

Cree XLamp® 20 & 26.5mm XR Range



Carclo Technical Plastics

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CREE XR[®], XR-E[®] & XR-C[®] 20mm range

Part No.	Description	White XR			Red/Amber XR			Cyan/Green XR			White XR-E			White XR-C		
		FWHM#	EFF	Cd/lm	FWHM#	EFF	Cd/lm	FWHM#	EFF	Cd/lm	FWHM#	EFF	Cd/lm	FWHM#	EFF	Cd/lm
10199	Plain Tight	13	87%	6.7	13	91%	19	10	90%	15.9	8.4	91%	31	5.3	89%	49
10200	Frosted Narrow	16	87%	5.6	14	91%	15	13	90%	9.0	10	90%	17	9.6	86%	19
10210	Ripple Medium	25	89%	3.0	16	90%	7.7	18	91%	5	16	88%	6.9	12	87%	9.5
10201	Frosted Medium	23	87%	2.8	21	89%	5.3	22	89%	3.26	20	89%	4.2	18	84%	4.4
10211	Ripple Wide	47.9	84%	1.4	24	86%	2.5	41	84%	2.1	44	86%	1.8	42	86%	1.6
10202	Frosted Wide	35.6	81%	1.8	36.2	88.%	1.6	36	89%	1.5	36	84%	2	39	81%	1.97
10203	Elliptical	46 X 9	85%	5.8	37 x 14	90%	4.7	47 x 12	89%	3.44	41 x 10	90%	5.1	41 x 8.4	84%	7.1
10204	Elliptical Orthogonal*	8.8X45.6	85%	6.2	14 x 37	90%	4.7	13 x 48	89%	31	10 x 41	90%	5.1	8.4 x 41	84%	7.1
10357	Fibre	Optimised for coupling into 0.5NA fibre bundles of 8 - 12mm diameter In development														

*Orthogonal is the elliptical beam turned through 90deg.

#Full Width Half Maximum i.e. total viewing angle



Part No.	Colour	Description	Part No.	Colour	Description
10205	Black	Round Holder	10425	Black	Star Board feet
10206	Clear	Round Holder	10426	Clear	Star Board feet
10207	White	Round Holder	10427	White	Star Board feet
10276	White	50mm Triple holder long leg	10428	Black	Star Board no feet
10286	White	50 mm Triple holder short leg	10429	Clear	Star Board no feet
10296	Black	50 mm Triple holder Long leg	10430	White	Star Board no feet
10306	Black	50 mm Triple holder short leg			

CREE XR[®] , XR-E[®] & XR-C[®] 26.5mm range

Part no.	Description	White XR			Red/Amber XR			Cyan/Green XR			White XR-E			White XR-C		
		FWHM	EFF	Cd/l	FWHM	EFF	Cd/l	FWHM	EFF	Cd/l	FWHM	EFF	Cd/l	FWHM	EFF	Cd/l
10048	Plain tight	10.2	88.5%	13.75	11.4	90.5%	18.5	7.6	88.9%	25.2	5.65	88.3%	42.2	5.4	88.5%	52.3
10124	frosted narrow	15	85.4%	7.9	14.8	86.4%	9.9	12.4	86.6%	11.4	11.3	84.9%	14.5	10.6	85.4%	20.4
10108	Frosted medium	25.8	84.2%	3.1	22.5	87.7%	4	23.3	85.5%	3.3	22.15	84.3%	3.8	20.9	84.8%	4.21
10260	Frosted Wide	32.5	84.1%	2.2	36.25	86%	2.1	35.4	83.2%	2	35.1	81.8%	2.1	35.2	82.2%	2.21
10049	Elliptical	44.5*14.6	85.5%	3.7	41.3*12.8	86.1%	4.9	45.3*11.7	87.5%	4.3	43.7*9	87.3%	6	43.5*7.7	86.5%	7.37
10224	Elliptical Orthogonal	13.7*46	85.9%	3.7	13.5*47	88.2%	3.9	11.4*47.9	85%	4.1	9*48	85%	5.1	9.3*48	84.6%	5.4
10234	Elliptical Ramp Optic	44.6*13.8	86.3%	3.8	44.5*13.4	88.3%	4.5	45.8*11.5	86.9%	4.2	46*8.8	87%	5.5	45.7*9.1	86.7	6.2

*Orthogonal is the elliptical beam turned through 90deg.

#Full Width Half Maximum i.e. total viewing angle



Part No.	Colour	Description
10445	White	4.3mm legs
10455	White	2.0mm legs
10465	White	0.8mm legs
10475	Black	4.3mm legs
10485	Black	2.0mm legs
10495	Black	0.8mm legs

Cree XLamp® 20 & 26.5mm MC Range



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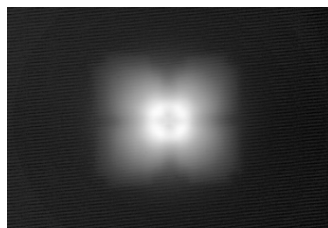
Tel UK: 0044 (0) 1753 575011 Tel USA 00 (1) 724 539 6982



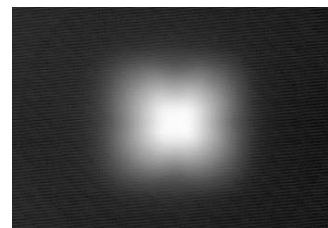
CREE XLamp® MC-E LED 20mm range

Part no.	Description	Cree MC-E		
		FWHM	EFF	Cd/I
10193	Plain tight	20	84.5	5.8
10194	Frosted Narrow	24	83	4.5
10208	Rippled Medium	29	82.5	3.3
10195	Frosted medium	27.5	78	2.6
10209	Ripple Wide	36.5	80	1.9
10196	Frosted Wide	45	70	1.4
10197	Elliptical	44 X 23	81	2.3
10198	Elliptical Orthogonal	22 X 44	80	2.5
10356	Fibre			

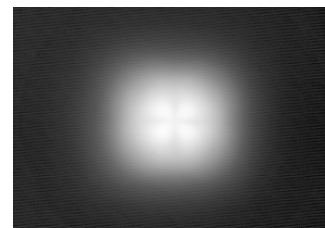
Part No.	Colour	Description
10512	Black	Round MC-E Holder
10513	White	Round MC-E Holder
10514	Clear	Round MC-E Holder
10276	White	50mm Triple holder long leg
10286	White	50 mm Triple holder short leg
10296	Black	50 mm Triple holder Long leg
10306	Black	50 mm Triple holder short leg
10425	Black	Star board with feet
10426	Clear	Star board with feet
10427	White	Star board with feet
10428	Black	Star board with no feet
10429	Clear	Star board with no feet
10430	White	Star board with no feet



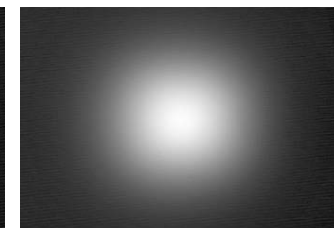
Tight plain fronted optic
10193 "the four chips are projected"



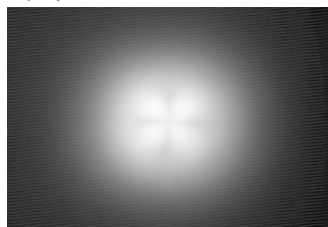
Narrow frosted optic
10194



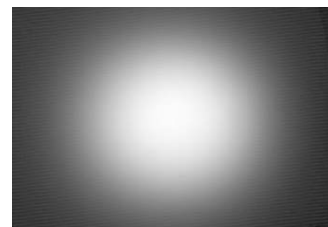
Medium rippled optic
10208



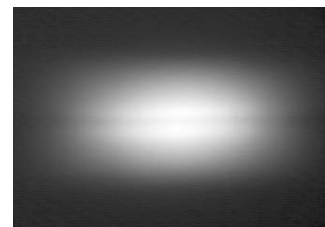
Medium frosted optic
10195



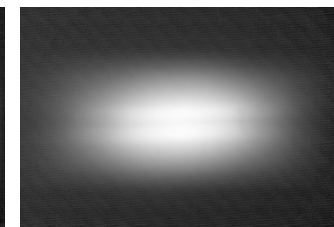
Wide rippled optic
10209



Wide frosted optic
10196



Elliptical 10197
"Note the dark line caused by the gap in the chips"



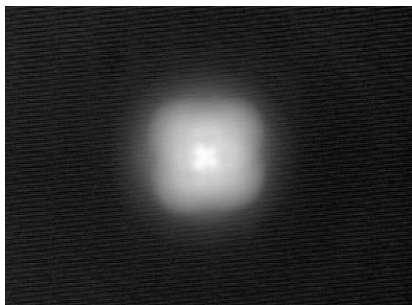
Elliptical orthogonal
10198
"Note the dark line caused by the gap in the chips"



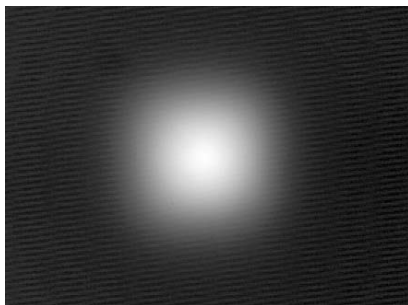
26.5mm OPTIC

MANUFACTURER	TYPE	CARCLO OPTIC		Eff	FWHM	Cd/lm
		Part No.	TYPE	%	Deg	
Cree	MC-E 	10391	Plain Tight	83.9	15.2	10.4
		10392	Narrow Frosted	81.3	18.7	6.6
		10393	Medium Frosted	77.8	26.1	3.2
		10394	Wide Frosted	83.5%	35	2.2

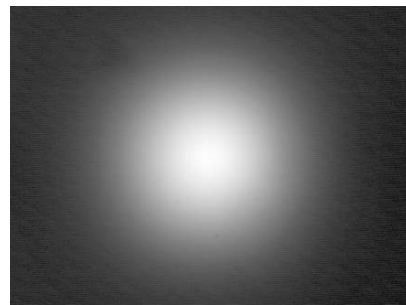
WHITE HOLDERS			BLACK HOLDERS		
4.3 PEG Not stocked	2.0 PEG Not stocked	0.8 PEG Not stocked	4.3 PEG Not Stocked	2.0 PEG Not stocked	0.8 PEG Stocked
10446	10456	10466	10476	10486	10496



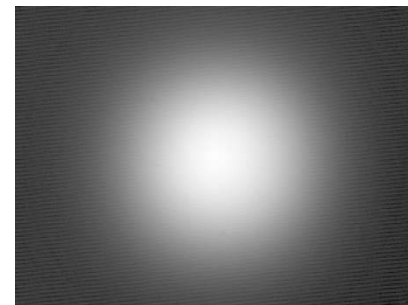
10391



10392



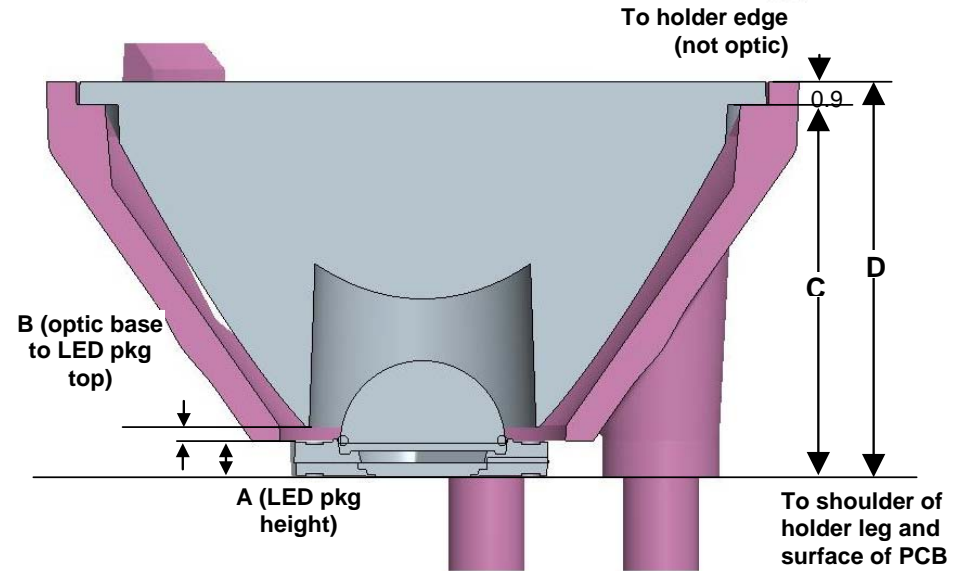
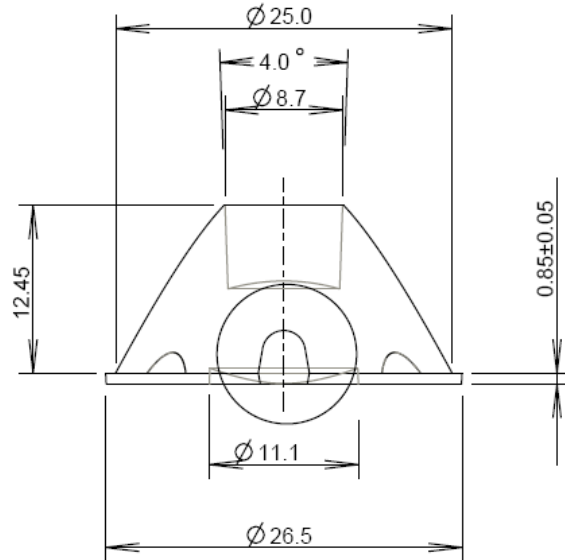
10393



10394

26.5mm Holder details

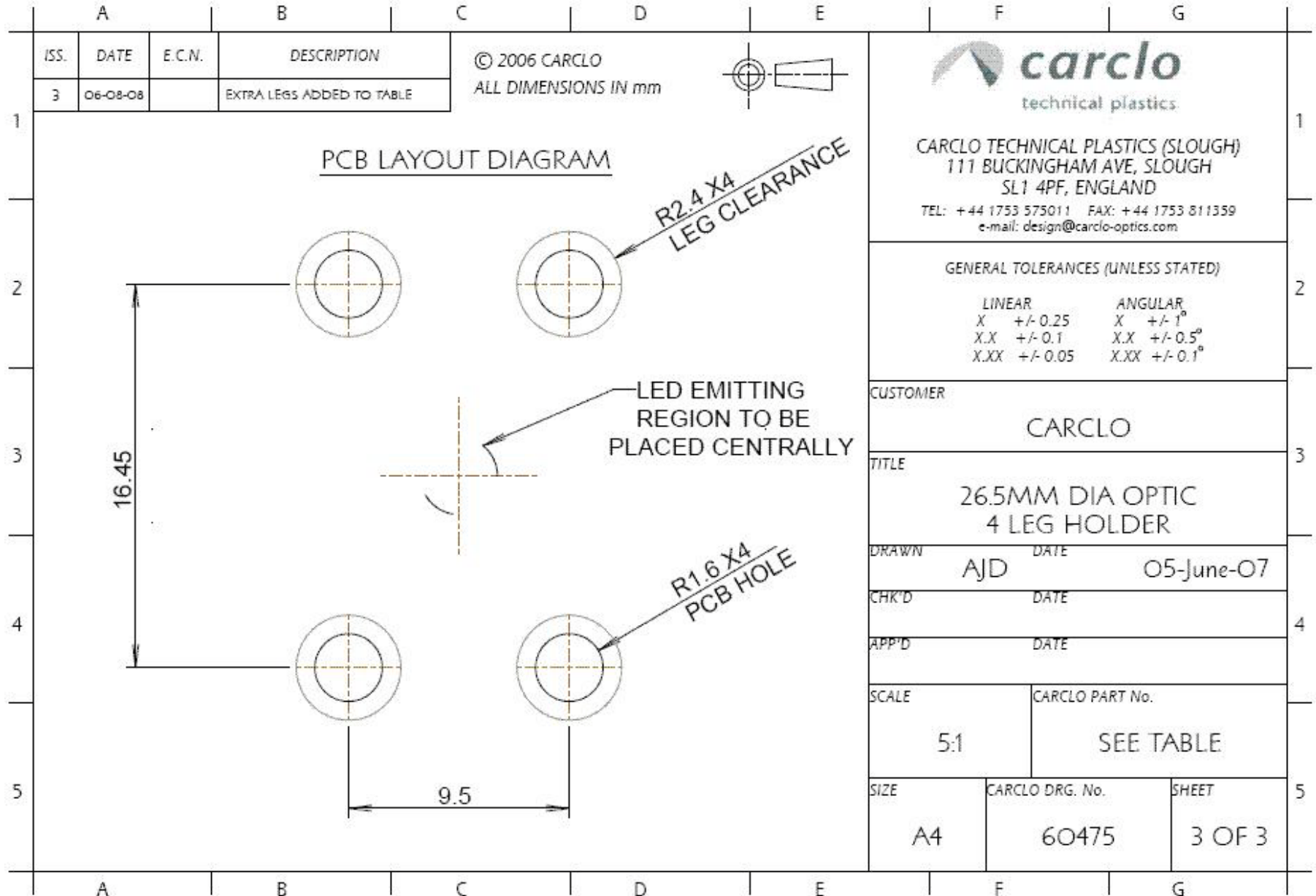
Part No.	TYPE
10391	Plain Tight
10392	Narrow Frosted
10393	Medium Frosted
10394	Wide Frosted
10395	Elliptical
10396	Elliptical Ortho



Notes:

1. CARCLO multi-chip holder compatible with LED package mounted on 19.9mm (across flats) star board, otherwise drill holes on PCB for location pegs on legs. Refer to Drawing 60475 for hole separation
2. The multichip holder leg height includes an extra 1.0mm for the AcuLED since only a 13mm (across flats) star board is available. The CARCLO holder reaches over the AcuLED star board so that the holder sits directly on the PCB (and not the star board).

26.5mm holder location holes



Cree XLamp® 10, 20 & 26.5mm XP Range



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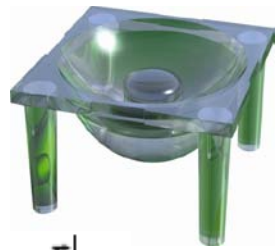
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26 June 2009

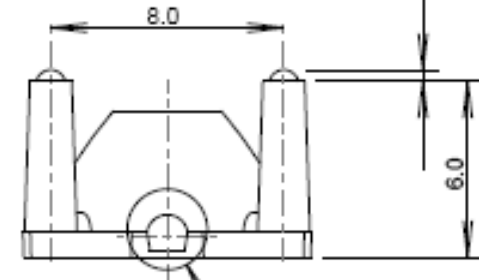
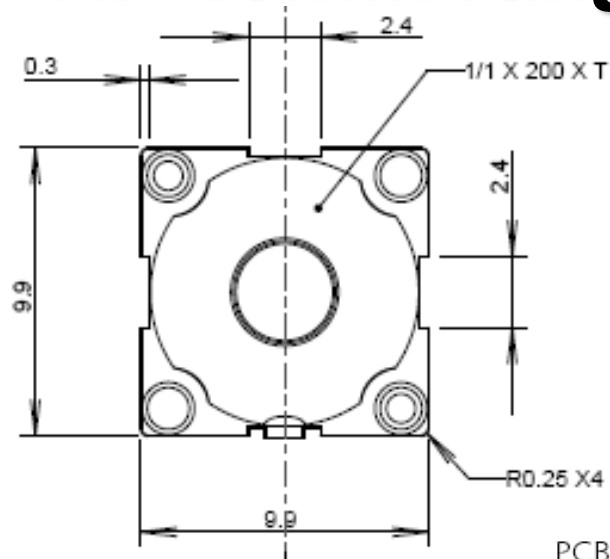


Cree® XP 10mm range

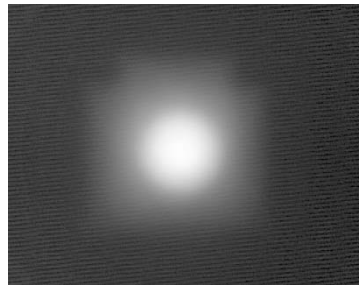


Part No.	Description	White		
		FWHM*	EFF	Cd/lm
10412	Plain medium Flat front	16.5	91.8%	9.3
10417	Plain medium Lens front	16.4	88.7%	9.8
10413	Frosted medium	25.9	87.2%	3.2
10414	Frosted Wide	36.7	80%	1.66
10415	Elliptical	43 X 16	88.1%	3.5

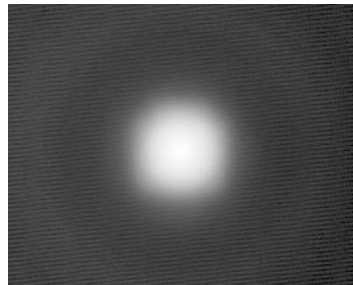
#Full Width Half Maximum i.e. total viewing angle



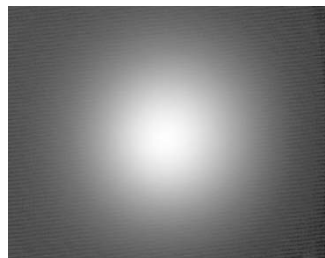
PCB GLUE PAD AND ALIGNMENT HOLE
LAYOUT DIMENSIONS



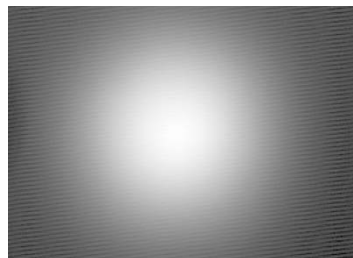
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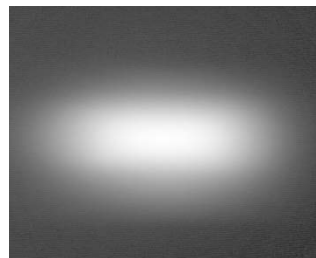
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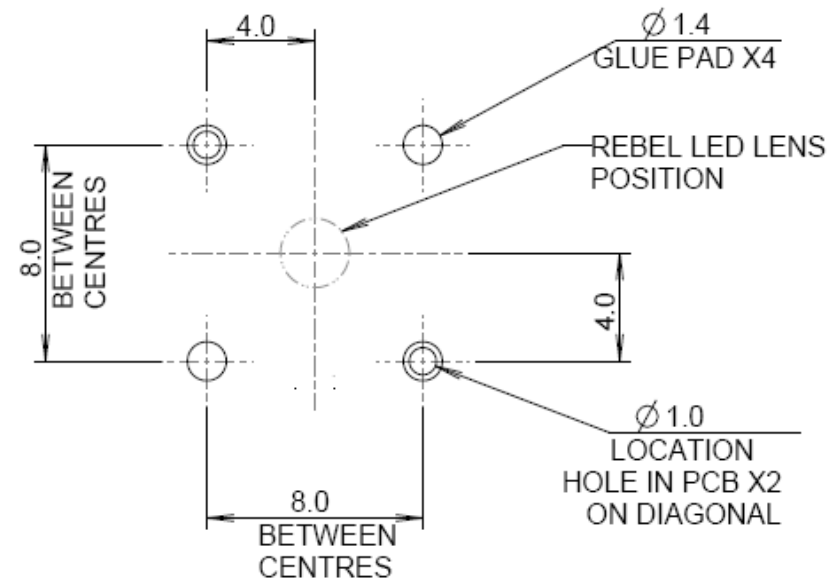
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10414



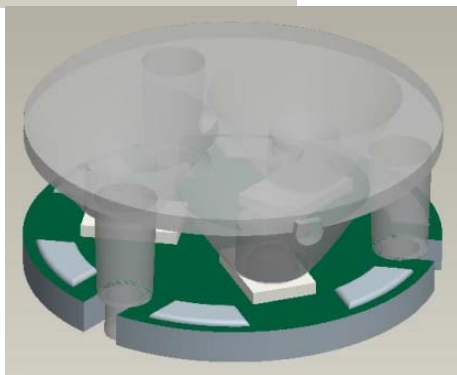
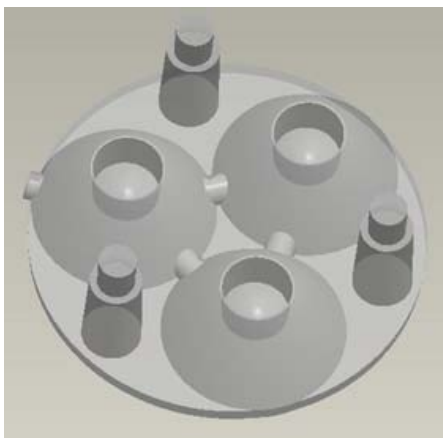
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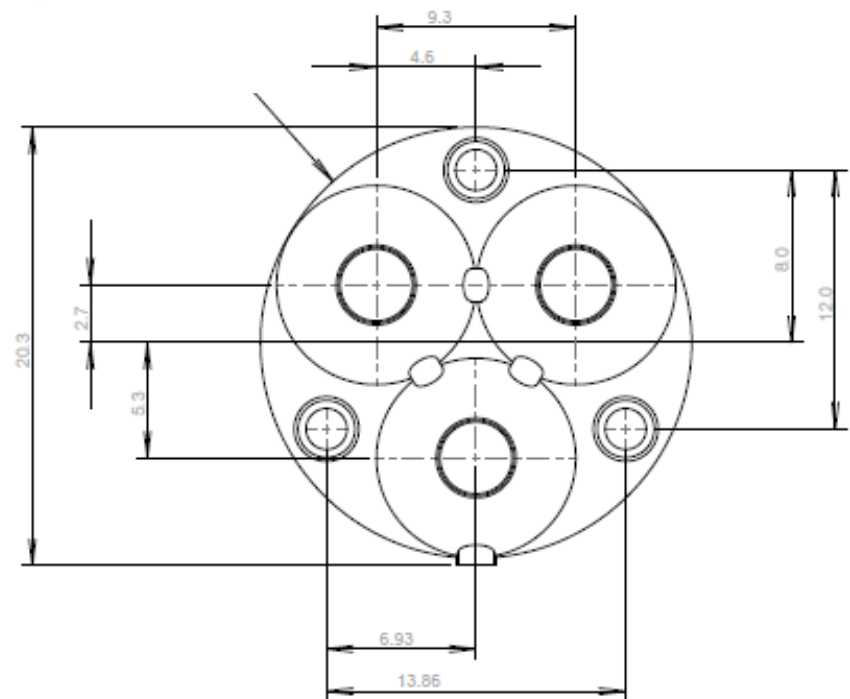
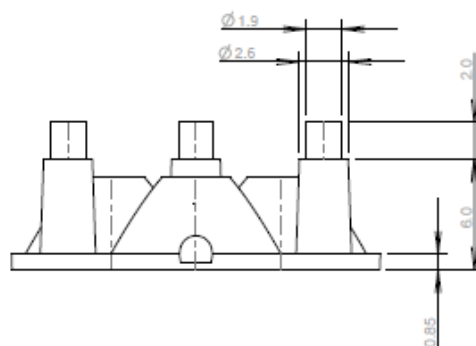
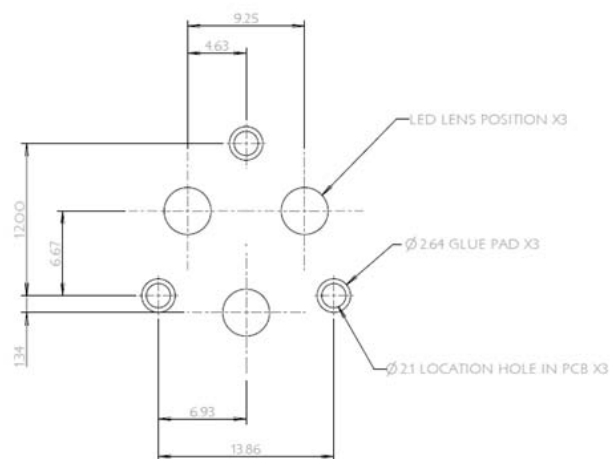
Cree® XP 10mm Triple Optic

Part No.	Description	White		
		FWHM*	EFF	Cd/lm
10507	Narrow lens front	16.4	88.7%	9.8
10508	Medium Frosted	25.9	87.2%	3.2
10509	Wide Frosted	36.7	80%	1.66
10510	Elliptical	43 * 16	88.1%	3.5
10511	Narrow Frosted			

#Full Width Half Maximum i.e. total viewing angle



PCB HOLE & GLUE PAD LOCATION



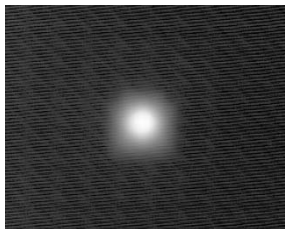
Cree® XP 20mm range

Part No. Optics on their own	Description	White		
		FWHM	EFF	Cd/lm
10193	Plain Tight	8.2	87.3%	36.3
10194	Frosted Narrow	10.35	86.9%	20.75
10208	Ripple Medium	19.5	86.9%	7.16
10195	Frosted Medium	17.9	82.9%	5.95
10209	Ripple Wide	20.5	81.7%	3.4
10196	Frosted Wide	31.5	78.1%	2.46
10170	Wide Angle Reflector	72	92.2%	0.82
10197	Elliptical	47 X 8	86%	6.5
10198	Elliptical Orthogonal	8 X 47	85.6%	6.6
10356	Fibre	Optimised for coupling into 0.5NA fibre bundles of 8 - 12mm diameter		

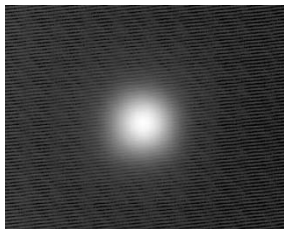
*Orthogonal is the elliptical beam turned through 90deg.

#Full Width Half Maximum i.e. total viewing angle

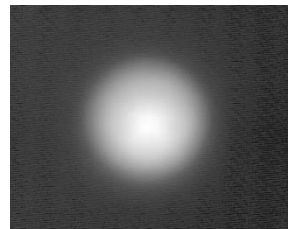
Part No.	Colour	Description
10566	Black	Round Holder (Stocked)
10567	White	Round Holder (Not Stocked)
10568	Clear	Round Holder (Not Stocked)
10569	Black	Hex holder with feet (Stocked)
10570	Clear	Hex holder with feet (Not Stocked)
10571	White	Hex holder with feet (Not Stocked)
10572	Black	Hex holder (Stocked)
10573	Clear	Hex holder (Not Stocked)
10574	White	Hex holder (Not Stocked)
10279	White	50mm Triple holder long leg (Not Stocked)
10289	White	50 mm Triple holder short leg (Stocked)
10299	Black	50 mm Triple holder Long leg (Not Stocked)
10309	Black	50 mm Triple holder short leg (Not Stocked)



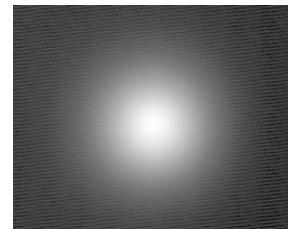
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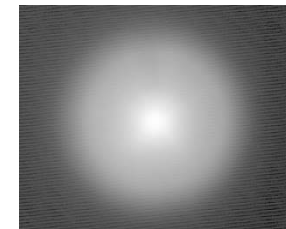
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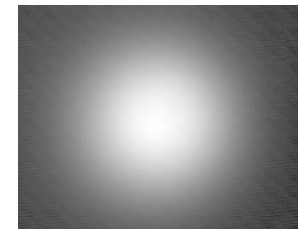
10208



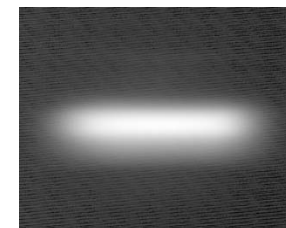
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10209



10196



10197 & 10198



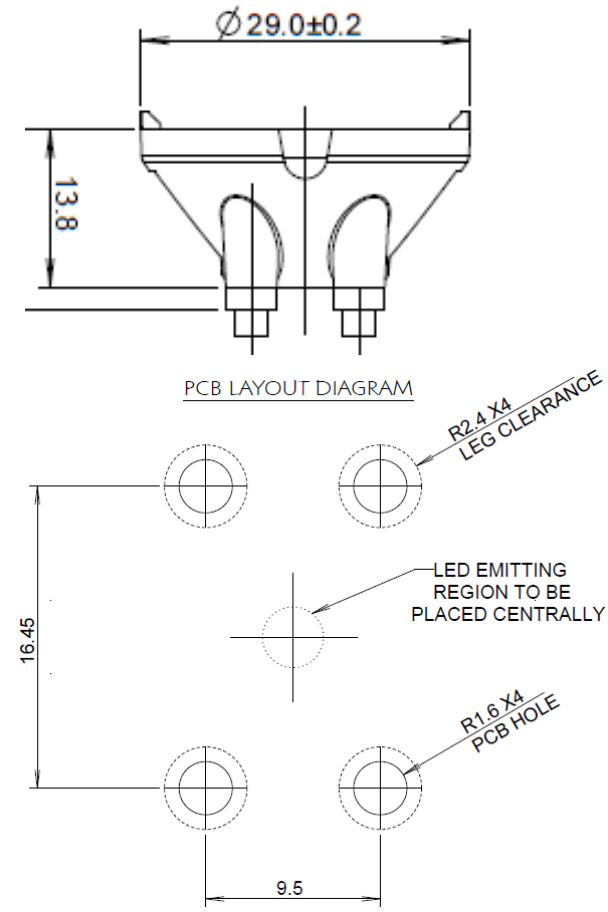
10170

CREE XP-E LED 26.5mm range

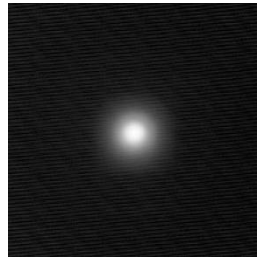
Part No. Optics on their own	Description	White		
		FWHM	EFF	Cd/lm
10048	Plain tight	6.1	86.9%	46.43
10124	frosted narrow	9.6	83.1%	19.9
10108	Frosted medium	20.3	80.2%	4.37
10260	Frosted Wide	32.2	79.3%	2.28
10049	Elliptical	43.8*6.3	82.9%	8.33
10224	Elliptical Orthogonal	6.8*47.8	83.3%	6.62
10234	Elliptical Ramp Optic	44.9*6	82.4%	7.76



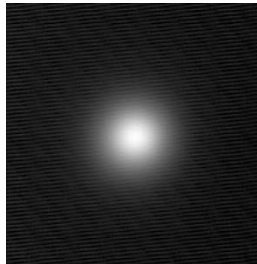
Part No.	Colour	Description
10442	White	4.3mm foot (not Stocked)
10452	White	2.0mm foot (Not Stocked)
10462	White	0.8mm foot (Stocked)
10472	Black	4.3mm foot (Not Stocked)
10482	Black	2.0mm foot (Not Stocked)
10492	Black	0.8mm foot (Not Stocked)



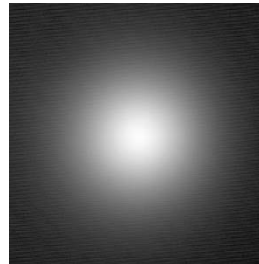
*Orthogonal is the elliptical beam turned through 90deg.
 # Full Width Half Maximum i.e. total viewing angle



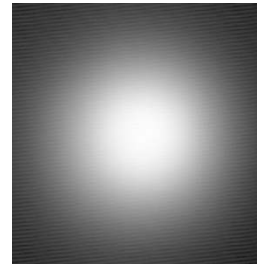
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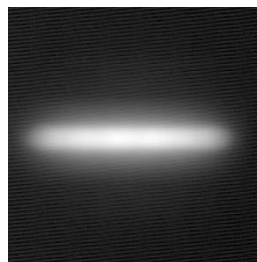
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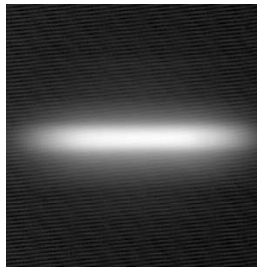
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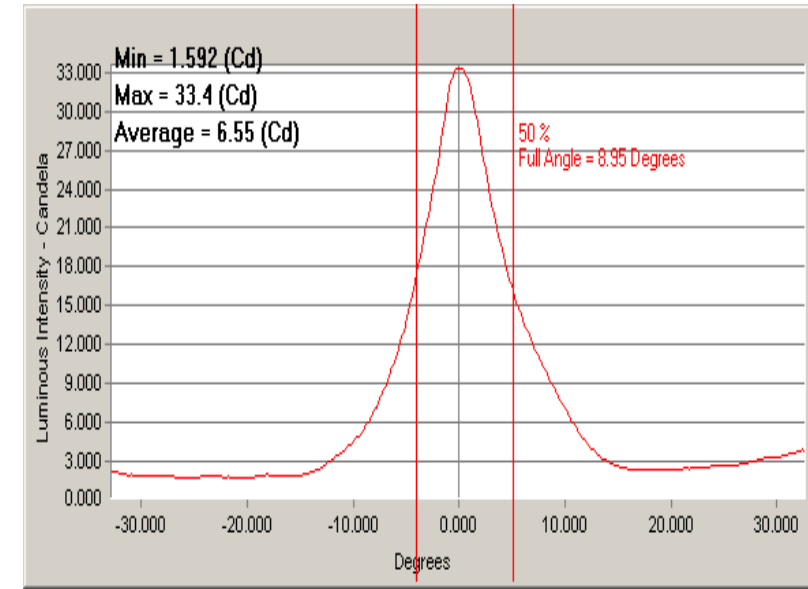
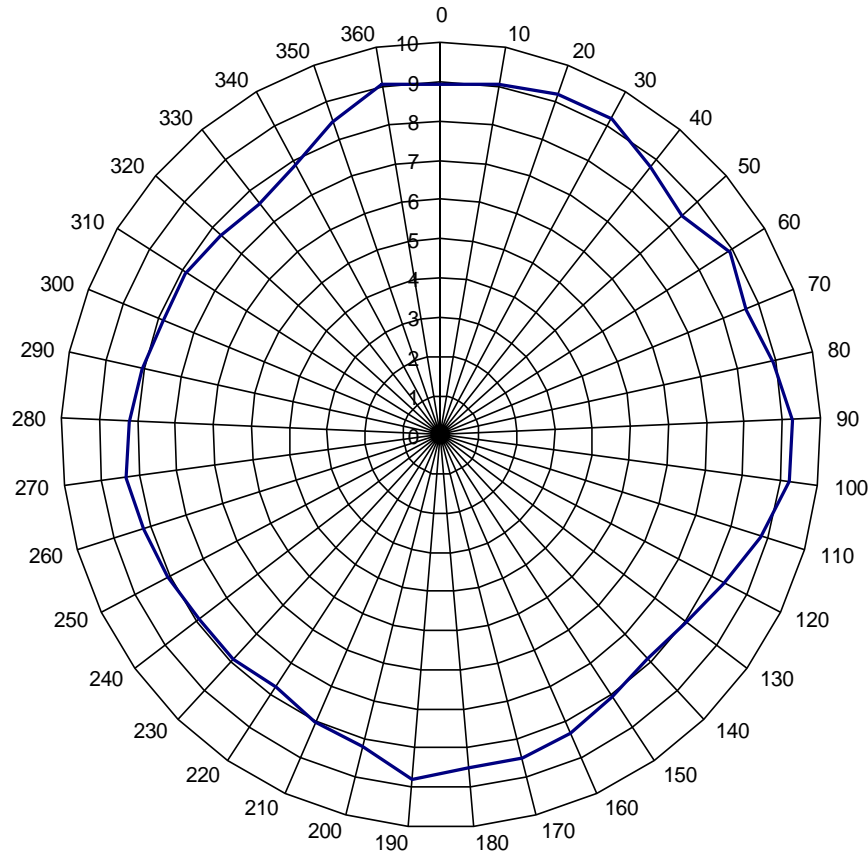
10049 & 10224



10234

Side Emitter 10267

FWHM divergence versus side emitter rotation angle



FWHM:

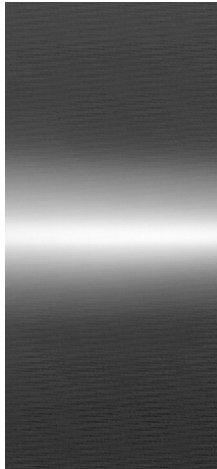
Average FWHM: 8.4degree;

Minimum FWHM: 7.45degree ;

Maximum FWHM: 9.3degree

Efficiency : 87%

Cd/lm: $38/46=0.8$ @ 350mA (average of 8 readings)



Continuous Strip Optic

Here is a optic to fit over a linear strip of LED's to give good even mix along the length whilst controlling the beam in the other direction designed for Cree® XP



Carclo Technical Plastics

111 Buckingham Avenue, Slough, Berkshire SL1 4PF ENGLAND / 600 Depot Street Latrobe PA. 15650 USA

Web: www.carclo-optics.com e-mail: sales@carclo-optics.com

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26 June 2009

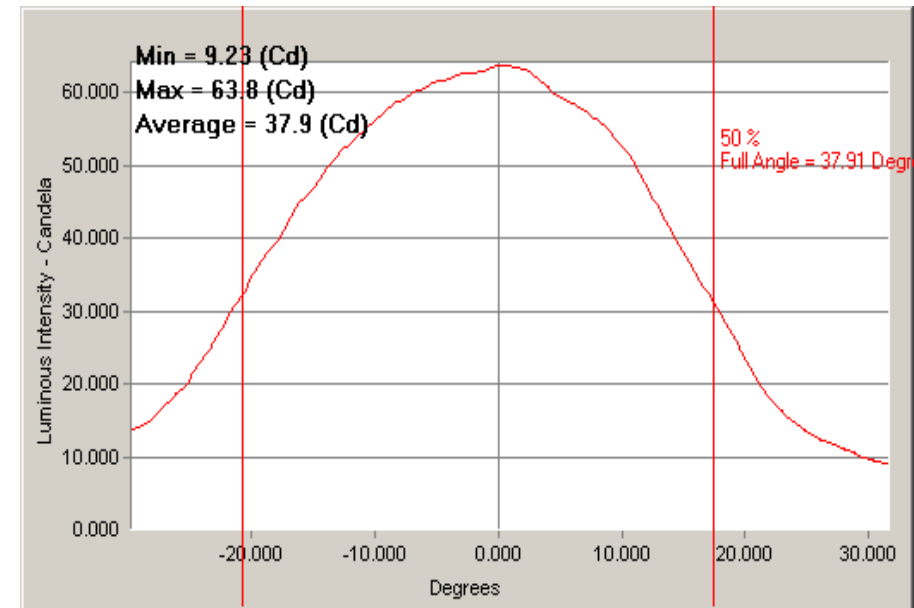
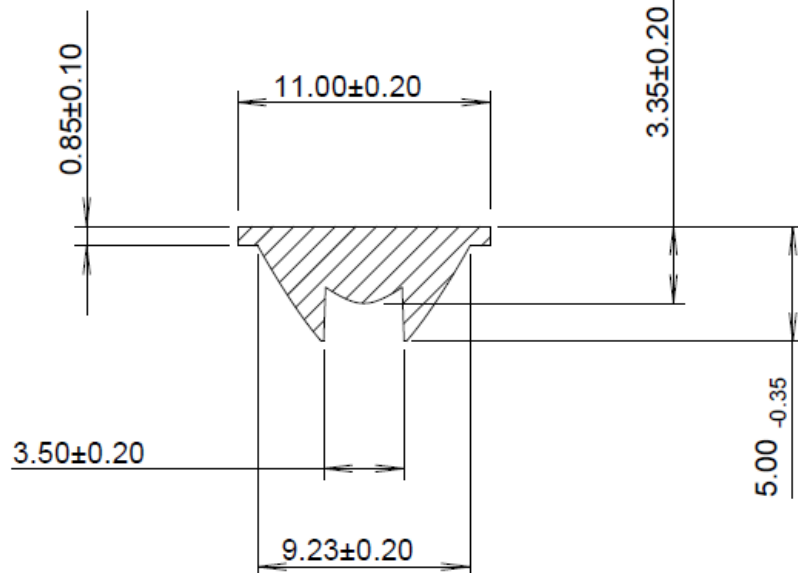
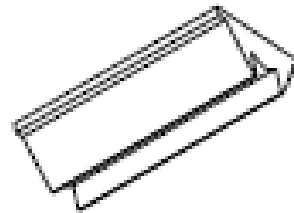


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Continuous Strip

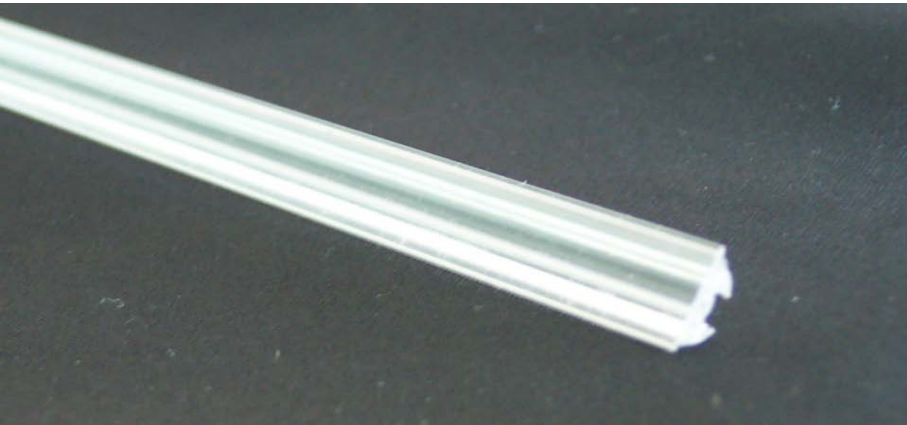
- A single piece optic that can be made in lengths to suit your needs
- Will be standard in 1.2m (4') and 300mm (1') lengths tol -0.0 /+3.0
- Easily cut to your required length using a fine tooth saw
- Made from optical quality PC for optimal temperature and system performance
- Designed for Cree XP
- Surface mount height tolerance less critical due to diffused front optical surface
- Variable beam angles to mounting heights as show in the table below

Z height from Package	FWHM	Eff
0 mm	38	85%
0.5 mm	34	81%
1 mm	30.7	75.5%



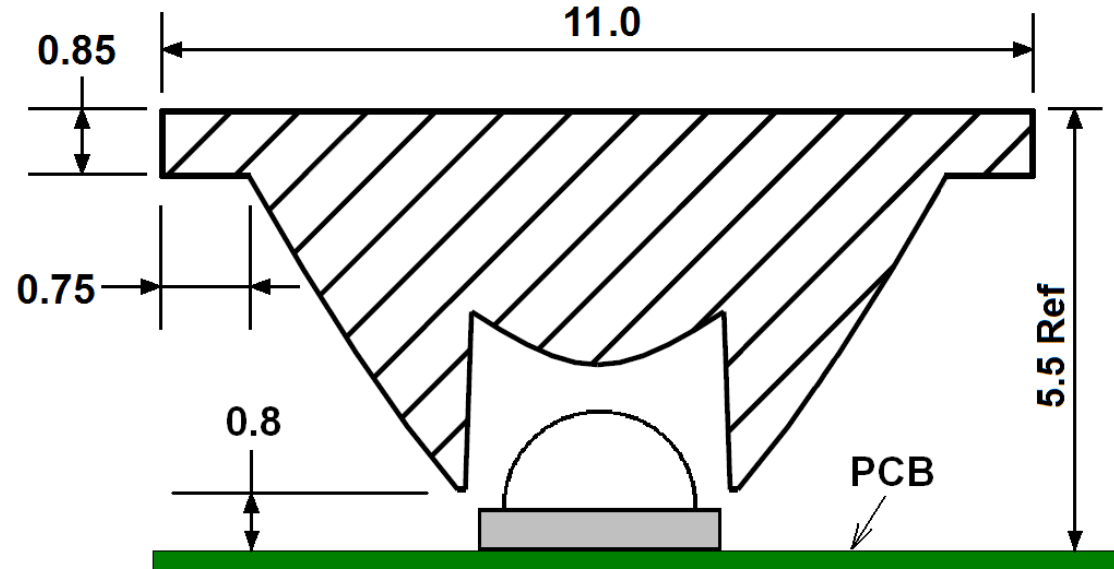
Application notes

- Two-part epoxies such as Loctite 3430 can be used to join or mount the continuous strip optic without fogging the PC lens
- Ideal for florescent tube replacement fixtures, refrigeration lighting, cove lighting, under cupboard lighting, retail lighting, wall washing, and other general illumination applications, in both single colour as well as RGB mixing.
- Colour binning LED's less critical in most applications as the light is mixed in the long plane.
- Easily mounted in an extruded aluminium housing that can serve as both a heat sink as well as a base unit for a light fixture or a light engine module



Part no	Description
10397	4 foot , 1.2 M Long
10398	1 foot, 300mm Long

STRIP OPTIC MOUNTING DIMENSIONS



Bubble Optics

Ultra wide

This is a new design and the start of our range of 'Bubble Optics' these optics produce a very wide but even beam on a flat surface idea for wide area lighting designed for the Cree® XP



Carclo Technical Plastics

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26 June 2009



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Ultra Wide Angle Optics

Optics for Producing uniform illuminance over wide areas

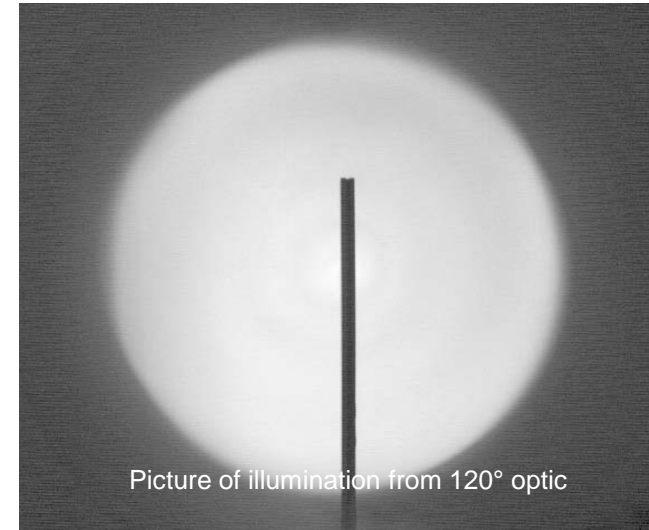
Carclo Ultra Wide Angle Optics are designed to meet the needs of Luminaire designers who need to efficiently light wide areas with very even illumination. These optics are suitable for applications such as emergency lighting, parking facility illumination and many other general illumination areas.

These optics work by re-mapping the light output from the Led to the far-field. Their hemi-spherical outer shape has given rise to their generic name “Bubble optics”.

Mounted at 2.5m (~8 ft.) the 120° optic will evenly illuminate an area 8m (~26 ft.) in diameter, the 130° optic will illuminate a 10m (~33 ft.) diameter.

Features

- Beam widths of 120 deg FWHM (Part No. 10403) and 130 deg FWHM (Part No. 10406)
- Greater than 90% efficiency.
- One piece design for Cree XP
- Manufactured in lens grade polycarbonate with UL certification.
- Suitable for continuous operation up to 120 °C.



Application notes

- Arrays of 19.7mm diameter Ultra wide optics should be placed no closer than 27mm between centres to avoid shading.
- Locate on PCB using 2x $\varnothing 2.5\text{mm}$ holes equi-spaced 7mm either side of Led emitting area.
- Always use a very low vapour adhesive such as Loctite 3430 when mounting polycarbonate optics.

LED	120 deg	130 deg	Holder
XP	10403	10406	not needed

