

LED Flux measurement

FORM-L-41 ED1 REV 2

Date : **16-01-19**

Operator : **FCE**

Filename : **2019_64.xml**



226 - TEST

NBN EN ISO/IEC 17025 : 2005

LEDs

Trademark : **Samsung**

Entry number : **39R006-4**

Type : **LH351C**

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

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

Flux : **0** lm/LED

Part number : **Unknown**

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

Number of LEDs : **16**

Lenses

Trademark : **None**

Type : **None**

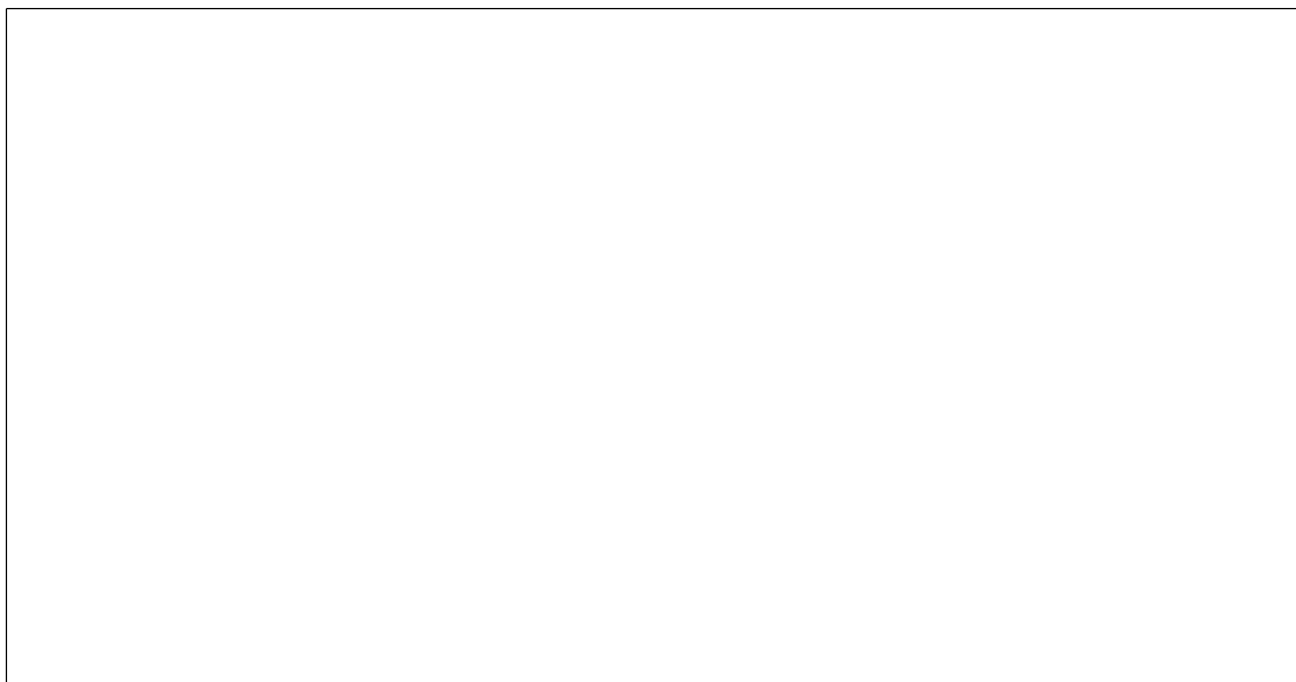
Power & Print

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

Print description : **00-71-627 A - Voltana 2**

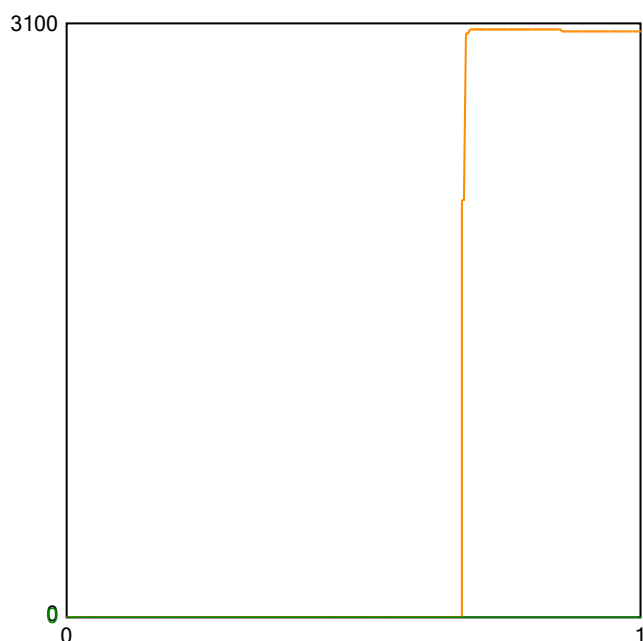
Active ☐

Picture



Sphere photometric measurement

Maximum flux : **3074** lumens



Operating condition

Position in sphere :

Ambient sphere T ° : **24,3**

Electrical measurement

● Secondary electrical measurement

Voltage : **44,90** V

Current : **0,350** A

Power : **15,70** Watt

→ LEDs light efficiency at 25° :

195,9 lm/W

192,1 lm/Led

● Primary electrical measurement

Voltage : **N/A** V

Current : **N/A** A

Power : **N/A** Watt

Cos φ : **N/A**

→ Driver losses : **N/A** %

→ LEDS & Driver light efficiency :

N/A lm/W

Description :

Flux @25°/350mA - pcb Voltana 2 - 16 Samsung LH351C - pcb N°4

Comment :

FORM-L-41 ED1 REV 2



226 - TEST

Approved by :

LED 2019/64 2/3



226 - TEST

NBN EN ISO/IEC 17025 : 2005

Colorimetry

File Preset Options Extra Calibration Info

Preset: CRI

Auto: ref. illuminant - Planckian radiator CCT= 3862 K

Auto: ref. illuminant - Planckian radiator, CCT= 3862 K

Chromaticity difference DC= 6.4E-4

CRI color samples

JIS color sample

Re= 72.23 (mean value of R1 - R8)

Re= 62.33 (mean value of R1 - R15)

Target

Calibration File: #1 no accessory

Measurement Mode: Radiance

Weighting Function: None

Average: 1

Measurement

Cont. 50

Hold integration Time

Quick mode

Transfer data to table

auto

Luminance L_v 5.033E+2 $\frac{cd}{m^2}$

Radiance (500-750nm) L_e 1.427E+0 $\frac{W}{m^2}$

Corr. Color Temp CCT 3863 K

Chromaticity x 0.3863 y 0.3792

Chromaticity u' 0.2280 v' 0.5035

QUT

RTECH-PHOTOMETRY LABORATORY

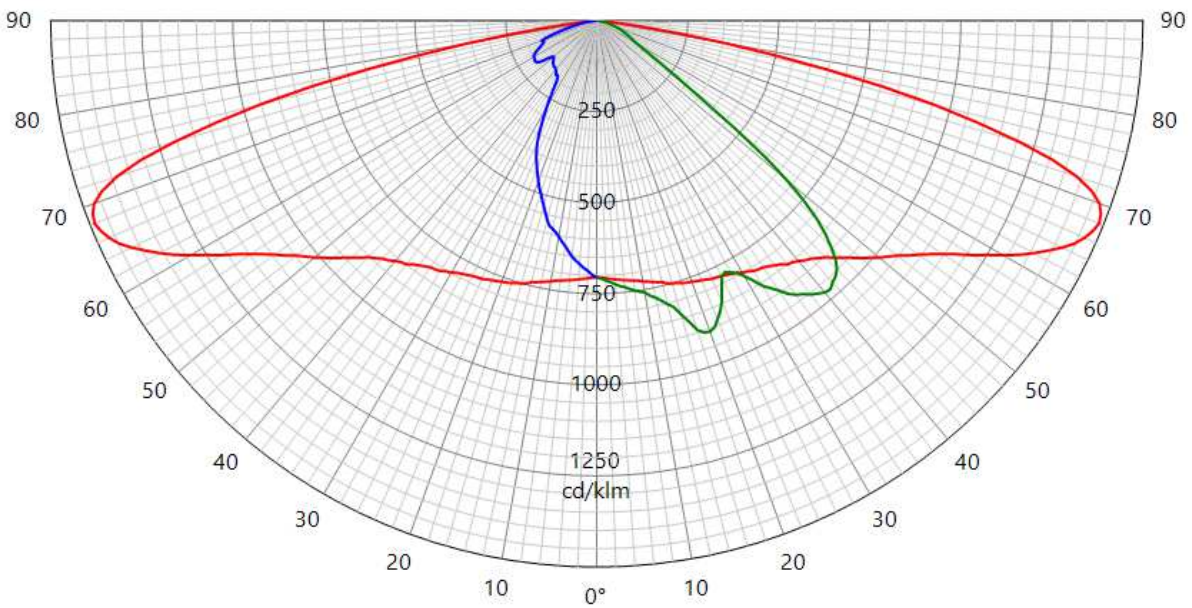
Testreport : Measurement of luminous intensity distribution related to the standard
NBN-EN 13032-1; NBN-EN 13032-4; CIE 121-1996; CIE S 025/E; IES LM-79-08 and procedures PT-P-01
and PT-P-02
rue de Mons, 3 B-4000 LIEGE - Tel : 04/224.71.40 - Fax : 04/224.25.90
Measurement for Schröder group.

LED

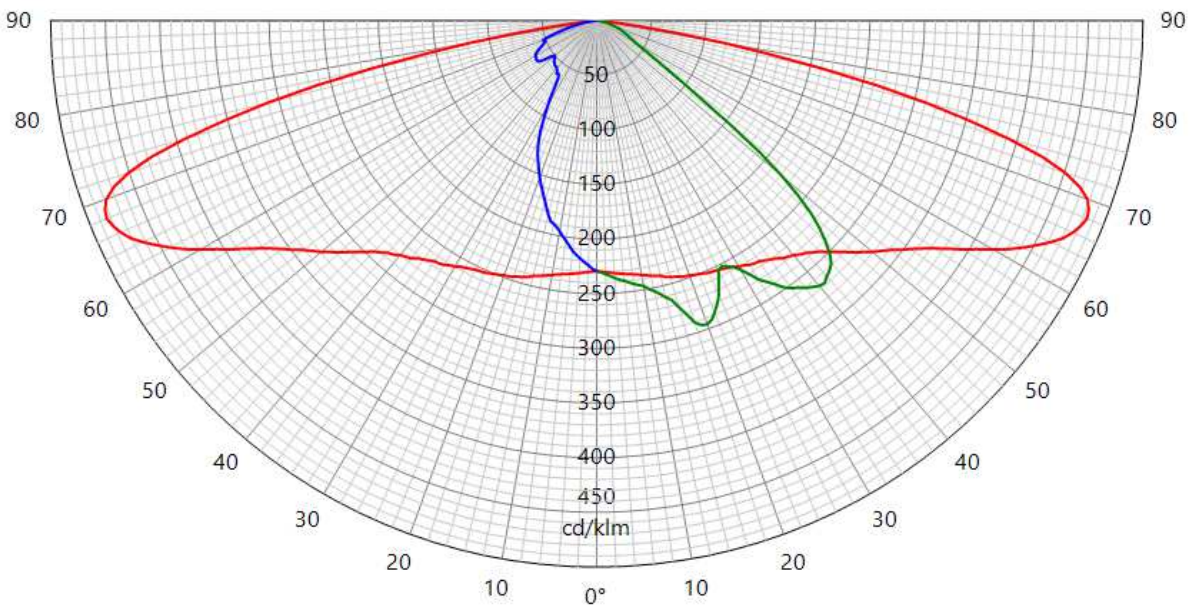
Origin TUNGSRAM-Schröder Zrt. Hungary	Production TUNGSRAM-Schröder Zrt. Hungary	Luminaire VOLTANA 2	Inclination 0°	Request # FD39014
Type LED	BIN 40-70M-4-TB-RB	Source Trademark Samsung	Reference LH351C	# LEDs 16
Master -	Reflector Schröder Led assembly Road lighting Assembled 0.0°			Reflector 5248
Protector Refractor Lens				
Protector Glass Extra Clear Flat Smooth				
Lens Gaggione 5248 PMMA				
Laboratory observation				
VOLTANA 2 with 16 SAMSUNG LH351C Used flux for efficiency matrix calculation = 3074 lm - CCT = 3863 K - CRI = 72,23 (see sphere test report 2019/64 on appendix).				
Purpose DOC	Sample date 08-01-2019		Sample # 39R006	
Observation				
DOC VOLTANA 2 with lenses 5248				
Flux coefficient multiplicator (only for efficiency matrix): From 350 to 500 mA : 1,380 From 350 to 700 mA : 1,840 From 350 to 1000 mA : 2,453				
Fixture powered with driver Osram OT40/120-277/1A0 4DIM LT2E for matrix @350/500/700mA Fixture powered with driver Philips Xitanium LP 75W 0,3 - 1,0A SNLDAE 230V C133 sXt for matrix @1000mA				
Notes				
The publication of this report in another form than the original one is not allowed without agreement of the laboratory. This report concerns type tests on one or a series of specimens.				

Asked by RCA	Measured by BMA	Approved by RLABO	Appendix 1	  226-TEST NBN EN ISO/IEC 17025 : 2005	42481
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LUMINOUS INTENSITY DIAGRAM

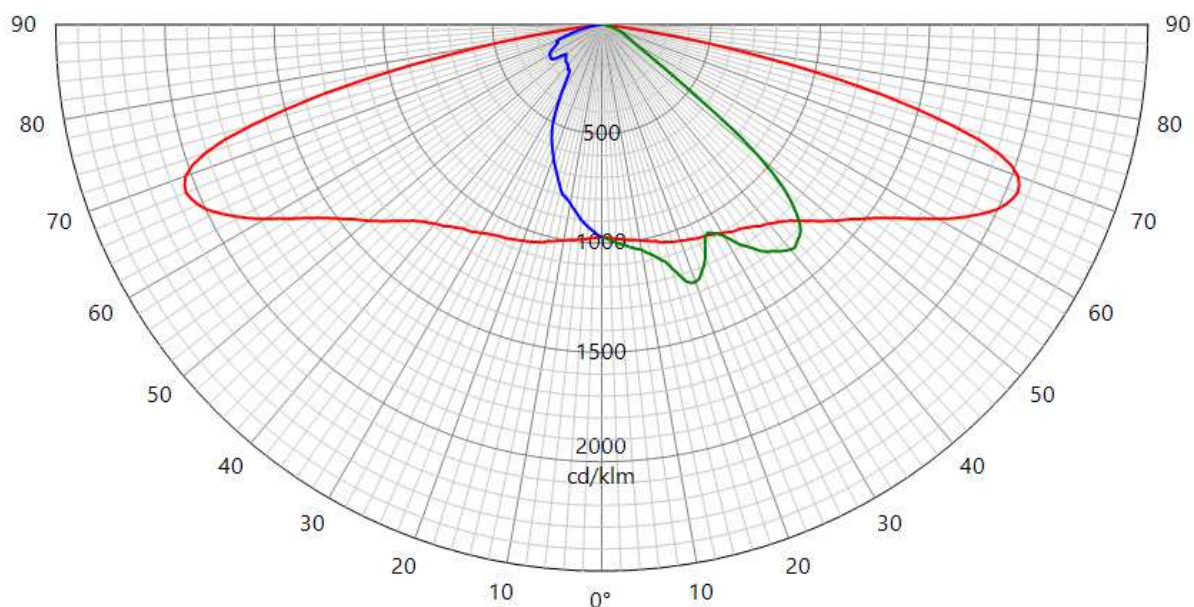
Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 2		Inclination 0°		Request # FD39014	
Source	Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung	Reference LH351C	# LEDs 16	Reflector 5248			
Reflector	Schreder Led assembly Road lighting Assembled 0.0°					No		5248	
Matrices	424811 Φ 0-90° = 2512lm - 90-180° = 0lm					Absolute measurement			
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5248 PMMA								
Observation	Matrix in total flux @350 mA Light losses due to thermal stabilization: 1 % Electrical measurement on LED (#1) : Voltage = 44.68 V Current = 0.350 A Power = 15.61 W Electrical measurement on driver (#1) : Voltage = 230.00 V Current = 0.091 A Power = 18.91 W PF = 0.902 Total luminaire power = 18.91 W : Lm/Watt = 132.86 lm/W Driver #1 : See observations for driver details - PCB 00-71-627 A								
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date			
15 - 165	1488	68	S	705	25.4°	31-01-2019			
90	978	41	D						
270	705	0	G						
									
									42481

LUMINOUS INTENSITY DIAGRAM

Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 2		Inclination 0°	Request # FD39014
Source	Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung	Reference LH351C	# LEDs 16	Reflector 5248	
Reflector	Schreder Led assembly Road lighting Assembled 0.0°					No	5248
Matrices	424812 η 0-90° = 81.7% - 90-180° = 0.0%						Relative measurement
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5248 PMMA						
Observation	Matrix in efficiency @350 mA Light losses due to thermal stabilization: 1 % Electrical measurement on LED (#1) : Voltage = 44.68 V Current = 0.350 A Power = 15.61 W Electrical measurement on driver (#1) : Voltage = 230.00 V Current = 0.091 A Power = 18.91 W PF = 0.902 Total luminaire power = 18.91 W Driver #1 : See observations for driver details - PCB 00-71-627 A						
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	
15 - 165	484	68	S	229	25.4°	31-01-2019	
90	318	41	D				
270	229	0	G				
							
							42481

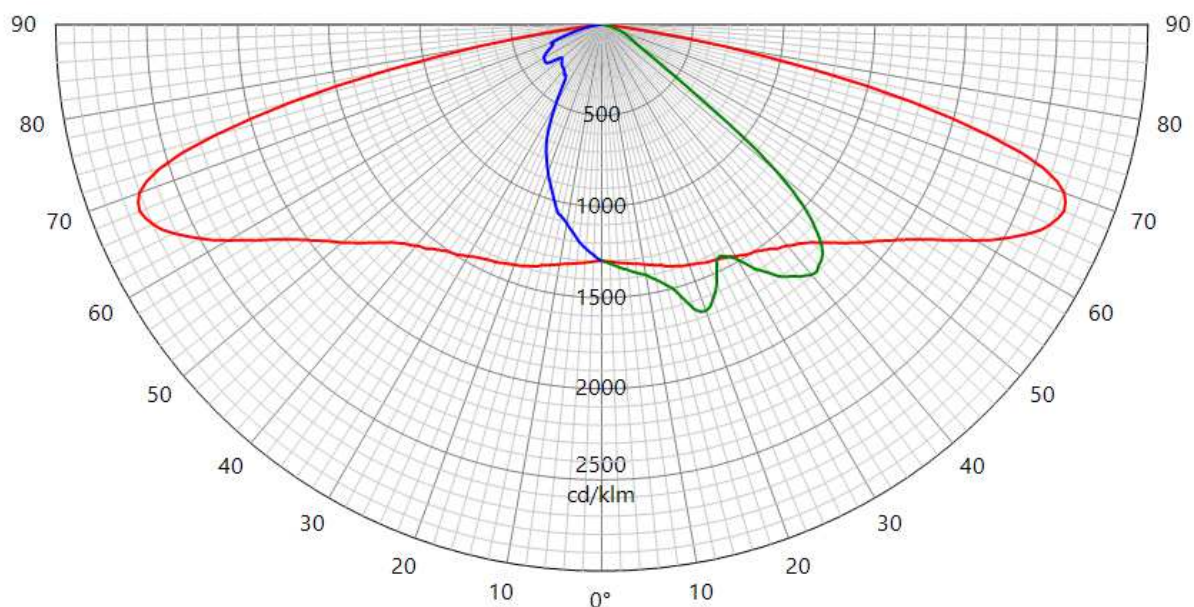
LUMINOUS INTENSITY DIAGRAM

Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 2		Inclination 0°	Request # FD39014
Source	Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung	Reference LH351C	# LEDs 16	Reflector 5248	
Reflector	Schröder Led assembly Road lighting Assembled 0.0°					No	5248
Matrices	424813 Φ 0-90° = 3467lm - 90-180° = 0lm						Absolute measurement
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5248 PMMA						
Observation	Matrix in total flux @500 mA Light losses due to thermal stabilization: 1,5 % Electrical measurement on LED (#1) : Voltage = 45.54 V Current = 0.500 A Power = 22.74 W Electrical measurement on driver (#1) : Voltage = 230.00 V Current = 0.120 A Power = 26.40 W PF = 0.954 Total luminaire power = 26.40 W : Lm/Watt = 131.33 lm/W Driver #1 : See observations for driver details - PCB 00-71-627 A						
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	
15 - 165	2053	68	S				
90	1349	41	D	973	25.4°	31-01-2019	
270	973	0	G				

**42481**

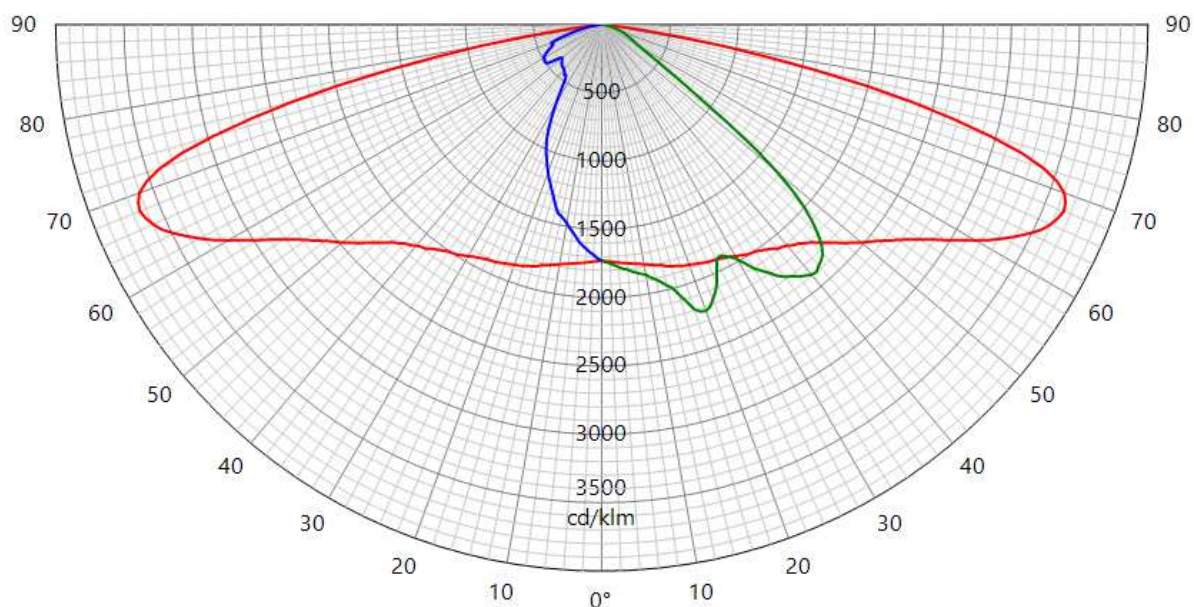
LUMINOUS INTENSITY DIAGRAM

Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 2		Inclination 0°		Request # FD39014		
Source	Type LED	BIN 40-70M-4-TB-RB		Trademark Samsung		Reference LH351C		# LEDs 16	Reflector 5248	
Reflector	Schreder Led assembly Road lighting Assembled 0.0°								No	5248
Matrices	424814	Φ 0-90° = 4623lm - 90-180° = 0lm							Absolute measurement	
Protector Refractor Lens		Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5248 PMMA								
Observation		Matrix in total flux @700 mA								
		Light losses due to thermal stabilization: 2,6 %								
		Electrical measurement on LED (#1): Voltage = 46.53 V Current = 0.700 A Power = 32.52 W								
		Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.165 A Power = 36.87 W PF = 0.973								
		Total luminaire power = 36.87 W : Lm/Watt = 125.38 lm/W								
Driver #1 : See observations for driver details - PCB 00-71-627 A										
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°		Measurement date			
15 - 165	2737	68	S							
90	1799	41	D							
270	1297	0	G							

**42481**

LUMINOUS INTENSITY DIAGRAM

Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 2		Inclination 0°	Request # FD39014
Source	Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung	Reference LH351C	# LEDs 16	Reflector 5248	
Reflector	Schröder Led assembly Road lighting Assembled 0.0°					No	5248
Matrices	424815 Φ 0-90° = 6163lm - 90-180° = 0lm Absolute measurement						
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 2 Lens 16 x Gaggione 5248 PMMA						
Observation	Matrix in total flux @1000 mA Light losses due to thermal stabilization: 3,6 % Electrical measurement on LED (#1) : Voltage = 47.84 V Current = 1.000 A Power = 47.84 W Electrical measurement on driver (#1) : Voltage = 230.00 V Current = 0.236 A Power = 53.37 W PF = 0.982 Total luminaire power = 53.37 W : Lm/Watt = 115.47 lm/W Driver #1 : See observations for driver details - PCB 00-71-627 A						
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
15 - 165	3649	68	S				
90	2398	41	D	1729	25.4°	31-01-2019	
270	1729	0	G				

**42481**

CONFORMITY STATEMENT

Measurement fulfil Standards:

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

Measurement quantities measured:

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

Electrical measurement, if not specified:

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

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

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

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

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

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

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

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

Intensity measurement: +/- 3%

Angle: +/- 0.5°

Flux: +/- 2.5%

Electrical DC

Power: +/- 0.25%

Voltage: +/- 0.15%

Current: +/- 0.15%

Electrical AC

Power: +/- 0.15%

Voltage: +/- 0.3%

Current: +/- 0.3%

Temperature: +/- 0.65%

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

lm/Watt: +/-3.5%

Measuring instruments in use:

Gonio 1

Type C with Moving mirror

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

Type: GO-DS 2000

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

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

Gonio 2

Type C

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

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

Photometric test distance: Near Field

Sphere n°1

4p geometry

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

Type: UL2000 + U1000 V-Lambda photometer

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

Sphere n°2

4p geometry

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

Type ISP2000 + Spectroradiometer CAS120 and CAS140

Calibration: traceable to NIST

Colorimetric portable spectroradiometer

Manufacturer: JETI Technische Instrumente GmbH, Tatzendpromenade 2 07745 Jena

Type: SPECBOS 1201

Calibration: traceable to NIST

Multimeters

Manufacturer: Agilent

Type: 34401A

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

Wattmeters

Manufacturer: Yokogawa

Type: WT210 and WT310

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

Thermometers

Amarell Precision

Type: Liquid in glass N63833

Calibration: traceable to LBT (Laboratoire Belge de Thermométrie)

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**

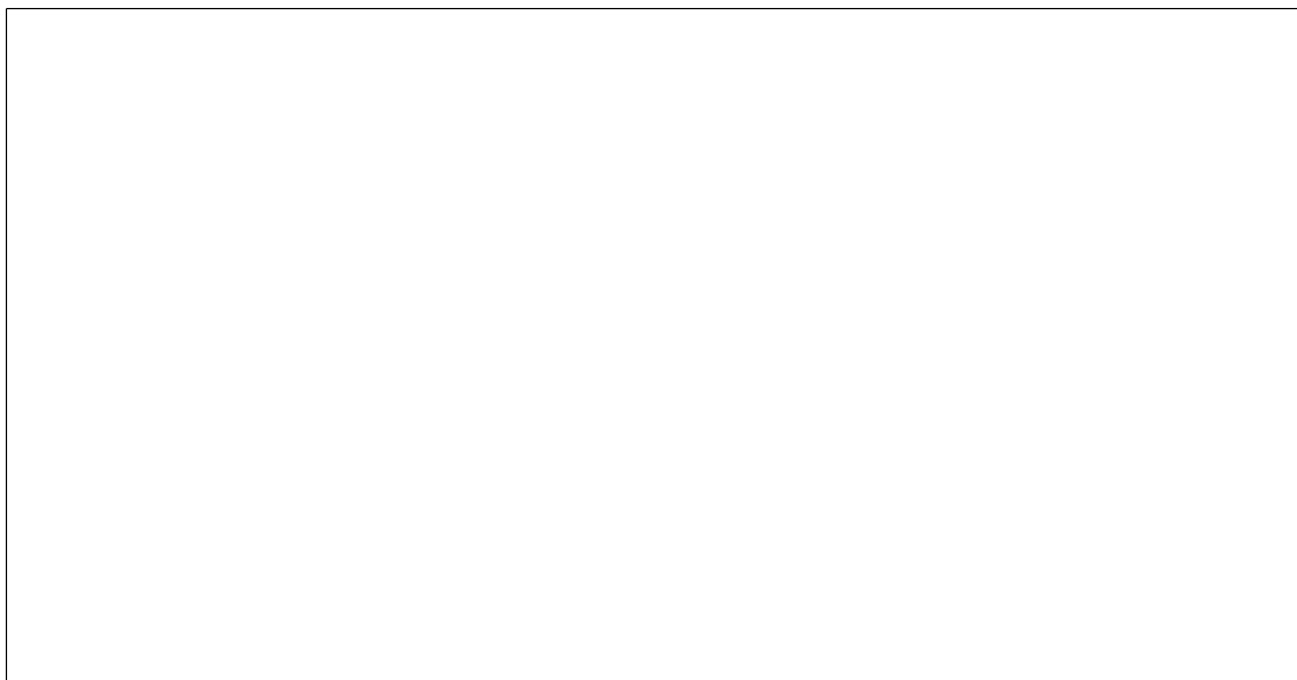
Power & Print

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

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

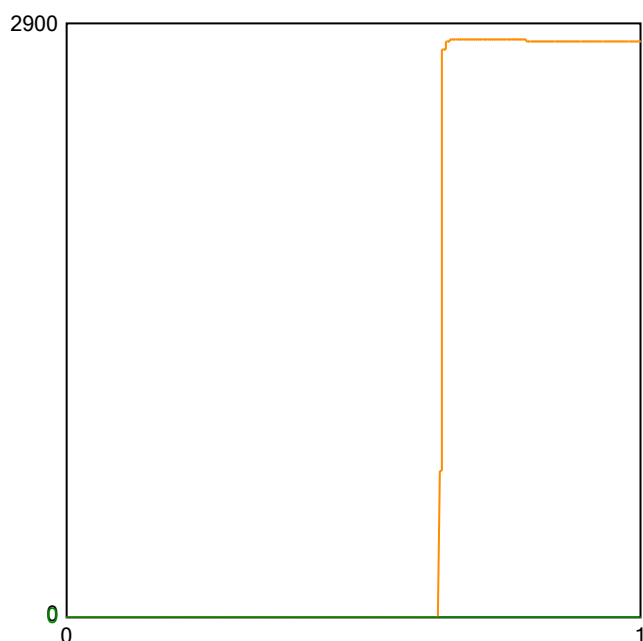
Active ☐

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

Colorimetry



226-TEST

NBN EN ISO/IEC 17025 :2017

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)

MEASUREMENT (radiance)

Average 1

Target

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

to Table ☒ auto to Ref. to PDF

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.

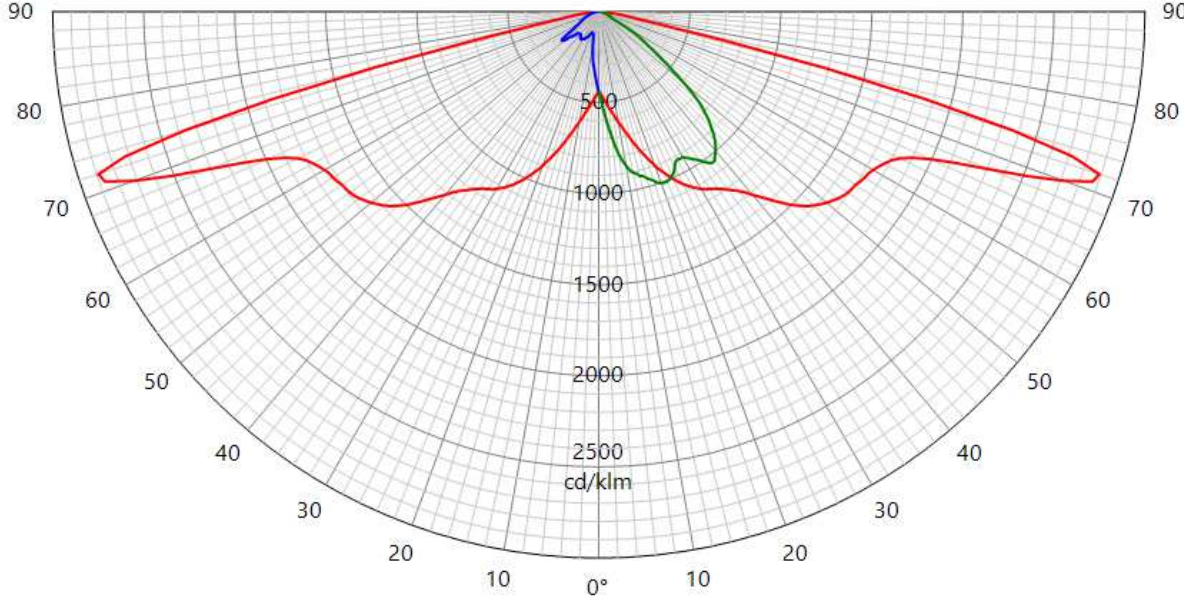
LED

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 No
Schreder Led assembly Road lighting Assembled 0,0°				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				
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Asked by RCA	Measured by KDE	Approved by RLABO	Appendix 1	  226-TEST NBN EN ISO/IEC 17025 :2017	48123
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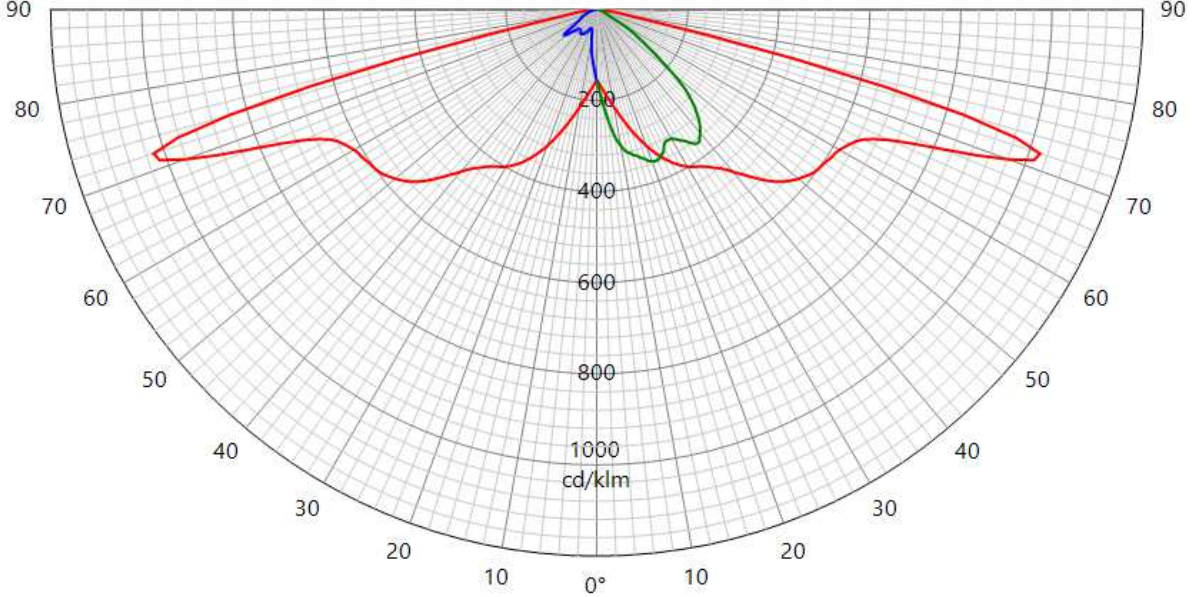
LUMINOUS INTENSITY DIAGRAM

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 441	Laboratory ambient t° 24,7°	Measurement date 02-02-2021	
20 - 160	2891	72	S				
90	1039	37	D				
270	441	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	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				
							
							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	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	Laboratory ambient t°	Measurement date	
20 - 160	1726	72	S	263	24,7°	02-02-2021	
90	620	37	D				
270	263	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	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				

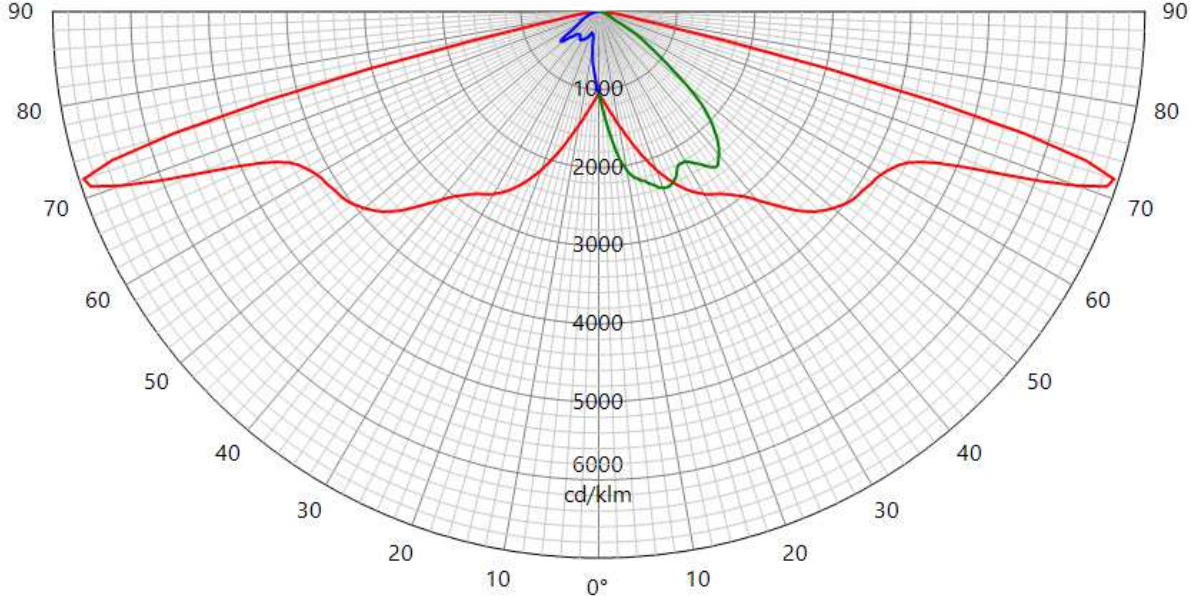
48123

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	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				

LUMINOUS INTENSITY DIAGRAM

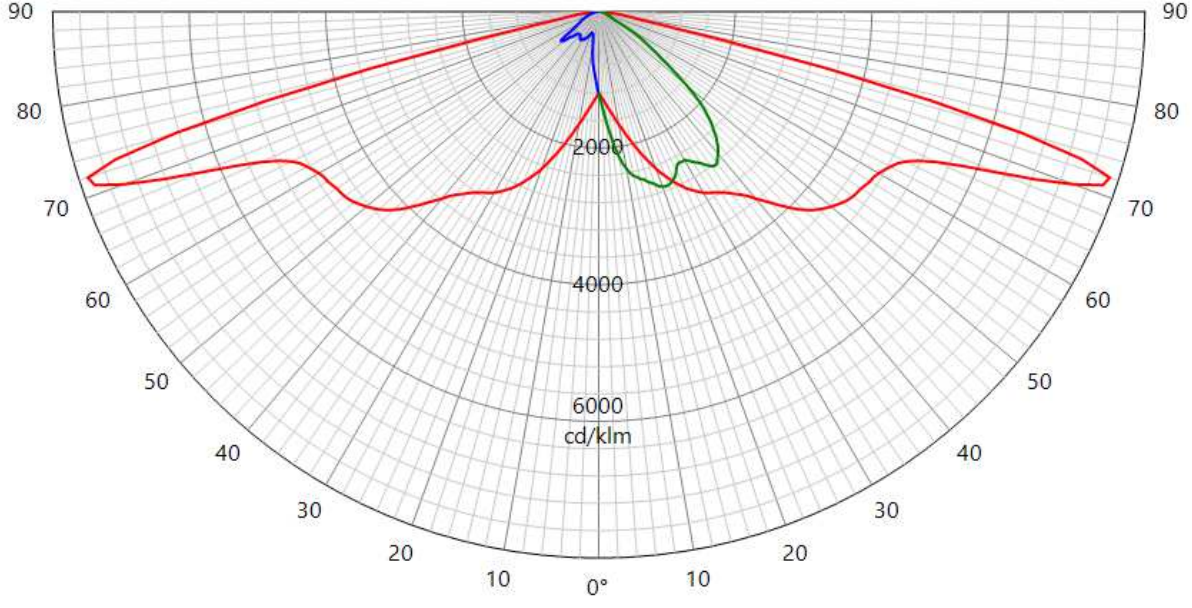
Origin Schröder Magyarország Zrt.		Production Schröder Magyarország Zrt.		Luminaire VOLTANA EVO 1		Inclination 0°	Request # FD41030
Source	Type LED	BIN N6	Trademark Osram	Reference OSLON SQUARE GIANT	# LEDs 16	Reflector 5270	
Reflector	Schröder Led assembly Road lighting Assembled 0,0°					No	5270
Matrices	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 1059	Laboratory ambient t° 24,7°	Measurement date 02-02-2021	
20 - 160	6940	72	S				
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 1200	Laboratory ambient t° 24,7°	Measurement date 02-02-2021	
20 - 160	7868	72	S				
90	2828	37	D				
270	1200	0	G				



48123

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

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**

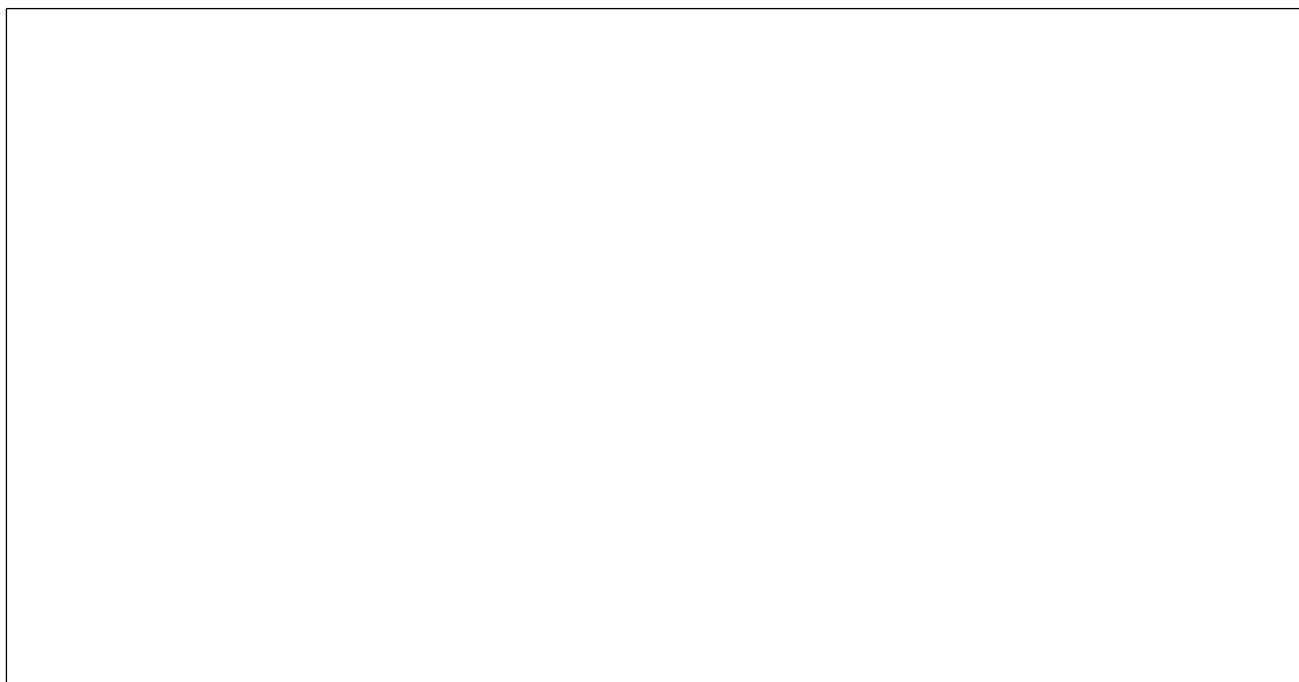
Power & Print

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

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

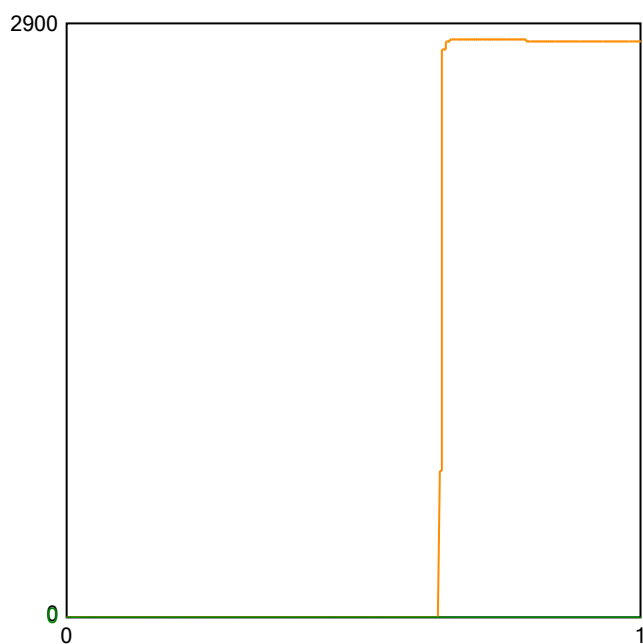
Active ☐

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

Colorimetry



226-TEST

NBN EN ISO/IEC 17025 :2017

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)

MEASUREMENT (radiance)

Average 1

Target

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

to Table ☒ auto to Ref. to PDF

Quit

Weighting Function: None

LED 2021/94

RTECH-PHOTOMETRY LABORATORY

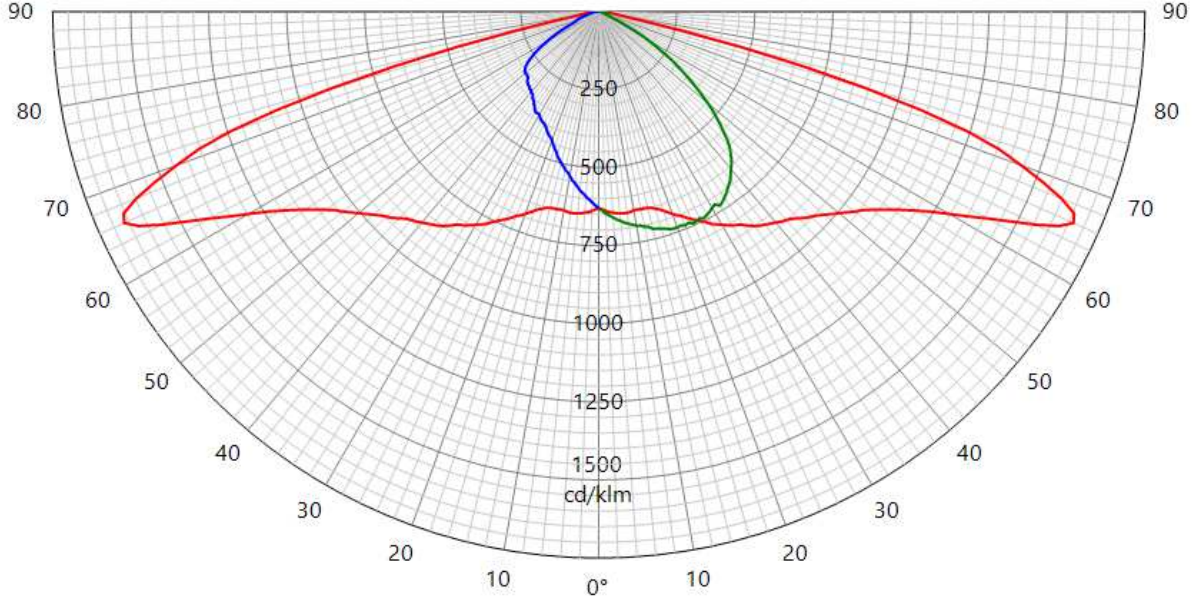
Testreport : Measurement of luminous intensity distribution related to the standard
NBN-EN 13032-1; NBN-EN 13032-4; CIE 121-1996; CIE S 025/E; IES LM-79-08 and procedures PT-P-01
and PT-P-02
rue de Mons, 3 B-4000 LIEGE - Tel : 04/224.71.40 - Fax : 04/224.25.90
Measurement for Schröder group.

LED

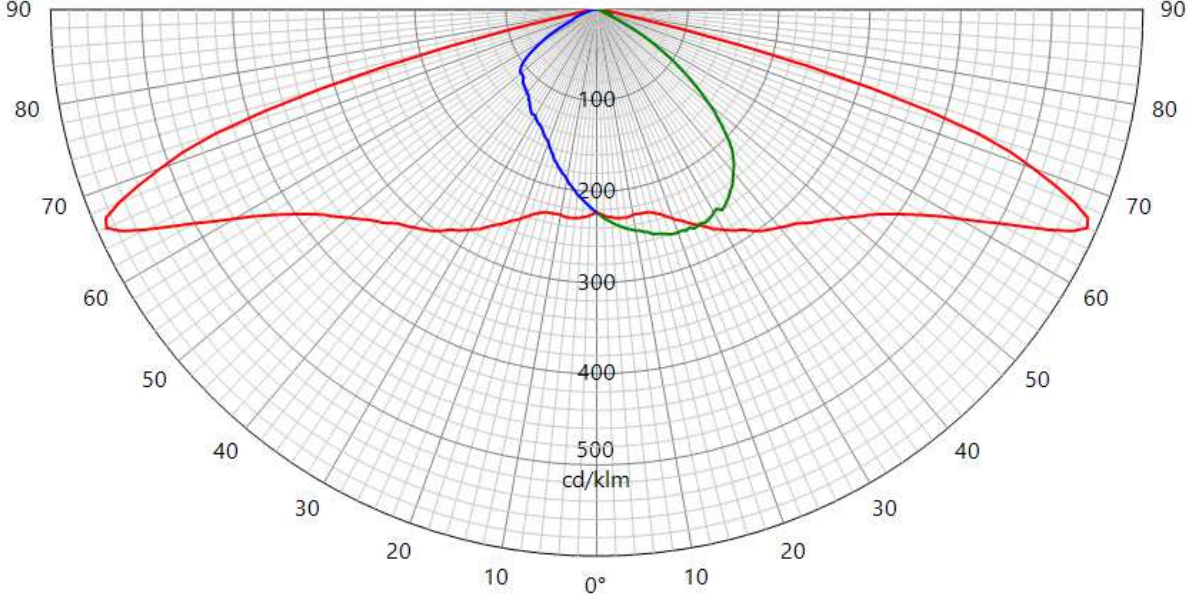
Origin Schröder Magyarország Zrt.	Production Schröder Magyarország Zrt.	Luminaire VOLTANA EVO 1	Inclination 0°	Request # FD41030
Source				
Type LED	BIN N6	Trademark Osram	Reference OSLON SQUARE GIANT	# LEDs 16
Reflector Schreder Led assembly Medium Assembled 0,0°				No 5294
Protector Refractor Lens				
Protector integrated lenses Lens Gaggione 5294 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 5294 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	48125
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LUMINOUS INTENSITY DIAGRAM

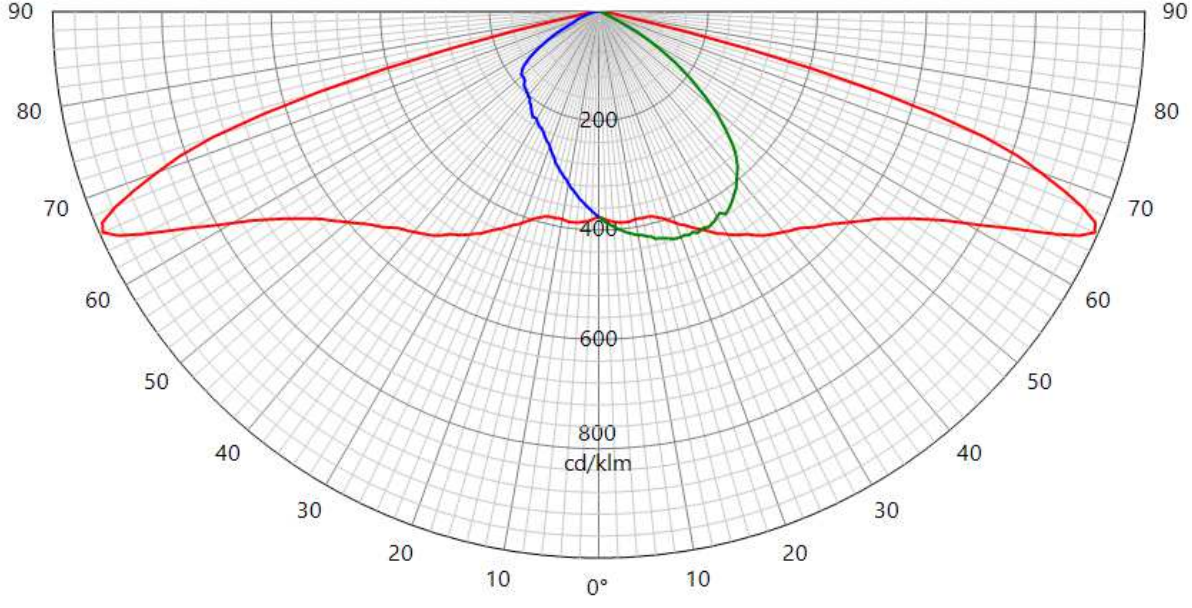
Origin Schröder Magyarország Zrt.		Production Schröder Magyarország Zrt.		Luminaire VOLTANA EVO 1		Inclination 0°	Request # FD41030
Source	Type LED	BIN N6	Trademark Osram	Reference OSLON SQUARE GIANT	# LEDs 16	Reflector 5294	
Reflector	Schröder Led assembly Medium Assembled 0,0°					No	5294
Matrices	481251 Φ 0-90° = 2598lm - 90-180° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5294 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 = 141,72 lm/W						
Driver #1 : See observations for driver details - . . 00-57-060B							
Plane	I Peak	Peak position	Index	I zero 630	Laboratory ambient t° 24,7°	Measurement date 02-02-2021	
20 - 160	1665	66	S				
90	743	24	D				
270	630	0	G				
							
							48125

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 5294	
Reflector	Schröder Led assembly Medium Assembled 0,0°					No	5294
Matrices	481252 η 0-90° = 92,0% - 90-180° = 0,0%					Relative measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5294 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	590	66	S	223	24,7°	02-02-2021	
90	263	24	D				
270	223	0	G				
							
							48125

LUMINOUS INTENSITY DIAGRAM

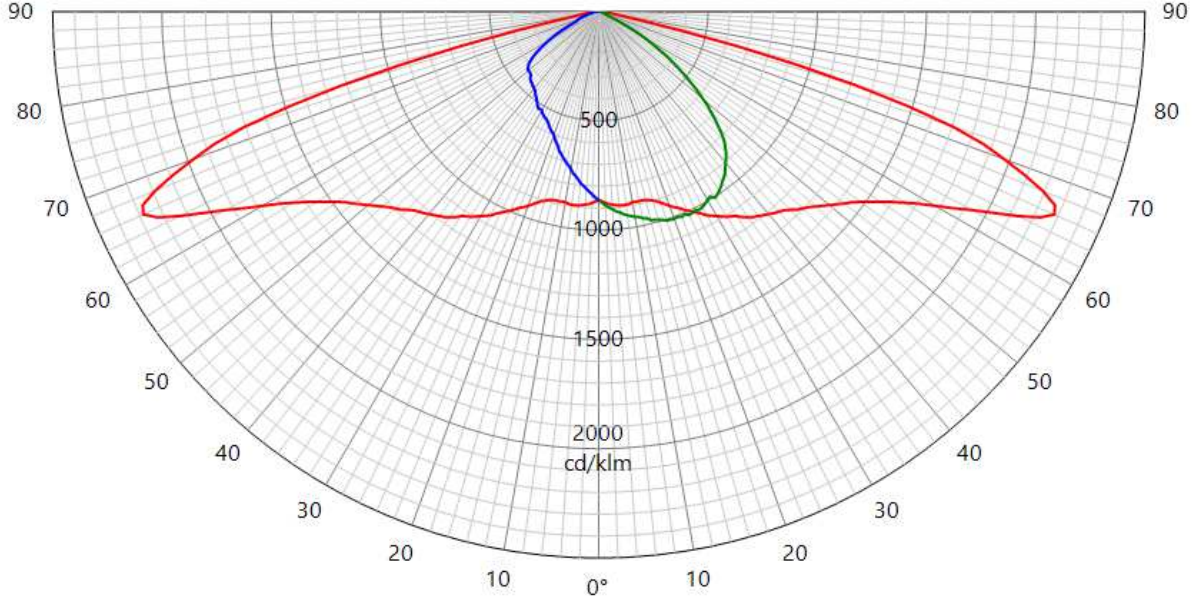
Origin Schröder Magyarország Zrt.		Production Schröder Magyarország Zrt.		Luminaire VOLTANA EVO 1		Inclination 0°		Request # FD41030	
Source		Type LED	BIN N6	Trademark Osram		Reference OSLON SQUARE GIANT		# LEDs 16	Reflector 5294
Reflector		Schröder Led assembly Medium Assembled 0,0°						No	5294
Matrices		481253 Φ 0-90° = 1551lm - 90-180° = 0lm						Absolute measurement	
Protector Refractor Lens		Protector integrated lenses Lens 16 x Gaggione 5294 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 = 137,97 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	994	66	S	376	24,7°	02-02-2021			
90	443	24	D						
270	376	0	G						



48125

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 5294	
Reflector	Schreder Led assembly Medium Assembled 0,0°					No	5294
Matrices	481254 Φ 0-90° = 3561lm - 90-180° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5294 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 = 139,06 lm/W						
Driver #1 : See observations for driver details - . . 00-57-060B							
Plane	I Peak	Peak position	Index	I zero 863	Laboratory ambient t° 24,7°	Measurement date 02-02-2021	
20 - 160	2283	66	S				
90	1018	24	D				
270	863	0	G				

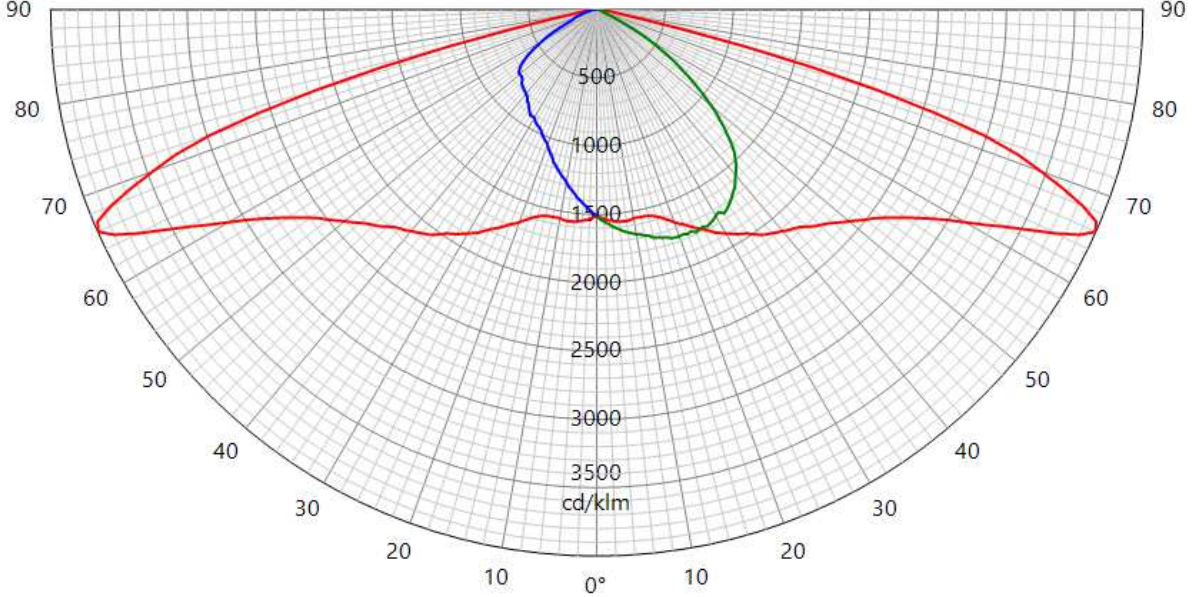


48125

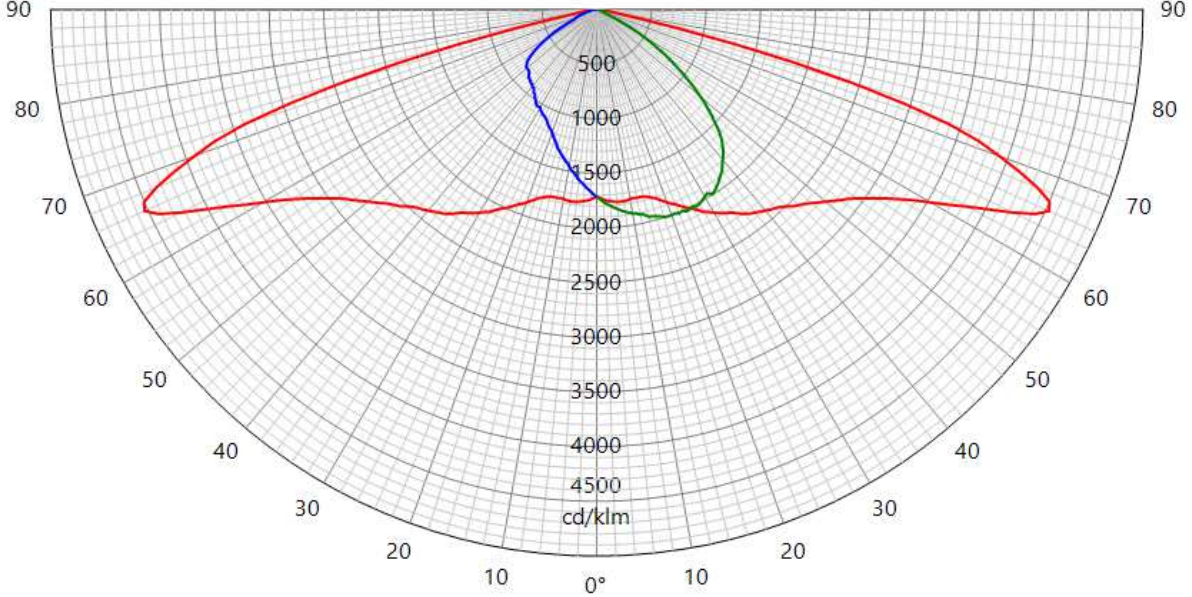
LUMINOUS INTENSITY DIAGRAM

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 5294	
Reflector	Schröder Led assembly Medium Assembled 0,0°					No	5294
Matrices	481255 Φ 0-90° = 4733lm - 90-180° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5294 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 = 132,35 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	3033	66	S	1147	24,7°	02-02-2021	
90	1353	24	D				
270	1147	0	G				
							48125

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 5294	
Reflector	Schröder Led assembly Medium Assembled 0,0°					No	5294
Matrices	481256 Φ 0-90° = 6237lm - 90-180° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5294 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 = 121,82 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	3997	66	S	1512	24,7°	02-02-2021	
90	1783	24	D				
270	1512	0	G				
							
							48125

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 5294	
Reflector	Schröder Led assembly Medium Assembled 0,0°					No	5294
Matrices	481257 Φ 0-90° = 7071lm - 90-180° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 16 x Gaggione 5294 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 = 114,82 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	4532	66	S	1714	24,7°	02-02-2021	
90	2021	24	D				
270	1714	0	G				
							
							48125

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

VOLTANA 2

5248

Optic	5248
Protector	Flat glass
Source	16 Samsung LH351C
Matrix	424812



Characteristics

518	240	109	4.6	IP 66	IK 08	I EU, II EU	0.019
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 Owllet range of control solutions

Types of application

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

Information for 1000 lm matrix

Efficacy (%)	81.7	G Class (EN 13201-2)	G2	I 70-80-90-95 (cd)	478 - 117 - X - X
DLOR (%)	81.7	G* (EN 13201 2015)	G*2	CIE flux code N 1→5 (%)	40.7 - 74.9 - 96.6 - 100.0 - 81.7
ULOR (%)	0.0	Imax (cd)	484	Gradient 90°	36cd
ULR (%)	0.0	Aperture 0-180°	52 - 52	Gradient 270°	8cd
Incl ULR 4%	-39/37°	Aperture 90-270°	7 - 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°						
16	NW 740	350	18	3136	2563	142	1518	B1 U0 G1	230
16	NW 740	500	26	4328	3537	136	2094	B1 U0 G1	230
16	NW 740	700	39	5770	4716	121	2792	B1 U0 G1	230
16	NW 740	1000	53	7693	6287	119	3723	B2 U0 G1	230
16	NW 740	1050	58	7981	6523	112	3862	B2 U0 G1	230
16	WW 730	350	18	2960	2419	134	1432	B1 U0 G1	230
16	WW 730	500	26	4085	3338	128	1977	B1 U0 G1	230
16	WW 730	700	39	5446	4451	114	2636	B1 U0 G1	230
16	WW 730	1000	53	7261	5934	112	3514	B2 U0 G1	230
16	WW 730	1050	58	7533	6157	106	3646	B2 U0 G1	230

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

Summary

CONCEPT

Family of 6 road LED luminaires

Recommended installation height: between 4.00 and 12.00m

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

HOUSING & FINISH

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

INSTALLATION

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

OPTICAL UNIT

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

LED lumen depreciation

- Lifetime residual flux @ 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

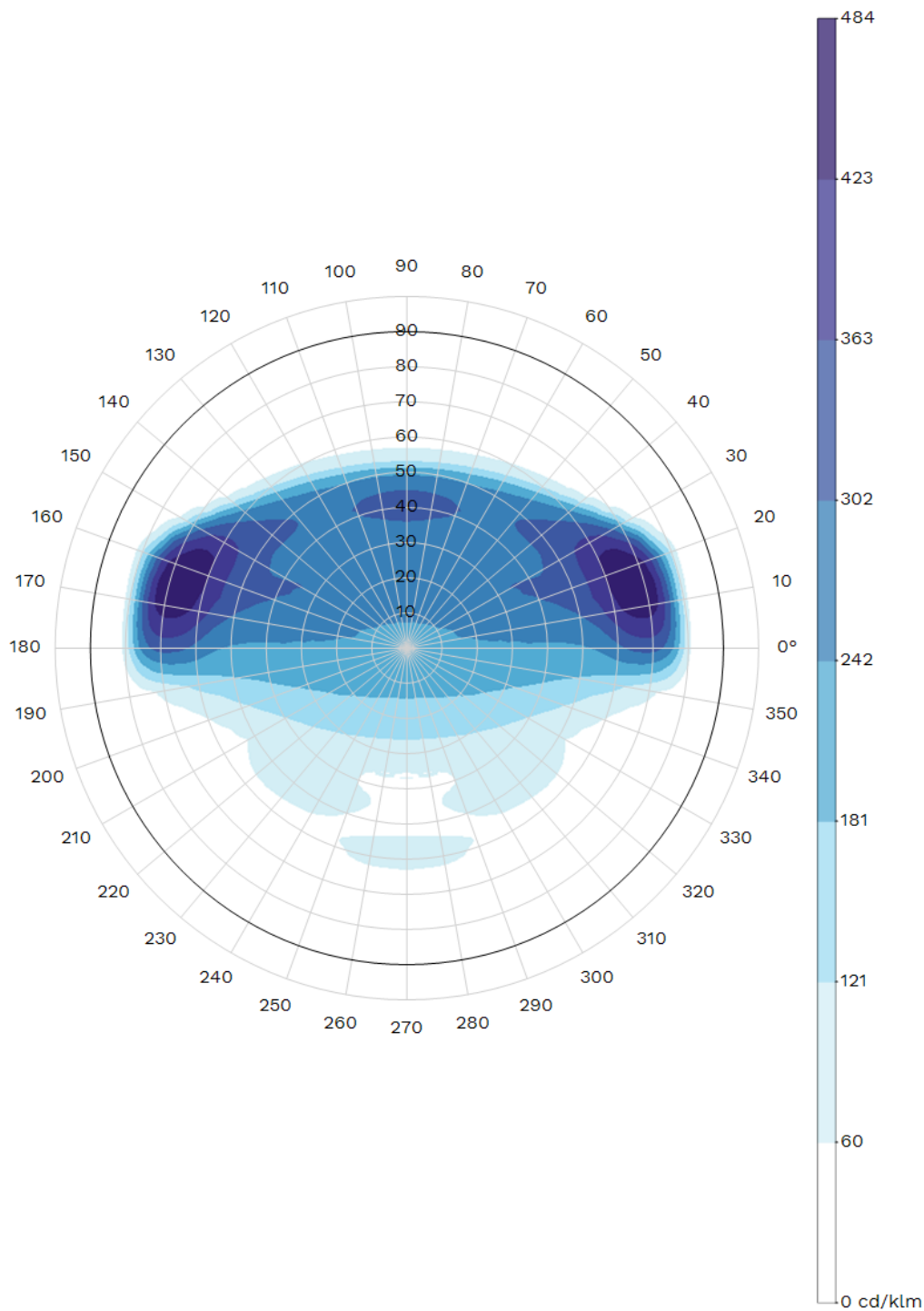
- Other RAL or AKZO colours
- Back Light control system
- OWLET remote management
- Custom dimming profile

VOLTANA 2 - 5248 - 16 Samsung LH351C - Flat glass - 424812

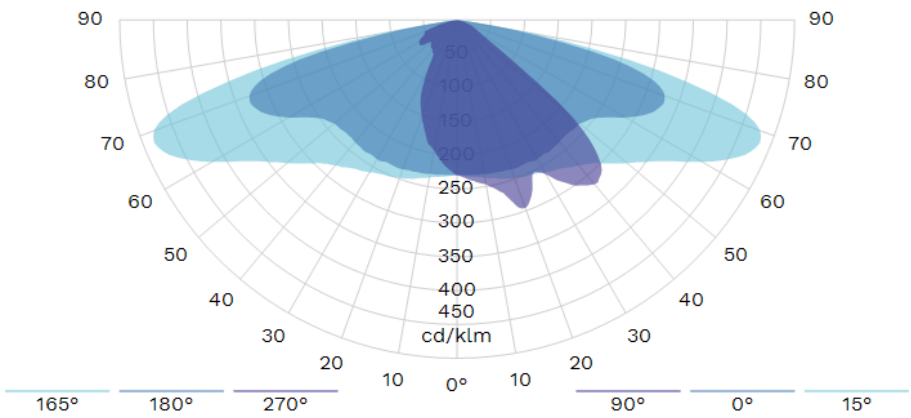
14/09/2022

Schröder

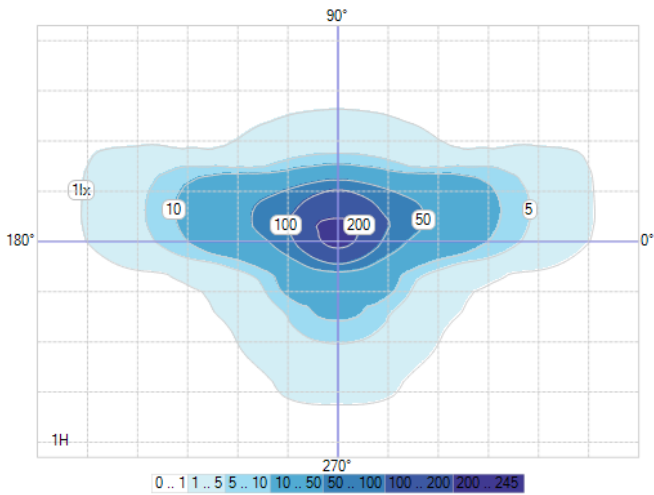
- Photocell



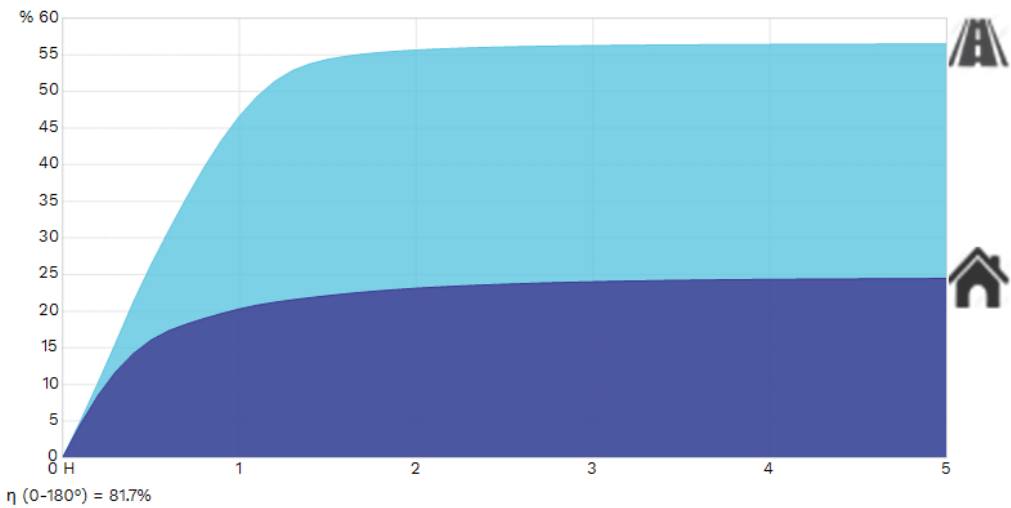
Polar/Cartesian diagram

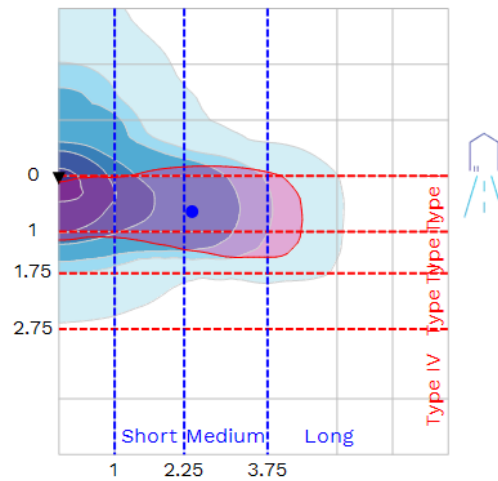


Isolux



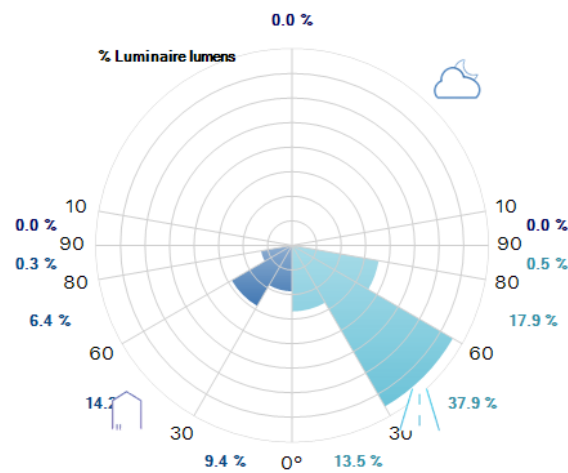
K-Curve



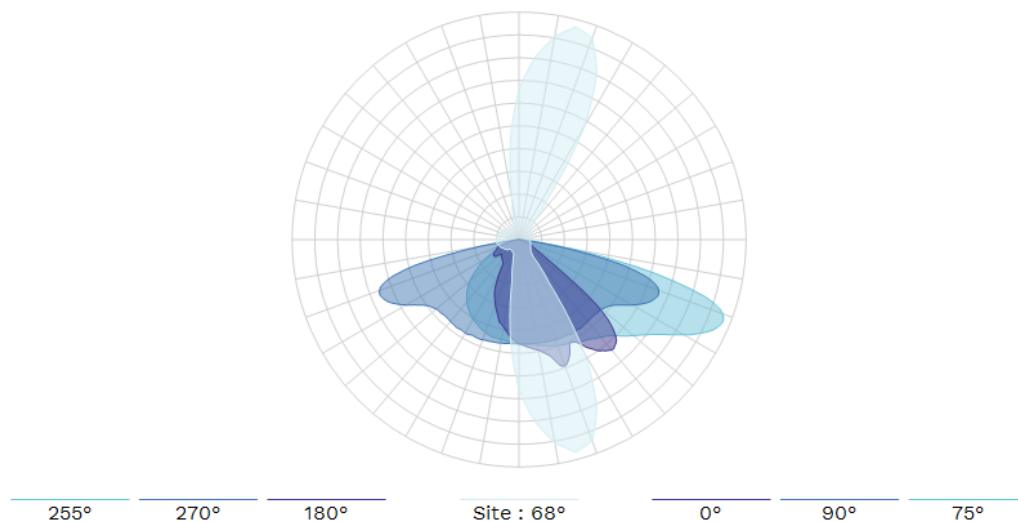


II - Medium

Luminaire classification system (LCS)



Intensity diagram in max Cone and in CPlane



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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

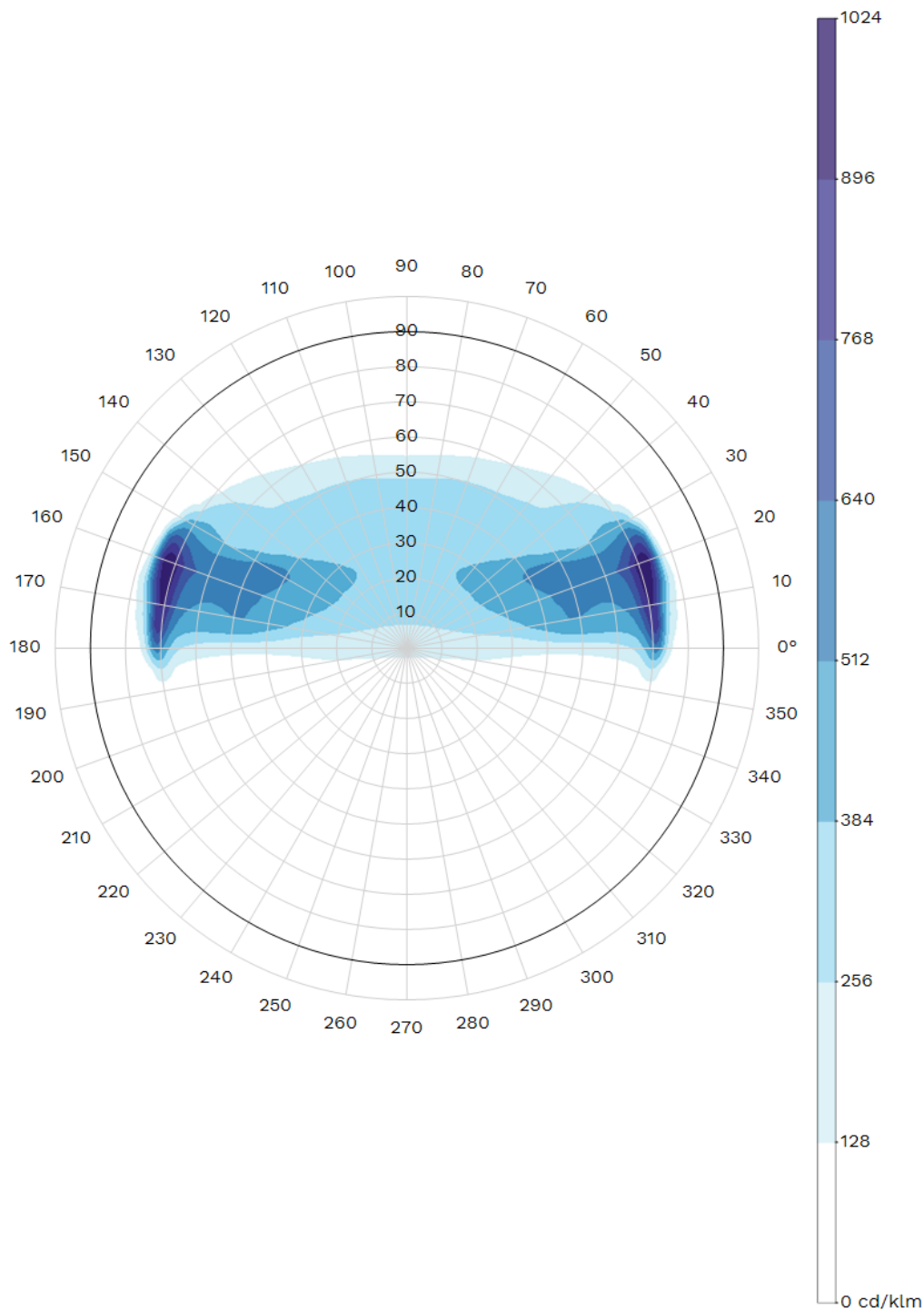
Efficacy (%)	90.7	G Class (EN 13201-2)	G3	I 70-80-90-95 (cd)	963 - 83 - X - X
DLOR (%)	90.7	G* (EN 13201 2015)	G*3	CIE flux code N 1→5 (%)	35.7 - 70.2 - 97.2 - 100.0 - 90.7
ULOR (%)	0.0	Imax (cd)	1024	Gradient 90°	24cd
ULR (%)	0.0	Aperture 0-180°	69 - 69	Gradient 270°	13cd
Incl ULR 4%	-41/34°	Aperture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

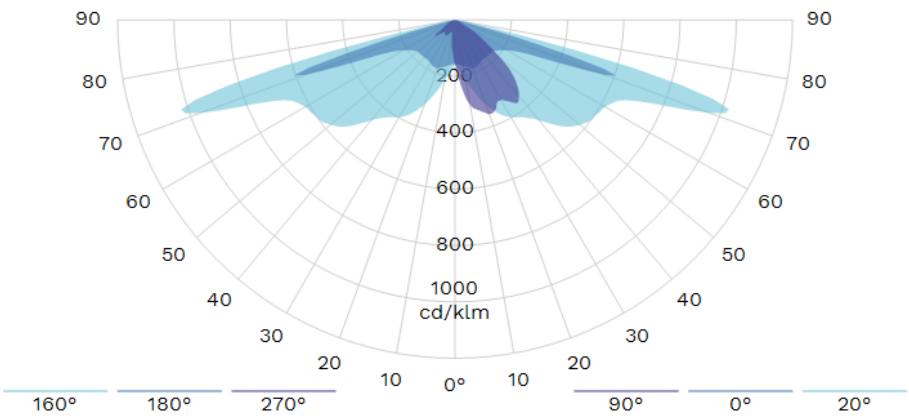
Photometrical characteristics

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

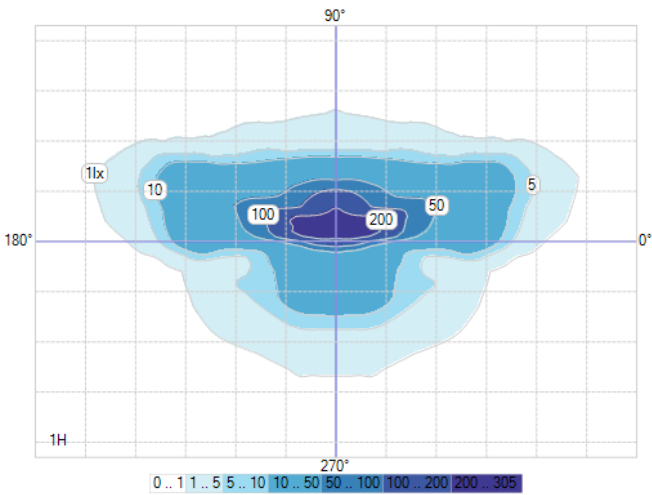
Tolerance on flux +- 7% - Tolerance on power +- 5%

Hypergon view

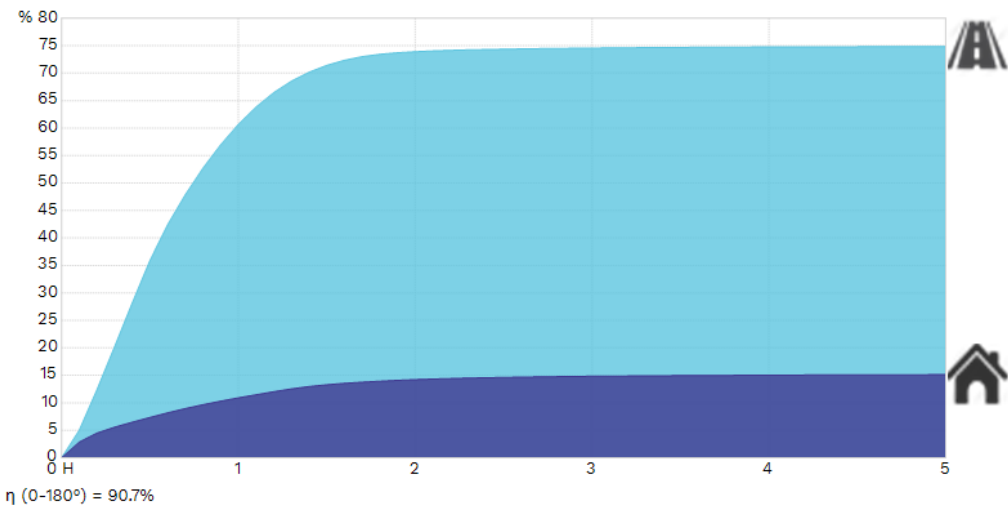




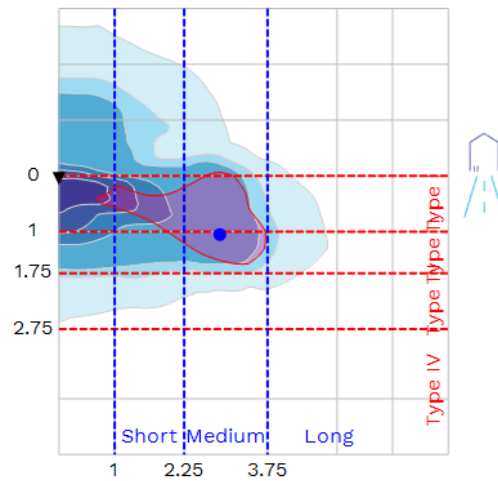
Isolux



K-Curve

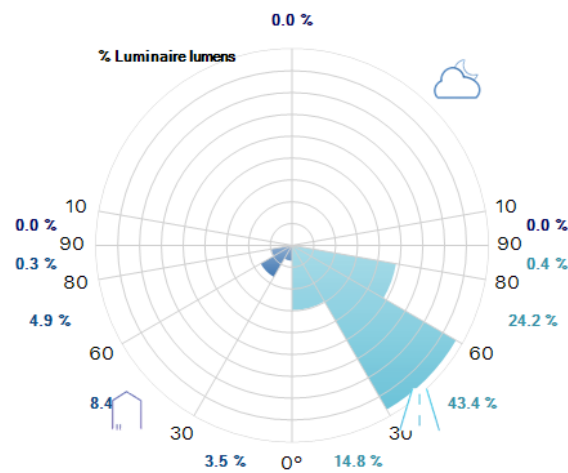


IES Roadway Classification / Nema Classification

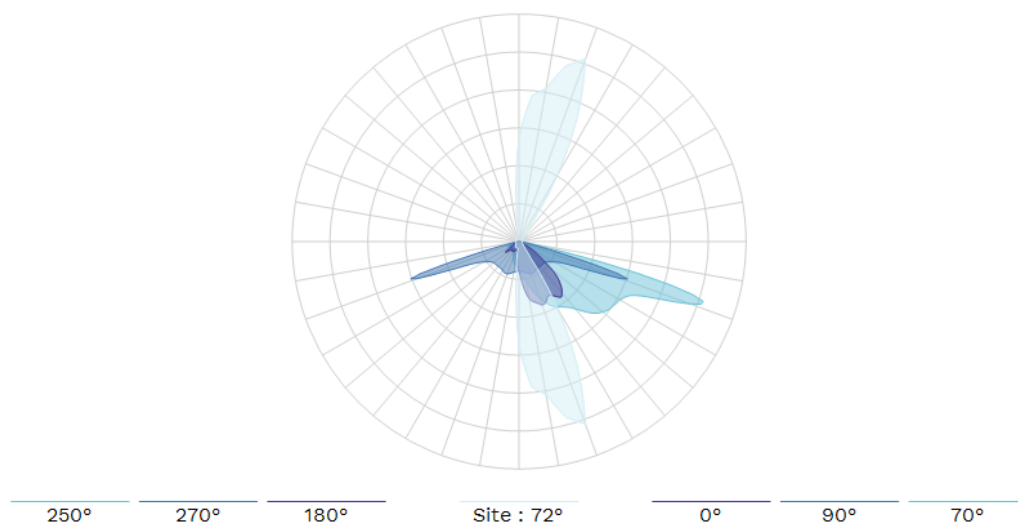


II - Medium

Luminaire classification system (LCS)



Intensity diagram in max Cone and in CPlane



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VOLTANA EVO 1

5294

Optic	5294
Protector	Integrated lenses
Source	8 Osram OSOLON SQUARE GIANT
Matrix	481252



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

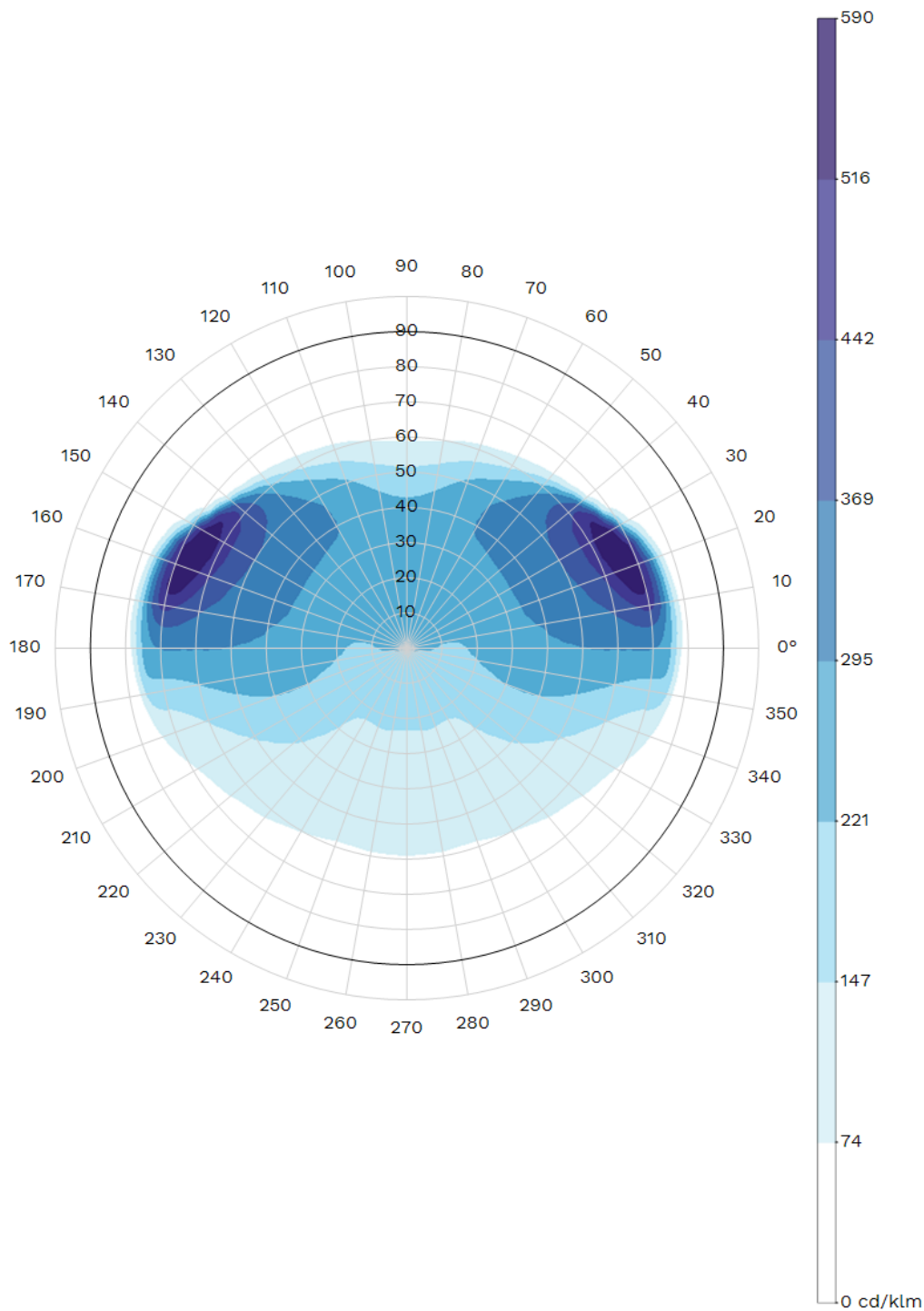
Efficacy (%)	92.0	G Class (EN 13201-2)	G3	I 70-80-90-95 (cd)	534 - 32 - X - X
DLOR (%)	92.0	G* (EN 13201 2015)	G*3	CIE flux code N 1→5 (%)	38.0 - 75.0 - 98.1 - 100.0 - 92.0
ULOR (%)	0.0	Imax (cd)	590	Gradient 90°	11cd
ULR (%)	0.0	Aperture 0-180°	51 - 51	Gradient 270°	7cd
Incl ULR 4%	-40/37°	Aperture 90-270°	X - X		

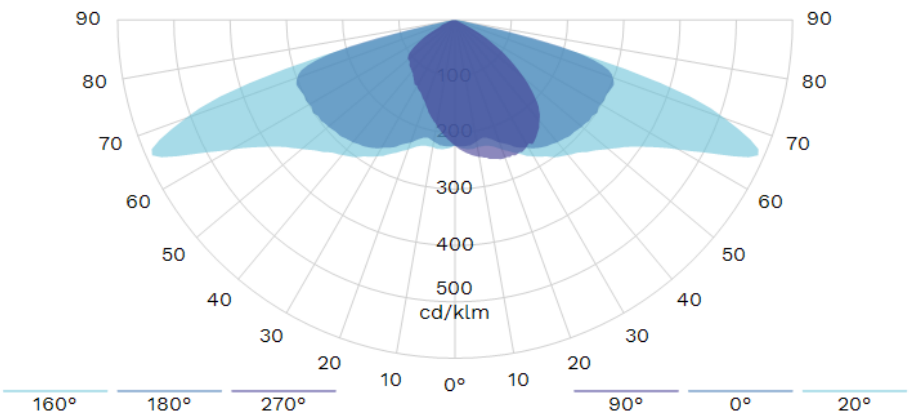
Photometrical characteristics

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	855	143	548	B0 U0 G0	230
8	NW 740	350	10	1552	1428	143	915	B1 U0 G0	230
8	NW 740	500	13	2128	1958	151	1255	B1 U0 G1	230
8	NW 740	700	18	2828	2602	145	1667	B1 U0 G1	230
8	NW 740	1050	28	3858	3550	127	2275	B1 U0 G1	230
8	NW 740	1250	36	4336	3990	111	2557	B1 U0 G1	230
8	NW 740	1400	40	4644	4273	107	2738	B1 U0 G1	230
8	WW 730	200	6	819	754	126	483	B0 U0 G0	230
8	WW 730	350	10	1368	1259	126	807	B1 U0 G0	230
8	WW 730	500	13	1876	1726	133	1106	B1 U0 G1	230
8	WW 730	700	18	2492	2293	127	1470	B1 U0 G1	230
8	WW 730	1050	28	3401	3129	112	2005	B1 U0 G1	230
8	WW 730	1250	36	3822	3517	98	2254	B1 U0 G1	230
8	WW 730	1400	40	4093	3766	94	2414	B1 U0 G1	230

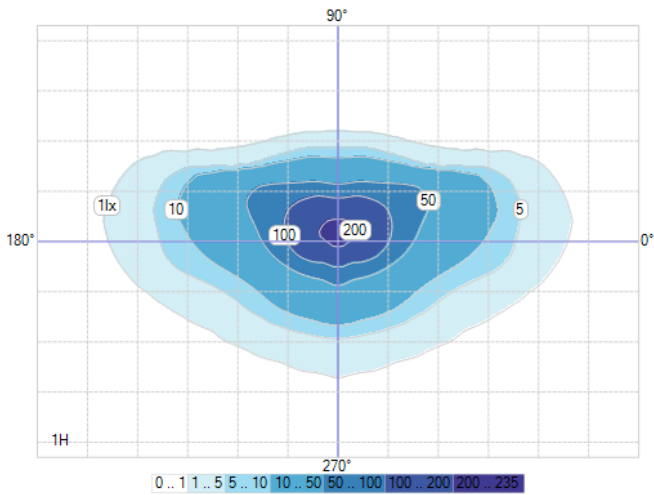
Tolerance on flux +- 7% - Tolerance on power +- 5%

Hypergon view

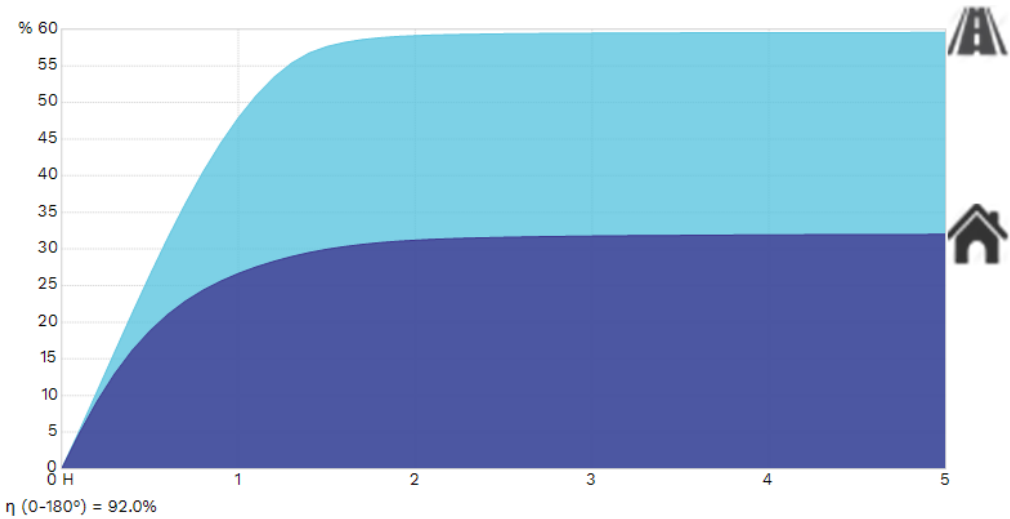




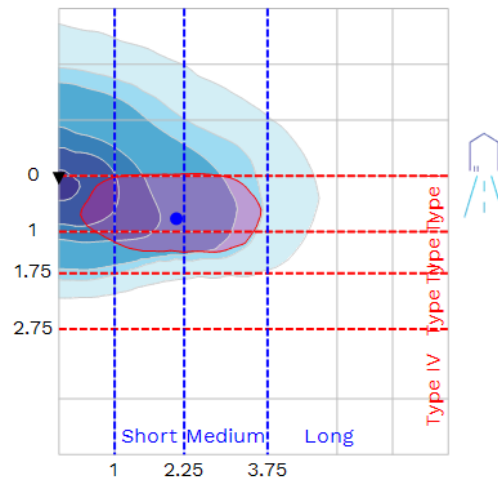
Isolux



K-Curve

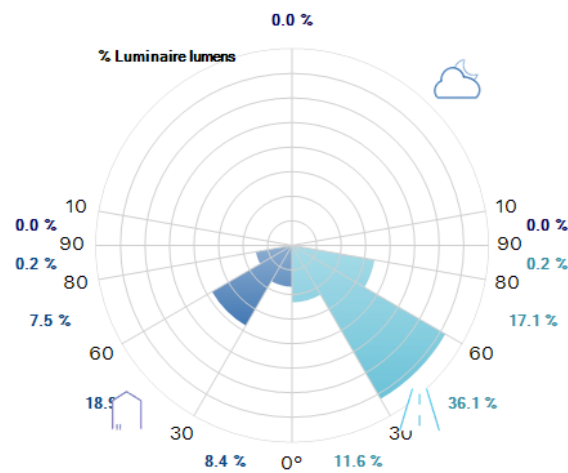


IES Roadway Classification / Nema Classification

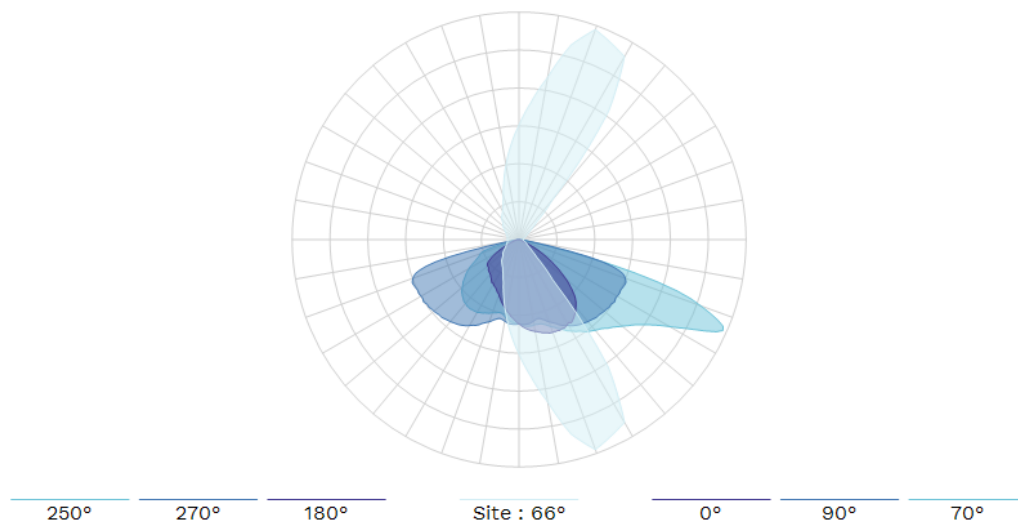


II - Short

Luminaire classification system (LCS)



Intensity diagram in max Cone and in CPlane



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VOLTANA EVO 1

5294

Optic	5294
Protector	Integrated lenses
Source	16 Osram OSOLON SQUARE GIANT
Matrix	481252



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

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- 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

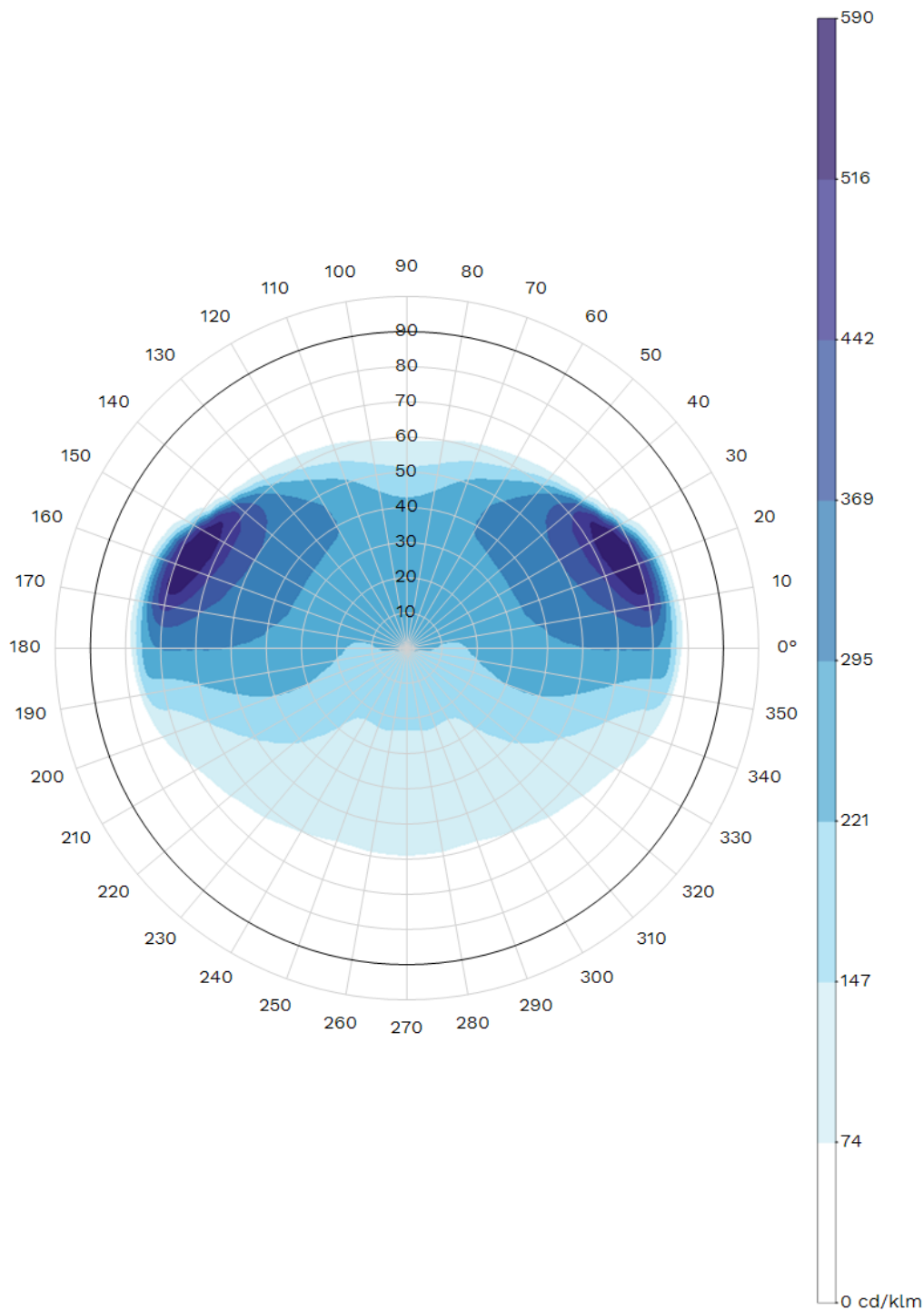
Efficacy (%)	92.0	G Class (EN 13201-2)	G3	I 70-80-90-95 (cd)	534 - 32 - X - X
DLOR (%)	92.0	G* (EN 13201 2015)	G*3	CIE flux code N 1→5 (%)	38.0 - 75.0 - 98.1 - 100.0 - 92.0
ULOR (%)	0.0	Imax (cd)	590	Gradient 90°	11cd
ULR (%)	0.0	Aperture 0-180°	51 - 51	Gradient 270°	7cd
Incl ULR 4%	-40/37°	Aperture 90-270°	X - X		

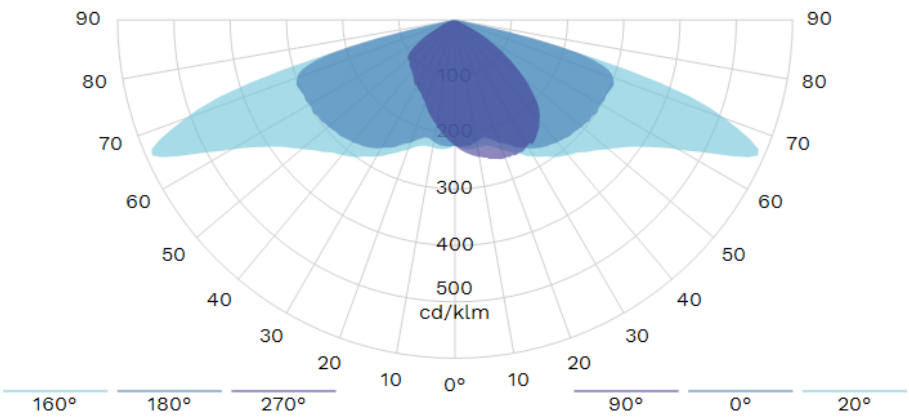
Photometrical characteristics

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°						
16	NW 740	200	11	1859	1711	156	1096	B1 U0 G1	230
16	NW 740	350	18	3104	2856	159	1830	B1 U0 G1	230
16	NW 740	500	26	4256	3916	151	2509	B1 U0 G1	230
16	NW 740	700	38	5655	5204	137	3335	B1 U0 G1	230
16	NW 740	1050	56	7717	7100	127	4550	B2 U0 G2	230
16	NW 740	1200	62	8449	7774	125	4982	B2 U0 G2	230
16	WW 730	200	11	1639	1508	137	966	B1 U0 G1	230
16	WW 730	350	18	2736	2517	140	1613	B1 U0 G1	230
16	WW 730	500	26	3751	3451	133	2212	B1 U0 G1	230
16	WW 730	700	38	4985	4587	121	2940	B1 U0 G1	230
16	WW 730	1050	56	6802	6258	112	4011	B2 U0 G1	230
16	WW 730	1200	62	7447	6852	111	4392	B2 U0 G2	230

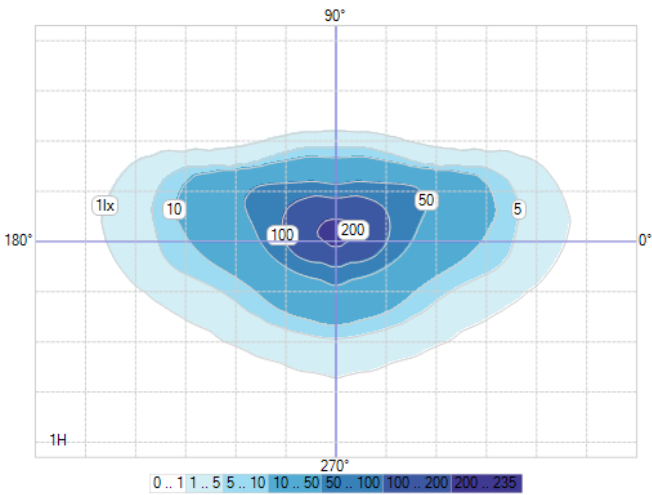
Tolerance on flux +- 7% - Tolerance on power +- 5%

Hypergon view

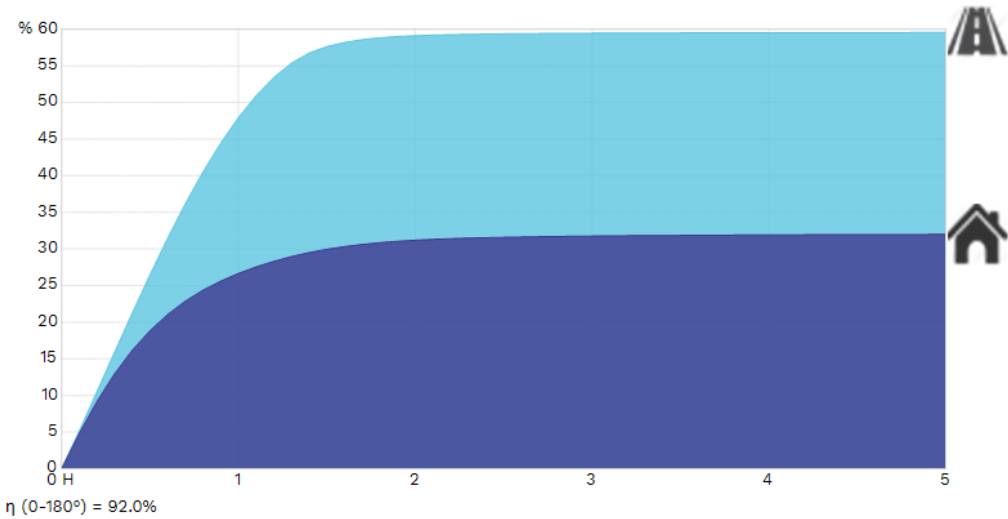




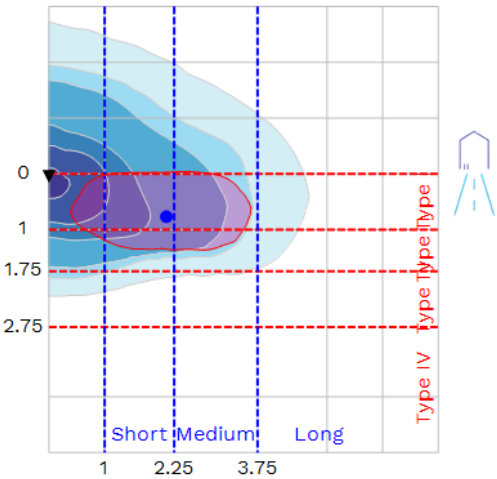
Isolux



K-Curve

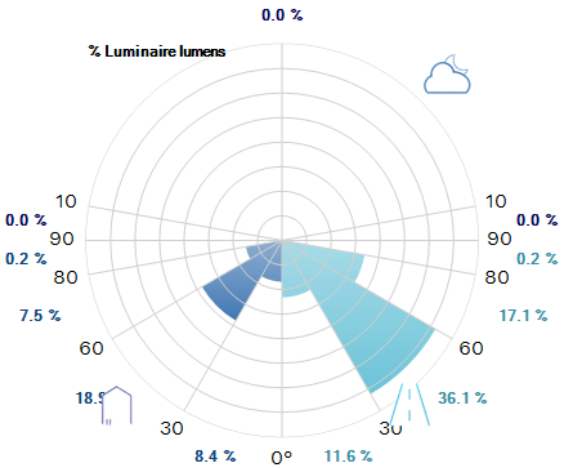


IES Roadway Classification / Nema Classification

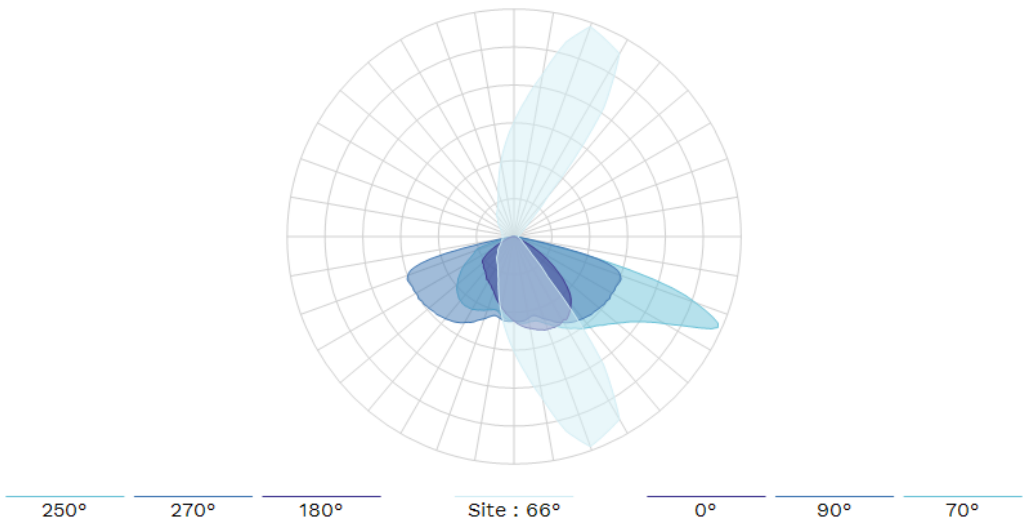


II - Short

Luminaire classification system (LCS)



Intensity diagram in max Cone and in CPlane



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