

RTECH-PHOTOMETRY LABORATORY

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

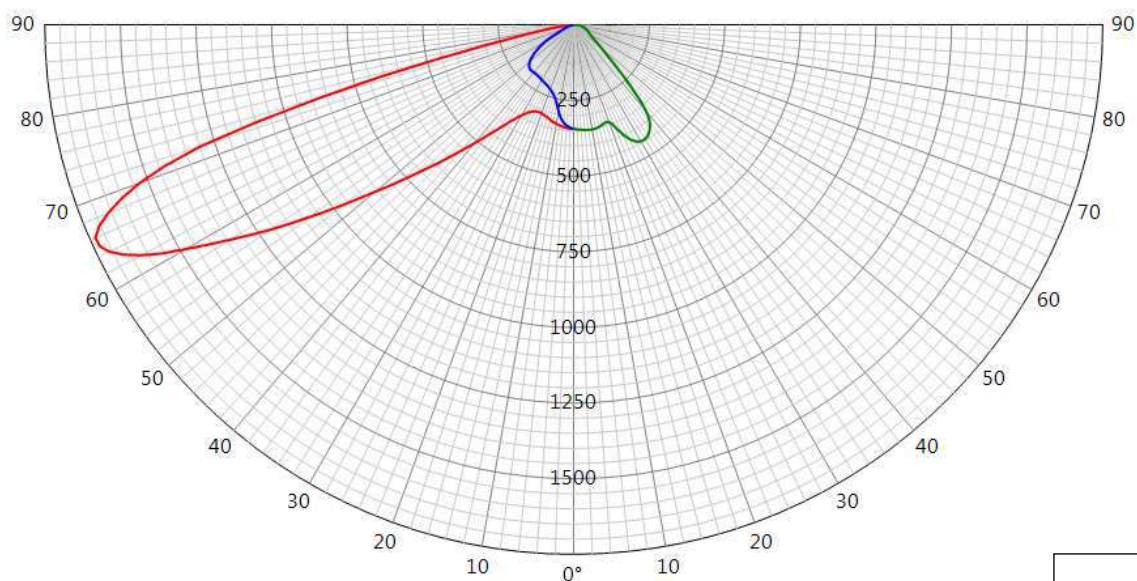
LED

Origin Tungsram-Schröder Plc. Hungary		Production Tungsram-Schröder Plc. Hungary		Luminaire SKIDO		Request # FD35100	
Type LED	BIN SM575D320R70	Source Trademark Nichia	Reference NVSW219CT	# LEDs 6	Reflector 5122		
Master		Reflector				No 5122	
Protector Refractor Lens Protector PC Lum. shape-related Smooth Lens Schröder 5122 PC							
Laboratory observation SKIDO V2 with 6 NICHIA NVSW219CT. Used flux for efficiency matrix calculation = 1010 lm - CCT = 5400 K - CRI = 75.45 (see sphere test report 2015/1103 on appendix).							
Purpose DOC				Sample date 16/07/2015		Sample # 35R194	
Observation DOC SKIDO V2 with Nichia NVSW219CT. Matrix 1 : fixture powered with driver MEAN WELL PLD-16-700B (Uout: 16-24VDC Iout: 700mA) NOTE: this driver delivers 716mA. Matrix 2 : fixture powered with driver MEAN WELL PLD-25-1050 (Uout: 16-24VDC Iout: 1050mA) NOTE: this driver delivers 1096mA. Matrix 3 : DC Power supply for efficiency @350mA							
Asked by LMA		Measured by CL		Approved by LMA		Appendix 1	
 226-TEST NBN EN ISO/IEC 17025 : 2005						36920	

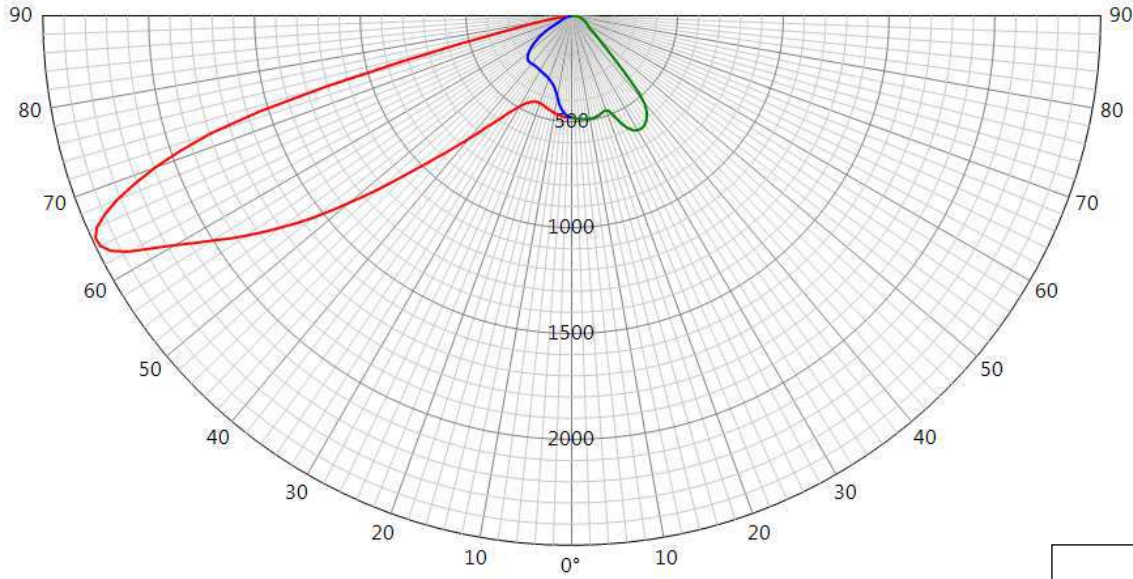
LUMINOUS INTENSITY DIAGRAM

Origin Tungsram-Schröder Plc. Hungary		Production Tungsram-Schröder Plc. Hungary		Luminaire SKIDO		Request # FD35100
Source	Type LED	BIN SM575D320R70	Trademark Nichia	Reference NVSW219CT	# LEDs 6	Reflector 5122
Reflector	Keselec Schreder Pvt. Ltd India Led assembly Road lighting Assembled 0.0°					No 5122
Matrices	369201 Φ 0-90° = 1542lm - 90-99° = 0lm					Absolute measurement
Protector Refractor Lens	Protector PC Lum. shape-related Smooth - SKIDO Lens 6 x Schreder 5122 PC					
Observation	Matrix in total flux @700mA I led measured : 716 mA Light losses due to thermal stabilization : 1,9 % Electrical measurement on LED (#1): Voltage = 17.46 V Current = 0.716 A Power = 12.27 W Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.065 A Power = 14.50 W PF = 0.959 Total luminaire power = 14.50 W : Lm/Watt = 106.37 lm/W Driver #1 : See observations for driver details - PCB Réf.: 7000877-001-Rev.D					

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	
10 - 170	1733	66	G				
90	445	31	D	342	25.0°	23/07/2015	
270	343	1	G				

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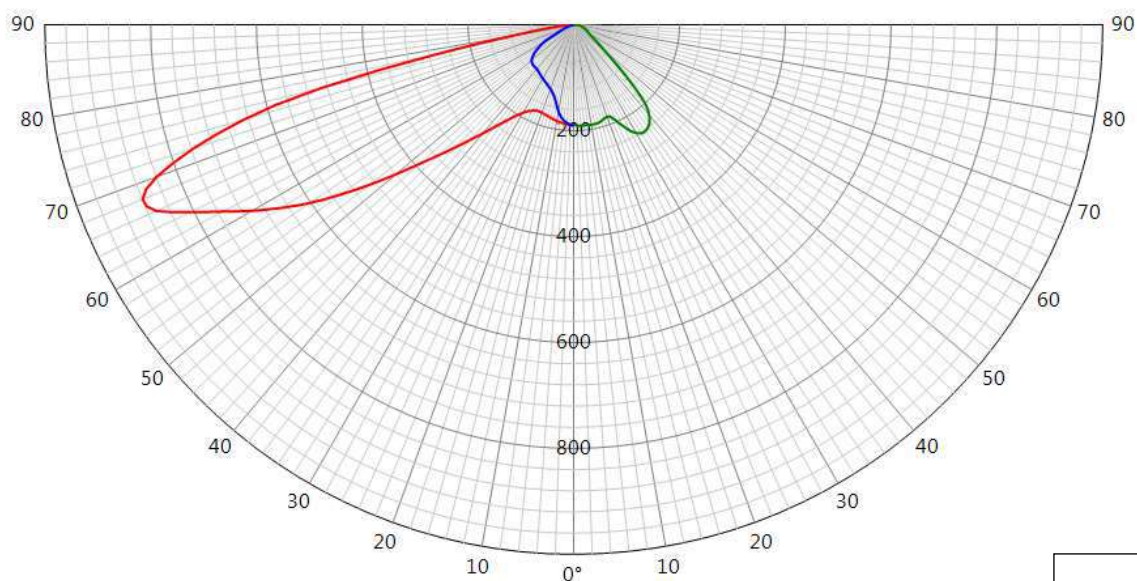
LUMINOUS INTENSITY DIAGRAM

Origin Tungsram-Schröder Plc. Hungary		Production Tungsram-Schröder Plc. Hungary		Luminaire SKIDO		Request # FD35100	
Source	Type LED	BIN SM575D320R70	Trademark Nichia	Reference NVSW219CT	# LEDs 6	Reflector 5122	
Reflector	Keselec Schreder Pvt. Ltd India Led assembly Road lighting Assembled 0.0°					No 5122	
Matrices	369202 Φ 0-90° = 2137lm - 90-99° = 0lm					Absolute measurement	
Protector Refractor Lens	Protector PC Lum. shape-related Smooth - SKIDO Lens 6 x Schreder 5122 PC						
Observation	Matrix in total flux @1000mA I led measured : 1096 mA Light losses due to thermal stabilization : 2,7 % Electrical measurement on LED (#1): Voltage = 17.91 V Current = 1.096 A Power = 19.14 W Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.104 A Power = 22.86 W PF = 0.953 Total luminaire power = 22.86 W : Lm/Watt = 93.46 lm/W Driver #1 : See observations for driver details - PCB Réf.: 7000877-001-Rev.D						
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	
15 - 165	2485	65	G	479	25.0°	23/07/2015	
90	624	31	D				
270	479	1	G				
							
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LUMINOUS INTENSITY DIAGRAM

Origin Tungsram-Schröder Plc. Hungary		Production Tungsram-Schröder Plc. Hungary		Luminaire SKIDO		Request # FD35100
Source	Type LED	BIN SM575D320R70	Trademark Nichia	Reference NVSW219CT	# LEDs 6	Reflector 5122
Reflector	Keselec Schreder Pvt. Ltd India Led assembly Road lighting Assembled 0.0°					No 5122
Matrices	369203 η 0-90° = 85.1% - 90-99° = 0.0%					Relative measurement
Protector Refractor Lens	Protector PC Lum. shape-related Smooth - SKIDO Lens 6 x Schreder 5122 PC					
Observation	Matrix in efficiency @350mA. Electrical measurement on LED (#1) : Voltage = 16.86 V Current = 0.350 A Power = 5.90 W Driver #1 : See observations for driver details - PCB Réf.: 7000877-001-Rev.D					

Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date	
15 - 165	879	68	G				
90	242	33	D	188	25.0°	26/08/2015	
270	190	1	G				

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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)

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Lumen maintenance report

LED information

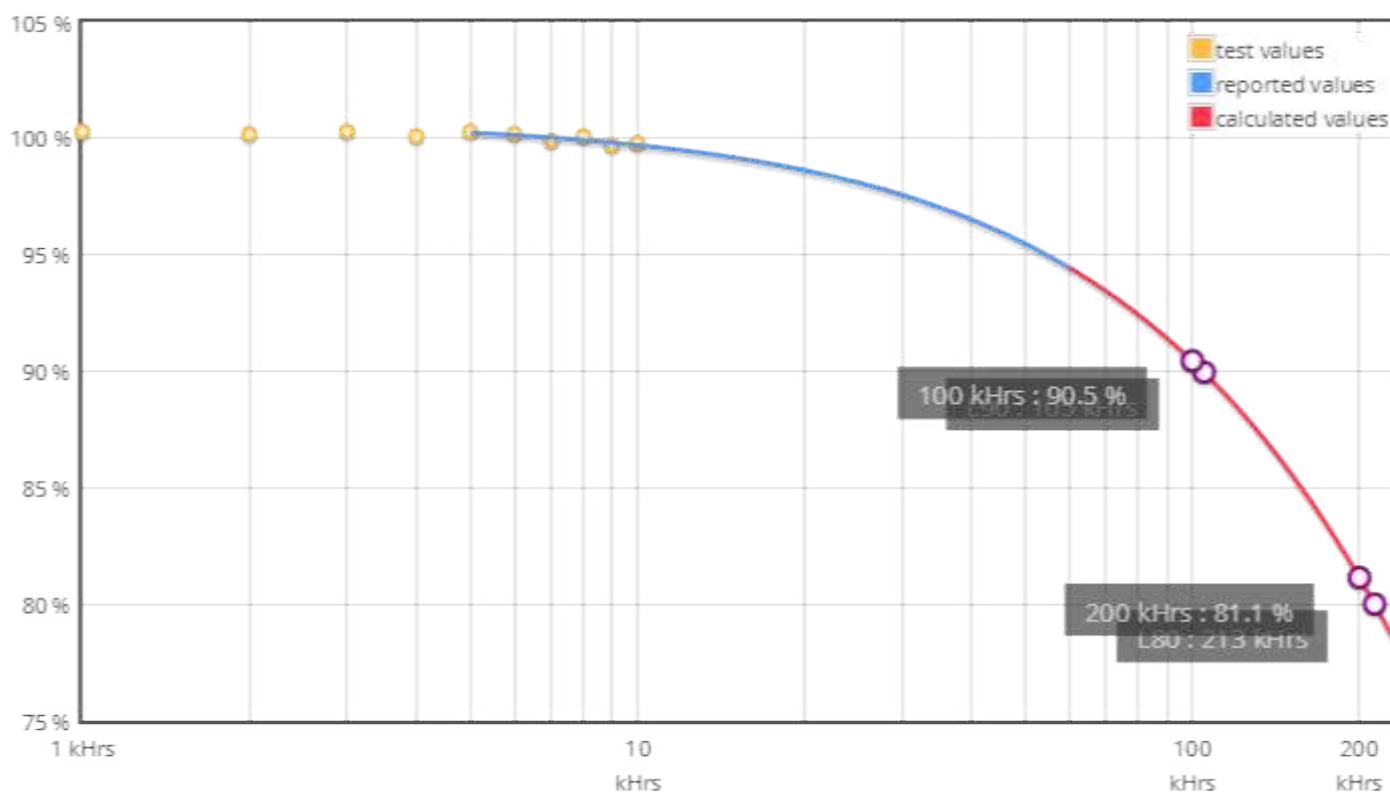
LED type	NVSL219CT
LED current	700 mA
Ts	55°C
Description	SQETMOJ75401

Projection data

Test duration	10000 hrs	α	1.086E-006
Time used for projection	5000 to 10000hrs	β	1.008

L (%)	Time (kHrs)
80.0	213
81.1	200
90.0	104
90.5	100

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.

SKIDO

5122

Optic	5122
Protector	Deep shape PC
Source	6 Nichia NVSW219CT
Matrix	369203



Characteristics

							
395	101	54	1.2		IK 08	I EU	0.033
Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Tightness level*	Impact resistance*	Electrical class*	CxS (m²)

* According to IEC-EN60598 and IEC-EN62262

Features

Effective and economical LED lighting solution

- Compact and versatile
- Maximised savings in energy and maintenance costs
- Integrated lenses for performing photometry
- ThermiX® for long lasting performance
- Wide operating temperatures from -20° up to 50°C
- Wide operating voltage range: 198-264V
- Easy to install
- Surge protection 10kV (optional)

Information for 1000 lm matrix

Efficacy (%)	85.1	G Class (EN 13201-2)	G1	Aperture 90-270°	X - X
DLOR (%)	85.1	G* (EN 13201 2015)	G*1	I 70-80-90-95 (cd)	843 - 165 - X - X
ULOR (%)	0.0	Imax (cd)	879	CIE flux code N 1→5 (%)	32.2 - 68.0 - 95.7 - 100.0 - 85.1
ULR (%)	0.0	Aperture 0-180°	58 - 58		

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°						
6	CW 754	700	15	1754	1492	99	1541	B1 U0 G1	230
6	CW 754	1050	23	2385	2029	88	2096	B1 U0 G1	230

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

Summary

CONCEPT

Luminaire specifically designed for LEDs

Recommended installation height: between 3.00 and 6.00m

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
- Protector in UV resistant polycarbonate
- Colour: RAL grey 7037

INSTALLATION

- Lateral fixation with stainless steel clamp diameter 32-42mm, tightened with 4 stainless steel screws M8
- Supplied with out-going cable (0.3m length 3G1² or 3G1.5²) for easy installation

OPTICAL UNIT

- Flatbed PCB with acrylic lens overlay principle
- CRI > 70
- ULOR: 0%

LED lumen depreciation

- Lifetime residual flux @ Tq=25°C @ 50.000 hrs: 700mA: 90%

ELECTRICAL

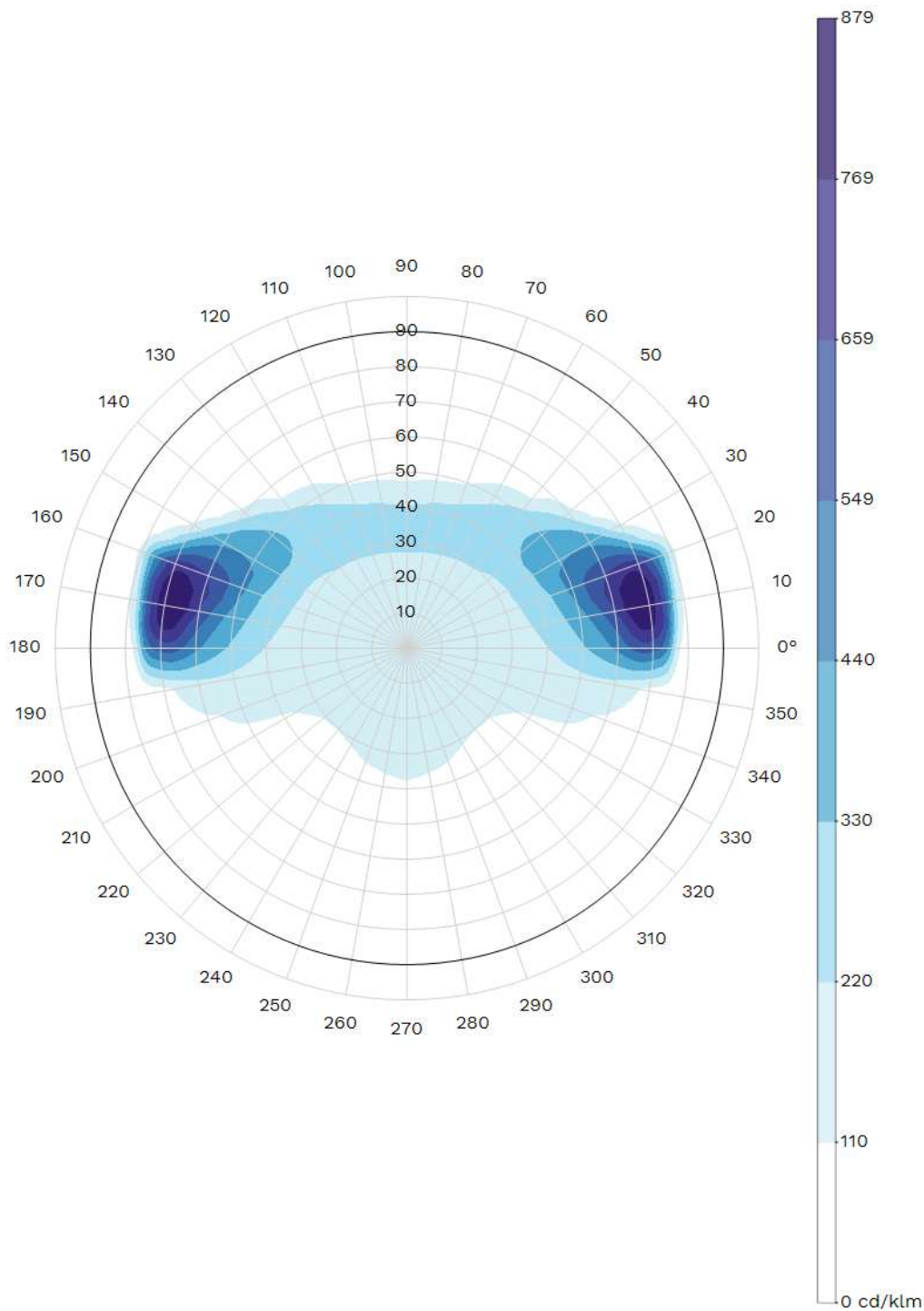
- Class I
- Input voltage: 230V - 50Hz
- Power factor > 90% at full load
- Surge protection: 4kV minimum, optional 10kV & 15kV

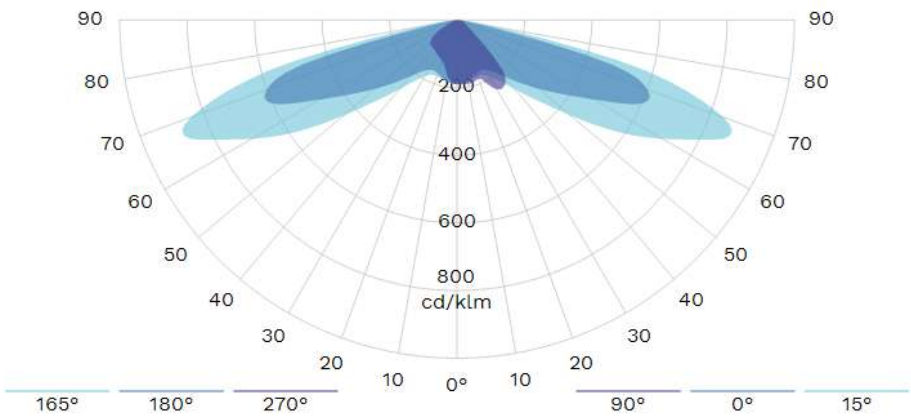
STANDARDS & CERTIFICATIONS

- CE
- ENEC
- LM79-80
- ROHS
- All measurements in ISO17025 accredited laboratory

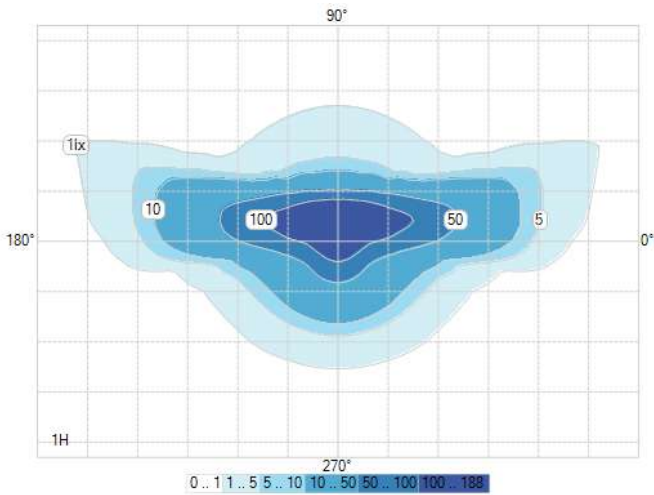
OPTIONS

- Other RAL or AKZO colours

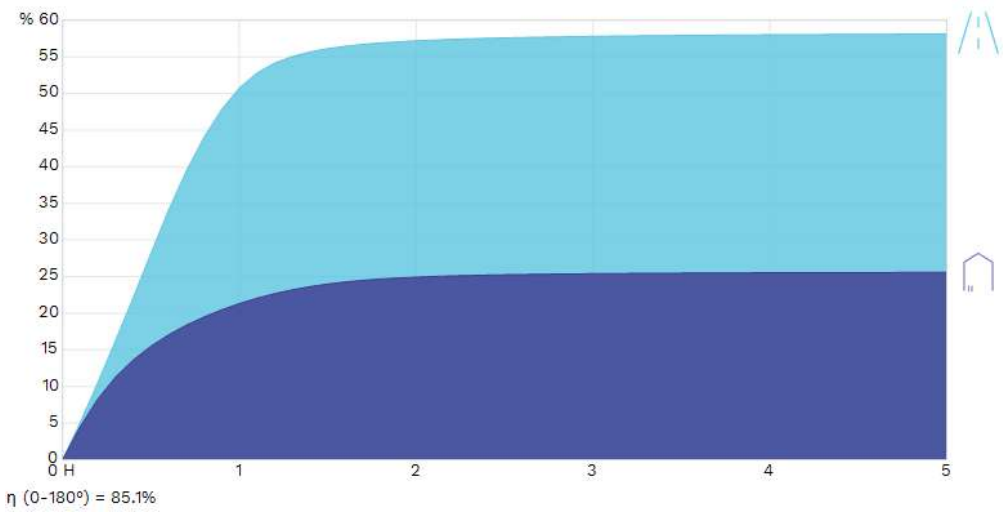




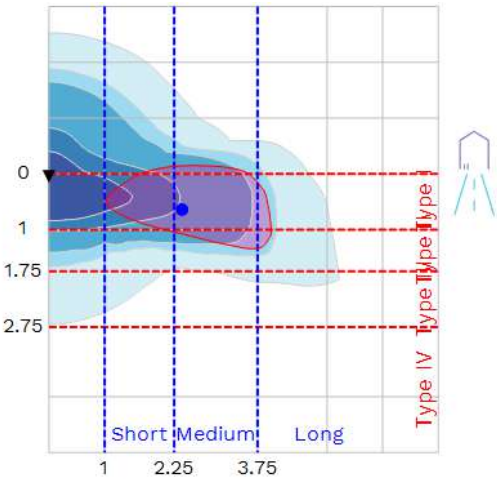
Isolux



K-Curve

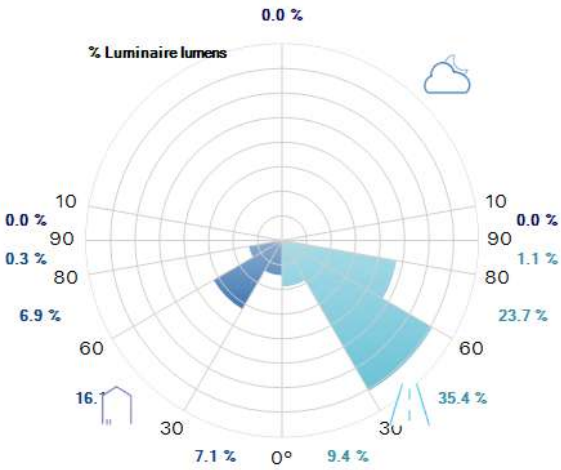


IES Roadway Classification / Nema Classification

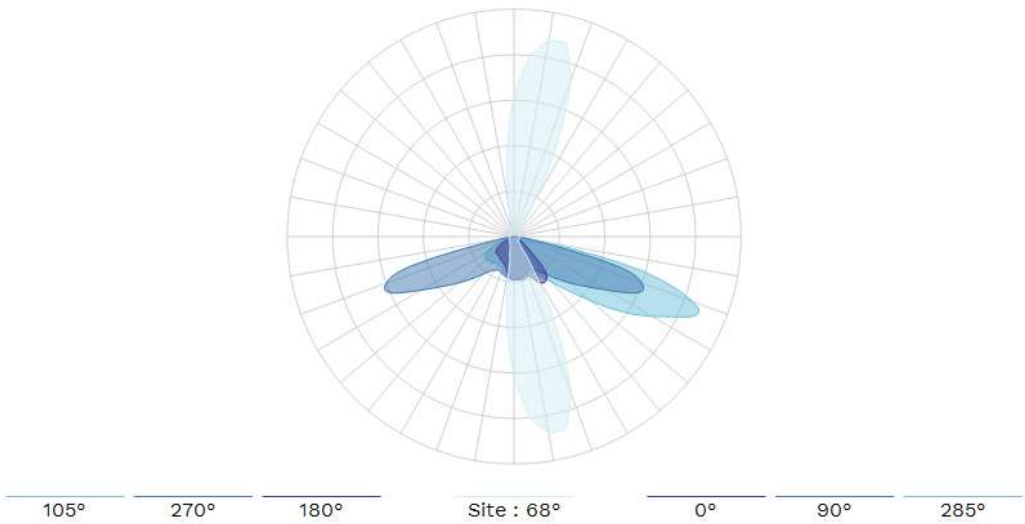


II - Medium

Luminaire classification system (LCS)



Intensity diagram in max Cone and in CPlane



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