

### CRYSTAL-MINE

~4.9° spot beam especially designed for mining headlamps. Assembly with holder.

#### SPECIFICATION:

Dimensions	Ø 50.3
Height	28.7 mm
Fastening	pin, screw
ROHS compliant	yes ⓘ



#### MATERIALS:

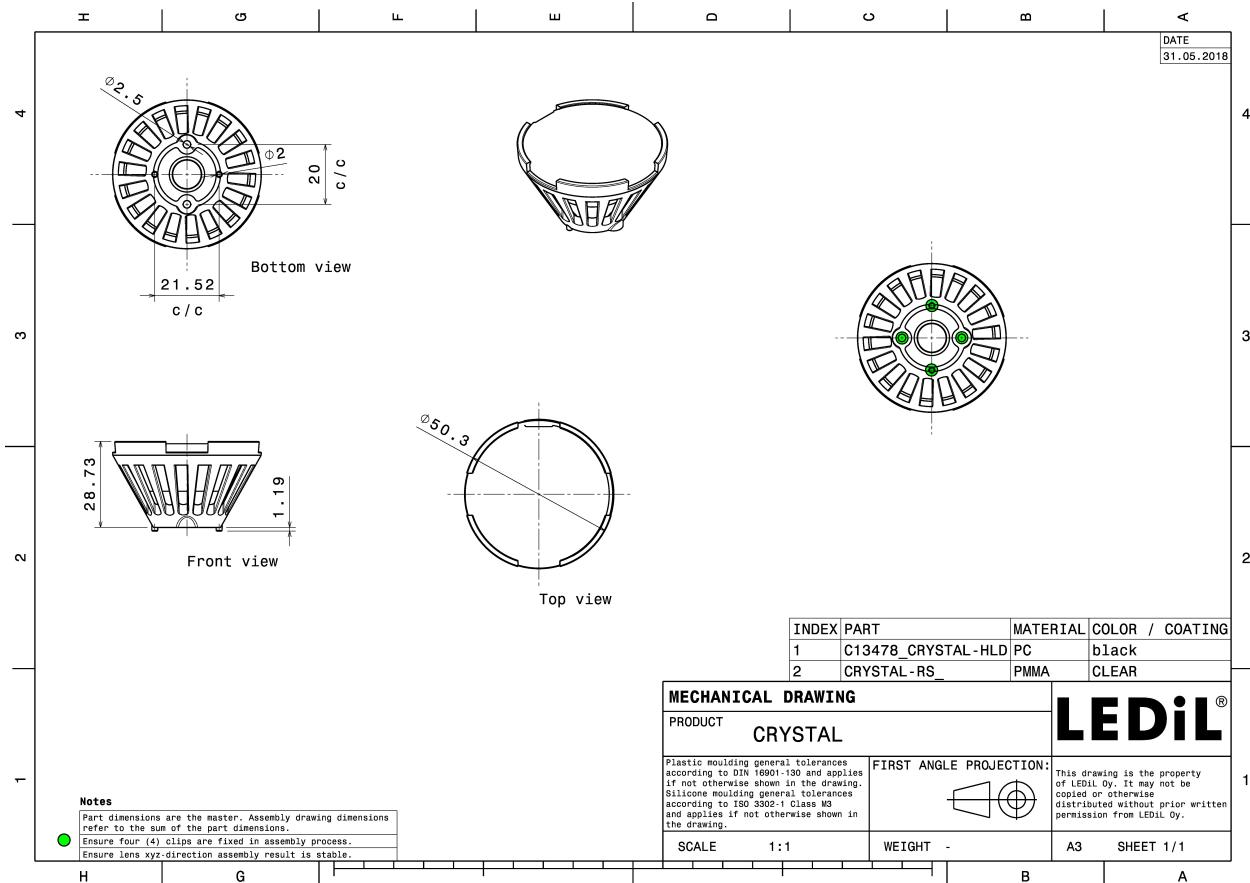
Component	Type	Material	Colour	Finish	Length (mm)
F12985_CRYSTAL-MINE	Single lens	PMMA	clear		
C13478_CRYSTAL-HLD	Holder	PC	white		

#### ORDERING INFORMATION:

##### Quantities for one set:

Single lens	1
Holder	1

Component		Qty in box	MOQ	MPQ	Box weight (kg)
F12985_CRYSTAL-MINE » Box size: 480 x 280 x 300 mm	Single lens	288	64	32	7.1
C13478_CRYSTAL-HLD » Box size: 480 x 280 x 300 mm	Holder	1152	64	32	6.1

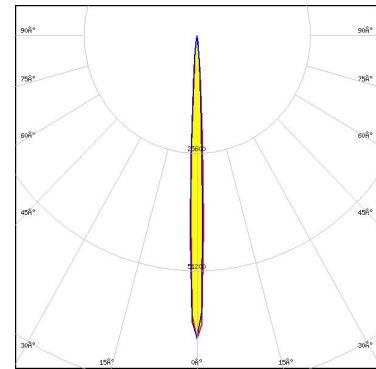


See also our general installation guide: [www.ledil.com/installation\\_guide](http://www.ledil.com/installation_guide)

### OPTICAL RESULTS (MEASURED):



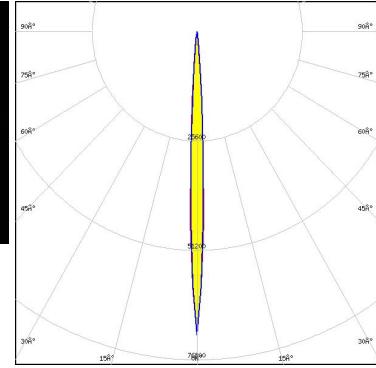
LED XP-G  
 FWHM / FWTM 4.7° / 10.5°  
 Efficiency 90 %  
 Peak intensity 66.9 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files



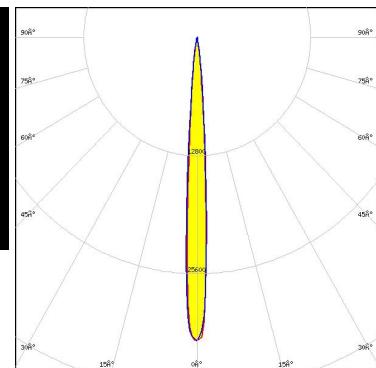
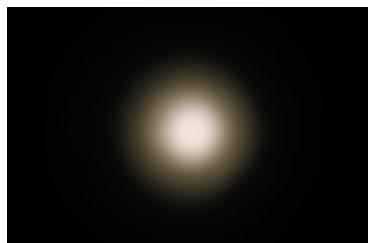
LED XP-G2  
 FWHM / FWTM 4.6° / 12.0°  
 Efficiency 90 %  
 Peak intensity 65.2 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files



LED XP-L HD  
 FWHM / FWTM 7.0° / 14.0°  
 Efficiency 86 %  
 Peak intensity 33 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:

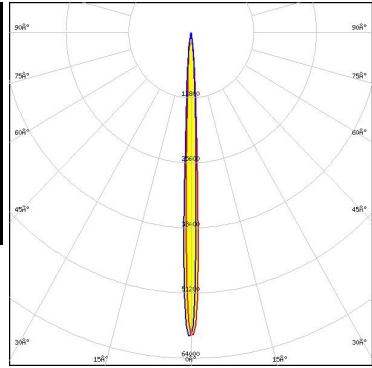


Light distribution files

### OPTICAL RESULTS (MEASURED):



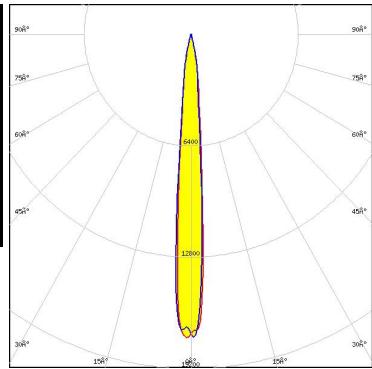
LED XP-L HI  
 FWHM / FWTM 4.5° / 12.0°  
 Efficiency 92 %  
 Peak intensity 60 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files



LED LUXEON 5050 Round LES  
 FWHM / FWTM 9.0° / 23.0°  
 Efficiency 94 %  
 Peak intensity 17.5 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files



LED LUXEON A  
 FWHM / FWTM 4.9° / 13.0°  
 Efficiency 89 %  
 Peak intensity 58.2 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files

### OPTICAL RESULTS (MEASURED):



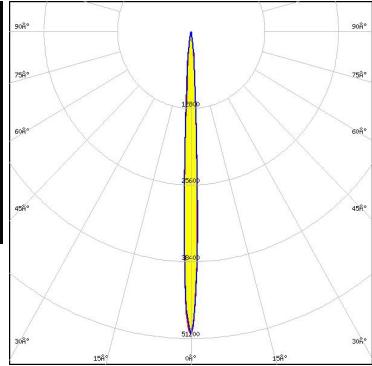
LED LUXEON T  
 FWHM / FWTM 4.9° / 13.0°  
 Efficiency 89 %  
 Peak intensity 55.1 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files



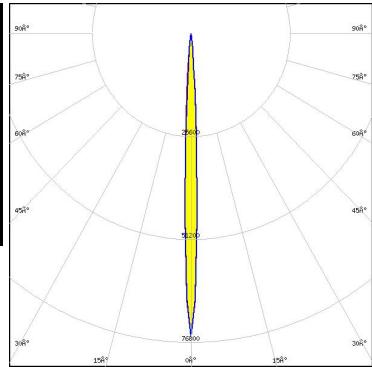
LED LUXEON TX  
 FWHM / FWTM 5.0° / 12.6°  
 Efficiency 94 %  
 Peak intensity 50.6 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files



LED NCSxx19B  
 FWHM / FWTM 3.6° / 12.0°  
 Efficiency 90 %  
 Peak intensity 73.3 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:

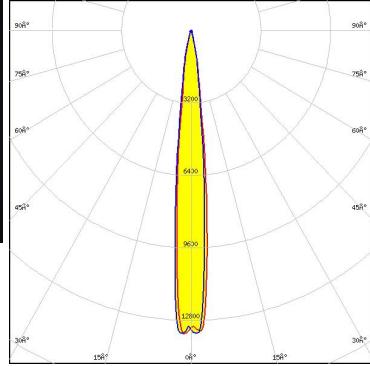


Light distribution files

### OPTICAL RESULTS (MEASURED):



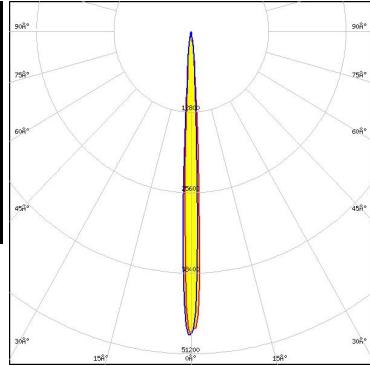
**LED** NV4x144A  
**FWHM / FWTM** 11.0° / 24.0°  
**Efficiency** 90 %  
**Peak intensity** 13.4 cd/lm  
**LEDs/each optic** 1  
**Light colour/type** White  
**Required components:**



Light distribution files



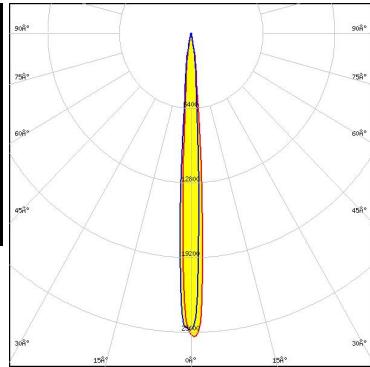
**LED** NVSxx19B/NVSxx19C  
**FWHM / FWTM** 6.0° / 13.0°  
**Efficiency** 93 %  
**Peak intensity** 48 cd/lm  
**LEDs/each optic** 1  
**Light colour/type** White  
**Required components:**



Light distribution files



**LED** NWSx229A  
**FWHM / FWTM** 7.0° / 18.0°  
**Efficiency** 91 %  
**Peak intensity** 26 cd/lm  
**LEDs/each optic** 1  
**Light colour/type** White  
**Required components:**



Light distribution files

### OPTICAL RESULTS (MEASURED):

#### SAMSUNG

LED LH351B  
 FWHM / FWTM 5.1° / 13.0°  
 Efficiency 90 %  
 Peak intensity 51.8 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files

#### SAMSUNG

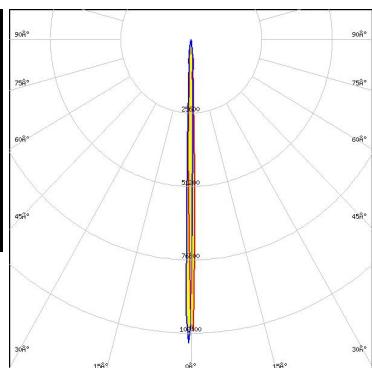
LED LH351Z  
 FWHM / FWTM 4.2° / 10.0°  
 Efficiency 90 %  
 Peak intensity 71.4 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files

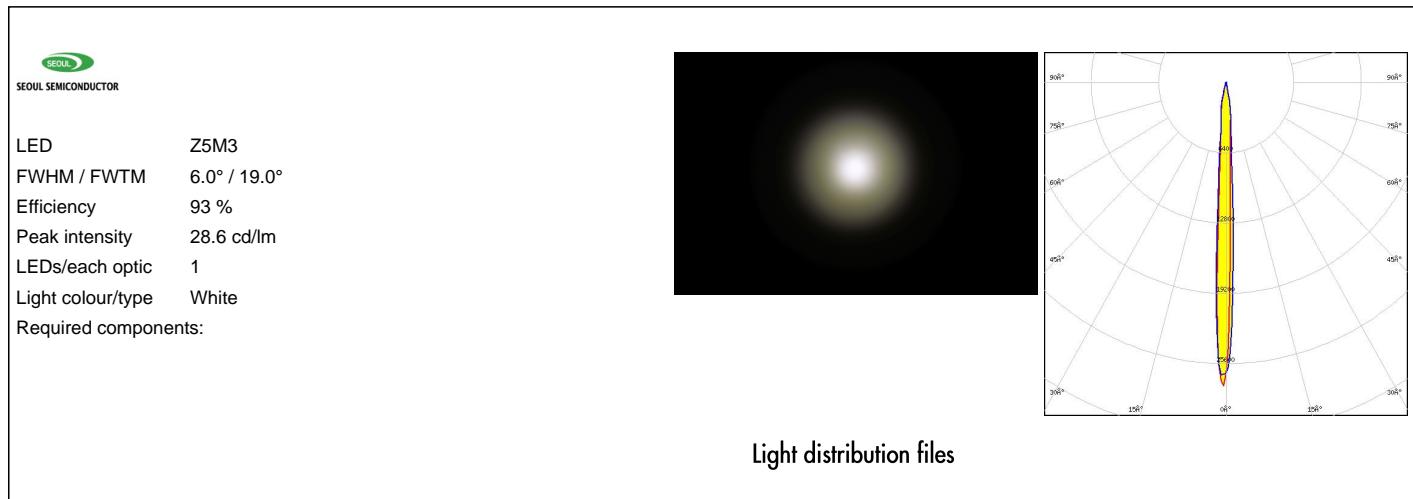
 SEOUL SEMICONDUCTOR

LED nPola  
 FWHM / FWTM 2.0° / 7.0°  
 Efficiency 94 %  
 Peak intensity 114 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files

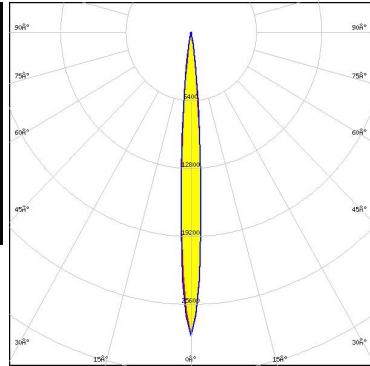
## OPTICAL RESULTS (MEASURED):



### OPTICAL RESULTS (SIMULATED):



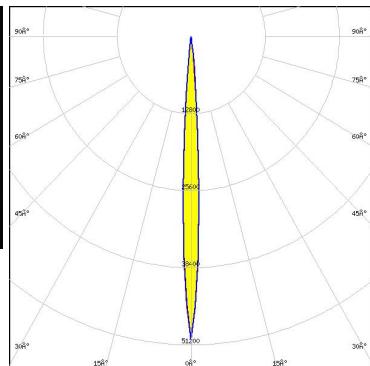
LED XHP35 HD  
 FWHM / FWTM 7.8° / 17.0°  
 Efficiency 94 %  
 Peak intensity 28.6 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files



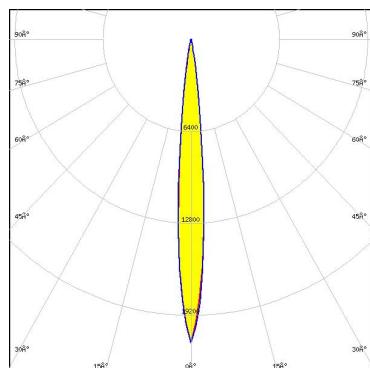
LED XHP35 HI  
 FWHM / FWTM 6.2° / 13.0°  
 Efficiency 94 %  
 Peak intensity 50.4 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files



LED XHP35.2 HD  
 FWHM / FWTM 10.0° / 19.0°  
 Efficiency 94 %  
 Peak intensity 21.1 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:

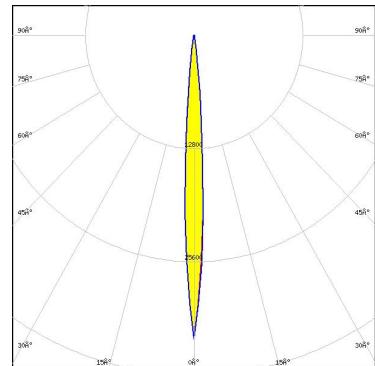


Light distribution files

### OPTICAL RESULTS (SIMULATED):



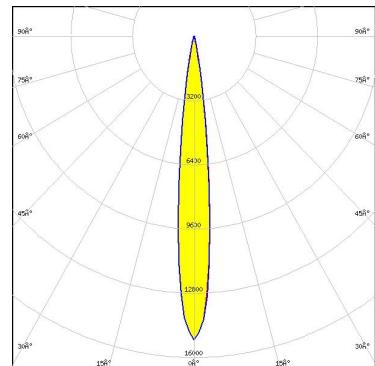
LED	XHP35.2 HD
FWHM / FWTM	8.0° / 16.0°
Efficiency	96 %
Peak intensity	34.3 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files



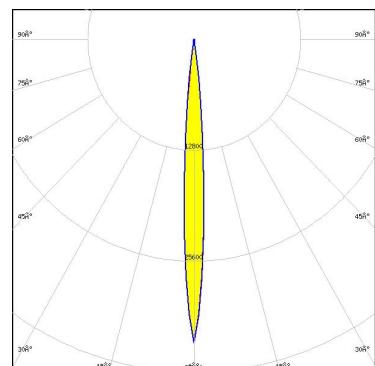
LED	XHP50.2
FWHM / FWTM	12.0° / 22.0°
Efficiency	95 %
Peak intensity	15.1 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files



LED	XM-L2
FWHM / FWTM	8.0° / 16.0°
Efficiency	97 %
Peak intensity	35 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

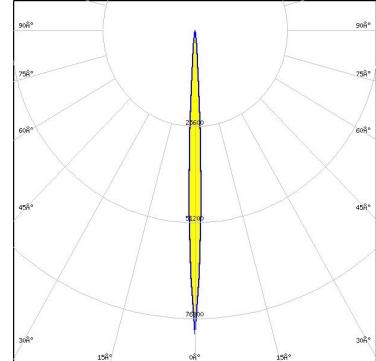


Light distribution files

### OPTICAL RESULTS (SIMULATED):



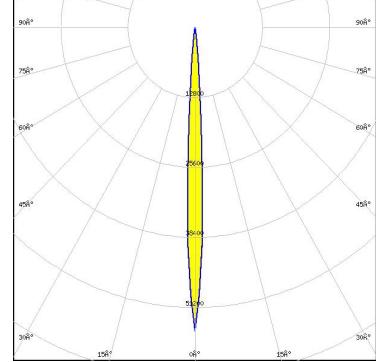
LED LUXEON C  
 FWHM / FWTM 4.0° / 10.0°  
 Efficiency 94 %  
 Peak intensity 80.9 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files



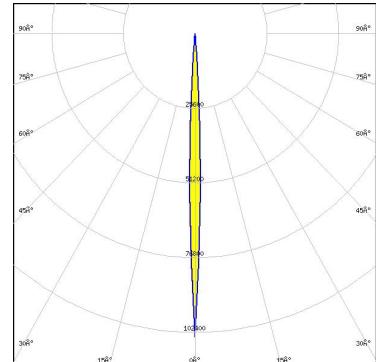
LED LUXEON HL4Z  
 FWHM / FWTM 6.0° / 12.0°  
 Efficiency 96 %  
 Peak intensity 55.5 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files



LED LUXEON Rubix  
 FWHM / FWTM 4.0° / 10.0°  
 Efficiency 95 %  
 Peak intensity 104 cd/lm  
 LEDs/each optic 1  
 Light colour/type Blue  
 Required components:

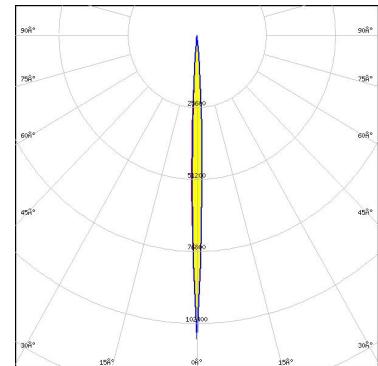


Light distribution files

### OPTICAL RESULTS (SIMULATED):



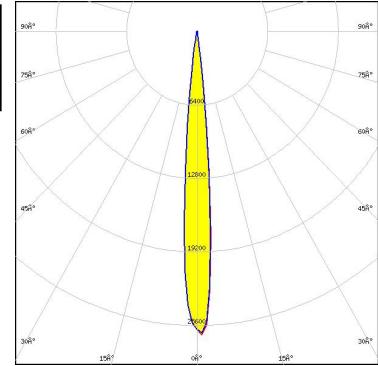
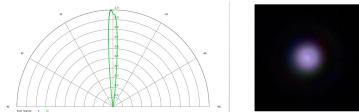
LED LUXEON Rubix  
 FWHM / FWTM 4.0° / 10.0°  
 Efficiency 95 %  
 Peak intensity 107.9 cd/lm  
 LEDs/each optic 1  
 Light colour/type Red  
 Required components:



Light distribution files



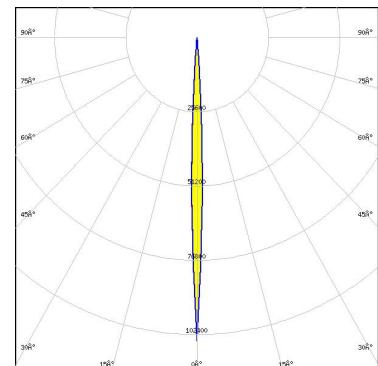
LED LUXEON Rubix  
 FWHM / FWTM 10.0° / 17.0°  
 Efficiency 97 %  
 Peak intensity 26.6 cd/lm  
 LEDs/each optic 4  
 Light colour/type RGBW  
 Required components:



Light distribution files



LED LUXEON Rubix  
 FWHM / FWTM 4.0° / 10.0°  
 Efficiency 95 %  
 Peak intensity 104.6 cd/lm  
 LEDs/each optic 1  
 Light colour/type Green  
 Required components:

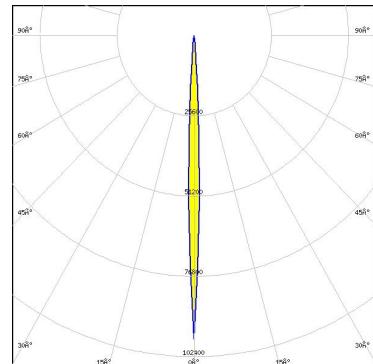


Light distribution files

### OPTICAL RESULTS (SIMULATED):

#### LUMILEDS

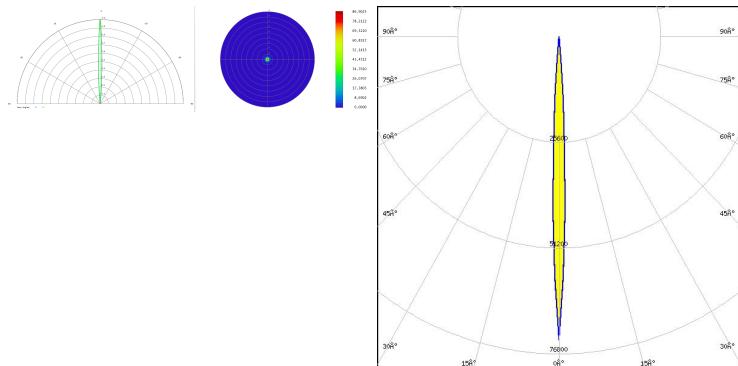
LED LUXEON Rubix  
 FWHM / FWTM 4.0° / 10.0°  
 Efficiency 95 %  
 Peak intensity 96.7 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:



Light distribution files

#### LUMINUS

LED SST-10-B130  
 FWHM / FWTM 5.0° / 10.0°  
 Efficiency 95 %  
 LEDs/each optic 1  
 Light colour/type IR  
 Required components:

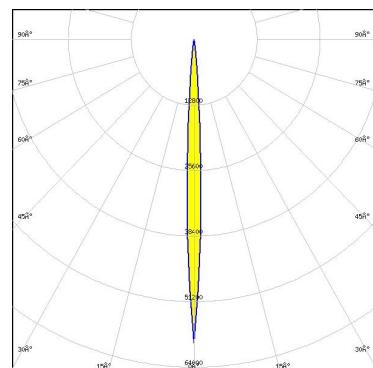


Light distribution files

#### OSRAM

Opto Semiconductors

LED OSCONIQ P 3737 (2W version)  
 FWHM / FWTM 5.5° / 12.8°  
 Efficiency 94 %  
 Peak intensity 59.3 cd/lm  
 LEDs/each optic 1  
 Light colour/type White  
 Required components:

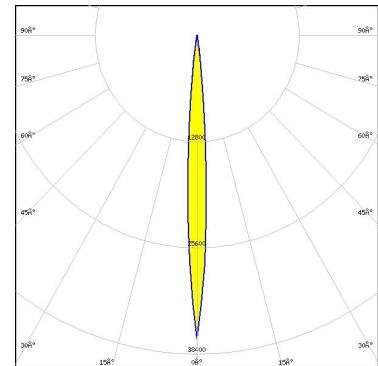


Light distribution files

### OPTICAL RESULTS (SIMULATED):

**OSRAM**  
Opto Semiconductors

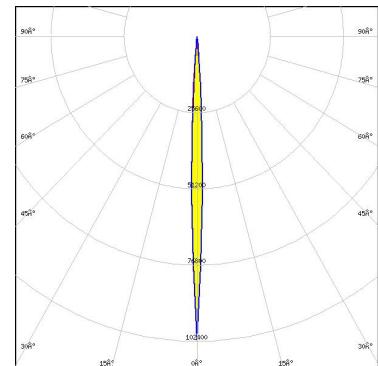
LED OSCONIQ P 3737 (3W version)  
FWHM / FWTM 5.5° / 12.8°  
Efficiency 94 %  
Peak intensity 59.3 cd/lm  
LEDs/each optic 1  
Light colour/type White  
Required components:



Light distribution files

**OSRAM**  
Opto Semiconductors

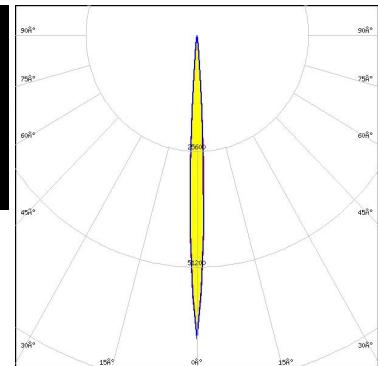
LED OSLON Pure 1414  
FWHM / FWTM 4.0° / 10.0°  
Efficiency 95 %  
Peak intensity 102 cd/lm  
LEDs/each optic 1  
Light colour/type White  
Required components:



Light distribution files

**OSRAM**  
Opto Semiconductors

LED OSLON Square CSSRM2/CSSRM3  
FWHM / FWTM 5.4° / 11.0°  
Efficiency 94 %  
Peak intensity 67 cd/lm  
LEDs/each optic 1  
Light colour/type White  
Required components:



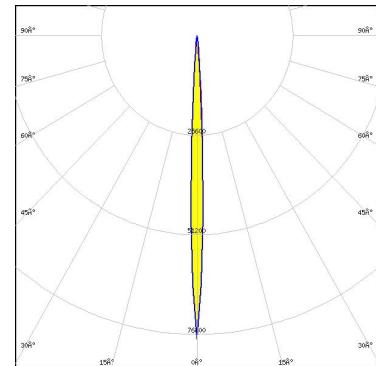
Light distribution files

### OPTICAL RESULTS (SIMULATED):

#### OSRAM

Opto Semiconductors

LED	OSLON Square Flat
FWHM / FWTM	4.8° / 10.0°
Efficiency	94 %
Peak intensity	78 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	

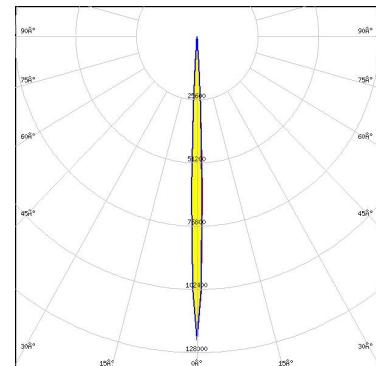


Light distribution files

#### OSRAM

Opto Semiconductors

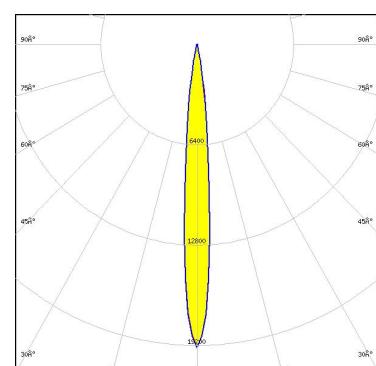
LED	OSTAR Projection Compact (KW.CSLNM1.TG)
FWHM / FWTM	4.0° / 8.0°
Efficiency	94 %
Peak intensity	122.8 cd/lm
LEDs/each optic	1
Light colour/type	White
Required components:	



Light distribution files

#### SAMSUNG

LED	LH151B
FWHM / FWTM	10.0° / 20.0°
Efficiency	97 %
Peak intensity	19.4 cd/lm
LEDs/each optic	4
Light colour/type	White
Required components:	



Light distribution files

### OPTICAL RESULTS (SIMULATED):

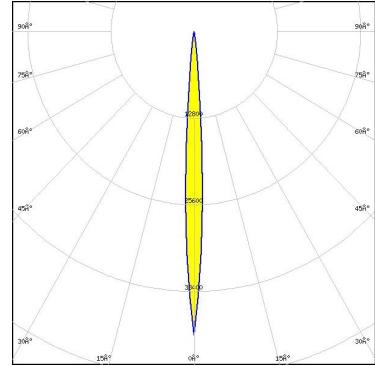
#### SAMSUNG

LED LH351B  
FWHM / FWTM 6.0° / 13.0°  
Efficiency 96 %  
Peak intensity 48 cd/lm  
LEDs/each optic 1  
Light colour/type White  
Required components:

[Light distribution files](#)

#### SAMSUNG

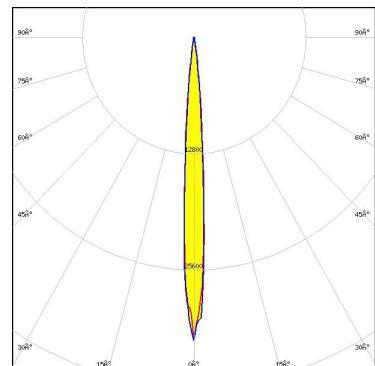
LED LH351C  
FWHM / FWTM 6.0° / 14.0°  
Efficiency 96 %  
Peak intensity 44.8 cd/lm  
LEDs/each optic 1  
Light colour/type White  
Required components:



[Light distribution files](#)

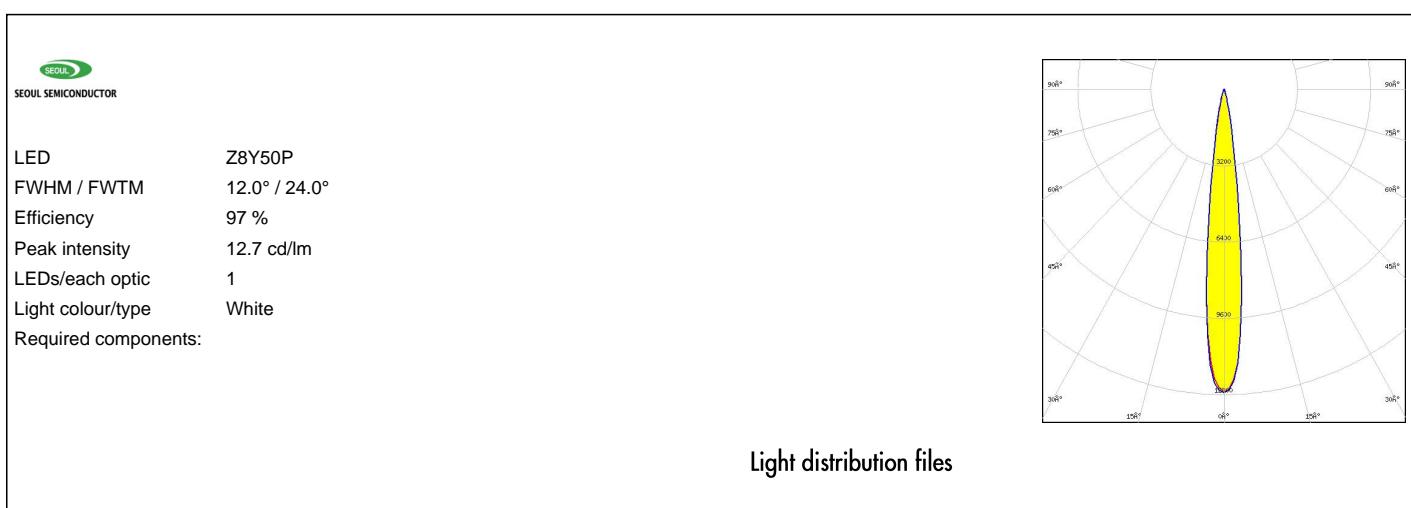
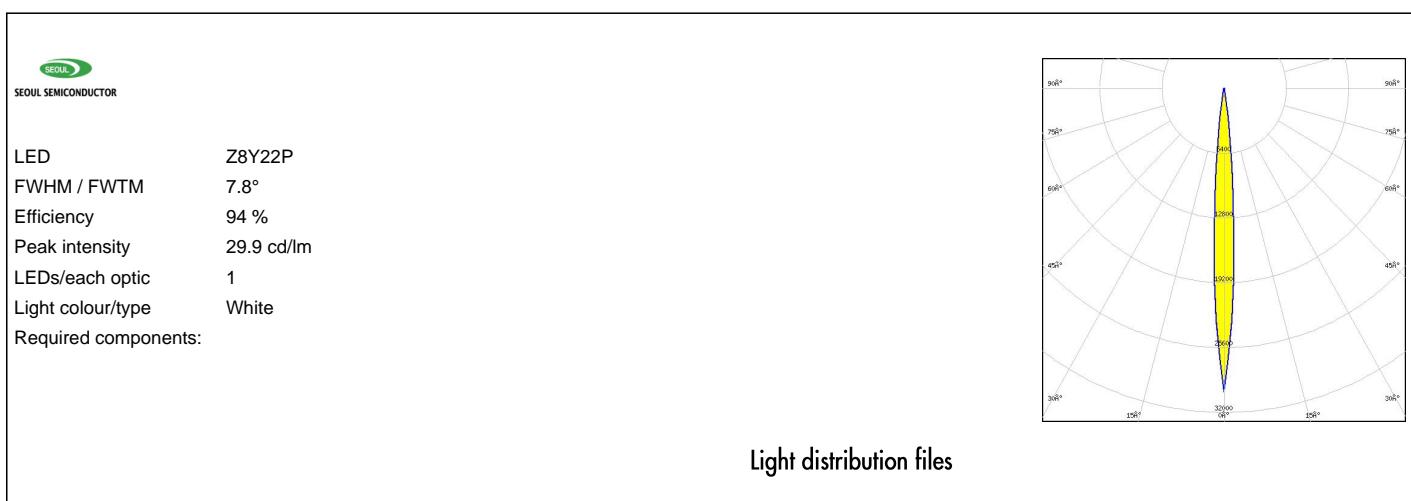
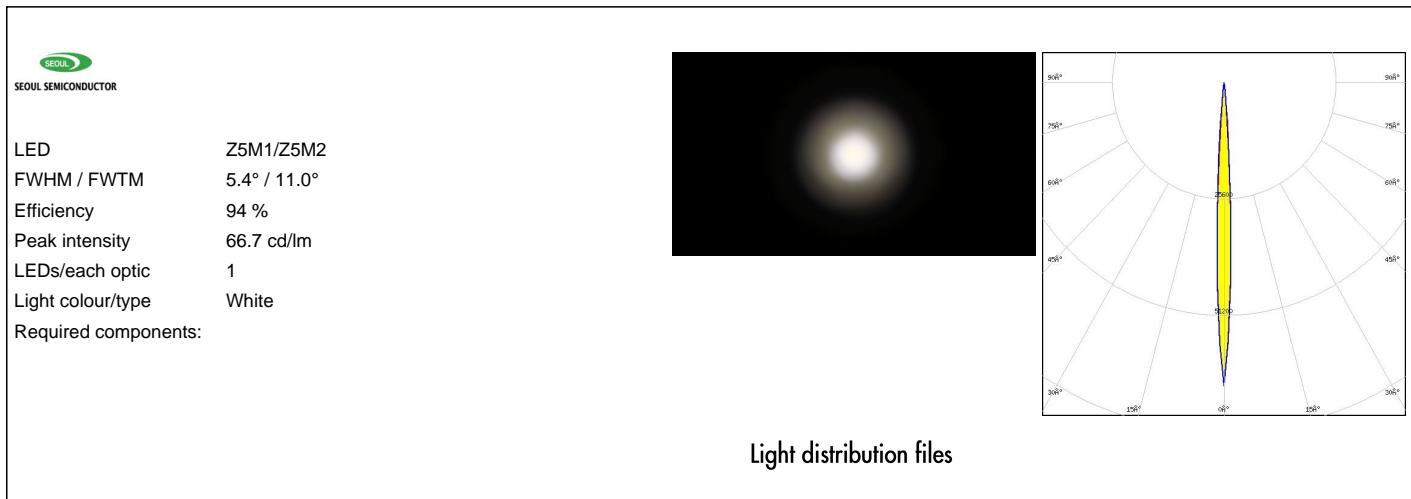
#### SAMSUNG

LED LH351D  
FWHM / FWTM 7.5° / 15.0°  
Efficiency 97 %  
Peak intensity 34.2 cd/lm  
LEDs/each optic 1  
Light colour/type White  
Required components:



[Light distribution files](#)

### OPTICAL RESULTS (SIMULATED):



### 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.

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