

ANGELA-M

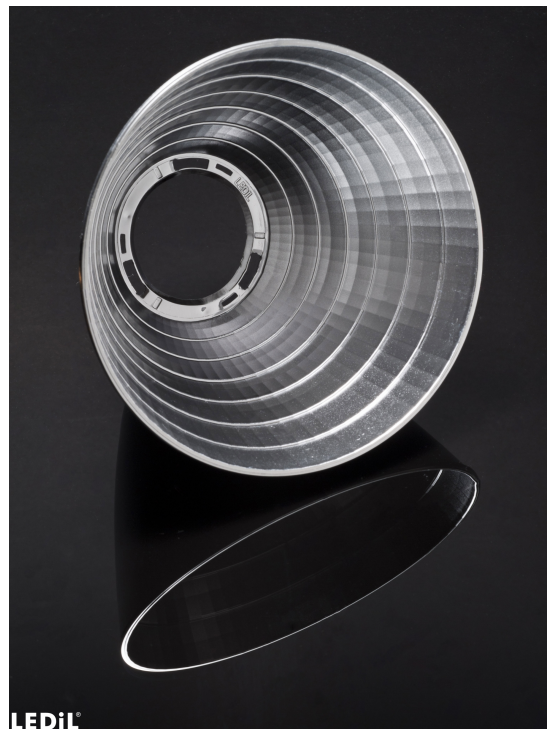
~30° medium beam

SPECIFICATION:

Dimensions	Ø 119.5 mm
Height	74.3 mm
Fastening	socket
ROHS compliant	yes ⓘ

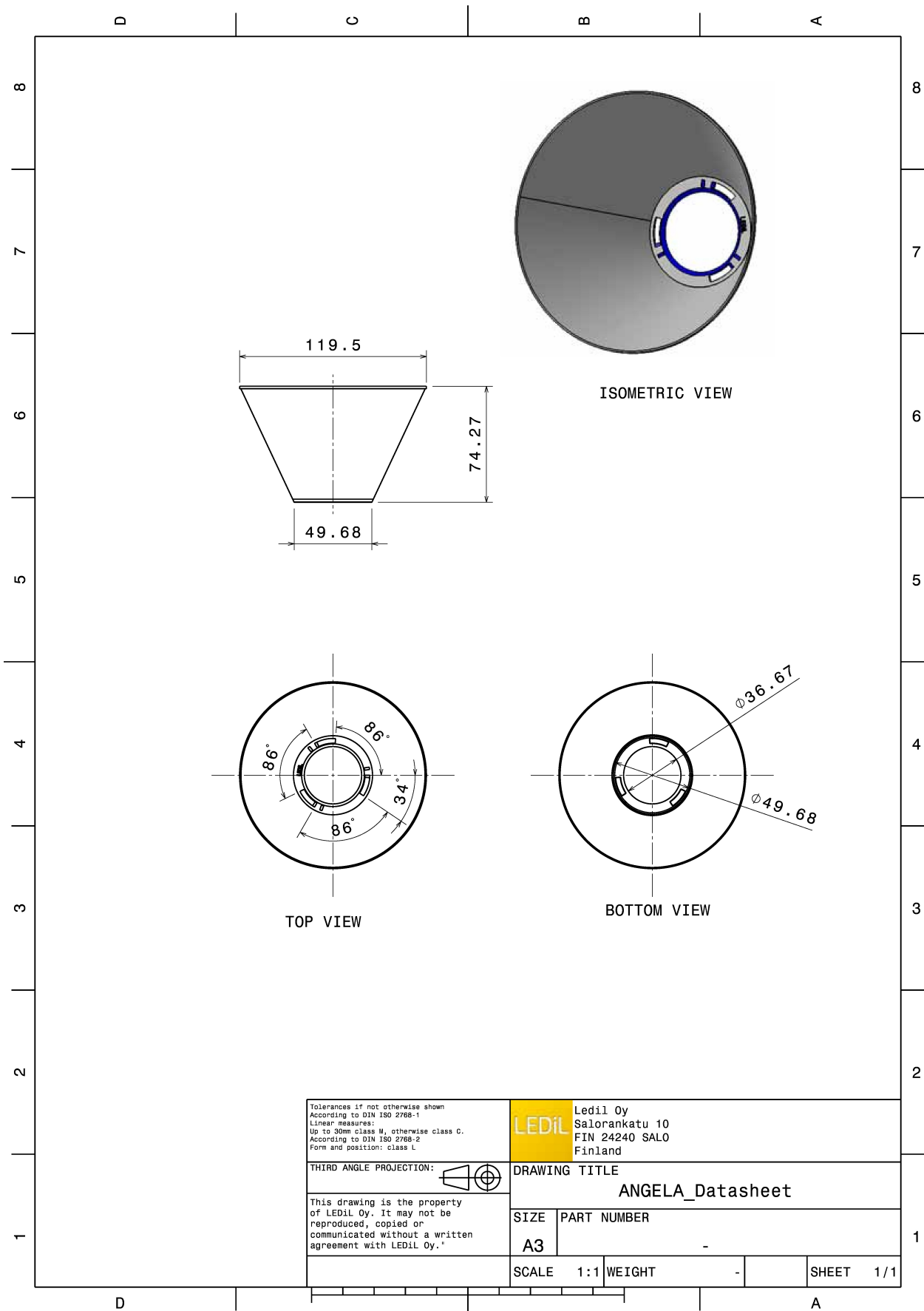
MATERIALS:

Component	Type	Material	Colour	Finish	Coating
ANGELA-M	Reflector	PC	metal		HMDS



ORDERING INFORMATION:

Component	Qty in box	MOQ	MPQ	Box weight (kg)
F13380_ANGELA-M » Box size: 398 x 298 x 265 mm	180	90	45	9.3

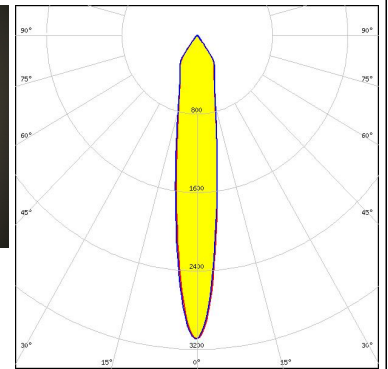


See also our general installation guide: www.ledil.com/installation_guide

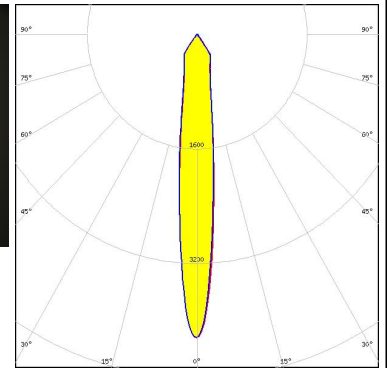
OPTICAL RESULTS (MEASURED):



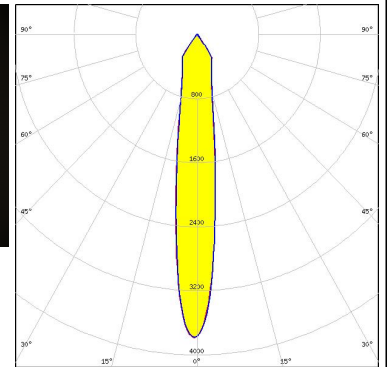
LED V10 Gen7
FWHM / FWTM 16.0° / 68.0°
Efficiency 78 %
Peak intensity 3.1 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
F13671_ANGE-RZ-LENS
Bender Wirth: 434 Typ L1



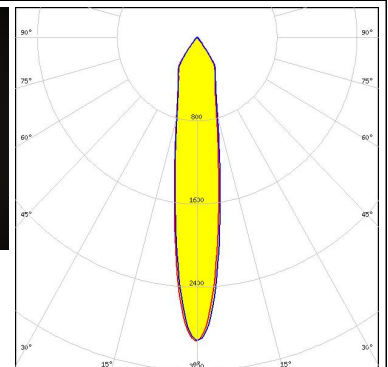
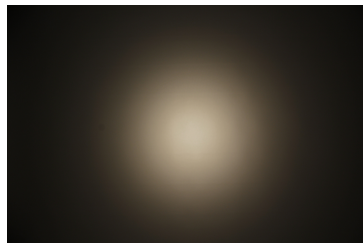
LED V10 Gen7
FWHM / FWTM 14.0° / 53.0°
Efficiency 83 %
Peak intensity 4.2 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 434 Typ L1



LED V13 Gen7
FWHM / FWTM 16.0° / 61.0°
Efficiency 84 %
Peak intensity 3.8 cd/lm
LEDs/each optic 1
Light colour White
Required components:
TE Connectivity: 2213254-2 + OPTIC CLIP Z50 TYPE1 2213194-1



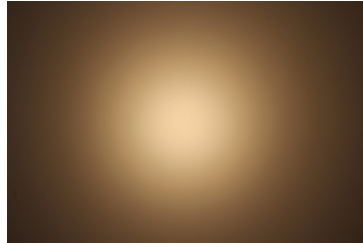
LED V13 Gen7
FWHM / FWTM 18.0° / 68.0°
Efficiency 80 %
Peak intensity 2.9 cd/lm
LEDs/each optic 1
Light colour White
Required components:
F13671_ANGE-RZ-LENS
TE Connectivity: 2213254-2 + OPTIC CLIP Z50 TYPE1 2213194-1



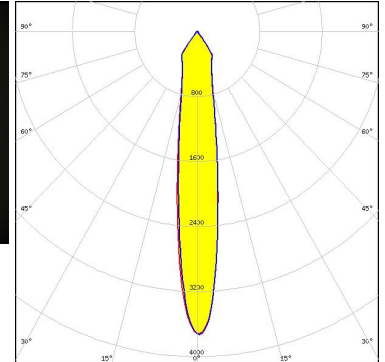
OPTICAL RESULTS (MEASURED):



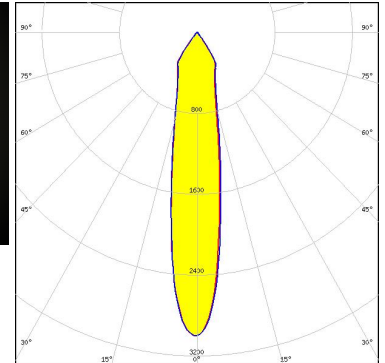
LED V15 Gen6
FWHM / FWTM 17.0° / 66.0°
Efficiency 92 %
Peak intensity 3.9 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 456 Typ L2



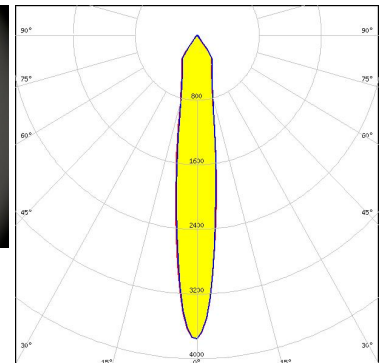
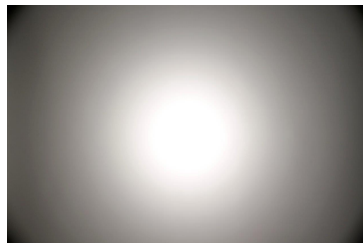
LED Vero SE 13
FWHM / FWTM 16.0° / 62.0°
Efficiency 84 %
Peak intensity 3.7 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C16402_CLAMP-VEROSE-13-18



LED Vero SE 18
FWHM / FWTM 19.0° / 69.0°
Efficiency 84 %
Peak intensity 3 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C16402_CLAMP-VEROSE-13-18



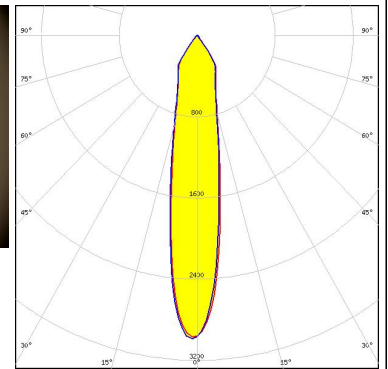
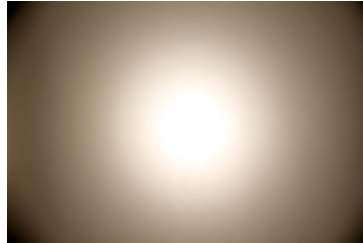
LED VERO13
FWHM / FWTM 16.0° / 64.0°
Efficiency 87 %
Peak intensity 3.6 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18



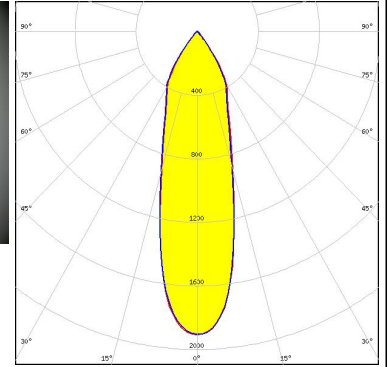
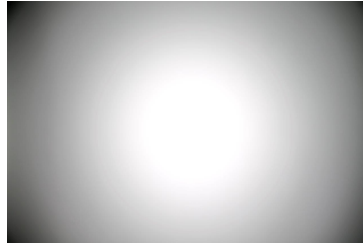
OPTICAL RESULTS (MEASURED):



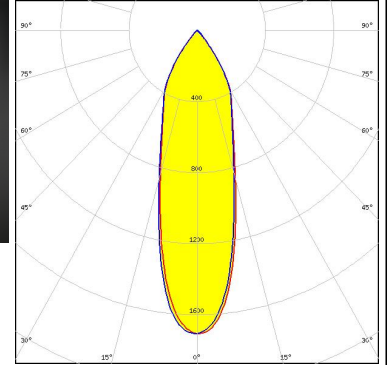
LED VERO18
FWHM / FWTM 19.0° / 69.0°
Efficiency 85 %
Peak intensity 3 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18



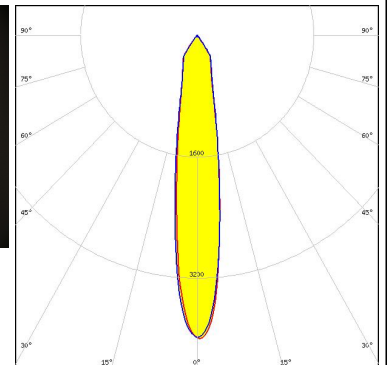
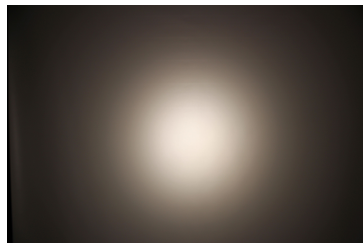
LED VERO29
FWHM / FWTM 29.0° / 73.0°
Efficiency 85 %
Peak intensity 1.9 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13584_CLAMP-VERO29



LED VERO29
FWHM / FWTM 30.0° / 74.0°
Efficiency 79 %
Peak intensity 1.7 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13584_CLAMP-VERO29
F13671_ANGE-RZ-LENS



LED Vesta TW 15mm DP
FWHM / FWTM 18.0° / 57.0°
Efficiency 88 %
Peak intensity 4 cd/lm
LEDs/each optic 1
Light colour Tunable White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 482 Typ L2



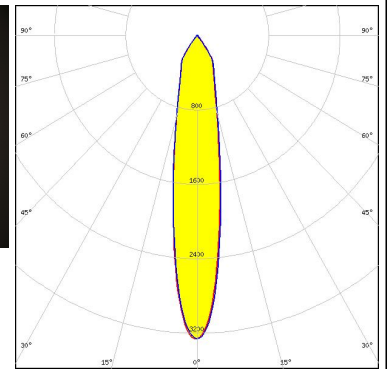
OPTICAL RESULTS (MEASURED):



LED Vesta TW 15mm DP
FWHM / FWTM 19.0° / 64.0°
Efficiency 82 %
Peak intensity 3.3 cd/lm
LEDs/each optic 1
Light colour Tunable White

Required components:

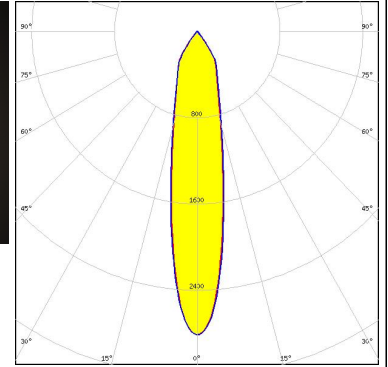
C13658_CLAMP-VERO13-18
F13671_ANGE-RZ-LENS
Bender Wirth: 482 Typ L2



LED Vesta TW 18mm (31W) DP
FWHM / FWTM 21.0° / 67.0°
Efficiency 82 %
Peak intensity 2.8 cd/lm
LEDs/each optic 1
Light colour Tunable White

Required components:

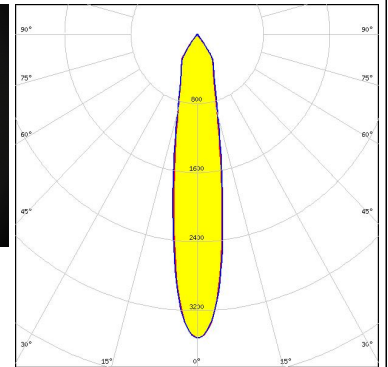
C13584_CLAMP-VERO29
F13671_ANGE-RZ-LENS
Bender Wirth: 483 Typ L3



LED Vesta TW 18mm (31W) DP
FWHM / FWTM 19.0° / 64.0°
Efficiency 88 %
Peak intensity 3.5 cd/lm
LEDs/each optic 1
Light colour Tunable White

Required components:

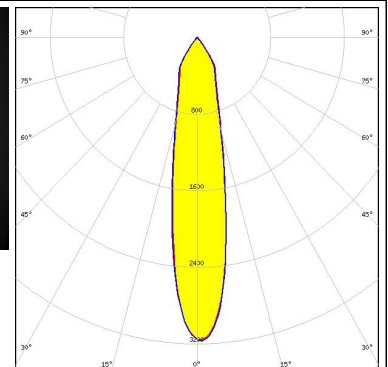
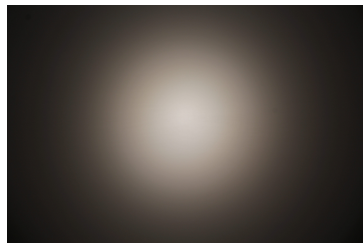
C13584_CLAMP-VERO29
Bender Wirth: 483 Typ L3



LED Vesta TW 22mm DP
FWHM / FWTM 21.0° / 66.0°
Efficiency 87 %
Peak intensity 3.2 cd/lm
LEDs/each optic 1
Light colour Tunable White

Required components:

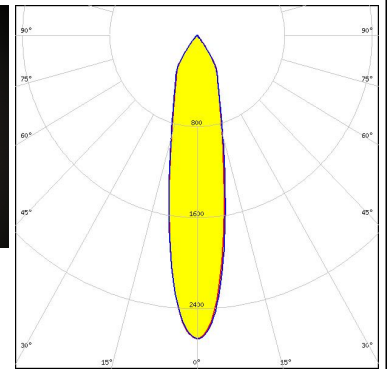
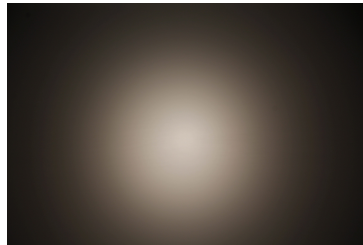
C13584_CLAMP-VERO29
Bender Wirth: 494 Typ L3



OPTICAL RESULTS (MEASURED):

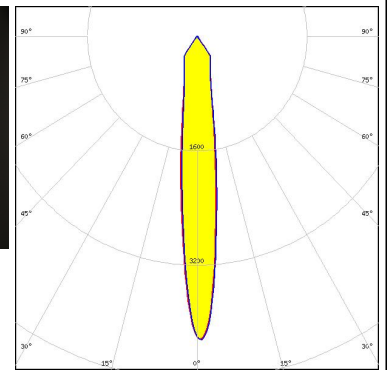


LED Vesta TW 22mm DP
FWHM / FWTM 22.0° / 68.0°
Efficiency 83 %
Peak intensity 2.7 cd/lm
LEDs/each optic 1
Light colour Tunable White
Required components:
C13584_CLAMP-VERO29
F13671_ANGE-RZ-LENS
Bender Wirth: 494 Typ L3



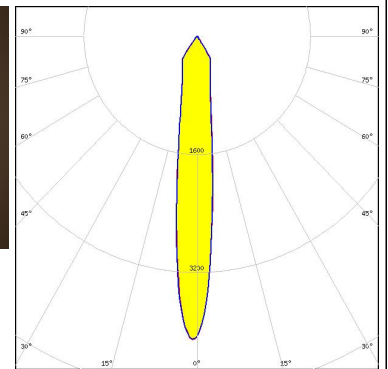
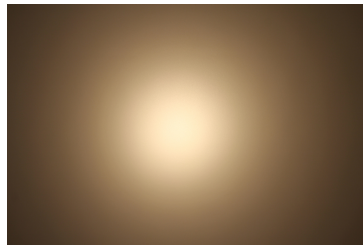
CITIZEN

LED CLL02x/CLU02x (LES10)
FWHM / FWTM 14.0° / 53.0°
Efficiency 84 %
Peak intensity 4.3 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 434 Typ L1



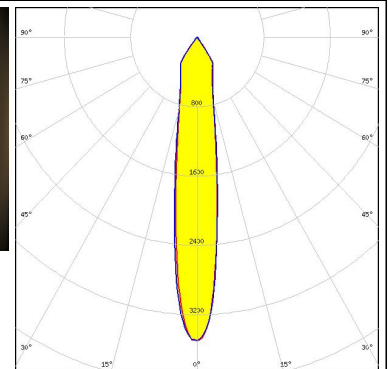
CITIZEN

LED CLL03x/CLU03x
FWHM / FWTM 14.0° / 57.0°
Efficiency 84 %
Peak intensity 4.1 cd/lm
LEDs/each optic 1
Light colour White
Required components:
IDEAL: 50-2103CT + 50-2100AN



CITIZEN

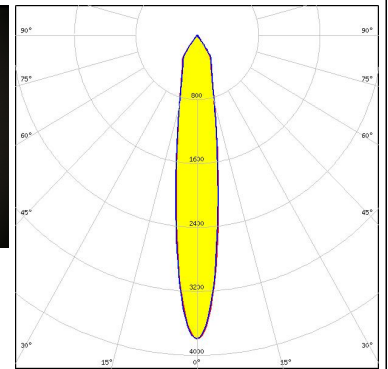
LED CLL03x/CLU03x
FWHM / FWTM 17.0° / 66.0°
Efficiency 83 %
Peak intensity 3.5 cd/lm
LEDs/each optic 1
Light colour White
Required components:
TE Connectivity: 2213254-2 + OPTIC CLIP Z50 TYPE1 2213194-1



OPTICAL RESULTS (MEASURED):

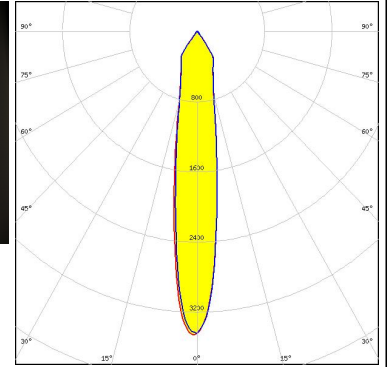
CITIZEN

LED CLL03x/CLU03x
FWHM / FWTM 17.0° / 58.0°
Efficiency 85 %
Peak intensity 3.8 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C16791_CLAMP-Z45-A
F13671_ANGE-RZ-LENS
TE Connectivity: 2325807-3



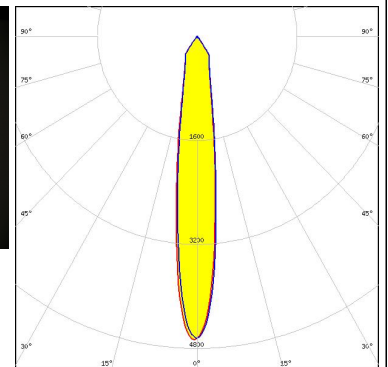
CITIZEN

LED CLL03x/CLU03x
FWHM / FWTM 17.0° / 66.0°
Efficiency 88 %
Peak intensity 3.4 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 433 Typ L1



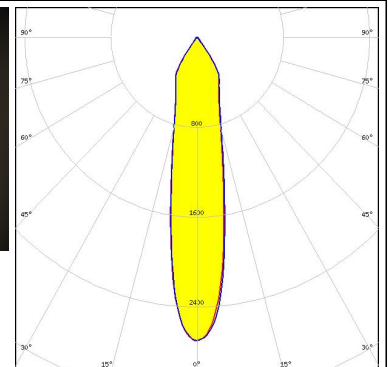
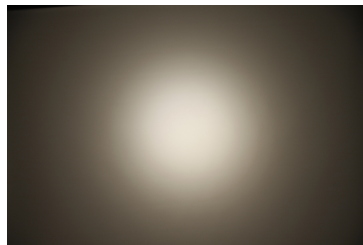
CITIZEN

LED CLL03x/CLU03x
FWHM / FWTM 15.0° / 49.0°
Efficiency 89 %
Peak intensity 4.7 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C16791_CLAMP-Z45-A
TE Connectivity: 2325807-3



CITIZEN

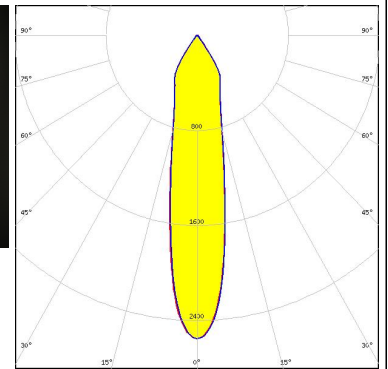
LED CLL04x/CLU04x
FWHM / FWTM 21.0° / 68.0°
Efficiency 84 %
Peak intensity 2.7 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13584_CLAMP-VERO29
Bender Wirth: 431 Typ L3



OPTICAL RESULTS (MEASURED):

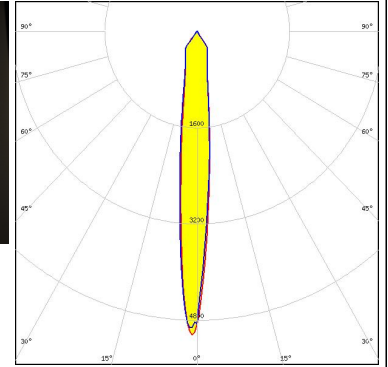
CITIZEN

LED CLL04x/CLU04x
FWHM / FWTM 21.0° / 69.0°
Efficiency 83 %
Peak intensity 2.6 cd/lm
LEDs/each optic 1
Light colour White
Required components:
IDEAL: 50-2204-CT + 50-2100AN



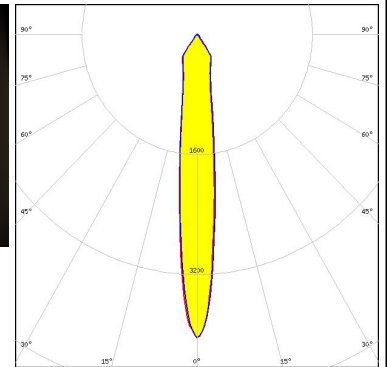
CITIZEN

LED CLU700/701/702/703
FWHM / FWTM 12.0° / 44.0°
Efficiency 83 %
Peak intensity 5.2 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 434 Typ L1



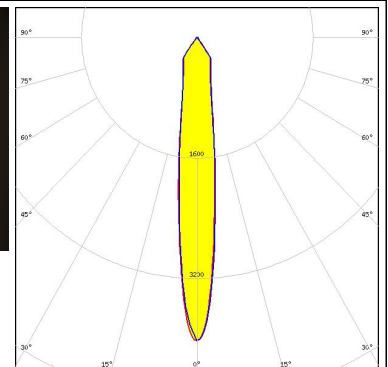
CITIZEN

LED CLU720/721/723
FWHM / FWTM 12.0° / 53.0°
Efficiency 87 %
Peak intensity 4.4 cd/lm
LEDs/each optic 1
Light colour White
Required components:
IDEAL: 50-2103CT + 50-2100AN



CITIZEN

LED CLU720/721/723
FWHM / FWTM 14.0° / 56.0°
Efficiency 83 %
Peak intensity 4 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 433 Typ L1



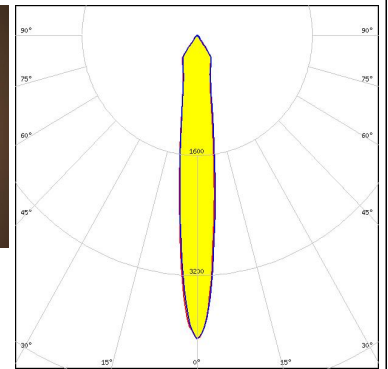
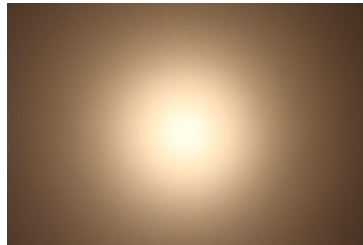
OPTICAL RESULTS (MEASURED):

CITIZEN

LED CLU720/721/723
FWHM / FWTM 14.0° / 58.0°
Efficiency 87 %
Peak intensity 4 cd/lm
LEDs/each optic 1
Light colour White

Required components:

TE Connectivity: 2213254-2 + OPTIC CLIP Z50 TYPE1 2213194-1



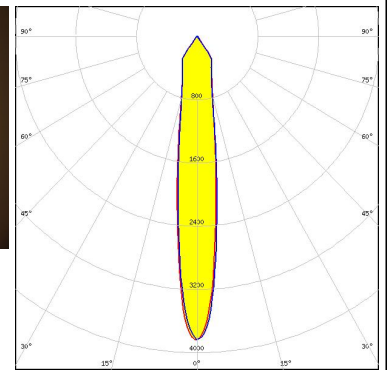
CITIZEN

LED CLU730/731/733
FWHM / FWTM 15.0° / 60.0°
Efficiency 84 %
Peak intensity 3.8 cd/lm
LEDs/each optic 1
Light colour White

Required components:

C13584_CLAMP-VERO29

Bender Wirth: 471 Typ L3

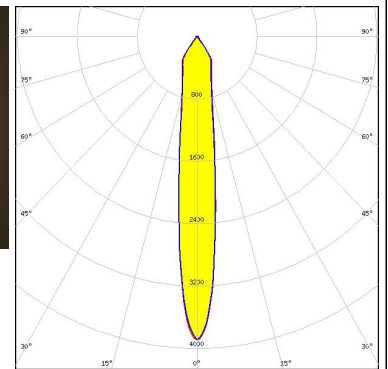
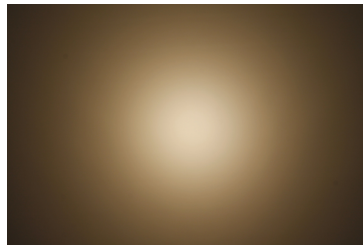


CITIZEN

LED CLU730/731/733
FWHM / FWTM 14.0° / 59.0°
Efficiency 83 %
Peak intensity 3.9 cd/lm
LEDs/each optic 1
Light colour White

Required components:

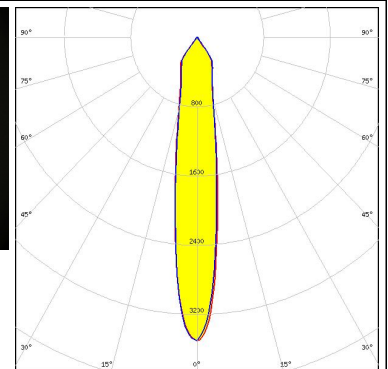
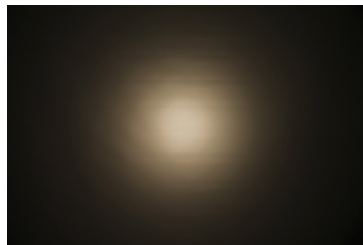
IDEAL: 50-2103CT + 50-2100AN



LED CMA1840
FWHM / FWTM 17.0° / 64.0°
Efficiency 82 %
Peak intensity 3.5 cd/lm
LEDs/each optic 1
Light colour White

Required components:

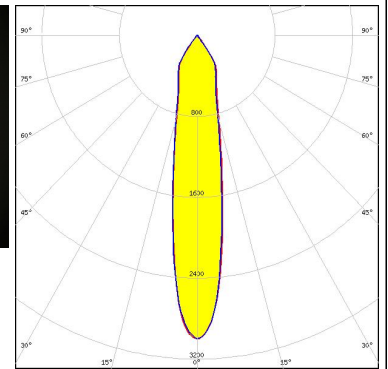
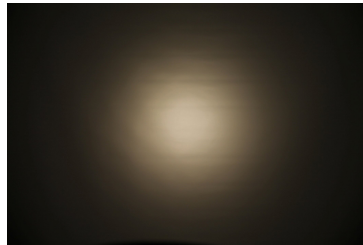
C14123_CLAMP-CXA15-18



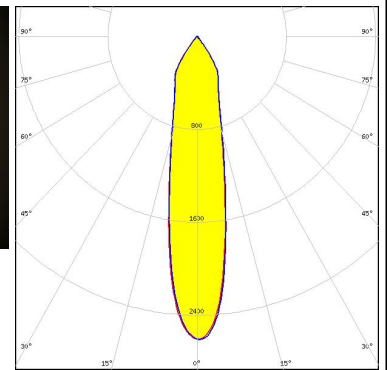
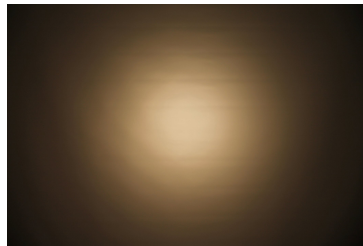
OPTICAL RESULTS (MEASURED):



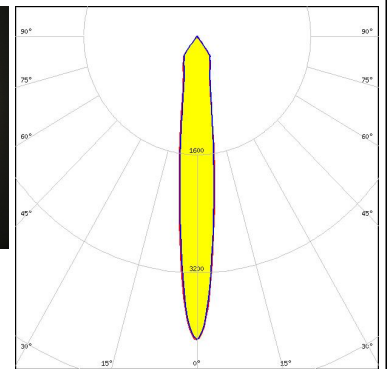
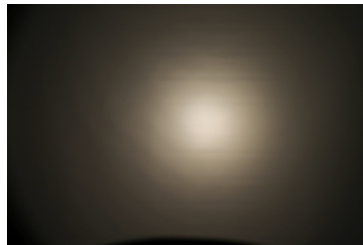
LED CMA2550
FWHM / FWTM 19.0° / 68.0°
Efficiency 82 %
Peak intensity 3 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C14036_CLAMP_CXA25-30



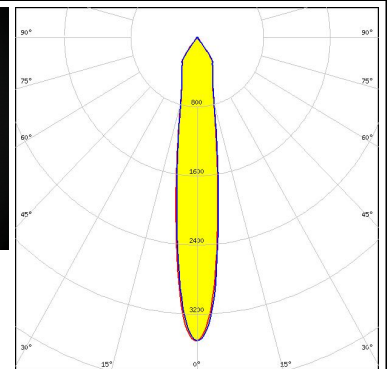
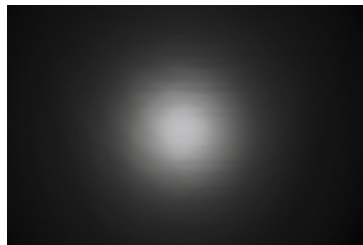
LED CMA3090
FWHM / FWTM 22.0° / 69.0°
Efficiency 82 %
Peak intensity 2.6 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C14036_CLAMP_CXA25-30



LED CMT14xx
FWHM / FWTM 14.0° / 54.0°
Efficiency 81 %
Peak intensity 4.2 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 434 Typ L1



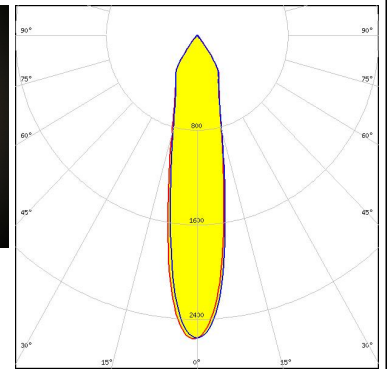
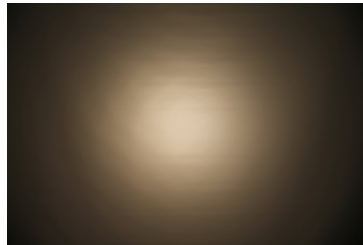
LED CMT19xx
FWHM / FWTM 16.0° / 62.0°
Efficiency 81 %
Peak intensity 3.5 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 477 Typ L1



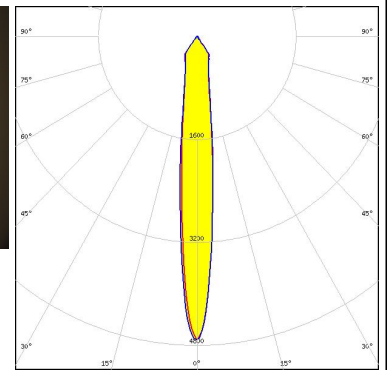
OPTICAL RESULTS (MEASURED):



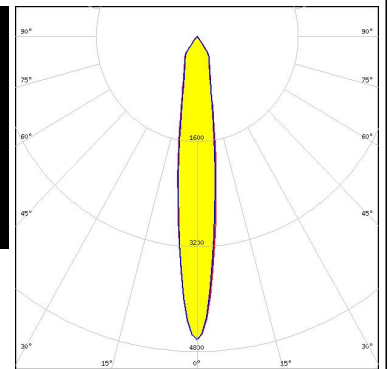
LED CMT28xx
FWHM / FWTM 21.0° / 70.0°
Efficiency 81 %
Peak intensity 2.6 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13584_CLAMP-VERO29
Bender Wirth: 471 Typ L3



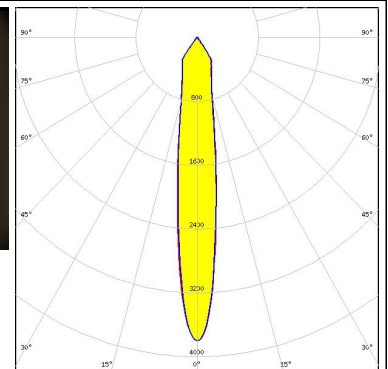
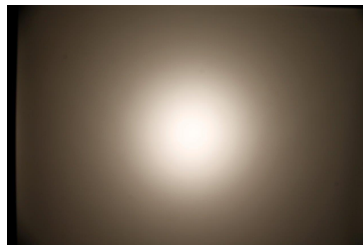
LED CXA/B 15xx
FWHM / FWTM 13.0° / 47.0°
Efficiency 84 %
Peak intensity 4.7 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 441 Typ L1



LED CXA/B 15xx
FWHM / FWTM 15.0° / 51.0°
Efficiency 85 %
Peak intensity 4.6 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C14123_CLAMP-CXA15-18



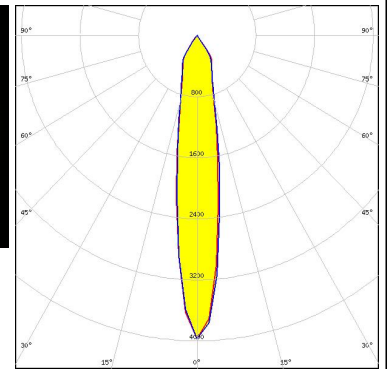
LED CXA/B 1816 & CXA/B 1820 & CXA 1850
FWHM / FWTM 15.0° / 60.0°
Efficiency 83 %
Peak intensity 3.8 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 437 Typ L1



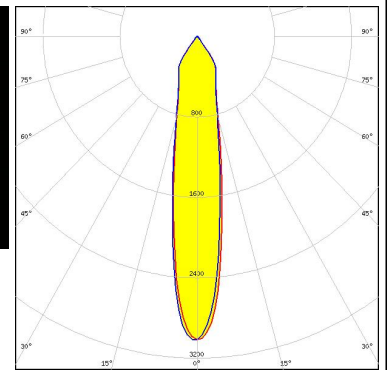
OPTICAL RESULTS (MEASURED):



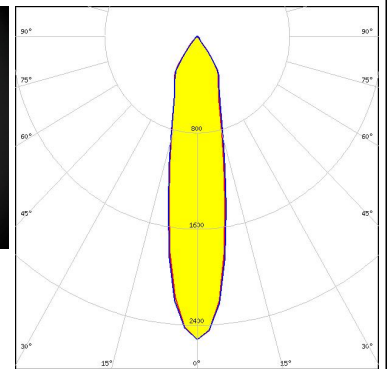
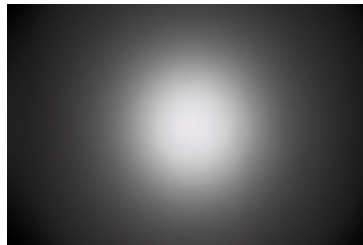
LED CXA/B 1816 & CXA/B 1820 & CXA 1850
FWHM / FWTM 17.0° / 59.0°
Efficiency 85 %
Peak intensity 4 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C14123_CLAMP-CXA15-18



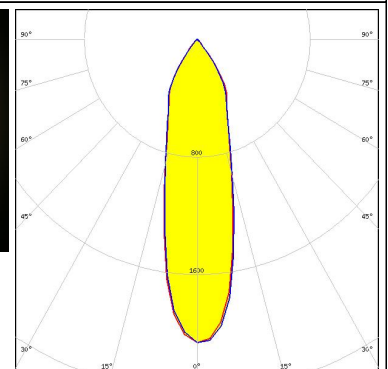
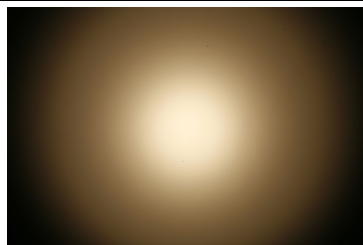
LED CXA/B 25xx
FWHM / FWTM 19.0° / 69.0°
Efficiency 85 %
Peak intensity 3 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C14036_CLAMP_CXA25-30



LED CXA/B 30xx
FWHM / FWTM 22.0° / 70.0°
Efficiency 84 %
Peak intensity 2.5 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C14036_CLAMP_CXA25-30



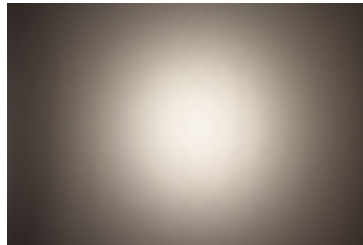
LED CXA/B 3590
FWHM / FWTM 27.0° / 73.0°
Efficiency 85 %
Peak intensity 2.1 cd/lm
LEDs/each optic 1
Light colour White
Required components:
IDEAL: 50-2303CR + 50-2300AN



OPTICAL RESULTS (MEASURED):

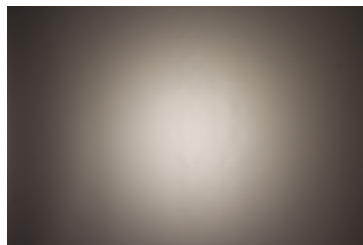
EVERLIGHT

LED CHI3030 19W
FWHM / FWTM 21.0° / 71.0°
Efficiency 83 %
Peak intensity 2.4 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13584_CLAMP-VERO29
F13671_ANGE-RZ-LENS
Bender Wirth: 468 Typ L3



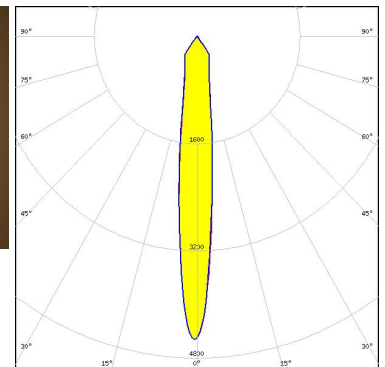
EVERLIGHT

LED CHI3030 29W
FWHM / FWTM 26.0° / 73.0°
Efficiency 83 %
Peak intensity 2.3 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13584_CLAMP-VERO29
F13671_ANGE-RZ-LENS
Bender Wirth: 468 Typ L3



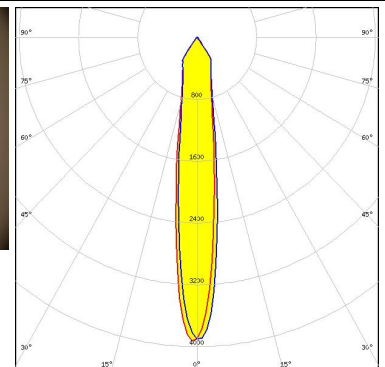
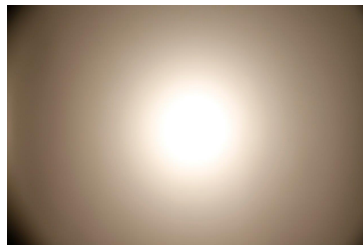
LUMILEDS

LED LUXEON CoB 1202/1203
FWHM / FWTM 13.0° / 49.0°
Efficiency 84 %
Peak intensity 4.5 cd/lm
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 438 Typ L1



LUMILEDS

LED LUXEON CoB 1204/1205
FWHM / FWTM 15.0° / 59.0°
Efficiency 85 %
Peak intensity 3.9 cd/lm
LEDs/each optic 1
Light colour White
Required components:
TE Connectivity: 2213130-2 + OPTIC CLIP Z50 TYPE1 2213194-1



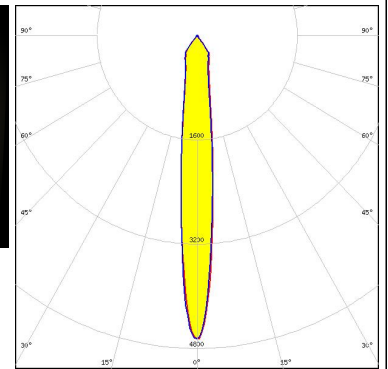
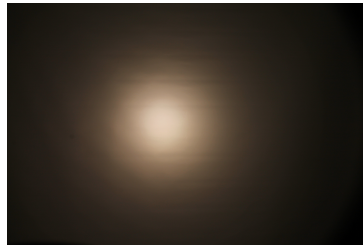
OPTICAL RESULTS (MEASURED):



LED LUXEON CoB 1204HD
FWHM / FWTM 12.0° / 46.0°
Efficiency 81 %
Peak intensity 4.7 cd/lm
LEDs/each optic 1
Light colour White

Required components:

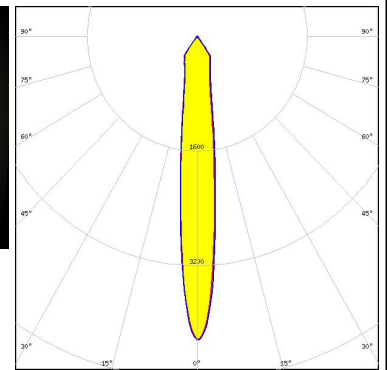
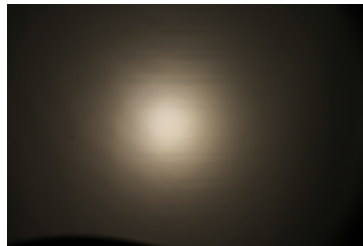
TE Connectivity: 2213382-2 + OPTIC CLIP Z50 TYPE1 2213194-1



LED LUXEON CoB 1205HD
FWHM / FWTM 14.0° / 52.0°
Efficiency 81 %
Peak intensity 4.3 cd/lm
LEDs/each optic 1
Light colour White

Required components:

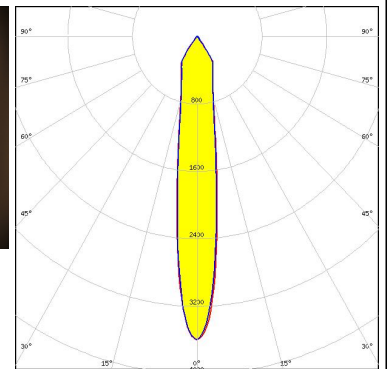
TE Connectivity: 2213382-2 + OPTIC CLIP Z50 TYPE1 2213194-1



LED LUXEON CoB 1208
FWHM / FWTM 16.0° / 65.0°
Efficiency 83 %
Peak intensity 3.6 cd/lm
LEDs/each optic 1
Light colour White

Required components:

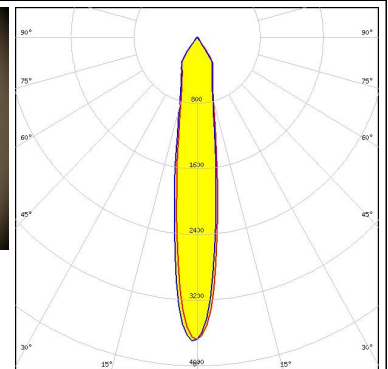
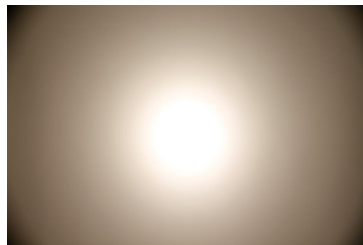
IDEAL: 50-2100SH + 50-2100AN



LED LUXEON CoB 1208
FWHM / FWTM 16.0° / 64.0°
Efficiency 85 %
Peak intensity 3.7 cd/lm
LEDs/each optic 1
Light colour White

Required components:

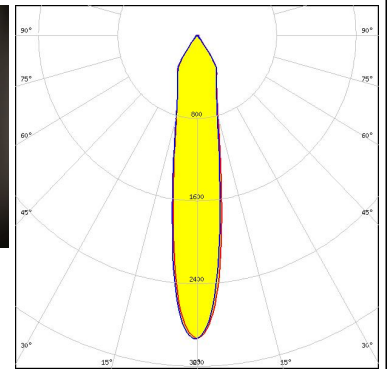
TE Connectivity: 2213130-2 + OPTIC CLIP Z50 TYPE1 2213194-1



OPTICAL RESULTS (MEASURED):

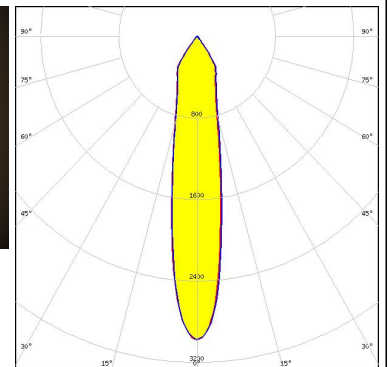
LUMILEDS

LED LUXEON CoB 1211
 FWHM / FWTM 19.0° / 68.0°
 Efficiency 83 %
 Peak intensity 2.9 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 IDEAL: 50-2204-CT + 50-2100AN



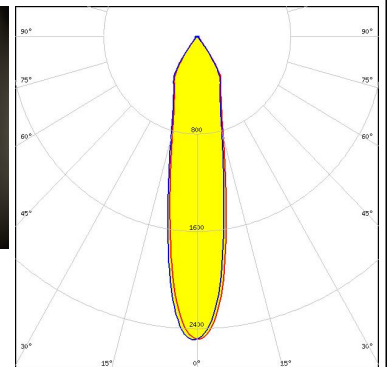
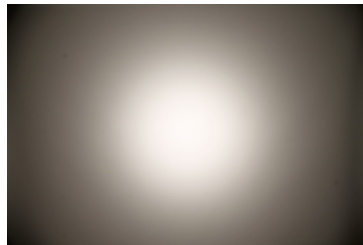
LUMILEDS

LED LUXEON CoB 1211
 FWHM / FWTM 19.0° / 69.0°
 Efficiency 85 %
 Peak intensity 3 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C13584_CLAMP-VERO29
 Bender Wirth: 431 Typ L3



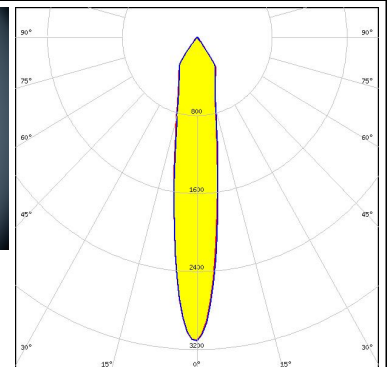
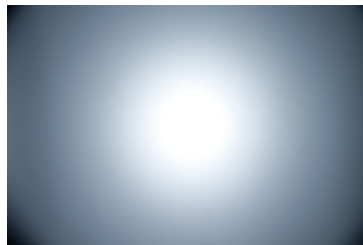
LUMILEDS

LED LUXEON CoB 1213/1216/1812
 FWHM / FWTM 22.0° / 69.0°
 Efficiency 83 %
 Peak intensity 2.5 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 IDEAL: 50-2204-CT + 50-2100AN



LUMILEDS

LED LUXEON K12
 FWHM / FWTM 17.0° / 69.0°
 Efficiency 83 %
 Peak intensity 3 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 F13671_ANGE-RZ-LENS
 TE Connectivity: 2213134-2 + OPTIC CLIP Z50 TYPE1 2213194-1



OPTICAL RESULTS (MEASURED):

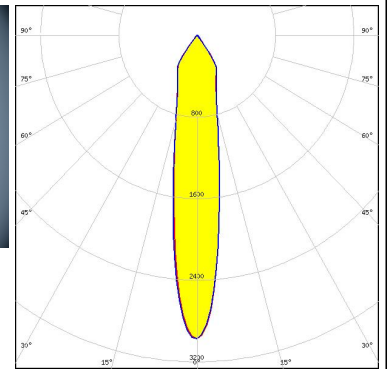
LUMILEDS

LED LUXEON K16
FWHM / FWTM 18.0° / 69.0°
Efficiency 84 %
Peak intensity 3 cd/lm
LEDs/each optic 1
Light colour White

Required components:

F13671_ANGE-RZ-LENS

TE Connectivity: 2213134-2 + OPTIC CLIP Z50 TYPE1 2213194-1

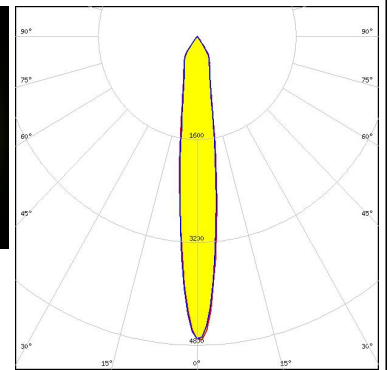
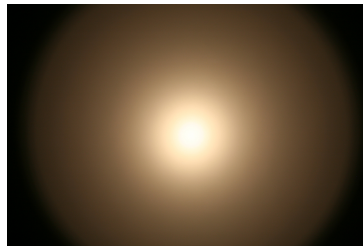


LUMILEDS

LED LUXEON S2000
FWHM / FWTM 15.0° / 52.0°
Efficiency 85 %
Peak intensity 4.7 cd/lm
LEDs/each optic 1
Light colour White

Required components:

C13395_CLAMP-S2000

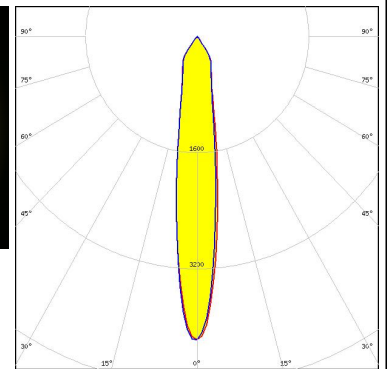
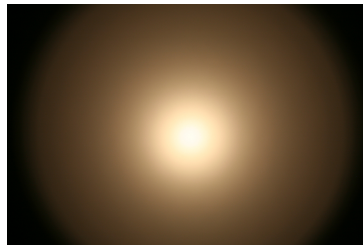


LUMILEDS

LED LUXEON S3000
FWHM / FWTM 16.0° / 59.0°
Efficiency 85 %
Peak intensity 4.2 cd/lm
LEDs/each optic 1
Light colour White

Required components:

C13397_CLAMP-S3000

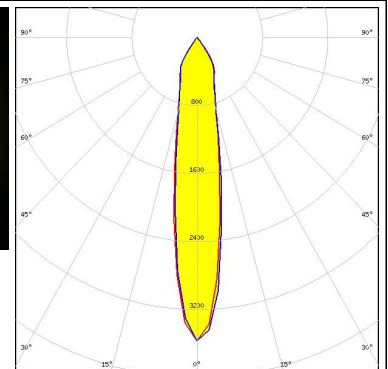


LUMILEDS

LED LUXEON S5000
FWHM / FWTM 19.0° / 65.0°
Efficiency 86 %
Peak intensity 3.6 cd/lm
LEDs/each optic 1
Light colour White

Required components:

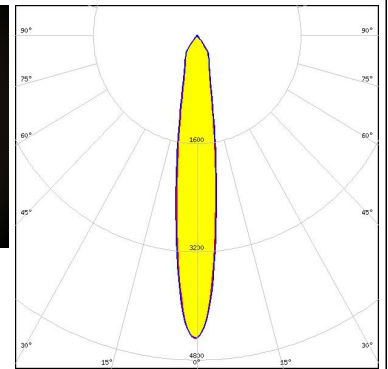
C13399_CLAMP-S5000



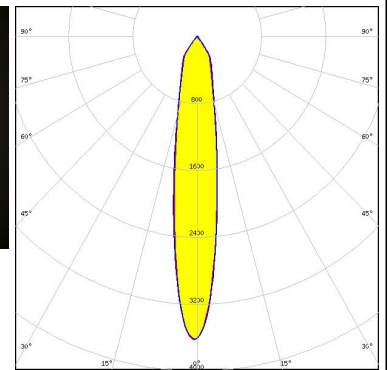
OPTICAL RESULTS (MEASURED):



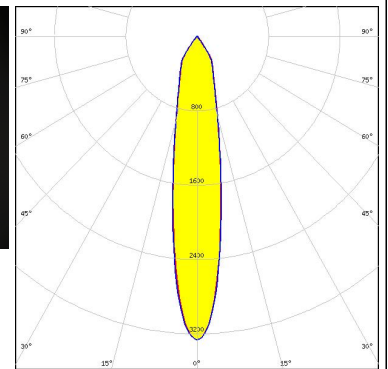
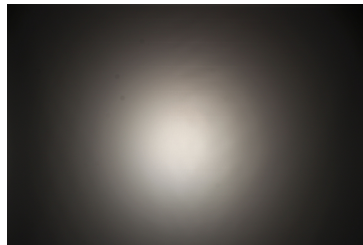
LED CDM-14 (Dim-To-Warm)
 FWHM / FWTM 16.0° / 49.0°
 Efficiency 87 %
 Peak intensity 4.5 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C13658_CLAMP-VERO13-18
 Bender Wirth: 491 Typ L2



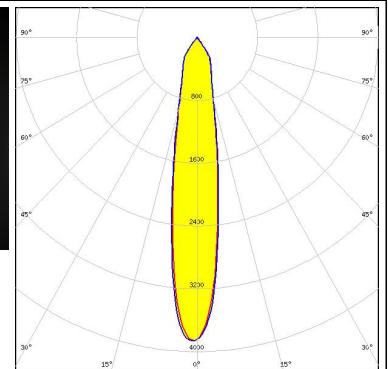
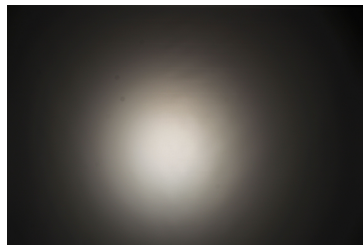
LED CDM-14 (Dim-To-Warm)
 FWHM / FWTM 17.0° / 57.0°
 Efficiency 83 %
 Peak intensity 3.6 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C13658_CLAMP-VERO13-18
 F13671_ANGE-RZ-LENS
 Bender Wirth: 486 Typ L5



LED CDM-18 (Dim-To-Warm)
 FWHM / FWTM 19.0° / 62.0°
 Efficiency 83 %
 Peak intensity 3.3 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C13658_CLAMP-VERO13-18
 F13671_ANGE-RZ-LENS
 Bender Wirth: 491 Typ L2



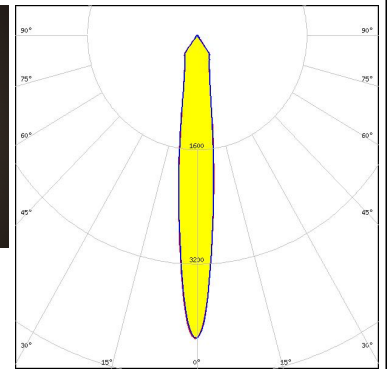
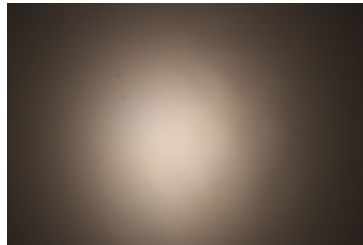
LED CDM-18 (Dim-To-Warm)
 FWHM / FWTM 18.0° / 57.0°
 Efficiency 87 %
 Peak intensity 3.9 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C13658_CLAMP-VERO13-18
 Bender Wirth: 491 Typ L2



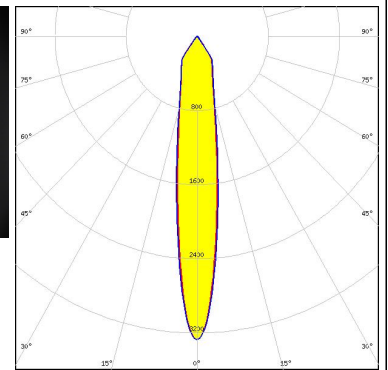
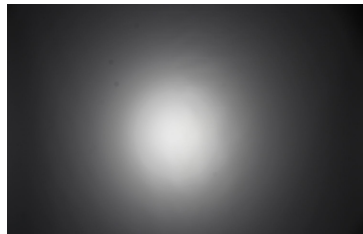
OPTICAL RESULTS (MEASURED):



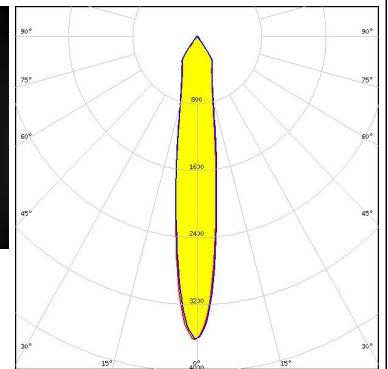
LED CDM-9 (Dim-To-Warm)
FWHM / FWTM 14.0° / 50.0°
Efficiency 82 %
Peak intensity 4.2 cd/Im
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 490 Typ L1



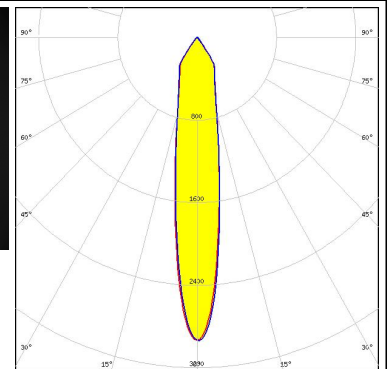
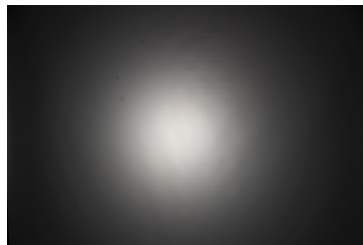
LED CDM-9 (Dim-To-Warm)
FWHM / FWTM 16.0° / 63.0°
Efficiency 78 %
Peak intensity 3.3 cd/Im
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
F13671_ANGE-RZ-LENS
Bender Wirth: 490 Typ L1



LED CTM-14 (Tunable White)
FWHM / FWTM 16.0° / 61.0°
Efficiency 82 %
Peak intensity 3.6 cd/Im
LEDs/each optic 1
Light colour White
Required components:
C13584_CLAMP-VERO29
Bender Wirth: 442 Typ L3



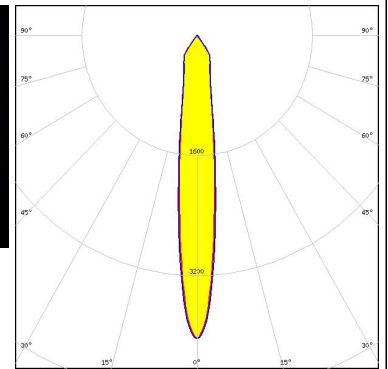
LED CTM-14 (Tunable White)
FWHM / FWTM 18.0° / 68.0°
Efficiency 78 %
Peak intensity 2.9 cd/Im
LEDs/each optic 1
Light colour White
Required components:
C13584_CLAMP-VERO29
F13671_ANGE-RZ-LENS
Bender Wirth: 442 Typ L3



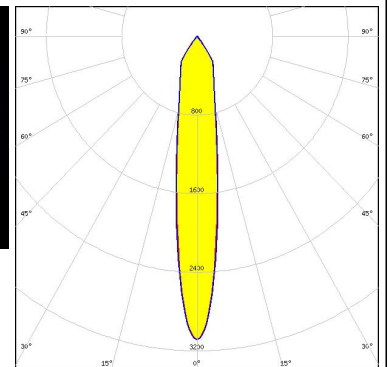
OPTICAL RESULTS (MEASURED):



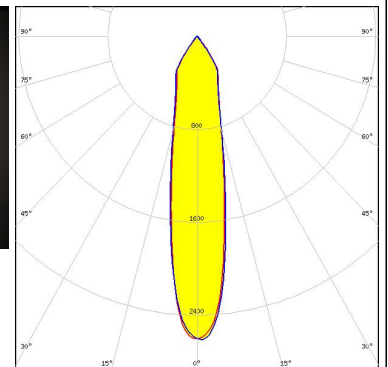
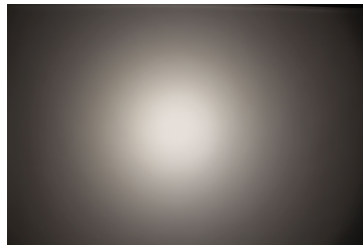
LED CTM-14 RGBW
FWHM / FWTM 14.0° / 53.0°
Efficiency 79 %
Peak intensity 4 cd/Im
LEDs/each optic 1
Light colour RGBW
Required components:
C13584_CLAMP-VERO29
Bender Wirth: 500 Typ L3-1



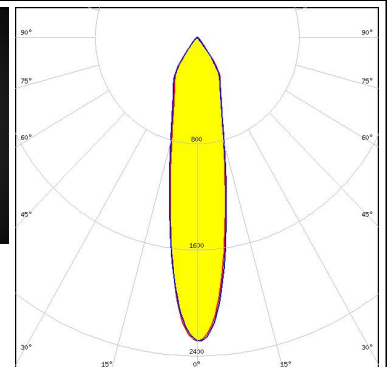
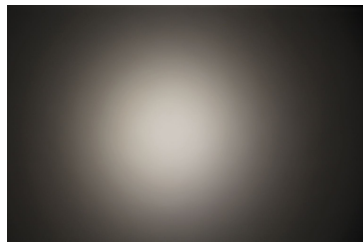
LED CTM-14 RGBW
FWHM / FWTM 16.0° / 65.0°
Efficiency 75 %
Peak intensity 3.1 cd/Im
LEDs/each optic 1
Light colour RGBW
Required components:
C13584_CLAMP-VERO29
F13671_ANGE-RZ-LENS
Bender Wirth: 500 Typ L3-1



LED CTM-22 (Tunable White)
FWHM / FWTM 21.0° / 69.0°
Efficiency 82 %
Peak intensity 2.6 cd/Im
LEDs/each optic 1
Light colour White
Required components:
C13584_CLAMP-VERO29
Bender Wirth: 494 Typ L3



LED CTM-22 (Tunable White)
FWHM / FWTM 22.0° / 70.0°
Efficiency 77 %
Peak intensity 2.3 cd/Im
LEDs/each optic 1
Light colour White
Required components:
C13584_CLAMP-VERO29
F13671_ANGE-RZ-LENS
Bender Wirth: 494 Typ L3



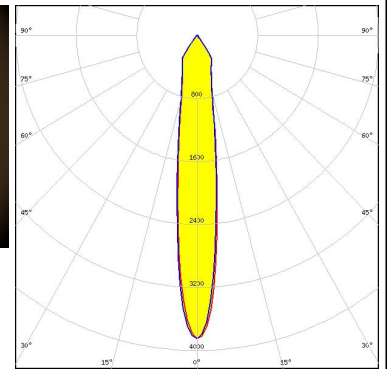
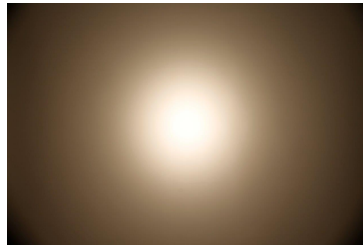
OPTICAL RESULTS (MEASURED):



LED CxM-14 (19x19)
FWHM / FWTM 16.0° / 60.0°
Efficiency 85 %
Peak intensity 3.9 cd/lm
LEDs/each optic 1
Light colour White

Required components:

TE Connectivity: 2213254-2 + OPTIC CLIP Z50 TYPE1 2213194-1

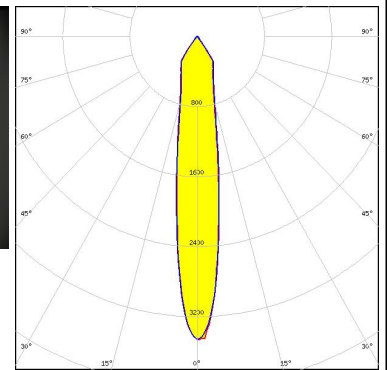


LED COB J-Type
FWHM / FWTM 17.0° / 66.0°
Efficiency 83 %
Peak intensity 3.5 cd/lm
LEDs/each optic 1
Light colour White

Required components:

C13658_CLAMP-VERO13-18

Bender Wirth: 463 Typ L2

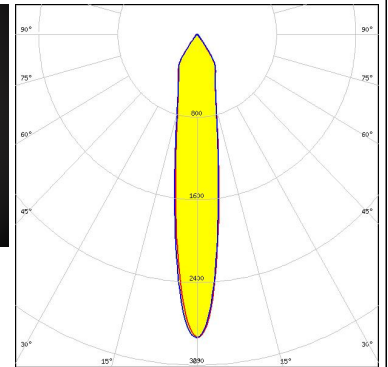


LED COB J-Type
FWHM / FWTM 17.0° / 67.0°
Efficiency 80 %
Peak intensity 2.9 cd/lm
LEDs/each optic 1
Light colour White

Required components:

F13671_ANGE-RZ-LENS

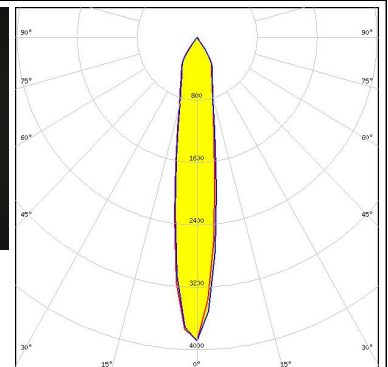
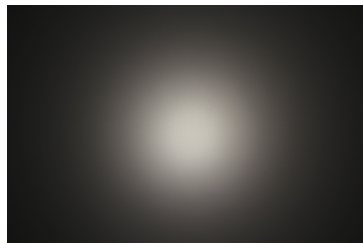
IDEAL: 50-2103NC + 50-2100AN



LED COB J-Type
FWHM / FWTM 17.0° / 61.0°
Efficiency 83 %
Peak intensity 3.9 cd/lm
LEDs/each optic 1
Light colour White

Required components:

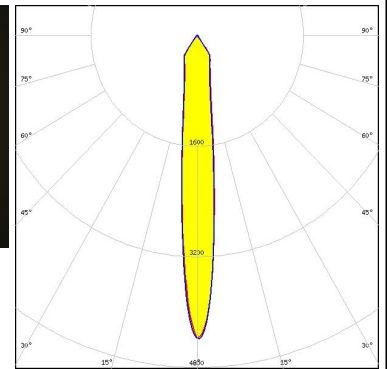
IDEAL: 50-2103NC + 50-2100AN



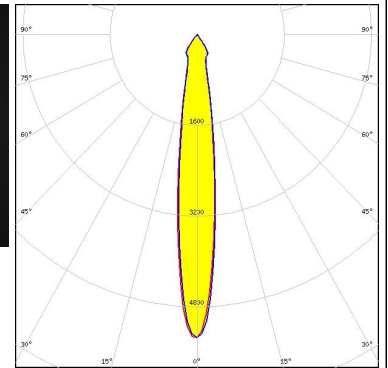
OPTICAL RESULTS (MEASURED):



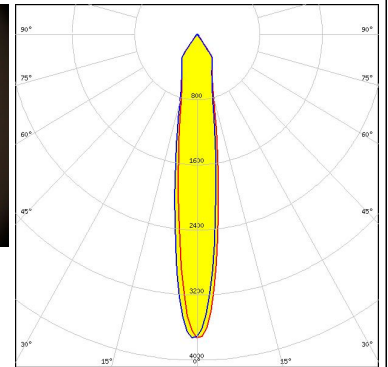
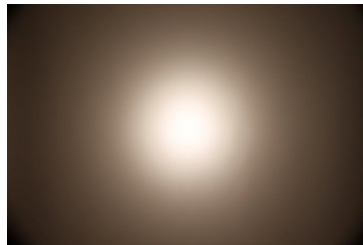
LED COB L-Type (LES 11)
 FWHM / FWTM 13.0° / 52.0°
 Efficiency 82 %
 Peak intensity 4.4 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 IDEAL: 50-2100NC + 50-2100AN



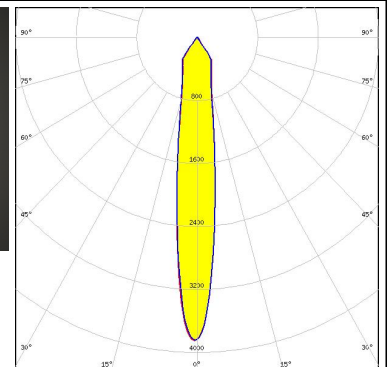
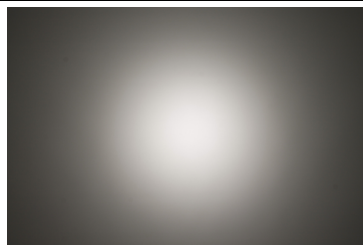
LED COB L-Type (LES 11)
 FWHM / FWTM 15.0° / 37.0°
 Efficiency 84 %
 Peak intensity 5.4 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 TE Connectivity: 2213382-2 + OPTIC CLIP Z50 TYPE1 2213194-1



LED COB L-Type (LES 11)
 FWHM / FWTM 16.0° / 64.0°
 Efficiency 86 %
 Peak intensity 3.7 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 Molex: 180580-0005



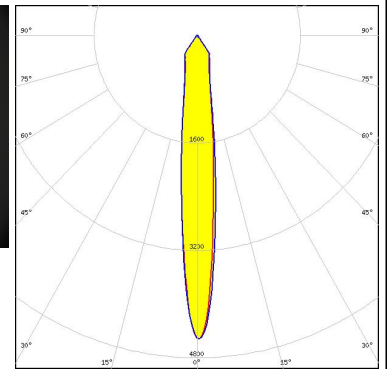
LED COB L-Type (LES 11)
 FWHM / FWTM 15.0° / 58.0°
 Efficiency 83 %
 Peak intensity 3.9 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C13658_CLAMP-VERO13-18
 Bender Wirth: 438 Typ L1



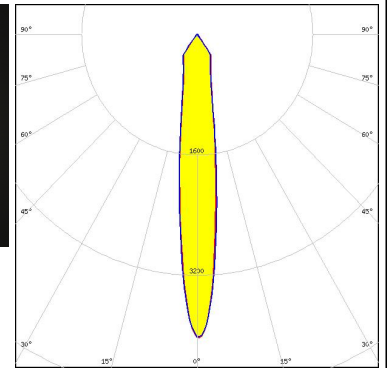
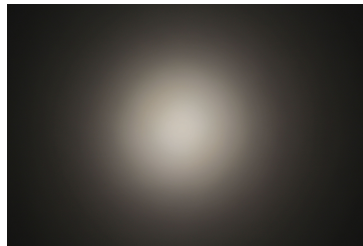
OPTICAL RESULTS (MEASURED):



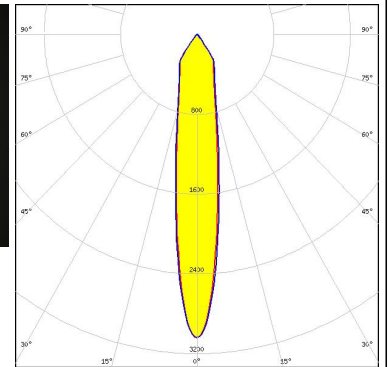
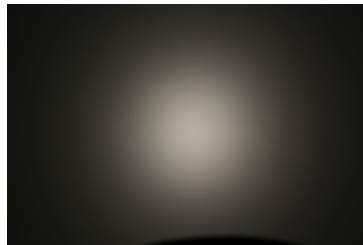
LED COB L-Type (LES 9)
 FWHM / FWTM 13.0° / 49.0°
 Efficiency 85 %
 Peak intensity 4.5 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C13658_CLAMP-VERO13-18
 Bender Wirth: 438 Typ L1



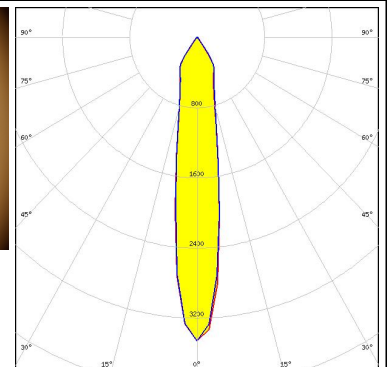
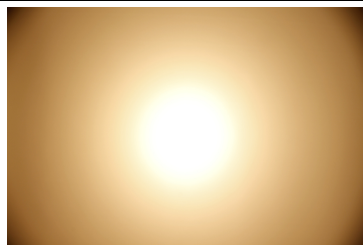
LED NVCWJ024Z-V1MT: COB J-Type Tunable White
 FWHM / FWTM 14.0° / 56.0°
 Efficiency 83 %
 Peak intensity 4 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C13658_CLAMP-VERO13-18
 Bender Wirth: 498 Typ L2



LED NVCWJ024Z-V1MT: COB J-Type Tunable White
 FWHM / FWTM 17.0° / 68.0°
 Efficiency 78 %
 Peak intensity 3 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C13658_CLAMP-VERO13-18
 F13671_ANGE-RZ-LENS
 Bender Wirth: 498 Typ L2



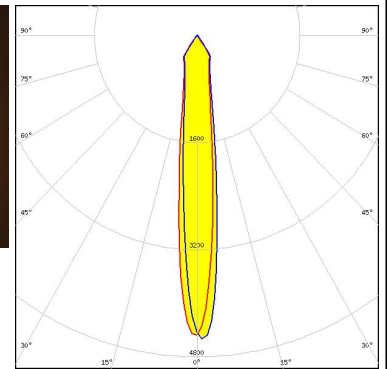
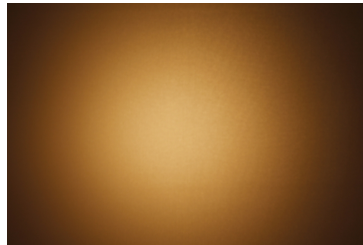
LED PrevaLED Core AC (LEP-2000)
 FWHM / FWTM 17.0° / 66.0°
 Efficiency 85 %
 Peak intensity 3.5 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



OPTICAL RESULTS (MEASURED):

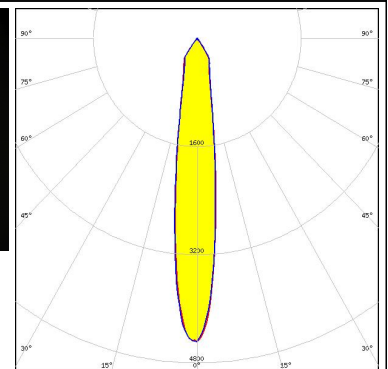
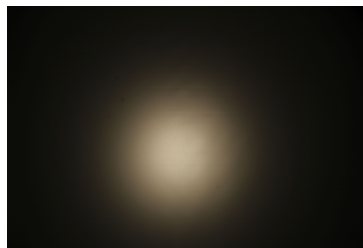
OSRAM

LED PrevaLED Core AC (LEP-800)
 FWHM / FWTM 13.0° / 51.0°
 Efficiency 86 %
 Peak intensity 4.6 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



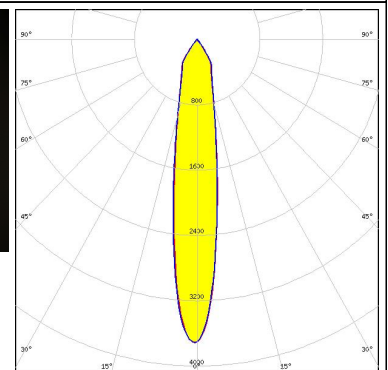
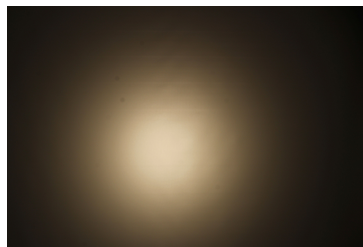
OSRAM

LED PrevaLED Core G7 L15 H1
 FWHM / FWTM 16.0° / 51.0°
 Efficiency 89 %
 Peak intensity 4.5 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C16685_CLAMP-PRV-A



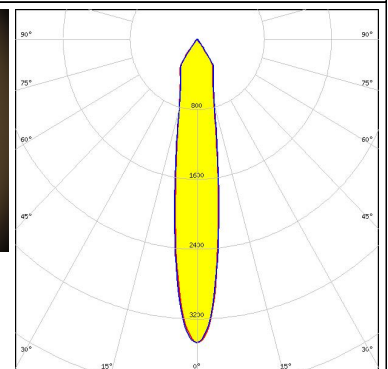
OSRAM

LED PrevaLED Core G7 L15 H1
 FWHM / FWTM 17.0° / 60.0°
 Efficiency 85 %
 Peak intensity 3.7 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C16685_CLAMP-PRV-A
 F13671_ANGE-RZ-LENS



OSRAM

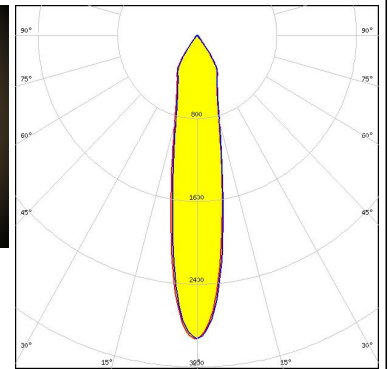
LED PrevaLED Core Z3 LES19
 FWHM / FWTM 17.0° / 65.0°
 Efficiency 85 %
 Peak intensity 3.5 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



OPTICAL RESULTS (MEASURED):

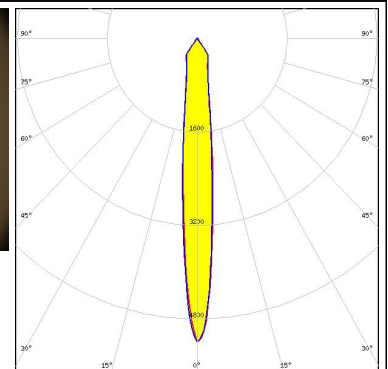
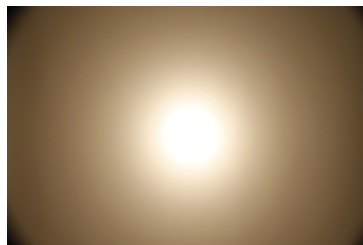
OSRAM

LED PrevaLED Core Z3 LES23
FWHM / FWTM 20.0° / 68.0°
Efficiency 85 %
Peak intensity 2.9 cd/lm
LEDs/each optic 1
Light colour White
Required components:
TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



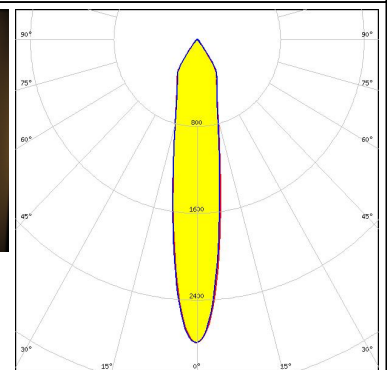
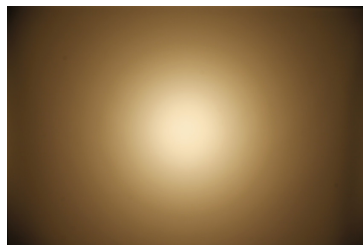
OSRAM

LED PrevaLED Core Z3 LES9
FWHM / FWTM 12.0° / 42.0°
Efficiency 85 %
Peak intensity 5.2 cd/lm
LEDs/each optic 1
Light colour White
Required components:
TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



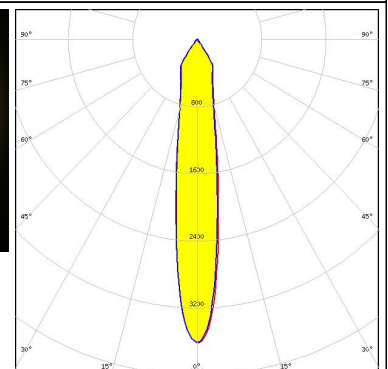
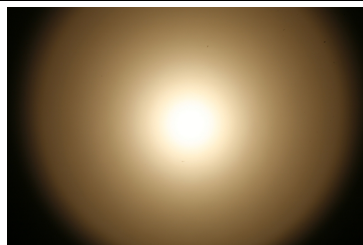
OSRAM

LED PrevaLED Core Z4 LES19
FWHM / FWTM 19.0° / 68.0°
Efficiency 80 %
Peak intensity 2.8 cd/lm
LEDs/each optic 1
Light colour White
Required components:
F13671_ANGE-RZ-LENS
TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



OSRAM

LED PrevaLED Core Z4 LES19
FWHM / FWTM 16.0° / 65.0°
Efficiency 85 %
Peak intensity 3.6 cd/lm
LEDs/each optic 1
Light colour White
Required components:
TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



OPTICAL RESULTS (MEASURED):

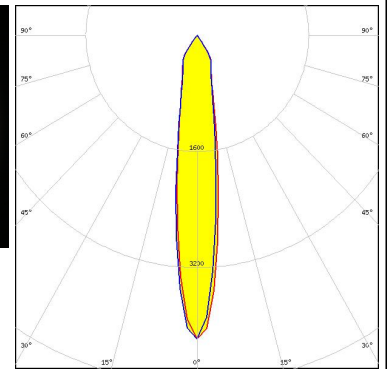
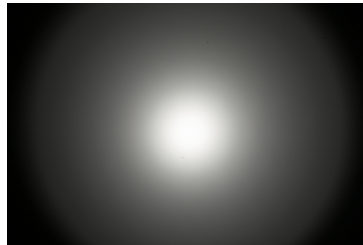
OSRAM

Opto Semiconductors

LED Soleriq S13
FWHM / FWTM 15.0° / 58.0°
Efficiency 86 %
Peak intensity 4.2 cd/lm
LEDs/each optic 1
Light colour White

Required components:

TE Connectivity: 2213401-2 + OPTIC CLIP Z50 TYPE1 2213194-1



OSRAM

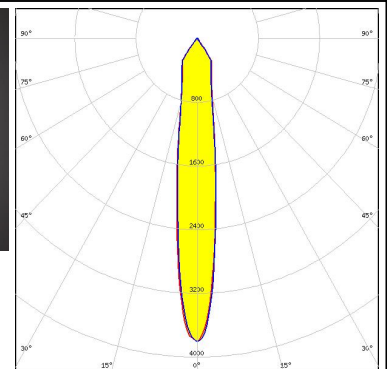
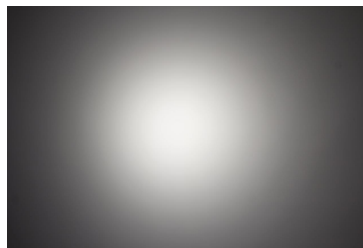
Opto Semiconductors

LED Soleriq S13
FWHM / FWTM 15.0° / 60.0°
Efficiency 83 %
Peak intensity 3.8 cd/lm
LEDs/each optic 1
Light colour White

Required components:

C13658_CLAMP-VERO13-18

Bender Wirth: 437 Typ L1



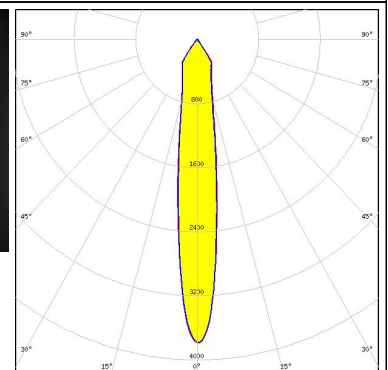
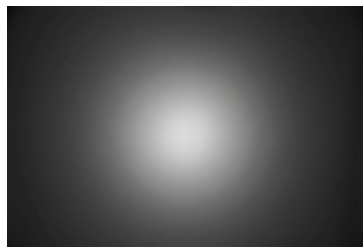
OSRAM

Opto Semiconductors

LED Soleriq S13 19x19
FWHM / FWTM 15.0° / 59.0°
Efficiency 82 %
Peak intensity 3.8 cd/lm
LEDs/each optic 1
Light colour White

Required components:

TE Connectivity: 2213254-2 + OPTIC CLIP Z50 TYPE1 2213194-1



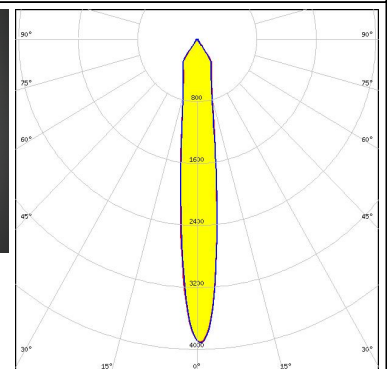
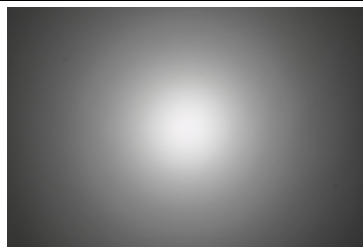
OSRAM

Opto Semiconductors

LED Soleriq S13 19x19
FWHM / FWTM 14.0° / 58.0°
Efficiency 82 %
Peak intensity 3.9 cd/lm
LEDs/each optic 1
Light colour White

Required components:

IDEAL: 50-2103CT + 50-2100AN



OPTICAL RESULTS (MEASURED):

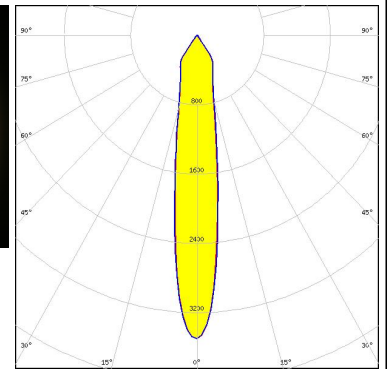
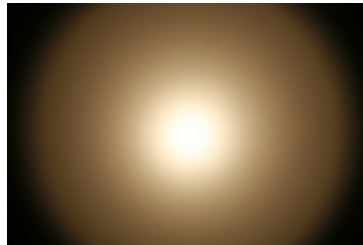
OSRAM

Opto Semiconductors

LED Soleriq S19
FWHM / FWTM 17.0° / 66.0°
Efficiency 86 %
Peak intensity 3.5 cd/lm
LEDs/each optic 1
Light colour White

Required components:

TE Connectivity: 2213407-2 + OPTIC CLIP Z50 TYPE1 2213194-1



OSRAM

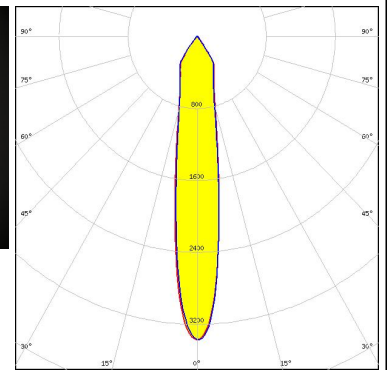
Opto Semiconductors

LED Soleriq S19
FWHM / FWTM 17.0° / 66.0°
Efficiency 83 %
Peak intensity 3.4 cd/lm
LEDs/each optic 1
Light colour White

Required components:

C13584_CLAMP-VERO29

Bender Wirth: 462 Typ L3



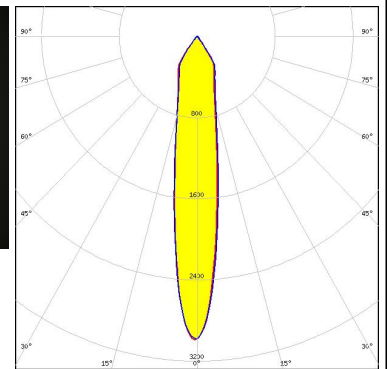
PHILIPS

LED Fortimo SLM 1208 L15 G6 Standard
FWHM / FWTM 17.0° / 67.0°
Efficiency 78 %
Peak intensity 3 cd/lm
LEDs/each optic 1
Light colour White

Required components:

F13671_ANGE-RZ-LENS

TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1

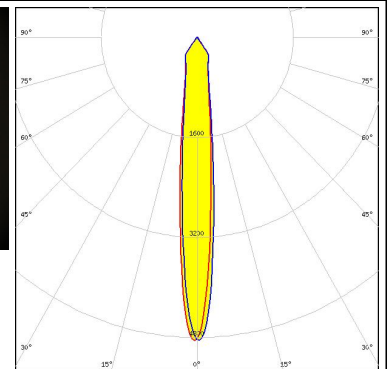


PHILIPS

LED Fortimo SLM L09 + SLM holder
FWHM / FWTM 13.0° / 45.0°
Efficiency 84 %
Peak intensity 4.9 cd/lm
LEDs/each optic 1
Light colour White

Required components:

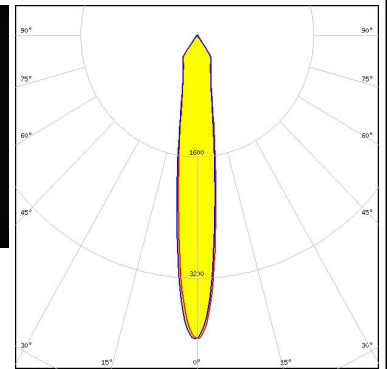
TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



OPTICAL RESULTS (MEASURED):

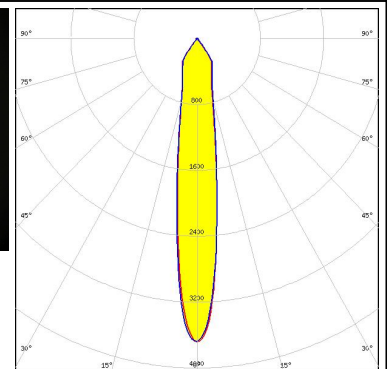
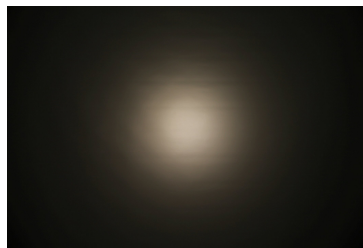
PHILIPS

LED Fortimo SLM L13 + SLM holder
FWHM / FWTM 15.0° / 57.0°
Efficiency 84 %
Peak intensity 4 cd/lm
LEDs/each optic 1
Light colour White
Required components:
TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



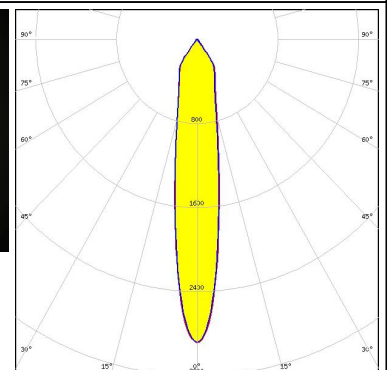
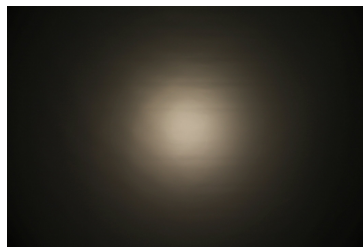
PHILIPS

LED Fortimo SLM L13 CoB
FWHM / FWTM 16.0° / 60.0°
Efficiency 81 %
Peak intensity 3.7 cd/lm
LEDs/each optic 1
Light colour White
Required components:
TE Connectivity: 2213130-2 + OPTIC CLIP Z50 TYPE1 2213194-1



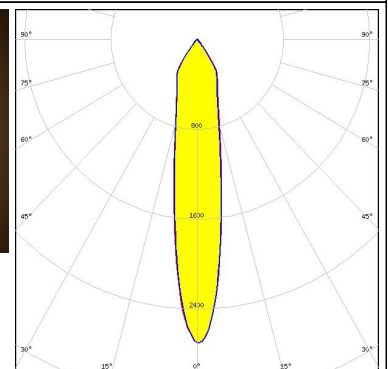
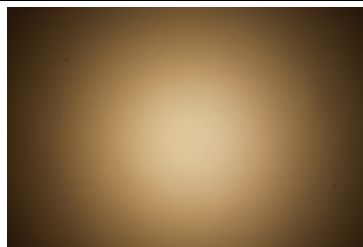
PHILIPS

LED Fortimo SLM L13 CoB
FWHM / FWTM 17.0° / 68.0°
Efficiency 76 %
Peak intensity 2.9 cd/lm
LEDs/each optic 1
Light colour White
Required components:
F13671_ANGE-RZ-LENS
TE Connectivity: 2213130-2 + OPTIC CLIP Z50 TYPE1 2213194-1



PHILIPS

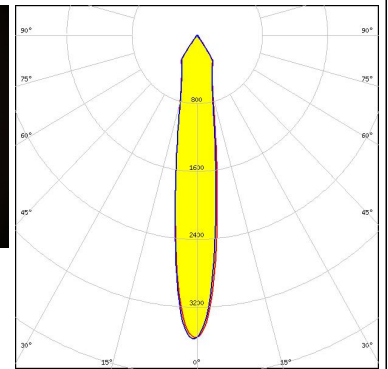
LED Fortimo SLM L15 + SLM holder
FWHM / FWTM 19.0° / 67.0°
Efficiency 78 %
Peak intensity 2.7 cd/lm
LEDs/each optic 1
Light colour White
Required components:
F13671_ANGE-RZ-LENS
TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



OPTICAL RESULTS (MEASURED):

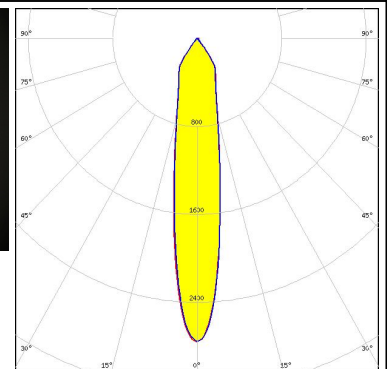
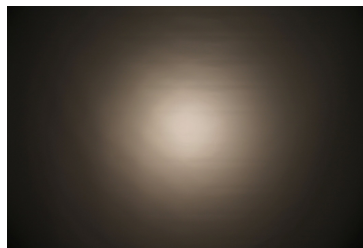
PHILIPS

LED Fortimo SLM L15 + SLM holder
FWHM / FWTM 16.0° / 65.0°
Efficiency 82 %
Peak intensity 3.6 cd/lm
LEDs/each optic 1
Light colour White
Required components:
TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



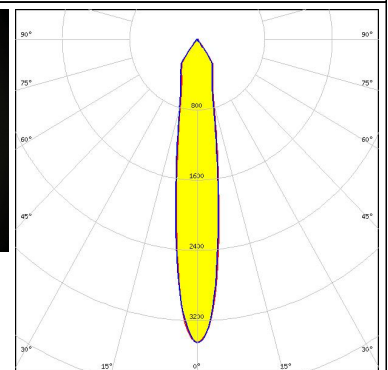
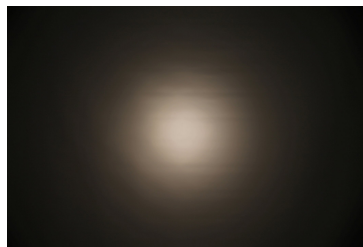
PHILIPS

LED Fortimo SLM L15 CoB
FWHM / FWTM 18.0° / 68.0°
Efficiency 75 %
Peak intensity 2.8 cd/lm
LEDs/each optic 1
Light colour White
Required components:
F13671_ANGE-RZ-LENS
TE Connectivity: 2213130-2 + OPTIC CLIP Z50 TYPE1 2213194-1



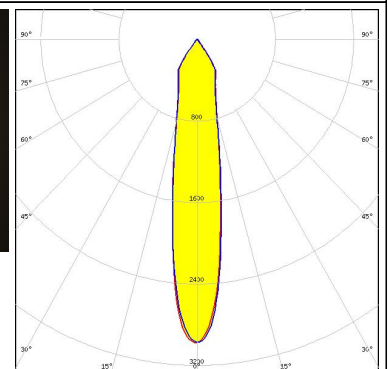
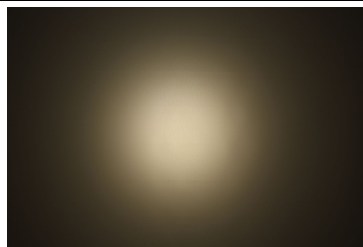
PHILIPS

LED Fortimo SLM L15 CoB
FWHM / FWTM 17.0° / 64.0°
Efficiency 81 %
Peak intensity 3.4 cd/lm
LEDs/each optic 1
Light colour White
Required components:
TE Connectivity: 2213130-2 + OPTIC CLIP Z50 TYPE1 2213194-1



PHILIPS

LED Fortimo SLM L19 + SLM holder
FWHM / FWTM 19.0° / 68.0°
Efficiency 81 %
Peak intensity 3 cd/lm
LEDs/each optic 1
Light colour White
Required components:
TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



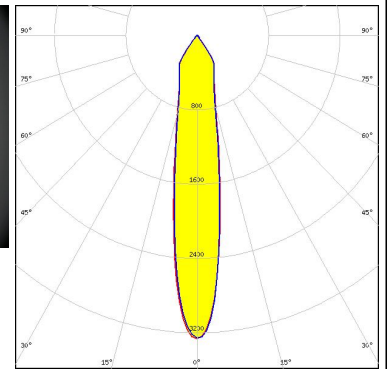
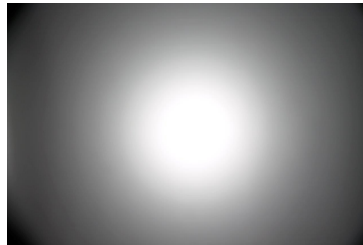
OPTICAL RESULTS (MEASURED):

SAMSUNG

LED LC026B / 033B / 040B
FWHM / FWTM 18.0° / 67.0°
Efficiency 85 %
Peak intensity 3.3 cd/lm
LEDs/each optic 1
Light colour White

Required components:

TE Connectivity: 2213258-2 + OPTIC CLIP Z50 TYPE1 2213194-1



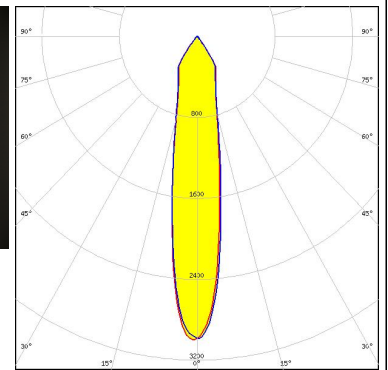
SAMSUNG

LED LC026B / 033B / 040B
FWHM / FWTM 19.0° / 68.0°
Efficiency 83 %
Peak intensity 3 cd/lm
LEDs/each optic 1
Light colour White

Required components:

C13658_CLAMP-VERO13-18

Bender Wirth: 450 Typ L2



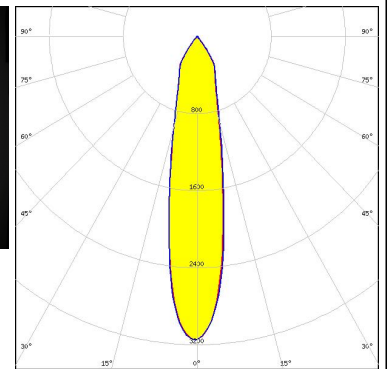
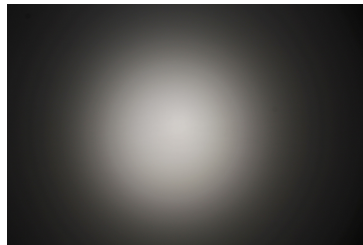
SAMSUNG

LED LC035T (Tunable white)
FWHM / FWTM 21.0° / 66.0°
Efficiency 87 %
Peak intensity 3.2 cd/lm
LEDs/each optic 1
Light colour Tunable White

Required components:

C13584_CLAMP-VERO29

Bender Wirth: 502 Typ L3



SAMSUNG

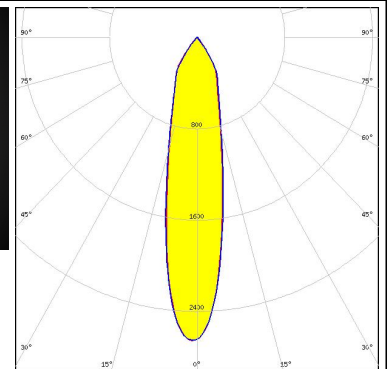
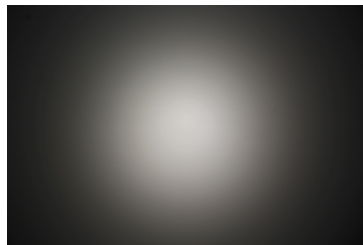
LED LC035T (Tunable white)
FWHM / FWTM 22.0° / 68.0°
Efficiency 83 %
Peak intensity 2.7 cd/lm
LEDs/each optic 1
Light colour Tunable White

Required components:

C13584_CLAMP-VERO29

F13671_ANGE-RZ-LENS

Bender Wirth: 502 Typ L3



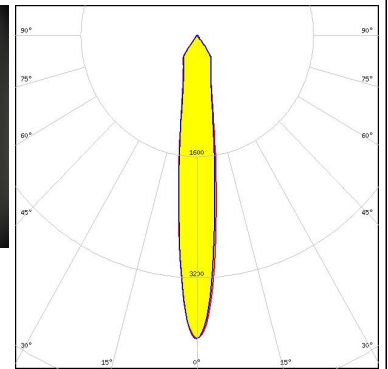
OPTICAL RESULTS (MEASURED):

SAMSUNG

LED LC040C
FWHM / FWTM 15.0° / 57.0°
Efficiency 83 %
Peak intensity 4 cd/lm
LEDs/each optic 1
Light colour White

Required components:

TE Connectivity: 2213382-2 + OPTIC CLIP Z50 TYPE1 2213194-1



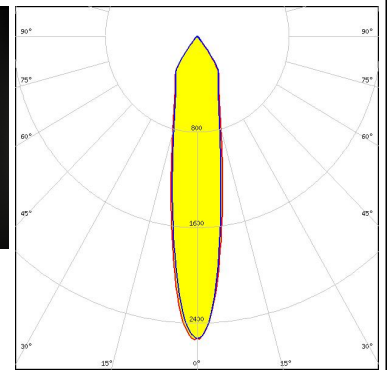
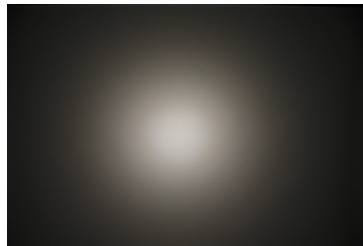
SEOUL SEMICONDUCTOR

LED AC Zhaga COB
FWHM / FWTM 19.0° / 71.0°
Efficiency 79 %
Peak intensity 2.5 cd/lm
LEDs/each optic 1
Light colour White

Required components:

F13671_ANGE-RZ-LENS

Optosource: SEHSMJD-A

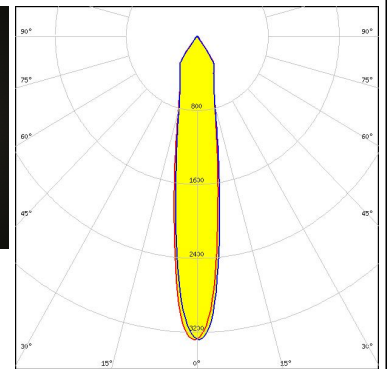
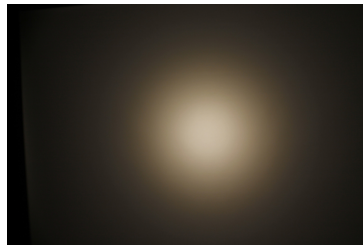


SEOUL SEMICONDUCTOR

LED MJT COB LES 14.5
FWHM / FWTM 17.0° / 67.0°
Efficiency 82 %
Peak intensity 3.3 cd/lm
LEDs/each optic 1
Light colour White

Required components:

TE Connectivity: 2213254-2 + OPTIC CLIP Z50 TYPE1 2213194-1



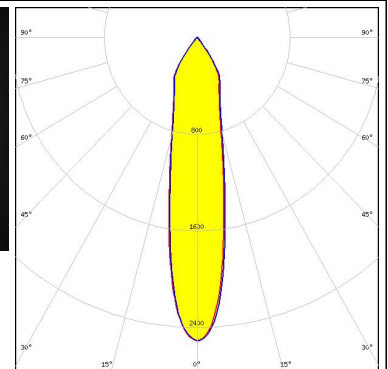
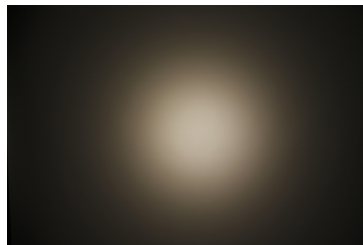
SEOUL SEMICONDUCTOR

LED MJT COB LES 22
FWHM / FWTM 22.0° / 69.0°
Efficiency 82 %
Peak intensity 2.5 cd/lm
LEDs/each optic 1
Light colour White

Required components:

C13584_CLAMP-VERO29

Bender Wirth: 431 Typ L3



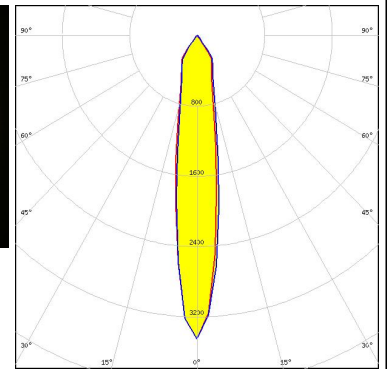
OPTICAL RESULTS (MEASURED):

VS LIGHTING SOLUTIONS

LED WU-M-461
FWHM / FWTM 17.0° / 62.0°
Efficiency 83 %
Peak intensity 3.5 cd/lm
LEDs/each optic 1
Light colour White

Required components:

TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1

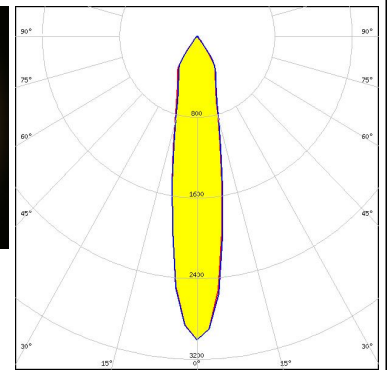


VS LIGHTING SOLUTIONS

LED WU-M-462
FWHM / FWTM 20.0° / 68.0°
Efficiency 85 %
Peak intensity 3 cd/lm
LEDs/each optic 1
Light colour White

Required components:

TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1

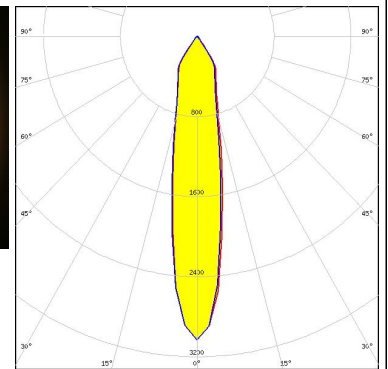


VS LIGHTING SOLUTIONS

LED WU-M-464
FWHM / FWTM 20.0° / 68.0°
Efficiency 85 %
Peak intensity 3 cd/lm
LEDs/each optic 1
Light colour White

Required components:

TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1

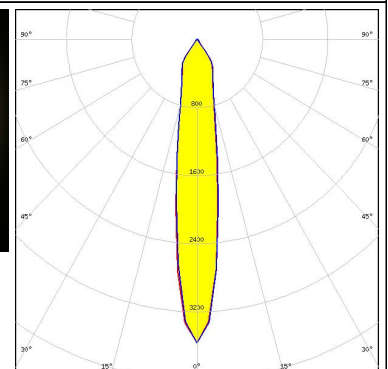
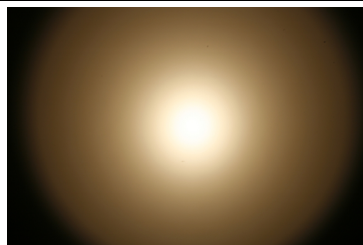


VS LIGHTING SOLUTIONS

LED WU-M-484
FWHM / FWTM 17.0° / 64.0°
Efficiency 85 %
Peak intensity 3.6 cd/lm
LEDs/each optic 1
Light colour White

Required components:

TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



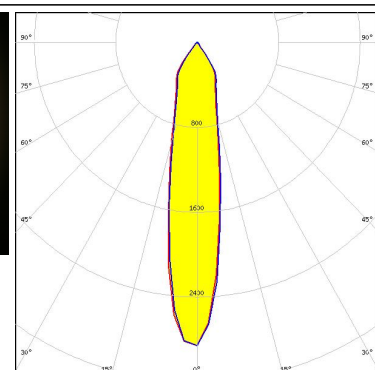
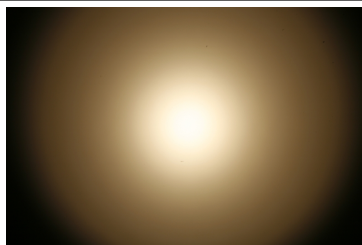
OPTICAL RESULTS (MEASURED):



LED WU-M-485
FWHM / FWTM 20.0° / 69.0°
Efficiency 85 %
Peak intensity 2.9 cd/lm
LEDs/each optic 1
Light colour White

Required components:

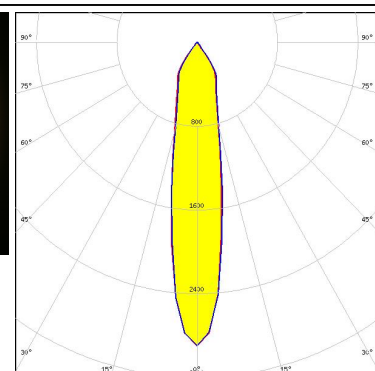
TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



LED WU-M-486
FWHM / FWTM 20.0° / 69.0°
Efficiency 84 %
Peak intensity 2.9 cd/lm
LEDs/each optic 1
Light colour White

Required components:

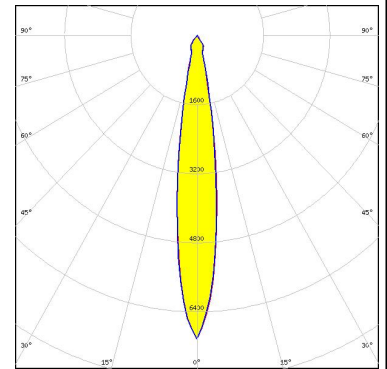
TE Connectivity: OPTIC CLIP Z50 TYPE1 2213194-1



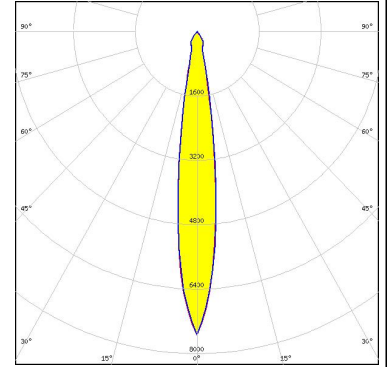
OPTICAL RESULTS (SIMULATED):



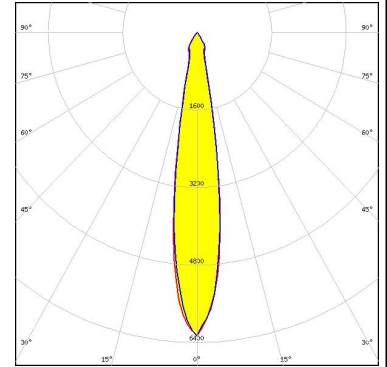
LED V10 Gen7
FWHM / FWTM 15.0° / 30.0°
Efficiency 90 %
Peak intensity 7 cd/Im
LEDs/each optic 1
Light colour White
Required components:
C13658_CLAMP-VERO13-18
Bender Wirth: 486 Typ L1



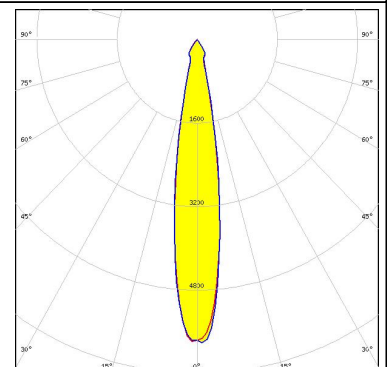
LED V13 Gen7
FWHM / FWTM 14.5° / 28.0°
Efficiency 91 %
Peak intensity 7.5 cd/Im
LEDs/each optic 1
Light colour White
Required components:
IDEAL: 50-2103CT + 50-2100AN



LED V22 Gen7
FWHM / FWTM 17.0° / 33.0°
Efficiency 93 %
Peak intensity 6.3 cd/Im
LEDs/each optic 1
Light colour White
Required components:
IDEAL: 50-2204-CT + 50-2100AN



LED CXA/B 1830
FWHM / FWTM 17.0° / 33.0°
Efficiency 88 %
Peak intensity 5.9 cd/Im
LEDs/each optic 1
Light colour White
Required components:
TE Connectivity: 2213401-2 + OPTIC CLIP Z50 TYPE1 2213194-1



OPTICAL RESULTS (SIMULATED):



LED CxM-14 (19x19)
 FWHM / FWTM 17.0° / 66.0°
 Efficiency 83 %
 Peak intensity 3.4 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C13658_CLAMP-VERO13-18
 Bender Wirth: 433 Typ L1



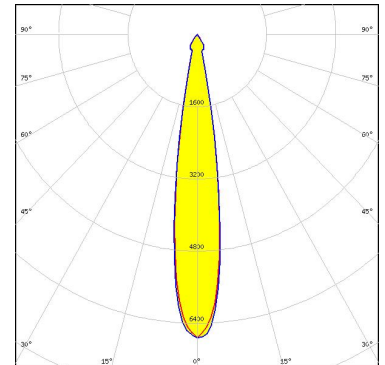
LED CxM-9 (13.5x13.5)
 FWHM / FWTM 14.0° / 53.0°
 Efficiency 84 %
 Peak intensity 4.3 cd/lm
 LEDs/each optic 1
 Light colour White
 Required components:
 C13658_CLAMP-VERO13-18
 Bender Wirth: 434 Typ L1



Opto Semiconductors

LED Soleriq S15
 FWHM / FWTM 16.0°
 Efficiency 90 %
 Peak intensity 6.8 cd/lm
 LEDs/each optic 1
 Light colour White

Required components:
 TE Connectivity: 2213254-2 + OPTIC CLIP Z50 TYPE1 2213194-1



SEOUL SEMICONDUCTOR

LED ZC12/18
 FWHM / FWTM 17.0° / 66.0°
 Efficiency 83 %
 Peak intensity 3.4 cd/lm
 LEDs/each optic 1
 Light colour White

Required components:
 C13658_CLAMP-VERO13-18
 Bender Wirth: 433 Typ L1

OPTICAL RESULTS (SIMULATED):

 SEOUL SEMICONDUCTOR	
LED	ZC4/6
FWHM / FWTM	14.0° / 53.0°
Efficiency	84 %
Peak intensity	4.3 cd/lm
LEDs/each optic	1
Light colour	White
Required components:	
C13658_CLAMP-VERO13-18	
Bender Wirth: 434 Typ L1	

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.

Due to use of high power COB's with this product, special attention to proper thermal design is highly recommended. LEDiL has no liability for direct, indirect or consecutive damages arising from the LEDiL products being used outside of the recommended temperature range.

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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