SURI-RS

~6° real spot beam with holder



SPECIFICATION:

Dimensions	Ø 37.8 mm
Height	23.9 mm
Fastening	pin, screw
ROHS compliant	yes

MATERIALS:

Component	Type	Material	Colour	Finish	Length
C16197_SURI-RS	Single lens	PMMA	clear		37.8
C16192_GABRIELLA-MIDI-HLD	Holder	PC	black		37.8

ORDERING INFORMATION:

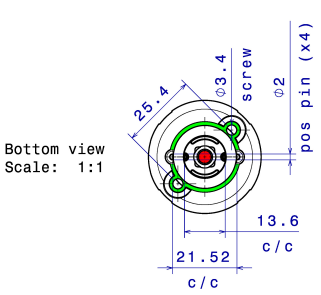
Quantities for one set:

Single lens	1
Holder	1

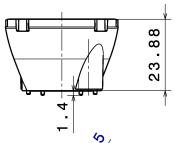
LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

Component		Qty in box	MOQ	MPQ	Box weight (kg)
C16197_SURI-RS » Box size: 476 x 273 x 292 mm	Single lens	500	100	50	7.4
C16192_GABRIELLA-MIDI-HLD » Box size: 476 x 273 x 292 mm	Holder	500	100	50	3.6

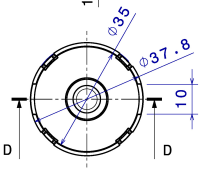
LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.



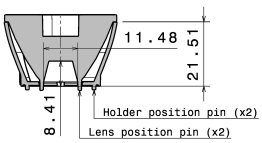
Bottom view
Scale: 1:1



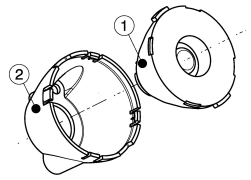
Front view
Scale: 1:1

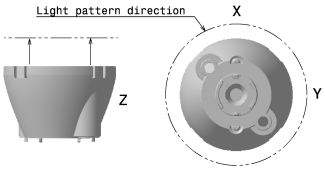


Top view
Scale: 1:1



Section view D-D
Scale: 1:1





CN16212_SURI-RS

COMPONENTS

INDEX	PRODUCT	TYPE	MATERIAL	COLOUR/COATING
1	C16197_SURI-RS	LENS	PMMA	CLEAR
2	C16192_GABRIELLA-MIDI-HLD	HOLDER	PC	BLACK

MECHANICAL DRAWING

PRODUCT
SURI-RS

Tolerances if not otherwise shown
According to DIN ISO 2768-1
Linear measures:
Up to 30mm class M, otherwise class C.
According to DIN ISO 2768-2
Form and position: class L

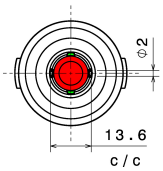
FIRST ANGLE PROJECTION:

This drawing is the property of LEDiL Oy. It may not be reproduced, copied or communicated without a written agreement with LEDiL Oy.

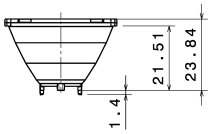
SCALE 1:1 | SIZE A3 | SHEET 1/3

Notes

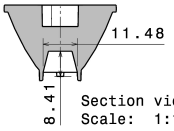
PCB or Heat Sink level
Led location see marking.
Ensure LED fitting, see our web site and/or 3D model for part detail.



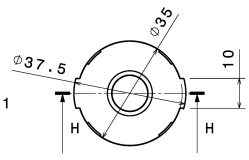
Bottom view
Scale: 1:1



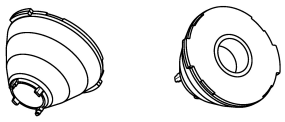
Front view
Scale: 1:1



Section view H-H
Scale: 1:1



Top view
Scale: 1:1



Isometric view
Scale: 1:1

COMPONENTS

INDEX	PRODUCT	TYPE	MATERIAL	COLOUR/COATING
1	C16197_SURI-RS	LENS	PMMA	CLEAR

MECHANICAL DRAWING

PRODUCT
SURI-RS

Tolerances if not otherwise shown
According to DIN ISO 2768-1
Linear measures:
Up to 30mm class M, otherwise class C.
According to DIN ISO 2768-2
Form and position: class L

FIRST ANGLE PROJECTION:

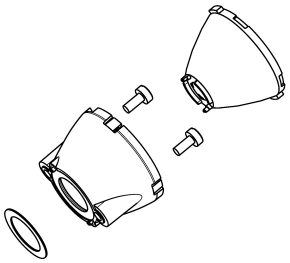
This drawing is the property of LEDiL Oy. It may not be reproduced, copied or communicated without a written agreement with LEDiL Oy.

SCALE 1:1 | SIZE A3 | SHEET 2/3

Notes

PCB or Heat Sink level
Led location see marking.
Ensure LED fitting, see our web site and/or 3D model for part detail.

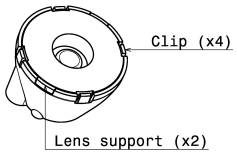
LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.



1. Place holder on PCB using the holder location pins as guide elements. Holder is fixed either by with on-board PU-tape or M3 screw with max 0.6Nm torgue.

2. Place lens support features into relative holes in the holder, please note that the location pins on the lens goes through the PCB.

3.Press optic until 4 clips each locked.





MECHANICAL DRAWING		LEDiL®
PRODUCT SURI-RS		
Tolerances if not otherwise shown According to DIN ISO 2768-1 Linear measures: Up to 30mm class M, otherwise class C. According to DIN ISO 2768-2 Form and position: class L	FIRST ANGLE PROJECTION:	This drawing is the property of LEDiL Oy. It may not be reproduced, copied or communicated without a written agreement with LEDiL Oy.
SCALE 1:1	SIZE A3	SHEET 3/3

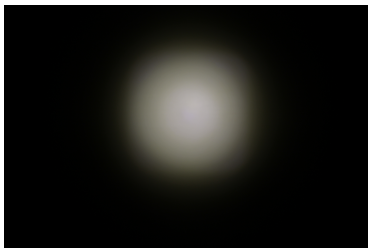
See also our general installation guide: www.ledil.com/installation_guide

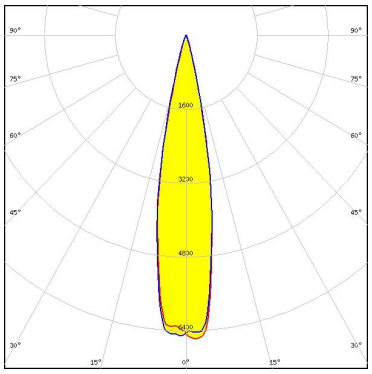
LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (MEASURED):

CREE LEDs

LED	XHP70.2
FWHM / FWTM	20.0° / 32.0°
Efficiency	88 %
Peak intensity	6.6 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

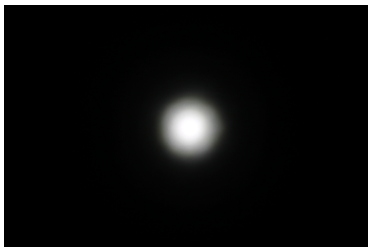


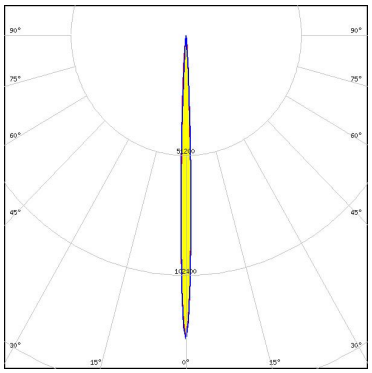


Light distribution files

CREE LEDs

LED	XQ-E HI
FWHM / FWTM	4.0° / 8.0°
Efficiency	91 %
Peak intensity	129.5 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

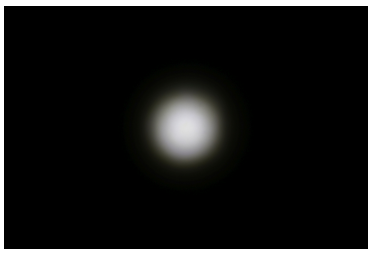


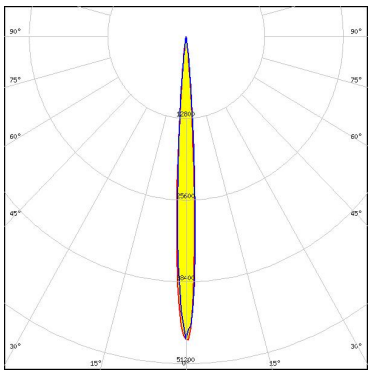


Light distribution files

CREE LEDs

LED	XT-E
FWHM / FWTM	7.0° / 12.0°
Efficiency	86 %
Peak intensity	47.5 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	





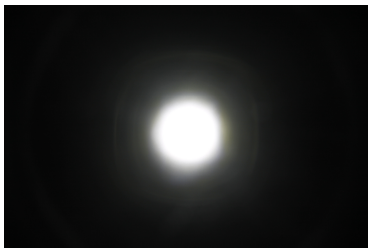
Light distribution files

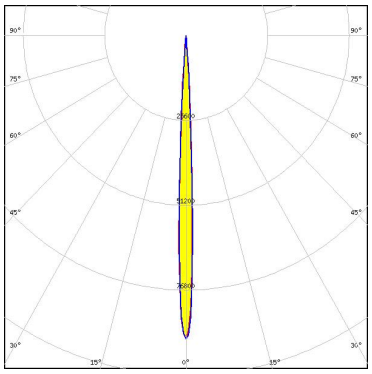
LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (MEASURED):

LUMILEDS

LED	LUXEON C
FWHM / FWTM	5.0° / 9.0°
Efficiency	86 %
Peak intensity	91.5 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

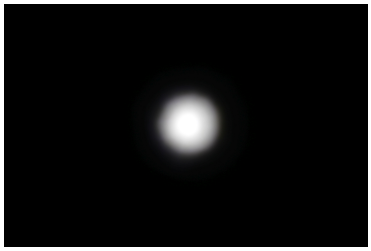


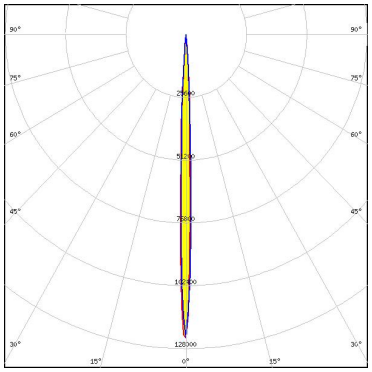


Light distribution files

LUMILEDS

LED	LUXEON CZ
FWHM / FWTM	4.0° / 9.0°
Efficiency	93 %
Peak intensity	124 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

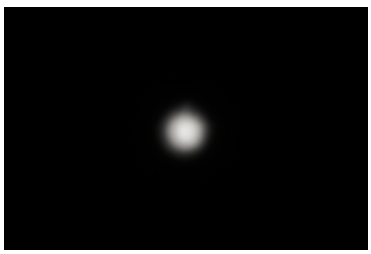


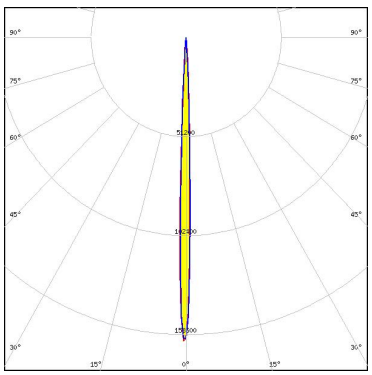


Light distribution files

LUMILEDS

LED	LUXEON Z
FWHM / FWTM	4.0° / 7.0°
Efficiency	92 %
Peak intensity	158 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	





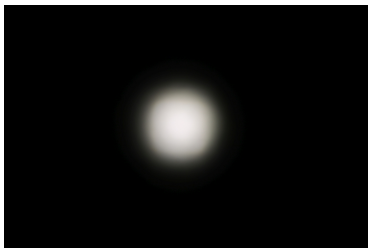
Light distribution files

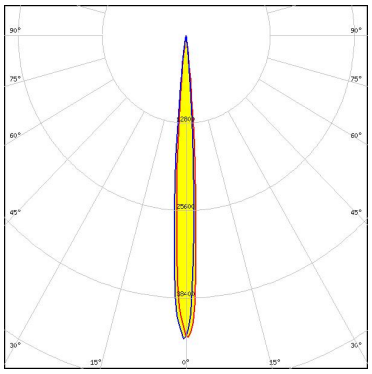
LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (MEASURED):

NICHIA

LED	NVSW219F
FWHM / FWTM	7.0° / 13.0°
Efficiency	92 %
Peak intensity	46 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



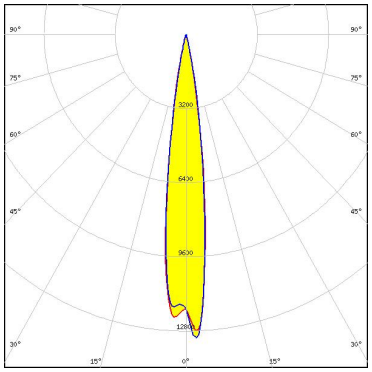


Light distribution files

OSRAM
Opto Semiconductors

LED	Duris S8
FWHM / FWTM	14.0° / 24.0°
Efficiency	90 %
Peak intensity	13.5 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

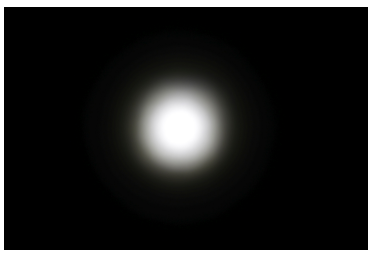


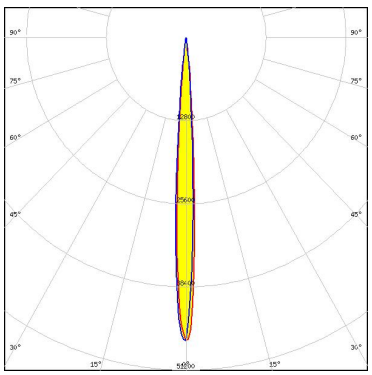


Light distribution files

OSRAM
Opto Semiconductors

LED	OSCONIQ P 3737 (2W version)
FWHM / FWTM	7.0° / 13.0°
Efficiency	90 %
Peak intensity	47.7 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	





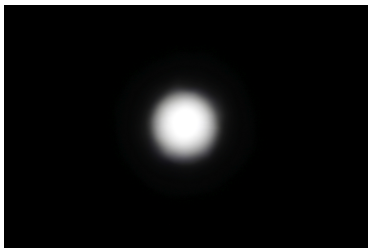
Light distribution files

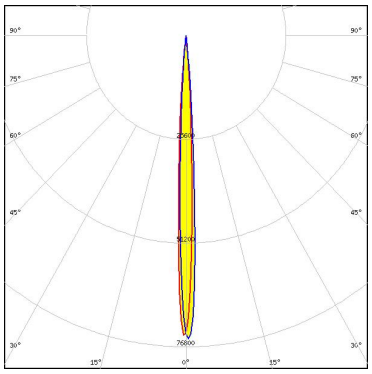
LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (MEASURED):

OSRAM
Opto Semiconductors

LED	OSLON Boost HX (KW CULPM1.TG)
FWHM / FWTM	6.0° / 11.0°
Efficiency	92 %
Peak intensity	75.2 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

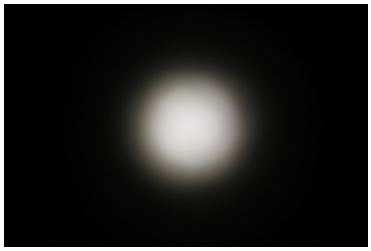


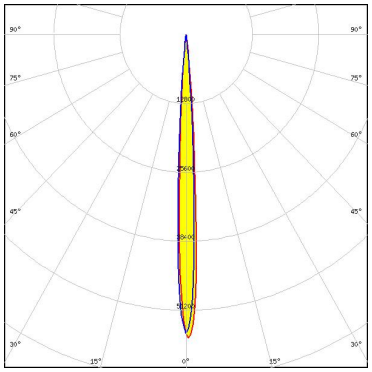


Light distribution files

OSRAM
Opto Semiconductors

LED	OSLON Square EC
FWHM / FWTM	6.0° / 12.0°
Efficiency	90 %
Peak intensity	56 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

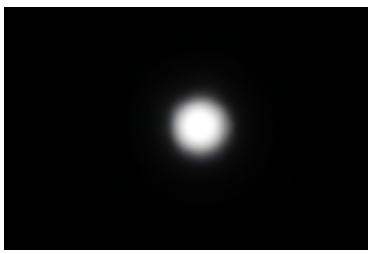


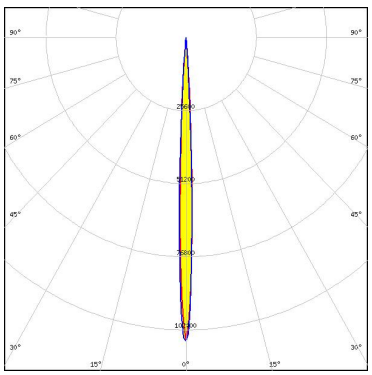


Light distribution files

OSRAM
Opto Semiconductors

LED	OSLON SSL 150
FWHM / FWTM	5.0° / 9.0°
Efficiency	93 %
Peak intensity	106 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	





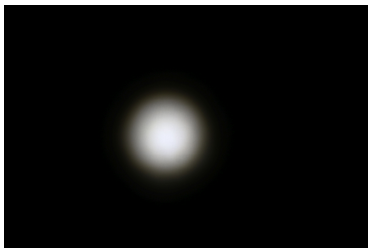
Light distribution files

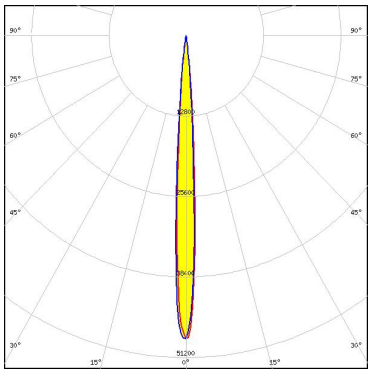
LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (MEASURED):

SAMSUNG

LED	LH181B
FWHM / FWTM	7.0° / 13.0°
Efficiency	91 %
Peak intensity	48.2 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

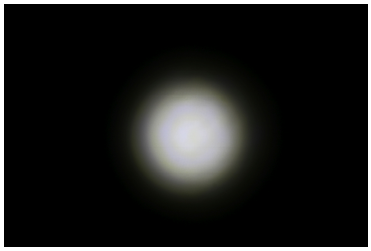


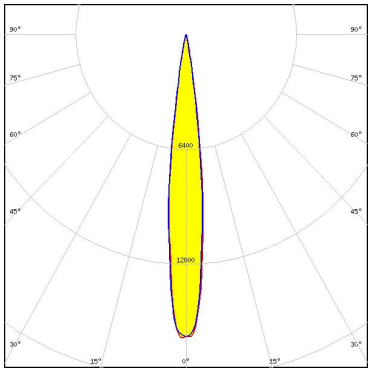


Light distribution files

SAMSUNG

LED	LH508A
FWHM / FWTM	13.0° / 21.0°
Efficiency	91 %
Peak intensity	16.9 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

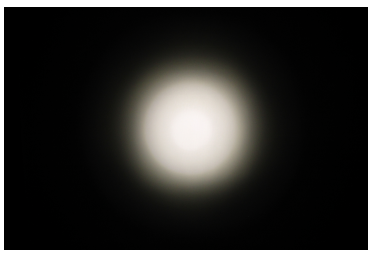


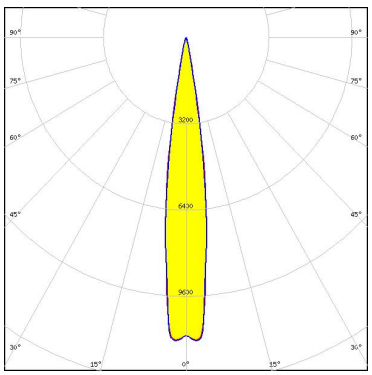


Light distribution files

SEOUL SEMICONDUCTOR

LED	WICOP 5050
FWHM / FWTM	15.0° / 24.0°
Efficiency	86 %
Peak intensity	11.5 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	





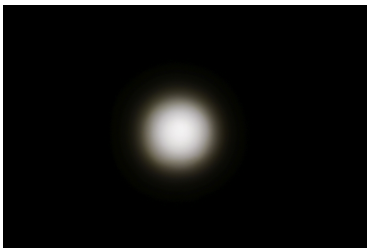
Light distribution files

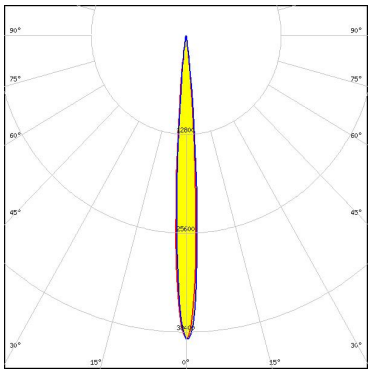
LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (MEASURED):

SEOUL SEMICONDUCTOR

LED	Z5M3
FWHM / FWTM	8.0° / 14.0°
Efficiency	90 %
Peak intensity	39.3 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	





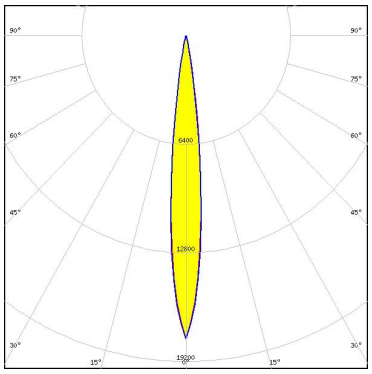
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

bridgelux

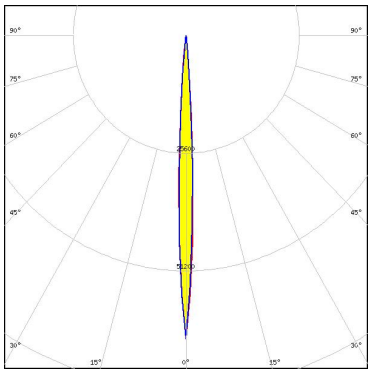
LED	Bridgelux SMD 5050
FWHM / FWTM	12.0° / 22.0°
Efficiency	93 %
Peak intensity	17.9 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

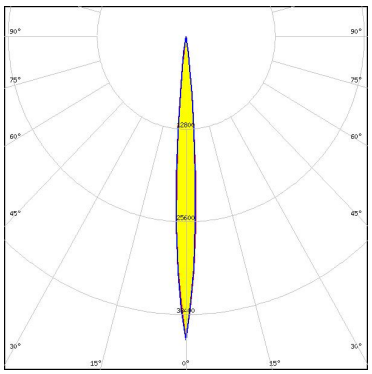
LED	XD16
FWHM / FWTM	6.0° / 11.0°
Efficiency	87 %
Peak intensity	66 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

LED	XHP35 HI
FWHM / FWTM	8.0° / 14.0°
Efficiency	91 %
Peak intensity	41.9 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



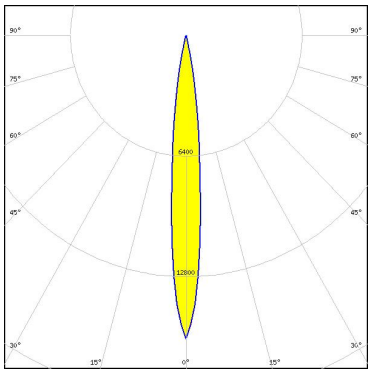
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

CREE LEDs

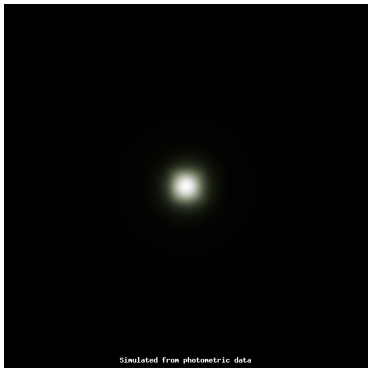
LED	XHP35.2 HD
FWHM / FWTM	12.0° / 22.0°
Efficiency	89 %
Peak intensity	16.1 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

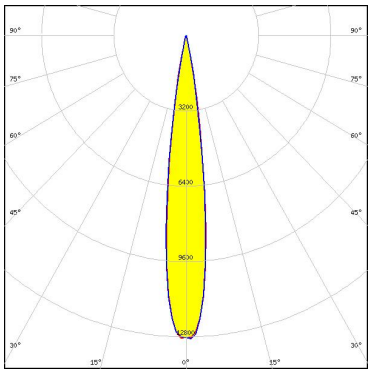
LED	XHP35.2 HI
FWHM / FWTM	10.0° / 16.0°
Efficiency	91 %
Peak intensity	27.4 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

LED	XHP50.2
FWHM / FWTM	14.0° / 24.0°
Efficiency	89 %
Peak intensity	13 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



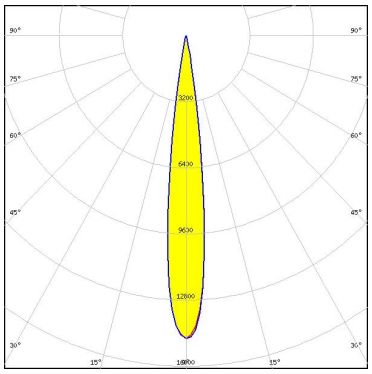
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

CREE LEDs

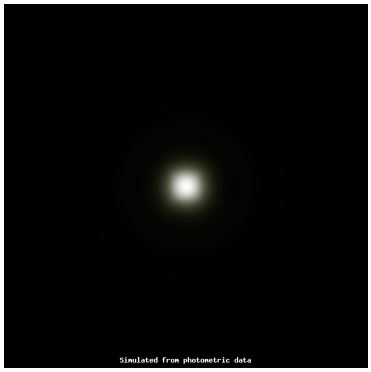
LED	XHP50.3 HD
FWHM / FWTM	14.0° / 22.0°
Efficiency	89 %
Peak intensity	14.7 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

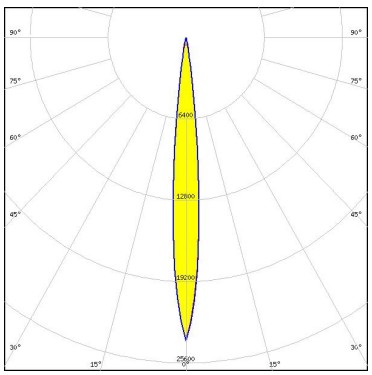
LED	XHP50.3 HI
FWHM / FWTM	10.0° / 18.0°
Efficiency	91 %
Peak intensity	23.8 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

LED	XHP50.3 HI
FWHM / FWTM	10.0° / 18.0°
Efficiency	91 %
Peak intensity	23.9 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



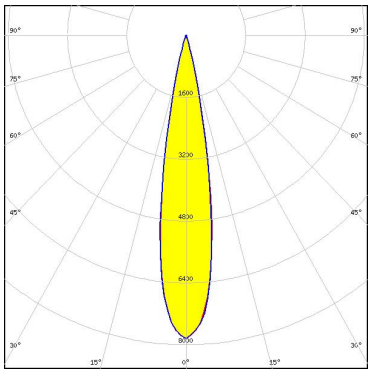
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

CREE LEDs

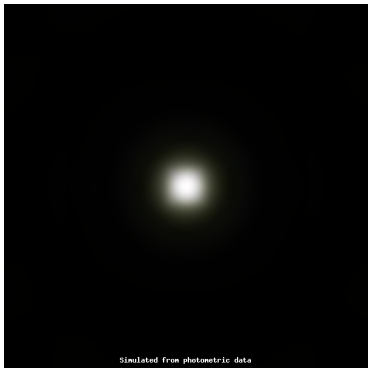
LED	XHP70.3 HD
FWHM / FWTM	18.0° / 30.0°
Efficiency	88 %
Peak intensity	7.9 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

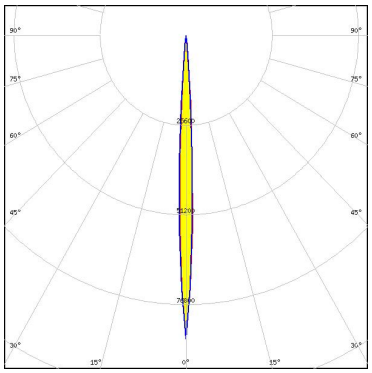
LED	XHP70.3 HI
FWHM / FWTM	14.0° / 22.0°
Efficiency	91 %
Peak intensity	14.5 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

LED	XP-E2
FWHM / FWTM	5.0° / 10.0°
Efficiency	91 %
Peak intensity	85 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

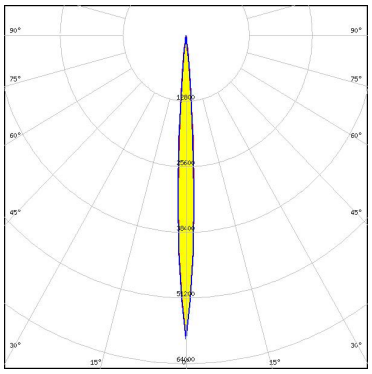


Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

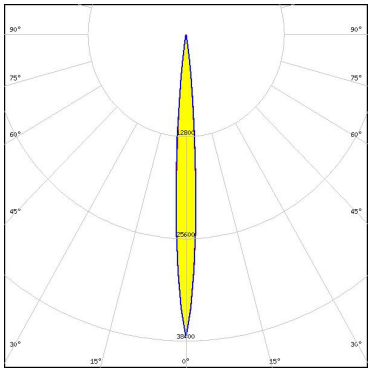
OPTICAL RESULTS (SIMULATED):

LED	XP-G2
FWHM / FWTM	6.0° / 12.0°
Efficiency	91 %
Peak intensity	58 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



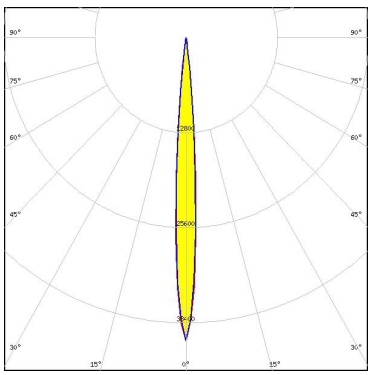
Light distribution files

LED	XP-G2 HE
FWHM / FWTM	8.0° / 16.0°
Efficiency	91 %
Peak intensity	38 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

LED	XP-G3
FWHM / FWTM	7.7° / 14.0°
Efficiency	90 %
Peak intensity	40.8 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



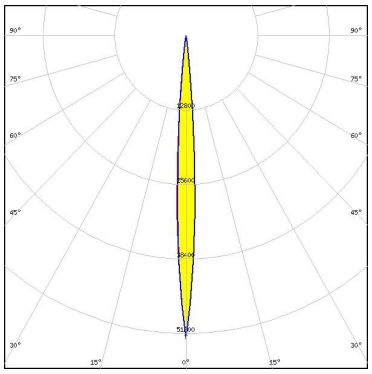
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

CREE LEDs

LED	XP-G4
FWHM / FWTM	6.0° / 14.0°
Efficiency	92 %
Peak intensity	52.1 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



CREE LEDs

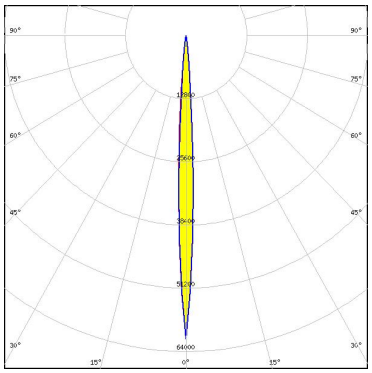
LED	XP-G4 HI
FWHM / FWTM	6.0° / 12.0°
Efficiency	90 %
Peak intensity	67.4 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

LED	XP-G4 HI
FWHM / FWTM	6.0° / 12.0°
Efficiency	90 %
Peak intensity	61.5 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

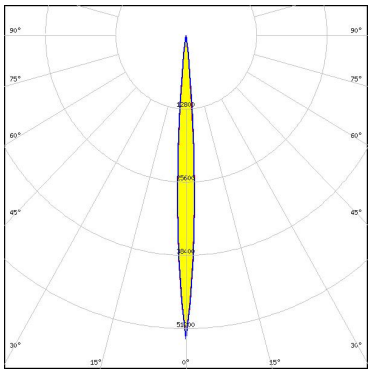


LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

CREE LEDs

LED	XP-L HI
FWHM / FWTM	6.0° / 12.0°
Efficiency	91 %
Peak intensity	53 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

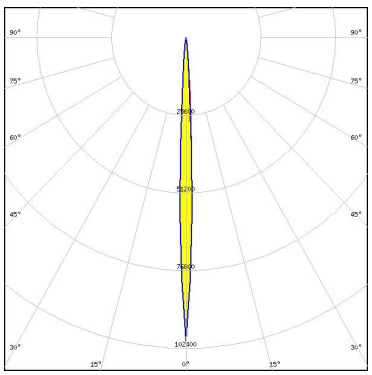
LED	XP-L HI
FWHM / FWTM	6.0° / 12.0°
Efficiency	91 %
Peak intensity	56.3 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

LED	XP-P
FWHM / FWTM	4.0° / 10.0°
Efficiency	94 %
Peak intensity	100 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



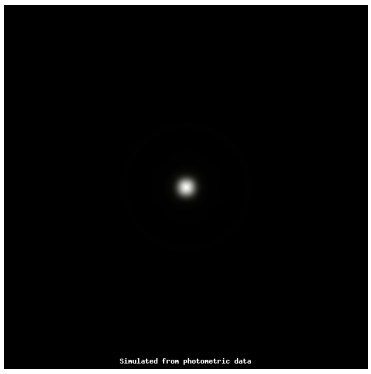
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

CREE LEDs

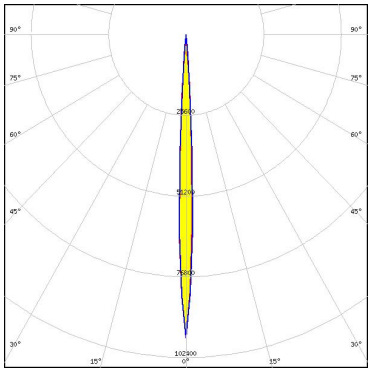
LED	XP-P
FWHM / FWTM	4.0° / 8.0°
Efficiency	91 %
Peak intensity	117 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

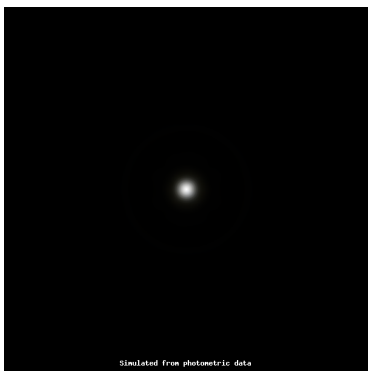
LED	XQ-E HD
FWHM / FWTM	5.2° / 9.5°
Efficiency	92 %
Peak intensity	96.2 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

CREE LEDs

LED	XQ-E HI
FWHM / FWTM	4.0° / 8.0°
Efficiency	89 %
Peak intensity	119.2 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



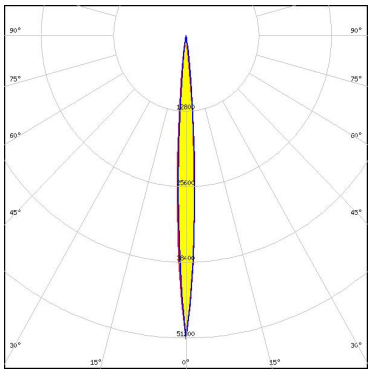
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

LUMILEDS

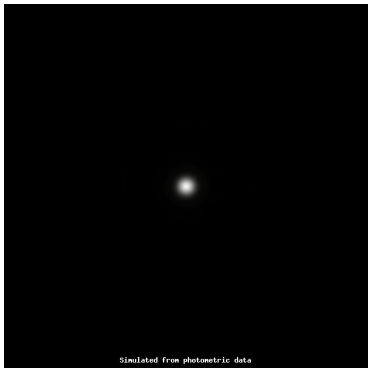
LED	LUXEON 3030 2D (Round LES)
FWHM / FWTM	6.0° / 14.0°
Efficiency	90 %
Peak intensity	51.4 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

LUMILEDS

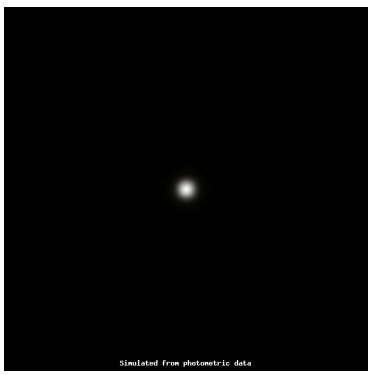
LED	LUXEON Altilon intense 1x1
FWHM / FWTM	4.0° / 8.0°
Efficiency	90 %
Peak intensity	135 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

LUMILEDS

LED	LUXEON CZ
FWHM / FWTM	4.0° / 8.0°
Efficiency	90 %
Peak intensity	120.7 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



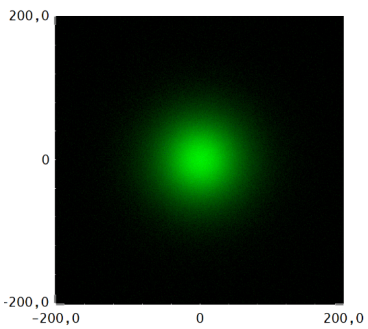
Light distribution files

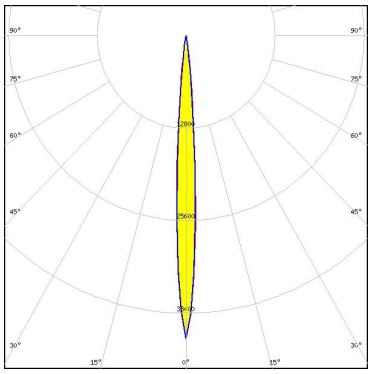
LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

LUMILEDS

LED	LUXEON CZ
FWHM / FWTM	8.0° / 14.0°
Efficiency	92 %
Peak intensity	42 cd/lm
LEDs/each optic	1
Light colour/type	Green
Required components:	

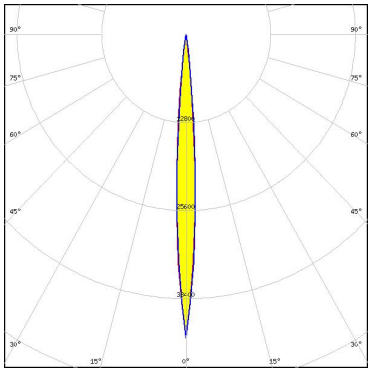




Light distribution files

LUMILEDS

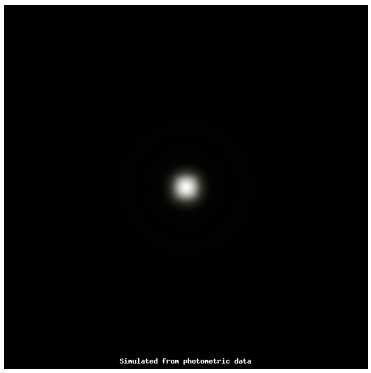
LED	LUXEON HL2X
FWHM / FWTM	8.0° / 14.0°
Efficiency	91 %
Peak intensity	44.1 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

LUMILEDS

LED	LUXEON HL4Z
FWHM / FWTM	8.0° / 12.0°
Efficiency	92 %
Peak intensity	49.8 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



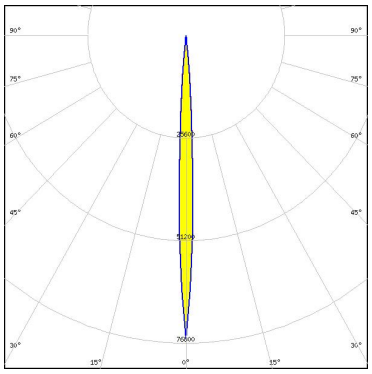
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

LUMILEDS

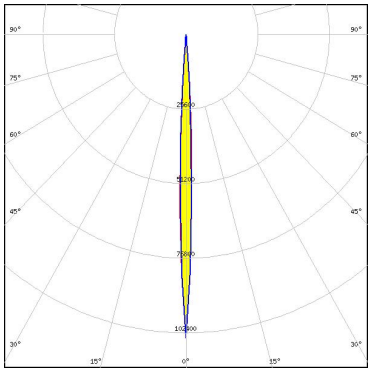
LED	LUXEON Rebel Plus
FWHM / FWTM	6.0° / 10.0°
Efficiency	91 %
Peak intensity	75.7 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

LUMILEDS

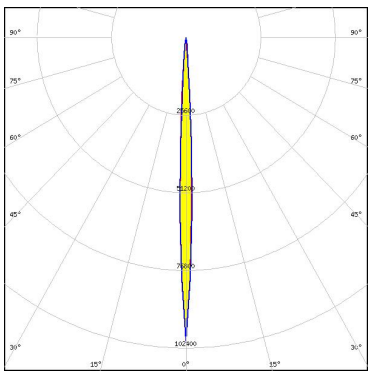
LED	LUXEON Rubix
FWHM / FWTM	4.0° / 10.0°
Efficiency	91 %
Peak intensity	104.2 cd/lm
LEDs/each optic	1
Light colour/type	Red
Required components:	



Light distribution files

LUMILEDS

LED	LUXEON Rubix
FWHM / FWTM	4.0° / 10.0°
Efficiency	91 %
Peak intensity	100.1 cd/lm
LEDs/each optic	1
Light colour/type	Green
Required components:	



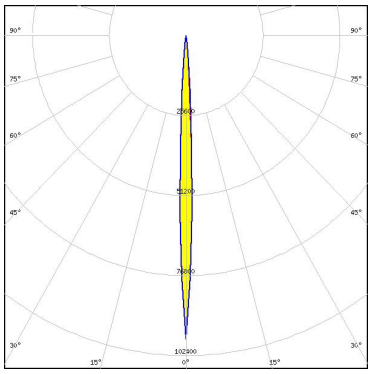
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

LUMILEDS

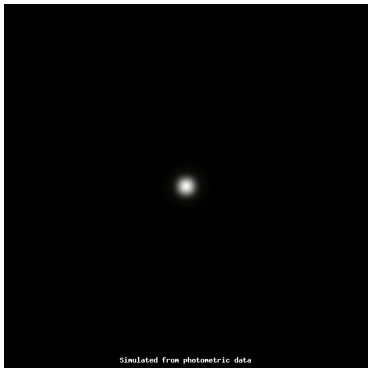
LED	LUXEON Rubix
FWHM / FWTM	4.0° / 10.0°
Efficiency	91 %
Peak intensity	97.1 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

LUMILEDS

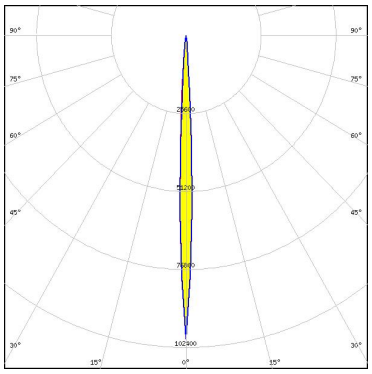
LED	LUXEON Rubix
FWHM / FWTM	4.0° / 8.0°
Efficiency	90 %
Peak intensity	111.8 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

LUMILEDS

LED	LUXEON Rubix
FWHM / FWTM	4.0° / 10.0°
Efficiency	91 %
Peak intensity	99.6 cd/lm
LEDs/each optic	1
Light colour/type	Blue
Required components:	



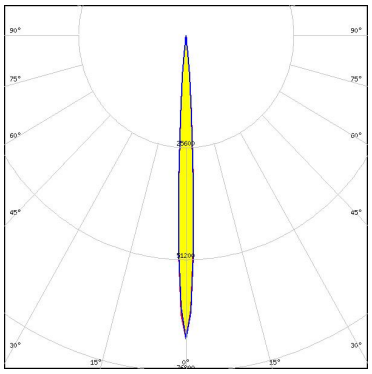
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

NICHIA

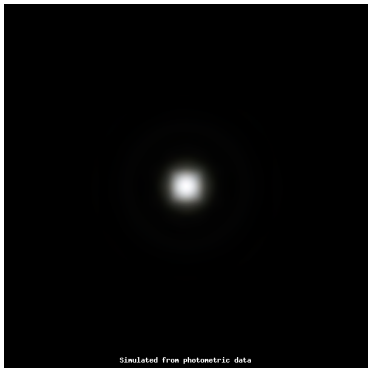
LED	NCSxE17A
FWHM / FWTM	6.0° / 10.0°
Efficiency	87 %
Peak intensity	69.3 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

NICHIA

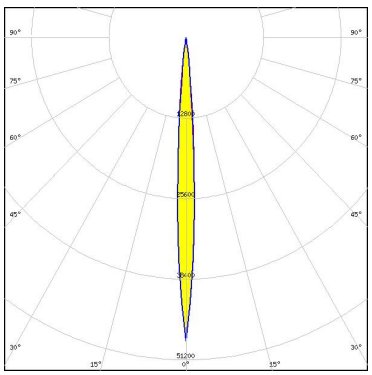
LED	NV4WB35AM
FWHM / FWTM	10.0° / 16.0°
Efficiency	92 %
Peak intensity	26.7 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

NICHIA

LED	NVSxE21A
FWHM / FWTM	6.0° / 14.0°
Efficiency	88 %
Peak intensity	48.2 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



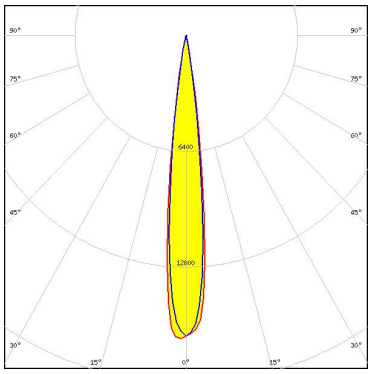
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

OSRAM
Opto Semiconductors

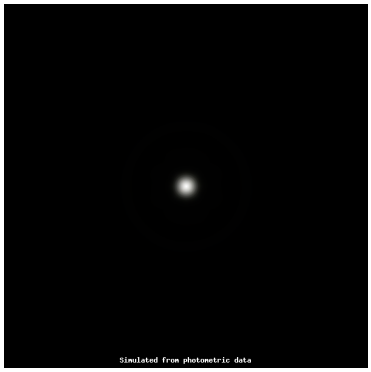
LED	Duris S8
FWHM / FWTM	13.0° / 21.0°
Efficiency	92 %
Peak intensity	16.8 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

OSRAM
Opto Semiconductors

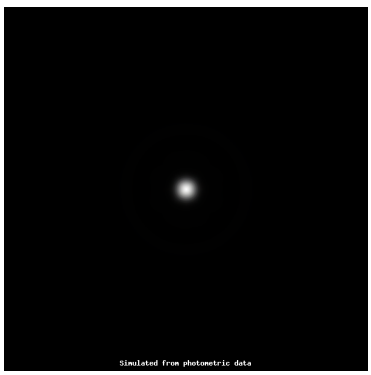
LED	OSLON Black Flat S (KW HHL532.TK)
FWHM / FWTM	4.0° / 8.0°
Efficiency	90 %
Peak intensity	114.2 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

OSRAM
Opto Semiconductors

LED	OSLON Black Flat X (KW HHL631.TK)
FWHM / FWTM	4.0° / 10.0°
Efficiency	91 %
Peak intensity	105.7 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



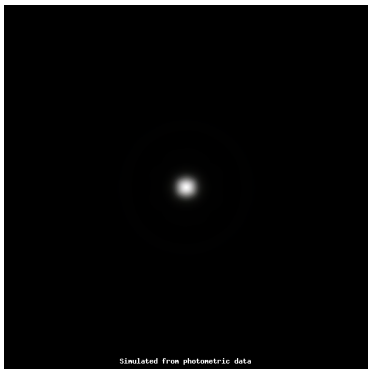
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

OSRAM
Opto Semiconductors

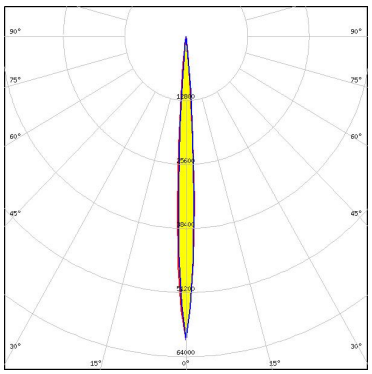
LED	OSLON Boost HX (KW CULPM1.TG)
FWHM / FWTM	6.0° / 10.0°
Efficiency	91 %
Peak intensity	91.6 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

OSRAM
Opto Semiconductors

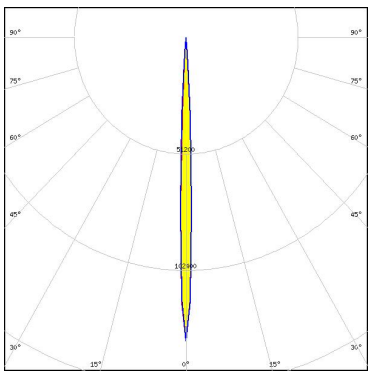
LED	OSLON Square CSSRM2/CSSRM3
FWHM / FWTM	6.4° / 13.0°
Efficiency	92 %
Peak intensity	60.7 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

OSRAM
Opto Semiconductors

LED	OSTAR Projection Compact (KW.CSLNM1.TG)
FWHM / FWTM	4.0° / 8.0°
Efficiency	90 %
Peak intensity	133.4 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



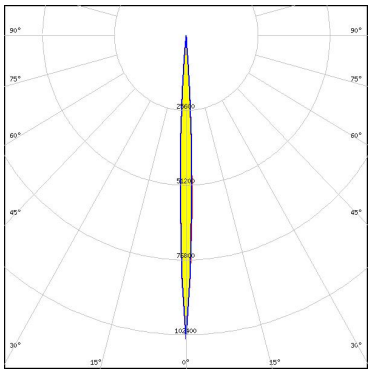
Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

OPTICAL RESULTS (SIMULATED):

OSRAM
Opto Semiconductors

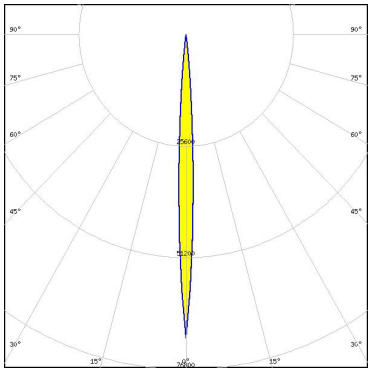
LED	OSTAR Projection Compact (KW.CSLNM1.TG)
FWHM / FWTM	4.0° / 10.0°
Efficiency	91 %
Peak intensity	103.8 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

SAMSUNG

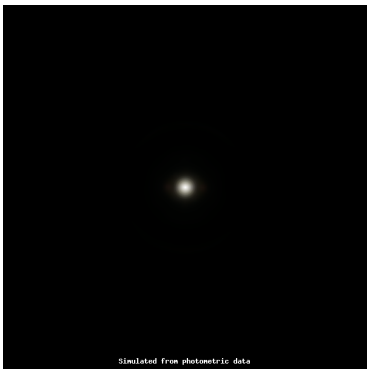
LED	LM101B
FWHM / FWTM	6.0° / 12.0°
Efficiency	90 %
Peak intensity	69.6 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

LEDiL®

LED	LaserLight SMD 1000
FWHM / FWTM	4.0° / 8.0°
Efficiency	88 %
Peak intensity	144.2 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.

GENERAL INFORMATION:

NOTE: The typical beam angle will be changed by different color, chip size and chip position tolerance. The typical total beam angle is the full angle measured where the luminous intensity is half of the peak value.

MATERIALS:

As part of our continuous research and improvement processes, and to ensure the best possible quality and availability of our products, LEDiL reserves the right to change material grades without notice.

PRODUCT DATA USER AGREEMENT AND DISCLAIMER:

The measured data in the provided downloadable LEDiL Product Datasheets and Mechanical 2D-Drawings is rounded and provided as reference for planning. LEDiL Oy's optical specifications have been verified by conducting performance testing of the products in accordance with the company's quality system. The reported data are averaged results of multiple measurements with typical variation. LEDiL Oy reserves the right to without prior notification make changes and improvements to its products.

LEDiL Oy assumes neither warranty, nor guarantee nor any other liability of any kind for the contents and correctness of the provided data. The provided data has been generated with highest diligence but the provided data may in reality not represent the complete possible variation range of all intrinsic parameters. Therefore, in certain cases a deviation from the provided data could occur.

LEDiL Oy reserves the right to undertake technical changes of its products without further notification which could lead to changes in the provided data. LEDiL Oy assumes no liability of any kind for the possible deviation from any provided data or any other damage resulting from the usage of the provided data.

The user agrees to this disclaimer and user agreement with the download or usage of the provided files.

LEDiL Oy
Joensuunkatu 13
FI-24240 SALO
Finland

LEDiL Inc.
228 West Page Street
Suite D
Sycamore IL 60178
USA

Ledil Optics Technology (Shenzhen) Co., Ltd.
405 , Block B
Casic Motor Building
Shenzhen 518057
P.R.CHINA

Local sales and technical support
www.ledil.com/
where_to_buy

Shipping locations
Poznan, Poland
Hong Kong, China

Distribution Partners
www.ledil.com/
where_to_buy

LEDiL is a registered trademark of LEDiL Oy in the European Union, USA, and certain other countries.