

## HB-2X2-O

~20° + 115° oval beam for aisle lighting

### SPECIFICATION:

Dimensions	50.0 x 50.0 mm
Height	10.6 mm
Fastening	glue, pin, screw
ROHS compliant	yes ⓘ

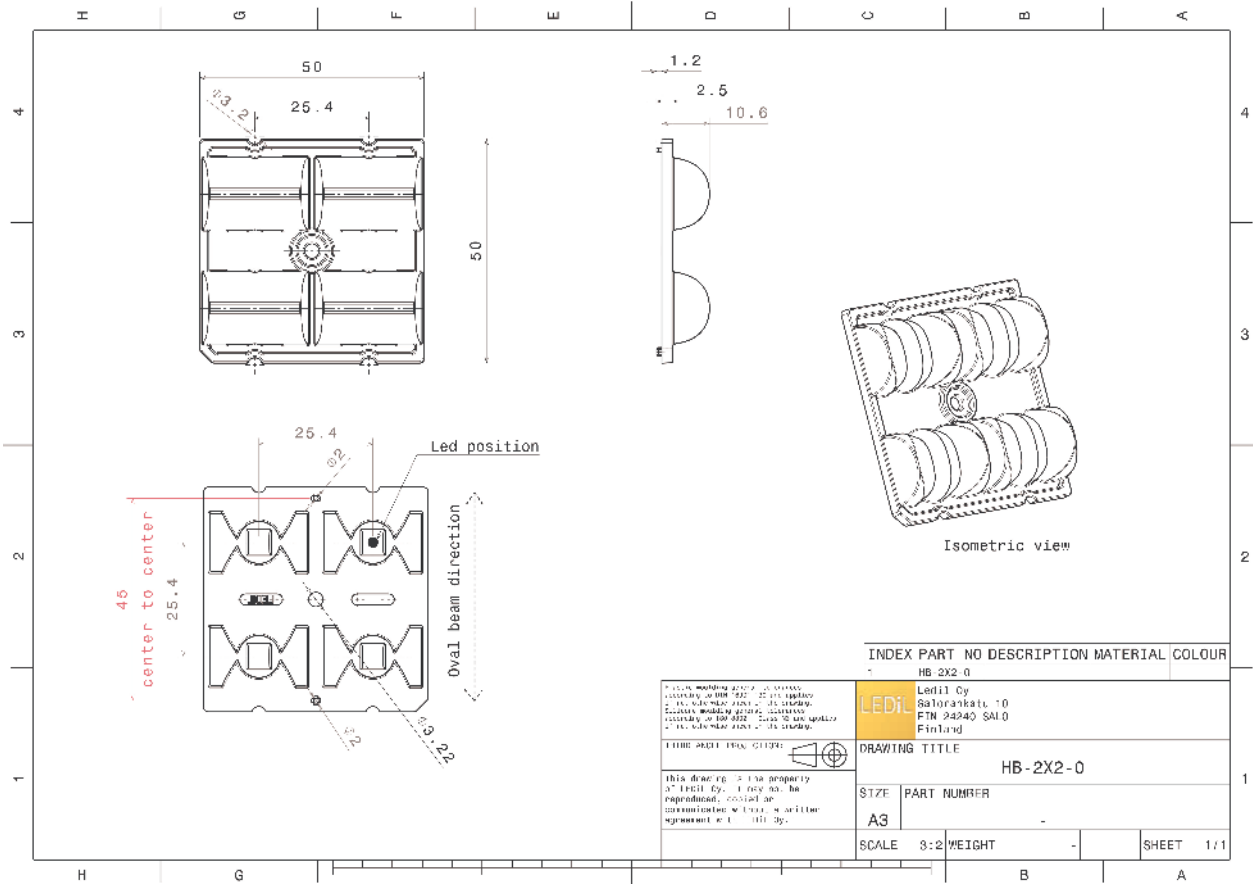
### MATERIALS:

Component	Type	Material	Colour	Finish
HB-2X2-O	Multi-lens	PMMA	clear	




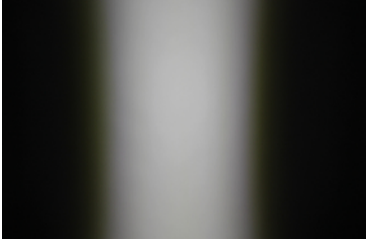
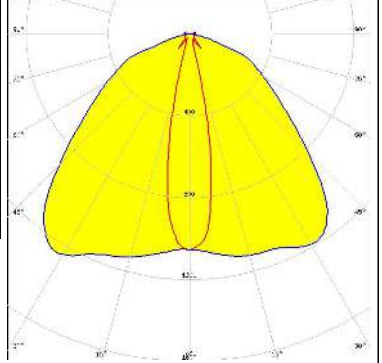


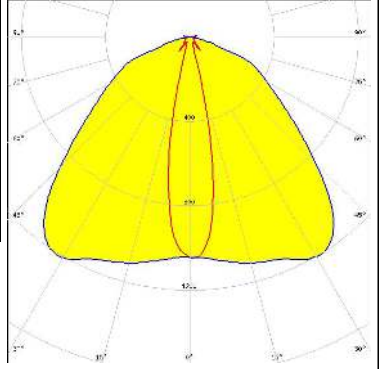

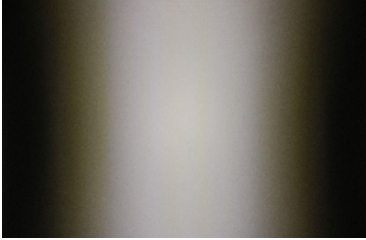
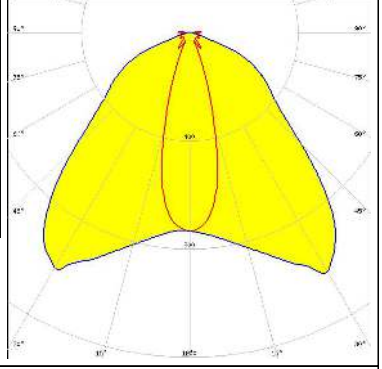

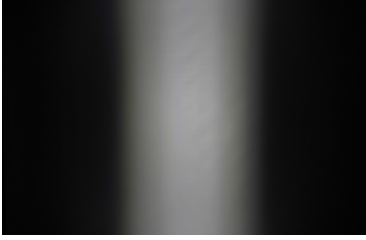
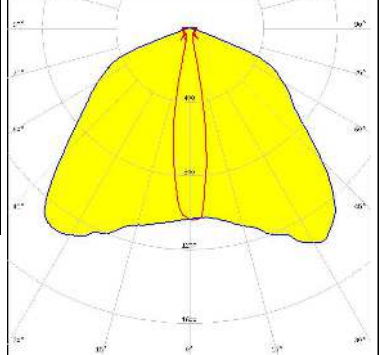
### ORDERING INFORMATION:

Component	Qty in box	MOQ	MPQ	Box weight (kg)
C13749_HB-2X2-O » Box size: 480 x 280 x 300 mm	800	160	160	10.4



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

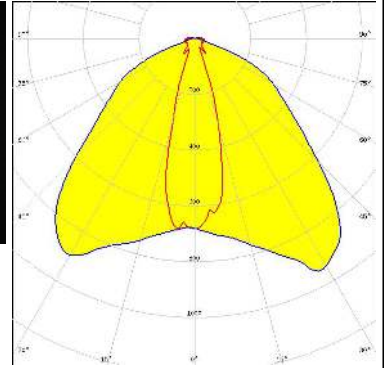
#### OPTICAL RESULTS (MEASURED):

<p></p> <p>LED QUICK FLUX XTP 2x4 xxx LS G5            FWHM / FWTM 21.0 + 111.0° / 32.0 + 148.0°            Efficiency 94 %            Peak intensity 1.3 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>		
<p></p> <p>LED QUICK FLUX XTP 2x6 xxx LS G5            FWHM / FWTM 22.0 + 111.0° / 33.0 + 149.0°            Efficiency 94 %            Peak intensity 1.2 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>		
<p></p> <p>LED J Series 5050C 6V E Class            FWHM / FWTM 30.0 + 95.0° / 60.0 + 140.0°            Efficiency 96 %            Peak intensity 1 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>		
<p></p> <p>LED XD16            FWHM / FWTM 19.0 + 127.0° / 28.0 + 141.0°            Efficiency 93 %            Peak intensity 1.4 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>		

#### OPTICAL RESULTS (MEASURED):

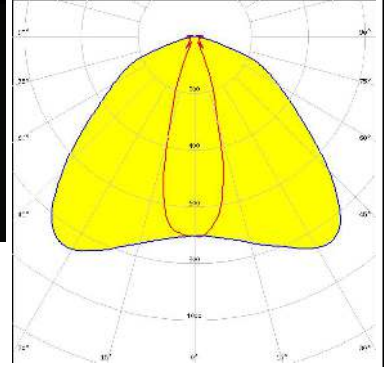
##### CREE LED

LED XD16  
 FWHM / FWTM 29.0 + 116.0° / 44.0 + 141.0°  
 Efficiency 94 %  
 Peak intensity 1 cd/lm  
 LEDs/each optic 4  
 Light colour White  
 Required components:



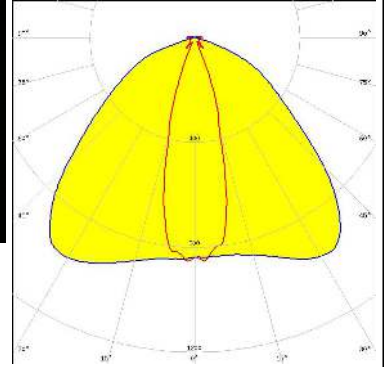
##### CREE LED

LED XHP35 HD  
 FWHM / FWTM 29.0 + 117.0° / 48.0 + 148.0°  
 Efficiency 94 %  
 Peak intensity 0.9 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



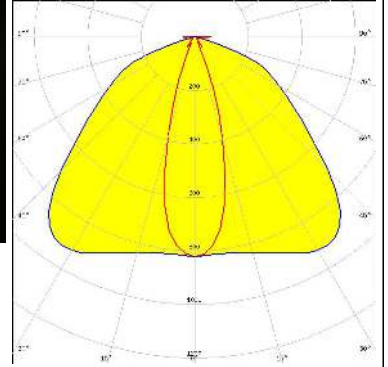
##### CREE LED

LED XM-L  
 FWHM / FWTM 28.0 + 108.0° / 45.0 + 142.0°  
 Efficiency 94 %  
 Peak intensity 1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



##### CREE LED

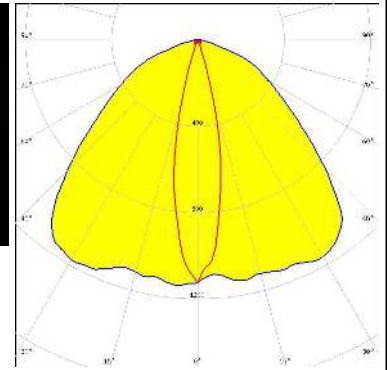
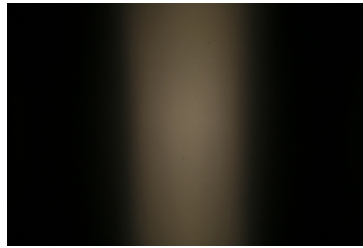
LED XM-L2  
 FWHM / FWTM 30.0 + 106.0° / 48.0 + 143.0°  
 Efficiency 94 %  
 Peak intensity 1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



#### OPTICAL RESULTS (MEASURED):

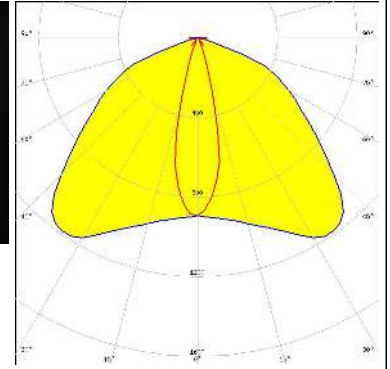
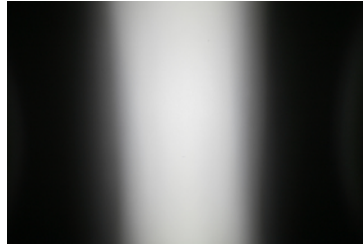
##### CREE LED

LED XP-G  
 FWHM / FWTM 26.0 + 115.0° / 44.0 + 158.0°  
 Efficiency 94 %  
 Peak intensity 1.1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



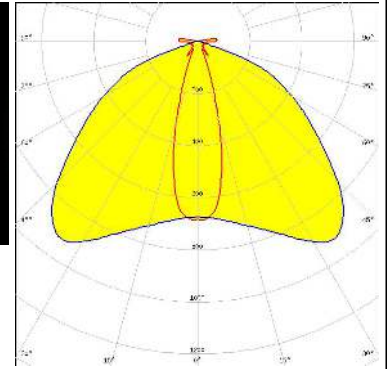
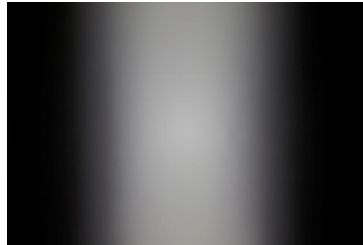
##### CREE LED

LED XP-G2  
 FWHM / FWTM 27.0 + 112.0° / 42.0 + 146.0°  
 Efficiency 94 %  
 Peak intensity 1.2 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



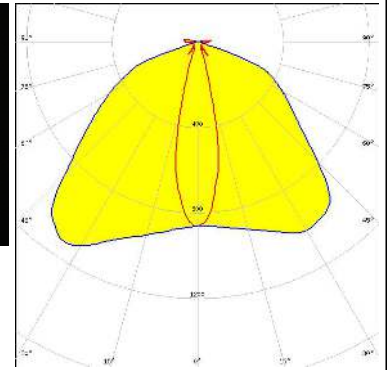
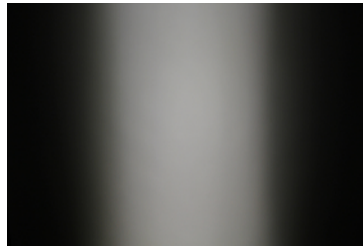
##### CREE LED

LED XP-L HD  
 FWHM / FWTM 29.0 + 117.0° / 48.0 + 144.0°  
 Efficiency 94 %  
 Peak intensity 0.9 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:


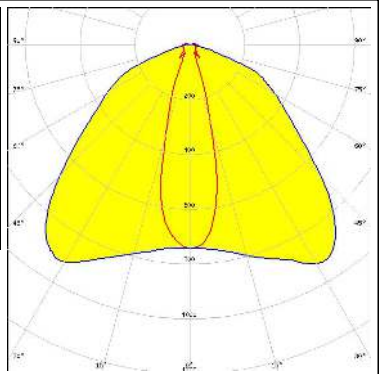

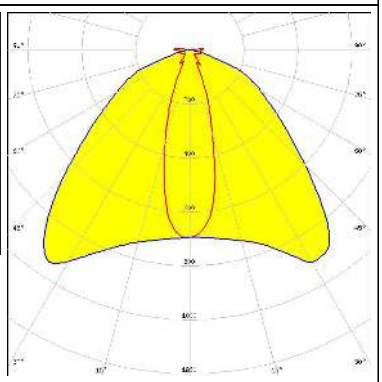

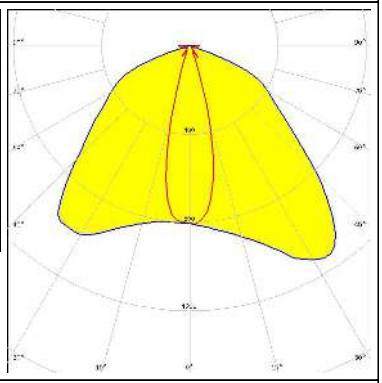
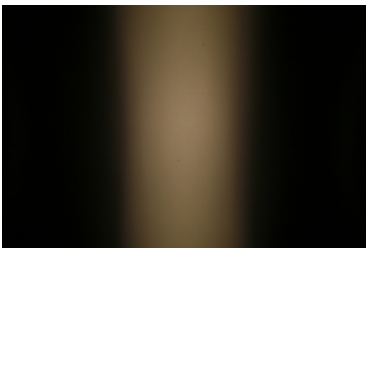



##### CREE LED

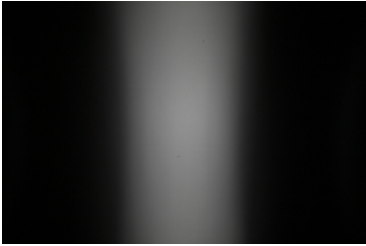
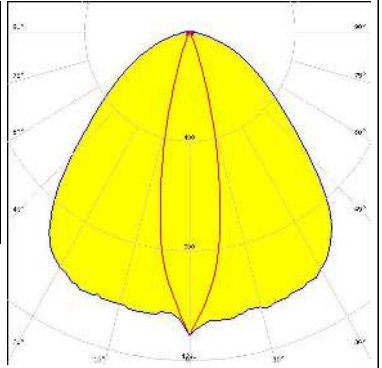
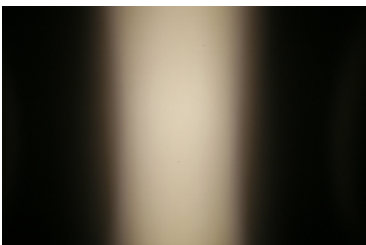
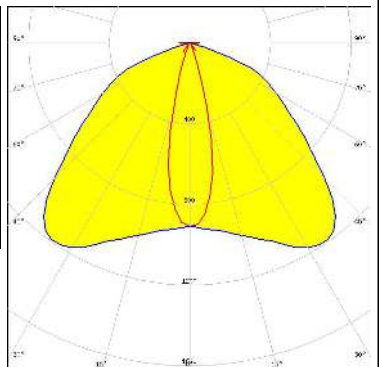
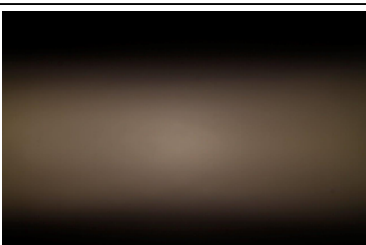
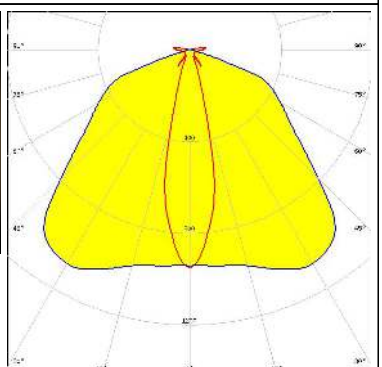
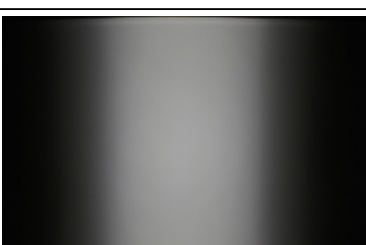
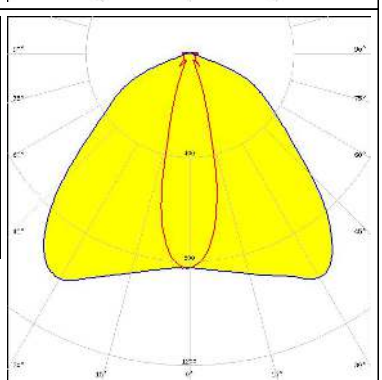
LED XP-L HI  
 FWHM / FWTM 25.0 + 123.0° / 41.0 + 143.0°  
 Efficiency 94 %  
 Peak intensity 1.1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



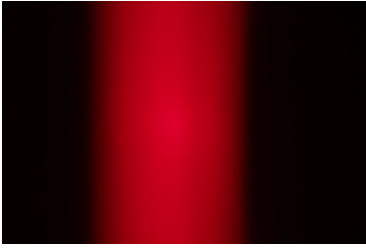
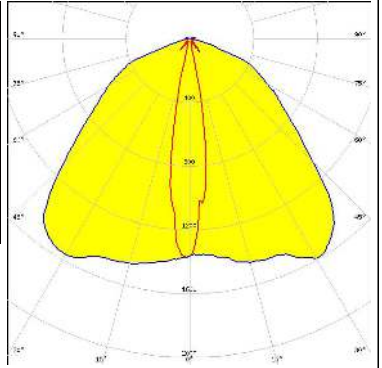
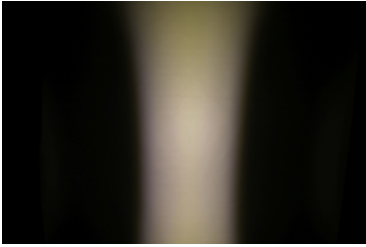
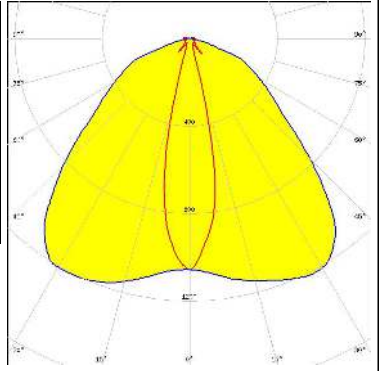
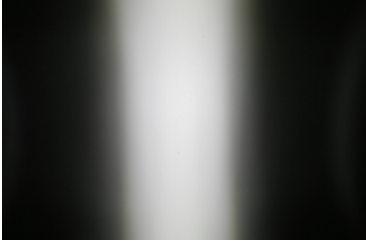
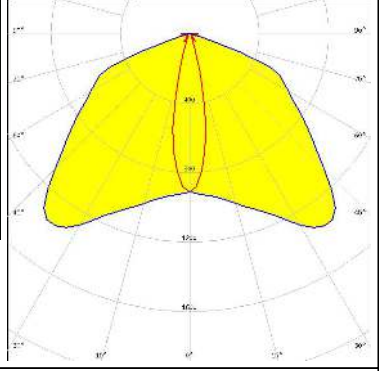
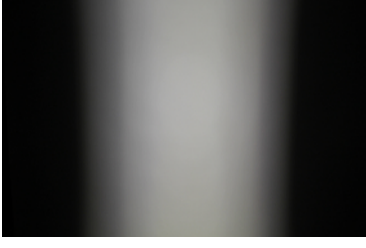
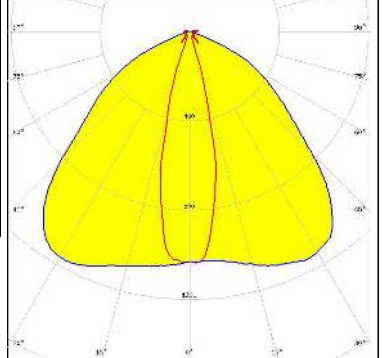
#### OPTICAL RESULTS (MEASURED):

<p><b>CREE</b> LED</p> <p>LED: XP-L2            FWHM / FWTM: 28.0 + 117.0° / 47.0 + 150.0°            Efficiency: 94 %            Peak intensity: 0.9 cd/lm            LEDs/each optic: 1            Light colour: White            Required components:</p>		
<p><b>LUMILEDS</b></p> <p>LED: LUXEON 5050 Round LES            FWHM / FWTM: 29.0 + 114.0° / 51.0 + 147.0°            Efficiency: 94 %            Peak intensity: 0.9 cd/lm            LEDs/each optic: 1            Light colour: White            Required components:</p>		
<p><b>LUMILEDS</b></p> <p>LED: LUXEON MZ            FWHM / FWTM: 28.0 + 103.0° / 43.0 + 14.0°            Efficiency: 94 %            Peak intensity: 1.1 cd/lm            LEDs/each optic: 1            Light colour: White            Required components:</p>		
<p><b>LUMILEDS</b></p> <p>LED: LUXEON R            FWHM / FWTM: 25.0 + 105.0° / 44.0 + 148.0°            Efficiency: 94 %            Peak intensity: 1.2 cd/lm            LEDs/each optic: 1            Light colour: White            Required components:</p>		

#### OPTICAL RESULTS (MEASURED):

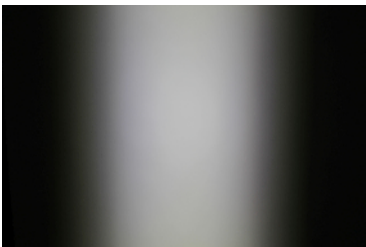
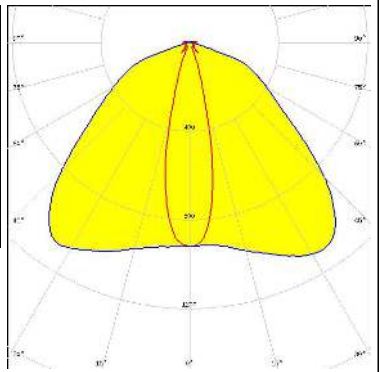

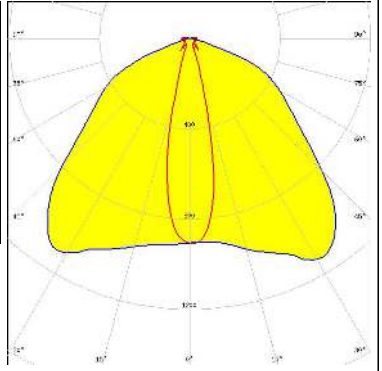
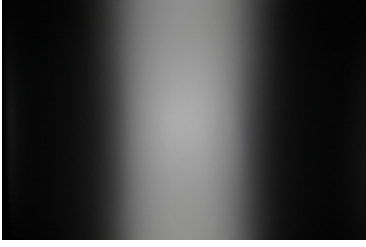
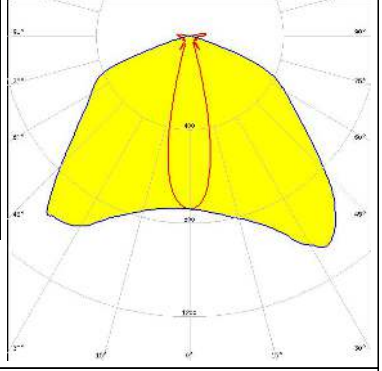
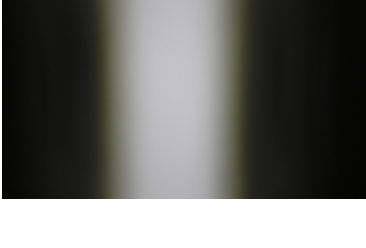
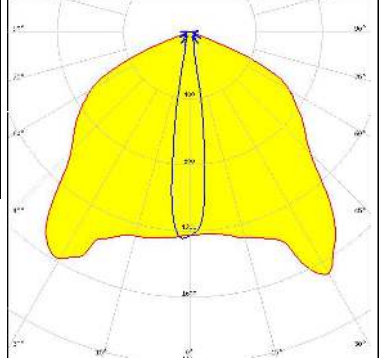
<p><b>LUMILEDS</b></p> <p>LED LUXEON Rebel ES</p> <p>FWHM / FWTM 25.0 + 106.0° / 42.0 + 150.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 1.2 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>		
<p><b>LUMILEDS</b></p> <p>LED LUXEON T</p> <p>FWHM / FWTM 26.0 + 110.0° / 41.0 + 145.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 1.2 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>		
<p><b>LUMILEDS</b></p> <p>LED LUXEON TX</p> <p>FWHM / FWTM 24.0 + 118.0° / 42.0 + 146.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 1.1 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>		
<p><b>LUMILEDS</b></p> <p>LED LUXEON V</p> <p>FWHM / FWTM 26.0 + 108.0° / 44.0 + 141.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 1 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>		

#### OPTICAL RESULTS (MEASURED):

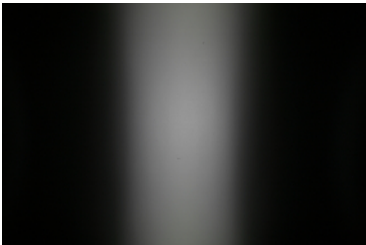
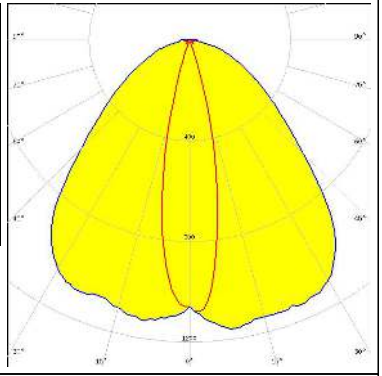
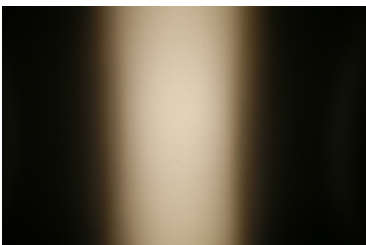
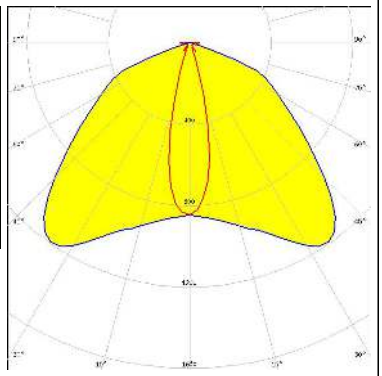
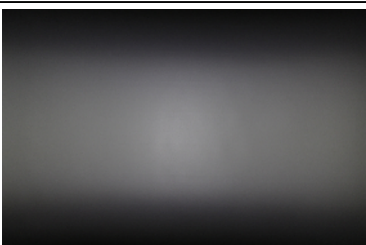
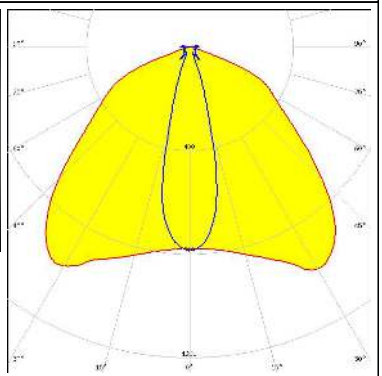
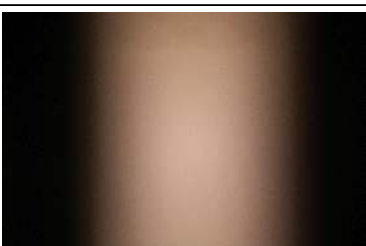
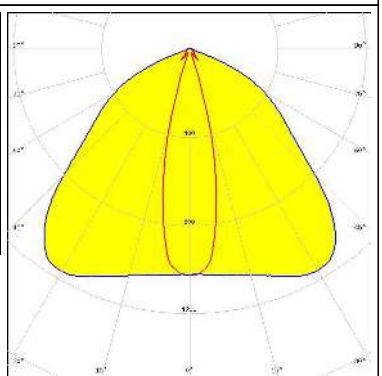
<p><b>LUMINUS</b></p> <p>LED SST-10-B130            FWHM / FWTM 18.0 + 104.0° / 25.0 + 144.0°            Efficiency 97 %            Peak intensity 1.6 cd/lm            LEDs/each optic 1            Light colour Deep Red            Required components:</p>		
<p><b>MST</b> <i>Your solutions</i></p> <p>LED RecLED 122x50mm 1900lm 730 2x4 Opt G1            FWHM / FWTM 23.0 + 99.5° / 32.5 + 145.0°            Efficiency 97 %            Peak intensity 1.2 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>		
<p><b>NICHIA</b></p> <p>LED NCSxx19B            FWHM / FWTM 23.0 + 113.0° / 39.0 + 146.0°            Efficiency 94 %            Peak intensity 1.4 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>		
<p><b>NICHIA</b></p> <p>LED NVSW219D            FWHM / FWTM 25.0 + 107.0° / 37.0 + 137.0°            Efficiency 94 %            Peak intensity 1.2 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>		



#### OPTICAL RESULTS (MEASURED):

<p><b>NICHIA</b></p> <p>LED NVSW319B</p> <p>FWHM / FWTM 25.0 + 113.0° / 41.0 + 144.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 1.1 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>		
<p><b>NICHIA</b></p> <p>LED NVSW3x9A</p> <p>FWHM / FWTM 24.0 + 119.0° / 38.0 + 144.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 1.1 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>		
<p><b>NICHIA</b></p> <p>LED NVSW3x9A</p> <p>FWHM / FWTM 25.0 + 134.0° / 43.0 + 147.0°</p> <p>Efficiency 93 %</p> <p>Peak intensity 0.4 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>		
<p><b>NICHIA</b></p> <p>LED NVSxE21A</p> <p>FWHM / FWTM 17.0 + 125.0° / 27.0 + 139.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 1.7 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>		

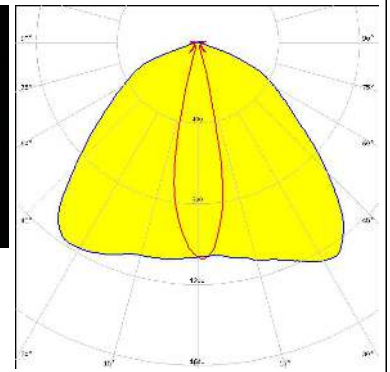
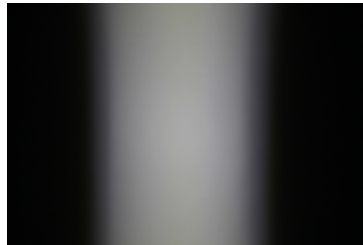
#### OPTICAL RESULTS (MEASURED):

<p><b>NICHIA</b></p> <p>LED NVSxx19A            FWHM / FWTM 24.0 + 105.0° / 44.0 + 148.0°            Efficiency 94 %            Peak intensity 1.2 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>		
<p><b>NICHIA</b></p> <p>LED NVSxx19B/NVSxx19C            FWHM / FWTM 26.0 + 108.0° / 41.0 + 145.0°            Efficiency 94 %            Peak intensity 1.2 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>		
<p><b>NICHIA</b></p> <p>LED NWSx229A            FWHM / FWTM 27.0 + 118.0° / 43.0 + 143.0°            Efficiency 94 %            Peak intensity 1 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>		
<p><b>OSRAM</b></p> <p>LED PL-BRICK HP 3800 2x8 SSG            FWHM / FWTM 26.0 + 102.0° / 37.0 + 139.0°            Efficiency 97 %            Peak intensity 1.2 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>		

#### OPTICAL RESULTS (MEASURED):

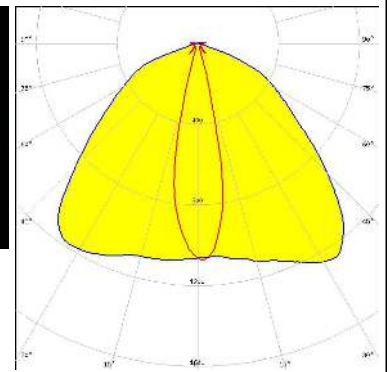
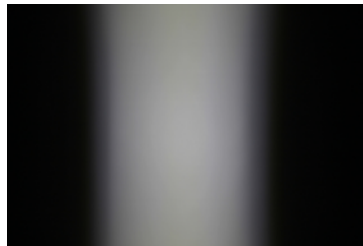
### OSRAM

LED PrevaLED Brick HP 2x8  
 FWHM / FWTM 23.0 + 111.0° / 32.0 + 141.0°  
 Efficiency 94 %  
 Peak intensity 1.3 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



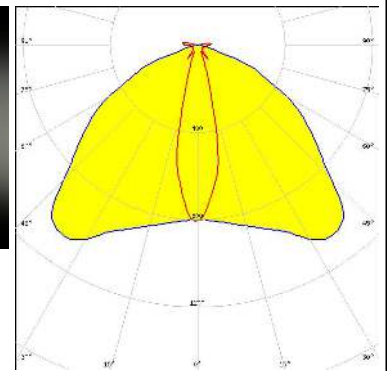
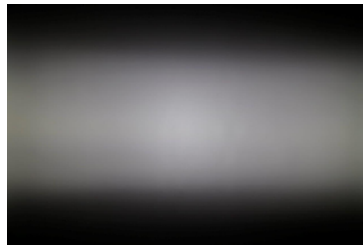
### OSRAM

OSRAM Opto Semiconductors  
 LED OSLOM Square CSSRM2/CSSRM3  
 FWHM / FWTM 23.0 + 111.0° / 32.0 + 141.0°  
 Efficiency 94 %  
 Peak intensity 1.3 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



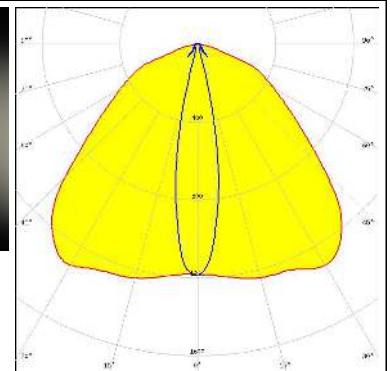
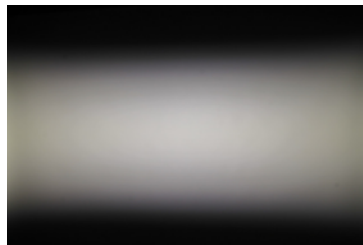
### OSRAM

OSRAM Opto Semiconductors  
 LED OSLOM Square PC  
 FWHM / FWTM 25.0 + 124.0° / 42.0 + 145.0°  
 Efficiency 91 %  
 Peak intensity 1.1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



### PHILIPS

LED Fortimo FastFlex LED 2x8 DA G4  
 FWHM / FWTM 21.0 + 108.0° / 31.0 + 147.0°  
 Efficiency 94 %  
 Peak intensity 1.3 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



#### OPTICAL RESULTS (MEASURED):

### PHILIPS

LED Fortimo FastFlex LED 2x8 DA G4+

FWHM / FWTM 24.0 + 104.0° / 37.0 + 145.0°

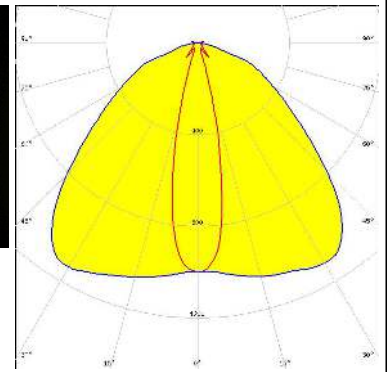
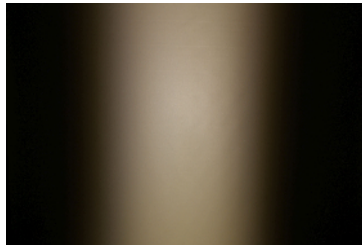
Efficiency 97 %

Peak intensity 1.1 cd/lm

LEDs/each optic 1

Light colour White

Required components:



### PHILIPS

LED Fortimo FastFlex LED 2x8 DA G5

FWHM / FWTM 24.0 + 103.0° / 34.0 + 144.0°

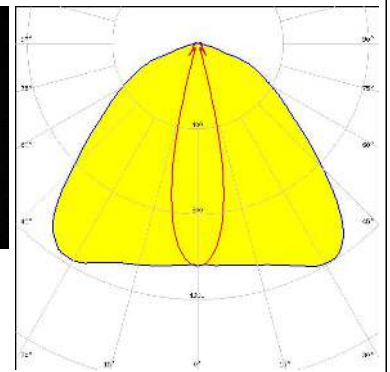
Efficiency 97 %

Peak intensity 1.2 cd/lm

LEDs/each optic 1

Light colour White

Required components:



### PHILIPS

LED Fortimo FastFlex LED 2x8 DA HE

FWHM / FWTM 32.0 + 98.0° / 51.0 + 142.0°

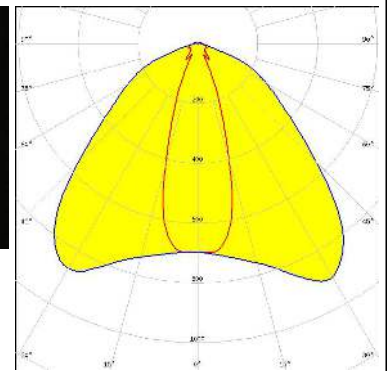
Efficiency 98 %

Peak intensity 0.9 cd/lm

LEDs/each optic 1

Light colour White

Required components:



### SAMSUNG

LED HiLOM RC12 Z (LH181B)

FWHM / FWTM 19.0 + 106.0° / 31.0 + 140.0°

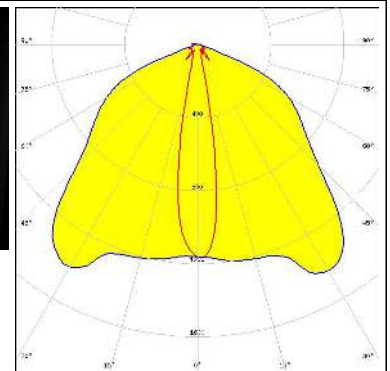
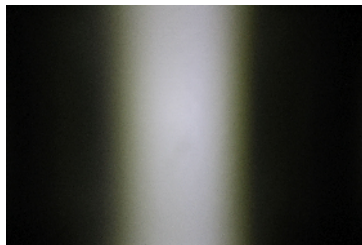
Efficiency 98 %

Peak intensity 1.4 cd/lm

LEDs/each optic 1

Light colour White

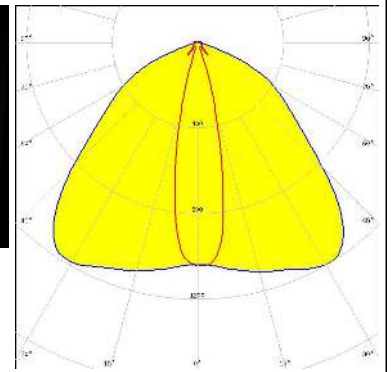
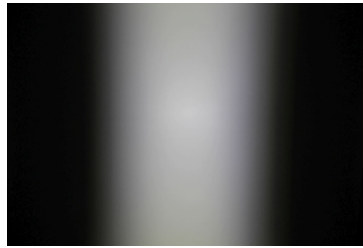
Required components:



#### OPTICAL RESULTS (MEASURED):

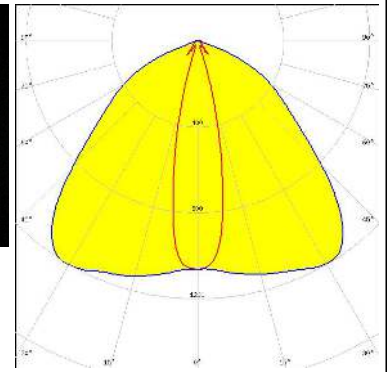
### SAMSUNG

LED HiLOM RH12 Z (LH351C)  
 FWHM / FWTM 23.0 + 102.0° / 36.0 + 139.0°  
 Efficiency 97 %  
 Peak intensity 1.2 cd/m  
 LEDs/each optic 1  
 Light colour White  
 Required components:



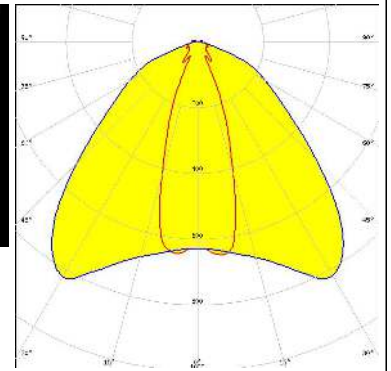
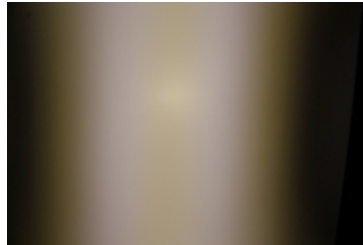
### SAMSUNG

LED HiLOM RH16 (LH351C)  
 FWHM / FWTM 23.0 + 106.0° / 36.0 + 140.0°  
 Efficiency 94 %  
 Peak intensity 1.2 cd/m  
 LEDs/each optic 1  
 Light colour White  
 Required components:



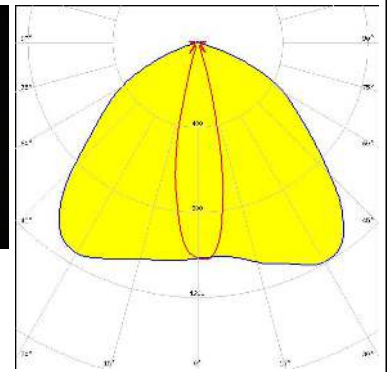
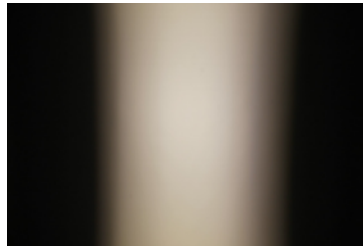
### SAMSUNG

LED HiLOM RM12 Z (LH502C)  
 FWHM / FWTM 35.0 + 98.0° / 76.0 + 141.0°  
 Efficiency 96 %  
 Peak intensity 0.8 cd/m  
 LEDs/each optic 1  
 Light colour White  
 Required components:



### SAMSUNG

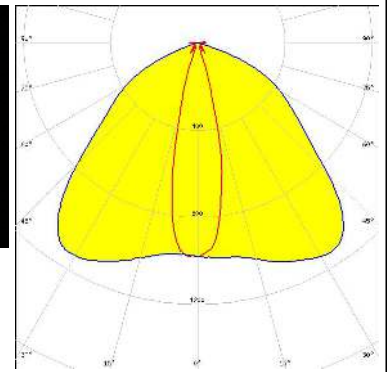
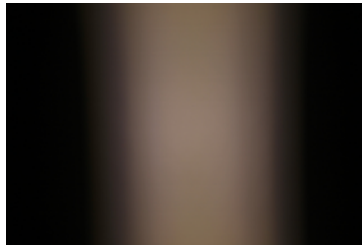
LED LH351B  
 FWHM / FWTM 23.0 + 113.0° / 35.0 + 141.0°  
 Efficiency 94 %  
 Peak intensity 1.2 cd/m  
 LEDs/each optic 1  
 Light colour White  
 Required components:



#### OPTICAL RESULTS (MEASURED):

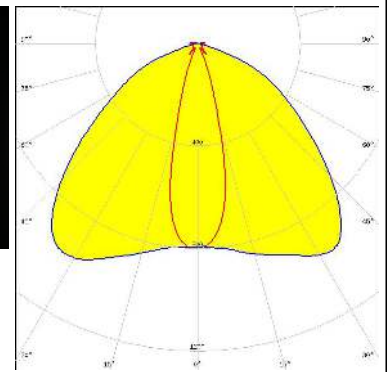
### SAMSUNG

LED LH351C  
 FWHM / FWTM 24.0 + 111.0° / 37.0 + 141.0°  
 Efficiency 94 %  
 Peak intensity 1.1 cd/m  
 LEDs/each optic 1  
 Light colour White  
 Required components:



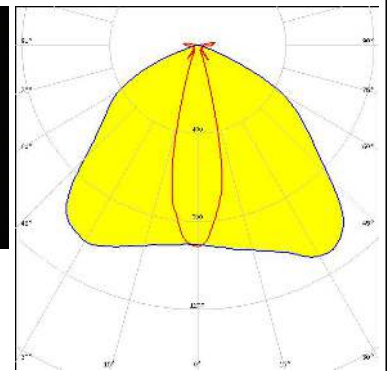
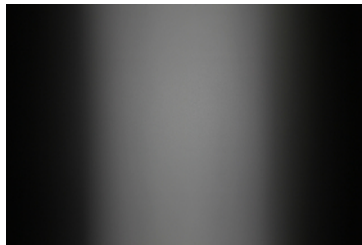
### SAMSUNG

LED LH351D  
 FWHM / FWTM 27.0 + 116.0° / 44.0 + 144.0°  
 Efficiency 94 %  
 Peak intensity 1 cd/m  
 LEDs/each optic 1  
 Light colour White  
 Required components:



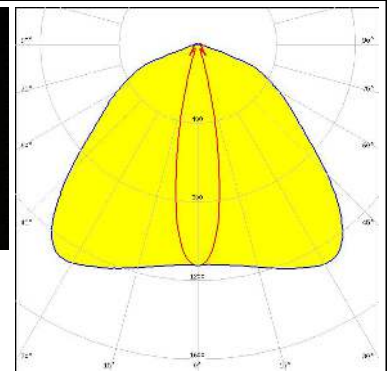
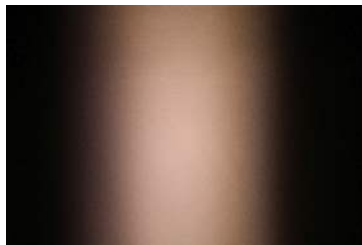
### SAMSUNG

LED LH351Z  
 FWHM / FWTM 26.0 + 117.0° / 42.0 + 141.0°  
 Efficiency 94 %  
 Peak intensity 1.1 cd/m  
 LEDs/each optic 1  
 Light colour White  
 Required components:

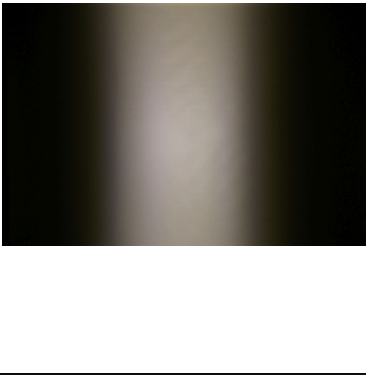
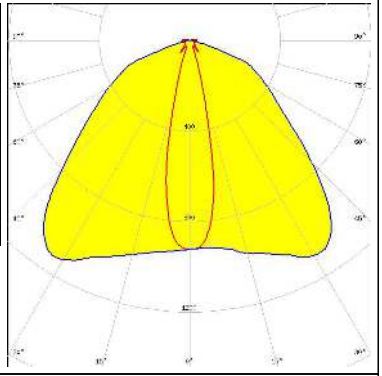

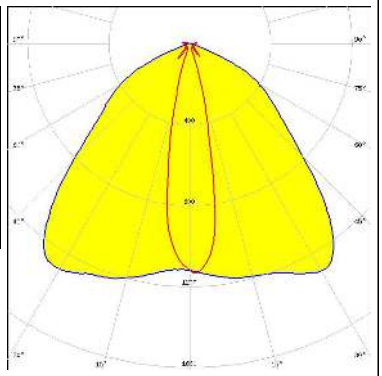
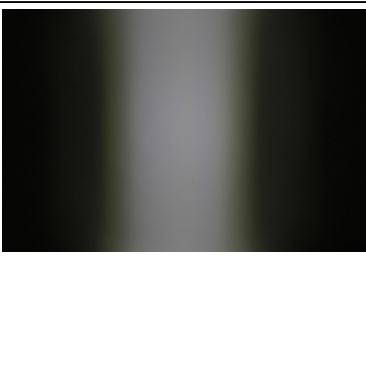
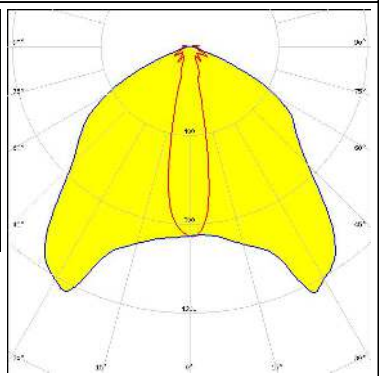
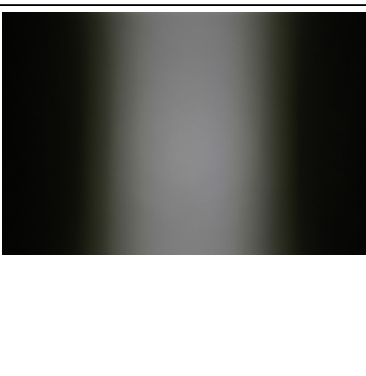
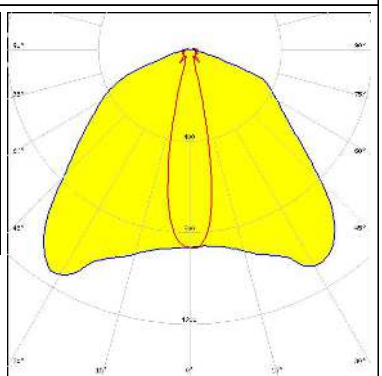


### SEITEC

LED LED-Pa-L15c2W11c2-xxx-C050-01  
 FWHM / FWTM 22.0 + 105.0° / 36.0 + 142.0°  
 Efficiency 98 %  
 Peak intensity 1.3 cd/m  
 LEDs/each optic 1  
 Light colour White  
 Required components:



#### OPTICAL RESULTS (MEASURED):

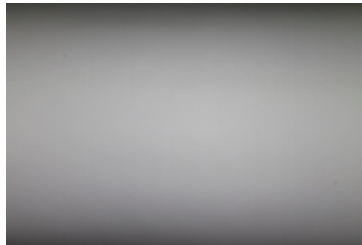
<p>SEOL SEMICONDUCTOR</p> <p>LED Z5M3</p> <p>FWHM / FWTM 23.0 + 113.0° / 39.0 + 146.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 1.1 cd/m</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>		
<p>SEOL SEMICONDUCTOR</p> <p>LED Z5M4</p> <p>FWHM / FWTM 22.0 + 97.0° / 35.0 + 135.0°</p> <p>Efficiency 98 %</p> <p>Peak intensity 1.3 cd/m</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>		
<p>SEOL SEMICONDUCTOR</p> <p>LED Z8Y22</p> <p>FWHM / FWTM 21.0 + 121.0° / 99.0 + 140.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 1.2 cd/m</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>		
<p>SEOL SEMICONDUCTOR</p> <p>LED Z8Y22P</p> <p>FWHM / FWTM 23.0 + 121.0° / 34.0 + 150.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 1.1 cd/m</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>		

#### OPTICAL RESULTS (MEASURED):

#### TOSHIBA

Leading Innovation >>>

LED TL1L4  
 FWHM / FWTM 24.0 + 119.0° / 39.0 + 140.0°  
 Efficiency 89 %  
 Peak intensity 1.1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

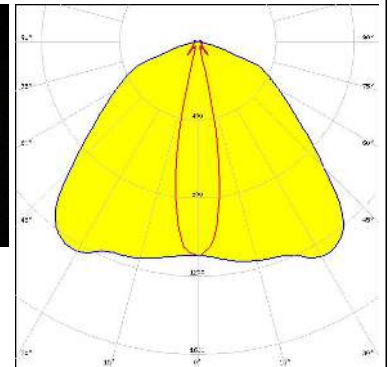
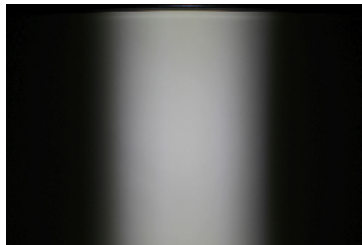


#### TRIDONIC

LED RLE 2x4 2000lm HP EXC2 OTD  
 FWHM / FWTM 22.0 + 113.0° / 30.0 + 149.0°  
 Efficiency 94 %  
 Peak intensity 1.3 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

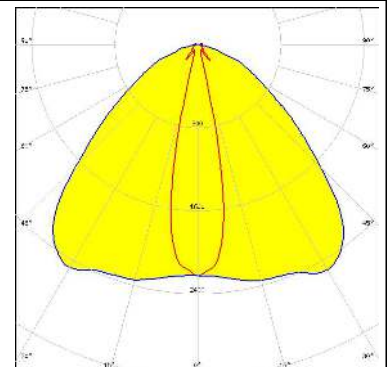
#### TRIDONIC

LED RLE 2x8 4000lm HP EXC2 OTD  
 FWHM / FWTM 22.0 + 113.0° / 30.0 + 149.0°  
 Efficiency 94 %  
 Peak intensity 1.3 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



#### TRIDONIC

LED RLE G1 49x121mm 2000lm xxx EXC OTD  
 FWHM / FWTM 23.0 + 104.0° / 31.0 + 144.0°  
 Efficiency 94 %  
 Peak intensity 1.3 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

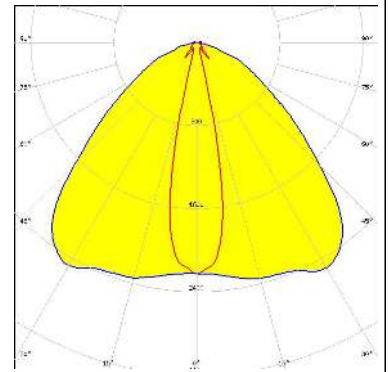




#### OPTICAL RESULTS (MEASURED):

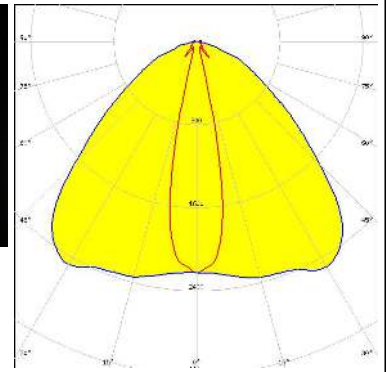
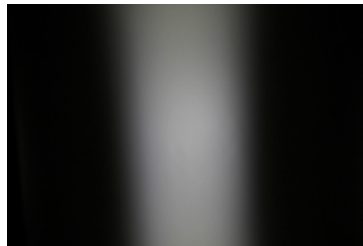
#### TRIDONIC

LED RLE G1 49x133mm 2000lm xxx EXC OTD  
 FWHM / FWTM 23.0 + 104.0° / 31.0 + 144.0°  
 Efficiency 94 %  
 Peak intensity 1.3 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



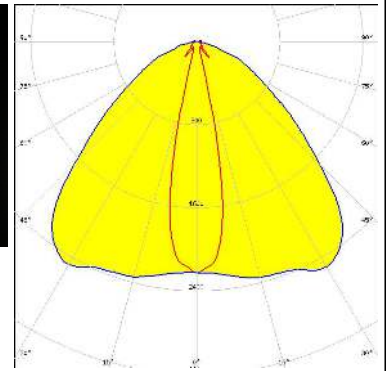
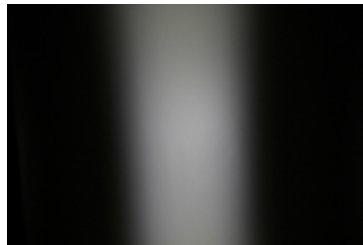
#### TRIDONIC

LED RLE G1 49x223mm 4000lm xxx EXC OTD  
 FWHM / FWTM 23.0 + 104.0° / 31.0 + 144.0°  
 Efficiency 94 %  
 Peak intensity 1.3 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:


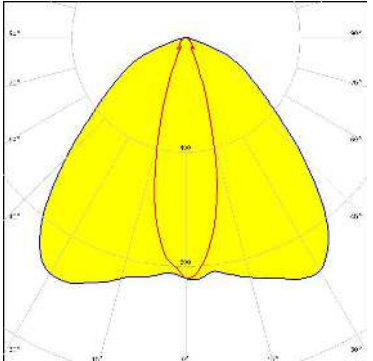

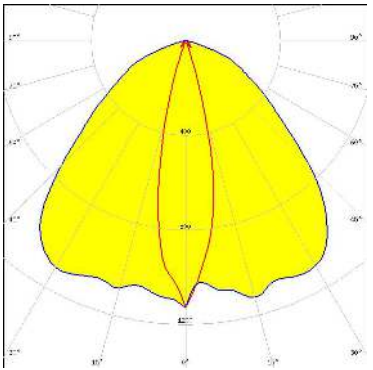

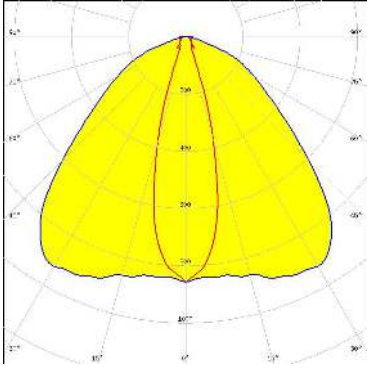

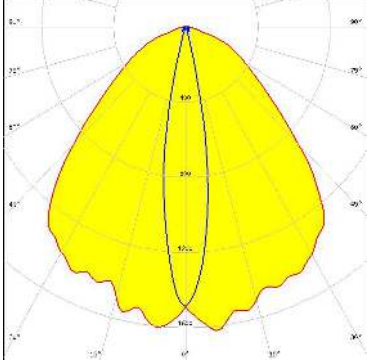


#### TRIDONIC

LED RLE G1 49x245mm 4000lm xxx EXC OTD  
 FWHM / FWTM 23.0 + 104.0° / 31.0 + 144.0°  
 Efficiency 94 %  
 Peak intensity 1.3 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



#### OPTICAL RESULTS (SIMULATED):

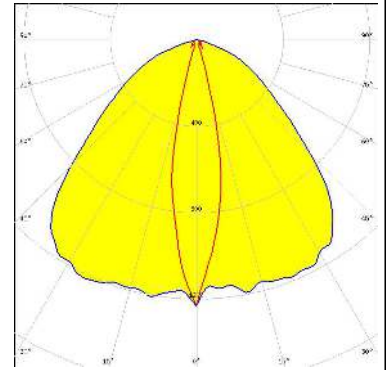
<p><b>CREE</b>  <b>LED</b></p> <p>LED J Series 5050 Round LES            FWHM / FWTM 30.0 + 97.0° / 51.0 + 141.0°            Efficiency 94 %            Peak intensity 1 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>	
<p><b>CREE</b>  <b>LED</b></p> <p>LED XHP35 HI            FWHM / FWTM 101.0 + 27.0° / 145.0 + 44.0°            Efficiency 94 %            Peak intensity 1.2 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>	
<p><b>CREE</b>  <b>LED</b></p> <p>LED XHP50.3 HI            FWHM / FWTM 28.0 + 100.0° / 44.0 + 144.0°            Efficiency 95 %            Peak intensity 0.9 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>	
<p><b>CREE</b>  <b>LED</b></p> <p>LED XP-E2            FWHM / FWTM 93.0 + 18.0° / 141.0 + 30.0°            Efficiency 94 %            Peak intensity 1.6 cd/lm            LEDs/each optic 1            Light colour White            Required components:</p>	

#### OPTICAL RESULTS (SIMULATED):

##### CREE LED

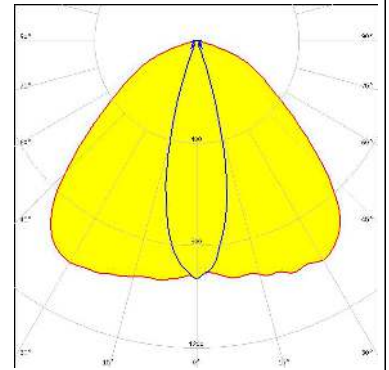
LED XP-G2  
 FWHM / FWTM 21.0 + 98.0° / 33.0 + 141.0°  
 Efficiency 91 %  
 Peak intensity 1.2 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

Protective plate, glass



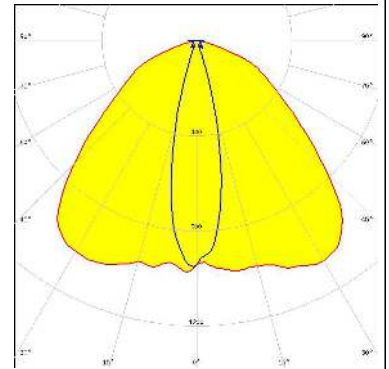
##### CREE LED

LED XP-G2 HE  
 FWHM / FWTM 28.0 + 103.0° / 41.0 + 144.0°  
 Efficiency 94 %  
 Peak intensity 1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



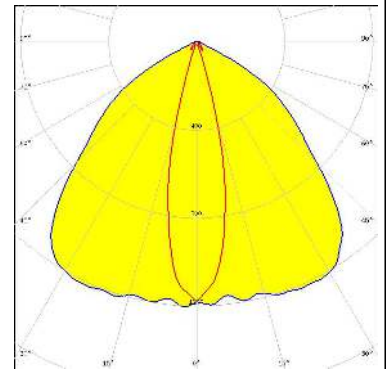
##### CREE LED

LED XP-G3  
 FWHM / FWTM 103.0 + 29.0° / 146.0 + 49.0°  
 Efficiency 94 %  
 Peak intensity 1.1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



##### CREE LED

LED XP-G4  
 FWHM / FWTM 24.0 + 100.0° / 36.0 + 128.0°  
 Efficiency 97 %  
 Peak intensity 1.2 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

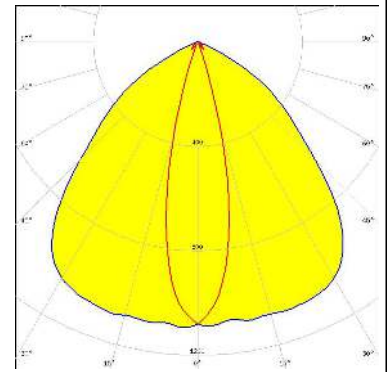


#### OPTICAL RESULTS (SIMULATED):

##### CREE LED

LED XP-G4  
 FWHM / FWTM 24.0 + 95.0° / 36.0 + 127.0°  
 Efficiency 87 %  
 Peak intensity 1.1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

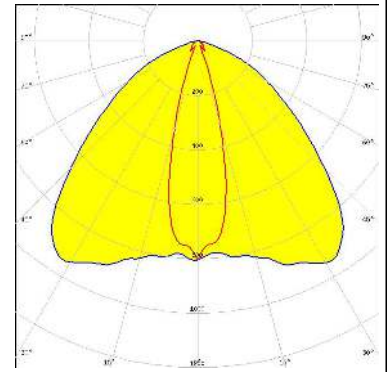
Protective plate, glass



##### CREE LED

LED XP-L HD  
 FWHM / FWTM 26.0 + 103.0° / 42.0 + 140.0°  
 Efficiency 88 %  
 Peak intensity 0.9 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

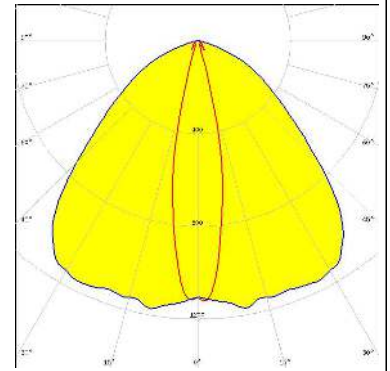
Protective plate, glass



##### CREE LED

LED XP-L HI  
 FWHM / FWTM 22.0 + 98.0° / 34.0 + 140.0°  
 Efficiency 88 %  
 Peak intensity 1.2 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

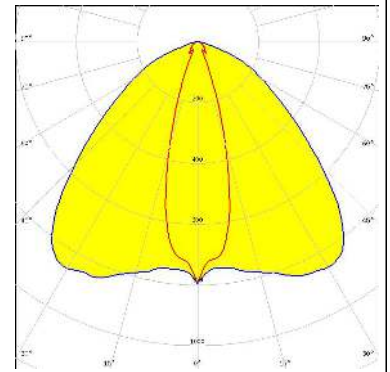
Protective plate, glass



##### CREE LED

LED XP-L2  
 FWHM / FWTM 28.0 + 100.0° / 46.0 + 140.0°  
 Efficiency 87 %  
 Peak intensity 0.9 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

Protective plate, glass



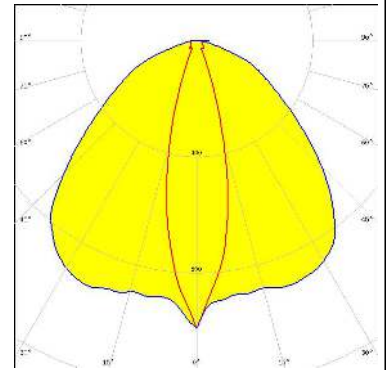
#### OPTICAL RESULTS (SIMULATED):



LED XQ-E HI  
 FWHM / FWTM 96.0 + 14.0° / 144.0 + 25.0°  
 Efficiency %  
 LEDs/each optic 1  
 Light colour White  
 Required components:

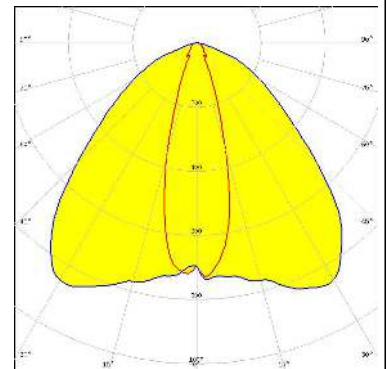


LED XT-E HE  
 FWHM / FWTM 100.0 + 24.0°  
 Efficiency 94 %  
 LEDs/each optic 1  
 Light colour White  
 Required components:



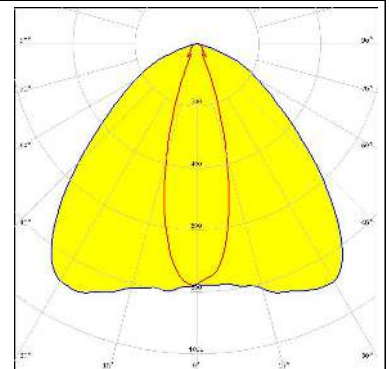
LED LUXEON 5050 HE  
 FWHM / FWTM 30.0 + 98.0° / 52.0 + 140.0°  
 Efficiency 87 %  
 Peak intensity 0.9 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

Protective plate, glass

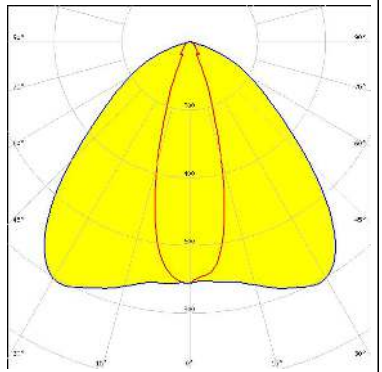
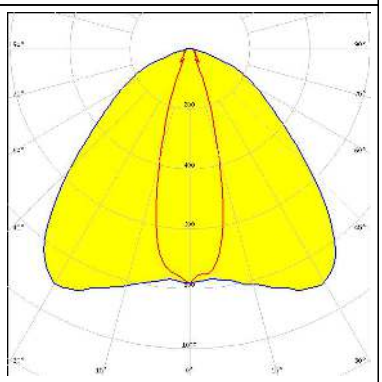
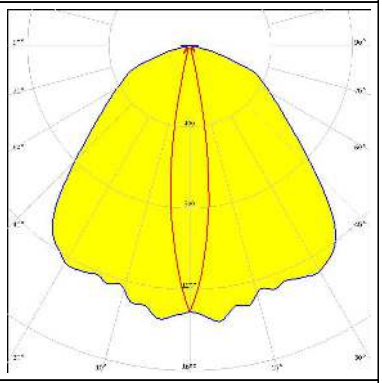
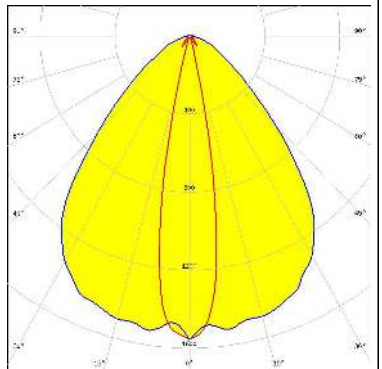


LED LUXEON 5050 Round LES  
 FWHM / FWTM 30.0 + 96.0° / 48.0 + 140.0°  
 Efficiency 88 %  
 Peak intensity 0.9 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

Protective plate, glass



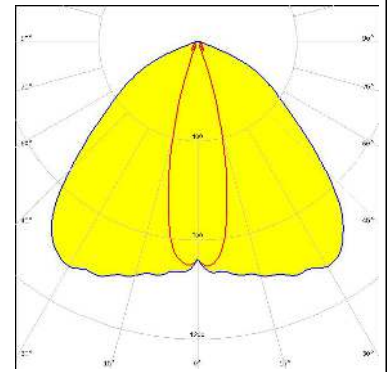
#### OPTICAL RESULTS (SIMULATED):

<p><b>LUMILEDS</b></p> <p>LED LUXEON 5050 Square LES</p> <p>FWHM / FWTM 30.0 + 96.0° / 52.0 + 140.0°</p> <p>Efficiency 84 %</p> <p>Peak intensity 0.8 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p> <p>Protective plate, glass</p>	
<p><b>LUMILEDS</b></p> <p>LED LUXEON 5050 Square LES</p> <p>FWHM / FWTM 30.0 + 98.0° / 50.0 + 142.0°</p> <p>Efficiency 95 %</p> <p>Peak intensity 0.9 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>	
<p><b>LUMILEDS</b></p> <p>LED LUXEON IR Domed 150 (L110-0xxx150000000)</p> <p>FWHM / FWTM 16.0 + 98.0° / 28.0 + 149.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 1.4 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>	
<p><b>LUMILEDS</b></p> <p>LED LUXEON IR Domed 90 (L110-0xxx090000000)</p> <p>FWHM / FWTM 20.0 + 86.0° / 29.0 + 128.0°</p> <p>Efficiency 95 %</p> <p>Peak intensity 1.6 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>	

#### OPTICAL RESULTS (SIMULATED):

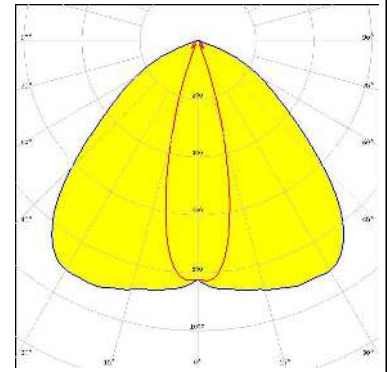
##### LUMILEDS

LED LUXEON XR-HL2X (L2H2-xxxxxxxMLU010)  
 FWHM / FWTM 28.0 + 102.0° / 42.0 + 140.0°  
 Efficiency 96 %  
 Peak intensity 1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



##### LUMILEDS

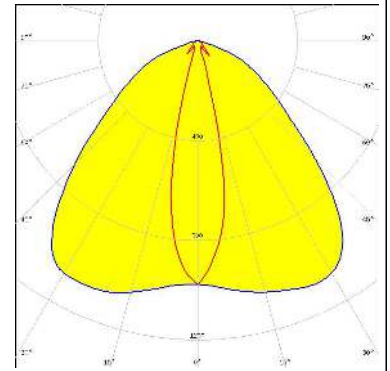
LED LUXEON XR-HL2X (L2H2-xxxxxxxMLU010)  
 FWHM / FWTM 28.0 + 100.0° / 42.0 + 138.0°  
 Efficiency 86 %  
 Peak intensity 0.9 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



Protective plate, glass

##### MST Your solutions

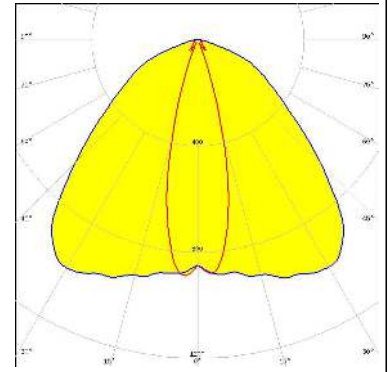
LED RecLED 122x50mm 1900lm 730 2x4 Opt G1  
 FWHM / FWTM 24.0 + 97.0° / 34.0 + 141.0°  
 Efficiency 86 %  
 Peak intensity 1.1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



Protective plate, glass

##### NICHIA

LED NV4WB35AM  
 FWHM / FWTM 28.0 + 100.0° / 42.0 + 144.0°  
 Efficiency 95 %  
 Peak intensity 1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

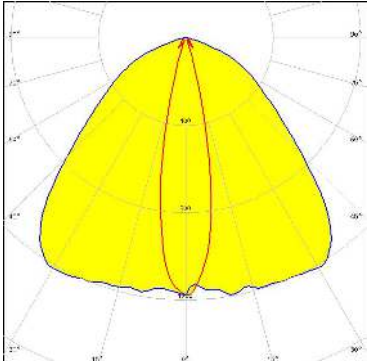
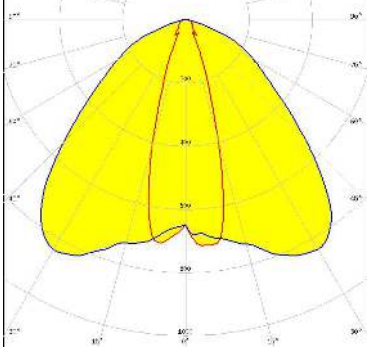
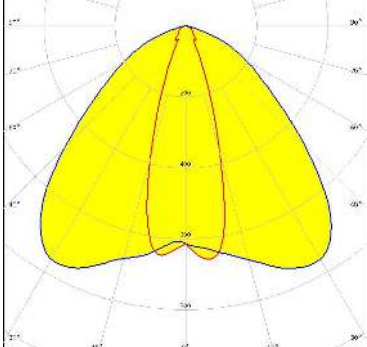
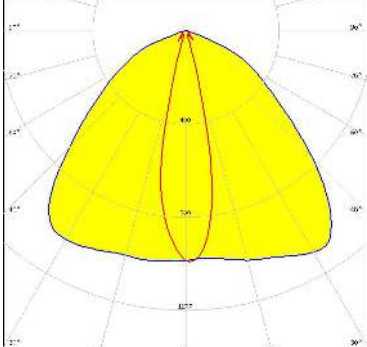


### OPTICAL RESULTS (SIMULATED):

<p><b>OSRAM</b> Opto Semiconductors</p> <p>LED                      OSCONIQ C 2424</p> <p>FWHM / FWTM        18.0 + 96.0° / 30.0 + 141.0°</p> <p>Efficiency             96 %</p> <p>Peak intensity        1.5 cd/lm</p> <p>LEDs/each optic     1</p> <p>Light colour         White</p> <p>Required components:</p>	
<p><b>OSRAM</b> Opto Semiconductors</p> <p>LED                      OSCONIQ P 3030</p> <p>FWHM / FWTM        14.0 + 92.0° / 28.0 + 142.0°</p> <p>Efficiency             95 %</p> <p>Peak intensity        1.6 cd/lm</p> <p>LEDs/each optic     1</p> <p>Light colour         White</p> <p>Required components:</p>	
<p><b>OSRAM</b> Opto Semiconductors</p> <p>LED                      OSCONIQ P 3737 (2W version)</p> <p>FWHM / FWTM        99.0 + 19.0° / 142.0 + 31.0°</p> <p>Efficiency             94 %</p> <p>Peak intensity        1.3 cd/lm</p> <p>LEDs/each optic     1</p> <p>Light colour         White</p> <p>Required components:</p>	
<p><b>OSRAM</b> Opto Semiconductors</p> <p>LED                      OSCONIQ P 3737 (3W version)</p> <p>FWHM / FWTM        100.0 + 30.0° / 144.0 + 51.0°</p> <p>Efficiency             94 %</p> <p>Peak intensity        1 cd/lm</p> <p>LEDs/each optic     1</p> <p>Light colour         White</p> <p>Required components:</p>	



#### OPTICAL RESULTS (SIMULATED):

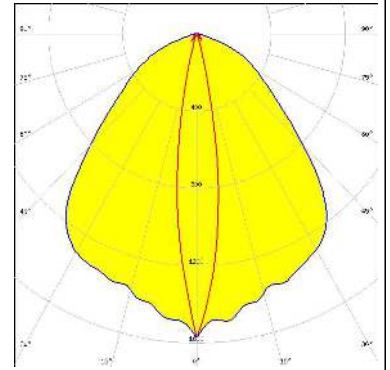
<p><b>OSRAM</b> Opto Semiconductors</p> <p>LED: OSCONIQ P 3737 Flat</p> <p>FWHM / FWTM: 22.0 + 98.0° / 35.0 + 142.0°</p> <p>Efficiency: 96 %</p> <p>Peak intensity: 1.2 cd/lm</p> <p>LEDs/each optic: 1</p> <p>Light colour: White</p> <p>Required components:</p>	
<p><b>OSRAM</b> Opto Semiconductors</p> <p>LED: OSCONIQ S 5050</p> <p>FWHM / FWTM: 32.0 + 99.0° / 52.0 + 143.0°</p> <p>Efficiency: 96 %</p> <p>Peak intensity: 0.8 cd/lm</p> <p>LEDs/each optic: 1</p> <p>Light colour: White</p> <p>Required components:</p>	
<p><b>OSRAM</b> Opto Semiconductors</p> <p>LED: OSCONIQ S 5050</p> <p>FWHM / FWTM: 32.0 + 98.0° / 53.0 + 140.0°</p> <p>Efficiency: 85 %</p> <p>Peak intensity: 0.8 cd/lm</p> <p>LEDs/each optic: 1</p> <p>Light colour: White</p> <p>Required components:</p> <p>Protective plate, glass</p>	
<p><b>OSRAM</b> Opto Semiconductors</p> <p>LED: OSOLON Square CSSRM2/CSSRM3</p> <p>FWHM / FWTM: 23.0 + 101.0° / 33.0 + 140.0°</p> <p>Efficiency: 85 %</p> <p>Peak intensity: 1.1 cd/lm</p> <p>LEDs/each optic: 1</p> <p>Light colour: White</p> <p>Required components:</p> <p>Protective plate, glass</p>	

#### OPTICAL RESULTS (SIMULATED):

#### OSRAM

Opto Semiconductors

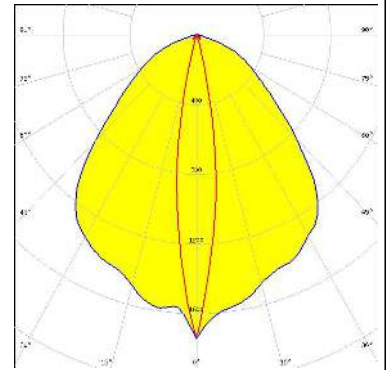
LED OSLOM Square Flat  
 FWHM / FWTM 16.0 + 90.0° / 30.0 + 140.0°  
 Efficiency 96 %  
 Peak intensity 1.6 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



#### OSRAM

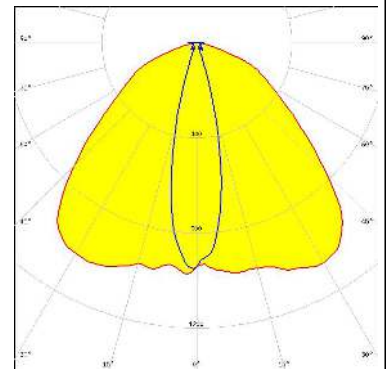
Opto Semiconductors

LED OSTAR Projection Compact (KW.CSLNM1.TG)  
 FWHM / FWTM 16.0 + 89.0° / 28.0 + 140.0°  
 Efficiency 96 %  
 Peak intensity 1.7 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:



#### PHILIPS

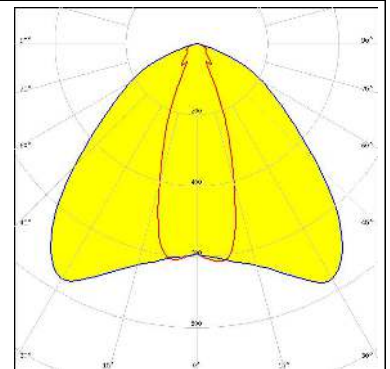
LED Fortimo FastFlex LED 2x8 DAX G4  
 FWHM / FWTM 103.0 + 29.0° / 146.0 + 49.0°  
 Efficiency 94 %  
 Peak intensity 1.1 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:




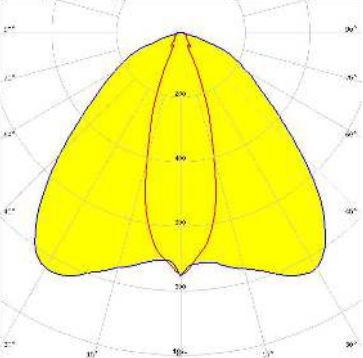

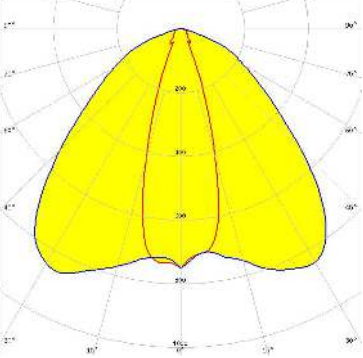

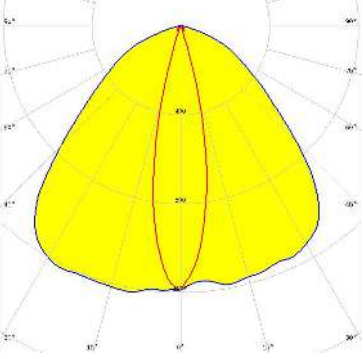

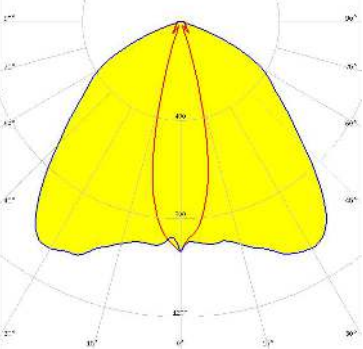
#### SAMSUNG

LED HiLOM RM12 Z (LH502C)  
 FWHM / FWTM 36.0 + 98.0° / 78.0 + 140.0°  
 Efficiency 89 %  
 Peak intensity 0.8 cd/lm  
 LEDs/each optic 1  
 Light colour White  
 Required components:

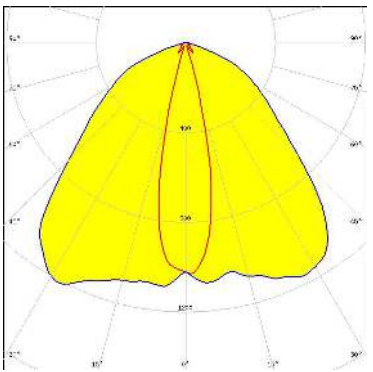
Protective plate, glass



#### OPTICAL RESULTS (SIMULATED):

<p> SEOUL SEMICONDUCTOR</p> <p>LED MJT 5050</p> <p>FWHM / FWTM 32.0 + 98.0° / 52.0 + 142.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 0.8 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>	
<p> SEOUL SEMICONDUCTOR</p> <p>LED SEOUL DC 5050 6V</p> <p>FWHM / FWTM 33.0 + 98.0° / 58.0 + 143.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 0.9 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>	
<p> SEOUL SEMICONDUCTOR</p> <p>LED Z5M1/Z5M2</p> <p>FWHM / FWTM 22.0 + 97.0° / 34.0 + 142.0°</p> <p>Efficiency 94 %</p> <p>Peak intensity 1.2 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>	
<p> SEOUL SEMICONDUCTOR</p> <p>LED Z5M5</p> <p>FWHM / FWTM 26.0 + 103.0° / 38.0 + 140.0°</p> <p>Efficiency 96 %</p> <p>Peak intensity 1.1 cd/lm</p> <p>LEDs/each optic 1</p> <p>Light colour White</p> <p>Required components:</p>	

#### OPTICAL RESULTS (SIMULATED):

<p><b>SEOUL SEMICONDUCTOR</b></p> <p>LED: Z5M5</p> <p>FWHM / FWTM: 26.0 + 100.0° / 40.0 + 138.0°</p> <p>Efficiency: 85 %</p> <p>Peak intensity: 0.9 cd/lm</p> <p>LEDs/each optic: 1</p> <p>Light colour: White</p> <p>Required components:</p> <p>Protective plate, glass</p>	
<p><b>SEOUL SEMICONDUCTOR</b></p> <p>LED: Z8Y22T</p> <p>FWHM / FWTM: 21.0 + 96.0° / 33.0 + 141.0°</p> <p>Efficiency: 94 %</p> <p>Peak intensity: 1.2 cd/lm</p> <p>LEDs/each optic: 1</p> <p>Light colour: White</p> <p>Required components:</p>	
<p><b>TRIDONIC</b></p> <p>LED: RLE 2x8 4000lm HP EXC2 OTD</p> <p>FWHM / FWTM: 22.0 + 100.0° / 32.0 + 142.0°</p> <p>Efficiency: 84 %</p> <p>Peak intensity: 1 cd/lm</p> <p>LEDs/each optic: 1</p> <p>Light colour: White</p> <p>Required components:</p> <p>Protective plate, glass</p>	

### 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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