

LED Flux measurement

FORM-L-41 ED1 REV 3

Date : **01/02/2021**

Operator : **FCE**



Filename : **2021_94.xml**

226-TEST

NBN EN ISO/IEC 17025 :2017

LEDs

Trademark : **Osram**

Entry number : **38R137-4**

Type : **OSLON SQUARE GIANT**

Power (Catalogue) : **0.00** W

BIN Description : **N6**

Flux : **0** lm/LED

Part number : **GWCSSRM2.PM**

Color or CCT (Theoretical) : **Neutral White**

Number of LEDs : **16**

Lenses

Trademark : **None**

Type : **None**

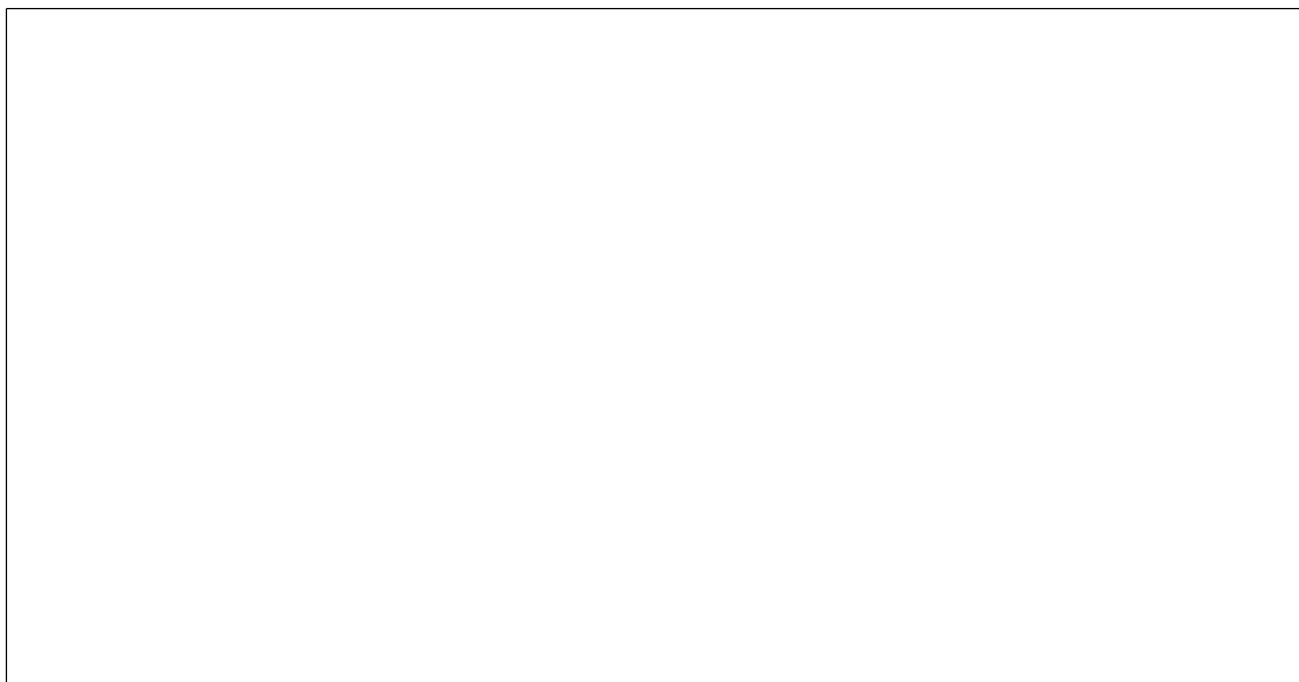
Power & Print

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

Print description : **00-57-060 B**

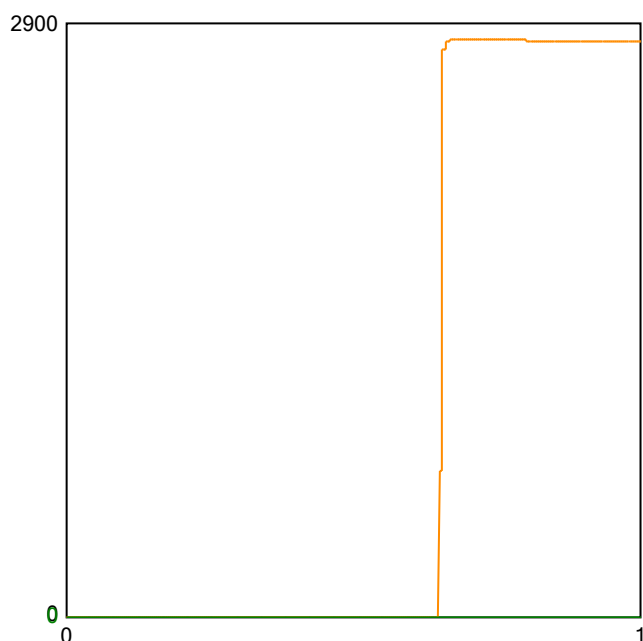
Active ☐

Picture



Sphere photometric measurement

Maximum flux : **2823** lumens



Operating condition

Position in sphere : 

Ambient sphere T ° : **25.8**

Electrical measurement

● Secondary electrical measurement

Voltage : **45.01** V

Current : **0.350** A

Power : **15.73** Watt

→ LEDs light efficiency at 25° :

179.5 lm/W

176.5 lm/Led

● Primary electrical measurement

Voltage : **N/A** V

Current : **N/A** A

Power : **N/A** Watt

Cos φ : **N/A**

→ Driver losses : **N/A** %

→ LEDS & Driver light efficiency :

N/A lm/W

Description :

Flux @25°/350mA - pcb Axia 3.1 - 16 Giant N6 - pcb N°4

Comment :

FORM-L-41 ED1 REV 3



226-TEST

Approved by : 

LED 2021/94 2/3



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NBN EN ISO/IEC 17025 :2017

Colorimetry

File Preset Options Extra Calibration: #1 no accessory Apr20' Info

Presets: CRI

Auto: ref. illuminant - Planckian radiator CCT= 3856 K

Auto: ref. illuminant - Planckian radiator, CCT= 3856 K

Chromaticity difference DC= 6.1E-4

CRI color samples

R1= 68.7	R8= 51.6
R2= 76.7	R9= 31.2
R3= 83.4	R10= 45.2
R4= 71.3	R11= 68.3
R5= 68.4	R12= 43.1
R6= 67.7	R13= 69.4
R7= 78.5	R14= 90.4

Ra= 70.78
(mean value of R1 - R8)

Re= 60.81
(mean value of R1 - R14)

Auto: ref. illuminant - Planckian radiator, CCT= 3856 K

Auto: ref. illuminant - Planckian radiator, CCT= 3856 K

MEASUREMENT (radiance)

Average 1

Target

Cont. (interval 0 s)
Hold Integration Time
Quick mode

Weighting Function: None

to Table ☒ auto to Ref. to PDF

Luminance L_v 4.686E+2 $\frac{cd}{m^2}$
Radiance L_e 1.347E+0 $\frac{W}{m^2 \cdot sr}$
(380-780nm)
Corr. Color Temp CCT 3857 K
Chromaticity x 0.3865 y 0.3792
Chromaticity u' 0.2281 v' 0.5036

Quit

RTECH-PHOTOMETRY LABORATORY

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

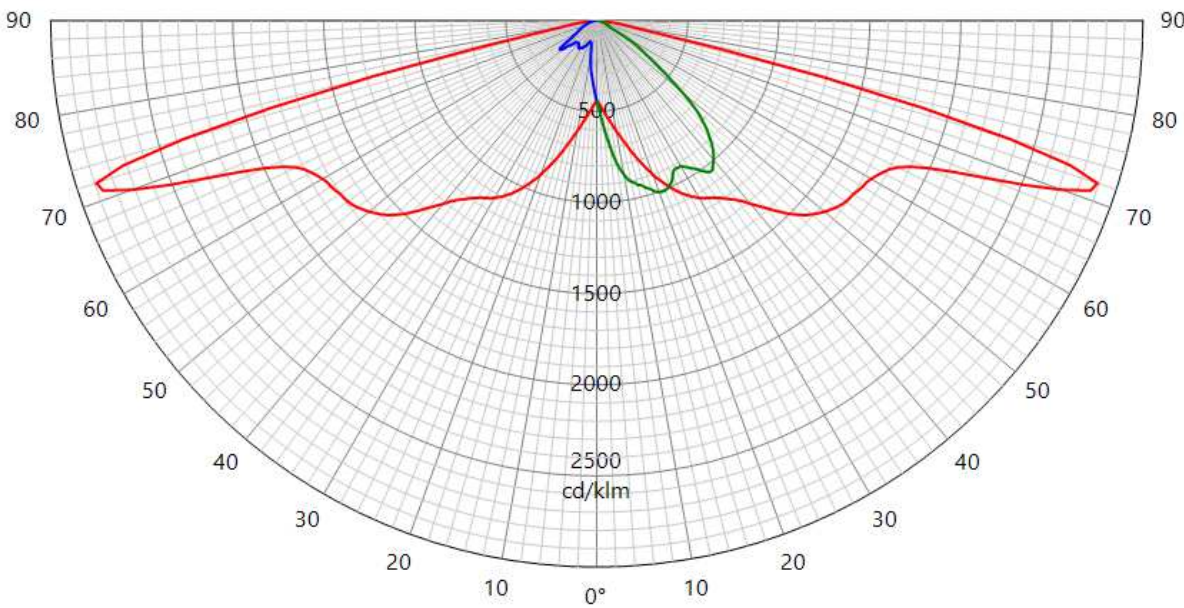
LED

Origin Schröder Magyarország Zrt.	Production Schröder Magyarország Zrt.	Luminaire VOLTANA EVO 1	Inclination 0°	Request # FD41030
Source				
Type LED	BIN N6	Trademark Osram	Reference OSLON SQUARE GIANT	# LEDs 16
Master		Reflector Schreder Led assembly Road lighting Assembled 0,0°	No 5270	
Protector Refractor Lens				
Protector integrated lenses Lens Gaggione 5270 PC				
Laboratory observation				
VOLTANA EVO 1 with 16 Osram oslon square giant bin N6 (NW740) Used flux for efficiency matrix calculation = 2823 lm - CCT = 3857 K - CRI = 70,78 (see sphere test report 2021/94 on appendix).				
Purpose DOC		Sample date 01-02-2021	Sample # 40R024	
Observation				
DOC VOLTANA EVO 1 with lenses 5270				
Flux coefficient multiplicator (only for efficiency matrix): From 350 to 200 mA : 0,597 From 350 to 500 mA : 1,371 From 350 to 700 mA : 1,822 From 350 to 1000 mA : 2,401 From 350 to 1200 mA : 2,722				
Fixture powered with driver Philips Xi FP 40W 0,2-0,7A SNLDAE 230V S175 sXt @200/350/500 mA Fixture powered with driver Philips Xi FP 40W 0,3-1,05A SNLDAE 230V S175 sXt @700 mA Fixture powered with driver Philips Xi FP 75W 0,3-1,05A SNLDAE 230V C133 sXt @1000 mA Fixture powered with driver Philips Xi FP 75W 0,5-1,05A SNLDAE 230V C133 sXt @1200 mA				
Notes				
The publication of this report in another form than the original one is not allowed without agreement of the laboratory. This report concerns type tests on one or a series of specimens. All information but the measurements results are provided by the customer.				

Asked by RCA	Measured by KDE	Approved by RLABO	Appendix 1	  226-TEST NBN EN ISO/IEC 17025 :2017	48123
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LUMINOUS INTENSITY DIAGRAM

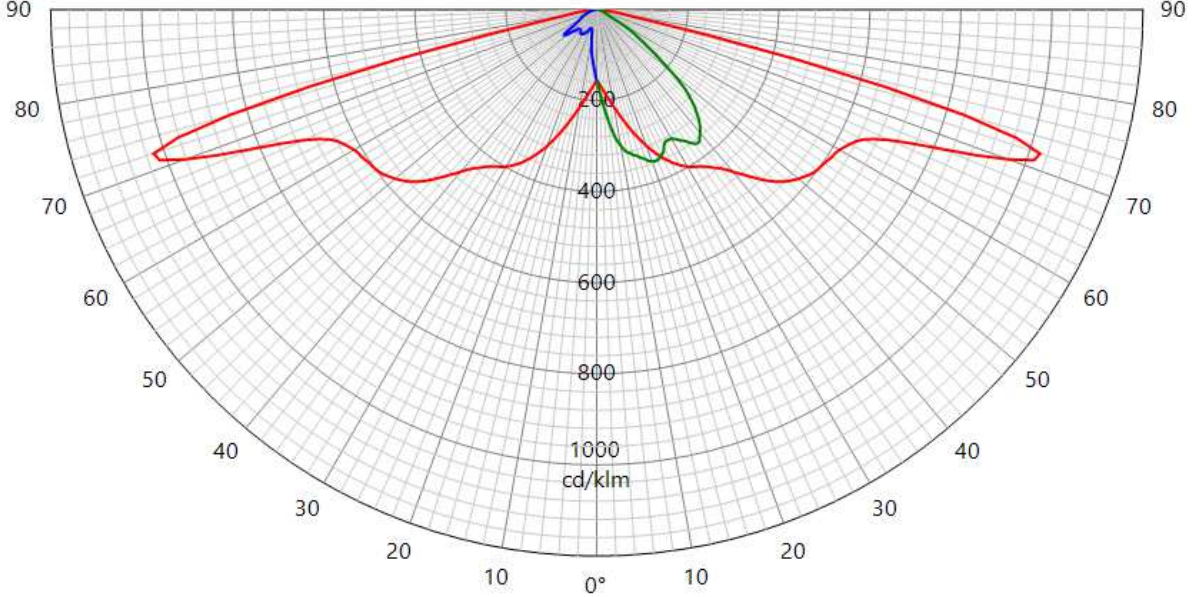
Origin Schröder Magyarország Zrt.		Production Schröder Magyarország Zrt.		Luminaire VOLTANA EVO 1		Inclination 0°	Request # FD41030
Source	Type LED	BIN N6	Trademark Osram	Reference OSLON SQUARE GIANT	# LEDs 16	Reflector 5270	
Reflector	Schröder Led assembly Road lighting Assembled 0,0°					No	5270
Matrices	481231 Φ 0-90° = 2561lm - 90-180° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5270 PC						
Observation	Matrix in total flux @350 mA Electrical measurement on LED (#1) : Voltage = 44,33 V Current = 0,350 A Power = 15,51 W Electrical measurement on driver (#1) : Voltage = 230,00 V Current = 0,083 A Power = 18,33 W PF = 0,958 Total luminaire power = 18,33 W : Lm/Watt = 139,74 lm/W Driver #1 : See observations for driver details - . . 00-57-060B						
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	
20 - 160	2891	72	S	441	24,7°	02-02-2021	
90	1039	37	D				
270	441	0	G				



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LUMINOUS INTENSITY DIAGRAM

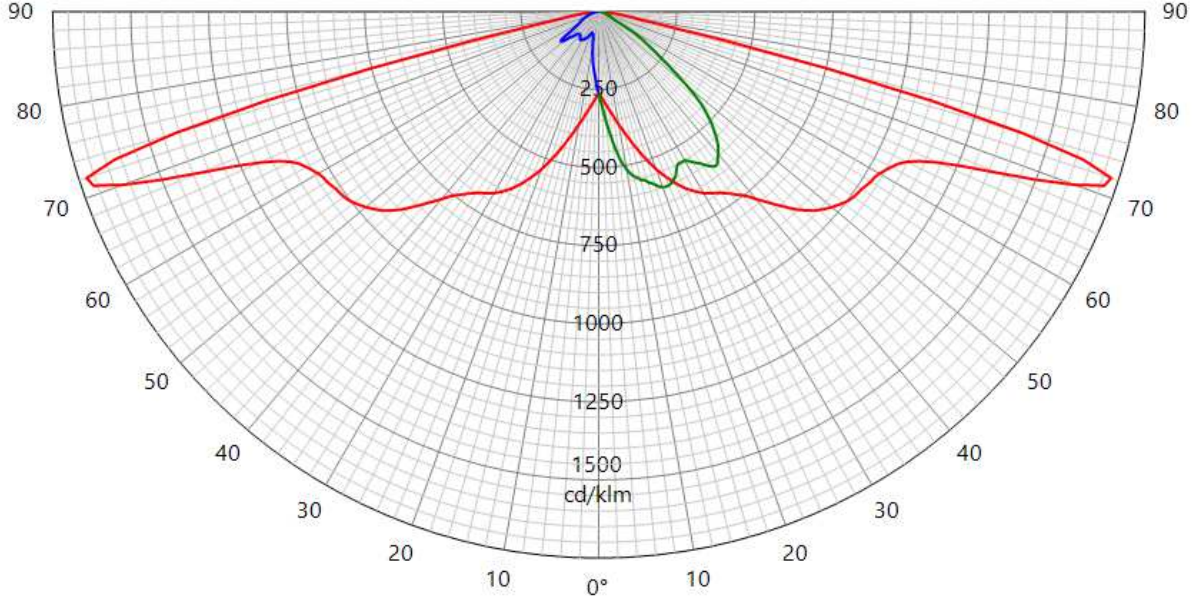
Origin Schröder Magyarország Zrt.		Production Schröder Magyarország Zrt.		Luminaire VOLTANA EVO 1		Inclination 0°	Request # FD41030
Source	Type LED	BIN N6	Trademark Osram	Reference OSLON SQUARE GIANT	# LEDs 16	Reflector 5270	
Reflector	Schröder Led assembly Road lighting Assembled 0,0°					No	5270
Matrices	481232 η 0-90° = 90,7% - 90-180° = 0,0%					Relative measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5270 PC						
Observation	Matrix in efficiency @350 mA Electrical measurement on LED (#1) : Voltage = 44,33 V Current = 0,350 A Power = 15,51 W Electrical measurement on driver (#1) : Voltage = 230,00 V Current = 0,083 A Power = 18,33 W PF = 0,958 Total luminaire power = 18,33 W Driver #1 : See observations for driver details - . . 00-57-060B						
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	
20 - 160	1024	72	S	156	24,7°	02-02-2021	
90	368	37	D				
270	156	0	G				



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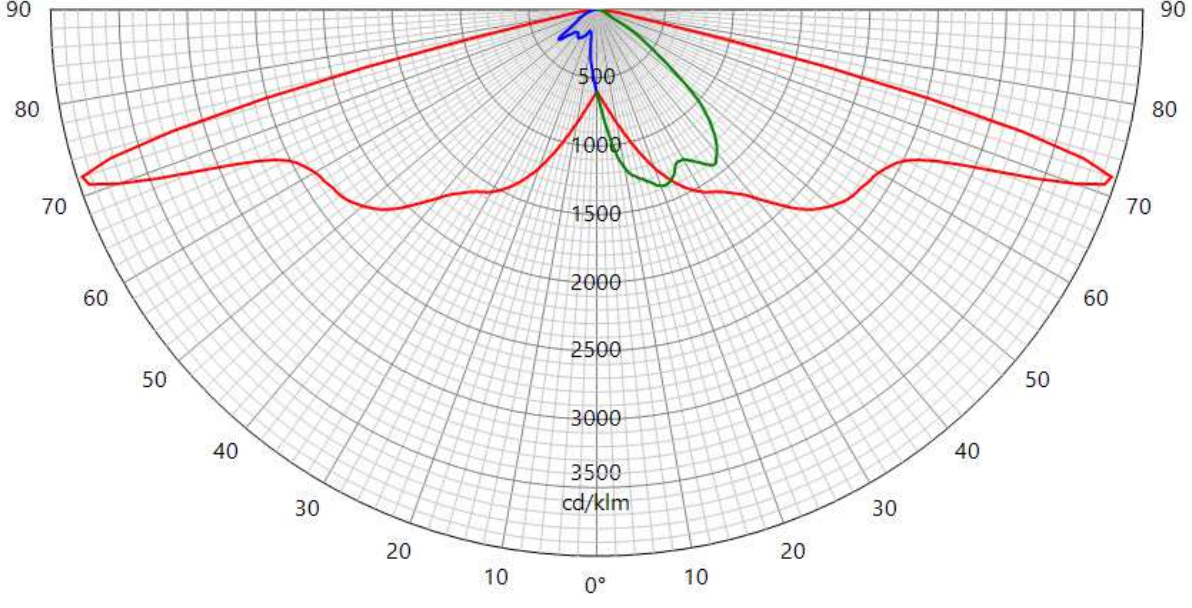
LUMINOUS INTENSITY DIAGRAM

Origin Schröder Magyarország Zrt.		Production Schröder Magyarország Zrt.		Luminaire VOLTANA EVO 1		Inclination 0°	Request # FD41030
Source	Type LED	BIN N6	Trademark Osram	Reference OSLON SQUARE GIANT	# LEDs 16	Reflector 5270	
Reflector	Schreder Led assembly Road lighting Assembled 0,0°					No	5270
Matrices	481233 Φ 0-90° = 1529lm - 90-180° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5270 PC						
Observation	Matrix in total flux @200 mA						
	Electrical measurement on LED (#1) : Voltage = 43,66 V Current = 0,200 A Power = 8,71 W						
	Electrical measurement on driver (#1) : Voltage = 230,00 V Current = 0,053 A Power = 11,24 W PF = 0,909						
	Total luminaire power = 11,24 W : Lm/Watt = 136,05 lm/W						
Driver #1 : See observations for driver details - . . 00-57-060B							
Plane	I Peak	Peak position	Index	I zero 263	Laboratory ambient t° 24,7°	Measurement date 02-02-2021	
20 - 160	1726	72	S				
90	620	37	D				
270	263	0	G				



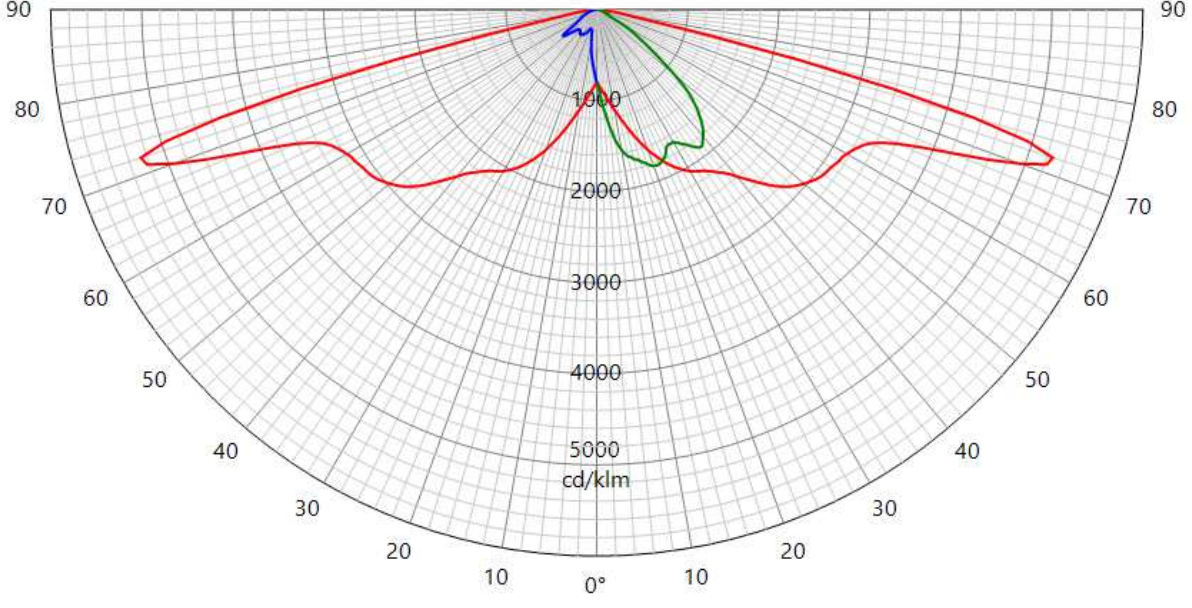
481233

LUMINOUS INTENSITY DIAGRAM

Origin Schröder Magyarország Zrt.		Production Schröder Magyarország Zrt.		Luminaire VOLTANA EVO 1		Inclination 0°	Request # FD41030
Source	Type LED	BIN N6	Trademark Osram	Reference OSLON SQUARE GIANT	# LEDs 16	Reflector 5270	
Reflector	Schröder Led assembly Road lighting Assembled 0,0°					No	5270
Matrices	481234 Φ 0-90° = 3512lm - 90-180° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5270 PC						
Observation	Matrix in total flux @500 mA Electrical measurement on LED (#1): Voltage = 44,82 V Current = 0,500 A Power = 22,40 W Electrical measurement on driver (#1): Voltage = 230,00 V Current = 0,114 A Power = 25,61 W PF = 0,976 Total luminaire power = 25,61 W : Lm/Watt = 137,12 lm/W Driver #1 : See observations for driver details - . . 00-57-060B						
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	
20 - 160	3963	72	S	604	24,7°	02-02-2021	
90	1424	37	D				
270	604	0	G				
							
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LUMINOUS INTENSITY DIAGRAM

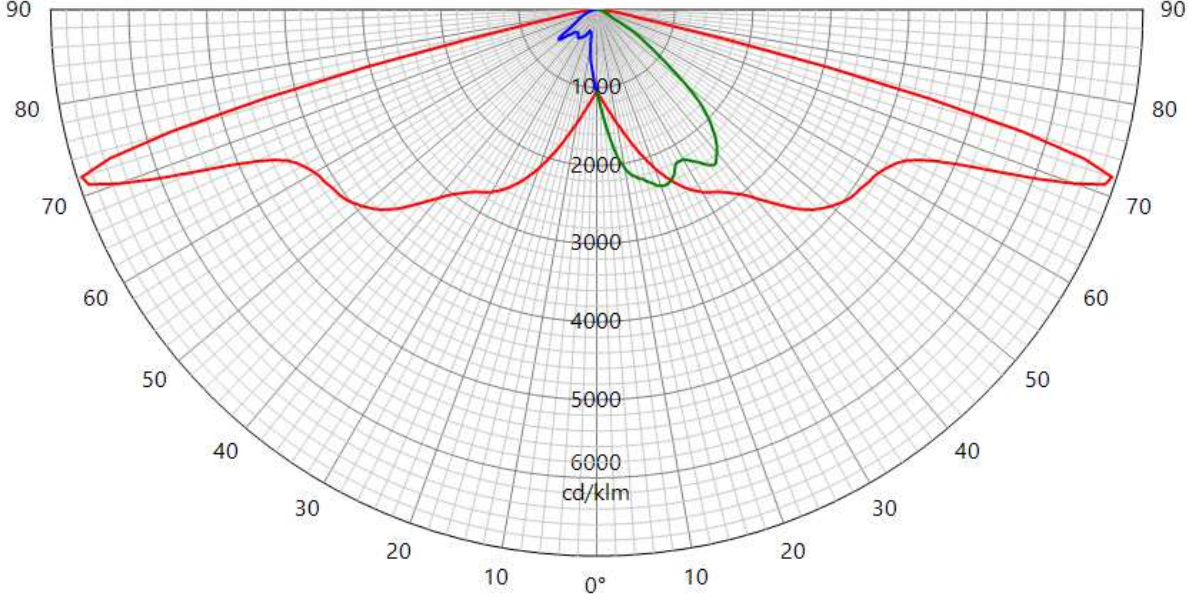
Origin Schröder Magyarország Zrt.		Production Schröder Magyarország Zrt.		Luminaire VOLTANA EVO 1		Inclination 0°	Request # FD41030
Source	Type LED	BIN N6	Trademark Osram	Reference OSLON SQUARE GIANT	# LEDs 16	Reflector 5270	
Reflector	Schröder Led assembly Road lighting Assembled 0,0°					No	5270
Matrices	481235 Φ 0-90° = 4667lm - 90-180° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5270 PC						
Observation	Matrix in total flux @700 mA Electrical measurement on LED (#1) : Voltage = 45,03 V Current = 0,700 A Power = 31,53 W Electrical measurement on driver (#1) : Voltage = 230,00 V Current = 0,158 A Power = 35,76 W PF = 0,984 Total luminaire power = 35,76 W : Lm/Watt = 130,51 lm/W Driver #1 : See observations for driver details - . . 00-57-060B						
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	
20 - 160	5266	72	S	803	24,7°	02-02-2021	
90	1893	37	D				
270	803	0	G				



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LUMINOUS INTENSITY DIAGRAM

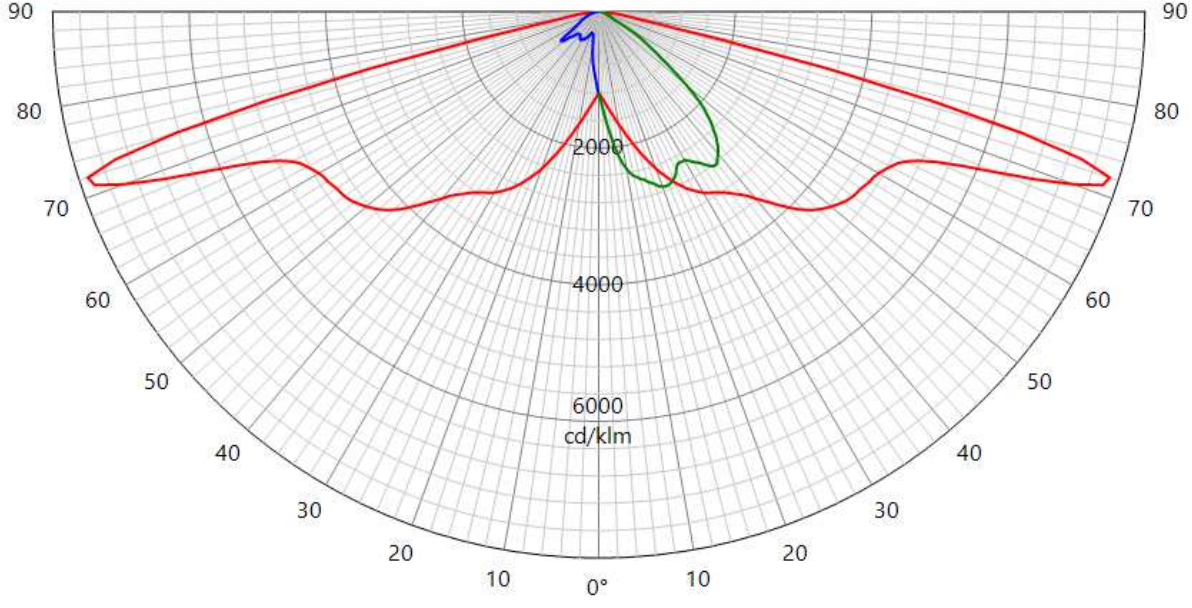
Origin Schröder Magyarország Zrt.		Production Schröder Magyarország Zrt.		Luminaire VOLTANA EVO 1		Inclination 0°	Request # FD41030
Source	Type LED	BIN N6	Trademark Osram	Reference OSLON SQUARE GIANT	# LEDs 16	Reflector 5270	
Reflector	Schröder Led assembly Road lighting Assembled 0,0°					No	5270
Matrices	481236 Φ 0-90° = 6150lm - 90-180° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5270 PC						
Observation	Matrix in total flux @1000 mA Electrical measurement on LED (#1) : Voltage = 45,56 V Current = 1,000 A Power = 45,52 W Electrical measurement on driver (#1) : Voltage = 230,00 V Current = 0,227 A Power = 51,20 W PF = 0,981 Total luminaire power = 51,20 W : Lm/Watt = 120,12 lm/W Driver #1 : See observations for driver details - . . 00-57-060B						
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	
20 - 160	6940	72	S	1059	24,7°	02-02-2021	
90	2494	37	D				
270	1059	0	G				



48123

LUMINOUS INTENSITY DIAGRAM

Origin Schröder Magyarország Zrt.		Production Schröder Magyarország Zrt.		Luminaire VOLTANA EVO 1		Inclination 0°	Request # FD41030
Source	Type LED	BIN N6	Trademark Osram	Reference OSLON SQUARE GIANT	# LEDs 16	Reflector 5270	
Reflector	Schröder Led assembly Road lighting Assembled 0,0°					No	5270
Matrices	481237 Φ 0-90° = 6972lm - 90-180° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5270 PC						
Observation	Matrix in total flux @1200 mA						
	Electrical measurement on LED (#1) : Voltage = 45,88 V Current = 1,200 A Power = 55,10 W						
	Electrical measurement on driver (#1) : Voltage = 230,00 V Current = 0,272 A Power = 61,58 W PF = 0,984						
	Total luminaire power = 61,58 W : Lm/Watt = 113,22 lm/W						
Driver #1 : See observations for driver details - . . 00-57-060B							
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	
20 - 160	7868	72	S				
90	2828	37	D				
270	1200	0	G				



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INFORMATION

Measurement fulfil Standards:

NBN-EN 13032-1
NBN-EN 13032-4
NBN-EN 17025:2017
CIE 121-1996
LM79-08
CIE S 025

Measurement quantities measured:

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

Electrical measurement, if not specified:

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

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

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

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

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

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

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

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

Intensity measurement: +/- 3%
Angle: +/- 0.5°
Flux: +/- 2.5%
Electrical DC
Power: +/- 0.15%
Voltage: +/- 0.10%
Current: +/- 0.20%
Electrical AC
Power: +/- 0.20%
Voltage: +/- 0.10%
Current: +/- 0.15%
Temperature: +/- 0.65%

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

lm/Watt: +/-3.4%

Measuring instruments in use:

Gonio 1

Type C with Moving mirror

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

Type: GO-DS 2000

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

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

Gonio 2

Type C

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

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

Photometric test distance: Near Field

Sphere n°1

4p geometry

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

Type: UL2000 + U1000 V-Lambda photometer

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

Sphere n°2

4p geometry

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

Type ISP2000 + Spectroradiometer CAS120 and CAS140

Calibration: traceable to NIST

Colorimetric portable spectroradiometer

Manufacturer: JETI Technische Instrumente GmbH, Tatzendpromenade 2 07745 Jena

Type: SPECBOS 1201

Calibration: traceable to NIST

Multimeters

Manufacturer: Agilent

Type: 34401A

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

Wattmeters

Manufacturer: Yokogawa

Type: WT210 and WT310

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

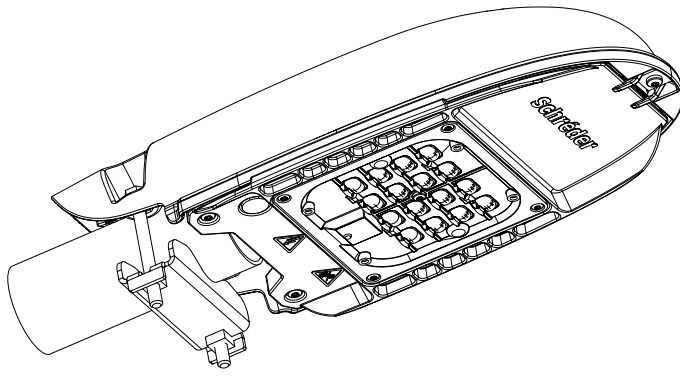
Thermometers

Amarell Precision

Type: Liquid in glass N63833

Calibration: traceable to LBT (Laboratoire Belge de Thermométrie)

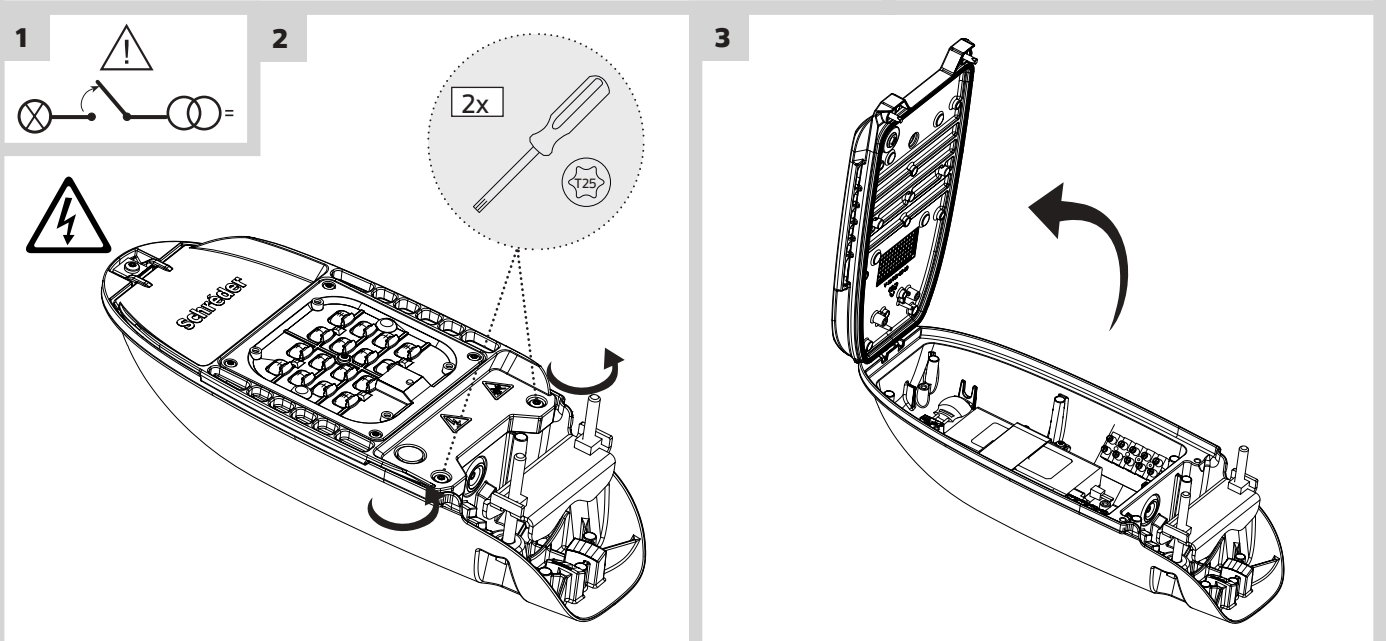
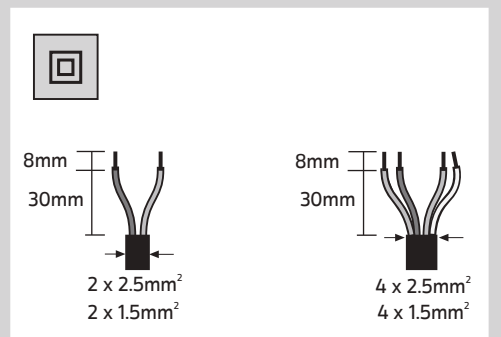
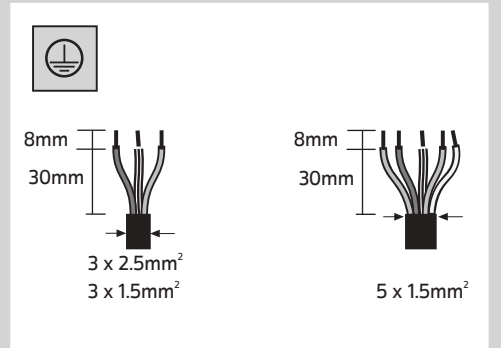
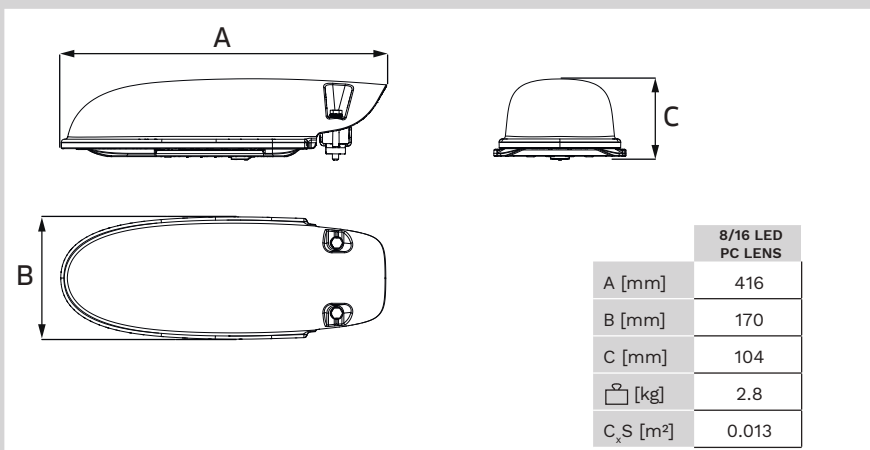
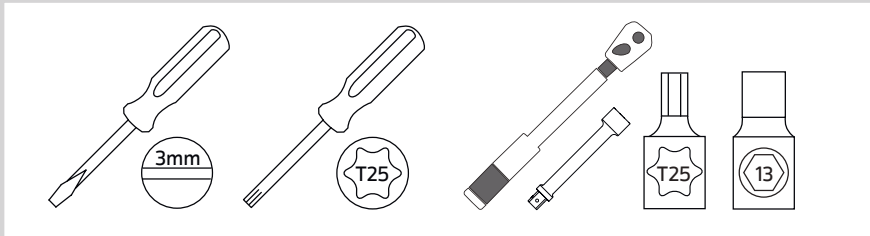
End of test report



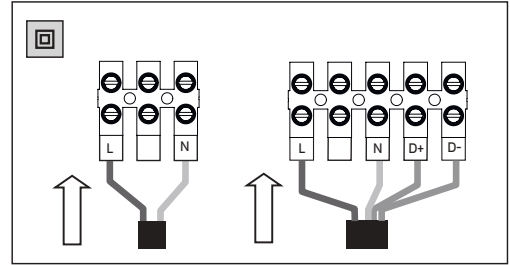
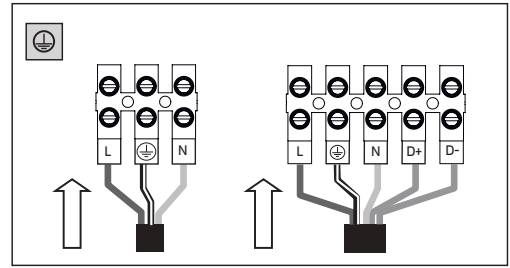
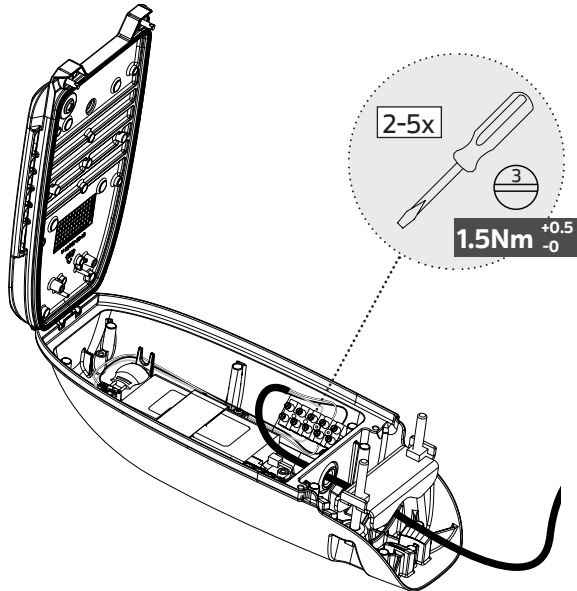
Schröder

VOLTANA EVO 1

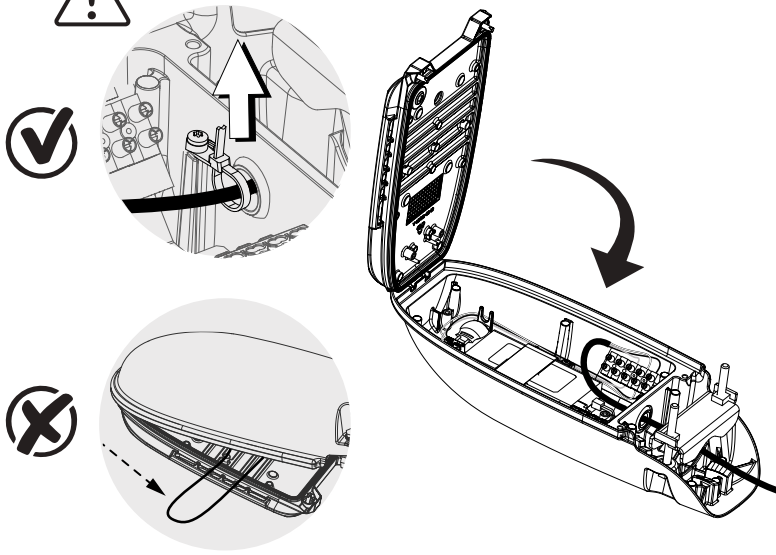
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DEU	INSTALLATIONSANLEITUNG	POL	INSTRUKCJE MONTAŻU	RUS	Инструкции по установке	RON	INSTRUCȚIUNI DE INSTALARE	CHI	安装说明
FRA	INSTRUCTIONS DE MONTAGE	SPA	INSTRUCCIONES DE INSTALACIÓN	POR	INSTRUÇÕES DE INSTALAÇÃO	SWE	INSTALLATIONSANVISNING	UKR	Інструкції з монтажу
SRP	UPUTSTVA ZA INSTALACIJU	AR	تعليمات التركيب						



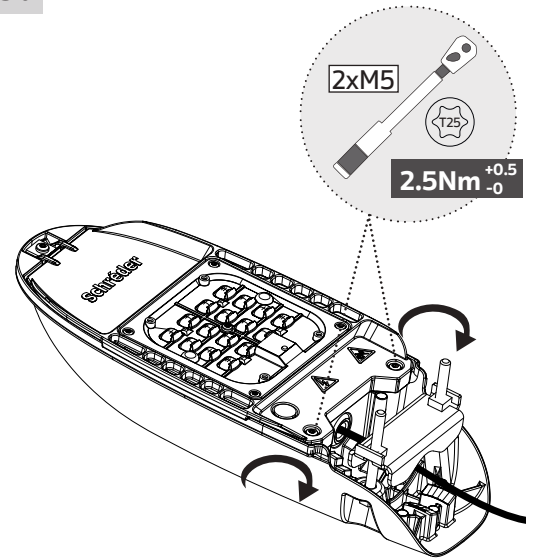
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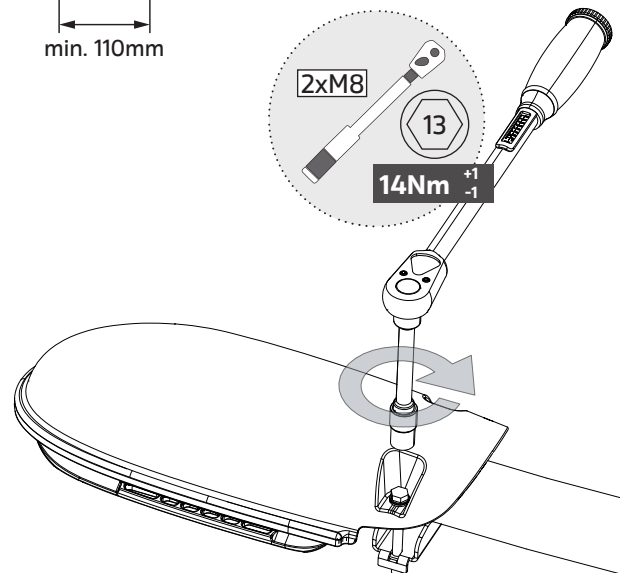
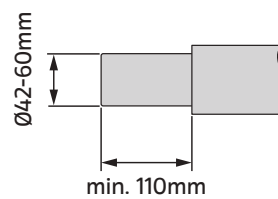
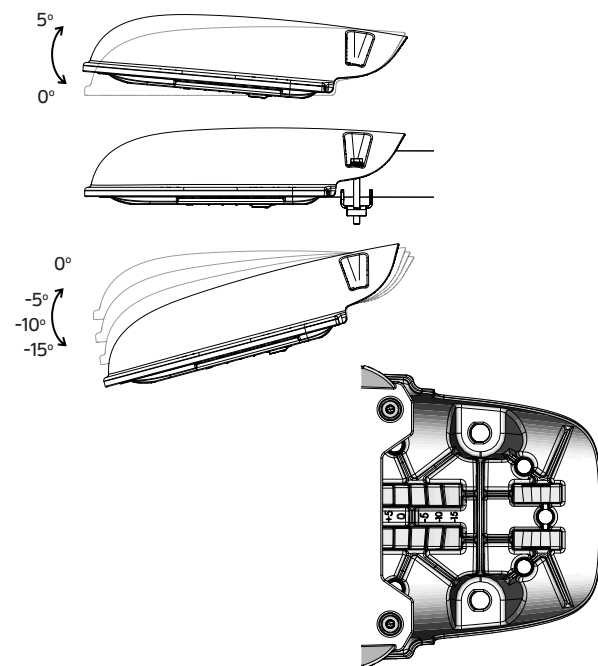
5a

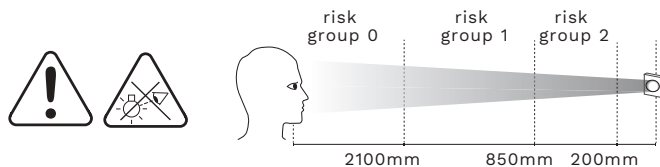


5b



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SAFETY INSTRUCTIONS The light source contained in this luminaire shall only be replaced by the manufacturer or his service agent or a similar qualified person. Always switch off the power prior to installation, maintenance or repair activities. RISK GROUP 2 - CAUTION! Hazardous optical radiation may be emitted from this product. Do not stare at the luminaire when operating as it may be harmful to the eyes. The luminaire should be positioned so that prolonged staring at the luminaire at a distance of less than 0.85m is not expected. In case of PVC insulated mains cable, the installer MUST ensure that the WHOLE cable is protected against climatic conditions, especially UV rays and rain, by making sure that the cable is contained inside the luminaire and pole Y-connection: In case of damage to the wire, it has to be replaced only by the manufacturer, distributor or by an expert, to avoid risks.	ISTRUZIONI DI SICUREZZA La sorgente di luce contenuta in questo sistema di illuminazione dovrà essere sostituita solo dal produttore, dal suo agente di servizio o da una persona con qualifica similare. Staccare sempre il filo della corrente prima di iniziare operazioni di installazione, manutenzione o riparazione. GRUPPO DI RISCHIO 2 - ATTENZIONE! Questo prodotto può emettere radiazioni ottiche potenzialmente pericolose. Non fissare la sorgente accesa. Potrebbe essere dannoso per gli occhi. L'apparecchio dovrebbe essere posizionato in modo da non permettere di fissare a lungo l'apparecchio a una distanza inferiore di 0.85m. In caso di cavo di alimentazione isolato in PVC, l'installatore DEVE garantire che il cavo INTERO sia protetto dalle condizioni climatiche, in particolare dai raggi UV e dalla pioggia, assicurandosi che il cavo sia contenuto all'interno del corpo illuminante e del palo Collegamento Y: in caso di danneggiamento, il cavo deve essere sostituito esclusivamente dal costruttore, dal distributore o da un tecnico esperto per evitare rischi.	VEILIGHEIDSIINSTRUCTIES De lichtbron in deze armatuur dient uitsluitend door de fabrikant, diens onderhoudsvertegenwoordiger of een persoon met vergelijkbare kwalificaties te worden vervangen. Schakel altijd de stroom uit voordat u aan installatie, onderhoud of reparaties begint. RISICOGROEP 2 - LET OP! Bij dit product kan eventueel gevaarlijke optische straling voorkomen. Staar niet in de brandende lamp. Dit kan schadelijk zijn voor de ogen. Het armatuur moet worden geplaatst zodat staren in het armatuur op een afstand kleiner dan 0.85meter niet verwacht wordt. In het geval van PVC-geïsoleerde voedingskabels MOET de installateur ervoor zorgen dat de GEHELE kabel wordt beschermd tegen klimaatomstandigheden, met name UV-stralen en regen, door ervoor te zorgen dat de kabel zich in het armatuur en de paal bevindt Y-verbinding: in geval van schade aan de draad dient deze te worden vervangen door de fabrikant, de distributeur of door een expert, om risico's te vermijden.	SIKKERHEDSIINSTRUKTIONER Lyskilden i dette armatur må kun udskiftes af producenten, af en vedligeholdelsesvirksomhed udpeget af producenten eller af en tilsvarende kvalificeret virksomhed. Sluk altid for strømmen inden påbegyndelse af installation, vedligeholdelse eller reparation. Risikogrube 2 - ADVARSEL! Produktet kan muligvis udsende farlig optisk stråling. Kig ikke direkte ind i armaturet under drift, det kan være skadeligt for øjnene. Armaturet skal placeres således så langvarig stirren ind i armaturet, på en afstand der er tættere end 0.85m, undgås. I tilfælde af PVC-isoleret ledning SKAL elektrikerens sikre, at HELE kablet er beskyttet mod klimatiske forhold, dette gælder især UV-stråler og regn. Elektrikerens skal derfor sørge for, at kablet forbliver inde i armaturet og masten. Type Y montering: Hvis det eksterne kabel eller ledning på dette armatur er beskadiget, må det kun udskiftes af producenten eller af en servicepartner til producenten eller tilsvarende kvalificeret person, for at undgå skader.
SICHERHEITSHINWEISE Die Lichtquelle in dieser Leuchte darf nur vom Hersteller bzw. von dessen Kundendienst oder einer ähnlich qualifizierten Person ausgetauscht werden. Schalten Sie die Stromversorgung vor Installations-, Wartungs- und Reparaturarbeiten stets ab. Risikogrube 2 - VORSICHT! Von diesem Produkt kann möglicherweise gefährliche optische Strahlung ausgehen. Es ist darauf zu achten, dass man im eingeschalteten Zustand der Leuchte nicht innerhalb einer Distanz von 0.85m direkt in die Leuchte schaut. Dies könnte schädlich für Ihre Augen sein. Bei Verwendung eines PVC-isolierten Netzkabels MUSS der Installateur sicherstellen, dass das GESAMTE Kabel vor klimatischen Bedingungen - insbesondere vor UV-Strahlen und Regen - geschützt ist, indem sichergestellt wird, dass das Kabel in der Leuchte und dem Mast verschlossen ist Y-Verbindung: Falls die Leitung beschädigt ist, darf diese nur vom Hersteller, dem Händler oder einem Experten ersetzt werden, um Risiken zu vermeiden.	INSTRUKCJA BEZPIECZEŃSTWA Źródło światła zamontowane w tej oprawie może być wymieniane wyłącznie przez producenta, pracownika serwisu lub inną wykwalifikowaną osobę. Przed rozpoczęciem instalacji, konserwacji lub naprawy należy bezwzględnie odłączyć zasilanie elektryczne. GRUPA RYZYKA 2 - OSTRZEŻENIE Produkt może emitować niebezpieczne promieniowanie optyczne szkodliwe dla oczu. Nie należy patrzeć bezpośrednio na pracującą źródło światła. Oprawa powinna być tak zamontowana, aby jej długotrwałą obserwacja była możliwa z odległości nie mniejszej niż 0.85m. W przypadku kabla sieciowego izolowanego PVC instalator MUSI upewnić się, że kabel CAŁY jest chroniony przed warunkami klimatycznymi, w szczególności przed promieniowaniem UV i deszczem, upewniając się, że kabel znajduje się wewnątrz oprawy i stupa. Połączenie Y: ze względów bezpieczeństwa uszkodzony przewód powinien zostać wymieniony wyłącznie przez producenta, dystrybutora lub wykwalifikowanego elektryka.	инструкция безопасности замену источника света для этого светильника должен выполнять только пром. водитель, сервисный агент, производитель или специалист с аналогичной квалификацией. Перед проведением установки, сервисного обслуживания или ремонта всегда отключайте питание устройств. ГРУППА РИСКА 2 - ВНИМАНИЕ! Возможно опасное оптическое излучение от этого изделия. Не смотрите на источник света. Может быть вредно для глаз. Светильник должен быть расположен таким образом, чтобы было невозможно смотреть на него с расстояния менее 0.85м. В случае кабеля питания с ПВХ изоляцией, монтажник ДОЛЖЕН обеспечить защиту ВСЕГО кабеля от воздействия климатических условий, особенно от ультрафиолетовых лучей и дождя. Убедившись, что кабель находится внутри светильника и опоры. Подключение Y: в случае повреждения кабеля его замена производится только производителем, дистрибутором или экспертом.	INSTRUCȚIUNI DE EXPLOATARE Sursa de lumină din acest corp de iluminat trebuie înlocuită numai de producător sau de reprezentantul său de service sau o persoană ce deține calificări similare. Opriți întotdeauna alimentarea electrică înainte de lucrările de instalare, întreținere sau reparații. GRUP DE RISC 2 - ATENȚIE! Este posibil ca acest produs să emită radiații optice periculoase. Nu priviți direct înspire lampa aflată în stare de funcționare. Acest lucru poate fi dăunător ochilor. Aparatul de iluminat trebuie să fie poziționat astfel încât să nu fie posibil, în mod normal, privitul direct înspire lampă, la o distanță mai mică de 0.85m. În cazul cablului de alimentare cu izolație din PVC, instalatorul TREBUIE să se asigure că TOT cablul este protejat împotriva condițiilor climatice, mai ales împotriva razelor UV și a ploii, asigurându-se că acest cablu este plasat în interiorul aparatului de iluminat și al stălpului Conexiune Y: În caz de deteriorare a firului, această trebuie înlocuit numai de către producător, distribuitor sau un expert, pentru evitarea riscurilor.
INSTRUCTIONS DE SECURITE La source lumineuse contenue dans ce luminaire doit être uniquement remplacée par le fabricant, son agent de maintenance ou une autre personne disposant des qualifications appropriées. Mettez toujours l'appareil hors tension avant toute opération d'installation, d'entretien ou de réparation. RISQUE GROUPE 2 - ATTENTION ! Ce produit émet potentiellement des rayons dangereux pour la vue. Regardez directement la source lumineuse et de manière continue pourrait causer des lésions aux yeux. Le luminaire doit être installé de façon à ne pas pouvoir regarder la source lumineuse directement de manière continue à moins de 0.85m. Dans le cas d'un câble secteur isolé en PVC, l'installateur DOIT s'assurer que le câble ENTIER est protégé contre les conditions climatiques, en particulier les rayons UV et la pluie, en s'assurant que le câble est contenu à l'intérieur du luminaire et du poteau Connexion Y: si le câble est endommagé, il ne peut être remplacé que par le fabricant, le distributeur ou par un expert, afin d'éviter tout risque.	INSTRUCCIONES DE SEGURIDAD Solo el fabricante, un agente del servicio técnico o persona con cualificación similar puede sustituir la fuente de luz de este sistema de iluminación. Apague siempre el interruptor de alimentación antes de realizar tareas de instalación, mantenimiento o reparación. GRUPO DE RIESGO 2 - ¡PRECAUCIÓN! radiación óptica posiblemente peligrosa emitida por este producto. No mire a la lámpara en funcionamiento. Puede ser dañino para los ojos. El sistema de iluminación debe instalarse de modo que la mirada fija prolongada a la luminaria, a una distancia menor de 0.85m no se espere. En el caso de un cable aislado de PVC, el instalador DEBE asegurarse de que todo el cable esté protegido contra las condiciones climáticas, especialmente los rayos UV y la lluvia, asegurándose de que el cable esté dentro de la luminaria y el poste Conexión en Y: si el cable se daña, solo debe reemplazarlo el fabricante, un distribuidor o un experto para evitar riesgos.	INSTRUÇÕES DE SEGURANÇA A fonte de luz no interior deste candeeiro deve ser substituída apenas pelo fabricante, pelo seu técnico de assistência ou por uma pessoa com qualificação equivalente. Desligue sempre a alimentação antes de proceder a actividades de instalação, manutenção ou reparação. GRUPO DE RISCO 2 - ATENÇÃO! Possível risco ótico por radiação emitida a partir deste produto. Não olhar para a luz em funcionamento. Pode ser prejudicial para os olhos. A luminária deve ser posicionada de modo a que não seja expectável um olhar prolongado para a luminária em funcionamento a uma distância inferior a 0.85m. No caso de cabo de alimentação com isolamento em PVC, o instalador DEVE assegurar que TODO o cabo é protegido das condições climáticas, especialmente raios UV e chuva, certificando-se que o cabo está contido dentro da luminária e da coluna. Ligação Y: em caso de danos no fio, este tem de ser substituído apenas pelo fabricante, distribuidor ou por um técnico especializado, para evitar riscos.	SÄKERHETSINSTRUKTIONER Ljuskällan som monteras i denna armatur får endast ersättas av en Schröder-anställd eller annan kvalificerad person. Stäng alltid av strömmen före installation, underhåll eller reparation. Risikgrupp 2 - VARNING! Eventuellt farlig optisk strålning från denna produkt. Stirra ej på driftlampan. Kan vara skadligt för ögonen. Armaturen bör placeras så att långvarigt stirrande in i armaturen på ett avstånd som är närmare än 0.85m ej är möjligt. Vid PVC-isolerad kabel måste installören se till att hela kabeln är skyddad mot klimatförhållanden, särskilt UV-strålar och regn, genom att se till att kabeln monteras inuti armaturen och stölp Typ Y-anslutning: Om den externa kabeln eller ledningen på denna armatur är skadad, får den endast bytas ut av tillverkaren eller av en servicepartner till tillverkaren eller motsvarande kvalificerad person, för att undvika skador
BIZTONSÁGI ÚTMUTATÓ A lámpatestben található fényforrást kizárólag a gyártó, szervizképviseelője vagy hivatalos szakszervíz szakembere cserélheti ki. A szerelés, karbantartás és javítás előtt minden esetben végezzen áramtalanítást. KOCKÁZATI CSOPORT 2 - VIGYÁZATI! A berendezés veszélyes optikai sugárzást bocsát ki! Ne nézzén bele a bekapcsolt lámpatestbe! Szemet károsító hatás léphet fel. A lámpatestet úgy ajánlott pozícionálni, hogy rálátás esetén a lámpatest ne legyen 0.85m-nél közelebb! PVC szigetelésű tápkábel esetén a telepítőnek biztosítania KELL, hogy a TELJES kábel védett legyen az éghajlati viszonyoktól, különösen az UV sugárzástól és az esőtől, ügyelve arra, hogy a kábel a lámpatest és az oszlop belsejében legyen. Y-csatlakozó: A sérült vezetéket kizárólag a gyártó, forgalmazó vagy szakember cserélheti ki a kockázatok elkerülése végett.	安全守则 该灯具内的光源仅可由施莱德员工、指定代理商或具备类似资质的人员进行更换。 在安装、维护和维修灯具之前必须首先切断电源。 风险群体 2 - 注意！ 有害的光学射线有可能从产品中发出，不要凝视正在工作的光源，有可能对眼睛产生危害。灯具应当选择合理位置安装，尽可能避免长时间在0.85米以内凝视。 如果选择PVC主电缆，必须确保整个电缆被很好的保护以抵御恶劣气候状况，尤其是避免外线和雨水，而且要确保电缆被灯具和灯杆完全覆盖。 Y类附件： 如果灯具外部电缆被破坏，电缆必须被制造商或服务代理商或者有资质的人员及时更换从而避免伤害。	інструкція безпеки Джерело світла, що міститься у цьому світільнику, повинен замінити лише виробник, його сервісний агент або кваліфікована особа. Завжди вимикайте живлення перед встановленням, доглядом або ремонтом. ГРУПА РИЗИКУ 2 - УВАГА! Можливість небезпечного оптичного випромінювання від цього продукту. Уникайте прямого погляду на вмищене джерело світла. Може бути шкідливо для очей. Світильник має бути розташований так, щоб уникнути його тривалого споглядання з відстані ближче, ніж 0.85м. У випадку кабелю живлення із ПВХ ізоляцією, монтажник ПОВИНЕН забезпечити захист ВСЬОГО кабелю від впливу кліматичних умов, особливо від ультрафіолетових променів та дощу, переконатися, що кабель знаходиться всередині світильника та опори Y-з'єднання: у разі пошкодження дроту його має замінити лише виробник, дистрибутор чи експерт, щоб запобігти ризикам.	UPUTSTVA Izvor svetla u ovom rasvetnom telu može da zameni samo proizvođač, njegov servisni agent ili na sličan način kvalifikovana osoba. Uvek isključite napajanje pre instalacije, održavanja ili popravke. GRUPA RIZIKA 2 - PAŽNJA! Proizvod može emitovati štetno optičko zračenje. Izbegavati vizuelni kontakt sa svetlosnim izvorom dok je u radu. Moguće oštećenje vida. Svetliku treba pozicionirati tako da se ne očekuje duži vizuelni kontakt sa izvorom sa razdaljinu manje od 0.85m. U slučaju napojnog kabla sa PVC izolacijom, izvođač MORA obezbediti zaštitu CELOG kabla od klimatskih uslova, posebno UV zračenja i kiše, tako što će osigurati da se kabal nalazi unutar svetiljke i stuba. Y-veza: U slučaju oštećenja žice zamenu mora da obavi isključivo proizvođač, distributer ili stručnjak kako bi se izbegao rizik.

AR	تعليمات السلامة: بحالة الحاجة لتغير مصدر الضوء، يتم ذلك من خلال الشركة المصنعة او الوكيل المخول لعمل ذلك او شخص موهل لذلك. دأها الفصل الدائرة الكهربائي قبل تركيب او صيانة الجهاز. تحذير: هذا المنتج مصنف ضمن مجموعة الخطأ 2 خطر انبعاث اشعاع ضوئي، لا تنظر مباشرة الى الجهاز و هو مضاء لان ذلك مؤذي للعين. الجهاز يجب ان يركب بشكل يضمن ان التحديق بمصدر الضوء من مسافة اقل من 0.85 م غير متوقعة. يجب على الشخص الذي يوصل الجهاز بالدائرة الكهربائي التأكد من ان محمي من التأثيرات المناخية و خاصة الاشعة فوق البنفسجية و انظر من خلال التأكد ان الكابل محمي بدخلل العود و الجهاز في حالة الحاجة لتغير الاشلاك الداخليه، يتم ذلك من خلال الشركة المصنعة او الوكيل المخول بعمل ذلك او شخص موهل لذلك. دأها الفصل الدائرة الكهربائي قبل تركيب او صيانة الجهاز.
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LICENCE

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Schröder S.A
Rue de Lusambo, 67
1190 Brussels
Belgium

For the product:

Street lighting luminaire

Trade name(s):

SCHREDER

Type(s)/Model(s):

VOLTANA EVO 1, VOLTANA 0, VOLTANA 1, VOLTANA 2, VOLTANA 3, VOLTANA 4

Complying with the following EPRS for performance:

EPRS 003 2018

Based on test reports n° : P1540-98_3535-LH351C-OSLON_062021

This licence is conditional to the validity of the ENEC Licence No.: 21181

Date: 2021-09-03

Signature:

Name: Calogero LANA

Position: Certification Manager

This licence has been issued under the presumption and conditional on the fact that the licensee holds all necessary legal rights with regard to the product presented for testing and certification.

Characteristics :

Rated voltage	:	200-240 V
Rated frequency	:	50-60 Hz
Degree of protection	:	IP66
Class	:	Class I
Colour rendering index (CRI):	:	70,80
Colour temperature (CCT)	:	3000K, 4000 K

Type / Model VOLTANA 0 :

Lamp(s)	:	6-8 LEDs LH 351C
Luminous flux	:	Max. 3819 lm
Efficacy (lm/W)	:	Max. 136 lm/W
Rated power	:	Max. 37 W

Type / Model VOLTANA EVO 1 :

Lamp(s)	:	8-16 LEDs OSOLON
Luminous flux	:	Max. 7345 lm
Efficacy (lm/W)	:	Max . 150 lm/W
Rated power	:	Max. 62 W

Type / Model VOLTANA 1 :

Lamp(s)	:	8 LEDs LH351C
Luminous flux	:	Max. 4168 lm
Efficacy (lm/W)	:	Max . 133 lm/W
Rated power	:	Max. 41 W

Type / Model VOLTANA 2 :

Lamp(s)	:	16 LEDs LH 351C
Luminous flux	:	Max. 6802 lm
Efficacy (lm/W)	:	Max . 145 lm/W
Rated power	:	Max. 58 W

Type / Model VOLTANA3 :

Lamp(s)	:	24 LEDs LH 351C, 3535 G4L
Luminous flux	:	Max. 9697 lm
Efficacy (lm/W)	:	Max . 152 lm/W
Rated power	:	Max. 80 W

Type / Model VOLTANA 4 :

Lamp(s)	:	32 LEDs LH 351C, 3535 G4L
Luminous flux	:	Max. 13179 lm
Efficacy (lm/W)	:	Max . 156 lm/W
Rated power	:	Max. 105 W

Electrical measurements

General information

Subject : VOLTANA EVO 1 - 8 Oslon Square Giant - Meanwell 40W - 1400mA

Asked by : BEDŐ Péter

Created on : 19/04/2021

Started on : 20/04/2021

Test number : D210386

Sample(s) : E210200

Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Number of LED : 8

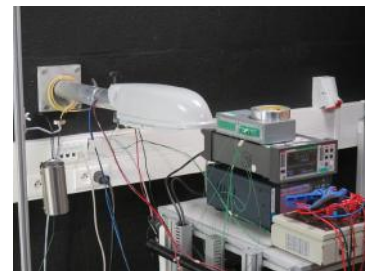
LED : Osram OSOLON SQUARE GIANT

Driver : DRIVER_MEANWELL_PLD_40W_1400mA_220-277V_NONE_._. /
00-73-737

Number of driver(s) : 1

Driver current (mA) : 1400

Operator : CLOSSET Frédéric



lum

Conclusion



Informative

Conclusion :

PF : 0.97

Efficiency : 86.7%

THD : 15.8%

Harmonics : OK according to IEC 61000-3-2, Class C, P > 25 W (@100% dimming)

Validated by :

GHYSENS Gilles



Duplicate to : RACANELLI Frank, SZÜGYI János Péter,
HORVÁTH Csaba, CSIKÓS Balázs, BEDŐ Péter

LAB : 23/04/2021

D210386

1/4

Test(s) details

Test(s)

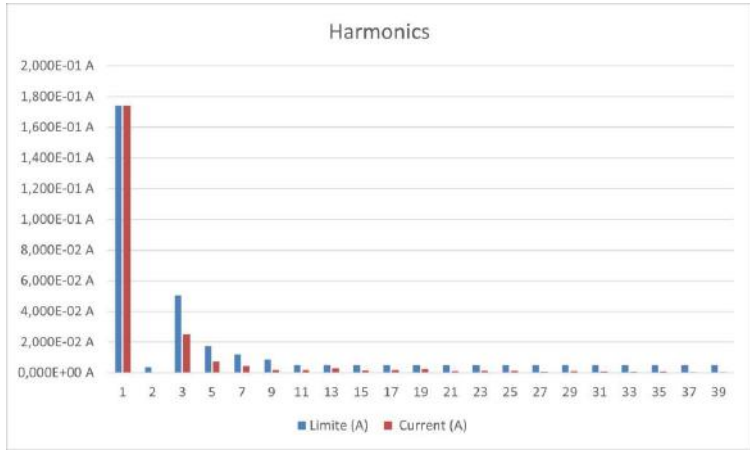
Name	Description	Verdict
Harmonics @ 1400mA	Measurement of the harmonic currents of the luminaire at thermal stabilization, according IEC 61000-3-2 - Class C (100% dimming).	Informative
Measurements @ 1400mA	Characterization of the electrical parameters of the luminaire at thermal stabilization.	Success

Harmonics @ 1400mA

Verdict(s)

Harmonic	Current (A)	Limite (A)
1	1,742E-01 A	1,742E-01 A
2	3,227E-04 A	3,483E-03 A
3	2,521E-02 A	5,054E-02 A
5	7,408E-03 A	1,742E-02 A
7	4,510E-03 A	1,219E-02 A
9	1,945E-03 A	8,709E-03 A
11	1,863E-03 A	5,225E-03 A
13	2,882E-03 A	5,225E-03 A
15	1,757E-03 A	5,225E-03 A
17	2,016E-03 A	5,225E-03 A
19	2,383E-03 A	5,225E-03 A
21	1,174E-03 A	5,225E-03 A
23	1,379E-03 A	5,225E-03 A
25	1,441E-03 A	5,225E-03 A
27	7,736E-04 A	5,225E-03 A
29	1,141E-03 A	5,225E-03 A
31	9,174E-04 A	5,225E-03 A
33	6,352E-04 A	5,225E-03 A
35	1,013E-03 A	5,225E-03 A
37	4,268E-04 A	5,225E-03 A
39	5,224E-04 A	5,225E-03 A

Annex(es)



Harmonics-D210386

Measurements @ 1400mA

Verdict(s)

input		output 1		
Urms	230,0 V	Urms	24,2 V	-
Irms	0,176 A	Irms	1,418 A	
Prms	39,2 W	Prms	34,0 W	
S	40,6 VA			
Q	-10,3 VAR			
PF	0,9672			
I(H01)	0,174 A	Uavg	24,2 V	
Cos j (H01)	0,9791	Iavg	1,406 A	
η rms	86,7%	Pavg	34,0 W	
η avg	86,5%			
THD	15,8%			

Test room temperature (°C) :

23.7

Measurement equipment :

Norma 4000 (E110)

APT (E102)

Quantities measured :

Qualification of the thermal limits and measurement of the electrical behavior of a luminaire according to PT-S-07

Uncertainties :

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

Temperature: 0,6 K

Voltage (AC): 0,33%

Current (AC): 0,33 %

Power (AC): 0,27%

Voltage (DC): 0,3 %

Current (DC): 0,3%

Power (DC): 0,23%

Anemometer: $\pm 0,27$ m/s

Decision rules :

No pass/fail criteria applied on electrical measurements

End of test report :

Laboratory Test report



226-TEST

NBN EN ISO/IEC 17025 :2017



R-Tech
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Member of Schröder Group

FORM L-54 Edition 01 – Revision 04 – Date : 21/04/2021

Thermal Test LED

General information

Subject : VOLTANA EVO 1 - 8 Oslon Square Giant - Meanwell 40W - 1400mA

Asked by : BEDŐ Péter

Created on : 19/04/2021

Started on : 19/04/2021

Test number : D210385

Reference norm : IEC/EN 60598-1; 60598-2-3; 60598-2-5 Standards

Sample(s) : E210200

Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Number of LED : 8

LED : Osram OSOLON SQUARE GIANT

Driver : DRIVER_MEANWELL_PLD_40W_1400mA_220-277V_NONE_._. /
00-73-737

Number of driver(s) : 1

Driver current (mA) : 1400

Operator : CLOSSET Frédéric



lum

Conclusion



Informative

Conclusion :

$\Delta T_s < 80^\circ\text{C}$ no risk of solder crack

Ta: 55°C limited by driver; according IEC 60598-2-3 and IEC 60598-2-5 (outdoor use only)

Ta: 45°C limited by driver; indoor use and UL standard

Tq: 20°C limited by driver; according IEC 62722-2-1

Tq given for 100 khrs of lifetime

Validated by :

GHYSENS Gilles

Duplicate to : SZÜGYI János Péter, BEDŐ Péter

LAB : 23/04/2021

D210385

1/4

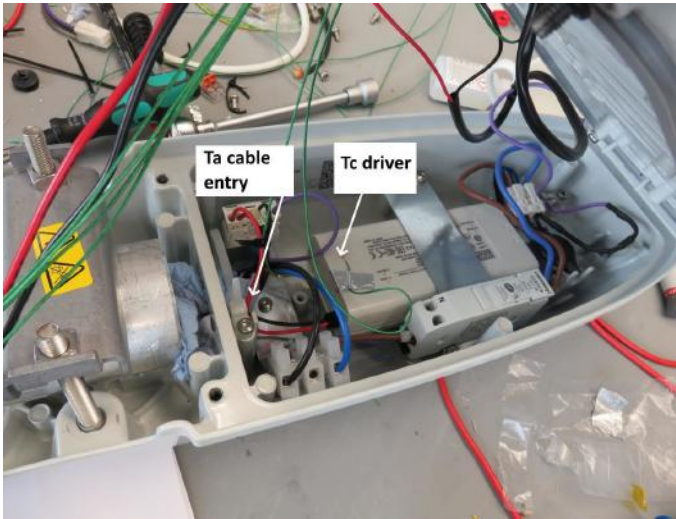
Test(s) details

Test(s)

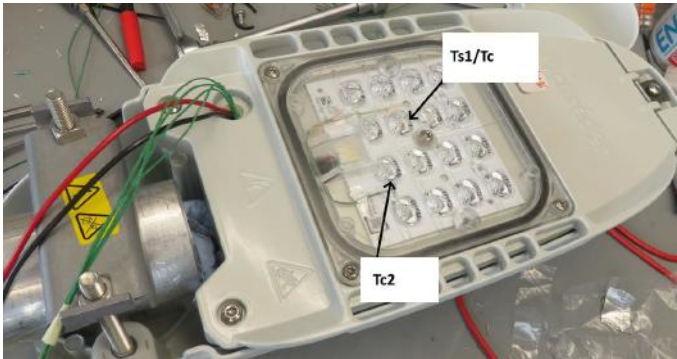
Name	Description	Verdict
Sensors positions	Disposition of the thermocouples on the DUT.	Informative
Test @ 1400mA	Test according section 12.4 of IEC 60598-1. The DUT is driven until all thermocouples reach thermal stabilization (i.e. variation = 1K/h).	Informative

Sensors positions

Annex(es)



pos_thermo2



pos_thermo1

Test @ 1400mA**Verdict(s)**

	Ts1	Ts2	Driver1	Ta Cable entry1
Limit Ta	110,0 °C	110,0 °C	90,0 °C	90,0 °C
Limit Tq	90,0 °C	90,0 °C	65,0 °C	90,0 °C
Thermocouple T°	74,5 °C	68,2 °C	66,9 °C	39,3 °C
Room	24,1 °C	24,1 °C	24,1 °C	24,1 °C
E Led	3,0 V	3,0 V		
I Led	1,406 A	1,406 A		
P Led	4,2 W	4,2 W		
Heating	50,4 °C	44,1 °C	42,8 °C	15,2 °C
Ta Indoor	59,6 °C	65,9 °C	47,2 °C	74,8 °C
Tq	39,6 °C	45,9 °C	22,2 °C	74,8 °C
Solder point temperature used as the image of the lens temperature				
Primary EM		Secondary Em Dr1		
U	230,0 V	U	24,2 V	
I	0,176 A	I	1,406 A	
P	39,2 W	P	34,0 W	
PF	0,967			
Efficiency	86,5%			

Test room temperature (°C) :

23.7

Measurement equipment :

Keithley with thermocouples type K (E127)

Norma 4000 (E110)

APT (E102)

Quantities measured :

Qualification of the thermal limits and measurement of the electrical behavior of a luminaire according to PT-S-07

Uncertainties :

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

Temperature: 0,6 K

Voltage (AC): 0,33%

Current (AC): 0,33 %

Power (AC): 0,27%

Voltage (DC): 0,3 %

Current (DC): 0,3%

Power (DC): 0,23%

Anemometer: $\pm 0,27$ m/s

Decision rules :

No pass/fail criteria applied on electrical measurements

No pass/fail criteria applied on thermal measurements when performed at 25°C (+/- 5°C), the Ta/Tq values are calculated according GDE-POL-001.

Pass/fail criteria on thermal qualification (test performed at announced Ta or Tq)

At the announced Ta, no component is above its maximum limit of operation reduced by the uncertainty on the temperature measurement: pass

At the announced Ta, at least 1 component is above its maximum limit of operation augmented by the uncertainty on the temperature measurement: fail

At the announced Ta, at least 1 component is at its maximum limit of operation $\pm$ the uncertainty on the temperature measurement and no other component is above its maximum limit of operation augmented by the uncertainty on the temperature measurement: pass with remark

According to IEC 60598-2-3 and IEC 60598-2-5 Standards, the maximum limit of every component can be augmented by 10 K provided that the luminaire is intended for outdoor use only.

At the announced Tq, no component is above its selected performance limit of operation reduced by the uncertainty on the temperature measurement: pass

At the announced Tq, at least 1 component is above its selected performance limit of operation augmented by the uncertainty on the temperature measurement: fail

At the announced Tq, at least 1 component is at its selected performance limit of operation $\pm$ the uncertainty on the temperature measurement and no other component is above its selected performance limit of operation augmented by the uncertainty on the temperature measurement: pass with remark

According to IEC 62722-2-1, the selected performance limit cannot be augmented by 10 K even if the luminaire is intended for outdoor use.

Any Ta/Tq defined value will be rounded down to the nearest multiple of 5.

In any case, test at 25°C or test at Ta or Tq, if delta Ts is above the recommended value of the GDE-POL-001, the test is failed.

End of accredited report :

EMC test

General information

Subject : VOLTANA EVO 1 16 led's OSOLON Square Giant - Signify 75W 1200 mA Class I

Asked by : GHYSENS Gilles

Created on : 24/09/2021

Started on : 24/09/2021

Test number : D211032

Reference norm : EN 55015 Standard

Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Operator : HUS

Electrical class : Class I EU

Number of LEDs : 16

LED Type : Osram OSOLON SQUARE GIANT

Driver : DRIVER_SIGNIFY_FP_75W_500-1500mA_220-240V_DALI_C133_ /
00-49-491

Number of driver(s) : 1

Current setting (mA) : 1200

Dimming minimum value : 20 %

Dimming protocol : DALI

Overvoltage protection : VS Lighting Solutions SPC3/230/10K/i

Testing facility : HUS - Schröder Magyarország Zrt.

Conclusion



Success

Conclusion :

VOLTANA EVO1 Cl. I with SIGNIFY FP 75W driver complies with "Conducted emissions" & "CDNE method" tests (EN55015) in internal lab.

Validated by :

LERHO Xavier

Duplicate to : RACANELLI Frank, SZÜGYI János Péter,
DJURETIC Andrej, HORVÁTH Csaba, CSIKÓS Balázs, BEDŐ
Péter

LAB : 24/09/2021

D211032

1/2

Test(s) details

Test(s)

Name	Description	Verdict
EMC compliance in R-Tech lab - Class I	Emission measurements (EN 55015): - Radiated emissions - Conducted emissions	Success

EMC compliance in R-Tech lab - Class I

Verdict(s)

Internal reports (EMC Database): 210204, 210205, 210206 & 210207

Number of appendix pages : 13

End of test report :

Laboratory Test report



226-TEST

NBN EN ISO/IEC 17025 :2017



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Member of Schröder Group

FORM L-54 Edition 01 - Revision 03 - Date : 20/05/2020

Mechanical impact resistance test

General information

Subject : VOLTANA EVO 1 - 16 Oslon Square Giant - Philips 75W

Asked by : SZÜGYI János Péter

Created on : 12/01/2021

Started on : 13/01/2021

Test number : D210050

Reference norm : IEC/EN 60598-1 & 62696 Standards

Sample(s) : E210035, E210036, E210037

Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Quantity of sample under test : 5

Protector Material : PC

Seriography : None

Protector supplier : External - Gaggione

Operator : Philippe Léonard



IMG_7602

Conclusion



Success

Conclusion :

Conformity statement according to TR 62696:2011 and section 4.13 of IEC 60598-1:2014, AMD1:2017 :

IK10 passed.

Validated by :
GHYSENS Gilles

Duplicate to : RACANELLI Frank, SZÜGYI János Péter,
HORVÁTH Csaba, CSIKÓS Balázs, BEDŐ Péter
LAB : 15/03/2021

D210050

1/4

Test(s) details

Test(s)

Name	Description	Result
Impact points	At pendulum hammer 5 impact points distributed on protector surface One impact on each point 2 supplementary impacts on the most fragile point	Informative
IK08	Impact energy : 5 joules Hammer weight : 1.7 Kg Height of fall : 30 Cm	Informative
IK09	Impact energy: 10 joules Hammer weight: 5 kg Height of fall: 20 cm	Informative
IK10	Impact Energy: 20 joules Hammer Weight: 5 Kg Height of fall: 40 cm	Informative

Impact points

Annex(es)



IK08

Result(s)

IK 08	Impact	1			2			3			4			5		
Sample	Shot	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
1		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
2		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
3		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
4		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
5		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
		-	NOT TESTED													

IK09

Result(s)

IK 09	Impact	1			2			3			4			5		
Sample	Shot	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
1		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
2		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
3		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
4		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
5		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
		-	NOT TESTED													

IK10

Result(s)

IK 10	Impact	1			2			3			4			5		
Sample	Shot	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
1		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
2		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
3		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
4		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
5		Pass	-	-	Pass	-	-	Pass	-	-	Pass	-	-	Pass	Pass	Pass
		-	NOT TESTED													

Test room temperature (°C) :

22

Measurement equipment :

Pendulum hammer with chariot (M062)

Thermometer (A039/3)

Quantities measured :

For IK 04/05/06: Verification of the mechanical strength of a luminaire according to PT-S-13

For IK07/08/09/10/10+: Verification of the mechanical strength of a luminaire according to PT-S-05

Uncertainties :

Temperature: 0,6 °K

Mass: 0,25 %

Dynamometric key :

From 0.5 to 2.5 Nm : 0,15 Nm

From 2.5 to 5 Nm : 0,22 Nm

From 5 to 25 Nm : 0,83 Nm

From 25 to 60 Nm : 2,73 Nm

From 60 to 100 Nm : 3,55 Nm

For IK 04/05/06, Impact energy: $\pm 10\%$

For IK07/08/09/10/10+, Impact energy: $\pm 1\%$

Decision rules :

Pass/fail criteria according to GDE-GUI-003

By visual inspection (or other means if necessary):

Luminaire shows dangerous behavior: fail

Luminaire shows no dangerous behavior: pass

When several luminaires are tested, 4 out of 5 samples need to show positive result for compliance of the batch

End of accredited report :

Laboratory Test report



226-TEST

NBN EN ISO/IEC 17025 :2017



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Member of Schröder Group

FORM L-54 Edition 01 - Revision 03 - Date : 20/05/2020

Tightness test

General information

Subject : VOLTANA EVO 1 - 16 Oslon Square Giant - Philips FP 75W - 1200mA - CL II (central screw modified 1Nm)

Asked by : SZÜGYI János Péter

Created on : 08/01/2021

Started on : 11/01/2021

Test number : D210026

Reference norm : IEC/EN 60598-1 Standard

Sample(s) : E210017

Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Number of LED : 16

LED : Osram OSLON SQUARE GIANT

Driver current (mA) : 1200

Protector Material : PC

Operator : Philippe Léonard



IMG_7592

Conclusion



Success

Conclusion :

According section 9.2 of IEC 60598-1:2014, AMD1:2017 :

IP66 passed.

Validated by :
GHYSENS Gilles

Duplicate to : SZÜGYI János Péter, HORVÁTH Csaba, CSIKÓS
Balázs, BEDŐ Péter
LAB : 15/02/2021

D210026

1/4

Test(s) details

Test(s)

Name	Description	Result
IP6x	- Luminaire switched ON until stable T° - Talcum in suspension (blowing ON) - After 1', luminaire OFF - Talcum for 3 hours	Success
IPx6	- Luminaire switched ON until stable T° - Luminaire switched OFF and immediately sprayed with water jet - Hose diam. 12,5 mm - Water flow: 100 l/min - Spraying distance: 3 m - Duration of test: 3 minutes	Success

IP6x

Result(s)

Pre-conditioning time :

- 60minutes

Test result :

- Passed : No talcum entry in the enclosure of the luminaire
-

IPx6

Result(s)

Pre-conditioning time :

- 60 minutes

Test result :

- Passed : No water entry in the enclosure of the luminaire

Test room temperature (°C) :

23.2

Measurement equipment :

Talcum chamber (A003)

Thermometer (A039/2)

Rotating table (A001/2)

Chronometer (A043/3)

Thermometer (A039/1)

Flowmeter (A001/10)

IPx6 nozzle (A001/5)

Quantities measured :

Verification of water/dust ingress within a luminaire enclosure according to

For IP2X: PT-S-14

For IP3X/4X: PT-S-15

For IP5X/6X: PT-S-06

For IPX3/X4: PT-S-01

For IPX5/X6: PT-S-08

For IPX7/X8: PT-S-09

Uncertainties :

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

Time: 0,35 seconds per 10 minutes

Temperature: 0,6 °K

Calipers: 0,005 mm

Measuring tape: ± 1,13 mm

Dynamometric key :

From 0.5 to 2.5 Nm : 0,15 Nm

From 2.5 to 5 Nm : 0,22 Nm

From 5 to 25 Nm : 0,83 Nm

From 25 to 60 Nm : 2,73 Nm

From 60 to 100 Nm : 3,55 Nm

For solid ingress test:

IP2X:

Probe dimensions: ± 0,6 mm

Applied force: ± 0,4 N

IP3X:

Probe dimensions: ± 0,3 mm

Applied force: ± 0,13 N

IP4X:

Probe dimensions: ± 0,1 mm

Applied force: ± 0,11 N

IP5X/6X

Test duration (talcum suspension time): ± 3 seconds

Talcum mass: 0,02 %

For liquid ingress test:

IPX3/X4

Table rotation: ± 6 sec/rotation

Arms Rotation angle: ± 3°

Water flow: ± 4 %

IPX5/X6

Table rotation: ± 6 sec/rotation

Water flow: ± 4 %

Test Distance: +0 / -50 cm

IPX7/X8

Test depth: +10 cm / -0 cm

Decision rules :

Pass/fail criteria

For solid ingress test:

IP2X:

If contact possible with live parts: fail

Otherwise: pass

IP3X/4X:

For luminaires without draining holes, nor ventilation slots for forced cooling, penetration of the test probe in the enclosure: fail

For luminaires with draining holes, or ventilation slots for forced cooling, if contact possible with live part: fail

Otherwise: pass

IP5X/6X

By visual inspection:

If possible hazard due to presence of conductive dust: fail

If no possible hazard due to the presence of conductive dust: IP5X granted

No presence of talcum: IP6X granted

For liquid ingress test:

IPX3/X4/X5/X6:

By visual inspection:

If possible hazard due to presence of water: fail

If no possible hazard due to the presence of water and no efficient way to evacuate the water: fail

If no possible hazard due to the presence of water and an efficient way to evacuate the water: pass

No presence of water: pass

IPX7/X8:

By visual inspection:

Presence of water: fail

No presence of water: pass

End of accredited report :

VOLTANA EVO 1

5270

Optic	5270
Protector	Integrated lenses
Source	8 Osram OSOLON SQUARE GIANT
Matrix	481232



Characteristics

416	170	104	2.8	IP 66	IK 10	I EU, II EU	0.013
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 compact, cost-effective LED solution for your urban spaces

- Cost-effective and efficient lighting solution for a fast return on investment
- Compact design
- ProFlex™ photometric engines offering high efficiency lighting, comfort and safety
- Adjustable inclination on-site
- Side-entry and post-top (with accessory) mounting

Types of application

- Square and park
- Car park
- Bike path
- Urban road

Information for 1000 lm matrix

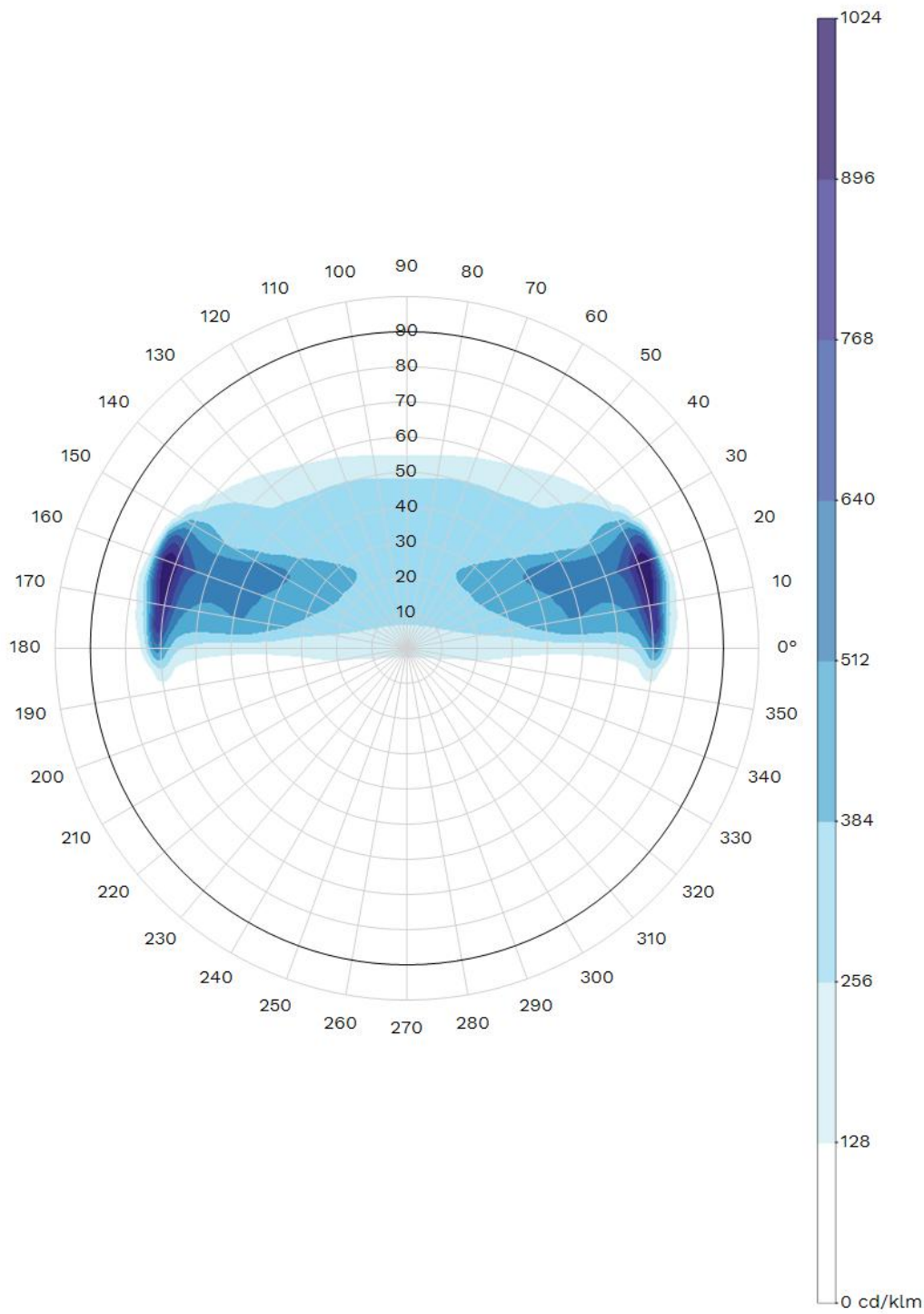
Efficacy (%)	90.7	G Class (EN 13201-2)	G3	I 70-80-90-95 (cd)	963 - 83 - X - X
DLOR (%)	90.7	G* (EN 13201 2015)	G*3	CIE flux code N 1→5 (%)	35.7 - 70.2 - 97.2 - 100.0 - 90.7
ULOR (%)	0.0	Imax (cd)	1024	Gradient 90°	24cd
ULR (%)	0.0	Aperture 0-180°	69 - 69	Gradient 270°	13cd
Incl ULR 4%	-41/34°	Aperture 90-270°	X - X		

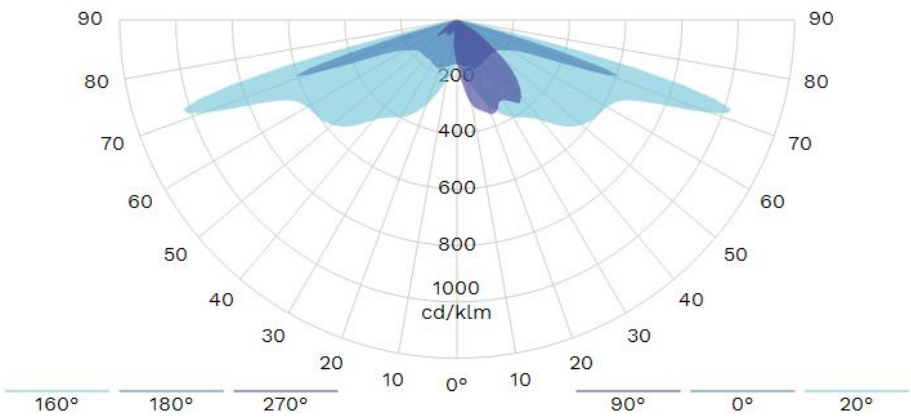
Photometrical characteristics

LED count	Colour code	Current (mA)	Luminaire power (W)	Source flux (lm)	Luminaire output flux (lm)	Luminaire efficacy (lm/W)	Peak (cd)	BUG Rating	Voltage (V)
			Ambient temp = 25°						
8	NW 740	200	6	930	843	141	952	B0 U0 G0	230
8	NW 740	350	10	1552	1408	141	1589	B0 U0 G0	230
8	NW 740	500	13	2128	1930	148	2178	B0 U0 G0	230
8	NW 740	700	18	2828	2565	143	2895	B1 U0 G1	230
8	NW 740	1050	28	3858	3500	125	3950	B1 U0 G1	230
8	NW 740	1250	36	4336	3934	109	4440	B1 U0 G1	230
8	NW 740	1400	40	4644	4213	105	4754	B1 U0 G1	230
8	WW 730	200	6	819	743	124	839	B0 U0 G0	230
8	WW 730	350	10	1368	1241	124	1401	B0 U0 G0	230
8	WW 730	500	13	1876	1702	131	1920	B0 U0 G0	230
8	WW 730	700	18	2492	2261	126	2552	B1 U0 G1	230
8	WW 730	1050	28	3401	3085	110	3482	B1 U0 G1	230
8	WW 730	1250	36	3822	3468	96	3913	B1 U0 G1	230
8	WW 730	1400	40	4093	3713	93	4191	B1 U0 G1	230

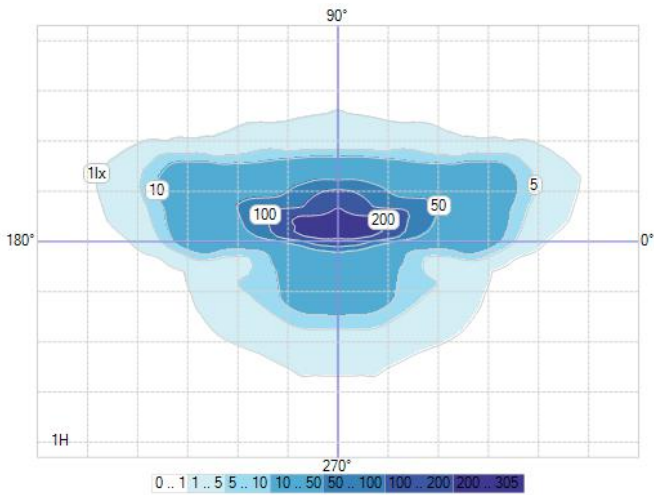
Tolerance on flux +- 7% - Tolerance on power +- 5%

Hypergon view

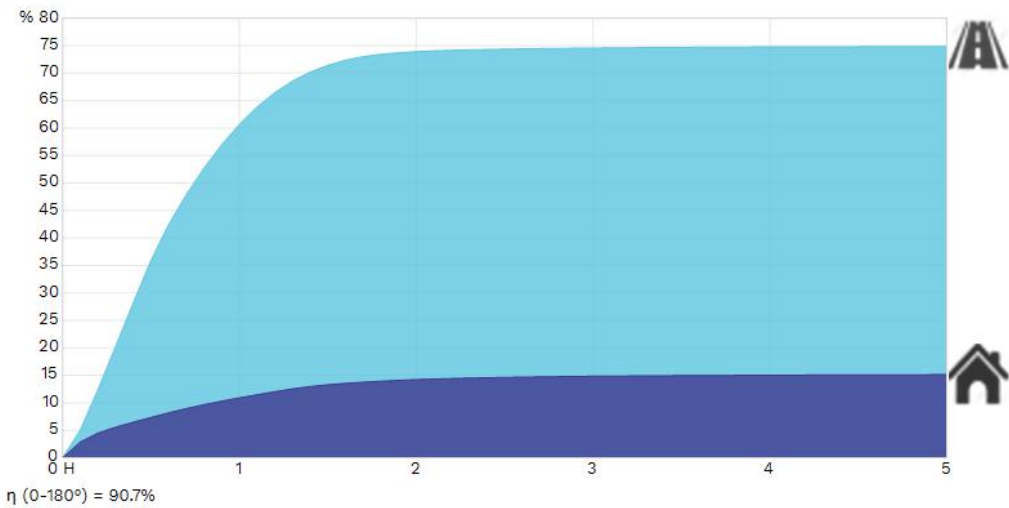




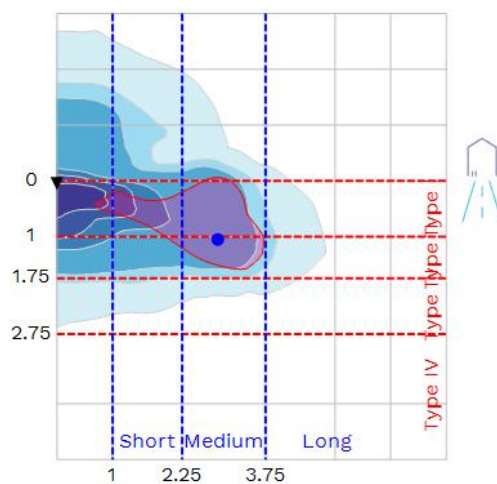
Isolux



K-Curve

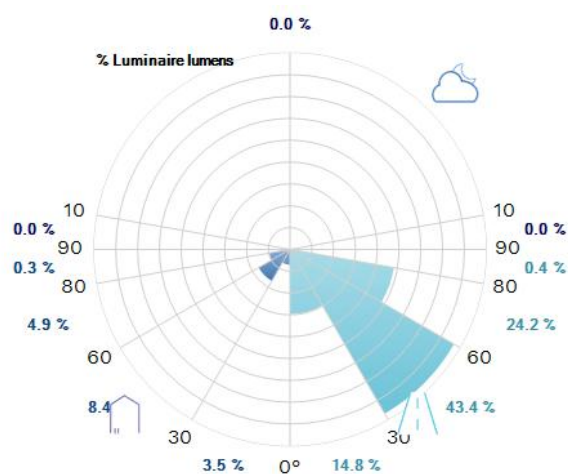


IES Roadway Classification / Nema Classification

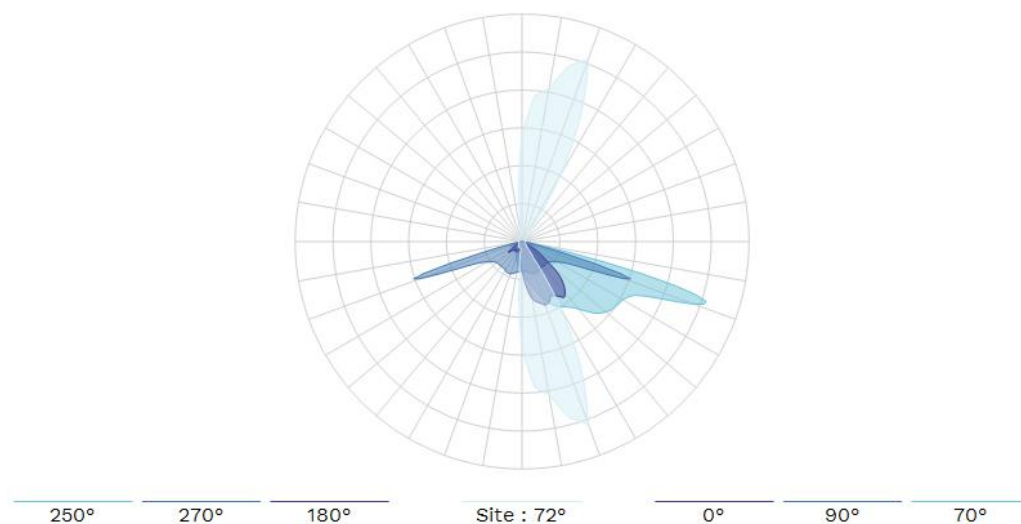


II - Medium

Luminaire classification system (LCS)



Intensity diagram in max Cone and in CPlane



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No. 21181/3 replaces No.21181/2

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Belgium



Licensee:
Schröder SA
Rue de Lusambo, 67
1190 BRUXELLES
Belgium



Product : road, square, street, flood lighting
Trade name(s) : SCHREDER
Type(s)/model(s) : VOLTANA 0, VOLTANA 1, VOLTANA 2, VOLTANA 3,
VOLTANA 4, VOLTANA EVO 1

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

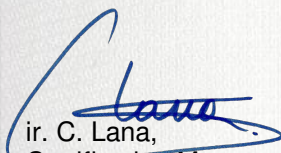
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- an inspection of the production location
- a certification agreement with the number 1173

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ir. C. Lana,
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SPECIFICATION OF THE CERTIFIED PRODUCT

Product data

Product	:	road, square, street, flood lighting
Trade name(s)	:	SCHREDER
Type(s)/Model(s)	:	VOLTANA 0, VOLTANA 1, VOLTANA 2, VOLTANA 3, VOLTANA 4, VOLTANA EVO 1
description	:	Street lighting
rated voltage (Un)	:	200-240 V
rated frequency	:	50-60 Hz
rated secondary current (In SEC)	:	max. 1400 mA (LED)
class	:	class I
degree of protection	:	IP66
lamp(s)	:	LED (3535 G4L, XP-G3, LH351C, OSOLON)

Additional information

Voltana 0 :
6 LEDs :
ta 55°C with Control gear Meanwell model PLD-40W
ta 50°C with Control gear Signify model LP/FP 22W C123

8 LEDs:
ta 45°C with Control gear Meanwell model PLD-40W

VOLTANA EVO 1 = VOLTANA GEN 2

Product data - type VOLTANA 1

design	:	8 LEDs
rated ambient temperature (ta)	:	max. 55°C
rated power	:	max. 41 W
rated current (In)	:	max. 1400 mA
resistance to impact (IK)	:	IK08

Product data - type VOLTANA 2

design	:	16 LEDs
rated ambient temperature (ta)	:	max. 45°C
rated power	:	max. 58 W
rated current (In)	:	max. 1050 mA
resistance to impact (IK)	:	IK08

Product data - type VOLTANA 3

design	:	24 LEDs
rated ambient temperature (ta)	:	max 50°C
rated power	:	max. 80 W
rated current (In)	:	max. 1000 mA
resistance to impact (IK)	:	IK08

Product data - type VOLTANA 4

design	:	32 LEDs
rated ambient temperature (ta)	:	max. 55°C
rated power	:	max. 105 W
rated current (In)	:	max. 1000 mA
resistance to impact (IK)	:	IK08

Product data - type VOLTANA 0

design	:	6, 8 LEDs
rated ambient temperature (ta)	:	max. 55°C
rated power	:	max. 39 W
rated current (In)	:	max. 1400 mA
resistance to impact (IK)	:	IK09 (PC), IK10 (Glass)

Product data - type VOLTANA EVO 1

design	:	8, 16 LEDs
rated ambient temperature (ta)	:	max. 55°C
rated power	:	max. 62 W
rated current (In)	:	max. 1400 mA
resistance to impact (IK)	:	IK10

TESTS

Test requirements

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

Test results

The test results are laid down in certification file 618719/30.

Remarks

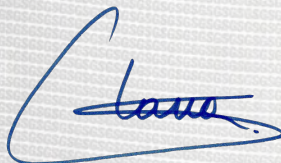
This certificate is based on test report No. P1540-44-le.

Conclusion

The examination proved that all certification requirements were met.

Reviewed by, project leader : Christian Maes - 29/04/2022

Certification Manager :



2022-04-29

FACTORY LOCATION(S)

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

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

Schröder Hungary Plc.
Tópart 2
2084 PILISSZENTIVAN
Hungary

VOLTANA EVO



The compact, cost-effective LED solution for your urban spaces

Create a lighting set that efficiently fits into your urban landscapes and reduces energy consumption without compromising on lighting levels with the VOLTANA EVO. This new generation of the well-known VOLTANA range is the ultimate compact solution delivering the right lumen package for your urban spaces while considerably reducing energy costs for the fastest return on investment.

VOLTANA EVO is a low-weight lighting solution designed for side-entry mounting. As an option, an adapter piece for both post-top and side-entry mountings is available, allowing VOLTANA EVO to be fitted in all kinds of poles and easing the installation.

It can be adapted on-site thanks to a stepped inclination system allowing the photometry to be optimised.

With its compact design and lighting technology, the VOLTANA EVO luminaire is a sustainable, cost-effective LED solution that guarantees basic urban lighting needs, generates energy savings, and reduces the ecological footprint.

IP 66

IK 10



URBAN &
RESIDENTIAL
STREETS



SQUARES &
PEDESTRIAN
AREAS



ROADS &
MOTORWAYS

Concept

The VOLTANA EVO luminaire is composed of a high-pressure die-cast aluminium body and a mounting clamp made of corrosion-resistant steel.

VOLTANA EVO is equipped with ProFlex™ photometric engines, offering optimised photometrical performance with a minimum total cost of ownership. The polycarbonate lens protector ensures high impact resistance to provide an efficient and reliable solution.

This luminaire can be mounted using a standard side-entry clamp fixation for Ø42-60mm spigots. Thanks to an incorporated inclination system, the angle can be adjusted on-site. As an option, an adapter piece is available for spigots from Ø42 to Ø76mm for both post-top and side-entry mounting.



VOLTANA EVO is designed to ease installation and on-site maintenance.



Precise on-site adjustment. The inclination angle can be set from -15° to +5° for side-entry mounting, and from -10° to +10° with the post-top adaptor.

TYPES OF APPLICATION

- URBAN & RESIDENTIAL STREETS
- SQUARES & PEDESTRIAN AREAS
- ROADS & MOTORWAYS

KEY ADVANTAGES

- Cost-effective and efficient lighting solution for a fast return on investment
- Compact design
- ProFlex™ photometric engines offering high efficiency lighting, comfort and safety
- Adjustable inclination on-site
- Side-entry and post-top (with accessory) mounting



VOLTANA EVO is a low weight luminaire that provides a cost-effective and sustainable lighting solution.



The polycarbonate ProFlex™ lens protector ensures a high impact resistance.



ProFlex™

The ProFlex™ photometric engine integrates the lenses into a polycarbonate protector. This integration increases the output and reduces the reflection inside the optical unit. The polycarbonate used for the ProFlex™ photometric engine offers essential characteristics such as high optical clarity for a superior light transmission, better impact resistance compared to glass and a long life span with UV-stabilisation treatment. The ProFlex™ concept enables a compact design with a thin optical compartment. It provides extensive light distributions so that the spacing between the luminaires can be increased.

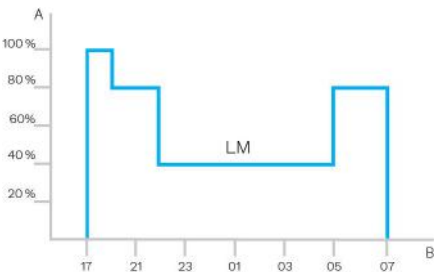




Custom dimming profile

Intelligent luminaire drivers can be programmed with complex dimming profiles. Up to five combinations of time intervals and light levels are possible. This feature does not require any extra wiring.

The period between switching on and switching off is used to activate the preset dimming profile. The customised dimming system generates maximum energy savings while respecting the required lighting levels and uniformity throughout the night.



A. Dimming level | B. Time

GENERAL INFORMATION

Recommended installation height	4m to 15m 13' to 49'
Circle Light label	Score ≥90 - The product fully meets circular economy requirements
Driver included	Yes
CE mark	Yes
ENEC certified	Yes
ENEC+ certified	Yes
Testing standard	LM 80 (all measurements in ISO17025 accredited laboratory)

HOUSING AND FINISH

Housing	Aluminium
Optic	Polycarbonate
Protector	Polycarbonate (with integrated lenses)
Housing finish	Polyester powder coating
Standard colour(s)	RAL 7035 light grey
Tightness level	IP 66
Impact resistance	IK 10
Vibration test	Compliant with modified IEC 68-2-6 (0.5G)
Access for maintenance	By loosening screws on the bottom cover

OPERATING CONDITIONS

Operating temperature range (Ta)	-30°C up to +55°C / -22° F up to 131°F
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· Depending on the luminaire configuration. For more details, please contact us.

ELECTRICAL INFORMATION

Electrical class	Class I EU, Class II EU
Nominal voltage	220-240V – 50-60Hz
Surge protection options (kV)	10
Electromagnetic compatibility (EMC)	EN 55015 / EN 61000-3-2 / EN 61000-3-3 / EN 61547
Control protocol(s)	1-10V, DALI
Control options	Custom dimming profile

OPTICAL INFORMATION

LED colour temperature	3000K (Warm White 730) 4000K (Neutral White 740)
Colour rendering index (CRI)	>70 (Warm White 730) >70 (Neutral White 740)

LIFETIME OF THE LEDS @ TQ 25°C

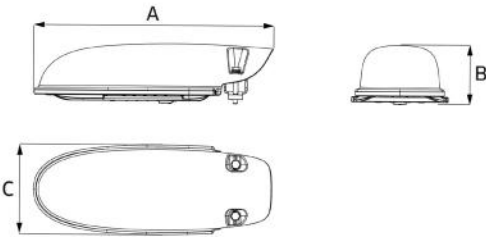
All configurations	100,000h - L95 (high-power LEDs)
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· Lifetime may be different according to the size/configurations. Please consult us.

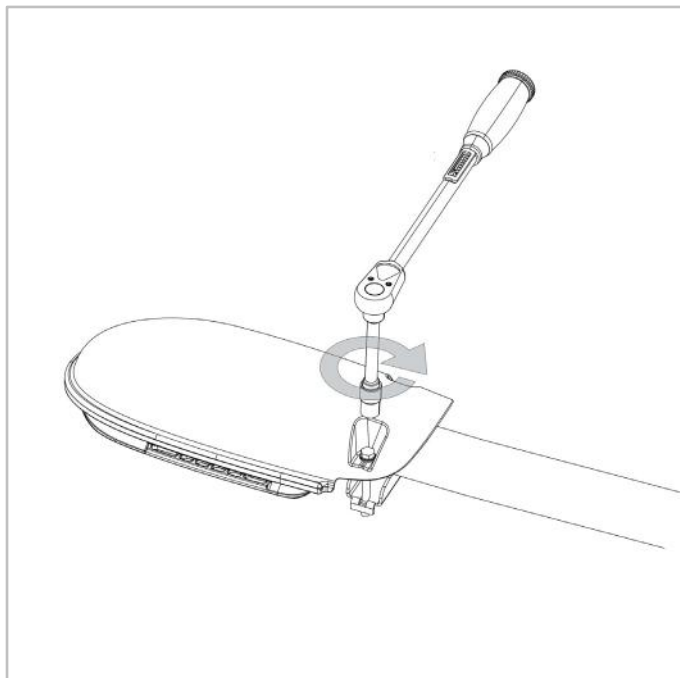
DIMENSIONS AND MOUNTING

AxBxC (mm inch)	416x104x170 16.4x4.1x6.7
Weight (kg lbs)	2.8 6.2
Aerodynamic resistance (CxS)	0.01
Mounting possibilities	Side-entry slip-over – Ø42mm
	Side-entry slip-over – Ø60mm
	Side-entry slip-over – Ø76mm

· For more information about mounting possibilities, please consult the installation sheet.



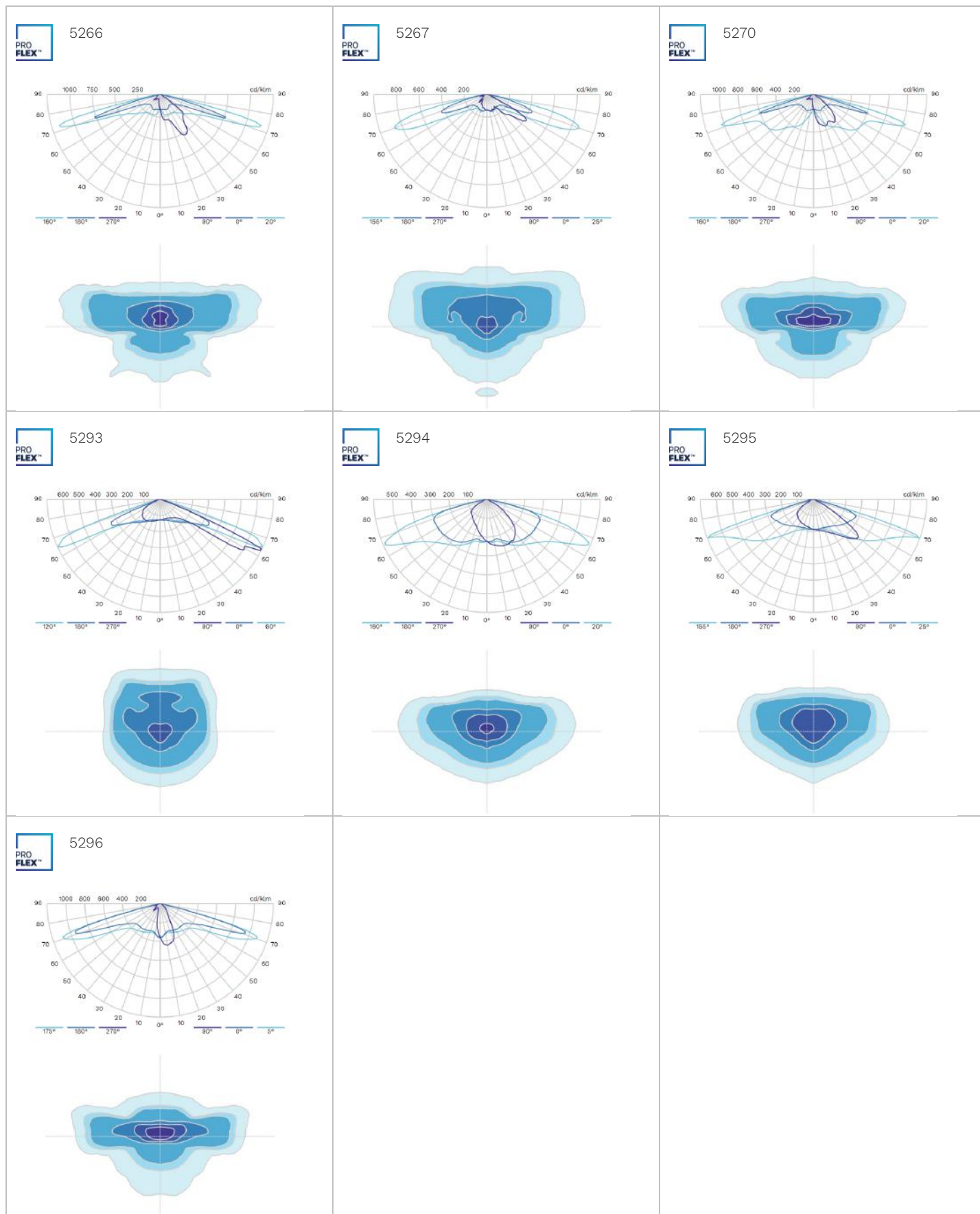
VOLTANA EVO | Side-entry (standard) and post-top (with adapter piece) mounting – 2xM8 screws





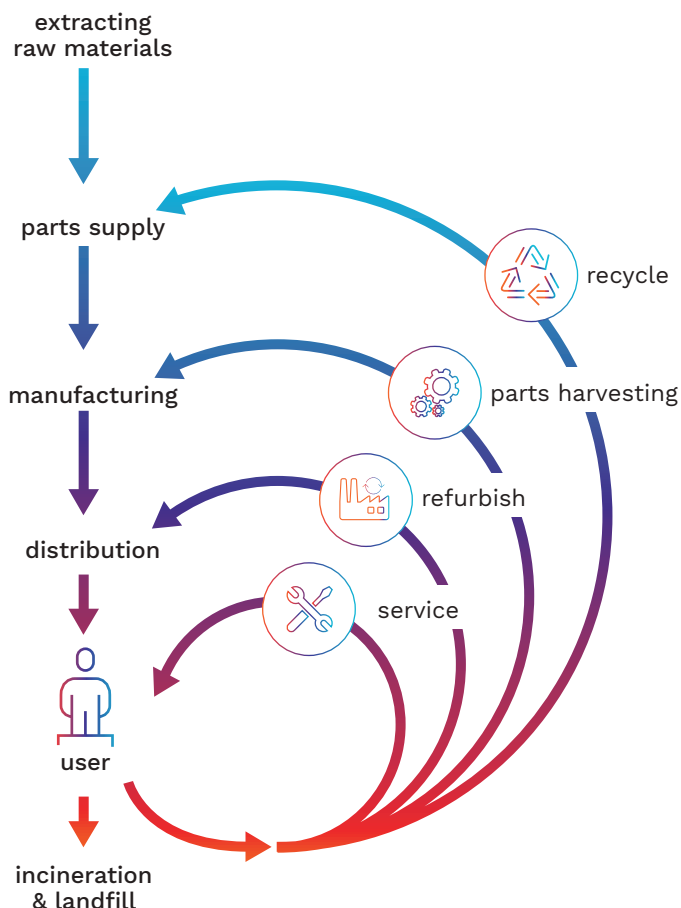
			Luminaire output flux (lm) Warm White 730		Luminaire output flux (lm) Neutral White 740		Power consumption (W)	Luminaire efficacy (lm/W)	
Luminaire	Number of LEDs	Current (mA)	Min	Max	Min	Max	Up to		Photometry
VOLTANA EVO 1	8	200	700	700	700	800	6	133	
	8	350	1100	1200	1200	1300	9.7	134	
	8	500	1600	1700	1700	1800	13.1	137	
	8	700	2100	2200	2300	2400	18.4	130	
	8	1050	2900	3000	3200	3300	28.4	116	
	8	1250	3300	3400	3600	3700	36.1	102	
	8	1400	3500	3700	3800	4000	39.5	101	
	16	200	1400	1400	1500	1600	10.8	148	
	16	350	2300	2400	2500	2600	18	144	
	16	500	3200	3400	3500	3600	25.5	141	
	16	700	4300	4500	4700	4900	38.1	129	
	16	1050	5900	6100	6400	6700	56	120	
	16	1200	6500	6700	7000	7300	62	118	

Tolerance on LED flux is $\pm 7\%$ and on total luminaire power $\pm 5\%$





PASSPORT



VOLTANA EVO 1

Circularity focuses on reducing the environmental burden by valorising the flow of all materials.

It is mainly defined in opposition to the traditional linear economy: take, make and dispose. In a circular economy, products are part of a value network where they will be used for as long as possible.

Then, depending on their characteristics, they can be reused, refurbished, upgraded or recycled.

Schröder takes circular economy into account, right from the offset. Before we start to design our products, we incorporate it into their DNA.

After a careful analysis of the potential circularity of our luminaires, we decided to introduce a “circular lighting” product label. This label acts as a circular indicator for our customers.

It clearly designates products that are optimised for circular economy through 12 objective criteria.

Circular highlights:



- All product information is available on a smart label to facilitate maintenance



- Less than 7 steps to completely disassemble the luminaire



- Materials with a high rate of recyclability

LONG-LASTING, LONG USE		POINTS	0	5	10	TOTAL
PERFORMANCE 		Luminary efficacy ⁽¹⁾	F/P < 110 lm/w	110 lm/w =< F/P < 140 lm/w	140 lm/w =< F/P	10
		Rated life of the LEDs	x < L90/100.000	L90/100.000 =< x < L95/100.000	L95/100.000 =< x	10
		Mechanical ⁽²⁾	Level 1	Level 2	Level 3	10
		Energy control	No control solution	Dimmable	Dynamic	5
		Smart ready ⁽³⁾	Not available	Proprietary smart solution ready	Open smart solution ready	0
MAINTENANCE 	PARTS WITHDRAWAL ⁽⁴⁾	Opening	Specific tools/ Impossible	Basic tools	Tool free	5
		Optical unit	Specific tools/ Impossible	Basic tools	Tool free	
		Gear plate (driver, SPD, smart, ...)	Specific tools/ Impossible	Basic tools	Tool free	
	INFO AVAILABILITY	Product sheet	In the box	On the website	On Smart Label	10
		Installation sheet	In the box	On the website	On Smart Label	
		Asset data sheet	In the box	On the website	On Smart Label	
REFURBISH 	SPARE PARTS	Availability ⁽⁵⁾	Product warranty	Announced end of life	10 years after the announced end of life	5
	UPGRADE	Mechanical fixation method	Directly to the mold (only one mechanical fixation method allowed)	Use of a gear plate for some functional parts (allow different fixation method)	Use of a module for all the functional parts (allow different fixation method)	5
NONDESTRUCTIVE DISASSEMBLY 		Dissassembly depth ⁽⁶⁾	> 9	9 ≤ x < 7	≤ 7	10
END OF LIFE						
RECYCLE 		Material separability	Not separable	/	All materials	10
		Material compatibility with recycling ⁽⁷⁾	No	/	Yes	10
						90

Remarks:

- (1) The luminaire's efficacy is the ratio between the output flux (F) and the consumed power (P). This measurement is carried out at 500mA with the maximum number of LEDs. When this configuration is not available, the variant with the maximum number of LEDs and highest current will be measured.
- (2) The mechanical criteria takes into account the IP and IK level of the luminaire. Our criteria is as follows:

LEVEL 1	LEVEL 2	LEVEL 3
Any luminaire with an IP level equal or below IP 54	Any luminaire with an IK level equal or below IK 07. Or any luminaire with an IP level between IP 54 and IP 66	Any luminaire with an IP level equal or over IP 66 and an IK level equal or above IK 08

- (3) A luminaire is considered smart ready if it can integrate an IoT solution. An open smart solution is a Nema or Zagha-D4I socket.
- (4) This factor ensures that it is feasible and practical for a professional to access components after the luminaire has been put into service.
- (5) The replacement parts should be the same as the originals, but if this is not possible, equivalent spare parts that perform the same function to the same or higher performance level may be used.
- (6) The disassembly depth is the minimum number of steps required to remove a component from a product.
- (7) The criteria focuses on the luminaire's main parts (body and reflector) with materials recognised by Schröder Group staff and R-Tech.



The product obtained a score between 0 and 30

It was designed to be cost-efficient



The product obtained a score between 30 and 60

It was built to last but not with circular economy requirements



The product obtained a score between 60 and 90

It was developed to meet most of circular economy requirements



The product obtained a score between 90 and 120

It was developed to fully meet circular economy requirements