

Lumen maintenance report

LED information

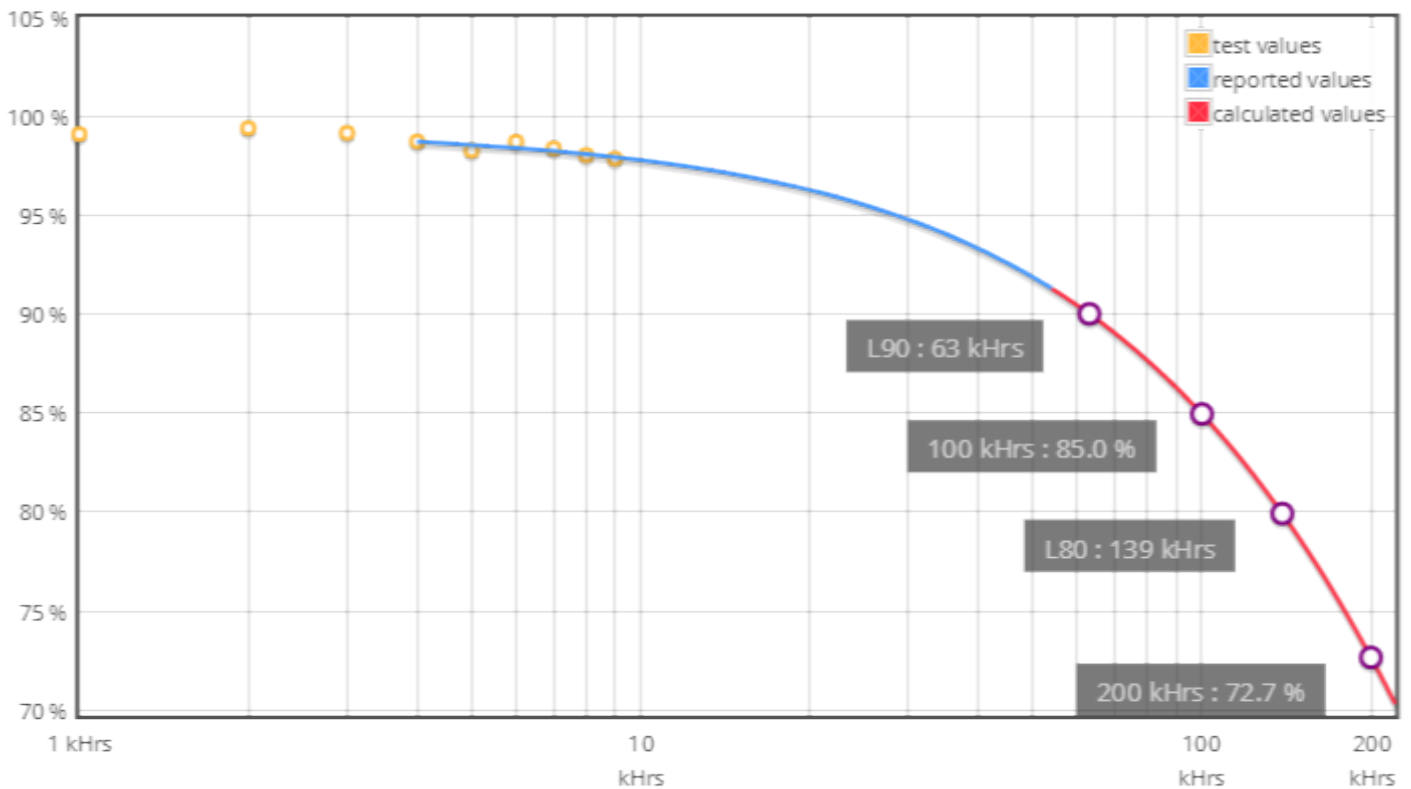
LED type 3535 Gen4
LED current 1000 mA
Ts 55°C
Description KILT1401-U00009-24

Projection data

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

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

Projection graphic



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

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

LED Flux measurement

FORM-L-41 ED1 REV 0

Date : **1/06/2016**

Operator : **FCE**

Filename : **2016_314.xml**



226 - TEST

NBN EN ISO/IEC 17025 : 2005

LEDs

Trademark : **LG Innotek**

Entry number : **36R138-1**

Type : **3535 Gen4**

Power (Catalogue) : **1.00** W

BIN Description : **Unknown NW**

Flux : **0** lm/LED

Part number : **Unknown**

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

Number of LEDs : **6**

Lenses

Trademark : **None**

Type : **None**

Power & Print

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

Print description : **skido**

Active

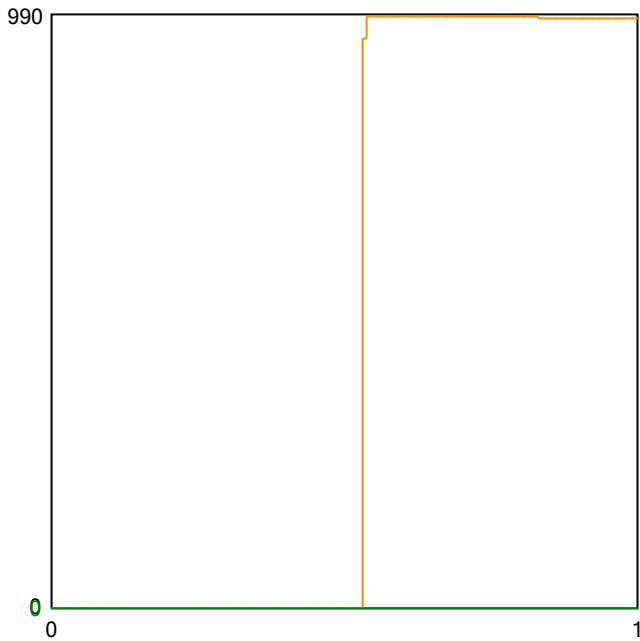
Picture



Sphere photometric measurement

Average flux : **466** lumens

Maximum flux : **990** lumens



Position in sphere :



Electrical measurement

● Secondary electrical measurement

Voltage : **17.36** V

Current : **0.350** A

Power : **6.07** Watt

→ LEDs light efficiency at thermal stabilization :

76.8 lm/W

77.7 lm/Led

→ LEDs light efficiency at 25° :

163.0 lm/W

164.9 lm/Led

● Primary electrical measurement

Voltage : **N/A** V

Current : **N/A** A

Power : **N/A** Watt

Cos φ : **N/A**

→ Driver losses : **N/A** %

→ LEDS & Driver light efficiency :

N/A lm/W

Description :

Flux @25°/350mA - pcb with 6 LG 3535 Gen 4 TOP - pcb N°1

Comment :

FORM-L-41 ED1 REV 0



226 - TEST

NBN EN ISO/IEC 17025 : 2005

Approved by :

LED 2016/314 2/3



226 - TEST

NBN EN ISO/IEC 17025 : 2005

Colorimetry

Presets: CRI

File Preset Options Extra Calibration Info

CRI Auto: ref. illuminant - Planckian radiator CCT= 4120 K

View: R1..R14 R1..R15

Values: Ra=73

CRI Auto: ref. illuminant - Planckian radiator CCT= 4120 K

CRI Auto: ref. illuminant - Planckian radiator CCT= 4120 K

Chromatically difference DC= 3.3E-3

CRI color samples: R1=69.9, R2=79.7, R3=88.8, R4=73.0, R5=71.6, R6=73.3, R7=78.2, R8=50.6, R9=-33.6, R10=53.9, R11=71.2, R12=58.4, R13=71.1, R14=93.7, R15=61.8

JIS color sample: Ra (mean value of R1 - R8) 73.13

Target:

Average: 1

Calibration File: #1 no accessory

Measurement Mode: Radiance

Transfer of data to table: Auto transfer Transfer now

#1

Luminance: L_v 1.702E+2 $\frac{cd}{m^2}$

Radiance: L_e 5.022E-1 $\frac{W}{sr \cdot m^2}$ (380-780nm)

Corr. Color Temp: CCT 4121 K

Chromaticity: X 0.3733 Y 0.3657 Z 121.5

X 173.8 Y 170.2 Z 121.5

Customize

Continuous scan, Interval 0 s


Hold Integration Time

QUIT

RTECH-PHOTOMETRY LABORATORY

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

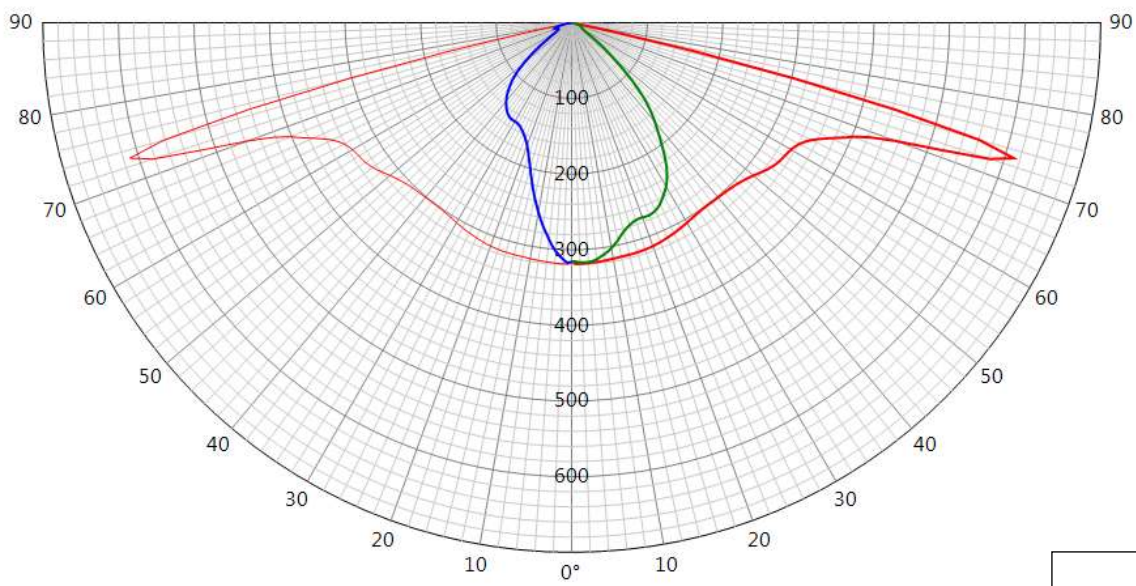
LED

Origin Tungsrám-Schröder Plc. Hungary		Production Tungsrám-Schröder Plc. Hungary		Luminaire VOLTANA 0		Request # FD36148	
Source							
Type LED	BIN Unknown NW	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 6	Reflector 5206		
Master Reflector							
Tungsrám-Schröder Plc. Hungary Led assembly Road lighting Assembled 0.0°				No	5206		
Protector Refractor Lens							
Protector integrated lenses Lens DKI 5206 PC							
Laboratory observation							
VOLTANA 0 with 6 LG 3535 GEN4 and the integrated lenses PC protector 5206. Used flux for efficiency matrix calculation = 990lm - CCT = 4121K - CRI = 73,1 (see sphere test report 2016/314 on appendix).							
Purpose DOC				Sample date 19/10/2016		Sample # 36R255	
Observation							
DOC Flux coefficient multiplicator (only for efficiency matrix): From 350 to 500 mA : 1,359 From 350 to 700 mA : 1,792 From 350 to 1000mA: 2,351							
Asked by LME	Measured by AUL	Approved by LME	Appendix 1	 226-TEST NBN EN ISO/IEC 17025 : 2005		39421	

LUMINOUS INTENSITY DIAGRAM

Origin Tungram-Schröder Plc. Hungary		Production Tungram-Schröder Plc. Hungary		Luminaire VOLTANA 0		Request # FD36148	
Source	Type LED	BIN Unknown NW	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 6	Reflector 5206	
Reflector	Tungram-Schreder Plc. Hungary Led assembly Road lighting Assembled 0.0°					No	5206
Matrices	394211 Φ 0-90° = 842lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 6 x DK1 5206 PC						
Observation	<p>Matrix in total flux @350 mA</p> <p>Light losses due to thermal stabilisation : 1%</p> <p>Electrical measurement on LED (#1) : Voltage = 17.15 V Current = 0.350 A Power = 6.00 W</p> <p>Electrical measurement on driver (#1) : Voltage = 230.00 V Current = 0.038 A Power = 8.21 W PF = 0.936</p> <p>Total luminaire power = 8.21 W : Lm/Watt = 102.62 lm/W</p> <p>Driver #1 : Philips Xitanium FP 22W 0.3-1.0 SNLDAE 230V S175 sxt</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
0	612	73	S				
90	317	3	D				
270	317	1	G	316	25.0°	15/11/2016	

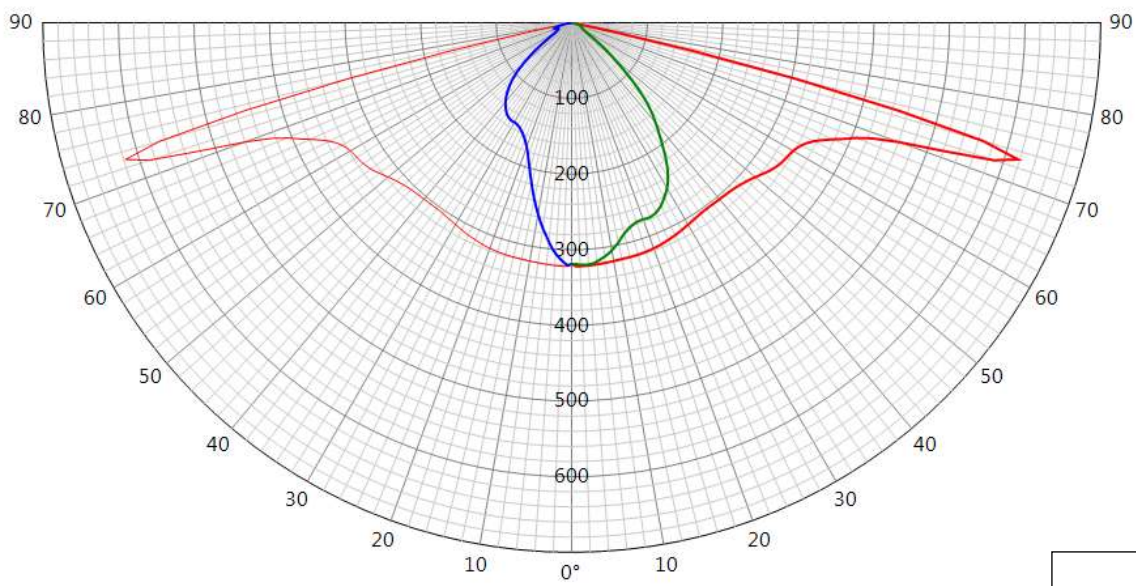


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LUMINOUS INTENSITY DIAGRAM

Origin Tungram-Schröder Plc. Hungary		Production Tungram-Schröder Plc. Hungary		Luminaire VOLTANA 0	Request # FD36148
Source	Type LED	BIN Unknown NW	Trademark LG Innotek	Reference 3535 Gen4	# LEDs Reflector 6 5206
Reflector	Tungram-Schreder Plc. Hungary Led assembly Road lighting Assembled 0.0°				No 5206
Matrices	394212 η 0-90° = 85.1% - 90-99° = 0.0%				Relative measurement
Protector Refractor Lens	Protector integrated lenses Lens 6 x DK1 5206 PC				
Observation	<p>Matrix in efficiency @350 mA</p> <p>Light losses due to thermal stabilisation : 1%</p> <p>Electrical measurement on LED (#1) : Voltage = 17.15 V Current = 0.350 A Power = 6.00 W</p> <p>Electrical measurement on driver (#1) : Voltage = 230.00 V Current = 0.038 A Power = 8.21 W PF = 0.936</p> <p style="text-align: center;">Total luminaire power = 8.21 W</p> <p>Driver #1 : Philips Xitanium FP 22W 0.3-1.0 SNLDAE 230V S175 sxt</p>				

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
0	618	73	S				
90	320	3	D	319	25.0°	15/11/2016	
270	321	1	G				

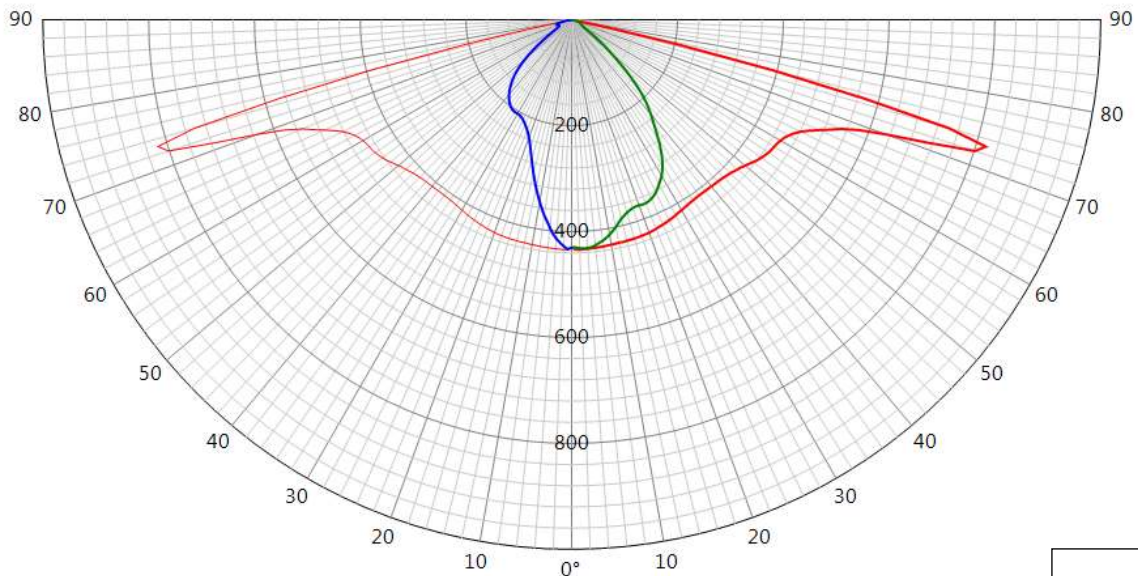


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LUMINOUS INTENSITY DIAGRAM

Origin Tungram-Schröder Plc. Hungary		Production Tungram-Schröder Plc. Hungary		Luminaire VOLTANA 0		Request # FD36148	
Source	Type LED	BIN Unknown NW	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 6	Reflector 5206	
Reflector	Tungram-Schreder Plc. Hungary Led assembly Road lighting Assembled 0.0°					No	5206
Matrices	394213 Φ 0-90° = 1145lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 6 x DK1 5206 PC						
Observation	<p>Matrix in total flux @500 mA</p> <p>Light losses due to thermal stabilisation : 1.5%</p> <p>Electrical measurement on LED (#1) : Voltage = 17.48 V Current = 0.500 A Power = 8.72 W</p> <p>Electrical measurement on driver (#1) : Voltage = 230.00 V Current = 0.050 A Power = 11.12 W PF = 0.961</p> <p>Total luminaire power = 11.12 W : Lm/Watt = 102.98 lm/W</p> <p>Driver #1 : Philips Xitanium FP 22W 0.3-1.0 SNLDAE 230V S175 sxt</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
0	818	73	S				
90	432	3	D				
270	433	1	G	430	25.0°	15/11/2016	

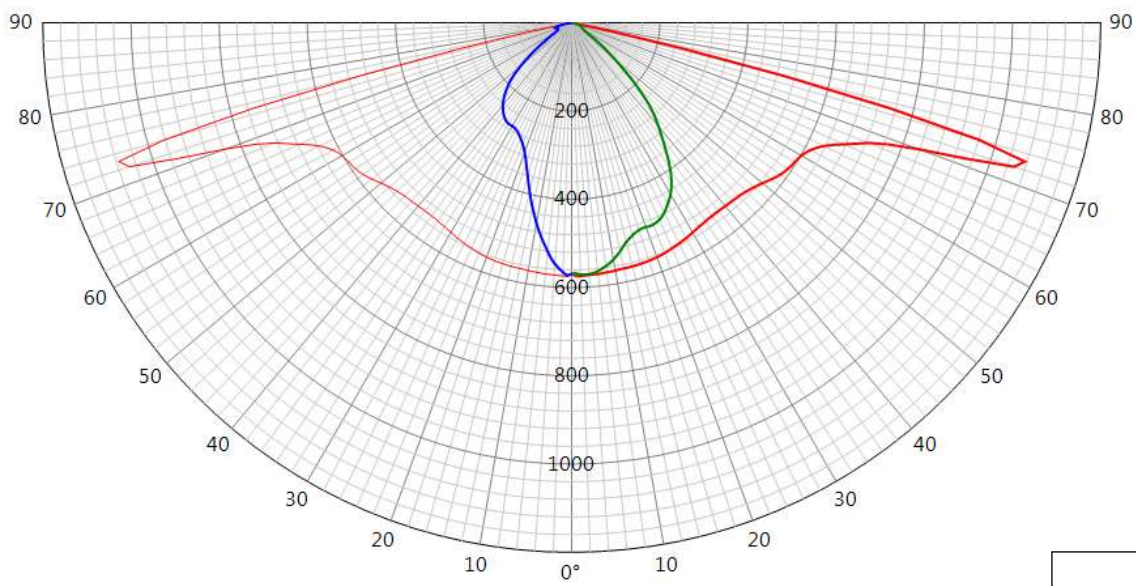


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LUMINOUS INTENSITY DIAGRAM

Origin Tungram-Schröder Plc. Hungary		Production Tungram-Schröder Plc. Hungary		Luminaire VOLTANA 0		Request # FD36148	
Source	Type LED	BIN Unknown NW	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 6	Reflector 5206	
Reflector	Tungram-Schreder Plc. Hungary Led assembly Road lighting Assembled 0.0°					No	5206
Matrices	394214 Φ 0-90° = 1510lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 6 x DK1 5206 PC						
Observation	<p>Matrix in total flux @700 mA</p> <p>Light losses due to thermal stabilisation : 3%</p> <p>Electrical measurement on LED (#1) : Voltage = 17.88 V Current = 0.700 A Power = 12.49 W</p> <p>Electrical measurement on driver (#1) : Voltage = 230.00 V Current = 0.068 A Power = 15.33 W PF = 0.977</p> <p>Total luminaire power = 15.33 W : Lm/Watt = 98.47 lm/W</p> <p>Driver #1 : Philips Xitanium FP 22W 0.3-1.0 SNLDAE 230V S175 sxt</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
0	1075	73	S				
90	571	3	D				
270	573	1	G	568	25.0°	15/11/2016	

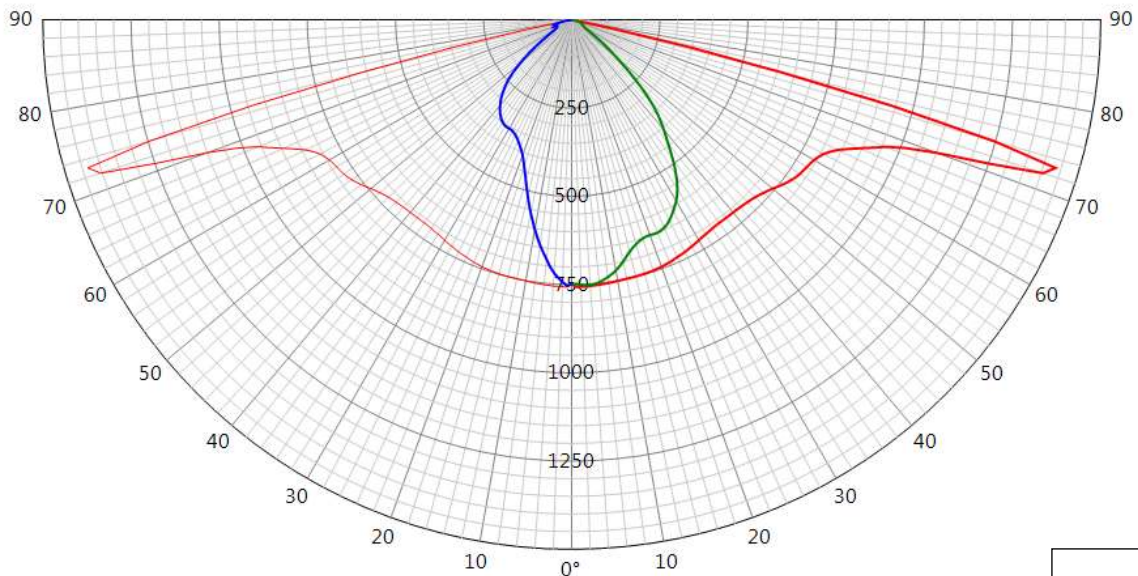


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LUMINOUS INTENSITY DIAGRAM

Origin Tungram-Schröder Plc. Hungary		Production Tungram-Schröder Plc. Hungary		Luminaire VOLTANA 0		Request # FD36148	
Source	Type LED	BIN Unknown NW	Trademark LG Innotek	Reference 3535 Gen4	# LEDs 6	Reflector 5206	
Reflector	Tungram-Schreder Plc. Hungary Led assembly Road lighting Assembled 0.0°					No	5206
Matrices	394215 Φ 0-90° = 1981lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector integrated lenses Lens 6 x DK1 5206 PC						
Observation	<p>Matrix in total flux @1000 mA</p> <p>Light losses due to thermal stabilisation : 5.5%</p> <p>Electrical measurement on LED (#1) : Voltage = 18.31 V Current = 1.000 A Power = 18.31 W</p> <p>Electrical measurement on driver (#1) : Voltage = 230.00 V Current = 0.097 A Power = 22.10 W PF = 0.987</p> <p>Total luminaire power = 22.10 W : Lm/Watt = 89.62 lm/W</p> <p>Driver #1 : Philips Xitanium FP 22W 0.3-1.0 SNLDAE 230V S175 sxt</p>						

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	↕
0	1435	73	S				
90	753	3	D				
270	753	1	G	749	25.0°	16/11/2016	



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Measurement fulfil Standards:

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

Measurement quantities measured:

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

Electrical measurment, If not specified:

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

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

Light distribution : are measured on gonio.

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

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

Total operating time of the product including stabilization:

45 minutes have to be added by measurement.

Minimal operating time is 105 minutes

Luminous intensity distribution: available on electronic file with

.mat format (internal schreder format)

.ldt format (European standard)

.IES format (American standard)

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

Intensity measurement: +/- 3%

Angle: +/- 0.5°

Flux: +/- 2.5%

Electrical DC

Power: +/- 0.25%

Voltage: +/- 0.1%

Current: +/- 0.2%

Electrical AC

Power: +/- 0.1%

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

Measuring instruments in use:

Gonio

Type C with Moving mirror

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

Type: GO-DS 2000

Calibration: traceable to PTB (Physikalisch-Technische Bundesanstalt D-Braunschweig)

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

Sphere n°1

4p geometry

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

Type: UL2000 + U1000 V-Lambda photometer

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

Sphere n°2

4p geometry

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

Type: ISP2000 + Spectroradiometer CAS120 and CAS140

Calibration: traceable to NIST

Colorimetric portable spectroradiometer

Manufacturer: JETI Technische Instrumente GmbH, Tatzendpromenade 2 07745 Jena

Type: SPECBOS 1201

Calibration: traceable to NIST

Multimeters

Manufacturer: Agilent

Type: 34401A

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

Wattmeters

Manufacturer: Yokogawa

Type: WT210

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

Thermometers

Voltcraft K101 (Sphere IS2000)

LMT U1000 (Sphere LMT)

Gossen digem f96x48 CK/EK (gonio)

Calibration: traceable to PTB (Physikalisch-Technische Bundesanstalt)

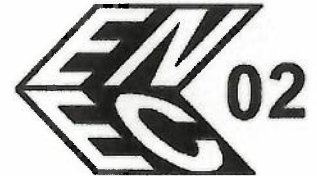
39421

LICENCE

No. 20254 replaces No.20142

Issued to:
 Applicant:
R-Tech
Rue de Mons, 3
4000 LIEGE
Belgium

Licensee:
Schreder S.A.
Rue de Lusambo, 67
1190 BRUXELLES
Belgium



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

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

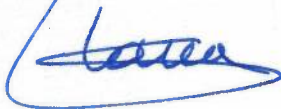
SGS CEBEC hereby declares that the above-mentioned product has been certified on the basis of:

- a type test according to the standard specified in annex
- an inspection of the production location.
- a certification agreement with the number 1173

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

The ENEC/CEBEC certification mark may be applied to the product as specified in this licence for the duration of the ENEC/CEBEC certification agreement and under the conditions of the ENEC/CEBEC certification agreement.

This licence is issued on: 15/03/2017



ir. C. Lana,
 Certification Manager

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



SPECIFICATION OF THE CERTIFIED PRODUCT

Product data

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

Additional information

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

Product data - type VOLTANA0 6 LED xx

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

Product data - type VOLTANA0 8 LED xx

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

TESTS

Test requirements

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

Test results

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

Remarks

This certificate is based on test reports Nos. P1560-la

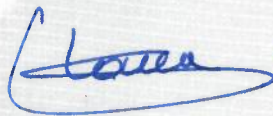
Conclusion

The examination proved that all test requirements were met.

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

Department Manager,
Product Certification :

Certification Manager :

 2017-03-15

FACTORY LOCATION(S)

Schröder do Brasil Iluminação Ltda.
Rua Iracema Lucas, 415
Distrito Industrial Vinhedo
13280-000 SAO PAULO
Brazil

Schreder TOV
Vul. Mykulynetska 46B
46000 TERNOPIIL
Ukraine

Schreder (China) Lighting Industrial Co., Ltd
No.40 Xinye 2 Street, Tianjin Economic Technological Development Zone West Zone,
300462 Tianjin City, P.R.China
China

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

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

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

Tungram-Schröder Világítási Berendezések Zrt
Tópart 2
2084 PILISSZENTIVAN
Hungary

Laboratory Service PHYSICAL TEST REPORT



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

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

Sample n°: P-E16371, P-E16375

Test purpose: Electrical measurements @ 1.05A

Remarks:

Test request n°: P-D16542

Folder n°: P-F16041

TEST CONDITIONS:

Operator: CLOSSET Frédéric

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

Driver: Moon's PU025H105AQ_0-10V Series

Power supply: Elgar ET3500 230V 50Hz

Measurement device: Fluke Norma 4000 HF power meter

CONCLUSIONS:

PF: 0.97

Efficiency: 82.1 %

THD: 9.1 %

Harmonics we are under the 25W => no measurements



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

//P-16CR542

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

Laboratory Service PHYSICAL TEST REPORT



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

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

Sample n°: P-E17149

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

Remarks:

Test request n°: P-D17187

Folder n°: P-F16041

TEST CONDITIONS:

Operator: EMC - ULg

Test Summary

EN 55015 & EN 61547 Standards

Emission

Standard	Limit / Level	Result	
		PASS	FAIL
EN 55015 Conducted Emission	9kHz- 30 MHz	X	
EN 55015 Annex B	30 MHz – 300 MHz	X	
EN 61000-3-2	Class C a)	X	

Immunity

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

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

Driver: Philips FP 40W 0.3-1A

EMC Auxiliaries: Varistors

CONCLUSIONS:



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

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

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

//P-17CR187

A handwritten signature in blue ink, appearing to read 'Cheuvart', with a large, sweeping flourish extending to the right.

Laboratory Service PHYSICAL TEST REPORT



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

Subject: VOLTANA-0 equipped with 5205 & 5206 lenses

Sample n°: P-E16393, P-E16460

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

Remarks:

Test request n°: P-D16655

Folder n°: P-F16041

TEST CONDITIONS:

Operator: BOMBIL Patrick

VOLTANA-0 equipped with 6 led's

At pendulum hammer

5+2 impact points distributed on lens protector surface

One impact on each point

Test on 5 samples

Test

Result

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

OK for all tested samples

CONCLUSIONS:



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

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

//P-16CR655

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

Laboratory Service PHYSICAL TEST REPORT



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

Subject: VOLTANA 0 – 8 led's – Flat glass protector

Sample n°: P-E16377, P-E16394

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

Remarks:

Test request n°: P-D16575

Folder n°: P-F16041

TEST CONDITIONS:

Operator: BOMBIL Patrick

VOLTANA-0 8 led's with flat glass protector

Pre-conditioning: endurance test

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

CONCLUSIONS:



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

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

//P-16CR575

Laboratory Service PHYSICAL TEST REPORT



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

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

Sample n°: P-E16371, P-E16375

Test purpose: Thermal test @ 1050 mA following IEC/EN 60598-1 Standard

Remarks:

Test request n°: P-D16541

Folder n°: P-F16041

TEST CONDITIONS:

Operator: CLOSSET Frédérick



Load: 6 Led's

Driver: Moon's PU025H105AQ_0-10V Series

Tc: 90°C

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

Measurement device:

Yokogawa TX10: thermal measurement

Yokogawa WT 210: primary EM

Fluke 87: Led's EM

Junction Temperature measurement method

Junction temperature measurement by base temperature measurement and electrical measurement.

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

CONCLUSIONS:

Ta (IEC): 55 °C limited by Driver

Tq (IEC): 35 °C limited by Driver

Tq given for 100 khrs of lifetime

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

Duplicate to: Mr M. Thijs

LAB 06/10/2016

L. Maghe

//P-16CR541









VOLTANA 0

5206

Optic	5206
Protector	Integrated lenses
Source	6 LG Innotek 3535 Gen4
Matrix	394212




Characteristics

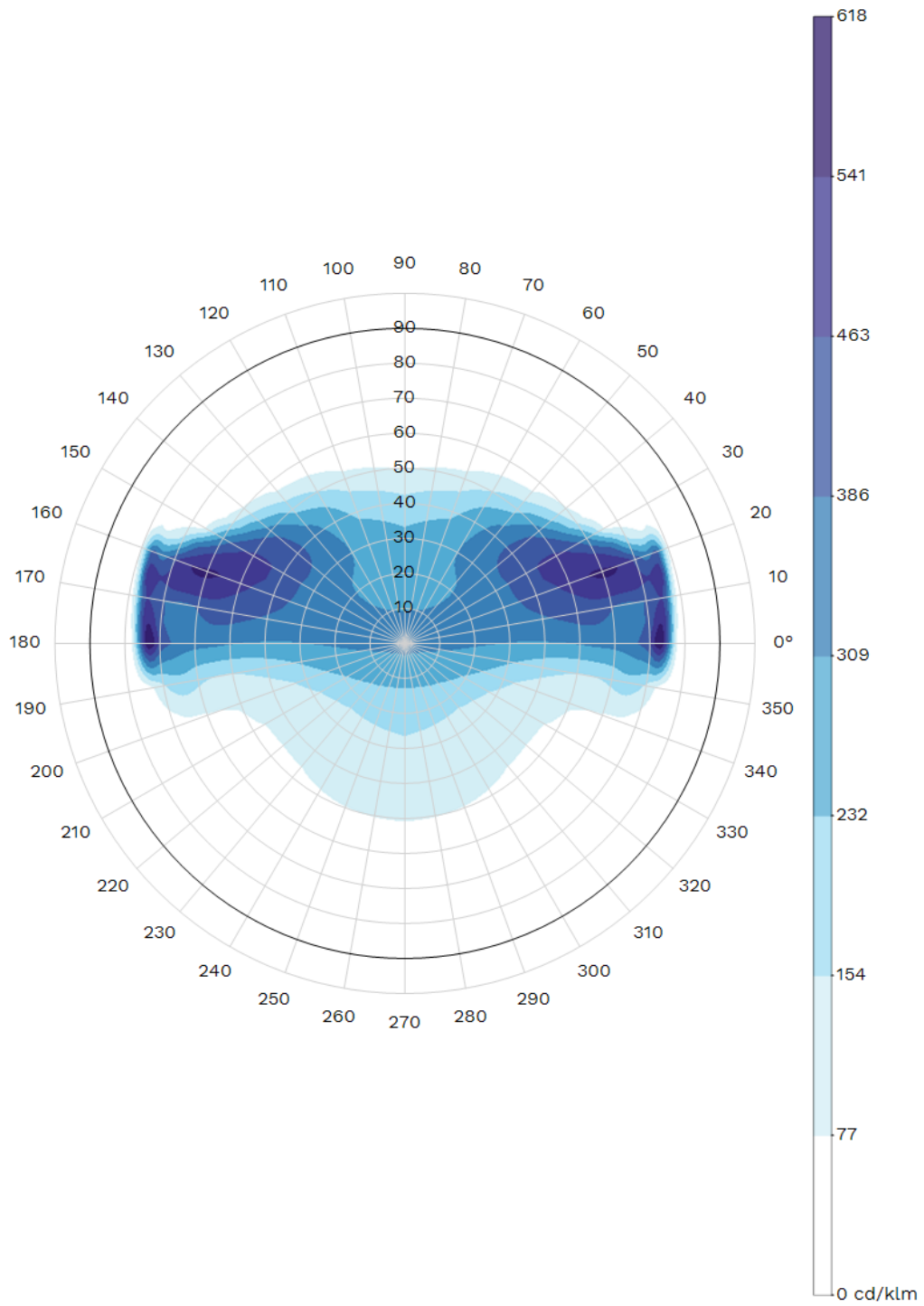
							
416	156	91	2.6	IP 66	IK 08	I EU	0.012
Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Tightness level*	Impact resistance*	Electrical class*	CxS (m ²)

* According to IEC-EN60598 and IEC-EN62262

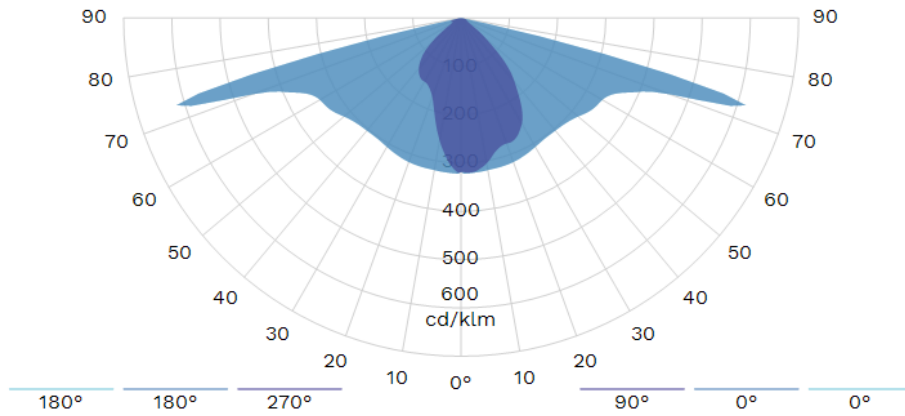
Features

Entry Level cost-effective luminaire family

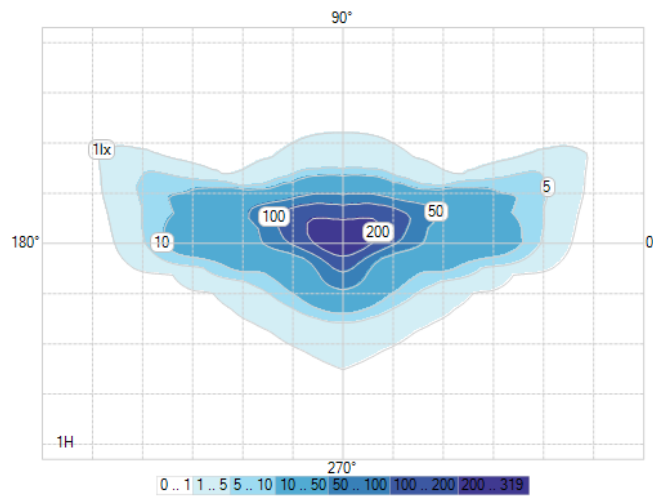
- Cost-effective and efficient lighting solution for a fast return on investment
- LensoFlex@2 photometric engine with photometry adapted to various applications
- 5 sizes for flexibility
- Designed to incorporate Owllet control and sensor solutions
- ThermiX@: withstands high temperatures (Ta 50°C)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



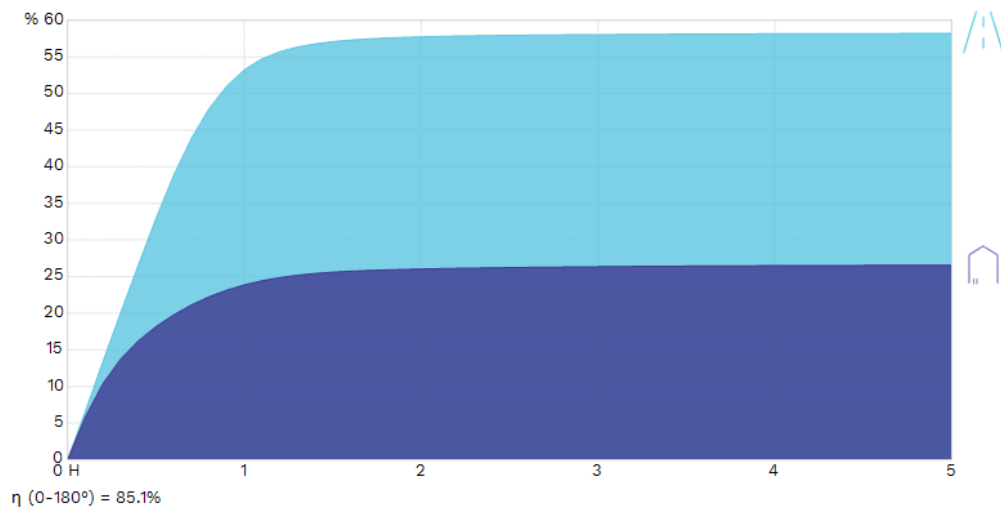
Polar/Cartesian diagram



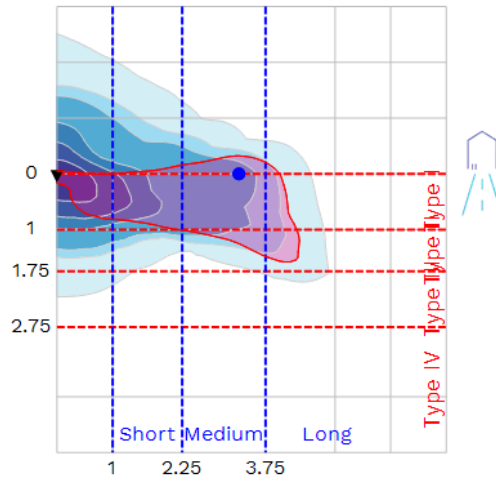
Isolux



K-Curve

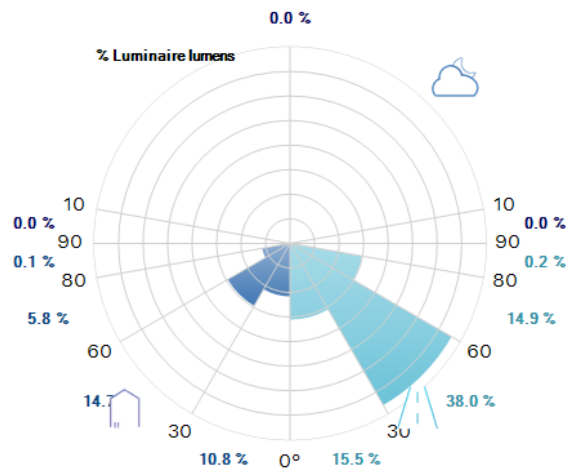


IES Roadway Classification / Nema Classification

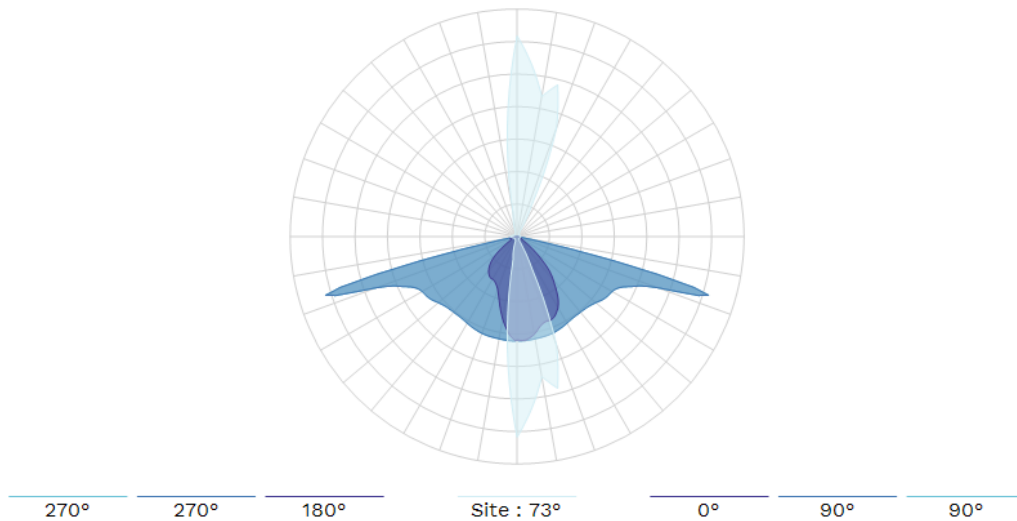


II - Medium

Luminaire classification system (LCS)



Intensity diagram in max Cone and in CPlane

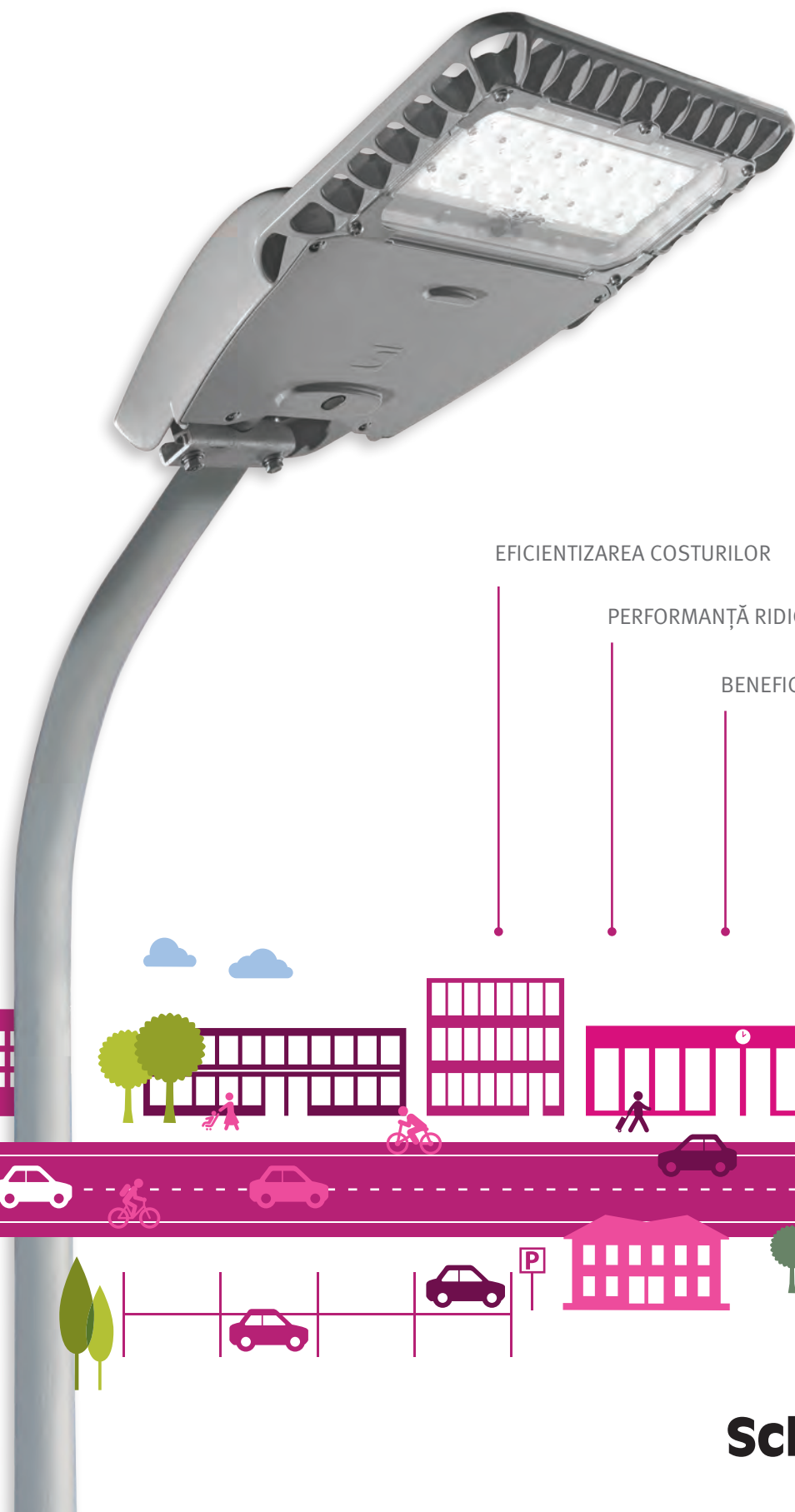


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<http://www.schreder.com>

VOLTANA

ILUMINAT CU LEDURI,
POTRIVIT ORICUI



EFICIENTIZAREA COSTURILOR

PERFORMANȚĂ RIDICATĂ

BENEFICII REMARCABILE

NU NECESITĂ ÎNTREȚINERE

Schröder



VOLTANA



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

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

CALITATE FĂRĂ COMPROMISURI

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

INVESTIȚII MINIME

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

RECUPERARE RAPIDĂ, ECONOMII DE DURATĂ

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



VOLTANA 0

VOLTANA 1

VOLTANA 2

VOLTANA 3

VOLTANA 4

VOLTANA 5

ZONE PIETONALE

Străzi, alei și piste
de biciclete



20/50W

STRADAL

Străzi rezidențiale

Spații comune, zone
comerciale din mediul
urban



70W



100W

CĂI DE CIRCULAȚIE

Căi de circulație
din mediul rural

Căi de circulație
din mediul urban



150W



250W

substituit HID



VOLTANA 0



VOLTANA 1



VOLTANA 2



VOLTANA 3



VOLTANA 4



VOLTANA 5

ALTE MEDII ÎN CARE VOLTANA OFERĂ BENEFICII-CHEIE PENTRU CLIENT



FACILITĂȚI DE TRANSPORT



ZONE INDUSTRIALE



ZONE COMERCIALE



FACILITĂȚI SPORTIVE



PERFORMANT

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

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



VERSATIL

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

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



CONSTRUIT SĂ REZISTE

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

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



CONFORM

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

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



DEZVOLTARE DURABILĂ

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

- > **Materiale reciclabile** (aluminiu, oțel și sticlă)
- > **Profil destinat protejării mediului** (PEP) pentru scăderea ampretei ecologice
- > **Emisii de CO₂ reduse** (economie și întreținere)
- > Fără poluare luminoasă (**ULOR 0%**), mulțumită distribuției luminoase precise



SOCIAL

VOLTANA ADUCE NUMEROASE **BENEFICII COLECTIVE**

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



PRECIS

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

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



INTELIGENT

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

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

* indisponibil pentru Voltana 0

CARACTERISTICI - CHEIE

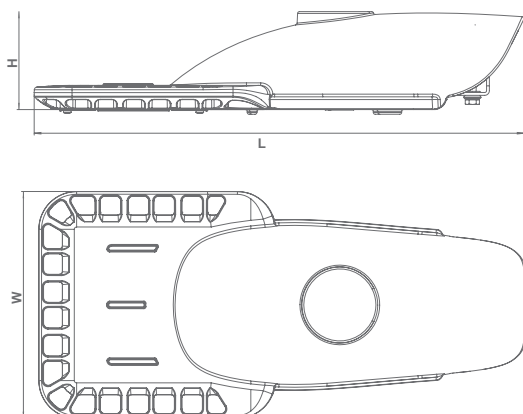
	Voltana 0	Voltana 1	Voltana 2	Voltana 3	Voltana 4	Voltana 5
Flux luminos standard (gamă) ^(*)	700 - 2,500lm	800 - 3,000lm	1,800 - 6,100lm	2,700 - 9,200lm	3,700 - 12,700lm	7,500 - 25,200lm
Consum de energie (W) ^(*)	8 - 30W	10 - 31W	20 - 56W	28 - 82W	36 - 110W	70 - 215W
Flux rezidual pe durata de viață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

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

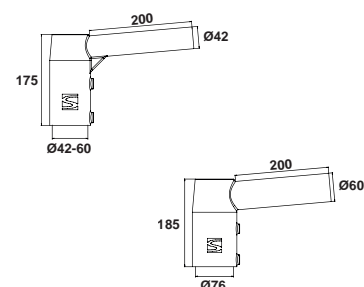
^(**) conform standardului IEC - EN 60598 (doar Voltana 0 este disponibil cu Clasa I) - ^(***) conform standardului IEC - EN 62262

DIMENSIUNI | GREUTATE

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

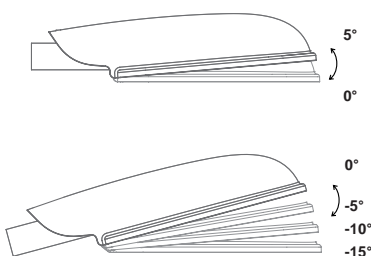


ADAPTOR VÂRF DE STÂLP

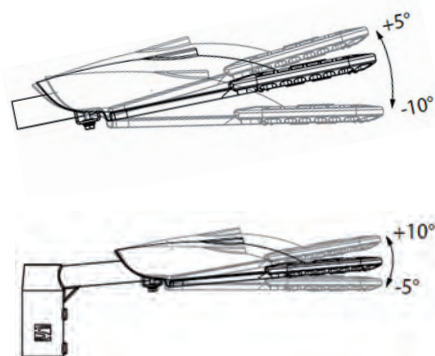


REGLAJE UNGHI ÎNCLINARE

VOLTANA 0

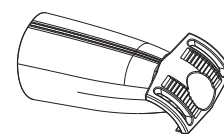


VOLTANA 1 - 5



MONTAJ UNIVERSAL

(OPȚIONAL PENTRU VOLTANA 0-1-2-3-4)



Ø 32 - 48mm

Ø 42 - 60mm

Ø 76mm

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

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

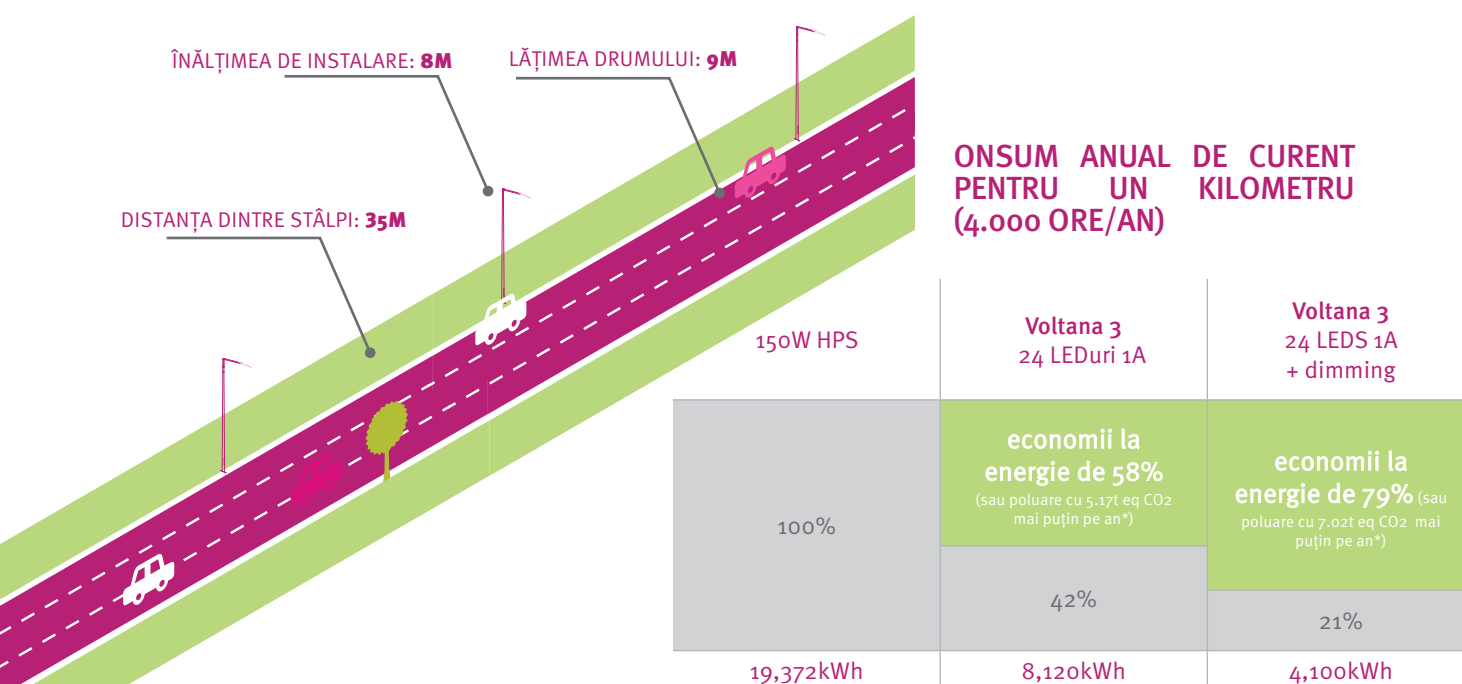
zone pietonale P5-P2		zone pietonale P1		căi de circulație clasificate M6-M5		căi de circulație clasificate M4		căi de circulație clasificate M3		căi de circulație clasificate M2	
aparat HPS 70W	Voltana 1	aparat HPS 100W	Voltana 2	aparat HPS 100W	Voltana 2	aparat HPS 150W	Voltana 3	aparat HPS 150W	Voltana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

(*) Consum de energie total al sistemului

STUDIU DE CAZ

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

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



* conform cu echivalentul european de 0.46kg eq Co₂/kWh



SIGURANȚĂ



STARE DE BINE



DEZVOLTARE DURABILĂ



ECONOMII



SOLUȚII



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

