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 Schréder 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

Digitally signed by Eni Maria
Date: 2020.05.20 08:41:54 EEST
Reason: MoldSign Signature
Location: Moldova

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 Schréder Group

Subject: **VOLTANA-0 equipped with 5205 & 5206 lenses**
Sample n°: P-E16393, P-E16460

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

Remarks:
Test request n°: P-D16655
Folder n°: P-F16041

TEST CONDITIONS:

Operator: BOMBIL Patrick

VOLTANA-0 equipped with 6 led's

At pendulum hammer
5+2 impact points distributed on lens protector surface
One impact on each point

Test on 5 samples

Test	Result
IK08 : Impact energy: 5 joules Hammer weight: 1,7 kg Height of fall: 29,4 cm	OK for all tested samples

CONCLUSIONS:

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

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

//P-16CR655

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 Schréder 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
IP6X : -Luminaire switched ON until stable T° -Talcum in suspension (blowing ON) -After 1', luminaire OFF -Talcum for 3 hours	OK
IPX6 : - Luminaire switched ON until stable T° - Luminaire switched OFF and immediately sprayed with water jet - Hose Φ 12,5 mm - Water pressure: 1 kg/cm2 - Spraying distance: 3 m - Duration of test: 3 minutes	OK

CONCLUSIONS:

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

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

//P-16CR575

Laboratory Service PHYSICAL TEST REPORT

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

Subject: **VOLTANA 0 – 6 led's NW @ 1050 mA**
Sample n°: P-E16418

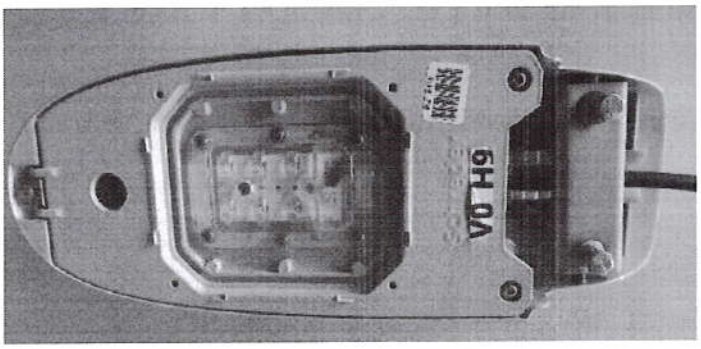
Test purpose: **Photobiological safety tests following IEC-EN 62471 Standard**

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

Laboratory
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 Schréder Group

FORM L-54 Edition 01 – Revision 00 - Date: 14/06/2018

Thermal Test LED

General information

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

Test conditions

Luminaire : VOLTANA 0
Number of LED : 8

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

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

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

Junction Temperature measurement method : Junction temperature measurement by base temperature measurement and electrical measurement.T°j =T°b + Rjb x Pled

Operator : MESPOUILLE Loic

IMG_0895

Conclusion

Informative

Ta: 40°C limited by lenses and driver; according IEC 60598-2-3 and IEC 60598-2-5 (outdoor use only)
Ta: 30°C limited by lenses and driver; indoor use and UL standard
Tq: 15°C limited by lenses and driver; according IEC 62722-2-1

Tq given for 100 khrs of lifetime

Validated by :
GHYSENS Gilles

Duplicate to : BOS Peter
LAB : 22/11/2018

//CR180791

The publication of this report in another form than the original one is not allowed without agreement of the laboratory. This report concerns type tests on one or a series of specimens.

12/05/2020

Schréder
Experts in lightability™

VOLTANA 0

5136

Optic	5136
Protector	Flat glass
Source	8 Samsung LH351C
Matrix	425502

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 (m²)

** According to IEC-EN60598 and IEC-EN62262*

Features

The ultimate, cost-effective, performing family of luminaires that pays for itself

- Cost-effective and efficient lighting solution for a fast return on investment
- High performance with safety and comfort
- 5 sizes for flexibility
- IP 66 tightness level
- ThermiX® to withstand high temperatures
- Designed to incorporate the Owlet range of control solutions

Types of application

- Square and park
- Roundabout
- Residential road
- Urban road

Information for 1000 lm matrix

Efficacy (%)	86.5
DLOR (%)	86.5
ULOR (%)	0.0
ULR (%)	0.0
Incl ULR 4%	-45/45°

G Class (EN 13201-2)	G3
G* (EN 13201 2015)	G*2
Imax (cd)	554
Aperture 0-180°	77 - 77
Aperture 90-270°	30 - 13

I 70-80-90-95 (cd)	550 - 98 - X - X
CIE flux code N 1→5 (%)	50.4 - 79.8 - 97.5 - 100.0 - 86.5
Gradient 90°	34cd
Gradient 270°	10cd

Photometrical characteristics

LED count	Colour code	Current (mA)	Luminaire power (W)	Source flux (lm)	Luminaire output flux (lm)	Luminaire efficacy (lm/W)	Peak (cd)	BUG Rating	Voltage (V)
			Ambient temp = 25°						
8	NW 740	350	10	1520	1315	132	842	B1 U0 G0	230
8	NW 740	500	14	2096	1814	130	1161	B1 U0 G1	230
8	NW 740	700	19	2810	2432	128	1557	B1 U0 G1	230
8	NW 740	1000	28	3760	3254	116	2084	B1 U0 G1	230
8	NW 740	1050	29	3861	3341	115	2139	B1 U0 G1	230
8	NW 740	1250	37	4362	3775	102	2417	B1 U0 G1	230
8	WW 730	350	10	1440	1246	125	798	B1 U0 G0	230
8	WW 730	500	14	1986	1718	123	1100	B1 U0 G1	230
8	WW 730	700	19	2663	2304	121	1475	B1 U0 G1	230
8	WW 730	1000	28	3563	3083	110	1974	B1 U0 G1	230
8	WW 730	1050	29	3658	3165	109	2027	B1 U0 G1	230
8	WW 730	1250	37	4133	3576	97	2290	B1 U0 G1	230

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

Summary

CONCEPT

Family of 6 road LED luminaires

Recommended installlation 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 @ 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

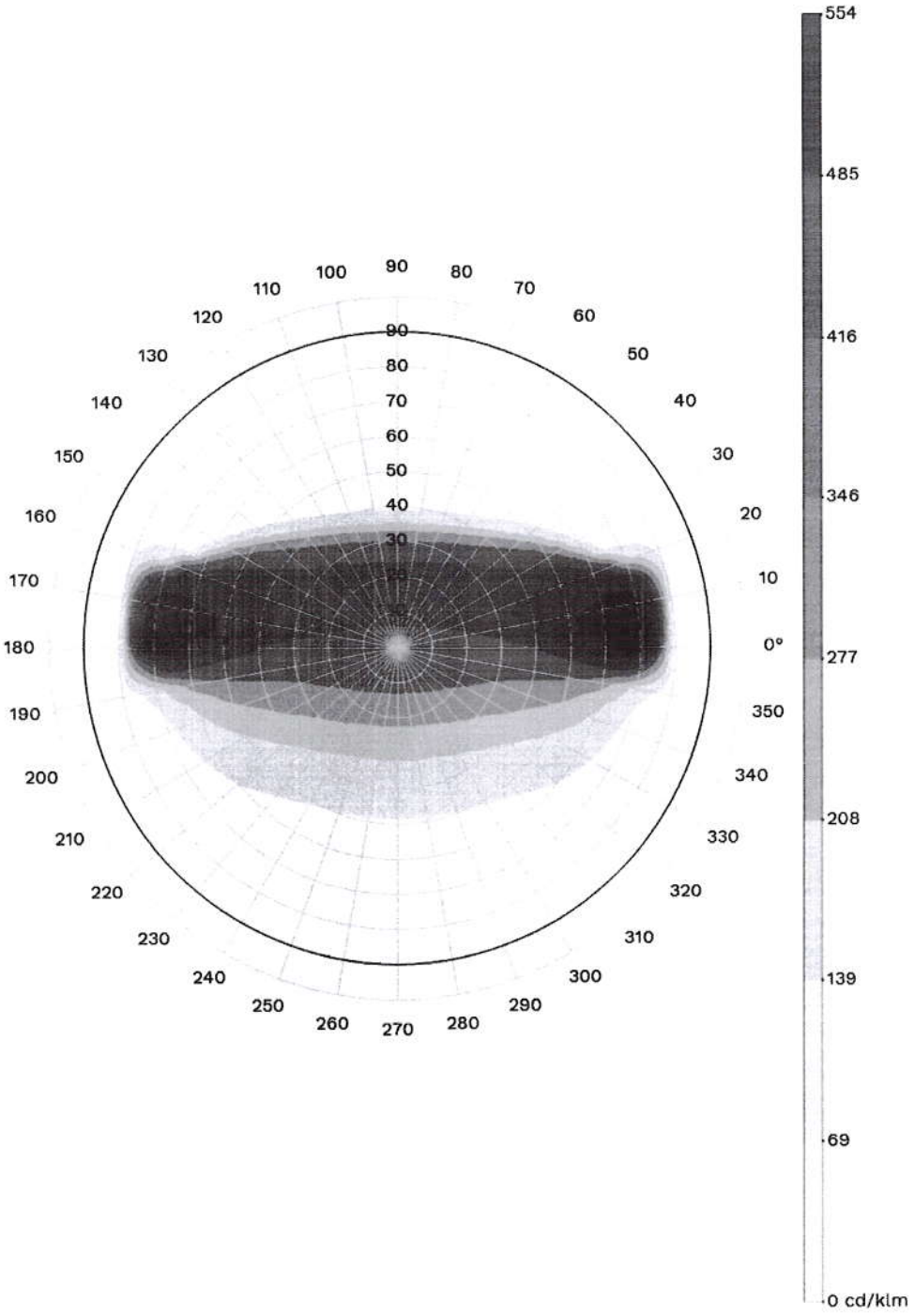
- CE
- ENEC
- LM79-80
- ROHS
- Certified for 3G vibration
- All measurements in ISO17025 accredited laboratory

OPTIONS

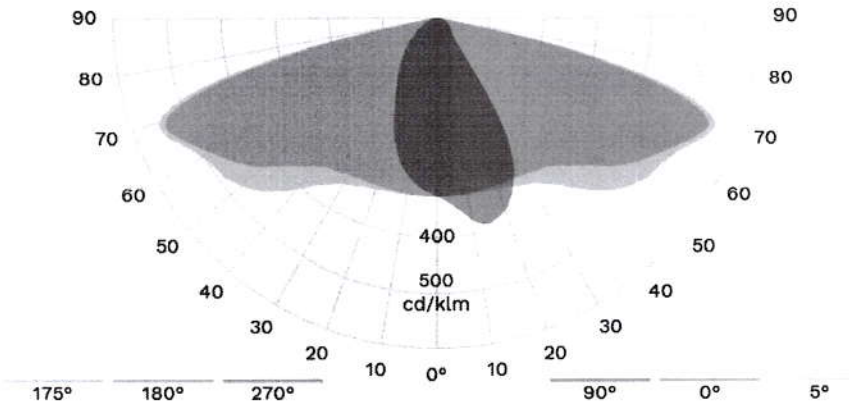
- Other RAL or AKZO colours
- Back Light control system
- OWLET remote management
- Custom dimming profile

- Photocell

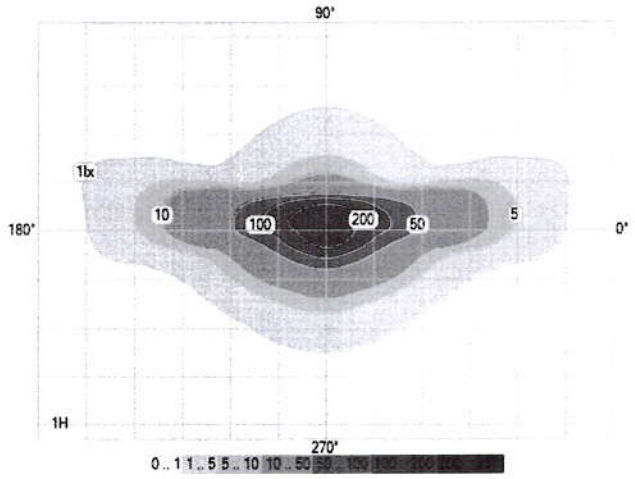
Hypergon view



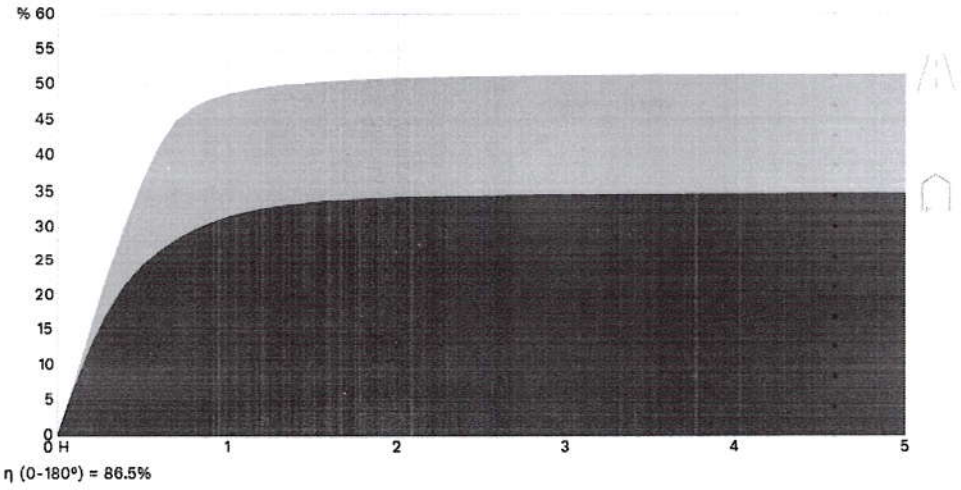
Polar/Cartesian diagram



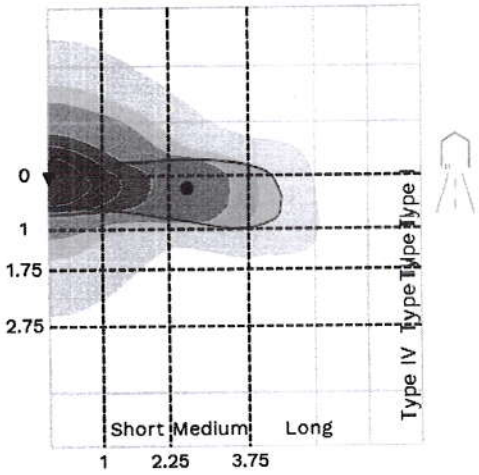
Isolux



K-Curve

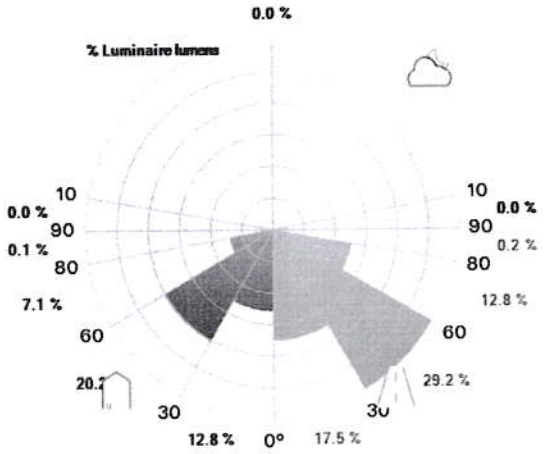


IES Roadway Classification / Nema Classification

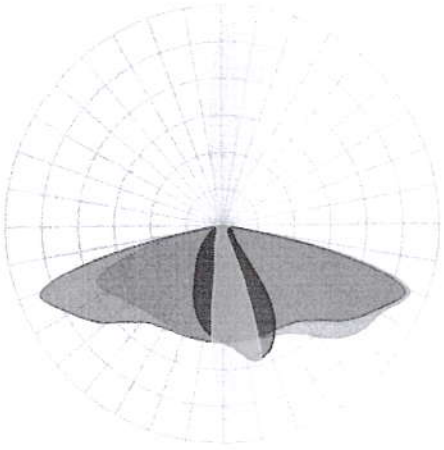


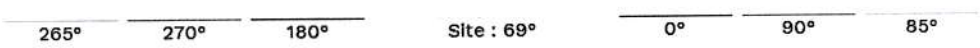
I - Medium

Luminaire classification system (LCS)



Intensity diagram in max Cone and in CPlane





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http://www.schreder.com

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Experts in lightability™
F_8.2.4 CG-02

CERTIFICAT DE GARANŢIE
Nr. 175/ 18.05.2020

Producător/ Furnizor: **SCHRÉDER ROMANIA S.R.L.**
Beneficiar: **PRIMĂRIA com. CRIHANA**
Data livrării: pe perioda de valabilitate a proiectului:
"Alimentare cu energie electrica a sistemului de iluminat public din com, Crihani"

Termen de garanţie:

- ☐ Aparat de iluminat Schréder, tip **VOLTANA 0,** 5 ani de la data livrarii
- ☐ Aparat de iluminat Schréder, tip **SKIDO 6 LED,** 5 ani de la data livrarii

Condiţii de asigurare a garanţiei:

- **Se asigură garanţie** pentru orice defecţiune a produsului generată de vicii ascunse care nu au putut fi detectate la momentul recepţiei de către Beneficiar.
- **Nu se asigură garanţie** pentru viciile aparente după data recepţiei de către Beneficiar.
- Utilizarea necorespunzătoare a produsului şi orice intervenţie asupra sa **duce la pierderea garanţiei**.
- **Nu se asigură garanţie** pentru materialele consumabile (varistori, fuzibili).
- **Nu se asigură garanţie** dacă acest certificat nu este însoţit de originalul sau copia facturii de achiziţie.

La livrare s e predau Beneficiarului instrucţiuni de instalare, de punere în funcţiune, utilizare, întreţinere, manipulare, depozitare şi transport.

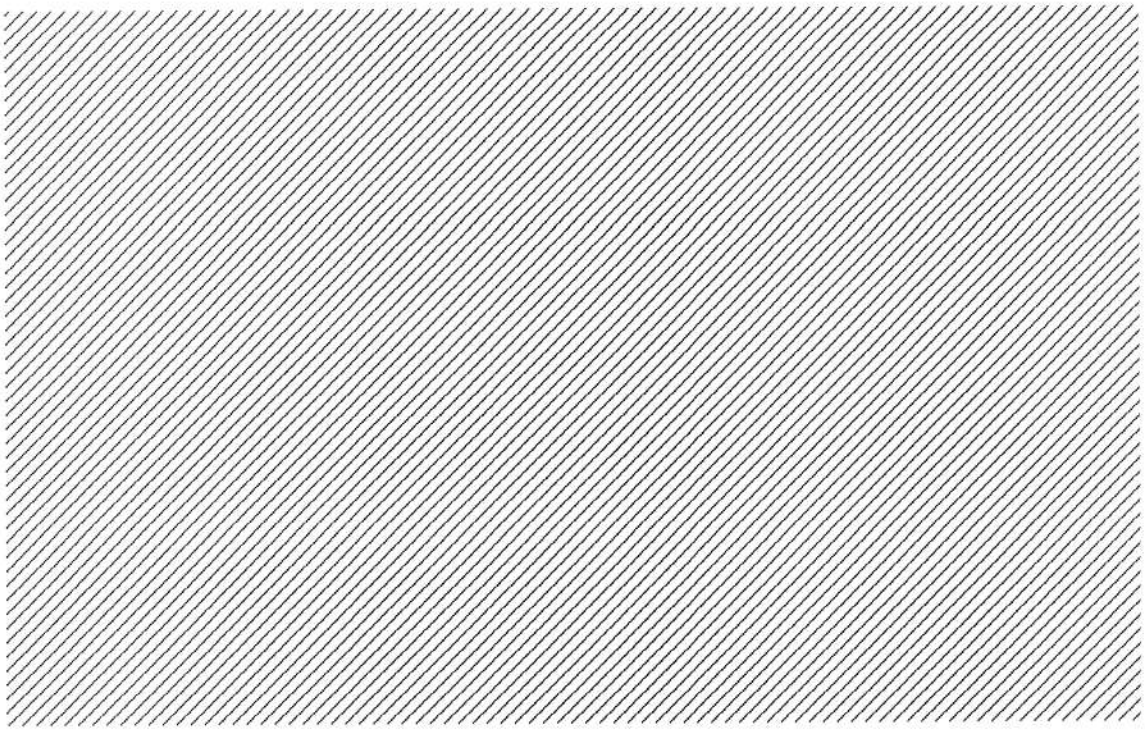
SCHRÉDER ROMANIA S.R.L.
Director Comercial,

Ovidiu GROZA

SCHREDER ROMANIA SRL
CLUJ-NAPOCA

Eliberat,
mai 2020, Cluj-Napoca

Data 18.05.2020



Alimentarea cu energie electrică a sistemului de iluminat public din rl.Orhei, com.Crihana

Obiect
com. Crihana, r-ul Orhei

Created with DIALux

Pagină titlu 1
Cuprin 2

Date tehnice privind produsul

Schréder - SKIDO 5122 Integrated lenses - 6 LH351C@1050mA NW 740 230V 00-18-223 429352 (1x 6 LH351C@1050mA NW 740 230V 00-18-223) 3
Schréder - VOLTANA 0 / 5136 / 8 LEDs 1000mA NW 740 / 425502 (1x 8 LEDs 1000mA NW 740) 4

Rezumat (până la EN 13201:2015) 6

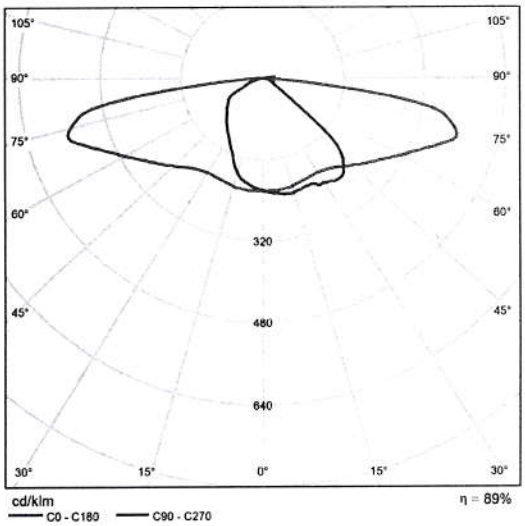
Rezumat (până la EN 13201:2015) 9

Fişa de date privind produsul

SCHREDER SKIDO 5122 Integrated lenses - 6 LH351C@1050mA NW 740 230V 00-18-223 429352

Schréder

P	23.3 W
$\Phi_{Lampă}$	2920 lm
$\Phi_{Corp\ de\ iluminat}$	2602 lm
η	89.11 %
Eficienţa luminoasă	111.7 lm/W
CCT	4000 K
CRI	70

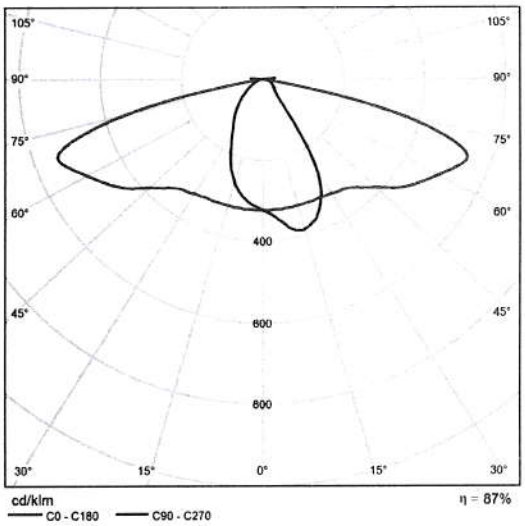


CDIL polar

Fişa de date privind produsul

SCHREDER VOLTANA 0 / 5136 / 8 LEDs 1000mA NW 740 / 425502

P	28.0 W
$\Phi_{Lampă}$	3760 lm
$\Phi_{Corp\ de\ iluminat}$	3253 lm
η	86.52 %
Eficienţa luminoasă	116.2 lm/W
CCT	3000 K
CRI	100



CDIL polar

CONCEPT
Family of 6 road LED luminaires

Recommended installlation height: between 4m and 12mm
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

Fişa de date privind produsul

SCHREDER VOLTANA 0 / 5136 / 8 LEDs 1000mA NW 740 / 425502

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%

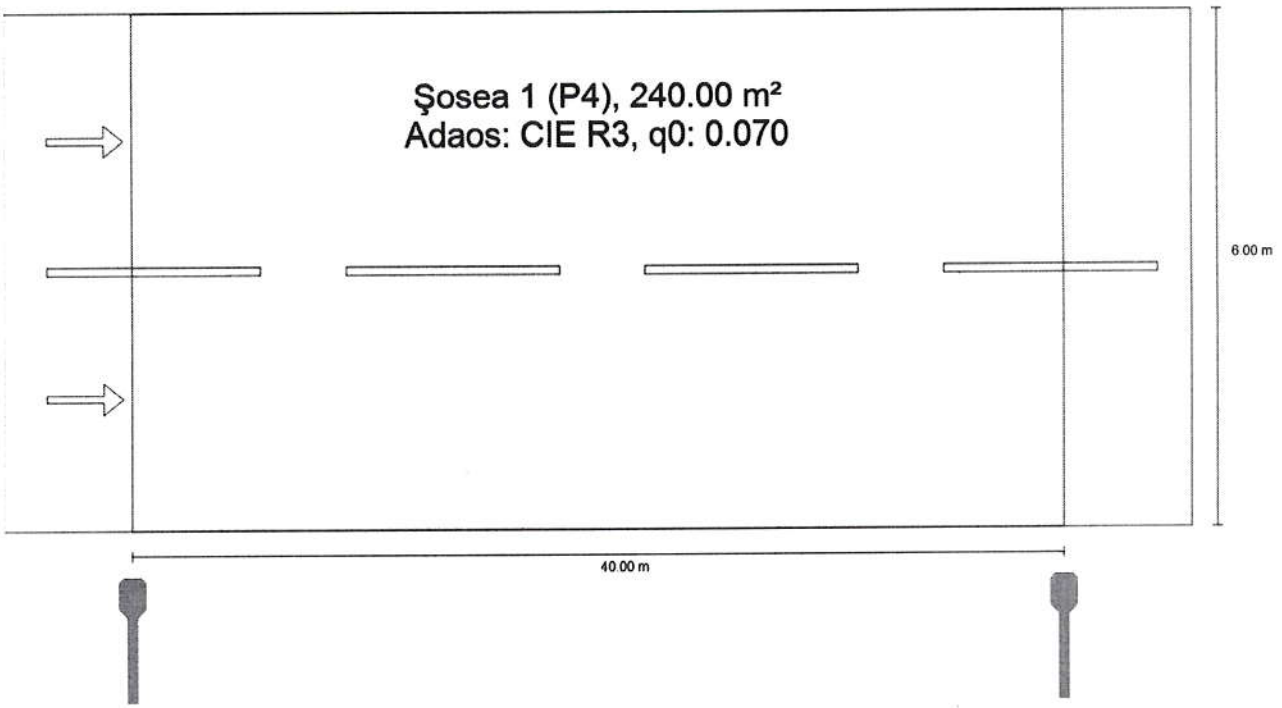
ELECTRICAL
·Class I or Class II
·Input voltage: 120-277V - 50-60Hz
·Power factor > 90% at full load
·Surge protection: 4kV minimum (10kV + 10kA optional)
·Thermal protection on LED PCBA (see Thermix concept)

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

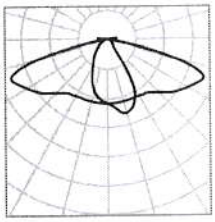
Stradă 1 · Alternativă 1

Rezumat (până la EN 13201:2015)



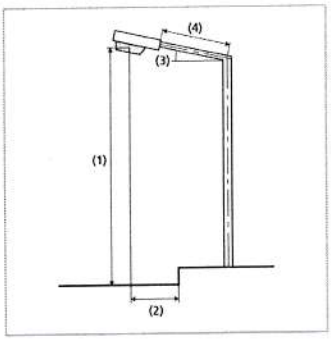
Stradă 1 · Alternativă 1

Rezumat (până la EN 13201:2015)



Producător	SCHREDER	P	28.0 W
Nr.articol		$\Phi_{Lampă}$	3760 lm
Nume articol	VOLTANA 0 / 5136 / 8 LEDs 1000mA NW 740 / 425502	$\Phi_{Corp\ de\ iluminat}$	3253 lm
		η	86.52 %
Dotare	1x 8 LEDs 1000mA NW 740		

VOLTANA 0 / 5136 / 8 LEDs 1000mA NW 740 / 425502 (Pe o parte Jos)



Distanţă stâlp	40.000 m
(1) Înălţimea punctului de lumină	7.000 m
(2) Ieşirea în consolă a punctului de lumină	-0.813 m
(3) Înclinare consolă	10.0°
(4) Lungime consolă	1.000 m
Număr anual de ore de funcţionare	4000 h: 100.0 %, 28.0 W
Consum	700.0 W/km
ULR / ULOR	0.00 / 0.00
Intensităţi luminoase max. Orice direcţie ce formează unghiul dat cu verticala în jos a corpurilor de iluminat instalate pentru utilizare.	≥ 70°: 638 cd/klm ≥ 80°: 256 cd/klm ≥ 90°: 6.14 cd/klm
Clasă intensitate luminoasă Valorile intensităţii luminoase în [cd/klm] pentru calculul clasei intensităţii luminoase se referă la fluxul luminos al corpului de iluminat, conform EN 13201:2015.	-

Stradă 1 · Alternativă 1

Rezumat (până la EN 13201:2015)

Clasă index ornamente	D.0

Rezultate pentru câmpurile de evaluare

	Mărime	Calculat	Nominal	Conform
Şosea 1 (P4)	E_m(2)	6.48 lx	[6.00 - 9.00] lx	✓
	E_{min}	1.96 lx	≥ 1.00 lx	✓
	TI	17 %	≤ 30 %	✓

(2) Valoare nominală modificată de proiectant, abatere de la standard

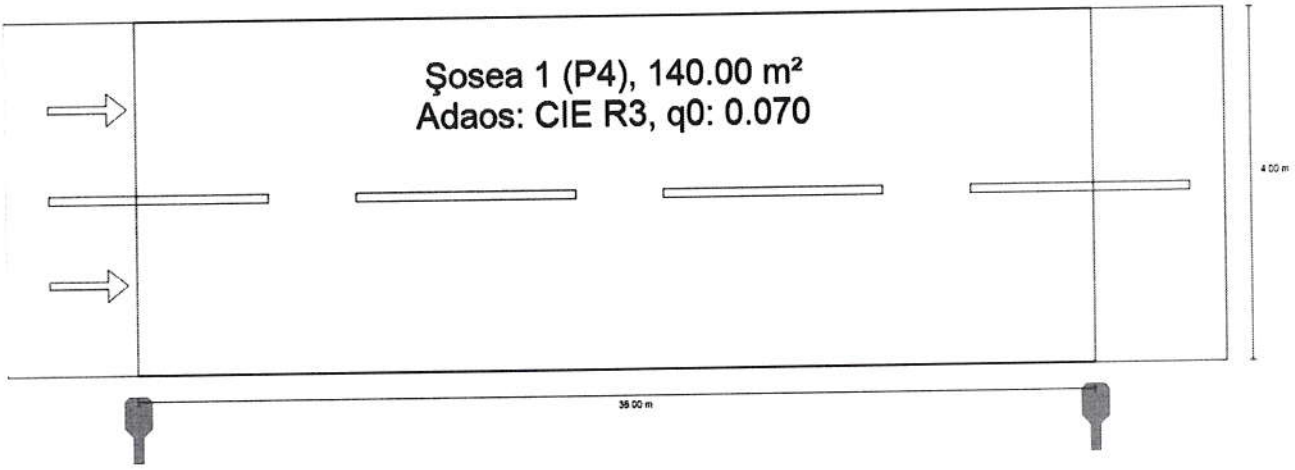
Pentru instalare s-a luat în calcul un factor de întreţinere de 0.85.

Rezultate pentru indicatorii de eficienţă energetică

	Mărime	Calculat	Consum
Stradă 1	D_p	0.018 W/lx*m²	-
VOLTANA 0 / 5136 / 8 LEDs 1000mA NW 740 / 425502 (Pe o parte Jos)	D_e	0.5 kWh/m² an	112.0 kWh/an

Drum secundar · Alternativă 2

Rezumat (până la EN 13201:2015)



Drum secundar · Alternativă 2

Rezumat (până la EN 13201:2015)

Valorile intensităţii luminoase în [cd/klm] pentru calculul clasei intensităţii luminoase se referă la fluxul luminos al corpului de iluminat, conform EN 13201:2015.

Clasă index ornamente	D.1

Rezultate pentru câmpurile de evaluare

	Mărime	Calculat	Nominal	Conform
Şosea 1 (P4)	E_m (2)	5.43 lx	[5.00 - 7.50] lx	✓
	E_{min}	2.11 lx	≥ 1.00 lx	✓
	TI (1)	19 %	-	-

(1) informativ, nu este parte a evaluării
(2) Valoare nominală modificată de proiectant, abatere de la standard

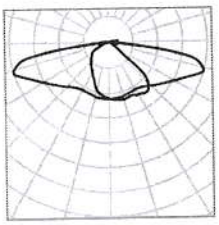
Pentru instalare s-a luat în calcul un factor de întreţinere de 0.85.

Rezultate pentru indicatorii de eficienţă energetică

	Mărime	Calculat	Consum
Drum secundar	D_p	0.031 W/lx*m²	-
SKIDO 5122 Integrated lenses - 6 LH351C@1050mA NW 740 230V 00-18-223 429352 (Pe o parte Jos)	D_e	0.7 kWh/m² an	93.2 kWh/an

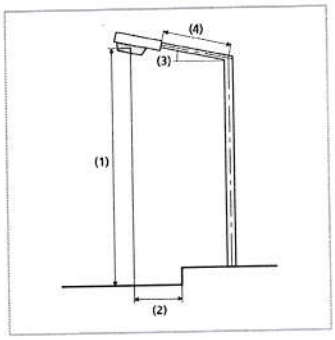
Drum secundar · Alternativă 2

Rezumat (până la EN 13201:2015)



Producător	SCHREDER	P	23.3 W
Nr.articol	429352	$\Phi_{Lampă}$	2920 lm
Nume articol	SKIDO 5122 Integrated lenses - 6 LH351C@1050mA NW 740 230V 00-18-223 429352	$\Phi_{Corp\ de\ iluminat}$	2602 lm
Dotare	1x 6 LH351C@1050mA NW 740 230V 00-18-223	η	89.11 %

SKIDO 5122 Integrated lenses - 6 LH351C@1050mA NW 740 230V 00-18-223 429352 (Pe o parte Jos)



Distanţă stâlp	35.000 m
(1) Înălţimea punctului de lumină	6.500 m
(2) Ieşirea în consolă a punctului de lumină	-0.500 m
(3) Înclinare consolă	0.0°
(4) Lungime consolă	0.500 m
Număr anual de ore de funcţionare	4000 h: 100.0 %, 23.3 W
Consum	675.7 W/km
ULR / ULOR	0.00 / 0.00
Intensităţi luminoase max. Orice direcţie ce formează unghiul dat cu verticala în jos a corpurilor de iluminat instalate pentru utilizare.	≥ 70°: 593 cd/klm ≥ 80°: 431 cd/klm ≥ 90°: 7.68 cd/klm
Clasă intensitate luminoasă	-