CRYSTAL-MINE

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



TECHNICAL SPECIFICATIONS:

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

MATERIAL SPECIFICATIONS:

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

ORDERING INFORMATION:

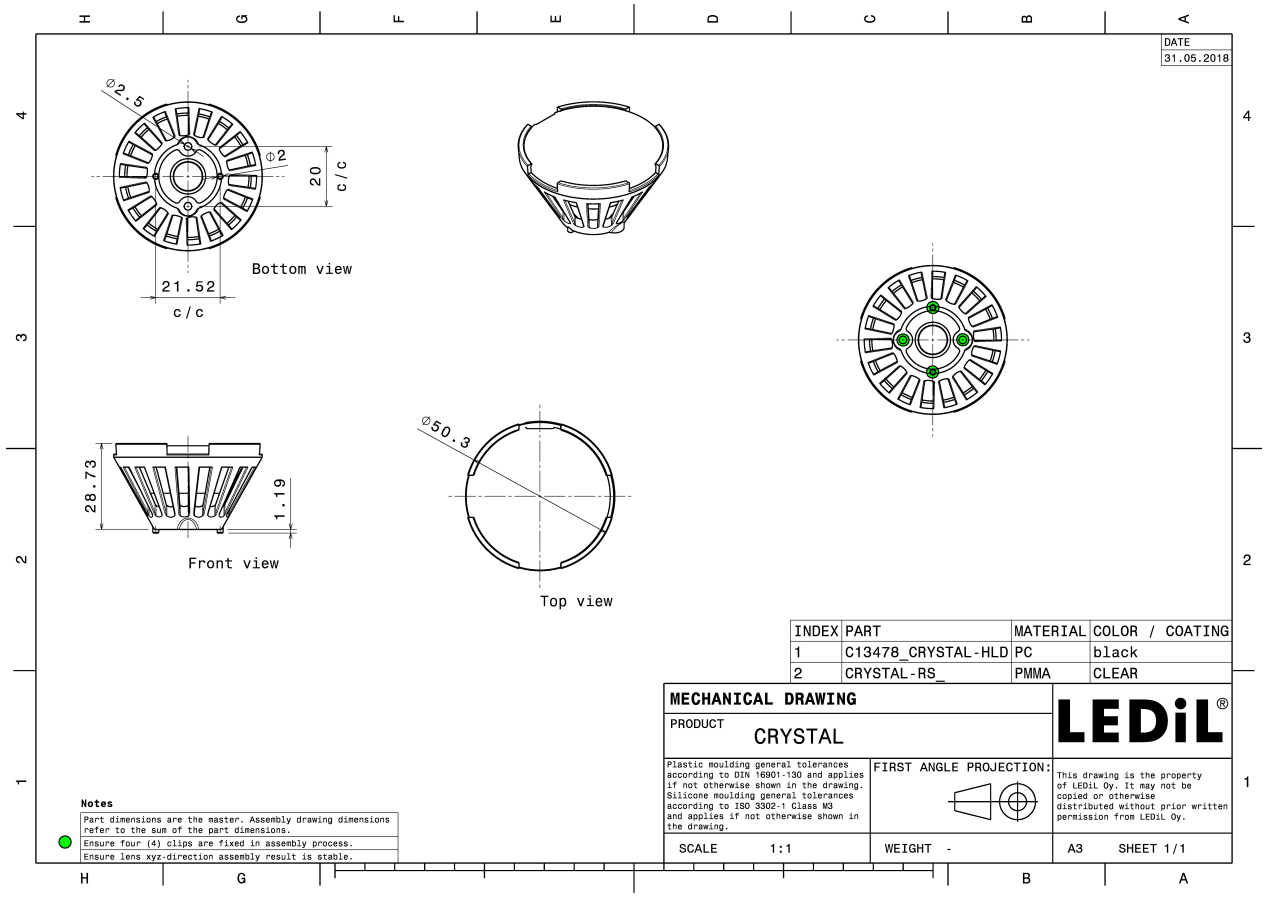
Quantities for one set:

Single lens	1
Holder	1

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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

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INDEX	PART	MATERIAL	COLOR / COATING
1	C13478_CRYSTAL-HLD	PC	black
2	CRYSTAL-RS_	PMMA	CLEAR

MECHANICAL DRAWING

PRODUCT
CRYSTAL

LEDiL®

Plastic moulding general tolerances according to DIN 16901-130 and applies if not otherwise shown in the drawing. Silicone moulding general tolerances according to ISO 3302-1 Class M3 and applies if not otherwise shown in the drawing.

FIRST ANGLE PROJECTION:

This drawing is the property of LEDiL Oy. It may not be copied or otherwise distributed without prior written permission from LEDiL Oy.

SCALE 1:1 | WEIGHT - | A3 SHEET 1/1

Notes

- Part dimensions are the master. Assembly drawing dimensions refer to the sum of the part dimensions.
- Ensure four (4) clips are fixed in assembly process.
- Ensure lens xyz-direction assembly result is stable.

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

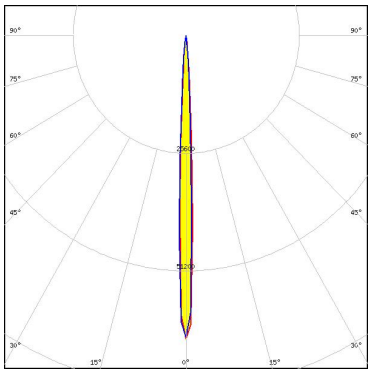
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PHOTOMETRIC DATA (MEASURED):

CREE LED

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

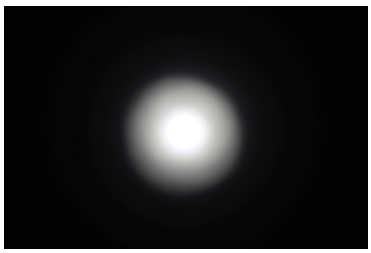
Required components:

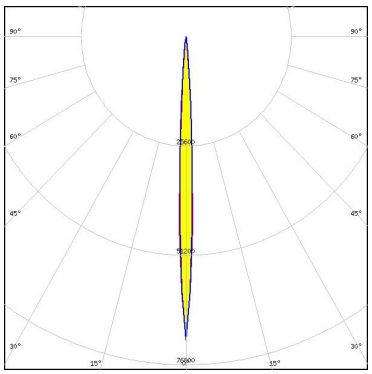


CREE LED

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

Required components:

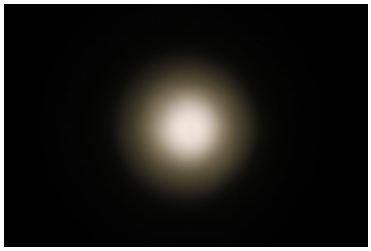


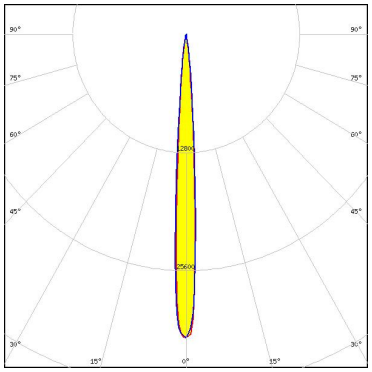


CREE LED

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

Required components:

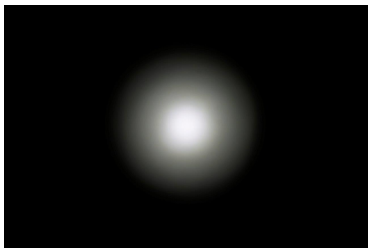


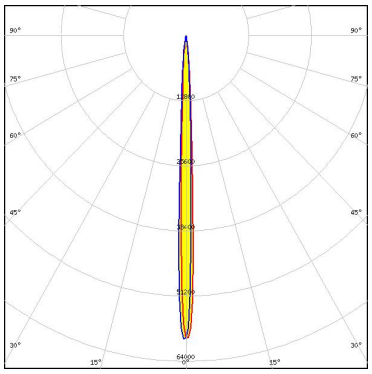


CREE LED

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

Required components:





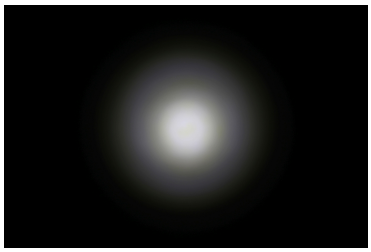
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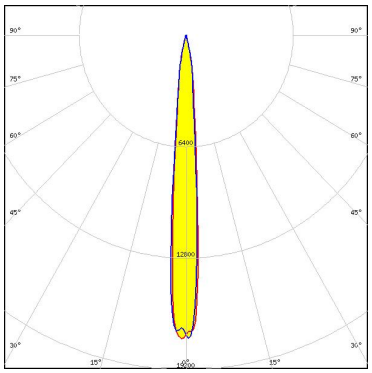
PHOTOMETRIC DATA (MEASURED):

LUMILEDS

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	White

Required components:

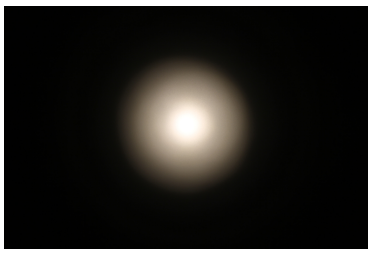




LUMILEDS

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

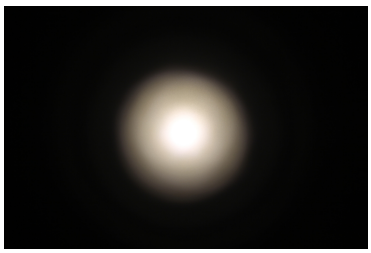
Required components:



LUMILEDS

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

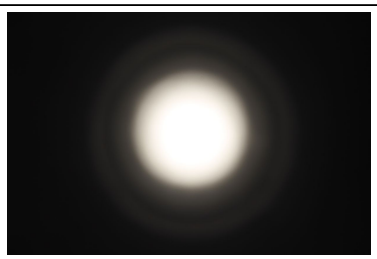
Required components:

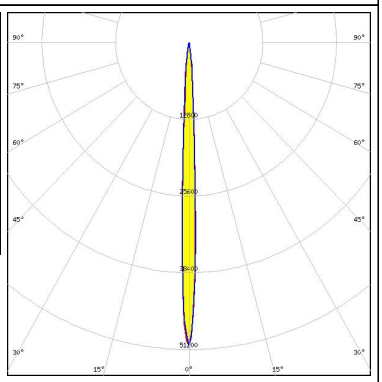


LUMILEDS

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

Required components:





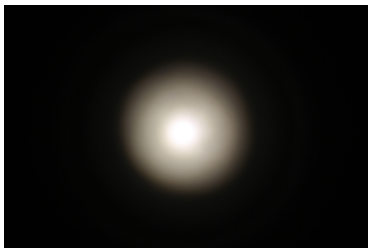
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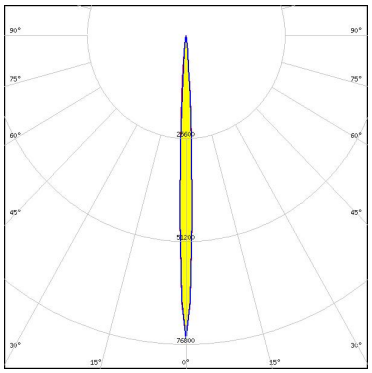
PHOTOMETRIC DATA (MEASURED):

NICHIA

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

Required components:



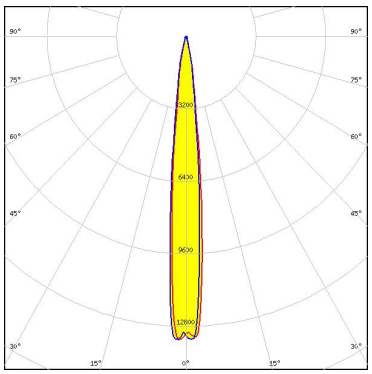


NICHIA

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

Required components:

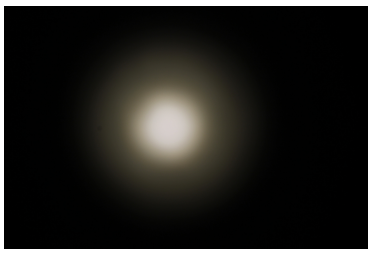


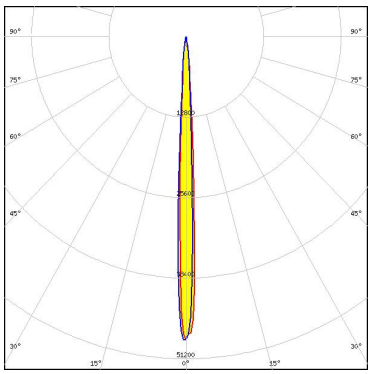


NICHIA

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

Required components:



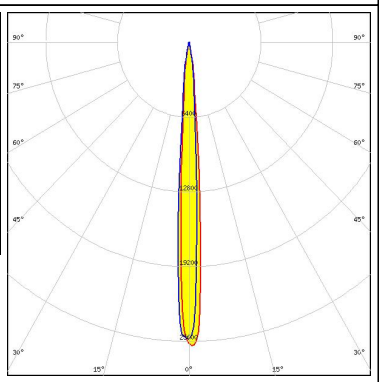


NICHIA

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

Required components:





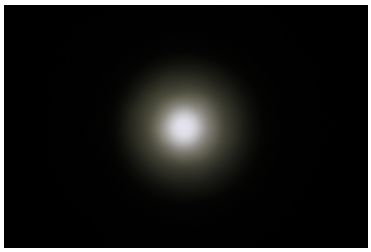
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PHOTOMETRIC DATA (MEASURED):

SAMSUNG

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

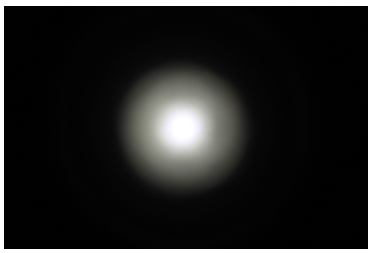
Required components:



SAMSUNG

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

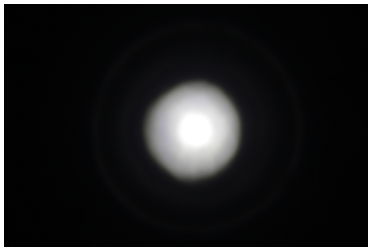
Required components:

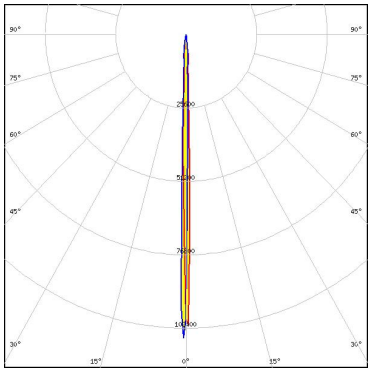


SEOUL SEMICONDUCTOR

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

Required components:

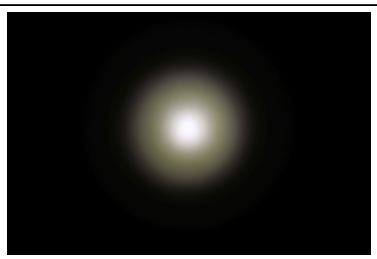


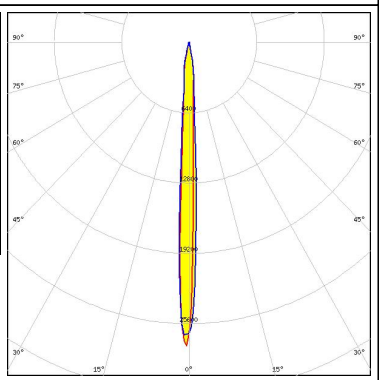


SEOUL SEMICONDUCTOR

LED	Z5M3
FWHM / FWTM	6.0° / 19.0°
Efficiency	93 %
Peak intensity	28.6 cd/lm
LEDs/each optic	1
Light colour	White

Required components:



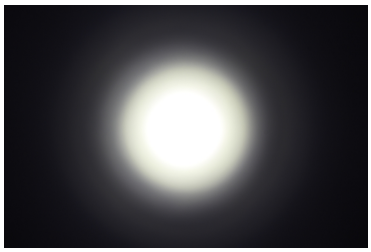


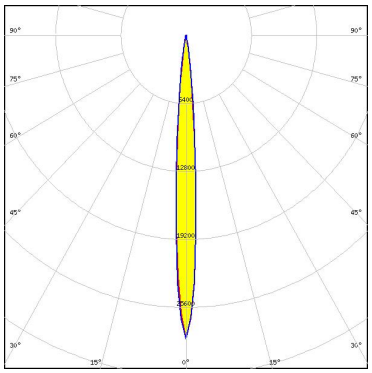
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PHOTOMETRIC DATA (SIMULATED):

CREE LED

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

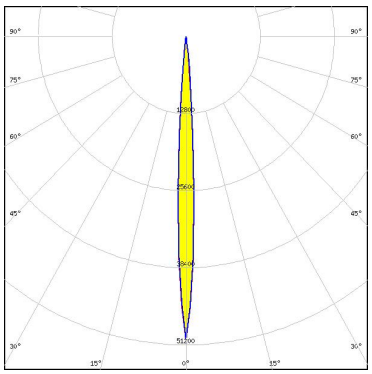




CREE LED

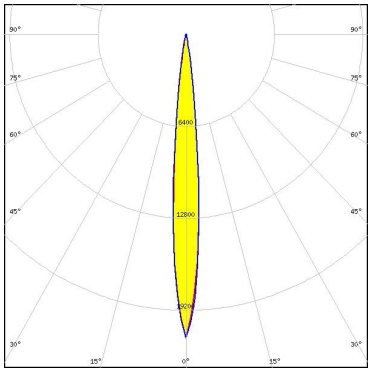
LED	XHP35 HI
FWHM / FWTM	6.2° / 13.0°
Efficiency	94 %
Peak intensity	50.4 cd/lm
LEDs/each optic	1
Light colour	White
Required components:	





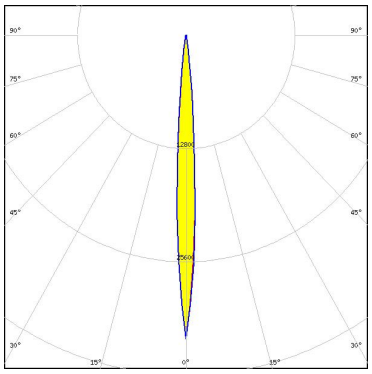
CREE LED

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



CREE LED

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

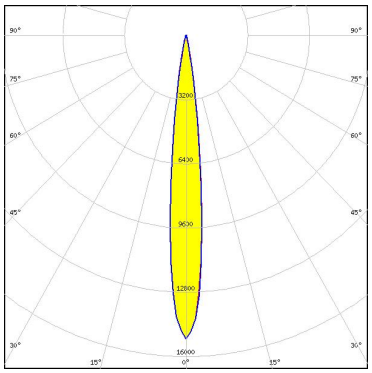


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PHOTOMETRIC DATA (SIMULATED):

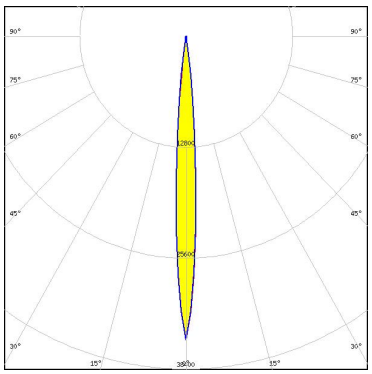
CREE LED

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



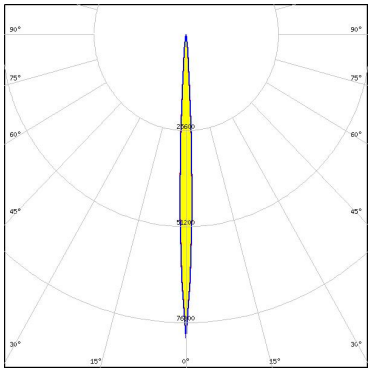
CREE LED

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



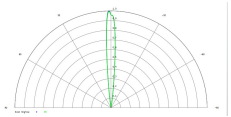
LUMILEDS

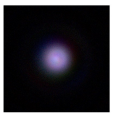
LED	LUXEON C
FWHM / FWTM	4.0° / 10.0°
Efficiency	94 %
Peak intensity	80.9 cd/lm
LEDs/each optic	1
Light colour	White
Required components:	

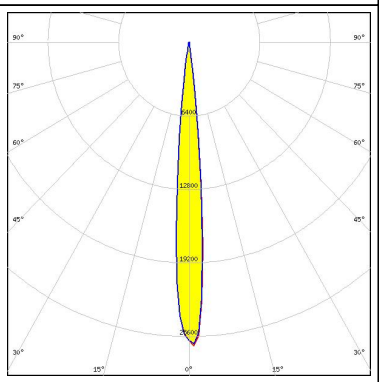


LUMILEDS

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





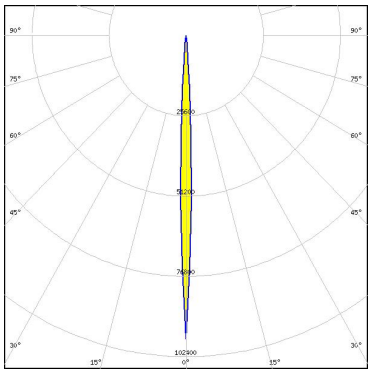


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PHOTOMETRIC DATA (SIMULATED):

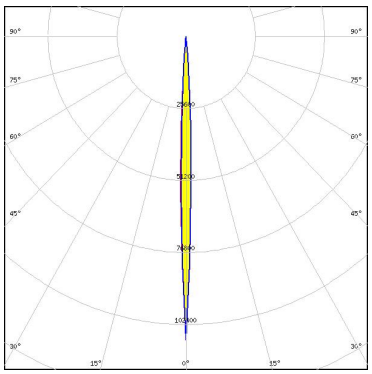
LUMILEDS

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



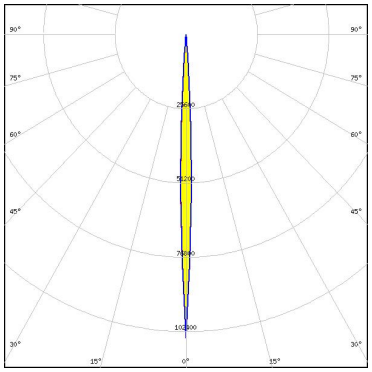
LUMILEDS

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



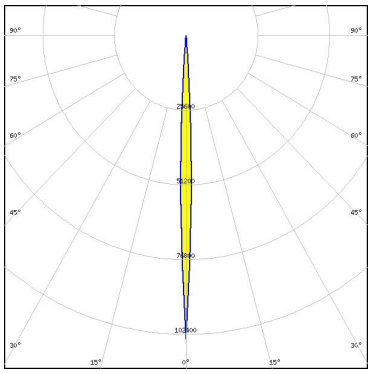
LUMILEDS

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



LUMILEDS

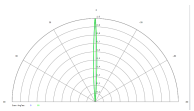
LED	LUXEON Rubix
FWHM / FWTM	4.0° / 10.0°
Efficiency	95 %
Peak intensity	104 cd/lm
LEDs/each optic	1
Light colour	Blue
Required components:	

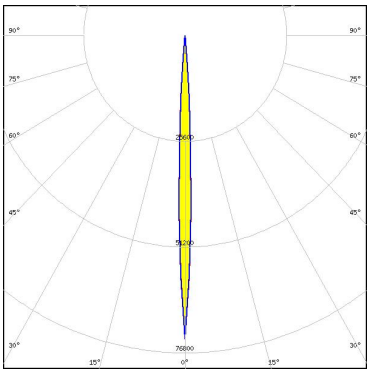


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PHOTOMETRIC DATA (SIMULATED):

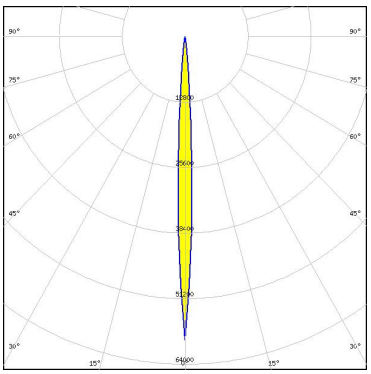
LUMINUS





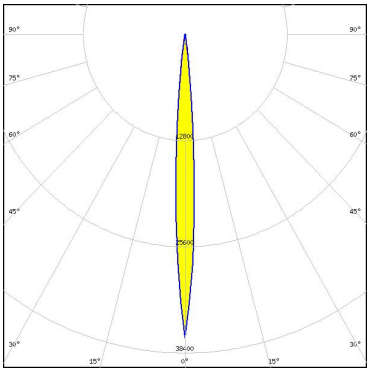
LED	SST-10-B130
FWHM / FWTM	5.0° / 10.0°
Efficiency	95 %
LEDs/each optic	1
Light colour	IR
Required components:	

OSRAM
Opto Semiconductors



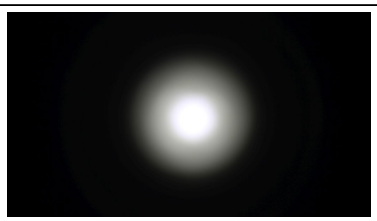
LED	OSCONIQ P 3737 (2W version)
FWHM / FWTM	5.5° / 12.8°
Efficiency	94 %
Peak intensity	59.3 cd/lm
LEDs/each optic	1
Light colour	White
Required components:	

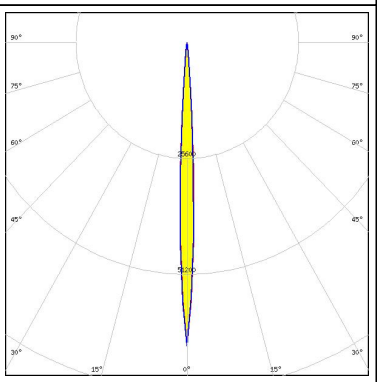
OSRAM
Opto Semiconductors



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	White
Required components:	

OSRAM
Opto Semiconductors





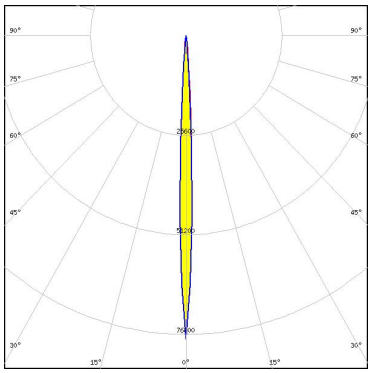
LED	OSLON Square CSSRM2/CSSRM3
FWHM / FWTM	5.4° / 11.0°
Efficiency	94 %
Peak intensity	67 cd/lm
LEDs/each optic	1
Light colour	White
Required components:	

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PHOTOMETRIC DATA (SIMULATED):

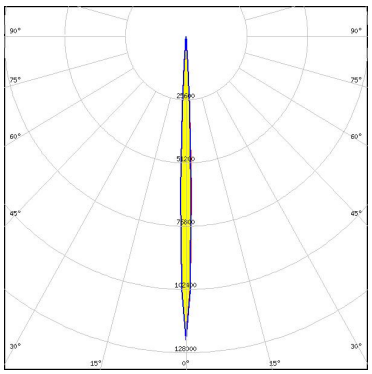
OSRAM
Opto Semiconductors

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



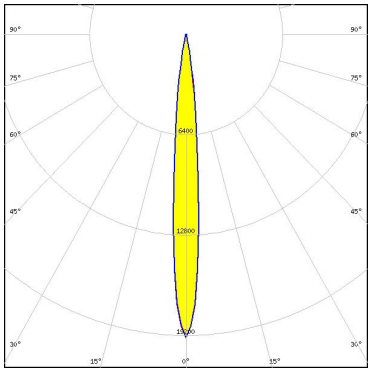
OSRAM
Opto Semiconductors

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



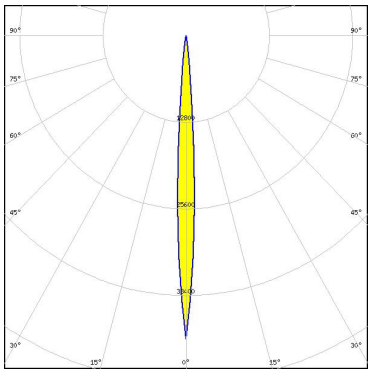
SAMSUNG

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



SAMSUNG

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

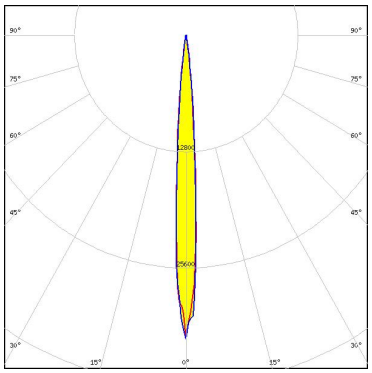


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PHOTOMETRIC DATA (SIMULATED):

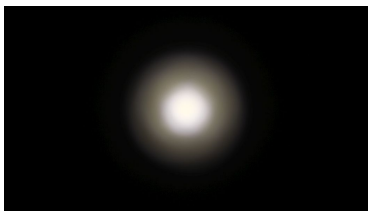
SAMSUNG

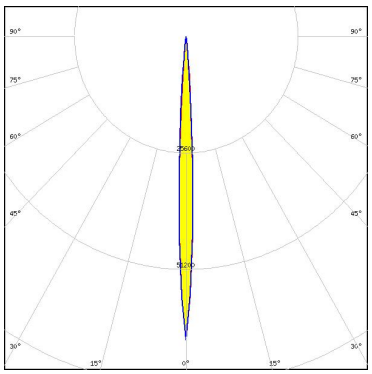
LED	LH351D
FWHM / FWTM	7.5° / 15.0°
Efficiency	97 %
Peak intensity	34.2 cd/lm
LEDs/each optic	1
Light colour	White
Required components:	



SEOUL SEMICONDUCTOR

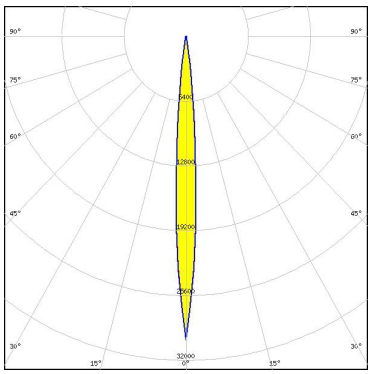
LED	Z5M1/Z5M2
FWHM / FWTM	5.4° / 11.0°
Efficiency	94 %
Peak intensity	66.7 cd/lm
LEDs/each optic	1
Light colour	White
Required components:	





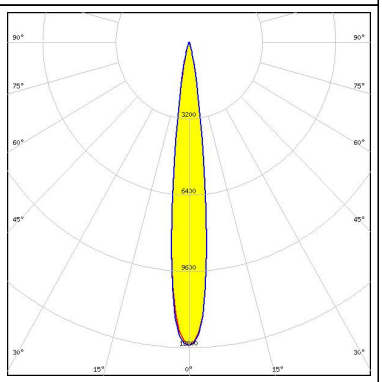
SEOUL SEMICONDUCTOR

LED	Z8Y22P
FWHM / FWTM	7.8°
Efficiency	94 %
Peak intensity	29.9 cd/lm
LEDs/each optic	1
Light colour	White
Required components:	



SEOUL SEMICONDUCTOR

LED	Z8Y50P
FWHM / FWTM	12.0° / 24.0°
Efficiency	97 %
Peak intensity	12.7 cd/lm
LEDs/each optic	1
Light colour	White
Required components:	



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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:

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