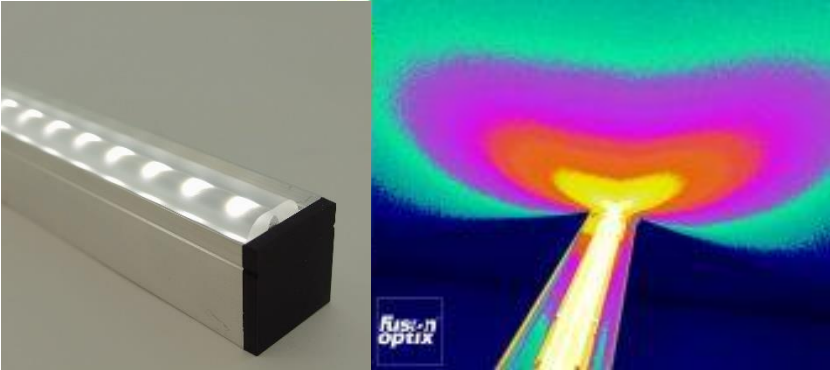




The Fusion Optix family of Cosine® Optics are linear lenses that deliver wide-angle distributions. Uniformity, efficiency, and minimal color-over-angle coalesce into “the perfect upright.” With a variety of mounting options and beam widths, Cosine® Optics provide OEM’s and lighting designers with industry leading performance and maximum flexibility.



Fusion Optix has complete control over the optical design, tooling production, polymer formulation and extrusion. The Cosine® Optic family has been developed with meticulous attention to every detail.



Features & Benefits

- High optical efficiency
- Excellent uniformity
- Choice of beam width
- Onboard slide-in & remote snap-in options

Three Choices of Integration

R Series Remote 2D Direct	C SERIES Close Proximity 2D Indirect	B SERIES On-Board 2D Indirect	3D SERIES On-Board 3D Indirect

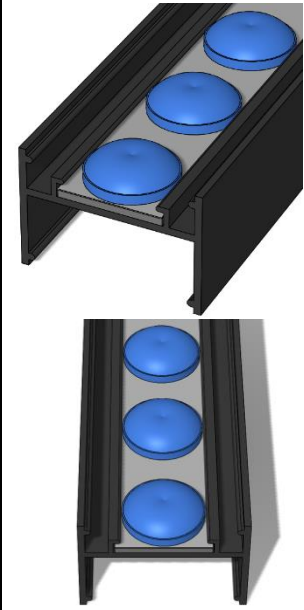


Mechanical Drawings

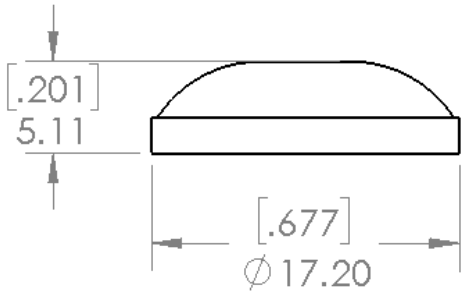
	B SERIES: On-Board Cosine® Optic	
	<p>FOP01-0209-00A-PM2134-xxxx</p>	<p>FOP01-0318-00A-PM2134-xxxx</p>
	C SERIES: Close Proximity Cosine® Optic	
	<p>FOP01-0244-00A-PM2134-xxxx</p>	<p>FOP01-0246-00A-PM2134-xxxx</p>
	R SERIES: Remote Cosine® Optic	
	<p>FOP01-0231-01A-PM2134-xxxx</p>	<p>FOP01-0154-01A-PM2134-xxxx</p>
	<p>FOP01-0237-01A-PM2134-xxxx</p>	<p>FOP01-0238-01A-PM2134-xxxx</p>



3D SERIES: On-Board Cosine® Optic



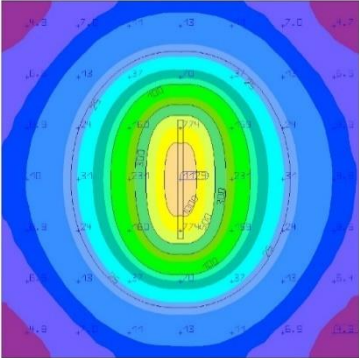
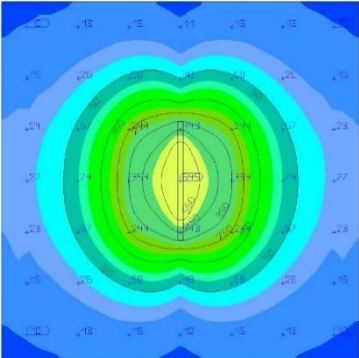
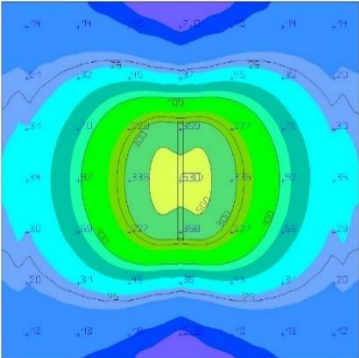
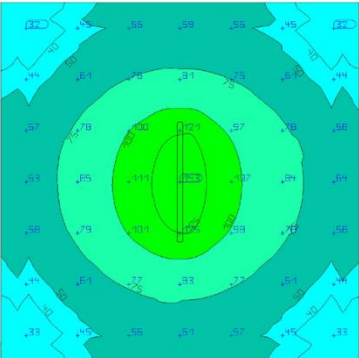
FOxxx-xxxx-xxxx





Performance

Cosine® Optics are designed to provide high levels of light uniformity on surfaces. The table to the right contains plots showing the illuminance on a surface 1 ft away from the luminaire when used in combination with Fusion Optix® SpekLED® Modules.

<p>Remote 2D Cosine® Optic</p>	
<p>Close Proximity 2D Cosine® Optic</p>	
<p>On-Board 2D Cosine® Optic</p>	
<p>On-Board 3D Cosine® Optic</p>	



Material Properties

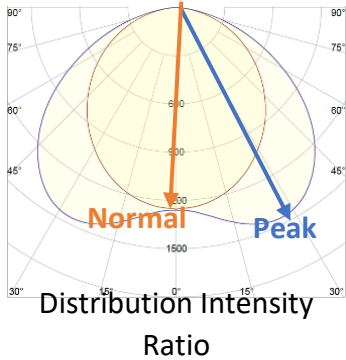
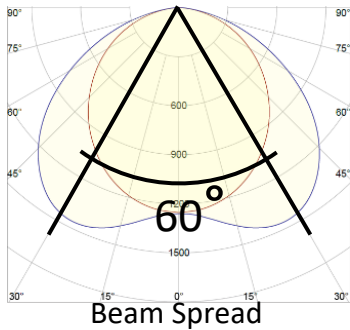
Cosine® Optics are extruded from custom formulated PMMA. The basic properties of this polymer appear below:

Properties	PMMA	
Refractive Index	1.491	
Density	1.17 g/cm ³	
Elastic Modulus	490 kpsi	
Yield Strength	9800 psi	
Elongation at break	5%	
Glass transition Temperature	114 °C	237 °F
UV radiation susceptibility	Stable	
REACH compliance	Yes	
RoHS compliance	Yes	



Specification Table

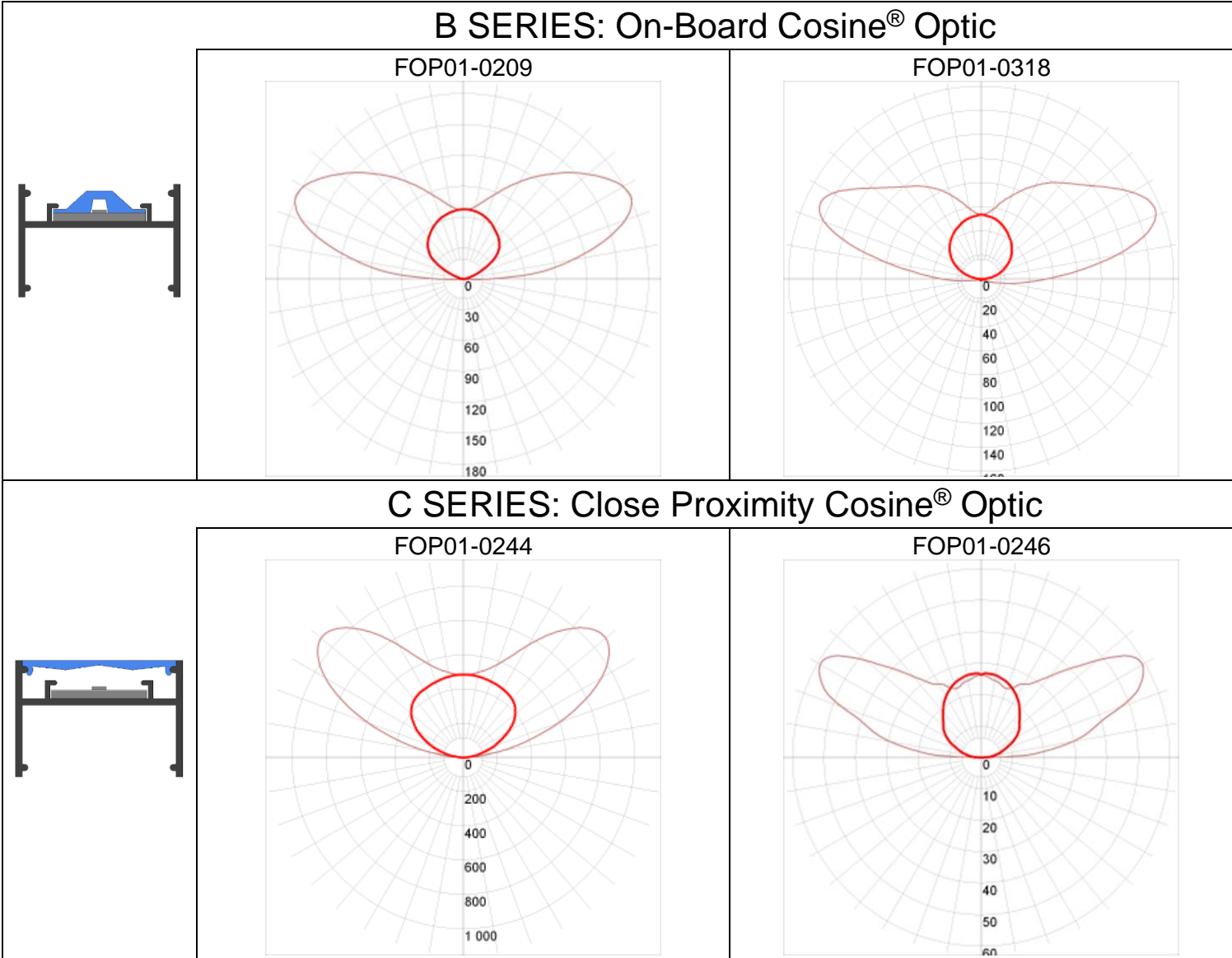
Name	Part No. (Use -xxxx to indicate length)	Focal Length [mm]	Physical Height [mm]	Physical Width [mm]	Spread [Degrees]	Distribution Intensity Ratio [Peak/Normal]
On-Board 2D						
Cosine®_B	FOP01-0209-00A-PM2134-xxxx	4.75	4.75	20	140	2.8
Cosine®_B Mini	FOP01-0318-00A-PM2134-xxxx	3.5	3.5	20	140	3.0
Close Proximity 2D						
Cosine®_C 1in.	FOP01-0244-00A-PM2134-xxxx	5.5	4.0	26	120	X
Cosine®_C 1.3in.	FOP01-0246-00A-PM2134-xxxx	8.0	8.2	32	120	2.4
Remote 2D						
Cosine®_R 2in.	FOP01-0231-01A-PM2134-xxxx	33.3	19.2	58	60	1.2
Cosine®_R 3in.	FOP01-0154-01A-PM2134-xxxx	33.3	19.0	81	60	1.1
Cosine®_R 4in.	FOP01-0237-01A-PM2134-xxxx	33.3	19.0	100	60	X
Cosine®_R 6in.	FOP01-0238-01A-PM2134-xxxx	33.3	19.0	122	60	X
On-Board 3D						
Cosine®_3D	X	X	X	X	155	X



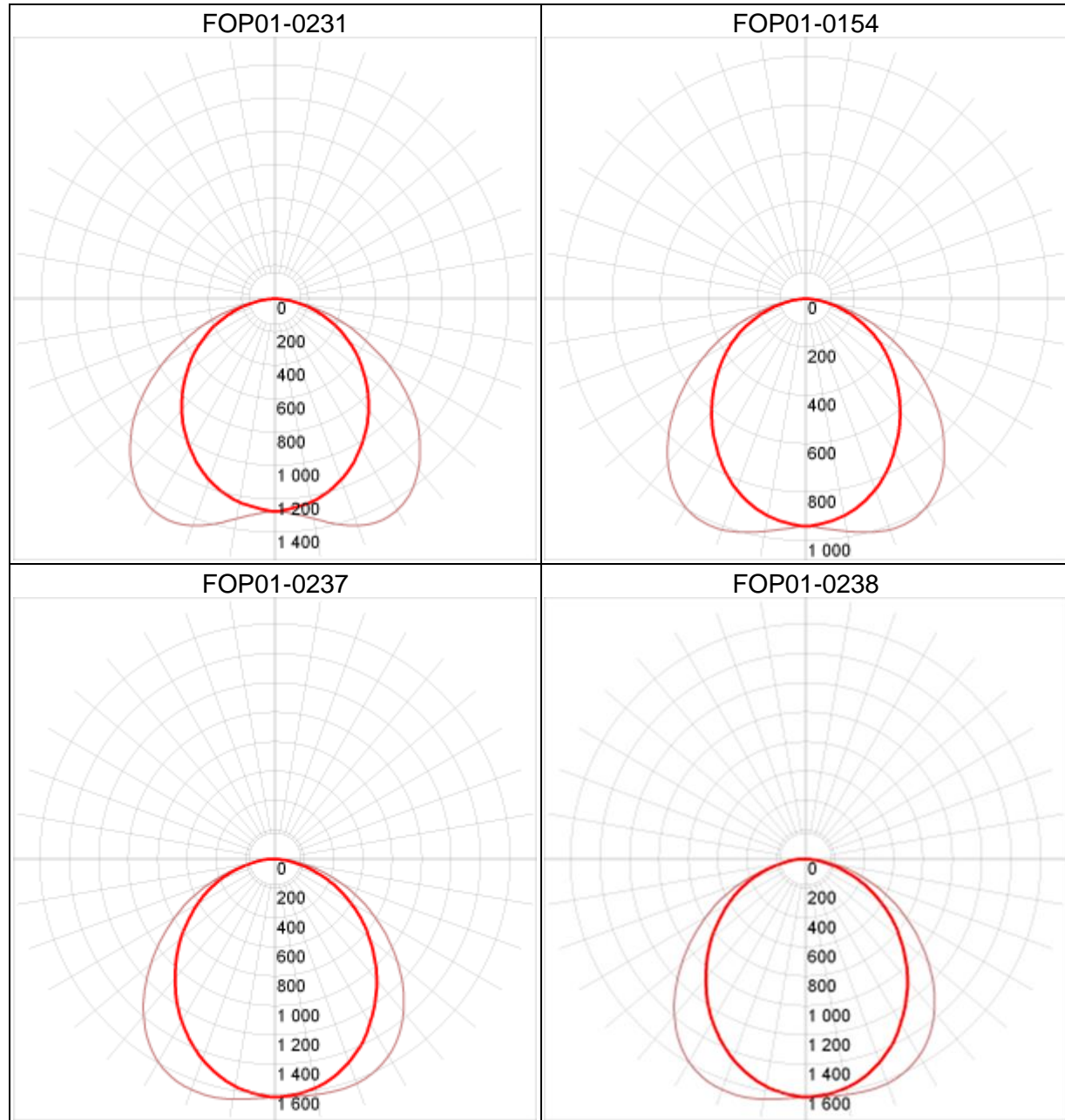
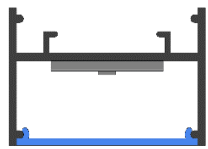


Photometric Distributions

(When used in combination with Fusion Optix[®] SpekLED[®] Modules)



R SERIES: Remote Cosine[®] Optic





3D SERIES: On-Board Cosine[®] Optic

