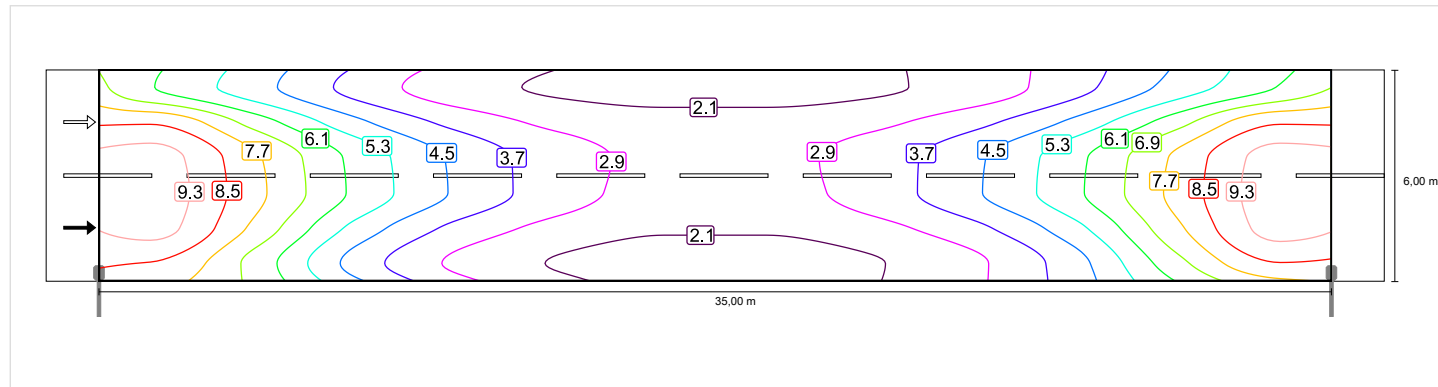


## Str. Stefan cel Mare (M6)

Factorul de menținere: 0.85  
Raster: 12 x 6 Puncte

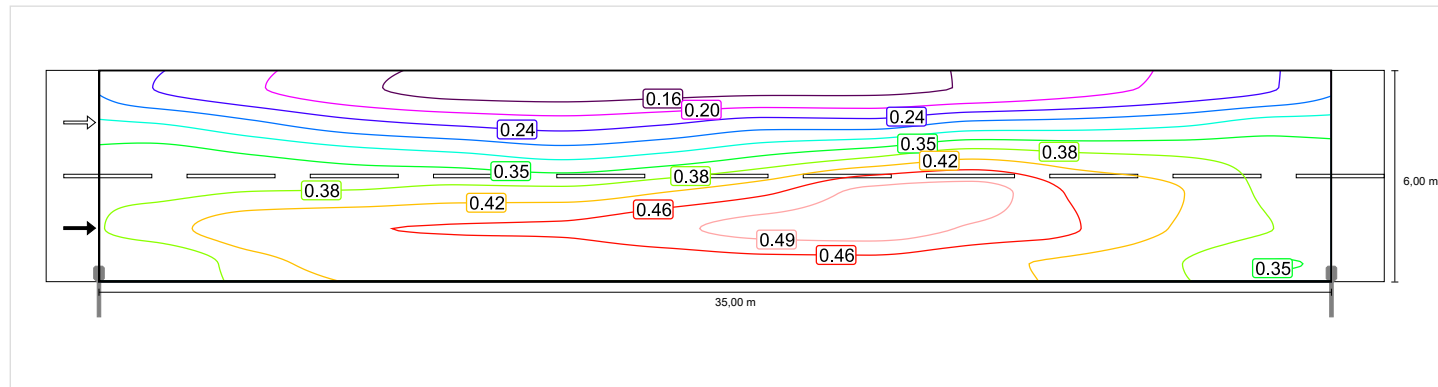
Lm [cd/m <sup>2</sup> ] ≥ 0.30	U <sub>o</sub> ≥ 0.35	U <sub>I</sub> ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.35	✓ 0.41	✓ 0.70	✓ 13	✓ 0.33

### Iluminare orizontală



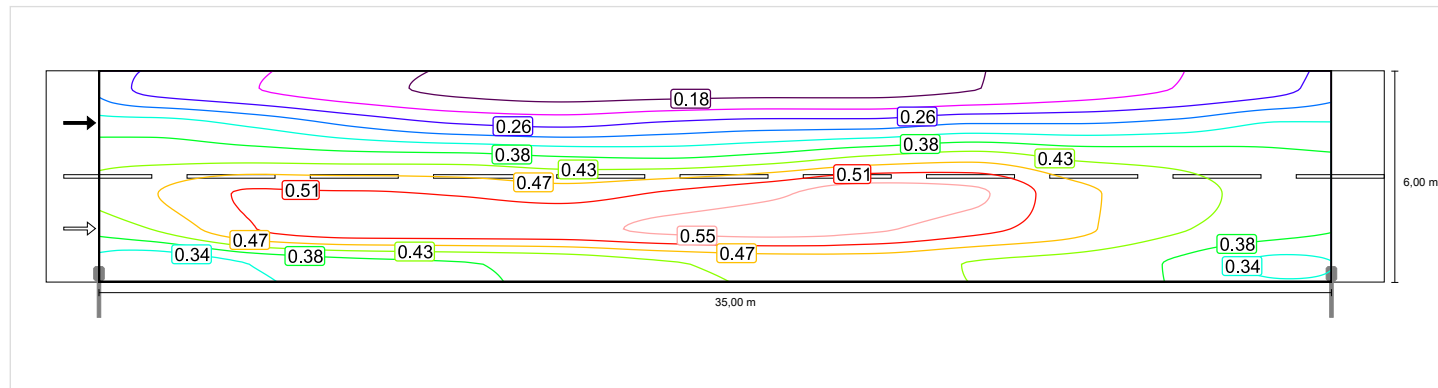
### Observator 1

#### Densitate a luminii cu carosabil uscat



### Observator 2

#### Densitate a luminii cu carosabil uscat



# 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



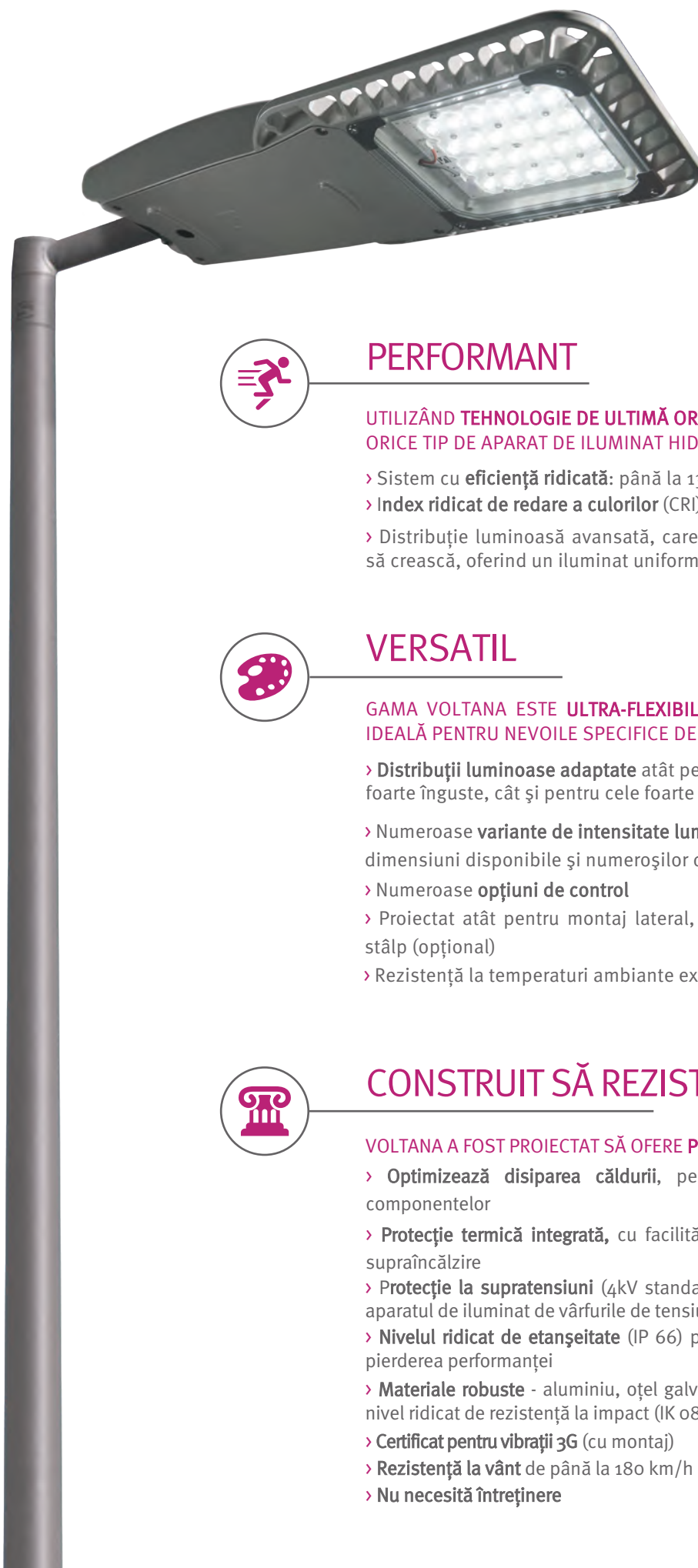
ZONE INDUSTRIALE



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 **varianțe 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

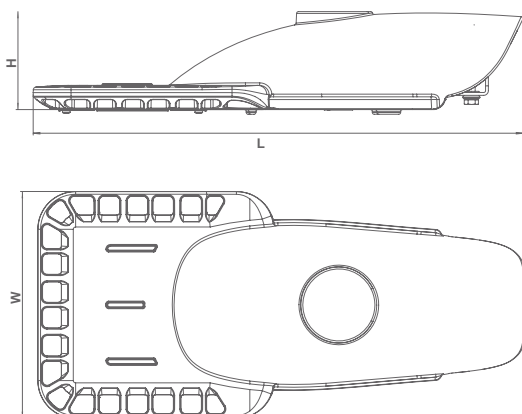
	Voltana 0	Voltana 1	Voltana 2	Voltana 3	Voltana 4	Voltana 5
Flux luminos standard (gamă) (*)	700 - 2,500lm	800 - 3,000lm	1,800 - 6,100lm	2,700 - 9,200lm	3,700 - 12,700lm	7,500 - 25,200lm
Consum de energie (W) (**)	8 - 30W	10 - 31W	20 - 56W	28 - 82W	36 - 110W	70 - 215W
Flux rezidual pe durata de viață @ 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 (**)
Etanș. placă echip. control						IP 66 (**)
Rezistență la impact (sticlă)						IK 08 (***)
Putere nominală	120 - 277V - 50 - 60Hz					
Clasă electrică						EU I sau II (**)
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

(\*) 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)

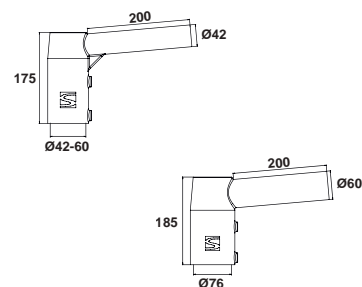
(\*\*) conform standardului IEC - EN 60598 (doar Voltana 0 este disponibil cu Clasa I) - (\*\*\*) conform standardului IEC - EN 62262

## 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

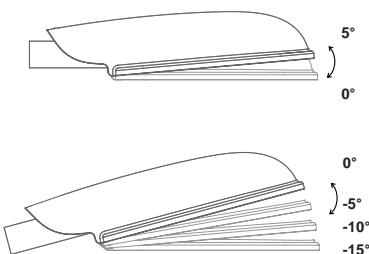


## ADAPTOR VÂRF DE STÂLP

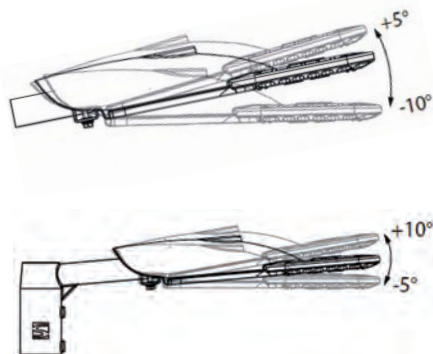


## REGLAJE UNGHI ÎNCLINARE

### VOLTANA 0

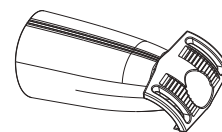


### VOLTANA 1 - 5



## 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.

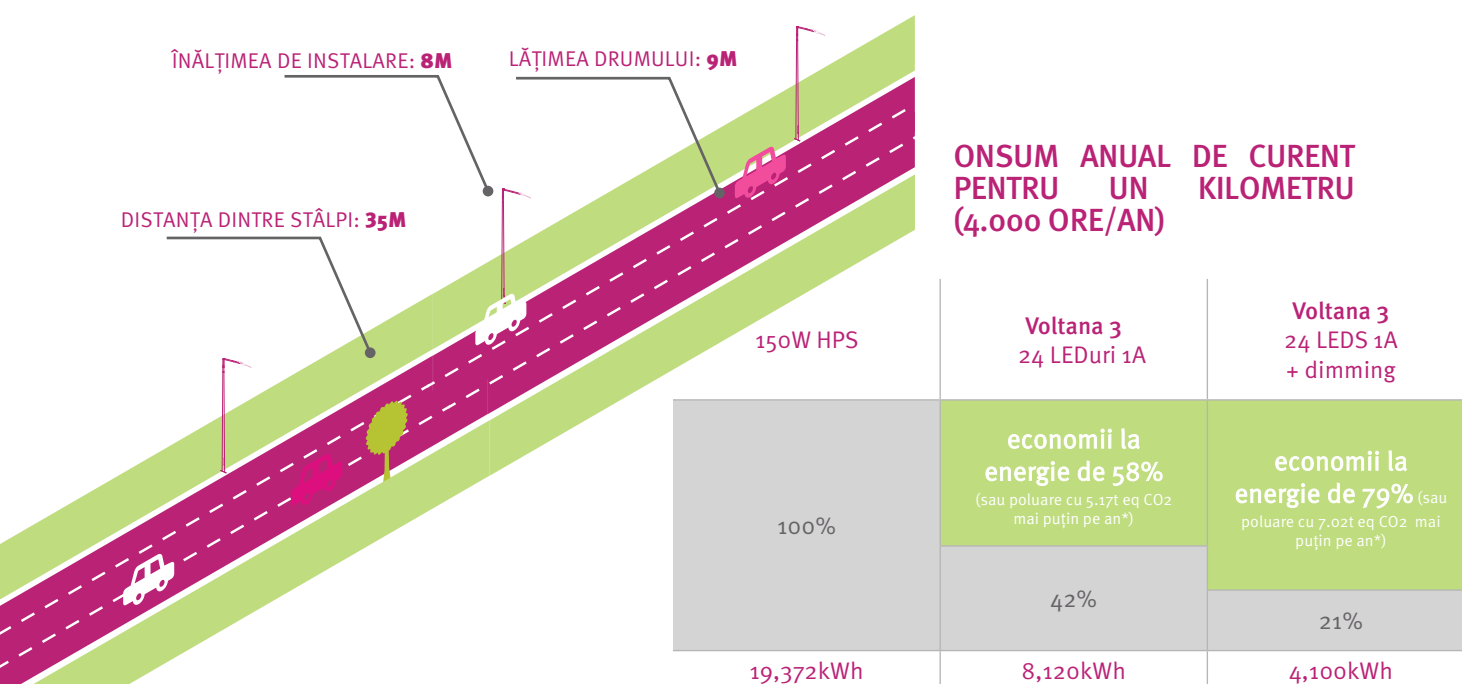
zone pietonale P5-P2		zone pietonale P1		căi de circulație clasificate M6-M5		căi de circulație clasificate M4		căi de circulație clasificate M3		căi de circulație clasificate M2	
aparat HPS 70W	Voltana 1	aparat HPS 100W	Voltana 2	aparat HPS 100W	Voltana 2	aparat HPS 150W	Voltana 3	aparat HPS 150W	Voltana 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.



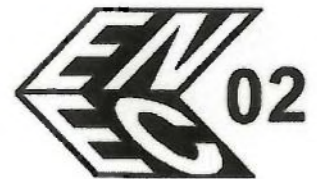
# LICENCE

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.

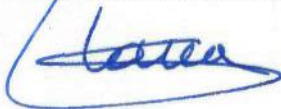
SGS CEBEC hereby declares that the above-mentioned product has been certified on the basis of:

- 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

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



## LICENȚĂ

**Nr. 20254 înlocuiește nr. 20142**

Eliberat pentru:

Aplicant:

**R-Tech  
Rue de Mons, 3  
4000 LIEGE  
Belgia**

Posesor licență:

**Schreder S.A.  
Rue de Lusambo, 67  
1190 BRUXELLES  
Belgia**

Produs : căi de circulație, piețe publice, stradal, proiector

Nume de înregistrare : SCHREDER

Tipul modelului : VOLTANA0 6 LEDuri xx, VOLTANA0 8 LEDuri xx

Produsul și orice versiune a sa este menționat în Anexa la această licență precum și documentele la care fac referire.

SGS CEBEC, prin prezenta, declară că produsul mai sus menționat a fost certificat în baza:

- testelor tip conforme cu standardul specificat în anexă
- inspecției de la locul de producție
- documentului de certificare nr. 1173

SGS CEBEC garantează, prin prezenta, dreptul de a folosi marca de certificare CEBEC

Marca de certificare ENEC/CEBEC poate fi aplicată pe produsul, așa cum este specificat în această licență, pe durata valabilității documentului de certificare ENEC/CEBEC și conform condițiilor specificate în documentul de certificare ENEC/CEBEC.

Licența a fost eliberată la 15/03/2017

*[Semnătură indescifrabilă]*

ir. C. Lana,  
Director Certificare

Este permisă numai publicarea integrală a acestei certificări, inclusiv anexa.  
Acest certificat este valid doar împreună cu publicarea adresei: [www.sgs.com/ee](http://www.sgs.com/ee)

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SGS Belgia NV-Division SGS CEBEC  
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# 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 / Xitanium 40W FP driver

Sample n°: P-E16372, P-E16377

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

**Remarks:**

Test request n°: P-D16547

Folder n°: P-F16041

**TEST CONDITIONS:**

**Operator:** CLOSSET Frédéric

**Load:** 8 Led's  
Typical Vf: 3.17 V

**Driver:** Xi FP 40W 0.3 1.0A SNLDAE 230V S175 sXt set on 1.05A

**Power supply:** Elgar ET3500 230V 50Hz

**Measurement device:** Fluke Norma 4000 HF power meter

**CONCLUSIONS:**



PF: 0.98

Efficiency: 85.5 %

THD: 7.8 %

Harmonics according to IEC 61000-3-2, Class C, > 25W

Duplicate to: Mr M. Thijs  
LAB 28/09/2016  
L. Maghe

**//P-16CR547**

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

## LED Flux measurement

FORM-L-41 ED1 REV 0

Date : **6/01/2015**

Operator : **FC**

Filename : **2015\_1.xml**



**226 - TEST**

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### LEDs

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

Trademark : **LG Innotek**

Entry number : **34R336**

Type : **3535 Gen4**

Power (Catalogue ) : **1.00** W

BIN Description : **Unknown**

Flux : **160** lm/LED

Part number : **Unknown**

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

Number of LEDs : **16**

---

### Lenses

Trademark : **None**

Type : **None**

---

### Power & Print

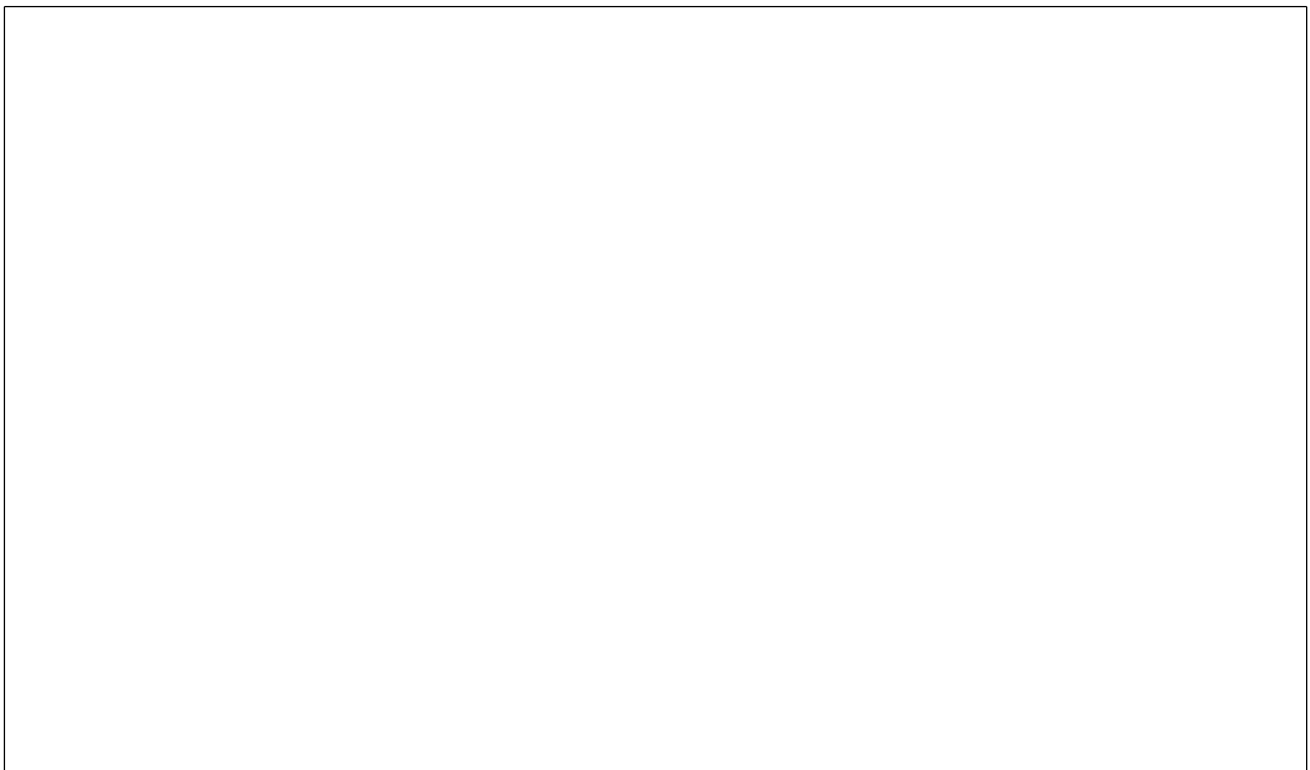
Type : **DELTA SM400-AR-4**

Print description : **00-07-909 Rev.A**

Active

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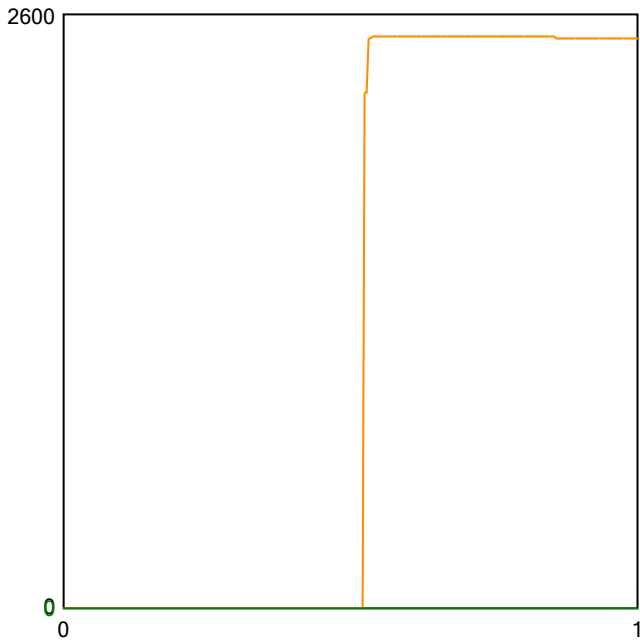
### Picture



### Sphere photometric measurement

Average flux : **1199** lumens

Maximum flux : **2508** lumens



Position in sphere :



### Electrical measurement

#### ● Secondary electrical measurement

Voltage : **46.56** V

Current : **0.350** A

Power : **16.30** Watt

→ LEDs light efficiency at thermal stabilization :

**73.5** lm/W

**74.9** lm/Led

→ LEDs light efficiency at 25° :

**153.9** lm/W

**156.8** lm/Led

#### ● Primary electrical measurement

Voltage : **N/A** V

Current : **N/A** A

Power : **N/A** Watt

Cos  $\varphi$  : **N/A**

→ Driver losses : **N/A** %

→ LEDS & Driver light efficiency :

**N/A** lm/W

Description :

Flux @25°/350mA 16 LG 3535 Gen4 - Voltana 2 - pcb N°1/12 CTR du 2014/1005

Comment :

FORM-L-41 ED1 REV 0



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NBN EN ISO/IEC 17025 : 2005

Approved by :

LED 2015/1 2/3





226 - TEST

NBN EN ISO/IEC 17025 : 2005

### Colorimetry

**CIE 1931 Colour Rendering Index**

File Name: #1

Reference Illuminant: Raichman radiator

Chromaticity Difference DCP: 2.263

Color samples:

R1+ 66.8	R6+ 53.0	R16+ 63.1
R2+ 79.8	R8+ 28.3	R17+ 68.3
R3+ 68.0	R10+ 53.2	R18+ 54.8
R4+ 72.5	R11+ 68.3	R19+ 71.1
R5+ 71.1	R12+ 54.8	R20+ 72.2
R6+ 72.2	R13+ 71.1	R21+ 73.29
R7+ 79.8	R14+ 93.3	

JS color sample: #9

(mean value of R1...R9)

73.29

Close

Zoom to Rectangle

RESET

Target

Calibration File: #1 100cd/m<sup>2</sup>

Measurement Mode: Radiance

Average: 1

Measurement

Luminance	LV	3.991E+2	$\frac{cd}{m^2}$	
Radiance (380-780nm)	Le	1.179E+0	$\frac{W}{m^2}$	
Corr. Colour Temp CCT		4186	K	
Dom. Wavelength	W	579.8	nm	
Colour Purity	PE	21.3	%	
Chromaticity	X	0.3713	Y	0.3662
	u'	0.2233	v'	0.4955

Interval (seconds): 10

Continuous Scan:

Hold Integration Time:

Auto:


Transfer

QUIT

**RTECH-PHOTOMETRY LABORATORY**

Testreport : Measurement of luminous intensity distribution related to the standard  
 NBN-EN 13032-1; CIE 121-1996; 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.

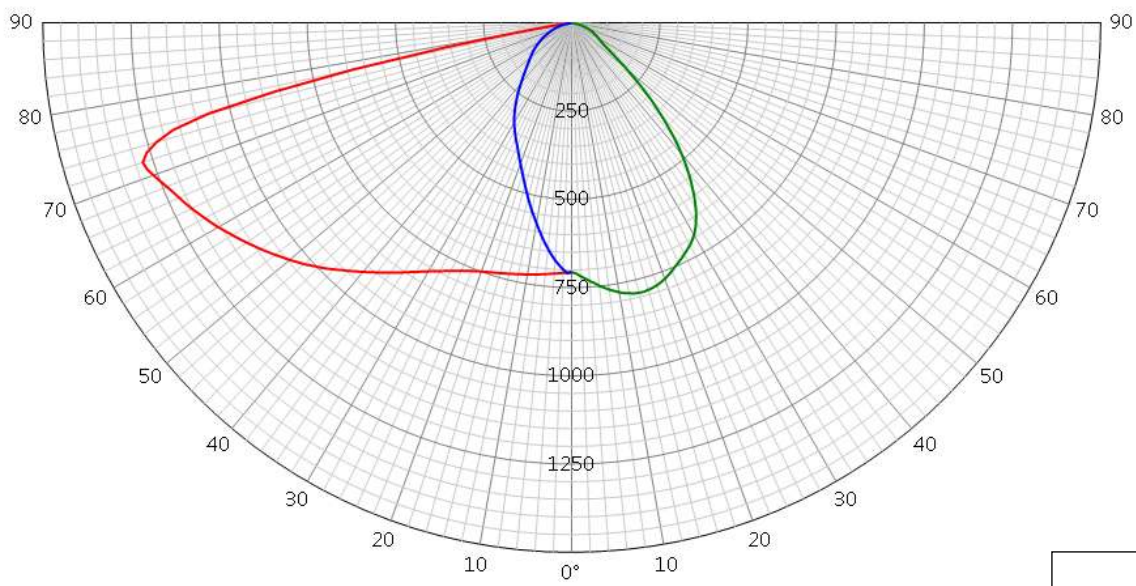
**LED**

Origin Tungsram-Schröder Plc. Hungary		Production Tungsram-Schröder Plc. Hungary		Luminaire VOLTANA 2		Request # FD35004
Type LED	BIN Unknown	Source Trademark LG Innotek	Reference 3535 Gen4	# LEDs 16	Reflector 5102	
Master Led assembly Gaggione Medium 0,0°		Reflector No 5102				
Protector Lens		Protector Refractor Lens Glass Extra Clear Flat Smooth Gaggione 5102 PMMA				
Laboratory observation VOLTANA 2 (serie 0) equipped with 16 LG 3535 Gen4 . Used flux for efficiency matrix calculation = 2508 lm - CCT= 4186K - CRI= 73,26 measured @ 350mA/25°C (see sphere test report 2015/1 on appendix).						
Purpose DOC				Sample date 13/06/2014	Sample # 34R142	
Observation DOC VOLTANA 2 with lenses 5102  flux coefficient multiplicator (only for efficiency matrix): From 350 to 500mA: 1,353 From 350 to 700mA: 1,777 From 350 to 1000mA: 2,333  Fixture powered @350/500/700mA by driver LG LLP 40W 0.7A 38/77Vdc model:PISE A040D Fixture powered @1000mA by driver LG LLP 55W 1A 44/55Vdc model:PISE A055A						
Asked by LMA	Measured by CL	Approved by LMA	Appendix 1	 226-TEST NBN EN ISO/IEC 17025 :2005		<b>35605</b>

**LUMINOUS INTENSITY DIAGRAM**

Origin Tungsram-Schröder Plc. Hungary		Production Tungsram-Schröder Plc. Hungary		Luminaire VOLTANA 2		Request # FD35004	
Source	Type LED	BIN Unknown	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 16	Reflector 5102	
Reflector	Led assembly Gaggione Medium 0,0°					No 5102	
Matrices	<b>356051</b> $\Phi$ 0-90° = 2147lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5102 PMMA						
Observation	<p>Matrix in total flux @350mA</p> <p>Light losses due to thermal stabilisation: 0,5 %</p> <p>Electrical measurement on LED (#1): Voltage = 46,11 V Current = 0,350 A Power = 16,15 W</p> <p>Electrical measurement on driver (#1): Voltage = 230,00 V Current = 0,100 A Power = 20,27 W PF = 0,844</p> <p><b>Total luminaire power = 20,27 W : Lm/Watt = 105,91 lm/W</b></p> <p>Driver #1 : See observations for driver details 00-07-909 Rev.A</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	1279	72	G				
90	789	15	D				
270	709	1	G	706	25,0°	12/01/2015	

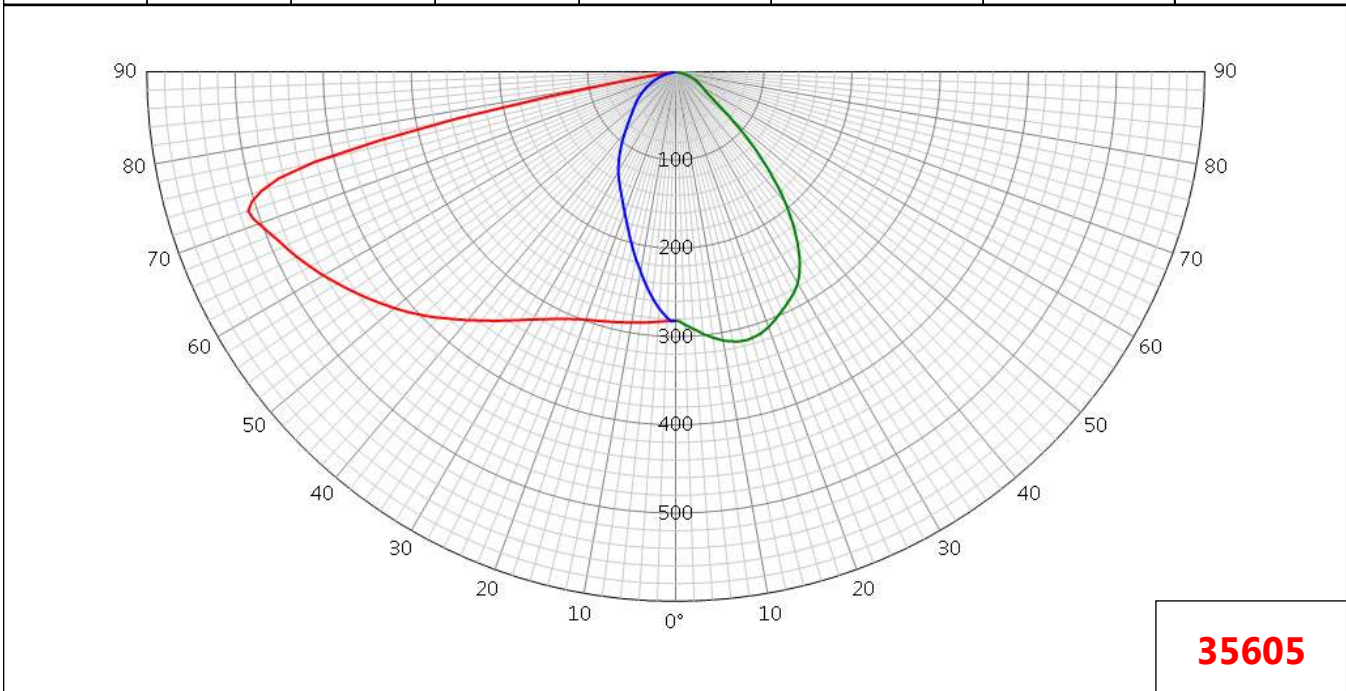


**35605**

**LUMINOUS INTENSITY DIAGRAM**

Origin Tungsrám-Schröder Plc. Hungary		Production Tungsrám-Schröder Plc. Hungary		Luminaire VOLTANA 2		Request # FD35004	
Source	Type LED	BIN Unknown	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 16	Reflector 5102	
Reflector	Led assembly Gaggione Medium 0,0°					No	5102
Matrices	<b>356052</b> $\eta$ 0-90° = 85,6% - 90-99° = 0,0%					Relative measurement	
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5102 PMMA						
Observation	<p>Matrix in efficiency @350mA</p> <p>Light losses due to thermal stabilisation: 0,5 %</p> <p>Electrical measurement on LED (#1): Voltage = 46,11 V Current = 0,350 A Power = 16,15 W</p> <p>Electrical measurement on driver (#1): Voltage = 230,00 V Current = 0,100 A Power = 20,27 W PF = 0,884</p> <p style="text-align: center;"><b>Total luminaire power = 20,27 W</b></p> <p>Driver #1 : See observations for driver details 00-07-909 Rev.A</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	510	72	G				
90	314	15	D				
270	283	1	G	282	25,0°	12/01/2015	

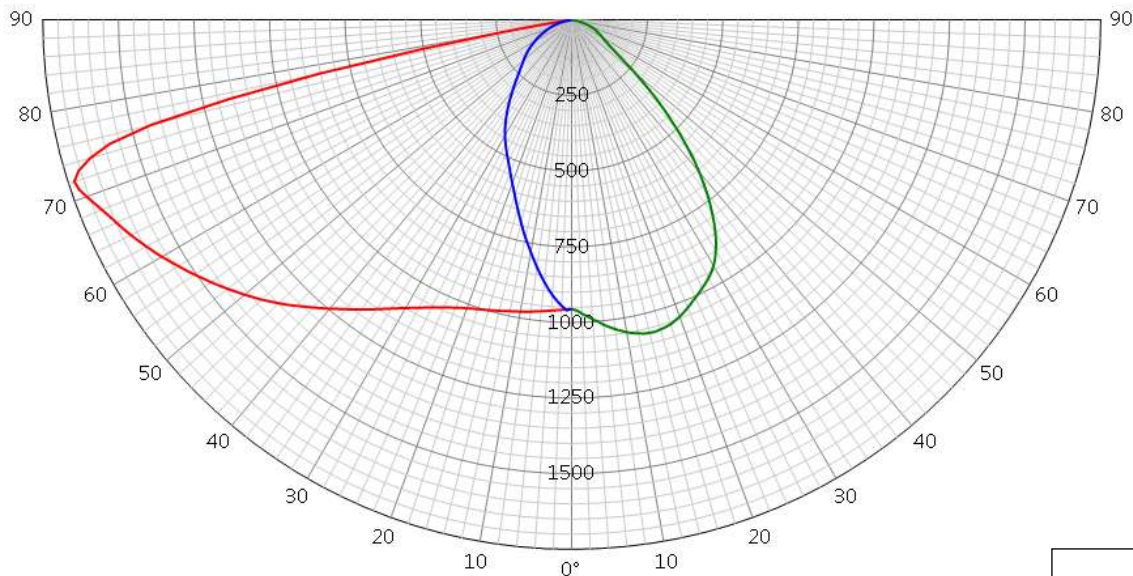


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**LUMINOUS INTENSITY DIAGRAM**

Origin Tungram-Schröder Plc. Hungary		Production Tungram-Schröder Plc. Hungary		Luminaire VOLTANA 2		Request # FD35004	
Source	Type LED	BIN Unknown	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 16	Reflector 5102	
Reflector	Led assembly Gaggione Medium 0,0°					No 5102	
Matrices	<b>356053</b> $\Phi$ 0-90° = 2905lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5102 PMMA						
Observation	<p>Matrix in total flux @500mA</p> <p>Light losses due to thermal stabilisation: 0,75 %</p> <p>Electrical measurement on LED (#1): Voltage = 47,14 V Current = 0,500 A Power = 23,56 W</p> <p>Electrical measurement on driver (#1): Voltage = 230,00 V Current = 0,131 A Power = 27,17 W PF = 0,935</p> <p><b>Total luminaire power = 27,17 W : Lm/Watt = 106,90 lm/W</b></p> <p>Driver #1 : See observations for driver details 00-07-909 Rev.A</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	1731	72	G				
90	1067	15	D				
270	960	1	G	955	25,0°	12/01/2015	

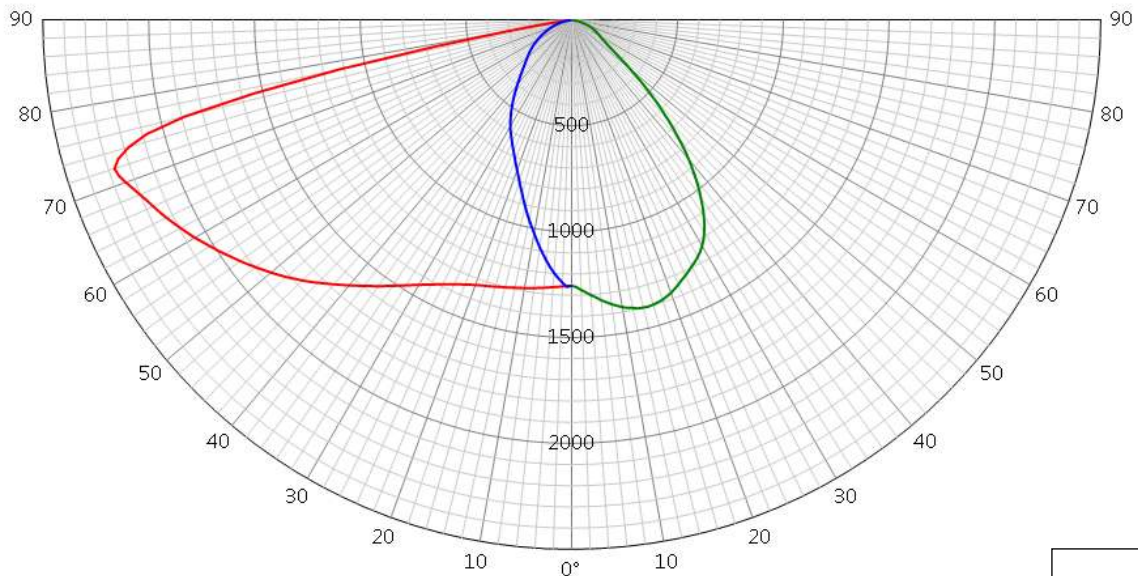


**35605**

**LUMINOUS INTENSITY DIAGRAM**

Origin Tungsram-Schröder Plc. Hungary		Production Tungsram-Schröder Plc. Hungary		Luminaire VOLTANA 2		Request # FD35004	
Source	Type LED	BIN Unknown	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 16	Reflector 5102	
Reflector	Led assembly Gaggione Medium 0,0°					No 5102	
Matrices	<b>356054</b> $\Phi$ 0-90° = 3815lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5102 PMMA						
Observation	<p>Matrix in total flux @700mA</p> <p>Light losses due to thermal stabilisation: 1,5 %</p> <p>Electrical measurement on LED (#1): Voltage = 48,38 V Current = 0,700 A Power = 33,85 W</p> <p>Electrical measurement on driver (#1): Voltage = 230,00 V Current = 0,177 A Power = 39,23 W PF = 0,965</p> <p><b>Total luminaire power = 39,23 W : Lm/Watt = 97,24 lm/W</b></p> <p>Driver #1 : See observations for driver details 00-07-909 Rev.A</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	2273	72	G				
90	1401	15	D				
270	1261	1	G	1255	25,0°	12/01/2015	

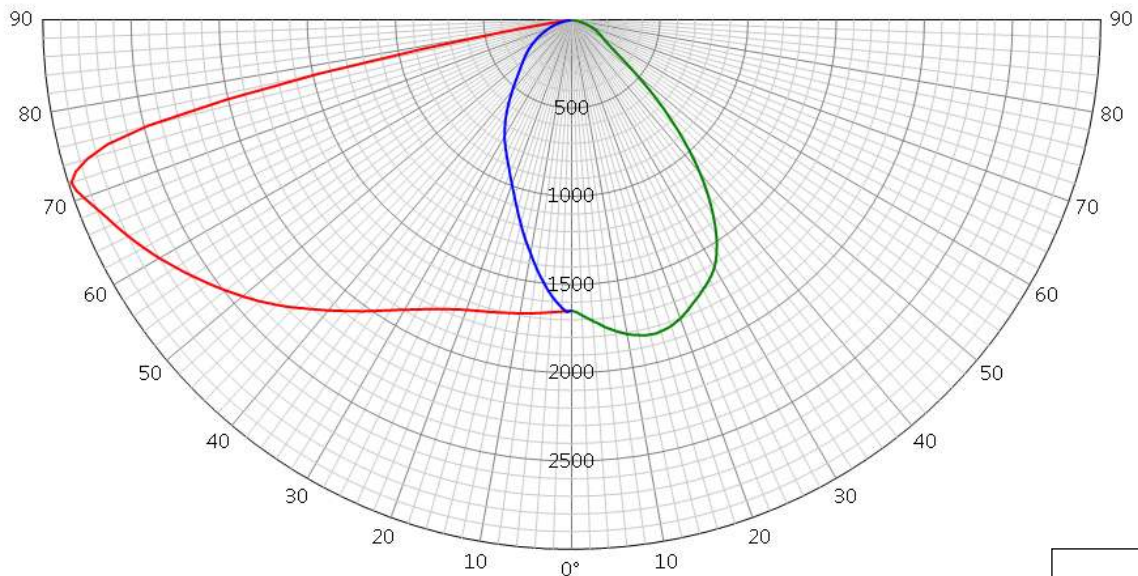


**35605**

**LUMINOUS INTENSITY DIAGRAM**

Origin Tungsram-Schröder Plc. Hungary		Production Tungsram-Schröder Plc. Hungary		Luminaire VOLTANA 2		Request # FD35004	
Source	Type LED	BIN Unknown	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 16	Reflector 5102	
Reflector	Led assembly Gaggione Medium 0,0°					No	5102
Matrices	<b>356055</b> $\Phi$ 0-90° = 5008lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5102 PMMA						
Observation	<p>Matrix in total flux @1000mA</p> <p>Light losses due to thermal stabilisation: 2,5 %</p> <p>Electrical measurement on LED (#1): Voltage = 50,13 V Current = 1,000 A Power = 50,11 W</p> <p>Electrical measurement on driver (#1): Voltage = 230,00 V Current = 0,259 A Power = 57,56 W PF = 0,963</p> <p><b>Total luminaire power = 57,56 W : Lm/Watt = 87,01 lm/W</b></p> <p>Driver #1 : See observations for driver details 00-07-909 Rev.A</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	2984	72	G				
90	1840	15	D				
270	1655	1	G	1648	25,0°	12/01/2015	



**35605**

**Measurement fulfil Standards:**

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

**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 measurment, If not specified:**

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

CCT, CRI and chromaticity coordinates: are Measured on sphere.  
if specified Main test report refer to sphere extra test report.

Light distribution : are measured on gonio.

Number of hours operated prior to measurement: If no other specified, 0 hours (no aging)

Stabilization time: If no other specified, a minimal stabilization time of 1 hour is applied.

Total operating time of the product including stabilization:

45 minutes have to be added by measurement.

Minimal operating time is 105 minutes

Luminous intensity distribution: available on electronic file with

.mat format (internal schreder format)

.ldt format (European standard)

.IES format (American standard)

**Statement of uncertainties (K=2 95% of confidence level):**

Intensity measurement: +/- 3%

Angle: +/- 0.5°

Flux: +/- 2.5%

Electrical DC

Power: +/- 0.25%

Voltage: +/- 0.1%

Current: +/- 0.2%

Electrical AC

Power: +/- 0.1%

**35605**



Voltage: +/- 0.1%  
Current: +/- 0.4%  
Temperature: +/- 1.5%  
CCT: +/- 5%  
CRI: +/- 2%  
x/y: +/- 2%

#### Measuring instruments in use:

##### Gonio

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)

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

##### 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

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

##### Thermometers

Voltcraft K101 (Sphere IS2000)

LMT U1000 (Sphere LMT)

Gossen digem f96x48 CK/EK (gonio)

Calibration: traceable to PTB (Physikalisch-Technische Bundesanstalt)

**35605**

# 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".

# Laborator teste

## RAPORT DE TEST

### FIZIC

R-Tech

Rue de Mons 3 – B-4000 Liège – Belgia Tel.:

+32 4 224 71 40 – Fax: +32 4 224 25 90

Membră a Schröder Group

**Subiect: VOLTANA 0 cu difuzor din sticlă**

Eșantion nr.: P-E16420

**Scopul testului: Test rezistență la impact, conform standardului IEC/EN 62262**

**Observații:**

Test solicitat nr.: P-D16604

Dosar nr.: P-F16041

**CERINȚELE TESTULUI:**

**Operator:** BOMBIL Patrick

Grosime: 5 mm

**Sub acțiune ciocan cu pendul**

5 puncte de impact distribuite pe suprafața difuzorului

O lovitură pe clemă

O lovitură în fiecare punct

**Testat pe 5 mostre**

**Test**

**IK08:** Energia de impact : 5 jouli  
Greutatea ciocanului: 1,7 kg  
Înălțimea de cădere: 29,4 cm

**Rezultat**

VALIDAT pentru cele 5 mostre, pentru toate punctele de impact

**CONCLUZII:**

VOLTANA 0 îndeplinește cerințele testării IK08, conform standardului IEC/EN 62262.

Duplicat pentru: M. Thijs

LAB 07/11/2016

L. Maghe

//P-16CR604

[semnătură indescifrabilă]

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# 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>IP6X</b> : -Luminaire switched ON until stable T° -Talcum in suspension (blowing ON) -After 1', luminaire OFF -Talcum for 3 hours	OK
<b>IPX6</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

Subiect: **VOLTANA 0 - 8 LEDuri –difuzor din sticlă plană**  
Eșantion nr.: P-E16377, P-E16394

Scopul testului: **Test nivel etanșitate IP66 conform standardului IEC/EN 60598-1**

Observații:  
Cerere de efectuare test nr.: P-D16575  
Dosar nr.: P-F16041

Operator: **BOMBIL Patrick**

**CERINTELE TESTULUI:**

VOLTANA 0 - 8 LEDuri, cu difuzor din sticlă plană

Pregătire: test de rezistență

Test	Rezultat
<b>IP6X :</b> -Aparatul de iluminat pornit până la T° stabilă -Talc în suspensie (suflantă pornită) -După 1', aparatul este închis -Talc 3 ore	VALIDAT.
<b>IPX6 :</b> -Aparatul de iluminat pornit până la T° stabilă -Aparatul de iluminat închis și pus imediat sub jet de apă -Φ furtun 12,5 mm -Presiunea apei: 1 kg/cm <sup>2</sup> -Distanța de pulverizare: 3 m -Durata testului: 3 minute	VALIDAT

**CONCLUZII:**

VOLTANA 0 8 LEDuri, cu difuzor din sticlă plană, a trecut testul IP66 conform Standard IEC/EN 60598-1.

Duplicat pentru: M. Thijs  
LAB 21.11.2016  
L. Maghe  
[Semnătură indescifrabilă]

//P-16CR575

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# 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 – 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.

# 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:** Thermal test @ 1050 mA following IEC/EN 60598-1 Standard

**Remarks:**

Test request n°: P-D16541

Folder n°: P-F16041

**TEST CONDITIONS:**

Operator: CLOSSET Frédérick



Load: 6 Led's

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

Tc: 90°C

Working temperature: -40 ~ +60°C according  
To datasheet.

**Measurement device:**

Yokogawa TX10: thermal measurement

Yokogawa WT 210: primary EM

Fluke 87: Led's EM

**Junction Temperature measurement method**

Junction temperature measurement by base temperature measurement and electrical measurement.

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

**CONCLUSIONS:**

Ta (IEC): 55 °C limited by Driver

Tq (IEC): 35 °C limited by Driver

Tq given for 100 khrs of lifetime

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

Duplicate to: Mr M. Thijs

LAB 06/10/2016

L. Maghe

//P-16CR541




# VOLTANA 0

## 5205

<b>Optic</b>	5205
<b>Protector</b>	Integrated lenses
<b>Source</b>	6 LG Innotek 3535 Gen4
<b>Matrix</b>	394882



### Characteristics

							
416	156	91	2.6	IP 66	IK 08	I EU	0.012
Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Tightness level*	Impact resistance*	Electrical class*	CxS (m <sup>2</sup> )

\* According to IEC-EN60598 and IEC-EN62262

### Features

Entry Level cost-effective luminaire family

- Cost-effective and efficient lighting solution for a fast return on investment
- LensoFlex®2 photometric engine with photometry adapted to various applications
- 5 sizes for flexibility
- Designed to incorporate Owlet control and sensor solutions
- ThermiX®: withstands high temperatures (Ta 50°C)
- Mounting : side entry (42-60 mm) with inclination steps -10° to +5°
- Surge protection 10kV (optional)

### Information for 1000 lm matrix

<b>Efficacy (%)</b>	86.1	<b>G Class (EN 13201-2)</b>	G2	<b>Aperture 90-270°</b>	X - X
<b>DLOR (%)</b>	86.1	<b>G* (EN 13201 2015)</b>	G*2	<b>I 70-80-90-95 (cd)</b>	705 - 106 - X - X
<b>ULOR (%)</b>	0.0	<b>Imax (cd)</b>	807		
<b>UWLR (%)</b>	0.0	<b>Aperture 0-180°</b>	50 - 50		

## Photometrical characteristics

LED count	Colour code	Colour name	CCT	CRI	Current (mA)	Luminaire power (W)	Source flux (lm)	Luminaire output flux (lm)	Luminaire efficacy (lm/W)	Peak (cd)	BUG Rating	Voltage (V)
Ambient temp = 25°												
6	WW	Warm White	3000	80	350	8	876	754	94	707	B0 U0 G0	230
6	WW	Warm White	3000	80	500	10	1191	1026	103	961	B1 U0 G0	230
6	WW	Warm White	3000	80	700	15	1568	1350	90	1265	B1 U0 G0	230
6	WW	Warm White	3000	80	1050	23	2164	1863	81	1745	B1 U0 G1	230
6	NW	Neutral White	4000	70	350	8	960	826	103	774	B0 U0 G0	230
6	NW	Neutral White	4000	70	500	10	1306	1124	112	1053	B1 U0 G0	230
6	NW	Neutral White	4000	70	700	15	1718	1479	99	1386	B1 U0 G0	230
6	NW	Neutral White	4000	70	1050	23	2371	2041	89	1913	B1 U0 G1	230

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

## Summary

### CONCEPT

Family of 6 road LED luminaires

Recommended installation height: between 4.00 and 12.00m

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

### HOUSING & FINISH

- Housing in high-pressure, die-cast aluminium, polyester powder coated
- Colour: RAL 7038

### INSTALLATION

- Luminaire can be fixed by side-entry with a clamp, suitable for 42-60mm diameter
- Built-in inclination steps: -10°, -5°, 0°, 5°
- Post-top adapter diameter 48-60mm or 76mm, tightened with 2 stainless steel screws
- Direct access to the driver compartment with screws for easy maintenance on-site

### OPTICAL UNIT

- Protected against lens degradation by 5mm thick extra-clear hardened glass
- Flatbed PCB with acrylic lens overlay principle
- Various photometric distributions: from narrow road to motorway, medium and large area
- CRI > 70
- ULOR: 0%

### LED lumen depreciation

- Lifetime residual flux @ T<sub>q</sub>=25°C @ 100.000 hrs: 350mA & 500mA: 90%; 700mA: 80%; 1A: 70%

### ELECTRICAL

- Class I or Class II
- Input voltage: 120-277V - 50-60Hz
- Power factor > 90% at full load
- Surge protection: 4kV minimum (10kV + 10kA optional)
- Thermal protection on LED PCBA (see Thermix concept)

### STANDARDS & CERTIFICATIONS

- CE
- ENEC
- LM79-80

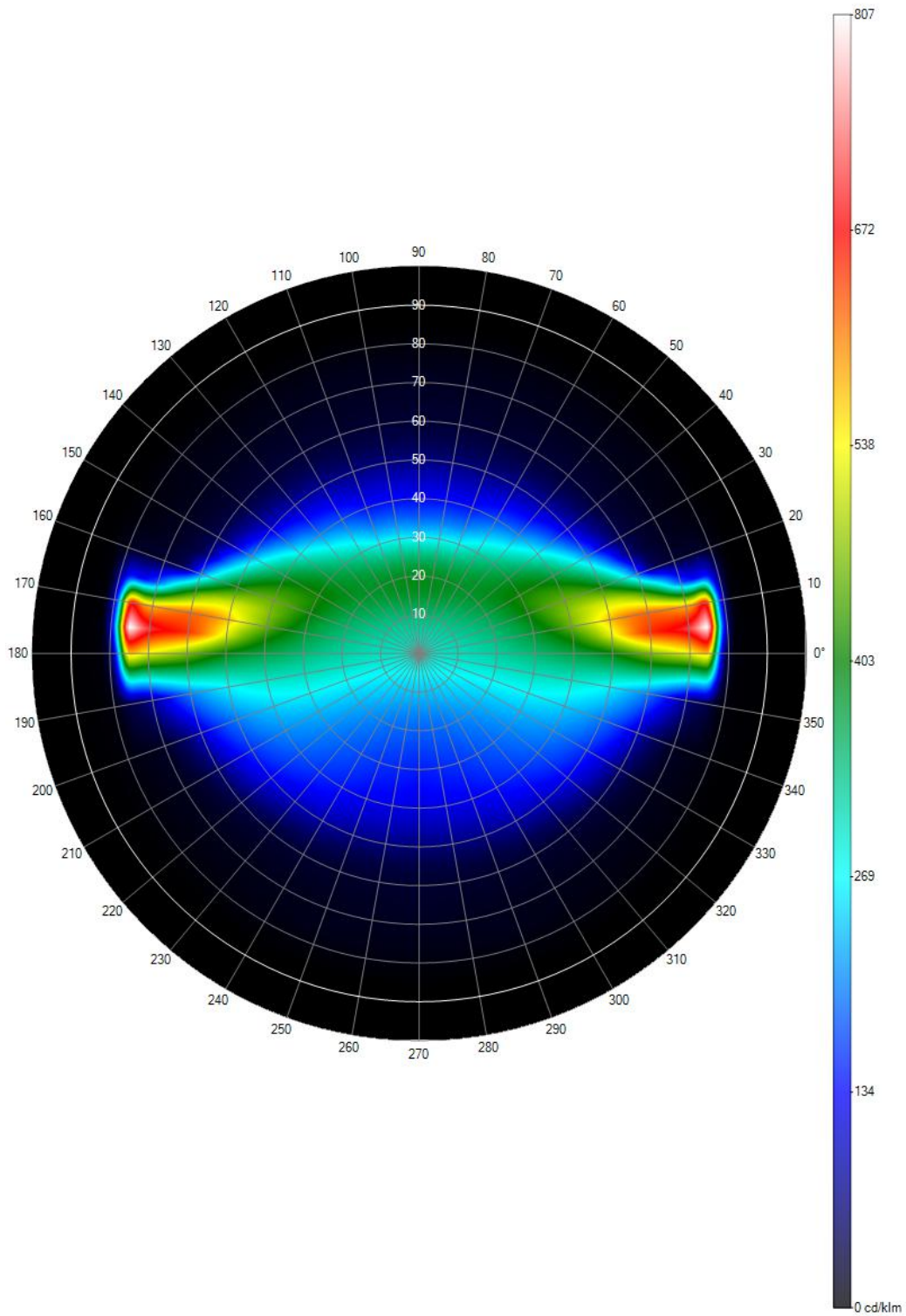
VOLTANA 0 - 5205 - 6 LG Innotek 3535 Gen4 - Integrated lenses - 394882

- ROHS
- Certified for 3G vibration
- All measurements in ISO17025 accredited laboratory

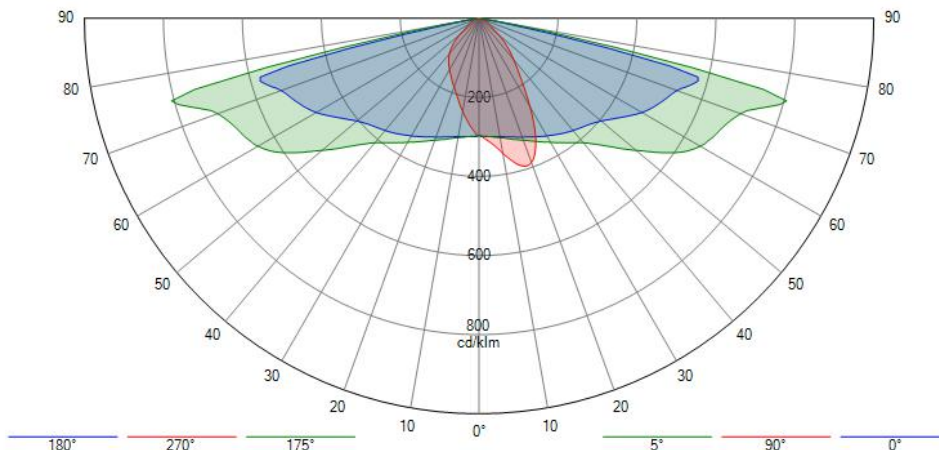
#### OPTIONS

- Other RAL or AKZO colours
- Back Light control system
- OWLET remote management
- Custom dimming profile
- Photocell

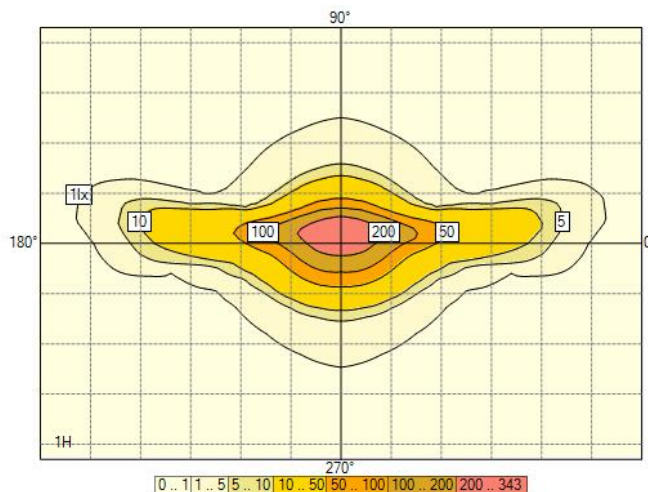
Hypergon view



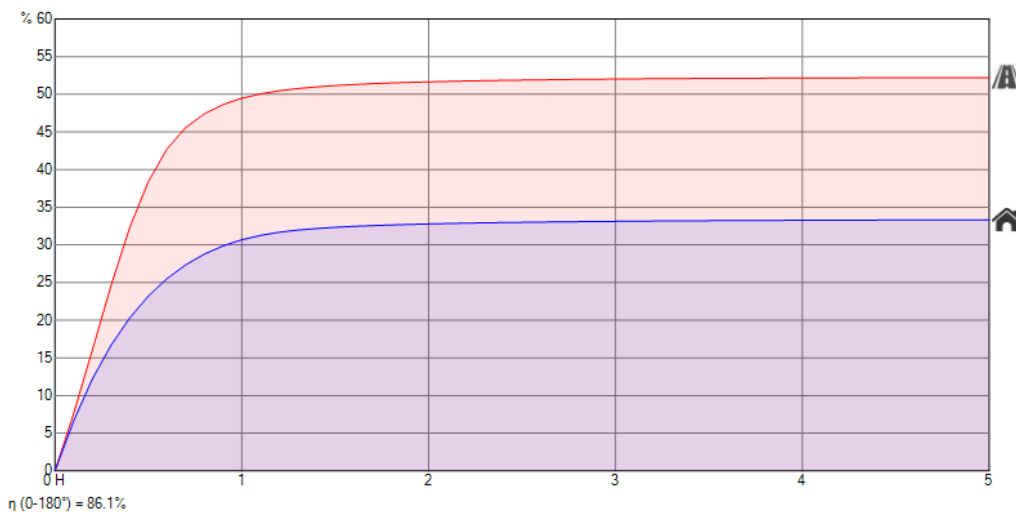
**Polar/Cartesian diagram**



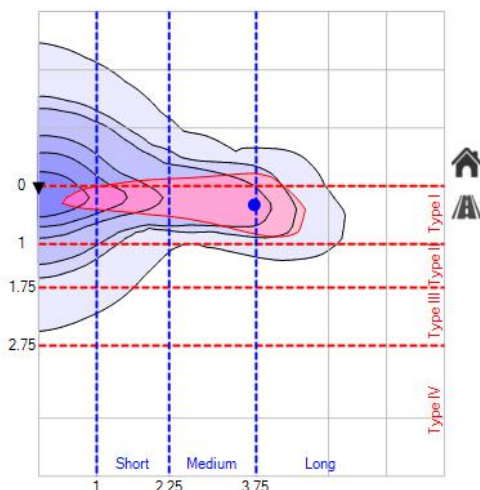
**Isolux**



**K-Curve**

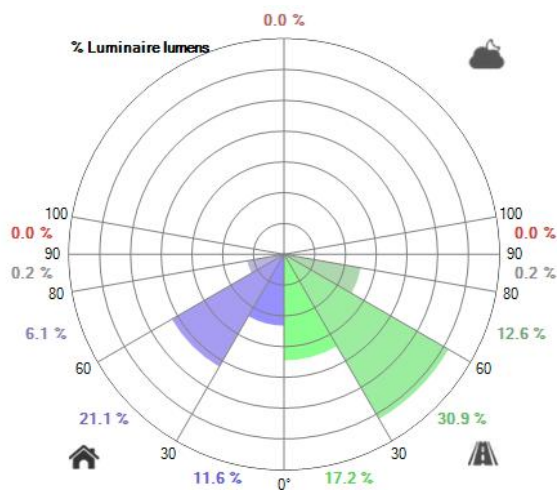


**IES Roadway Classification / Nema Classification**

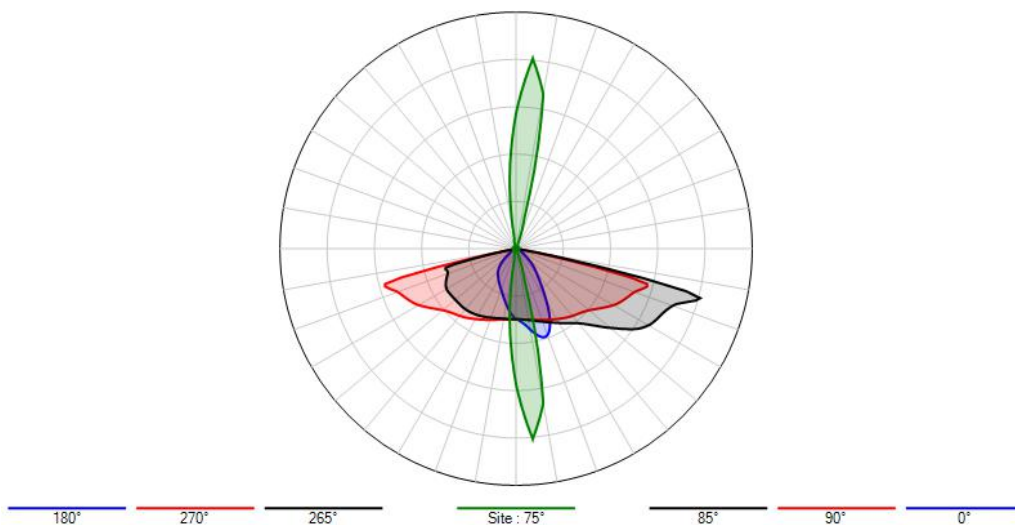


I - Medium

**Luminaire classification system (LCS)**



**Intensity diagram in max Cone and in CPlane**



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<http://www.schreder.com>

## LED Flux measurement

FORM-L-41 ED1 REV 0

Date : **6/01/2015**

Operator : **FC**

Filename : **2015\_1.xml**



**226 - TEST**

---

### LEDs

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

Trademark : **LG Innotek**

Entry number : **34R336**

Type : **3535 Gen4**

Power (Catalogue ) : **1.00** W

BIN Description : **Unknown**

Flux : **160** lm/LED

Part number : **Unknown**

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

Number of LEDs : **16**

---

### Lenses

Trademark : **None**

Type : **None**

---

### Power & Print

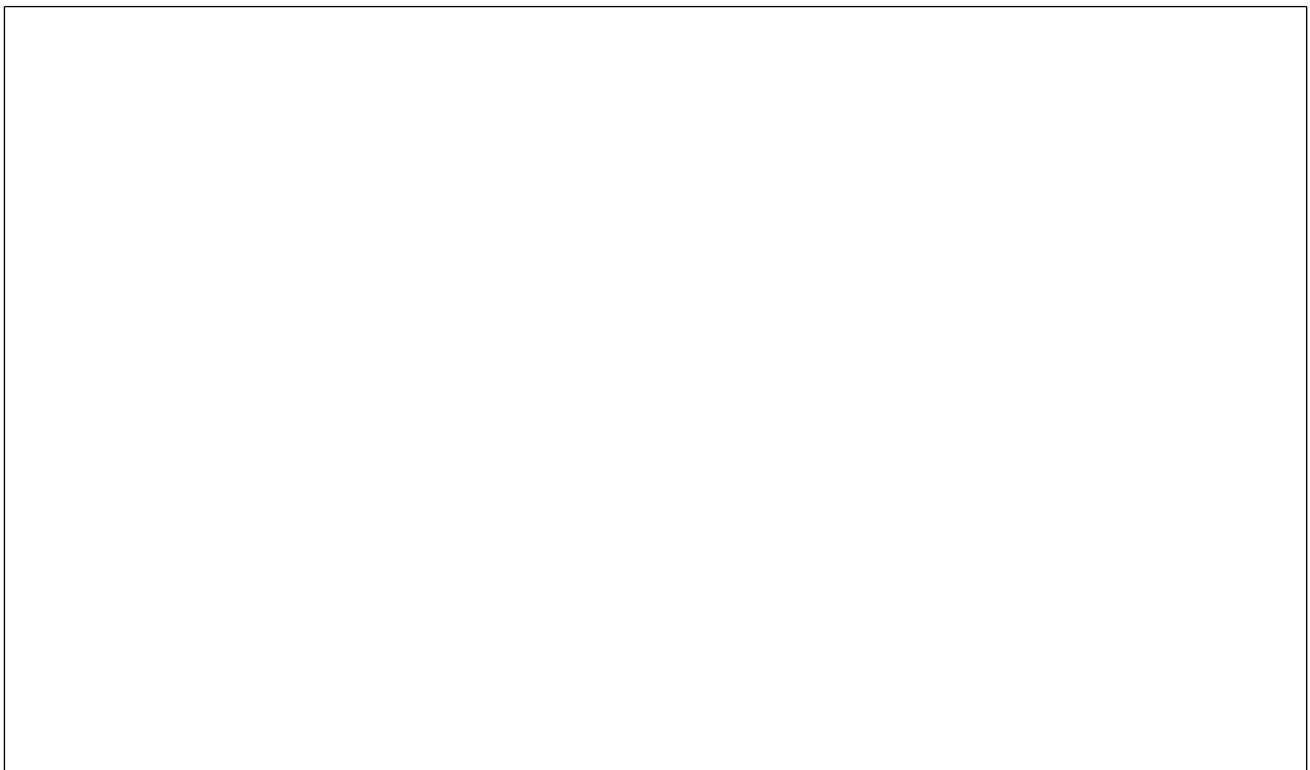
Type : **DELTA SM400-AR-4**

Print description : **00-07-909 Rev.A**

Active

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### Picture

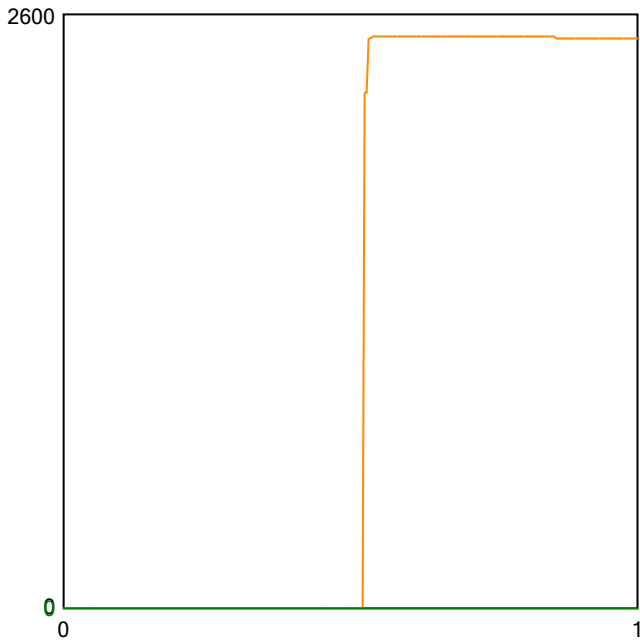




### Sphere photometric measurement

Average flux : **1199** lumens

Maximum flux : **2508** lumens



Position in sphere :



### Electrical measurement

#### ● Secondary electrical measurement

Voltage : **46.56** V

Current : **0.350** A

Power : **16.30** Watt

→ LEDs light efficiency at thermal stabilization :

**73.5** lm/W

**74.9** lm/Led

→ LEDs light efficiency at 25° :

**153.9** lm/W

**156.8** lm/Led

#### ● Primary electrical measurement

Voltage : **N/A** V

Current : **N/A** A

Power : **N/A** Watt

Cos  $\varphi$  : **N/A**

→ Driver losses : **N/A** %

→ LEDS & Driver light efficiency :

**N/A** lm/W

Description :

Flux @25°/350mA 16 LG 3535 Gen4 - Voltana 2 - pcb N°1/12 CTR du 2014/1005

Comment :

FORM-L-41 ED1 REV 0



226 - TEST

NBN EN ISO/IEC 17025 : 2005

Approved by :


LED 2015/1 2/3



**RTECH-PHOTOMETRY LABORATORY**

Testreport : Measurement of luminous intensity distribution related to the standard  
 NBN-EN 13032-1; CIE 121-1996; 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.

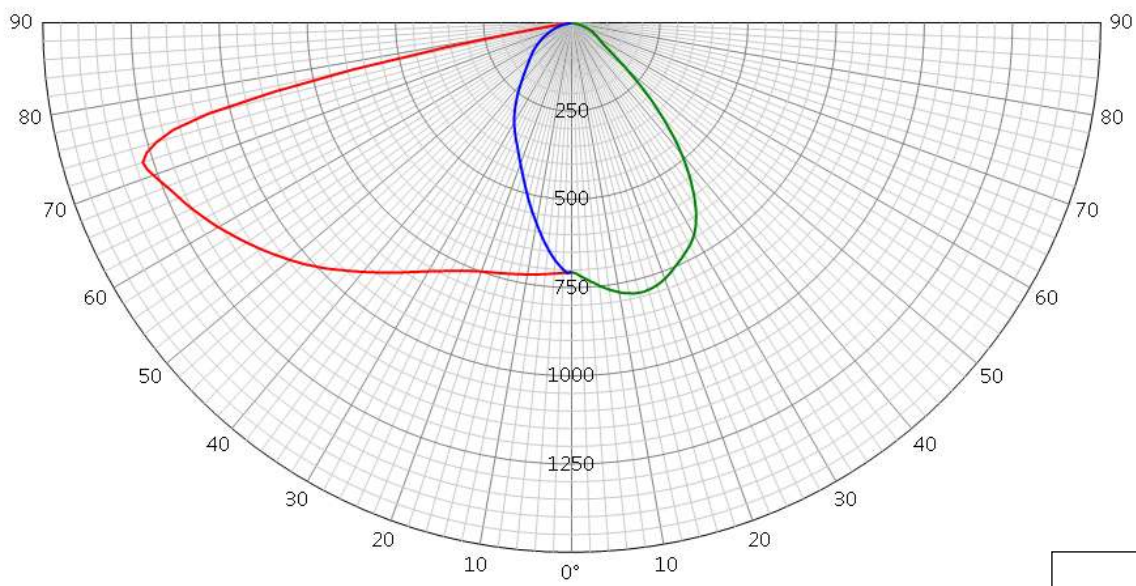
**LED**

Origin Tungsram-Schröder Plc. Hungary		Production Tungsram-Schröder Plc. Hungary		Luminaire VOLTANA 2		Request # FD35004
Source						
Type LED	BIN Unknown	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 16	Reflector 5102	
Master Reflector						
Led assembly Gaggione Medium 0,0°				No 5102		
Protector Refractor Lens						
Protector Lens	Glass Extra Clear Flat Smooth Gaggione 5102 PMMA					
Laboratory observation						
VOLTANA 2 (serie 0) equipped with 16 LG 3535 Gen4 . Used flux for efficiency matrix calculation = 2508 lm - CCT= 4186K - CRI= 73,26 measured @ 350mA/25°C (see sphere test report 2015/1 on appendix).						
Purpose DOC				Sample date 13/06/2014	Sample # 34R142	
Observation						
DOC VOLTANA 2 with lenses 5102  flux coefficient multiplicator (only for efficiency matrix): From 350 to 500mA: 1,353 From 350 to 700mA: 1,777 From 350 to 1000mA: 2,333  Fixture powered @350/500/700mA by driver LG LLP 40W 0.7A 38/77Vdc model:PISE A040D Fixture powered @1000mA by driver LG LLP 55W 1A 44/55Vdc model:PISE A055A						
Asked by LMA	Measured by CL	Approved by LMA	Appendix 1	 226-TEST NBN EN ISO/IEC 17025 :2005		<b>35605</b>

**LUMINOUS INTENSITY DIAGRAM**

Origin Tungsram-Schröder Plc. Hungary		Production Tungsram-Schröder Plc. Hungary		Luminaire VOLTANA 2		Request # FD35004	
Source	Type LED	BIN Unknown	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 16	Reflector 5102	
Reflector	Led assembly Gaggione Medium 0,0°					No 5102	
Matrices	<b>356051</b> $\Phi$ 0-90° = 2147lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5102 PMMA						
Observation	<p>Matrix in total flux @350mA</p> <p>Light losses due to thermal stabilisation: 0,5 %</p> <p>Electrical measurement on LED (#1): Voltage = 46,11 V Current = 0,350 A Power = 16,15 W</p> <p>Electrical measurement on driver (#1): Voltage = 230,00 V Current = 0,100 A Power = 20,27 W PF = 0,844</p> <p><b>Total luminaire power = 20,27 W : Lm/Watt = 105,91 lm/W</b></p> <p>Driver #1 : See observations for driver details 00-07-909 Rev.A</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	1279	72	G				
90	789	15	D				
270	709	1	G	706	25,0°	12/01/2015	

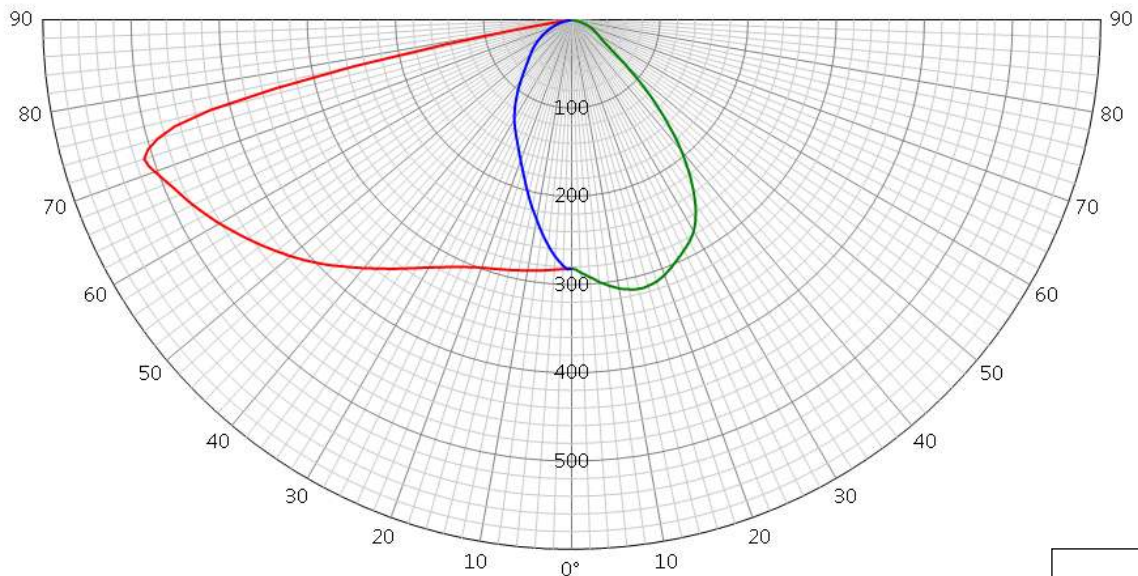


**35605**

**LUMINOUS INTENSITY DIAGRAM**

Origin Tungsrám-Schröder Plc. Hungary		Production Tungsrám-Schröder Plc. Hungary		Luminaire VOLTANA 2		Request # FD35004	
Source	Type LED	BIN Unknown	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 16	Reflector 5102	
Reflector	Led assembly Gaggione Medium 0,0°					No 5102	
Matrices	<b>356052</b> $\eta$ 0-90° = 85,6% - 90-99° = 0,0%					Relative measurement	
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5102 PMMA						
Observation	<p>Matrix in efficiency @350mA</p> <p>Light losses due to thermal stabilisation: 0,5 %</p> <p>Electrical measurement on LED (#1): Voltage = 46,11 V Current = 0,350 A Power = 16,15 W</p> <p>Electrical measurement on driver (#1): Voltage = 230,00 V Current = 0,100 A Power = 20,27 W PF = 0,884</p> <p style="text-align: center;"><b>Total luminaire power = 20,27 W</b></p> <p>Driver #1 : See observations for driver details 00-07-909 Rev.A</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	510	72	G				
90	314	15	D				
270	283	1	G	282	25,0°	12/01/2015	

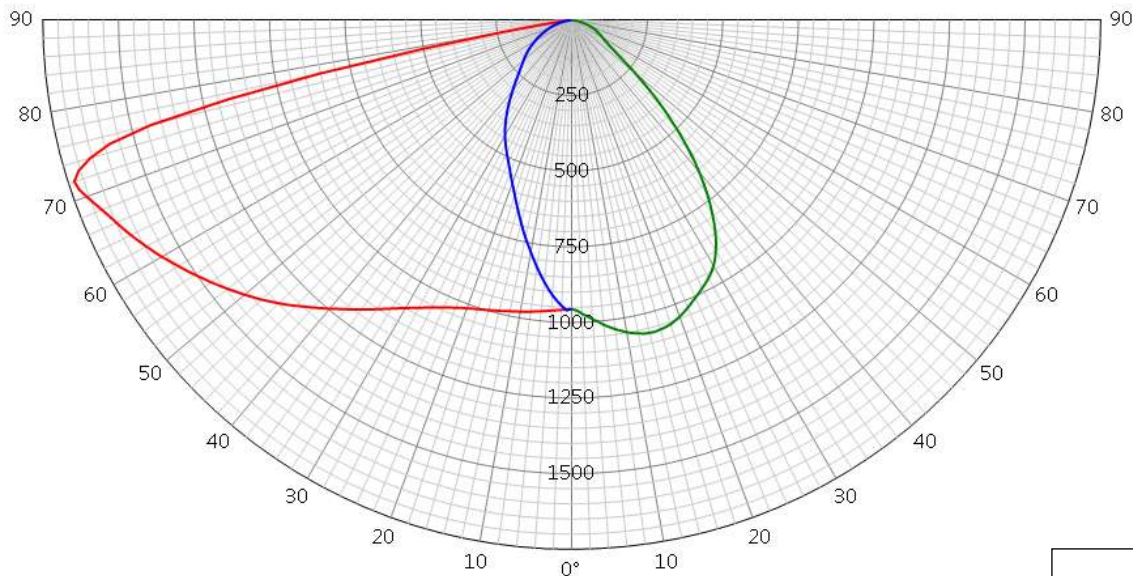


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**LUMINOUS INTENSITY DIAGRAM**

Origin Tungram-Schröder Plc. Hungary		Production Tungram-Schröder Plc. Hungary		Luminaire VOLTANA 2		Request # FD35004	
Source	Type LED	BIN Unknown	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 16	Reflector 5102	
Reflector	Led assembly Gaggione Medium 0,0°					No 5102	
Matrices	<b>356053</b> $\Phi$ 0-90° = 2905lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5102 PMMA						
Observation	<p>Matrix in total flux @500mA</p> <p>Light losses due to thermal stabilisation: 0,75 %</p> <p>Electrical measurement on LED (#1): Voltage = 47,14 V Current = 0,500 A Power = 23,56 W</p> <p>Electrical measurement on driver (#1): Voltage = 230,00 V Current = 0,131 A Power = 27,17 W PF = 0,935</p> <p><b>Total luminaire power = 27,17 W : Lm/Watt = 106,90 lm/W</b></p> <p>Driver #1 : See observations for driver details 00-07-909 Rev.A</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	1731	72	G				
90	1067	15	D				
270	960	1	G	955	25,0°	12/01/2015	

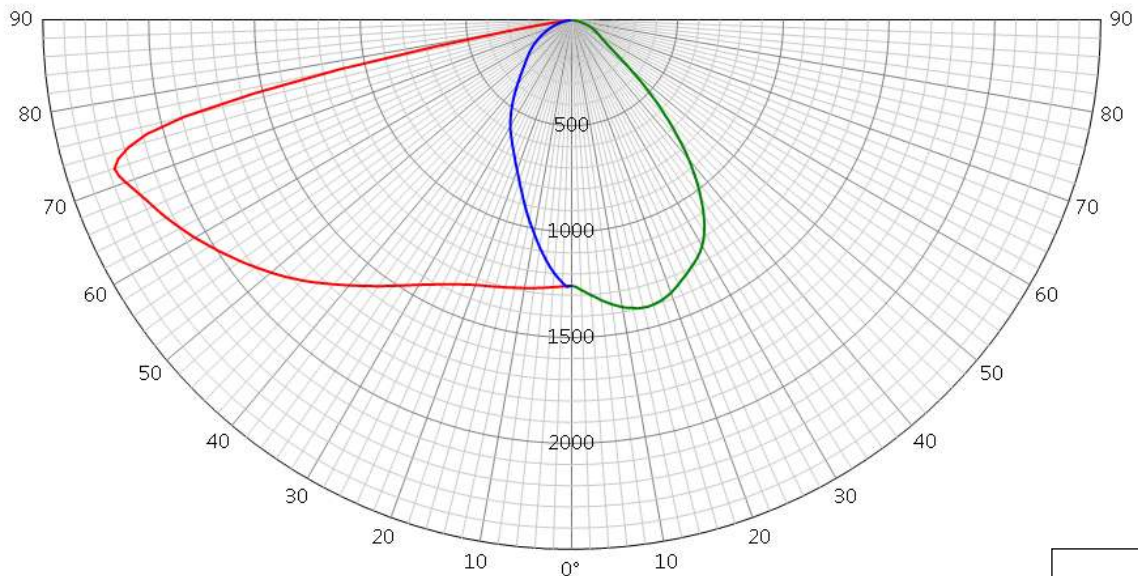


**35605**

**LUMINOUS INTENSITY DIAGRAM**

Origin Tungsram-Schröder Plc. Hungary		Production Tungsram-Schröder Plc. Hungary		Luminaire VOLTANA 2		Request # FD35004	
Source	Type LED	BIN Unknown	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 16	Reflector 5102	
Reflector	Led assembly Gaggione Medium 0,0°					No 5102	
Matrices	<b>356054</b> $\Phi$ 0-90° = 3815lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5102 PMMA						
Observation	<p>Matrix in total flux @700mA</p> <p>Light losses due to thermal stabilisation: 1,5 %</p> <p>Electrical measurement on LED (#1): Voltage = 48,38 V Current = 0,700 A Power = 33,85 W</p> <p>Electrical measurement on driver (#1): Voltage = 230,00 V Current = 0,177 A Power = 39,23 W PF = 0,965</p> <p><b>Total luminaire power = 39,23 W : Lm/Watt = 97,24 lm/W</b></p> <p>Driver #1 : See observations for driver details 00-07-909 Rev.A</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	2273	72	G				
90	1401	15	D				
270	1261	1	G	1255	25,0°	12/01/2015	

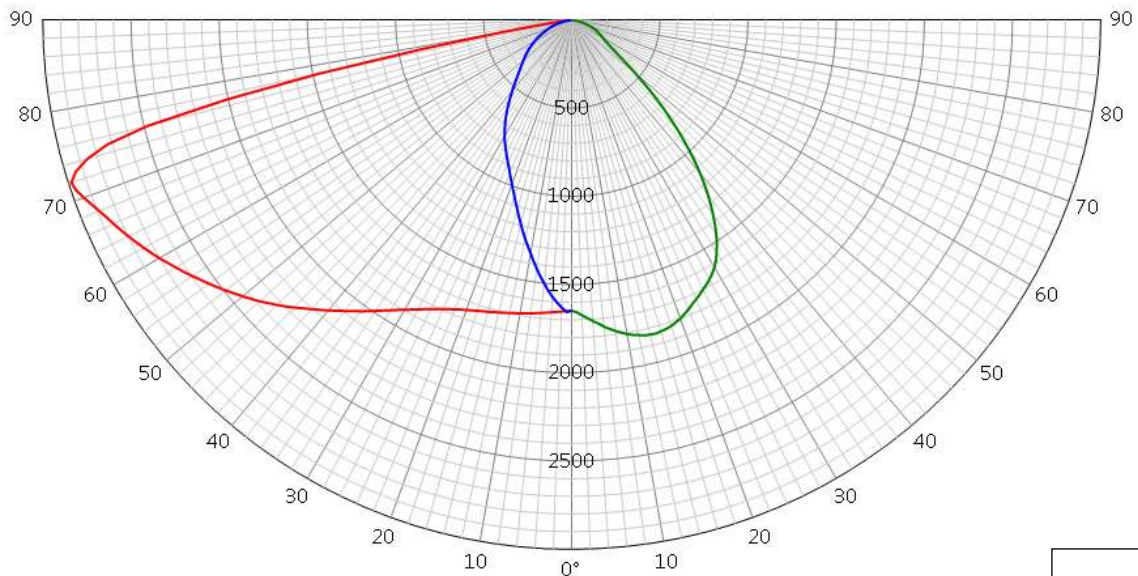


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**LUMINOUS INTENSITY DIAGRAM**

Origin Tungsram-Schröder Plc. Hungary		Production Tungsram-Schröder Plc. Hungary		Luminaire VOLTANA 2		Request # FD35004	
Source	Type LED	BIN Unknown	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 16	Reflector 5102	
Reflector	Led assembly Gaggione Medium 0,0°					No 5102	
Matrices	<b>356055</b> $\Phi$ 0-90° = 5008lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5102 PMMA						
Observation	<p>Matrix in total flux @1000mA</p> <p>Light losses due to thermal stabilisation: 2,5 %</p> <p>Electrical measurement on LED (#1): Voltage = 50,13 V Current = 1,000 A Power = 50,11 W</p> <p>Electrical measurement on driver (#1): Voltage = 230,00 V Current = 0,259 A Power = 57,56 W PF = 0,963</p> <p><b>Total luminaire power = 57,56 W : Lm/Watt = 87,01 lm/W</b></p> <p>Driver #1 : See observations for driver details 00-07-909 Rev.A</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
10 - 170	2984	72	G				
90	1840	15	D				
270	1655	1	G	1648	25,0°	12/01/2015	



**35605**



**Measurement fulfil Standards:**

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

**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 measurment, If not specified:**

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

CCT, CRI and chromaticity coordinates: are Measured on sphere.  
if specified Main test report refer to sphere extra test report.

Light distribution : are measured on gonio.

Number of hours operated prior to measurement: If no other specified, 0 hours (no aging)

Stabilization time: If no other specified, a minimal stabilization time of 1 hour is applied.

Total operating time of the product including stabilization:

45 minutes have to be added by measurement.

Minimal operating time is 105 minutes

Luminous intensity distribution: available on electronic file with

.mat format (internal schreder format)

.ldt format (European standard)

.IES format (American standard)

**Statement of uncertainties (K=2 95% of confidence level):**

Intensity measurement: +/- 3%

Angle: +/- 0.5°

Flux: +/- 2.5%

Electrical DC

Power: +/- 0.25%

Voltage: +/- 0.1%

Current: +/- 0.2%

Electrical AC

Power: +/- 0.1%

**35605**

Voltage: +/- 0.1%  
Current: +/- 0.4%  
Temperature: +/- 1.5%  
CCT: +/- 5%  
CRI: +/- 2%  
x/y: +/- 2%

Measuring instruments in use:

Gonio

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)

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

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

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

Thermometers

Voltcraft K101 (Sphere IS2000)

LMT U1000 (Sphere LMT)

Gossen digem f96x48 CK/EK (gonio)

Calibration: traceable to PTB (Physikalisch-Technische Bundesanstalt)

**35605**

# LICENCE

No. 20497 replaces No.20458

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) : VOLTANA 1, VOLTANA 2, VOLTANA 3, VOLTANA 4,  
VOLTANA 5

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: 09/10/2017

Ir. C. Lana,  
Certification Manager

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



**SPECIFICATION OF THE CERTIFIED PRODUCT**

**Product data**

Product : road, square, street, flood lighting  
 Trade name(s) : SCHREDER  
 Type(s)/Model(s) : VOLTANA 1, VOLTANA 2, VOLTANA 3, VOLTANA 4, VOLTANA 5  
 description : Street lighting  
 rated voltage (Un) : 120-240 V  
 rated frequency : 50-60 Hz  
 rated secondary current (In SEC) : 350, 500, 700, 1000 mA (LED)  
 class : class I  
 degree of protection : IP66  
 additional information : IK08

**Product data - type VOLTANA 1**

lamp(s) : 8 LED's  
 rated ambient temperature (ta) : max. 55°C

**Product data - type VOLTANA 2**

lamp(s) : 16 LED's  
 rated ambient temperature (ta) : max. 55°C

**Product data - type VOLTANA 3**

lamp(s) : 24 LED's  
 rated ambient temperature (ta) : max. 55°C

**Product data - type VOLTANA 4**

lamp(s) : 32 LED's  
 rated ambient temperature (ta) : max. 55°C

**Product data - type VOLTANA 5**

lamp(s) : 64 LED's  
 rated ambient temperature (ta) : max. 55°C

## TESTS

### Test requirements

EN 60598-1:2015

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

### Test results

The test results are laid down in certification file 618719/12.

### Remarks

This certificate is based on test report No P1540-44-lb.

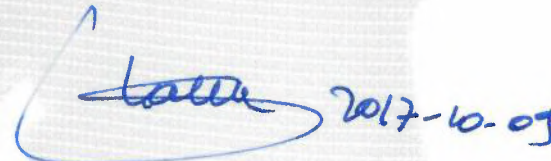
### Conclusion

The examination proved that all test requirements were met.

Checked by, project leader : Christian Maes - 09/10/2017

Department Manager,  
Product Certification :

Certification Manager :



*Christian Maes* 2017-10-09

## FACTORY LOCATION(S)

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

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

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

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

Tungram-Schröder Világítási Berendezések Zrt  
Tópart 2  
2084 PILISSZENTIVAN  
Hungary



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 .....: P1540-44-IIb  
 Date of issue .....: 2017-10-09  
 Total number of pages .....: 49+2

Name of Testing Laboratory preparing the Report.....: **SGS BELGIUM division SGS CEBEC**

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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**This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.**

**General disclaimer:**

The test results presented in this report relate only to the object tested.  
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

<b>Test item description .....</b>	Street lighting
<b>Trade Mark .....</b>	SCHREDER
<b>Manufacturer .....</b>	SCHREDER
<b>Model/Type reference.....</b>	VOLTANA 1, VOLTANA 2, VOLTANA 3, VOLTANA 4 & VOLTANA 5.
<b>Ratings .....</b>	120-240 V, 50-60 Hz, Cl. II , IP66, LED, IK08 Version with 64, 32, 24, 16, 8 led's Led: 350-500-700-1000 mA

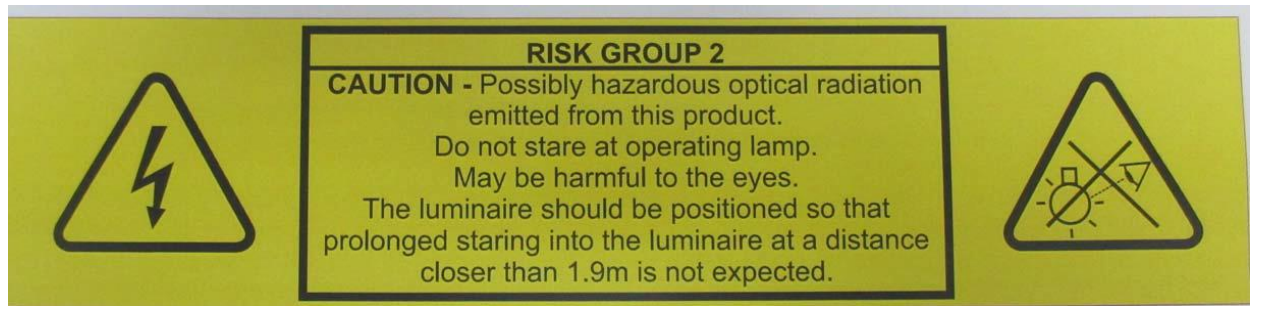


<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>		
<input type="checkbox"/>	<b>CB Testing Laboratory:</b>	
Testing location/ address.....:		
<input type="checkbox"/>	<b>Associated CB Testing Laboratory:</b>	
Testing location/ address.....:		
Tested by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

<p><b>List of Attachments (including a total number of pages in each attachment):</b>  <b>Report integrated ledmodule</b>  <b>EU deviations</b>  <b>Pictures</b>  <b>Instructions</b></p>	
<p><b>Summary of testing: full test</b></p>	
<p><b>Tests performed (name of test and test clause):</b>          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>          R-tech sa          Rue de Mons, 3          B-4000 LIEGE          Belgium.</p>
<p><b>Summary of compliance with National Differences: Europe</b>  <b>List of countries addressed</b></p> <p><input checked="" type="checkbox"/> <b>The product fulfils the requirements of</b>          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 60598-1:2015</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> .....:	
<b>Supply Connection</b> .....	
.....:	
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object.....: N/A	
- test object does meet the requirement.....: P (Pass)	
- test object does not meet the requirement.....: F (Fail)	
<b>Testing</b> .....:	
<b>Date of receipt of test item</b> .....: September 2017	
<b>Date (s) of performance of tests</b> .....: September 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.	
<b>Throughout this report a <input type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</b>	
Drivers Meanwell PLM-12(E)-350 has been added based on report P1540-44-II.	
<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 (ies) .....</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 TERNOPIL,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 drivers in use :

	Current (mA)	Ta Philips (°C)	Ta LG (°C)
Vol1	350	/*	55
	500	/*	55
	700	/*	55
	1000	/*	45
Vol2	350	40	55
	500	40	55
	700	40	55
	1000	/*	50
Vol3	350	55	55
	500	55	55
	700	55	55
	1000	35	45
Vol4	350	55	55
	500	50	55
	700	50	55
	1000	40	35
Vol5	350	50	55
	500	50	55
	700	50	45
	1000	40	35
* no Philips drivers available			

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 II	—
3.4 (2.3)	Degree of protection .....	IP 66 (without external cable)	—
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

<b>3.6 (4)</b>	<b>CONSTRUCTION</b>		
3.6 (4.2)	Components replaceable without difficulty		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.3)	Wireways smooth and free from sharp edges		P
<b>3.6 (4.4)</b>	<b>Lampholders</b>		
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
3.6 (4.7.3.1)	Welded method and material		
	- stranded or solid conductor		N/A
	- spot welding		N/A



<b>IEC 60598-2-3</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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
	- no straight access with test probe		N/A
3.6 (4.10.3)	Retainment of insulation:		
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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) ..... : 0,5 Nm		P
	- other parts; energy (Nm) ..... : 0,7 Nm		P
	1) live parts		P
	2) linings		P
	3) protection		P
	4) covers		P
3.6 (4.13.3)	Straight test finger		P
3.6 (4.13.4)	Rough service luminaires		

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

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

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
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 ... :	RG1@400mm	P
	- marking and instruction according 3.2.23		P
	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 $\Omega$		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 $\Omega$		N/A
	Voltage drop test, resistance < 0,05 $\Omega$		N/A
<b>3.6 (4.28)</b>	<b>Fixing of thermal sensing control</b>		
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	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>		

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Clause	Requirement + Test	Result - Remark	Verdict
	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
3.6 (4.31.3)	Other circuits		
	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
3.6.1 (-)	At least IP X3 or X5 respectively. IP .....	IP66	P
	Column-integrated luminaires:		
	- 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.....	1.225Kg/m <sup>3</sup>	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- loaded area (m <sup>2</sup> ).....:	0.34m <sup>2</sup>	P
	- used load (N).....:	675.7N	P
	- measured deformation (cm/m) .....	1.2cm/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.....:	52	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	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 .....	48	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:		
	- 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



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Clause	Requirement + Test	Result - Remark	Verdict
	- 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)..... :	250 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		N/A
	Metal parts in contact with supporting surface		N/A
	Resistance < 0,5 Ω..... :		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a groove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
3.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A
3.8 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
3.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
3.8 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
3.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
3.8 (7.2.8)	Material of earth terminal		N/A
	Contact surface bare metal		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
3.8 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
3.8.1 (-)	Attachment prevented from rotation		N/A

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

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

3.10 (5)	EXTERNAL AND INTERNAL WIRING		
3.10 (5.2)	Supply connection and external wiring		P
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 ≤ 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
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
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
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
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

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Clause	Requirement + Test	Result - Remark	Verdict
	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

3.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		
3.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		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

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Clause	Requirement + Test	Result - Remark	Verdict
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
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>		P
3.12.2 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 3.13		—
3.12 (12.3)	Endurance test:		P
	- mounting-position .....	Acc. To mounting instruction	—
	- test temperature (°C) .....	35°C	—
	- total duration (h) .....	240 H	—
	- supply voltage: Un factor; calculated voltage (V)...		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- lamp used..... :		—
3.12 (12.3.2)	After endurance test:		
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
3.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
3.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	P
3.12 (12.6)	Thermal test (failed lamp control gear condition):		
3.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :		—
	- case of abnormal conditions ..... :		—
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un ..... :		—
	- measured mounting surface temperature (°C) at 1,1 Un ..... :		N/A
	- calculated mounting surface temperature (°C) ..... :		N/A
	- track-mounted luminaires		N/A
3.12 (12.6.2)	Temperature sensing control		
	- 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 ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
3.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		
	- 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		
	- 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		
3.12.2 (-)	(See above)		



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Clause	Requirement + Test	Result - Remark	Verdict

3.12.3 (-)	Glass covers used within the thermal limits declared by the glass manufacturer		N/A
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<b>3.13 (9)</b>	<b>RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE</b>		<b>P</b>
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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
--	-------------------------------------	--	---

	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
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<b>3.14 (10)</b>	<b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>		<b>P</b>
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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 :		N/A
--	--	--	-----

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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 ..... :	>4 Mohm	P
	- between live parts and mounting surface ..... :	>4 Mohm	P
	- between live parts and metal parts ..... :	>4 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..... :	>4 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
	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 ..... :	1500V	P
	- between live parts and mounting surface ..... :	1500V	N/A
	- between live parts and metal parts ..... :	1500V	P

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	- 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..... :		N/A
	- 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			>2				
Required supplementary insulation PTI < 600	-	1,6	2,5	5	8	10	
Measured							
Required reinforced insulation	-	3,2	5	6	8	11	
Measured			>7				
<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			>4				
<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							

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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> :				—
<b>Object/ Part No./ Material</b>		<b>Manufacturer/ trademark</b>	<b>Test temperature (°C)</b>	<b>Impression diameter (mm)</b>
Supplementary information:				

3.15 (13.3.1)	<b>TABLE: Needle-flame test (IEC 60695-11-5)</b>				<b>N/A</b>
<b>Object/ Part No./ Material</b>		<b>Manufacturer/ trademark</b>	<b>Duration of application of test flame (ta); (s)</b>	<b>Ignition of specified layer Yes/No</b>	<b>Duration of burning (tb) (s)</b>
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		—
<b>Object/ Part No./ Material</b>		<b>Manufacturer/ trademark</b>	<b>Duration of application of test flame (ta); (s)</b>	<b>Ignition of specified layer Yes/No</b>	<b>Duration of burning (tb) (s)</b>
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	—
<b>Object/ Part No./ Material</b>		<b>Manufacturer/ trademark</b>	<b>Withstand 50 drops without failure on three places or on three specimens</b>	
Supplementary information:				

<b>ANNEX 1</b>	<b>TABLE: Critical components information</b>			
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Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
Drivers	B	LG Innotek	LLP 110W 1A (LG PISE A110A) 68-110V	V in 120-277V AC Max 110W Vout:68-110Vdc tc:80°C	IEC/ EN 613472-13	CB
Drivers	B	LG Innotek	LLP 55W 1A (LG PISE A55A) 44-55V	V in 120-277V AC Max 55W Vout:44-55-Vdc tc:80°C	IEC/ EN 613472-13	CB
Drivers	B	LG Innotek	LG PISE A027A	V in 120-277V AC Max 27W Vout:22-27-Vdc tc:80°C	IEC/ EN 613472-13	CB
Drivers	B	Tridonic	LCI 27W 1-10V	220-240V 50/60Hz tc 70°C	IEC/ EN 613472-13	CB
Driver	A	LG	PISE-A040D	40W 0.35-0.7A 120-277V 50-60Hz Tc=80°C	IEC 61347-2-13	CB / UL
Driver	A	LG	PISE-A040A	40W 0.35/0.5/0.7 120-277V 50-60Hz Tc=80°C	IEC 61347-2-13	CB / UL
Driver	A	LG	PISE-A075A	75W 0.35/0.5/0.7 120-277V 50-60Hz Tc=80°C	IEC 61347-2-13	CB / UL
Driver	A	LG	PISE-A075D	75W 0.35-0.7A 120-277V 50-60Hz Tc=80°C	IEC 61347-2-13	CB / UL
Drivers	A	LG	PISE-A150D	150W 50/60Hz 0.35-0.7A 120-277V Tc=80°C	IEC 61347-2-13	CB / UL
Drivers	A	LG	PISE-A150A	150W 50/60Hz 0.35/0.5/0.7 120-277V Tc=80°C	IEC 61347-2-13	CB / UL
Drivers	A	PHILIPS	Xi FP 40W 0,3-1,0A SNLDAE 230V S175 sXt	40W 50-60Hz 0,3-1,05A 198-264V Tc=90°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi FP 40W 0,2-0,7A SNLDAE 230V S175 sXt	40W 50-60Hz 0,2-0,7A 198-264V Tc=90°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi LP 40W 0,3-1,0A S1 230V S175 sXt	40W 50-60Hz 0,3-1,05A 198-264V Tc=90°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi LP 40W 0,2-0,7A S1 230V S175 sXt	40W 50-60Hz 0,2-0,7A 198-264V Tc=90°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi LP 70W 0,2-0,7A SL 230V C150 sXt	70W 50-60Hz 0,2-0,7A 198-264V Tc=85°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi FP 75W 0,2-0,7A SNLDAE 230V S240 sXt	75W 50-60Hz 0,2-0,7A 198-264V Tc=85°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi FP 75W 0,3-1,0A SNLDAE 230V S240 sXt	75W 50-60Hz 0,3-1,05A 198-264V Tc=85°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi LP 75W 0,3-1,0A S1 230V S240 sXt	75W 50-60Hz 0,3-1,05A 198-264V Tc=85°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi LP 75W 0,2-0,7A S1 230V S240 sXt	75W 50-60Hz 0,2-0,7A 198-264V Tc=85°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi LP 150W 0,3-1,0A SL 230V S240 sXt	150W 50-60Hz 0,3-1,05A 198-264V Tc=90°C	IEC 61347-2-13	CB

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Clause	Requirement + Test			Result - Remark		Verdict
Drivers	A	PHILIPS	Xi LP 150W 0,3-1,0A SL 230V S240 sXt	150W 50-60Hz 0,3-1,05A 198-264V Tc=90°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi FP 150W 0,3-1,0A SNLDAE 230V S240 sXt	150W 50-60Hz 0,3-1,05A 198-264V Tc=90°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi LP 150W 0,2-0,7AA SL 230V S240 sXt	150W 50-60Hz 0,2-0,7A 198-264V Tc=90°C	IEC 61347-2-13	CB
Drivers	A	PHILIPS	Xi FP 150W 0,2-0,7A SNLDAE 230V S240 sXt	150W 50-60Hz 0,2-0,7A 198-264V Tc=90°C	IEC 61347-2-13	CB
Drivers	A	Meanwell	PLM-12-350 PLM-12E-350	12W 50-60Hz 0.35A 110-240Vac Tc=75°C Ta=50°C	IEC 61347-2-13	CB
Control Device	A	Owlet	LuCo ADP	110-277V 50/60 Hz Tmax = 80°C	IEC/EN 61347	CB / UL
Control Device	A	Owlet	LuCo NXP	110-277V 50/60 Hz Tmax = 80°C	IEC/EN 61347	CB / UL
Control Device	A	Owlet	LuCo P7	110-277V 50/60 Hz Tmax = 75°C	IEC/EN 61347	CB / UL
Control Device	A	Owlet	Shorting Cap	Luco P7 Empty Body	IEC/EN 61347	Test report P-E16059
Connection Device	A	TE	TE NEMA Socket 7-pin	Power contacts: 15A 480V Dimming contacts: 0.10A 10V	IEC 61347-1 IEC 61347-2-11	CB
FUSE HOLDER	A	Mersen	10x38mm CCR8-10 Series	20-32A 400V	IEC 60269-1 & -2	ENEC
FUSE HOLDER	A	CAMDENBOSS	CFTBN 5x20mm	13A 250V	IEC 60269-1 & -2	VDE / UL
FUSE	A	Mersen	FR10 10x38mm	0.5-32A 400-500V	IEC 60269-1 & -2	ENEC
FUSE	A	Littlefuse	5x20mm 213 Series	0.2-6.3A 250V	IEC 60269-1 & -2	VDE
VDR	A	Littlefuse	TM0V	275 Vac 10kA 20KV (DM)	IECQ-CECC E 1274/F	VDE
ESD	A	Vishay	VR 37	0,5W 2MΩ	DIN EN 60085	VDE
Surge protection Device	A	Vossloh	SPC3/230/10K/i	100-277V 50/60Hz 10kA 20KV (DM) 120KV (CM) Tc=80°C	IEC 61643-11	DEKRA
Surge protection Device(alt)	A	Cirprotec	NSS-10-C12-P NSS-10/230-D-LCF-P	max 320V 50-60 Hz 10kA 20KV (DM) 120KV (CM) Tc=80°C	IEC 61643-11	DEKRA
Terminal	A	WIELAND	GST18i S B	16A/250V 2.5mm²	EN 60998-1&2-2	VDE / UL
Terminal	A	ADELS	LK980-01	2.5mm², 450V 24A	EN 60998-1&2-2	VDE / UL
Terminal	A	ADELS	900-07/Q	0.5-4mm² 450V	EN 60998-1&2-2	VDE / UL
Terminal	A	ADELS	AC-166 ST(D)/3	0.5-2,5mm² 250-400V	EN 60998-1&2-2	VDE / UL
Terminal	A	WAGO	222 Series	0.08-2.5mm² 20A/400V	EN 60998-1&2-2	ENEC / UL
Terminal	A	WAGO	221 Series	0.2-4mm² 32A/450V	EN 60998-1&2-2	ENEC / UL
Terminal	A	WAGO	Connector 2 pole 294 model	24A/500V 0.5-2.5mm²	EN 60998-1&2-2	ENEC
Cable Gland	A	Hummel	HSK-K	IP68-10bar M20x1,5	DIN EN 62444	VDE / UL

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Led Modules	A	LG	8 Leds G4TOP @1000 mA 16 Leds G4TOP @1000 mA 24 Leds G4TOP @1000 mA 32 Leds G4TOP @1000 mA	RG	IEC/EN 62031-62471	Tested in appliance
Led Modules	A	LG	8 Leds G4 @1000 mA 16 Leds G4 @1000 mA 24 Leds G4 @1000 mA 32 Leds G4 @1000 mA	RG	IEC/EN 62031-62471	Tested in appliance
Led Modules (Voltana)	A	LG	8 Leds G4L @1000 mA 16 Leds G4L @1000 mA 24 Leds G4L @1000 mA 32 Leds G4L @1000 mA	RG	IEC/EN 62031-62471	Tested in appliance
Led Modules	A	Schröder	2x12 Leds XP-G2 @700 mA 2x16 Leds XP-G2 @700 mA 24 Leds XP-G2 @700 mA 32 Leds XP-G2 @700 mA	RG0	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-1				—	
	Lamp used.....	8 Led's LG3535				—	
	Lamp control gear used.....	Tridonic 27W @ 1000 mA				—	
	Mounting position of luminaire .....	Horizontal				—	
	Supply wattage (W) .....					—	
	Supply current (A) .....					—	
	Calculated power factor.....					—	
	Table: measured temperatures corrected for ta = 45 °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	45	68			70		
Supply wiring	45	57			90		
Led Module	45	73			85		
Terminal	45	57			110		
Internal wiring	45	57			90		
Supplementary information: Corrected for Ta 45 °C							

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Clause	Requirement + Test	Result - Remark	Verdict

<b>ANNEX 2</b>	<b>TABLE: Temperature measurements, thermal tests of Section 12</b>						
	Type reference .....	VOLTANA-1				—	
	Lamp used.....	8 Led's XPL				—	
	Lamp control gear used.....	MeanWell PLD-40 @ 1400 mA				—	
	Mounting position of luminaire .....	Horizontal				—	
	Supply wattage (W) .....					—	
	Supply current (A) .....					—	
	Calculated power factor.....					—	
	Table: measured temperatures corrected for ta = 55 °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	55	87			90		
Supply wiring	55	64			90		
Led Module	55	106			130		
Terminal	55	64			110		
Internal wiring	55	64			90		
Supplementary information: Corrected for Ta 55 °C							

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Clause	Requirement + Test	Result - Remark	Verdict

<b>ANNEX 2</b>	<b>TABLE: Temperature measurements, thermal tests of Section 12</b>						
	Type reference .....	VOLTANA-1				—	
	Lamp used.....	8 Led's LG3535				—	
	Lamp control gear used.....	Philips 40W @ 700 mA				—	
	Mounting position of luminaire .....	Horizontal				—	
	Supply wattage (W) .....					—	
	Supply current (A) .....					—	
	Calculated power factor.....					—	
	Table: measured temperatures corrected for ta = 55 °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	55	78			90		
Supply wiring	55	64			90		
Led Module	55	74			85		
Terminal	55	64			110		
Internal wiring	55	64			90		
Supplementary information:							
Corrected for Ta 55 °C							

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Clause	Requirement + Test	Result - Remark	Verdict

<b>ANNEX 2</b>	<b>TABLE: Temperature measurements, thermal tests of Section 12</b>						
	Type reference .....	VOLTANA-2					—
	Lamp used.....	16 Led's LG3535					—
	Lamp control gear used.....	Xitanium 40W @ 700 mA					—
	Mounting position of luminaire .....	Horizontal					—
	Supply wattage (W) .....						—
	Supply current (A) .....						—
	Calculated power factor.....						—
	Table: measured temperatures corrected for ta = 40 °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	40	86			90		
Supply wiring	40	50			90		
Led Module	40	65			85		
Terminal	40	50			110		
Internal wiring	40	50			90		
Supplementary information: Corrected for Ta 40°C							

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Clause	Requirement + Test	Result - Remark	Verdict

<b>ANNEX 2</b>	<b>TABLE: Temperature measurements, thermal tests of Section 12</b>						
	Type reference .....	VOLTANA-3					—
	Lamp used.....	24 Led's LG3535					—
	Lamp control gear used.....	Xitanium 150W@1000 (700) mA					—
	Mounting position of luminaire .....	Horizontal					—
	Supply wattage (W) .....						—
	Supply current (A) .....						—
	Calculated power factor.....						—
	Table: measured temperatures corrected for ta = 35 (55) °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 (55)	61 (84)			90		
Supply wiring	35 (55)	46 (64)			90		
Led Module	35 (55)	80 (85)			85		
Terminal	35 (55)	46 (64)			110		
Internal wiring	35 (55)	46 (64)			90		
Supplementary information: Corrected for Ta 35 (55) °C							

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Clause	Requirement + Test	Result - Remark	Verdict

<b>ANNEX 2</b>	<b>TABLE: Temperature measurements, thermal tests of Section 12</b>						
	Type reference .....	VOLTANA-4				—	
	Lamp used.....	32 Led's LG3535				—	
	Lamp control gear used.....	Xitanium 150W @1000 (700) mA				—	
	Mounting position of luminaire .....	Horizontal				—	
	Supply wattage (W) .....					—	
	Supply current (A) .....					—	
	Calculated power factor.....					—	
	Table: measured temperatures corrected for ta = 40 (50) °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	40 (50)	88 (86)			90		
Supply wiring	40 (50)	55 (61)			90		
Led Module	40 (50)	81 (79)			85		
Terminal	40 (50)	55 (61)			110		
Internal wiring	40 (50)	55 (61)			90		
Supplementary information:							
Corrected for Ta 40 (50) °C							

<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-5				—	
	Lamp used.....	64 Led's LG3535				—	
	Lamp control gear used.....	Xitanium 150W @1000 (700) mA				—	
	Mounting position of luminaire .....	Horizontal				—	
	Supply wattage (W) .....					—	
	Supply current (A) .....					—	
	Calculated power factor.....					—	
	Table: measured temperatures corrected for ta = 35 (50) °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 (50)	81 (85)			90		
Supply wiring	35 (50)	52 (61)			90		
Led Module	35 (50)	82 (80)			85		
Terminal	35 (50)	52 (61)			110		
Internal wiring	35 (50)	52 (61)			90		
Supplementary information:							
Corrected for Ta 35 (50)°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
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A



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

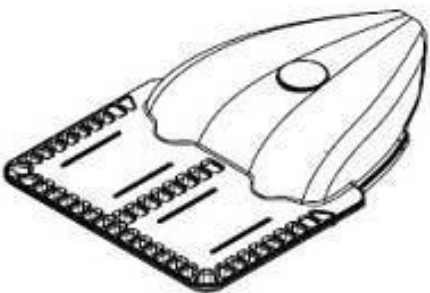
<b>IEC 60598-2-3</b>			
Clause	Requirement + Test	Result - Remark	Verdict


<b>(15.6.3.1)</b>	<b>TABLE: Contact resistance test</b>										<b>N/A</b>
	Voltage drop (mV) after 1 h										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop of two inseparable joints										N/A
	Voltage drop after 10th alt. 25th cycle										N/A
	Max. allowed voltage drop (mV) ..... :										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop after 50th alt. 100th cycle										N/A
	Max. allowed voltage drop (mV) ..... :										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Continued ageing: voltage drop after 10th alt. 25th cycle										N/A
	Max. allowed voltage drop (mV) ..... :										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Continued ageing: voltage drop after 50th alt. 100th cycle										N/A
	Max. allowed voltage drop (mV) ..... :										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
Supplementary information:											

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

**Installation Notice and pictures**


64 LED  
1000mA  
210W









**Tungsrám  
Schréder** 

Tungsrám Schréder Lighting Equipment P.L.C.  
Made in Hungary

## VOLTANA 5



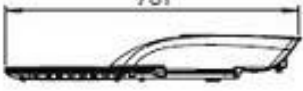







120-277V 50-60Hz

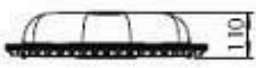
**IK**

**08**

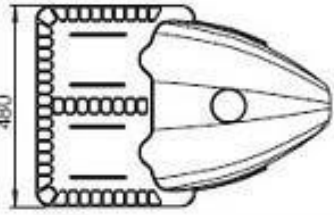
701




110



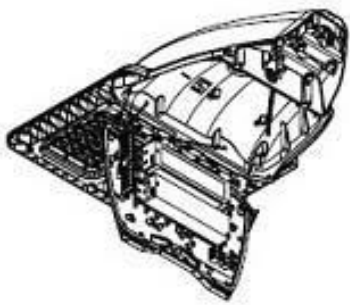
480




**INSTALLATION**




⇌



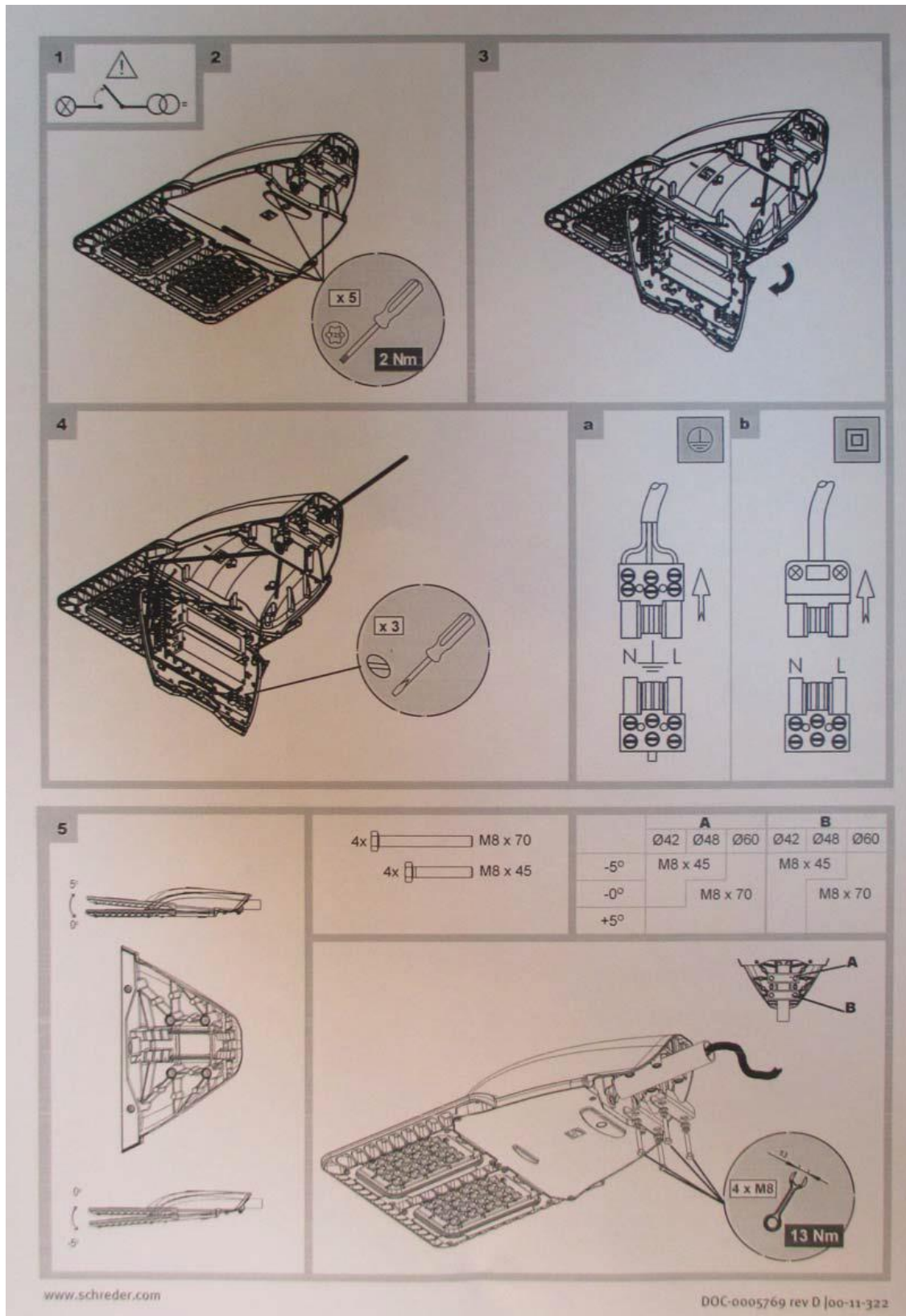


5x T25



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



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





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



## 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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**CENELEC COMMON MODIFICATIONS (EN)**
**P**

3.5 (3)	MARKING		
3.5 (3.3.101)	For luminaires not supplied with terminal block: Adequate warning on the package		N/A

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

3.10 (5)	EXTERNAL AND INTERNAL WIRING		
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

3.12 (12)	ENDURANCE TESTS AND THERMAL TESTS		
3.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		N/A

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		
(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		N/A
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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-2 16 Led's

Sample n°: P-E14361

**Test purpose:** Electrical measurements @ 1A

**Remarks:**

Test request n°: P-D14674

Folder n°: P-F14058

---

**TEST CONDITIONS:**

Operator: CLOSSET Frédéric

**Driver:** LG Innotek PISE-A055A, 1A driver

**Load:** 16 led's (Typical Vf: 3,18 V)

**Power Supply:**

Elgar Tw 3500-4

Supply voltage: 230 V 50 Hz

**Measurement device:**

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

---

**CONCLUSIONS:**

- Efficiency: 87,0 %
- PF: 0,97
- THD: 8,6 %
- Harmonics distribution complies with the IEC/EN 61000-3-2 Standard.

---

Duplicate to: Mr M. Thijs

LAB 16/09/2014

J.P. Harchies

//P-14E674

A handwritten signature in blue ink, appearing to read "J.P. Harchies", with a horizontal line drawn underneath it.

# 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-2 16 led's @ 1A class I

Sample n°:

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

**Remarks:**

Test request n°: P-D14700

Folder n°: P-F14058

## TEST CONDITIONS:

Operator: ULg - EMC

### Test Summary

EN 55015 & EN 61547 Standards

### Emission

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

### Immunity

Standard	Limit / Level	Result	
		PASS	FAIL
EN 61000-4-5	0.5 , 1 , 2 & 4 kV M.D. Impulse + @ 90° Impulse - @ 270° 20' between impulse Criteria B required	X	

**Driver:** LG Innotek PISE-A 055A – 55W 1A (Rev-04)

**EMC Auxiliaries:** Ferrite W-E 742 700 55

## CONCLUSIONS:

VOLTANA-2 16 led's driven @ 1A by LG Innotek 55 W driver complies with the CISPR/EN 55015 and EN 61547 Standards.

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

Duplicate to: Mr M. Thijs  
LAB 23/09/2014  
J.P. Harchies

//P-14E700

# 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-2 Extra Clear glass protectors

Sample n°: P-E15378

**Test purpose:** Fragmentation test following IEC/EN 60598-2-3 Standard

**Remarks:**

Test request n°: P-D15559

Folder n°: P-F14058

**TEST CONDITIONS:**

Operator: BOMBIL Patrick

3 samples under test  
Glass thickness: 5 mm



**Fragmentation test**

- An adhesive sheet is scotched on the protector internal side to hold the particles after breakage.
- Impact with spring punch hammer
- Impact on the external side of protector
- Impact at 3 cm from the mid-point of the longest edge.
- Counting of the particles in the coarsest area in a 5 cm side square within 5 minutes after breakage.

**Results:**

Sample 1: 117 pieces

Sample 2: 116 pieces

Sample 3: 118 pieces

**CONCLUSIONS:**

VOLTANA-2 Extra Clear Glass protector complies with fragmentation test following IEC/EN 60598-2-3 Standard.

Duplicate to: Mr M. Thijs

LAB 21/08/2015

L. Maghe

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

//P-15CR559

# 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-2

Sample n°: P-E14362

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

**Remarks:**

Test request n°: P-D14698

Folder n°: P-F14058

**TEST CONDITIONS:**

Operator: BOMBIL Patrick

Smooth extra clear glass  
Glass thickness: 5 mm

**At pendulum hammer**

5 impact points distributed on 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 the 5 samples for all tested points

**CONCLUSIONS:**

VOLTANA-2 satisfies the IK08 test following IEC/EN 62262 Standard.

Duplicate to: Mr M. Thijs  
LAB 23/09/2014  
J.P. Harchies

**//P-14E698**

A handwritten signature in blue ink, appearing to read "J.P. Harchies", with a horizontal line drawn underneath it.

# 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-2 16 led's @ 1A

Sample n°:

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

**Remarks:**

Test request n°: P-D14696

Folder n°: P-F14058

**TEST CONDITIONS:**

Operator: BOMBIL Patrick

Preconditioning: endurance test

Test	Result
<b>IP6X</b> : -Luminaire switched ON until stable T° -Talcum in suspension (blowing ON) -After 1', luminaire OFF -Talcum for 3 hours	OK.
<b>IPX6</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-2 16 led's @ 1A satisfies the IP66 test following IEC/EN 60598-1 Standard.

Duplicate to: Mr M. Thijs

LAB 23/09/2014

J.P. Harchies

//P-14E696

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

# 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-2 16 Led's

Sample n°: P-E14361

**Test purpose:** Thermal test evaluation @ 1A

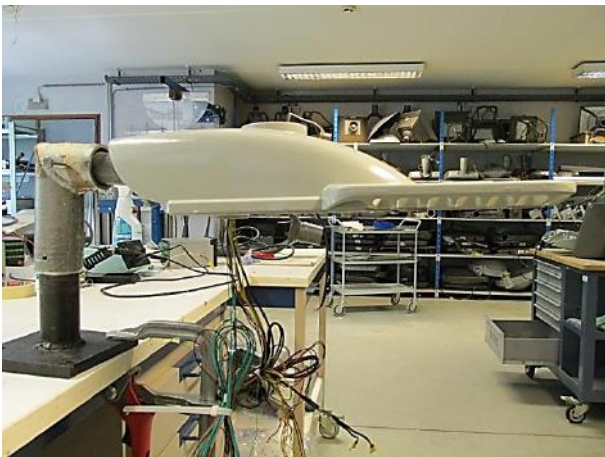
**Remarks:**

Test request n°: P-D14697

Folder n°: P-F14058

## TEST CONDITIONS:

Operator: CLOSSET Frédéric



Load: 16 led's

Driver: LG Innotek LLP 55 W 1,0 A  
PISE-A055A  
Tc 80 °C

## Measurement device:

Yokogawa TX10: thermal measurement

Yokogawa WT 210: primary EM

Fluke 87: secondary and led's EM

## Junction Temperature measurement method

Junction temperature measurement by base temperature measurement and electrical measurement.

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

## CONCLUSIONS:

According to "Led's Lumen Maintenance Criterion" LM80 extrapolation 6.000 hrs, we can state VOLTANA-2 16 led's driven @ 1A by LG Innotek driver LLP 55 W PISE-A055A driver satisfies:

Tq (CEI): 35 °C for led's with L80 – 100 Khrs target

Tq (CEI): 35 °C for lenses in Diakon material

Tq (CEI): 35 °C for driver PISE-A055A

Ta (CEI): 55 °C

Duplicate to: Mr M. Thijs

LAB 23/09/2014

J.P. Harchies

//P-14E697

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

# 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-2 – Side entry Configuration

Sample n°: P-E14365

**Test purpose:** Vibrations test: "Street Lighting Luminaires" testing protocol

**Remarks:**

Test request n°: P-D14801

Folder n°: P-F14058

**TEST CONDITIONS:**

Operator: V2i

<u>Testing protocol</u>	
<b>"Street Lighting Luminaires" testing protocol</b>	
<b>Test Item</b>	Post-top and Side-entry Luminaire
<b>Excitation Direction</b>	3 directions
<b>Search for frequencies and quality factor Q</b>	Excitation: sine sweep Frequency band: 5 - 55 Hz Sweep speed: 1 octave/min. Acceleration: 0.5g
<b>Test</b>	<b>Q &lt; 2</b> (no natural frequency)
	Excitation: <b>RANDOM (*)</b> Frequency band: 5 - 55 Hz Acceleration: 0.84g <sub>RMS</sub> Duration: 1h
	<b>Q &gt; 2</b>
	Excitation : sine dwell Frequency : f0 (Qmax) Acceleration : 0.5g Duration : 30 minutes
<b>Search for frequencies and quality factor Q</b>	Excitation: sine sweep Frequency band: 5 - 55 Hz Sweep speed: 1 octave/min. Acceleration: 0.5g

(\*) The RANDOM equivalent test consist in an accelerated ageing process of one hour which presents, on a reference one-degree-of-freedom system, an equivalent fatigue damage spectrum than 20 years of mean wind and 90 hours of storms.

**CONCLUSIONS:**

VOLTANA-2 side entry configuration satisfies the Vibration tests following "Street Lighting Luminaires" testing protocol.

Duplicate to: Mr M. Thijs  
LAB 21/10/2014  
J.P. Harchies

//P-14E801



# 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-2

Sample n°: P-E14363

**Test purpose:** Aerodynamic wind test

**Remarks:**

Test request n°: P-D14699

Folder n°: P-F14058

## TEST CONDITIONS:

Operator: ULg – CAT Soufflerie

### 2 tests realized:

- 1) Aerodynamic Coefficient determination
- 2) Endurance test

### 1) Aerodynamic coefficient determination

	<u>Value (m<sup>2</sup>)</u>		
<u>Wind Direction</u>	<u>Cd.S (drag)</u>	<u>Cs.S (Side)</u>	<u>CL.S (Lift)</u>
Front	0,004	-0,004	0,002
<u>Side</u>	<u>0,019</u>	<u>0,019</u>	<u>0,019</u>

### 2) Endurance test: wind qualification test

Wind direction: Side

Wind resistance: 10' at 180 km/h

**Result:** OK

## CONCLUSIONS:

VOLTANA-2 satisfies the wind speed test 180 Km/h for 10 minutes.  
See Aerodynamic coefficients here above.

Duplicate to: Mr M. Thijs  
LAB 23/09/2014  
J.P. Harchies

//P-14E699

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

# 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

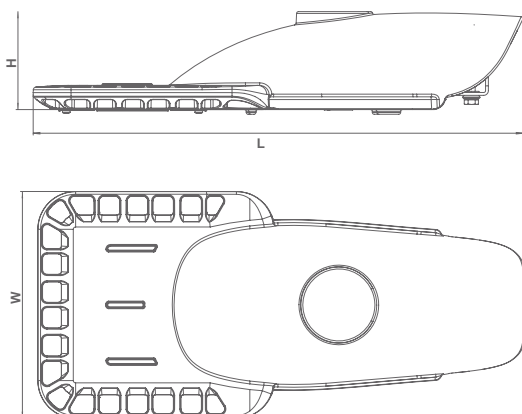
	Voltana 0	Voltana 1	Voltana 2	Voltana 3	Voltana 4	Voltana 5
Flux luminos standard (gamă) (*)	700 - 2,500lm	800 - 3,000lm	1,800 - 6,100lm	2,700 - 9,200lm	3,700 - 12,700lm	7,500 - 25,200lm
Consum de energie (W) (**)	8 - 30W	10 - 31W	20 - 56W	28 - 82W	36 - 110W	70 - 215W
Flux rezidual pe durata de viață @ 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 (**)
Etanș. placă echip. control						IP 66 (**)
Rezistență la impact (sticlă)						IK 08 (***)
Putere nominală	120 - 277V - 50 - 60Hz					
Clasă electrică						EU I sau II (**)
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

(\*) 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)

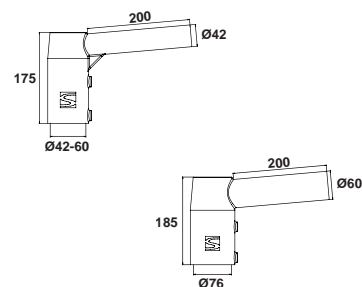
(\*\*) conform standardului IEC - EN 60598 (doar Voltana 0 este disponibil cu Clasa I) - (\*\*\*) conform standardului IEC - EN 62262

## 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

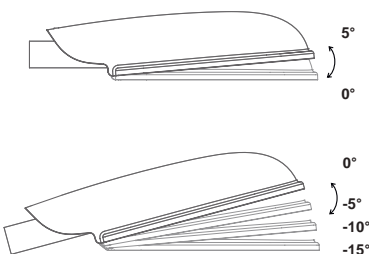


## ADAPTOR VÂRF DE STÂLP

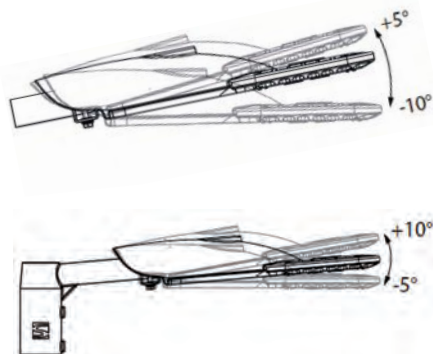


## REGLAJE UNGHI ÎNCLINARE

### VOLTANA 0

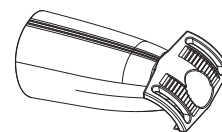


### VOLTANA 1 - 5



## 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.

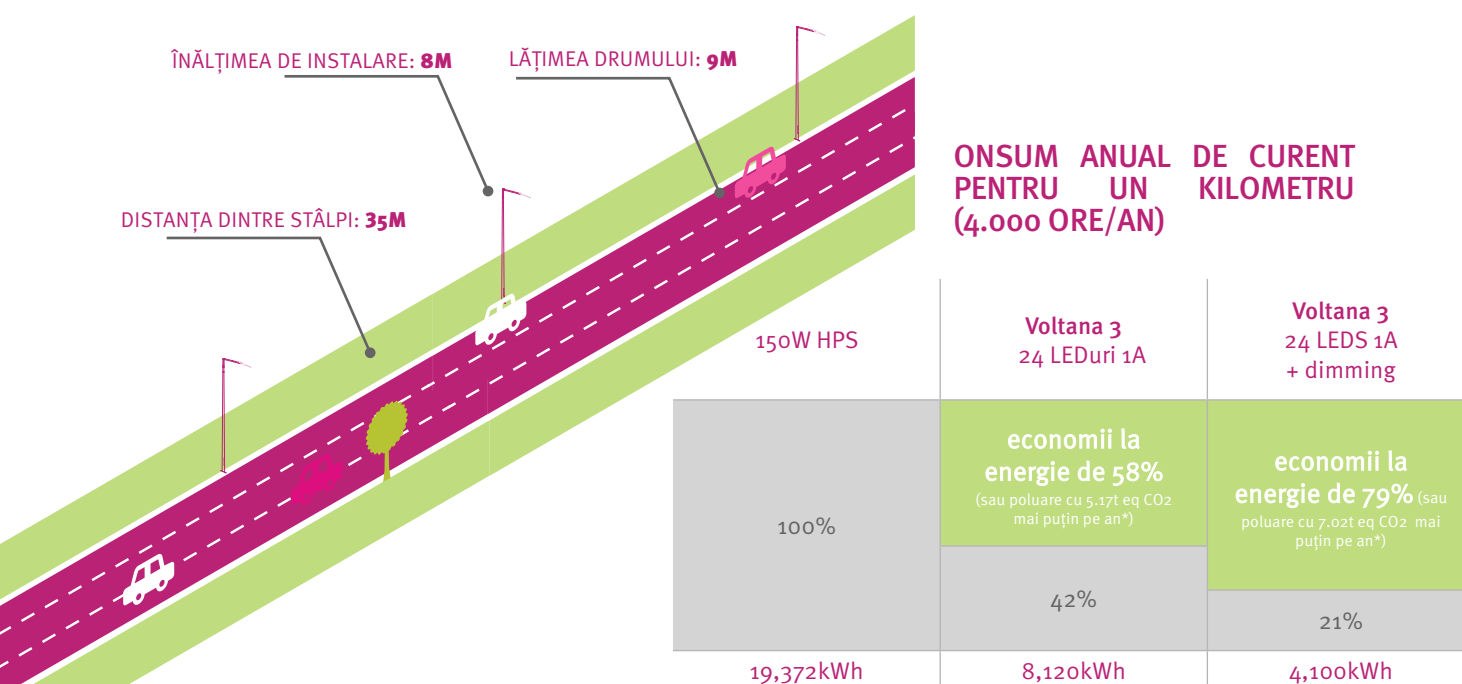
zone pietonale P5-P2		zone pietonale P1		căi de circulație clasificate M6-M5		căi de circulație clasificate M4		căi de circulație clasificate M3		căi de circulație clasificate M2	
aparat HPS 70W	Voltana 1	aparat HPS 100W	Voltana 2	aparat HPS 100W	Voltana 2	aparat HPS 150W	Voltana 3	aparat HPS 150W	Voltana 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.



ETICS-CoA-002-2018



**ETICS** *European Testing Inspection and Certification System*

# CERTIFICATE OF ACCEPTANCE

## **SGS Belgium N.V. - Division SGS CEBEC**

Bld. Internationalelaan, 55/D, Brussels Belgium

has been assessed and determined to fully comply with the requirements of EN-ISO/IEC 17065, PD ECS 050 and the Rules of Procedure relevant to the European Schemes for which the responsible CB is member.

## **SGS Belgium N.V. – Division SGS CEBEC**

is therefore entitled to operate as Certification Body within the European Schemes ENEC, ENEC+, CCA, CCA EMC, HAR and KMK for the Scope (Product Category(ies) and Standard(s)) as listed in the relevant part of the ETICS Web Site at [www.etics.org](http://www.etics.org).

This certificate remains valid until 15<sup>th</sup> January 2021, at which time it will be reissued by the ETICS Secretary General upon successful completion of the normally scheduled 3-year Reassessment Programme administered by the ETICS.

Brussels, 15 January 2018

Giancarlo Zappa, Secretary General



Bijlage bij accreditatie-certificaat  
Annexe au certificat d'accréditation  
Annex to the accreditation certificate  
Beilage zur Akkreditierungszertifikat

## 472-TEST

NBN EN ISO/IEC 17025:2005

Versie/Version/Fassung	5
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Geldigheidsdatum / Date limite de validité / Validity date / Gültigkeitsdatum:	2020-09-10

**Nicole Meurée-Vanlaethem**

Voorzitster van het Accreditatiebureau  
La Présidente du Bureau d'Accréditation  
Chair of the Accreditation Board  
Vorsitzende des Akkreditierungsbüro

**De accreditatie werd uitgereikt aan/ L'accréditation est délivrée à/  
The accreditation is granted to/ Die akkreditierung wurde erteilt für:**

**SGS Belgium NV  
Division SGS CEBEC - Laboratory  
Internationalelaan - Boulevard International, 55D  
1070 BRUSSEL - BRUXELLES**

Secrétariat:  
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Numéro d'entreprise: 0314.595.348

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Afdeling Kwaliteit en Innovatie  
Koning Albert II-laan 16 - 5<sup>de</sup> verd. - B-1000 Brussel  
Website: <http://economie.fgov.be>  
Ondernemingsnummer: 0314.595.348

**.be**

Product/Object	Parameter determined	Reference
<b>Tests on ELECTRICAL Safety</b>		
Electical Cables	Tests electrical safety as detailed in the standard	NBN EN 50396 Non electrical test methods for low voltage energy cables EXCLTests: Test of resistance to hot particles
Electical Cables	Tests electrical safety as detailed in the standard	NBN EN 50525-1 Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (Uo/U) - Part 1 : General requirements
Electical Cables	Tests electrical safety as detailed in the standard	NBN EN 50525-2-11 Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (Uo/U) - Part 2-11: Cables for general applications - Flexible cables with thermoplastic PVC insulation
Electical Cables	Tests electrical safety as detailed in the standard	NBN EN 50525-2-21 Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (Uo/U) - Part 2-21 : Cables for general applications - Flexible cables with crosslinked elastomeric insulation.
Electical Cables	Tests electrical safety as detailed in the standard	NBN EN 50525-2-31 Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (Uo/U) - Part 2-31 : Cables for general applications - Single core non-sheathed cables with thermoplastic PVC insulation
Electical Cables	Tests electrical safety as detailed in the standard	NBN EN 50525-2-42 Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (Uo/U) - Part 2-42 : Cables for general applications - Single core non-sheathed cables with crosslinked EVA insulation

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Electical Cables	Tests electrical safety as detailed in the standard	NBN EN 50525-2-82 Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (Uo/U) - Part 2-82 : Cables for general applications - Cables with crosslinked elastomeric insulation for decorative chains
Electical Cables	Tests electrical safety as detailed in the standard	NBN EN 50525-3-31 Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V Part 3-31 : Cables with special fire performance - Single core non-sheathed cables with halogen-free thermoplastic insulation, and low emission
Electical Cables	Tests electrical safety as detailed in the standard	IEC 60227-2 Polyvinylchloride insulated of rated volatages up to and including 450/750V - Part 2 Test methods
Electical Cables	Tests electrical safety as detailed in the standard	IEC 60227-3 Polyvinylchloride insulated of rated volatages up to and including 450/750V - Non sheathed cables for fixed wiring
Electical Cables	Tests electrical safety as detailed in the standard	IEC 60227-4 Polyvinylchloride insulated of rated volatages up to and including 450/750V - Sheathed cables for fixed wiring
Electical Cables	Tests electrical safety as detailed in the standard	IEC 60227-5 Polyvinylchloride insulated of rated volatages up to and including 450/750V - Flexible cables (cords)
Electical Cables	Tests electrical safety as detailed in the standard	IEC 60245-2 Rubber insulated cables - Rated voltages up to and including 450/750 V – Part 2:Test methods
Electical Cables	Tests electrical safety as detailed in the standard	IEC 60245-4 Rubber insulated cables - Rated voltages up to and including 450/750 V - Cords and flexible cables
Electical Cables	Tests electrical safety as detailed in the standard	IEC 60245-6 Rubber insulated cables - Rated voltages up to and including 450/750 V - Arc welding electrode cables
Electical Cables	Tests electrical safety as detailed in the standard	IEC 60245-8 Rubber insulated cables - Rated voltages up to and including 450/750 V - Cords for applications requiring high flexibility

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Electromechanical contactors for household and similar purposes	Tests electrical safety as detailed in the standard	IEC NBN EN 61095 Electromechanical contactors for household and similar purposes Only § 9.2.4; 9.2.2.2 To 9.2.2.6; 9.2.6; 9.2.7
Household and similar electrical appliances. - General requirements.	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-1 Household and similar electrical appliances. - General requirements EXCLTests: Abnormal operation; Oxygembomb; Annex F
Household and similar electrical appliances - Particular requirements for vacuum cleaners and water-suction cleaning appliances (IEC 60335-2-2:2009,IDT)	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-2 Household and similar electrical appliances - Safety - Part 2-2: Particular requirements for vacuum cleaners and water-suction cleaning appliances (IEC 60335-2-2:2009,IDT)
Household and similar electrical appliances - Electric irons	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-3 Household and similar electrical appliances - Electric irons
Household and similar electrical appliances – Cooking ranges, hobs, ovens and similar	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-6 Household and similar electrical appliances – Cooking ranges, hobs, ovens and similar
Household and similar electrical appliances – Shavers, hair clippers	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-8 Household and similar electrical appliances – Shavers, hair clippers
Household and similar electrical appliances – Grills, toasters and similar appliances	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-9 Household and similar electrical appliances – Grills, toasters and similar appliances

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Household and similar electrical appliances - Particular requirements for warming plates and similar appliances.	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-12 Household and similar electrical appliances - Safety - Part 2-12: Particular requirements for warming plates and similar appliances.
Household and similar electrical appliances. Deep fat fryers, frying pans, and similar appliances	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-13 Household and similar electrical appliances. Deep fat fryers, frying pans, and similar appliances
Household and similar electrical appliances - Kitchen machines	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-14 Household and similar electrical appliances - Kitchen machines
Household and similar electrical appliances - Appliances for heating liquids	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-15 Household and similar electrical appliances - Appliances for heating liquids
Household and similar electrical appliances - Storage water heaters	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-21 Household and similar electrical appliances - Storage water heaters
Household and similar electrical appliances - Appliances for skin or hair care	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-23 Household and similar electrical appliances - Appliances for skin or hair care
Household and similar electrical appliances - Battery chargers EXCLTests: Mechanical Strenght. Vibration test	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-29 Household and similar electrical appliances - Battery chargers EXCLTests: Mechanical Strenght. Vibration test

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Household and similar electrical appliances - Room heaters	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-30 Household and similar electrical appliances - Room heaters
Household and similar electrical appliances - Range hoods EXCLTests: Resistance to heat and fire(Test acc ISO9772)	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-31 Household and similar electrical appliances - Range hoods EXCLTests: Resistance to heat and fire(Test acc ISO9772)
Household and similar electrical appliances - Massage appliances	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-32 Household and similar electrical appliances - Massage appliances
Household and similar electrical appliances - Particular requirements for instantaneous water heaters	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-35 Household and similar electrical appliances - Safety - Part 2-35: Particular requirements for instantaneous water heaters
Household and similar electrical appliances – Commercial el. Ranges ovens and hob elements	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-36 Household and similar electrical appliances – Commercial el. Ranges ovens and hob elements
Household and similar electrical appliances – Commercial electric griddles and griddle grills	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-38 Household and similar electrical appliances – Commercial electric griddles and griddle grills
Household and similar electrical appliances – Commercial electric forced convection ovens, steam cookers and steam-convection ovens	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-42 Household and similar electrical appliances – Commercial electric forced convection ovens, steam cookers and steam-convection ovens



<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Household and similar electrical appliances – Clothes dryers and towel rails	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-43 Household and similar electrical appliances – Clothes dryers and towel rails
Household and similar electrical appliances – Commercial Electric grills and toasters EXCLTests: Resistance to heat and fire (Test acc ISO9772)	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-48 Household and similar electrical appliances – Commercial Electric grills and toasters EXCLTests: Resistance to heat and fire (Test acc ISO9772)
Household and similar electrical appliances – Commercial Electric bains-marie	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-50 Household and similar electrical appliances – Commercial Electric bains-marie
Household and similar electrical appliances – Whirlpool baths	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-60 Household and similar electrical appliances – Whirlpool baths
Household and similar electrical appliances - Particular requirements for commercial dispensing appliances and vending machines	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-75 Household and similar electrical appliances - Safety - Part 2-75: Particular requirements for commercial dispensing appliances and vending machines
Household and similar electrical appliances – Fans	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-80 Household and similar electrical appliances – Fans

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Household and similar electrical appliances – Commercial refrigerating appliances with an incorporated or remote refrigerant condensing unit or compressor	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-89 Household and similar electrical appliances – Commercial refrigerating appliances with an incorporated or remote refrigerant condensing unit or compressor EXCLTests: Construction. Test for flammable refrigerants(IEC60079-15)
Household and similar electrical appliances.- Gas, oil and solid-fuel burning appliances having electrical connections	Tests electrical safety as detailed in the standard	IEC NBN EN 60335-2-102 Household and similar electrical appliances.- Gas, oil and solid-fuel burning appliances having electrical connections
Boxes and enclosures for electrical accessories for household and similar fixed electrical installations -	Tests electrical safety as detailed in the standard	IEC NBN EN 60670-1 Boxes and enclosures for electrical accessories for household and similar fixed electrical installations - Part 1: General requirements EXCL. § 21
Switches for household and similar fixed-electrical installations - General requirements	Tests electrical safety as detailed in the standard	IEC NBN EN 60669-1 Switches for household and similar fixed-electrical installations - Part 1: General requirements EXCLTests: Inspection and chemical tests on metals of current carrying parts. EXCL.§ 18; 19; 26
Switches for household and similar fixed electrical installations - Electronic switches	Tests electrical safety as detailed in the standard	NBN EN 60669-2-1 Switches for household and similar fixed electrical installations - Part 2-1: Particular requirements - Electronic switches EXCLTests: § 26.1.1;26.1.2;26.1.3; 26.1.4; 26.1.5; 18.102;13.103; 101;102

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Switches for household and similar fixed electrical installations - Electromagnetic remote-control switches (RCS)	Tests electrical safety as detailed in the standard	IEC NBN EN 60669-2-2 Switches for household and similar fixed electrical installations - Part 2: Particular requirements -- Section 2: Electromagnetic remote-control switches (RSC) EXCLTests: § 26 ; 101; 102; 13.103; 18.102
Switches for household and similar fixed electrical installations - Time delay switches (TDS)	Tests electrical safety as detailed in the standard	IEC NBN EN 60669-2-3 Switches for household and similar fixed electrical installations - Part 2-3: Particular requirements - Time delay switches (TDS) EXCLTests: § 26 ; 101; 102; 13.103; 18.102
Switches for household and similar fixed electrical installations - Isolating switches	Tests electrical safety as detailed in the standard	IEC NBN EN 60669-2-4 Switches for household and similar fixed electrical installations - Part 2-4: Particular requirements - Isolating switches EXCLTests: § 17; 18; 19; 26 ; 16.101; 18.101; 22.5 to 22.7
Plugs and socket-outlets for household and similar purposes -	Tests electrical safety as detailed in the standard	IEC NBN EN 60884-1 Plugs and socket-outlets for household and similar purposes - Part 1: General requirements . EXCL. § 11.5; 12.2; 14.23.1; 20; 21
Coduit systems for cable management - Part 1:General requirments	Tests electrical safety as detailed in the standard	NBN EN 61386-1 Coduit systems for cable management - Part 1:General requirments
Coduit systems for cable management - Part 21:Particular requirments - Rigid conduit systems	Tests electrical safety as detailed in the standard	NBN EN 61386-21 Coduit systems for cable management - Part 21:Particular requirments - Rigid conduit systems
Coduit systems for cable management - Part 22:Particular requirments - Pliable conduit systems	Tests electrical safety as detailed in the standard	NBN EN 61386-22 Coduit systems for cable management - Part 22:Particular requirments - Pliable conduit systems

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Luminaires – General requirements and tests	Tests electrical safety as detailed in the standard	IEC NBN EN 60598-1 Luminaires – Part 1: General requirements and tests EXCLTests: Protective measure against UV radiation; Rough service luminaires (Vibration test)
Luminaires - Fixed general purpose luminaires	Tests electrical safety as detailed in the standard	IEC NBN EN 60598-2-1 Luminaires - Part 2: Particular requirements Section 1: Fixed general purpose luminaires
Luminaires - Recessed luminaires	Tests electrical safety as detailed in the standard	IEC NBN EN 60598-2-2 Luminaires - Part 2 - Particular requirements Section 2: Recessed luminaires
Luminaires - Luminaires for road and street lighting	Tests electrical safety as detailed in the standard	IEC NBN EN 60598-2-3 Luminaires - Part 2 - Particular requirements Section 3: Luminaires for road and street lighting
Luminaires - Portable general purpose luminaires	Tests electrical safety as detailed in the standard	IEC NBN EN 60598-2-4 Luminaires - Part 2 - Particular requirements Section 4: Portable general purpose luminaires
Luminaires - Floodlights	Tests electrical safety as detailed in the standard	IEC NBN EN 60598-2-5 Luminaires - Part 2 - Particular requirements Section 5: Floodlights
Luminaires - Luminaires with built-in transformers for filament lamps	Tests electrical safety as detailed in the standard	IEC NBN EN 60598-2-6 Luminaires - Part 2: Particular requirements Section 6: Luminaires with built-in transformers for filament lamps
Luminaires – Portable luminaires for garden use	Tests electrical safety as detailed in the standard	IEC NBN EN 60598-2-7 Luminaires – Part 2 – Particular requirements Section 7: Portable luminaires for garden use
Luminaires - Portable luminaires for children	Tests electrical safety as detailed in the standard	IEC NBN EN 60598-2-10 Luminaires - Part 2 - Particular requirements Section 10: Portable luminaires for children EXCLTests: Burning behavior for pile surface or textile surface
Luminaires - Aquarium luminaires	Tests electrical safety as detailed in the standard	IEC NBN EN 60598-2-11 Luminaires - Part 2: Particular requirements Section 11: Aquarium luminaires

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Luminaires - Mains socket-outlet mounted nightlights	Tests electrical safety as detailed in the standard	NBN EN 60598-2-12 Luminaires - Part 2 - Particular requirements Section 12: Mains socket-outlet mounted nightlights
Luminaires - Ground recessed luminaires	Tests electrical safety as detailed in the standard	NBN EN 60598-2-13 Luminaires - Part 2 - Particular requirements Section 13: Ground recessed luminaires
Luminaires - Lighting chains	Tests electrical safety as detailed in the standard	IEC NBN EN 60598-2-20 Luminaires - Part 2 - Particular requirements Section 20: Lighting chains
Lamp controlgear - General and safety requirements	Tests electrical safety as detailed in the standard	61347-1 Lamp controlgear - Part 1: General and safety requirements
Lamp controlgear - Particular requirements for miscellaneous electronic circuits used with luminaires	Tests electrical safety as detailed in the standard	61347-2-11 Lamp controlgear - Part 2-11: Particular requirements for miscellaneous electronic circuits used with luminaires
Lamp controlgear - Particular requirements for d.c. Or a.c. Supplied electronic controlgear for LED modules	Tests electrical safety as detailed in the standard	61347-2-13 Lamp controlgear - Part 2-13: Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules
Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements	Tests electrical safety as detailed in the standard	NBN EN UL CSA 61010-1 Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
Medical electrical equipment - General requirements for basic and essential performance	Tests electrical safety as detailed in the standard	IEC NBN EN 60601-1 CAN/CSA C22.2 N°60601-1 ANSI/AAMI ES 60601-1 Medical electrical equipment - Part 1: General requirements for basic and essential performance EXCLTests: § 25; 29; 36; 44

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Medical electrical equipment - Safety requirements for medical electrical systems	Tests electrical safety as detailed in the standard	IEC NBN EN 60601-1-1 Medical electrical equipment - Part 1-1: General requirements for safety - Collateral standard: Safety requirements for medical electrical systems
Medical electrical equipment - Particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment	Tests electrical safety as detailed in the standard	IEC NBN EN 60601-2-22 Medical electrical equipment - Part 2-22: Particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment
Medical electrical equipment - Particular requirements for the basic safety and essential performance of electrocardiographs	Tests electrical safety as detailed in the standard	NBN EN 60601-2-25 Medical electrical equipment - Part 2-25: Particular requirements for the basic safety and essential performance of electrocardiographs
Medical Electrical Equipment Particular Requirements for the basic safety and essential performance of electroencephalographs	Tests electrical safety as detailed in the standard	IEC NBN EN 60601-2-26 Medical Electrical Equipment Part 2-26: Particular Requirements for the basic safety and essential performance of electroencephalographs
Medical electrical equipment - Particular requirements for the basic safety and essential performance of electrocardiographic monitoring equipment	Tests electrical safety as detailed in the standard	IEC NBN EN 60601-2-27 Medical electrical equipment - Part 2-27: Particular requirements for the basic safety and essential performance of electrocardiographic monitoring equipment

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Safety of information technology equipment	Tests electrical safety as detailed in the standard	IEC NBN EN 60950 Safety of information technology equipment EXCLTests: § 2.10.6.6; 4.3.12; 4.3.13; 4.7.3; 4.2.8; 7
Information technology equipment - Safety - Part 1: General requirements	Tests electrical safety as detailed in the standard	IEC NBN EN UL CAN/CSA C22.2 60950-1 Information technology equipment - Safety - Part 1: General requirements EXCLTests: 4.2.8; 4.3.12; 4.3.13; 4.6.2; Materials, tests see Annex A
Uninterruptible power systems (UPS) - General and safety requirements for UPS	Tests electrical safety as detailed in the standard	IEC 62040-1 Uninterruptible power systems (UPS) - Part 1: General and safety requirements for UPS
Uninterruptible power systems (UPS) - General and safety requirements for UPS used in operator access areas	Tests electrical safety as detailed in the standard	IEC NBN EN 62040-1-1 Uninterruptible power systems (UPS) - Part 1-1: General and safety requirements for UPS used in operator access areas
Uninterruptible power systems (UPS) - General and safety requirements for UPS used in restricted access locations	Tests electrical safety as detailed in the standard	IEC NBN EN 62040-1-2 Uninterruptible power systems (UPS) - Part 1-2: General and safety requirements for UPS used in restricted access locations
Low-voltage switchgear and controlgear assemblies - General rules	Tests electrical safety as detailed in the standard	IEC NBN EN 61439-1 Low-voltage switchgear and controlgear assemblies - Part 1: General rules Only Clauses § 8.2.1; 8.2.2; 8.2.3; 8.3.1; 8.3.2; 8.3.3; 8.4

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Low-voltage switchgear and controlgear assemblies Power switchgear and controlgear assemblies	Tests electrical safety as detailed in the standard	IEC NBN EN 61439-2 Low-voltage switchgear and controlgear assemblies - Part 2: Power switchgear and controlgear assemblies Only Clauses § 8
Low-voltage switchgear and controlgear assemblies Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards	Tests electrical safety as detailed in the standard	IEC NBN EN 61439-3 Low-voltage switchgear and controlgear assemblies - Part 3: Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Only § 8
Safety of power transformers, power supplies, reactors and similar products - General requirements and tests	Tests electrical safety as detailed in the standard	IEC NBN EN 61558-1 Safety of power transformers, power supplies, reactors and similar products - Part 1: General requirements and tests
Safety of power transformers, power supply units and similar - Particular requirements for separating transformers for general use	Tests electrical safety as detailed in the standard	NBN EN 61558-2-1 Safety of power transformers, power supply units and similar - Part 2.1: Particular requirements for separating transformers for general use



<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Safety of power transformers, power supply units and similar - Particular requirements and tests for control transformers and power supplies incorporating control transformers.	Tests electrical safety as detailed in the standard	NBN EN 61558-2-2 Safety of power transformers, power supply units and similar - Part 2.2: Particular requirements and tests for control transformers and power supplies incorporating control transformers.
Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V - Particular requirements and tests for isolating transformers and power supply units incorporating isolating transformers	Tests electrical safety as detailed in the standard	IEC NBN EN 61558-2-4 Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V - Part 2-4: Particular requirements and tests for isolating transformers and power supply units incorporating isolating transf
Safety of power transformers, power supply units and similar - Particular requirements for shaver transformers and shaver supply units.	Tests electrical safety as detailed in the standard	NBN EN 61558-2-5 Safety of power transformers, power supply units and similar - Part 2.5: Particular requirements for shaver transformers and shaver supply units.

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>
Safety of power transformers, power supply units and similar - Particular requirements for safety isolating transformers for general use	Tests electrical safety as detailed in the standard	IEC NBN EN 61558-2-6 Safety of power transformers, power supply units and similar - Part 2 Particular requirements for safety isolating transformers for general use
Safety of power transformers, power supply units and similar devices - Particular requirements for auto-transformers for general use.	Tests electrical safety as detailed in the standard	NBN EN 61558-2-13 Safety of power transformers, power supply units and similar devices - Part 2-13: Particular requirements for auto-transformers for general use.
Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V - Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units	Tests electrical safety as detailed in the standard	IEC 61558-2-16 Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V - Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units
Safety of power transformers, power supply units and similar -	Tests electrical safety as detailed in the standard	NBN EN 61558-2-17 Safety of power transformers, power supply units and similar - Part 2.17:
Electical Cables	Tests electrical safety as detailed in the standard	IEC NBN EN UL CSA 60065 Audio, video and similar electronic apparatus - Safety requirements EXCLTests: Annex A: 8.18; 7; 6.1

<b>Product/Object</b>	<b>Parameter determined</b>	<b>Reference</b>	
<b>GENERIC Tests</b>			
G60525/W	All, except power cables and cords	Resistance to harmful ingress of water (IPx1-IPx8) Degree protection against water// max. LenghtXHeightXWidth : IPX1&2 1mx1mx1m ; IPX3&4 1mx1mx1m ; IPX5&6 2mx1,5mx2m ; IPX7&8 Diam 0,5Mx1,3mlenght	IEC / EN / NBN EN 60529
G60525/FO	All, except power cables and cords	Degree of protection against access to hazardous parts and against solid foreign objects (IP1x- IP6x) Degree protection // max. LenghtXDiam : IP5X&6x 1,2mx07m	IEC / EN / NBN EN 60529
G60695.1 1.5	All, except power cables and cords and Electrical equipt for medical use	Fire hazard testing; Needle Flame	IEC / EN / NBN EN 60695-11-5
G60695.1 1.4	Household, Electrical equipt for medical use, UPS, IT & office equipment, Measuring instruments, Electronic appliances	Fire hazard testing. Test flames - 50W	IEC / EN / NBN EN 60695-11-10
G60695.1 1.3	IT & office equipment	Fire hazard testing. Test flames - 500W	IEC / EN / NBN EN 60695-11-20
G60695.1 1.2	Power cables and cords	Fire hazard testing. Test flames - 1000W	IEC / EN / NBN EN 60695-2-4
G60695.2. 10	All, except power cables and cords and equipt for medical use.	Fires hazard testing. Glow wire	IEC / EN / NBN EN 60695-2-10
G60695.1 0.2	All, except power cables and cords	Fire hazard testing; Ball pressure testing	IEC / EN / NBN EN 60695-10-2
G62262	All, except power cables and cords	Impact test (Code IK01 to IK10)	IEC / EN / NBN EN 62262

## Deutsche Akkreditierungsstelle GmbH

**Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV**

Signatory to the Multilateral Agreements of  
EA, ILAC and IAF for Mutual Recognition

# Accreditation



The Deutsche Akkreditierungsstelle GmbH attests that the certification body

**DEKRA Certification GmbH**  
**Handwerkstraße 15, 70565 Stuttgart**

is competent under the terms of DIN EN ISO/IEC 17021:2011 to carry out certifications of management systems in the following fields:

- **DIN EN ISO 14001:2009 Environmental Management Systems**
- **DIN EN ISO 9001:2008 Quality Management Systems**
- **Management requirements of the BGW for occupational health and safety (MAAS-BGW), Version 04/2013 – based on DIN EN ISO 9001:2008**
- **DIN EN ISO 50001:2011 Energy Management Systems (EnMS)**
- **DIN EN ISO 22000:2005 Certification of Food Safety Management Systems according to ISO/TS 22003:2007**
- **FSSC 22000 Certification scheme for food safety systems**
- **DIN ISO/IEC 27001:2013 Information technology - Security techniques - Information security management systems according to ISO/IEC 27006:2011**
- **BS OHSAS 18001:2007 Occupational Health and Safety Management Systems**
- **Normative SCC-Regelwerk: Version 2011 DGMK e.V. SHE-/SCC-Management Systems**
- **DIN ISO 29990:2010 Learning services for non-formal education and training – Basic requirements for service providers**

The accreditation certificate shall only apply in connection with the notice of accreditation of 18.12.2014 with the accreditation number D-ZM-16029-01 and is valid until 17.12.2019. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 8 pages.

Registration number of the certificate: **D-ZM-16029-01-01**

## Deutsche Akkreditierungsstelle GmbH

### Annex to the Accreditation Certificate D-ZM-16029-01-01 according to DIN EN ISO/IEC 17021:2011

Period of validity: 18.12.2014 to 17.12.2019      Date of issue: 18.12.2014

Holder of certificate:

**DEKRA Certification GmbH**  
**Handwerkstraße 15, 70565 Stuttgart**

Certifications of management systems in the fields:

**DIN EN ISO 14001:2009 Environmental Management Systems**

With the Branch Offices:

Cerdany 44  
ES-08820 El Prat de Llobregat  
Spain

265 West Street  
Tuinhof Office Park, Karee Building  
ZA-0157 Centurion  
South Africa

Str. Constantin Brancusi Nr. 131  
RO-400458 Cluj-Napoca  
Romania

Via Fratelli Gracchi 27 – Torre Sud  
IT-20092 Cinisello Balsamo (MI)  
Italy

Türkova 1001/9  
CZ-149 00 Praha 4  
Czech Republic

Plac Solny 20  
PL-50-063 Wroclaw  
Poland

Pannonhalmi út 14  
HU-1118 Budapest  
Hungary

Floor 14, International Sunyard  
No. 1750 Jianghong Avenue  
Binjiang District  
310052 Hangzhou  
China

Certification of management systems in the following fields:

**DIN EN ISO 14001:2009 Environmental Management Systems**

**IAF/EA – Description of economic sectors**

**Scope**

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<b>2</b>	<b>Mining and quarrying</b>
<b>3</b>	<b>Food products, beverages and tobacco</b>
<b>4</b>	<b>Textiles and textile products</b>
<b>6</b>	<b>Wood and wood products</b>
<b>7</b>	<b>Pulp, paper and paper products</b>
<b>8</b>	<b>Publishing companies</b>
<b>9</b>	<b>Printing companies</b>
<b>12</b>	<b>Chemical, chemical products and fibres</b>
<b>13</b>	<b>Pharmaceuticals</b>
<b>14</b>	<b>Rubber and plastic products</b>
<b>15</b>	<b>Non-metallic mineral products</b>
<b>16</b>	<b>Concrete, cement, lime, plaster, etc.</b>
<b>17/1</b>	<b>Basic metals</b>
<b>17/2</b>	<b>Fabricated metal products</b>
<b>18</b>	<b>Machinery and equipment</b>
<b>19</b>	<b>Electrical and optical equipment</b>
<b>22</b>	<b>Other transport equipment</b>
<b>23</b>	<b>Manufacturing of products not elsewhere classified</b>
<b>24</b>	<b>Recycling</b>
<b>25</b>	<b>Electricity supply</b>
<b>26</b>	<b>Gas supply</b>
	<b>Description of economic sectors</b>

**IAF/EA – Description of economic sectors**

**Scope**

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<b>27</b>	<b>Water supply</b>
<b>28</b>	<b>Construction</b>
<b>29/1</b>	<b>Wholesale and retail trade</b>
<b>29/2</b>	<b>Repair of motor vehicles, motorcycles and personal and household goods</b>
<b>30</b>	<b>Hotels and restaurants</b>
<b>31/1</b>	<b>Transport, storage and logistics</b>
<b>31/2</b>	<b>Communication</b>
<b>32</b>	<b>Financial intermediation, real estate, renting of equipment</b>
<b>33</b>	<b>Information technology</b>
<b>34</b>	<b>Research institutes; engineering and architect offices</b>
<b>35</b>	<b>Other services</b>
<b>36</b>	<b>Public administration</b>
<b>37</b>	<b>Education</b>
<b>38/1</b>	<b>Health / veterinarian</b>
<b>38/2</b>	<b>Social work</b>
<b>39</b>	<b>Other social services</b>

**Annex to the Accreditation Certificate D-ZM-16029-01-01**

Certification of management systems in the following fields:

**DIN EN ISO 9001:2008 Quality Management Systems**

With the branch offices:

Cerdany 44  
ES-08820 El Prat de Llobregat  
Spain

265 West Street  
Tuinhof Office Park, Karee Building  
ZA-0157 Centurion  
South Africa

Str. Constantin Brancusi Nr. 131  
RO-400458 Cluj-Napoca  
Romania

Via Fratelli Gracchi 27 – Torre Sud  
IT-20092 Cinisello Balsamo (MI)  
Italy

Türkova 1001/9  
CZ-149 00 Praha 4  
Czech Republic

Plac Solny 20  
PL-50-063 Wroclaw  
Poland

Pannonhalmi út 14  
HU-1118 Budapest  
Ungarn

Floor 14, International Sunyard  
No. 1750 Jianghong Avenue  
Binjiang District  
310052 Hangzhou  
China



**DIN EN ISO 9001:2008 Quality Management Systems**

<b>IAF/EA – Scope</b>	<b>Description of economic sectors</b>
1	Agriculture, forestry and fishing
2	Mining and quarrying
3	Food products, beverages and tobacco
4	Textiles and textile products
5	Leather and leather products
6	Wood and wood products
7	Pulp, paper and paper products
8	Publishing companies
9	Printing companies
12	Chemical, chemical products and fibres
13	Pharmaceuticals
14	Rubber and plastic products
15	Non-metallic mineral products
16	Concrete, cement, lime, plaster, etc.
17	Basic metals and fabricated metal products
18	Machinery and equipment
19	Electrical and optical equipment
21	Aerospace
22	Other transport equipment
23	Manufacturing of products not elsewhere classified
24	Recycling
25	Electricity supply
26	Gas supply
27	Water supply
28	Construction
29/1	Wholesale and retail trade
29/2	Repair of motor vehicles, motorcycles and personal and household goods
30	Hotels and restaurants
31/1	Transport, storage and logistics
31/2	Communication
32/1	Financial intermediation, real estate
32/2	Renting of equipment
33	Information technology
34/1	Research institutes
34/2	Engineering and architect offices

**IAF/EA –  
Scope**      **Description of economic sectors**

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<b>35</b>	<b>Other services</b>
<b>36</b>	<b>Public administration</b>
<b>37</b>	<b>Education</b>
<b>38/1</b>	<b>Health</b>
<b>38/2</b>	<b>Veterinarian</b>
<b>38/3</b>	<b>Social work</b>
<b>39</b>	<b>Other social services</b>

**Management requirements of the BGW for occupational health and safety (MAAS-BGW),  
Version 04/2013 – based on DIN EN ISO 9001:2008**

**DIN EN ISO 22000:2005 Certification of Food Safety Management Systems according to  
ISO/TS 22003:2007**

**DIN/ISO  
TS 22003**      **Categories in accordance with Annex A ISO/TS 22003**

**Category**

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<b>A</b>	<b>Farming 1 (Animals)</b>
<b>B</b>	<b>Farming 2 (Plants)</b>
<b>C</b>	<b>Processing 1 (Perishable animal products)</b>
<b>D</b>	<b>Processing 2 (Perishable vegetable products)</b>
<b>E</b>	<b>Processing 3 (Products with long shelf life at ambient temperature)</b>
<b>F</b>	<b>Feed production</b>
<b>G</b>	<b>Catering</b>
<b>H</b>	<b>Distribution</b>
<b>I</b>	<b>Services</b>
<b>J</b>	<b>Transport and Storage</b>
<b>K</b>	<b>Equipment manufacturing</b>
<b>L</b>	<b>(Bio-) chemical manufacturing</b>
<b>M</b>	<b>Packaging material manufacturing</b>

**FSSC 22000 Certification scheme for food safety systems according to ISO/TS 22003:2007**

**DIN/ISO**

**TS 22003 Categories in accordance with Annex A ISO/TS 22003**

**Category**

<b>C</b>	<b>Processing 1 (Perishable animal products)</b>
<b>D</b>	<b>Processing 2 (Perishable vegetable products)</b>
<b>E</b>	<b>Processing 3 (Products with long shelf life at ambient temperature)</b>
<b>L</b>	<b>(Bio-) chemical manufacturing</b>
<b>M</b>	<b>Packaging material manufacturing</b>

**DIN ISO/IEC 27001:2013 Information technology – Security techniques – Information security management systems according to ISO/IEC 27006:2011**

**DIN EN ISO 50001:2011 Energy Management Systems (EnMS)**

**Sector Description of economic sectors**

<b>A</b>	<b>Industrial EnMS (corresponds to EA-Scopes 1 – 28 and 29/2)</b>
<b>B</b>	<b>Non-industrial EnMS (corresponds to EA-Scopes 29/1 – 39)</b>

**BS OHSAS 18001:2007 Occupational Health and Safety Management Systems**

**Normative SCC-Regelwerk: Version 2011 DGMK e.V. SHE-/SCC-Management Systems in folgenden Scopes:**

**SCC (Contractors / Industrial Enterprises)**

**SCP (Temporary Employment Agencies)**

**Safety-, Health- and Environment Protection- SHE/SCC- according to current DGMK e. V. – SCC-scheme**

**DIN ISO 29990:2010 Learning services for non-formal education and training – Basic requirements for service providers**

**Abbreviations used:**

DIN	Deutsches Institut für Normung e.V.
EA	European co-operation for Accreditation
EN	Europäische Norm
IAF	International Accreditation Forum
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
BS	British Standard
OHSAS	Occupational Health and Safety Assessment Series
SCC	Sicherheits Zertifikat Contractoren
DGMK	Deutsche Wissenschaftliche Gesellschaft für Erdöl, Erdgas und Kohle e. V.



Signatory to EA, ILAC and IAF  
Multilateral Agreements

Organisme belge d'Accréditation  
Belgische Accreditatie-instelling  
Belgian Accreditation Body

Annexe au certificat d'accréditation  
Bijlage bij accreditatie-certificaat  
Annex to the accreditation certificate  
Beilage zur Akkreditierungszertifikat

## 226-TEST

NBN EN ISO/IEC 17025:2005

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**Nicole Meurée-Vanlaethem**  
La Présidente du Bureau d'Accréditation  
Voorzitster van het Accreditatiebureau  
Chair of the Accreditation Board  
Vorsitzende des Akkreditierungsbüro

**L'accréditation est délivrée à/ De accreditatie werd uitgereikt aan/  
The accreditation is granted to/ Die akkreditierung wurde erteilt für:**

**LABORATOIRE DE PHOTOMETRIE DE R-TECH**  
**Rue de Mons, 3**  
**4000 LIEGE**

Secrétariat :  
**Service public fédéral Economie,  
P.M.E., Classes moyennes et Energie**  
Direction générale de la Qualité et de la Sécurité  
Division Qualité et Innovation  
Bd du Roi Albert II 16  
1000 Bruxelles  
Website : <http://economie.fgov.be>  
Numéro d'entreprise : 0314.595.348

**Accréditation B E L A C Accreditation**

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Secretariaat:  
**Federale Overheidsdienst Economie,  
K.M.O., Middenstand en Energie**  
Algemene Directie Kwaliteit en Veiligheid  
Afdeling Kwaliteit en Innovatie  
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Website: <http://economie.fgov.be>  
Ondernemingsnummer: 0314.595.348

.be

Code essai	Echantillons <i>Samples</i>	Caractéristique mesurée Gamme de mesure <i>Measurement range</i>	Description méthode d'essai Equipement <i>Testing Methodology Description Equipment</i>
PTP-01	Lampes à incandescence ou à décharge pour luminaires. <i>Incandescent or high intensity discharge lamp for luminaires.</i>	Flux lumineux exprimé en lumen (lm)  <i>Luminous flux in lumen (lm)</i>	Mesure du flux lumineux en sphère d'Ulbricht selon la norme de référence EN 13032-1 § 6.1.2. Pour toutes lampes sauf les LED (Solid State Lighting) <i>Luminous flux measurement with Ulbright's sphere according to EN 13032 § 6.1.2 Standard for all light sources except LED (Solid State Lighting)</i>
PTP-01	Sources lumineuses de type LED pour luminaires. <i>Led light source for luminaires.</i>	Flux lumineux exprimé en lumen (lm)  <i>Luminous flux in lumen (lm)</i>	Mesure du flux lumineux en sphère d'Ulbricht selon la norme de référence EN 13032-1 § 6.1.2 et IES LM79-08. Pour LEDs (Solid State Lighting) <i>Luminous flux measurement with Ulbright's sphere according to EN 13032 § 6.1.2 and IES LM79-08 Standard. For LED (Solid State Lighting)</i>
PTP-02	Luminaires pour lampes à incandescence ou à décharge <i>Luminaires for incandescent, HID lamp</i>	Distribution des intensités lumineuses exprimées en candela (cd)  <i>Light distribution in candela (cd)</i>	Relevé photométrique au goniophotomètre selon la norme de référence EN 13032-1 et CIE 121-1996 Pour toutes lampes sauf les LED (Solid State Lighting) <i>Light distribution measurement with gonio according to EN 13032-1 and CIE 121-1996 Standard for all light sources except LED (Solid State Lighting)</i>
PTP-02	Luminaires à sources lumineuses de type LED pour luminaires. <i>Luminaires for LED light sources.</i>	Distribution des intensités lumineuses exprimées en candela (cd)  <i>Light distribution in candela (cd)</i>	Relevé photométrique au goniophotomètre selon la norme de référence EN 13032-1, CIE 121-1996 et IES LM79-08 Pour les LED (Solid State Lighting) <i>Light distribution measurement with gonio according to EN 13032-1, CIE 121-1996 and IES LM79-08 Standard. For LED (Solid State Lighting)</i>

Code essai <i>Test Code</i>	Echantillons <i>Samples</i>	Caractéristique mesurée Gamme de mesure <i>Measurement Measurement range</i>	Description méthode d'essai Equipement <i>Testing Methodology Description Equipment</i>
PTP-09	Lampes à incandescence ou à décharge pour luminaires ou luminaires associés. <i>Incandescent or high intensity discharge lamp for luminaires or associated luminaires.</i>	Données colorimétriques : IRC, T° de couleur, coordonnées trichromatiques, données spectrales (domaine du visible) <i>Colorimetric values, CRI, CCT, tristimulus values, spectrum (visible range)</i>	Relevé colorimétrique en sphère via spectromètre selon la norme de référence EN 13032-1 et CIE 13.3, 15, 63, 121-1996 S014 (1,2 et 3) Pour équipements lumineux sauf ceux incluant des LED (Solid State Lighting) <i>Colorimetric measurement with spectrometric sphere to EN 13032-1 and CIE 13.3, 15, 63, 121-1996 S014 (1,2 et 3) Standard for all light equipment except LED (Solid State Lighting)</i>
PTP-09	Sources lumineuses de type LED pour luminaires ou luminaires associés. <i>Led light source for luminaires or associated luminaires.</i>	Données colorimétriques : IRC, T° de couleur, coordonnées trichromatiques, données spectrales (domaine du visible) <i>Colorimetric values, CRI, CCT, tristimulus values, spectrum (visible range)</i>	Relevé colorimétrique en sphère et spectromètre selon la norme de référence EN 13032-1 et CIE 13.3, 15, 63, 121-1996 S014 (1,2 et 3) et IES LM79-08 pour équipements lumineux à LED (Solid State Lighting) <i>Colorimetric measurement with spectrometric sphere according to EN 13032-1 et CIE 13.3, 15, 63, 121-1996 S014 (1,2 et 3) and IES LM79-08 Standard. For LED light equipment (Solid State Lighting)</i>



Organisme belge d'Accréditation  
Belgische Accreditatieinstelling  
Belgische Akkreditierungsstelle  
Belgian Accreditation Body

Signatory to EA, ILAC and IAF  
Multilateral Agreements

## Accreditation Certificate No. 226-TEST

In compliance with the provisions of the Royal Decree of 31 January 2006 setting up BELAC, the Accreditation Board hereby declares, that the test laboratory

**LABORATOIRE DE PHOTOMETRIE DE R-TECH**  
**Rue de Mons, 3**  
**4000 LIEGE - Belgium**

has the competence to perform the tests as described in the annex which is an integral part of the present certificate, in accordance with the requirements of the standard NBN EN ISO/IEC 17025:2005. The present accreditation is the subject of regular surveillance in order to confirm the compliance with the accreditation conditions.

The Chair of the Accreditation Board BELAC,

Issue date : 2016-05-19

Validity date : 2021-05-27

Original version of this certificate is in French.

Nicole MEURÉE-VANLAETHEM



**SGS**

**TESTARE SUPERVIZATĂ DE PRODUCĂTOR**

Raport nr. CEBEC-002B

SGS Belgia NV

Divizia SGS CEBEC

Business Riverside Park  
Bld Internationaalelaan, 55 Build. D  
B-1070 Brussels - Belgium

Activând ca și Organism National de Certificare participare la Sistemul de Organisme de Certificare (CB Scheme) si Sistemul de certificare European (ECS), se recunoaște următorul laborator ca

**SMT laboratory nr.CEBEC-002**

operând în conformitate cu prescripțiile de certificare IEC/EN CB și sistemul de certificare ECS (CCA și ENEC).

Laborator aprobat, nume si adresă:

**Service laboratoire  
R-TECH S.A.  
Rue de Mons, 3  
B-4000 LIEGE**

Fabricile producătorului:

**Fabrici Europene  
aparținând  
Schreder Group G.I.E.**

Produse menționate în contract:

Categorie	Standarde	Produse
LITE	IEC/EN 60598-1	Aparate de iluminat
	IEC/EN 60598-2-1	Aparate de iluminat de uz general
	IEC/EN 60598-2-3	Aparate de iluminat stradal
	IEC/EN 60598-2-5	Proiectoare
	IEC/EN 60598-2-5	Aparate de iluminat încastate în sol

Brussels, 2013-02-01

ir. C. Lana,  
Director de Certificare

SGS Belgium NV  
CEBEC



# CERTIFICAT

**Schröder** 

## ISO 14001:2004

DEKRA Certification GmbH certifică prin aceasta că

**Schröder Romania S.R.L.**

**Domeniul de certificare:**

Proiectare luminotehnică și de sisteme de iluminat; comercializare echipamente electrice de iluminat

**Locația certificată:**

Str. Corneliu Coposu Nr.167A, RO-400228 Cluj-Napoca

a implementat și menține un sistem de management de mediu, conform standardului menționat mai sus și aplică acest sistem în mod eficace. Certificatul a fost eliberat în urma parcurgerii auditului de certificare, raport nr. 314R1517.

Certificatul este valabil din 18.05.2017 în 19.04.2018

Nr. înregistrare certificat: 170415042

*Lothar Weinofen*



Lothar Weinofen  
DEKRA Certification GmbH Stuttgart, 18.05.2017



Deutsche  
Akkreditierungsstelle  
D-ZM-16029-01-01

DEKRA Certification GmbH, Handwerkstraße 15, D-70565 Stuttgart, [www.dekra-certification.de](http://www.dekra-certification.de)

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Entwurf  
Draft





# SUPERVISED MANUFACTURER'S TESTING

Report nr. CEBEC-002B

SGS Belgium NV

Division SGS CEBEC

Business Riverside Park  
Bld Internationalelaan, 55 Build. D  
B-1070 Brussels - Belgium

Acting as national Certification Body participation in the Certification Bodies Scheme (CB Scheme) and the European Certification System (ECS) has recognized the following laboratory as

## SMT laboratory nr. CEBEC-002

Operating in the framework of the IECEE CB-scheme and ECS certification system (CCA and ENEC).

Approved laboratory, name and address:

**Service Laboratoire  
R-TECH S.A.  
Rue de Mons, 3  
BE-4000 LIEGE**



Manufacturing factories:

**European Factories  
Belonging to the  
Schröder Group G.I.E.**

Products covered by the contract:

<u>Category</u>	<u>Standards</u>	<u>Products</u>
LITE	IEC/EN 60598-1 IEC/EN 60598-2-1 IEC/EN 60598-2-3 IEC/EN 60598-2-5 IEC/EN 60598-2-13	Luminaire Fixed general purpose luminaire Luminaire for road and street lighting Floodlights Ground recessed luminaire

ir. C. Lana,  
Certification Manager

Brussels, 2013-02-01

