



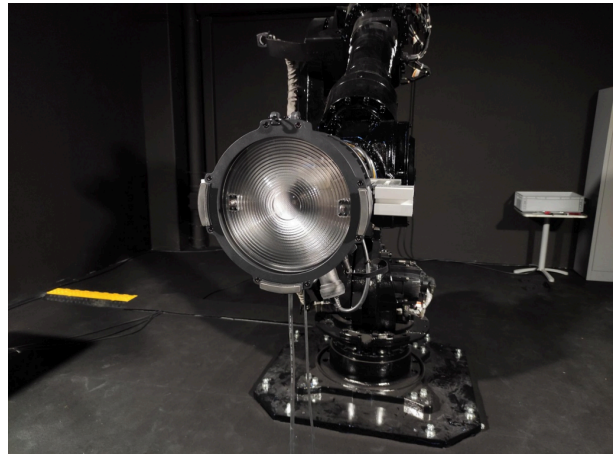
## Fusion XPar 12Z Photometric Report

Report 2022-08-04-1

GLP German Light Products GmbH  
GLP LightLab

Maximum Total Lumens	2640 lm
Maximum Intensity	56500 cd
Energy Efficiency Class	B
Energy Efficiency Index	0.63
Power Consumption	123 $\frac{\text{kWh}}{1000 \text{ h}}$

Lamp	RGBL LED
Serial Number	23040400001
Measurement Date	2022-08-04 10:06
Software Version	2.8.0





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# 1 Light Distribution

Table 1: Summary of beam opening angles for different fixture configurations.

Beam	Beam Angle (50 %)		Field Angle (10 %)		Cutoff Angle (3 %)	
	C0	C90	C0	C90	C0	C90
Wide, RGBL TLO	34°	34°	52°	53°	57°	58°
Medium, RGBL TLO	14°	14°	32°	33°	41°	42°
Narrow, RGBL TLO	8.0°	8.2°	17°	18°	24°	25°

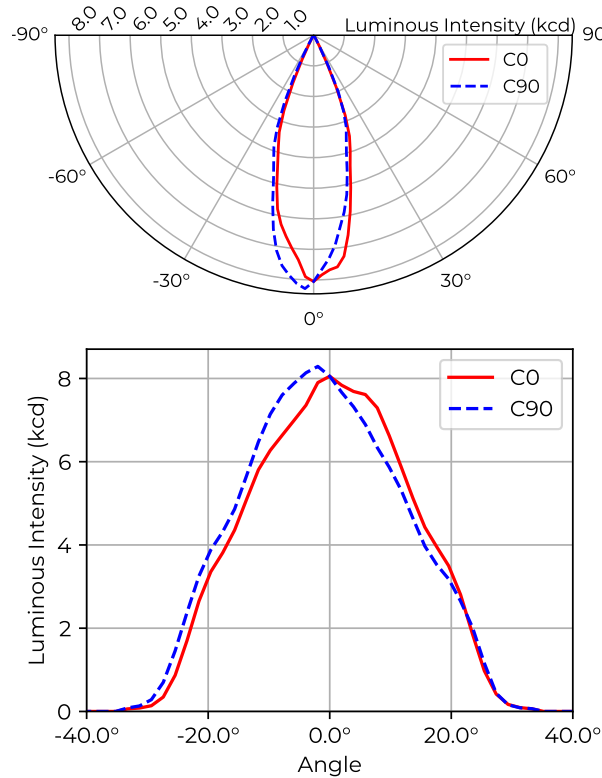
Table 2: Summary of luminous flux and intensity for different fixture configurations.

Beam	Total Lumen Output	Peak Luminous Intensity)
Wide, RGBL TLO	2.64 klm	8.29 kcd
Medium, RGBL TLO	2.27 klm	24.0 kcd
Narrow, RGBL TLO	1.64 klm	56.5 kcd

Table 3: Approximate illuminance and beam diameter at different projection distances, calculated with the inverse-square law. The approximation is valid only for large distances, compared to the size of the fixture output port.

Beam	Parameter	Factor	Projection Distance [m]									
			5	7.5	10	12.5	15	17.5	20	22.5	25	
Wide, RGBL TLO	Diameter [m]	0.60	3.0	4.5	6.0	7.5	9.1	11	12	14	15	
	Illuminance [lx]	8.05k	320	140	81	52	36	26	20	16	13	
Medium, RGBL TLO	Diameter [m]	0.25	1.2	1.9	2.5	3.1	3.7	4.4	5.0	5.6	6.2	
	Illuminance [lx]	23.5k	940	420	240	150	100	77	59	46	38	
Narrow, RGBL TLO	Diameter [m]	0.14	0.71	1.1	1.4	1.8	2.1	2.5	2.8	3.2	3.5	
	Illuminance [lx]	55.9k	2.2k	990	560	360	250	180	140	110	89	

## 1.1 Wide, RGBL TLO Beam



Type B measurement, 1296 data points.

Table 4: Opening angles for different intensity thresholds. Wide, RGBL TLO

		C0	C90
Beam Angle	50 %	34°	34°
Field Angle	10 %	52°	53°
Cutoff Angle	3 %	57°	58°

Table 5: Luminous flux, integrated over the beam for several minimum threshold intensities. Wide, RGBL TLO

		Flux (lm)
Half-Peak Output	@50 %	1570
Tenth-Peak Output	@10 %	2590
Total Lumen Output	@3 %	2640

$$\text{diameter} = 0.60 \times \text{distance}$$

$$\text{illuminance} = \frac{8050 \text{ lx}}{(\text{distance [m]})^2}$$

Figure 1: Polar and cartesian light intensity distributions. Wide, RGBL TLO

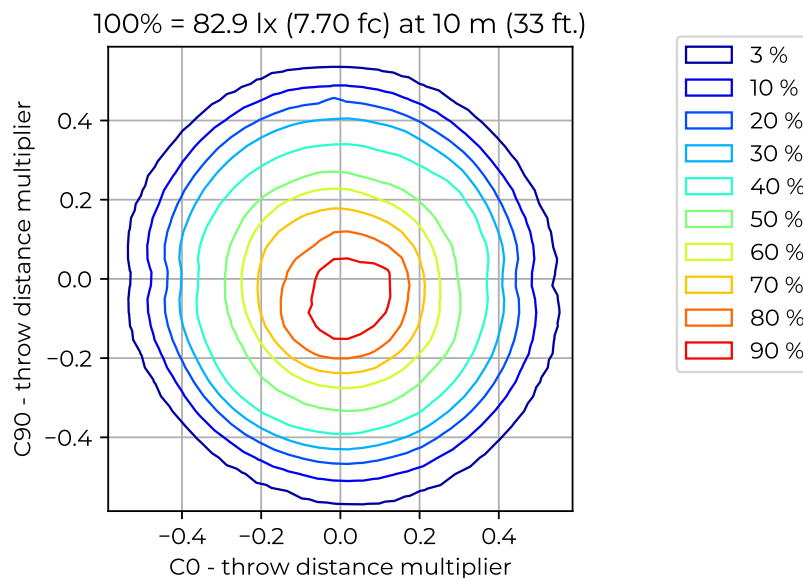
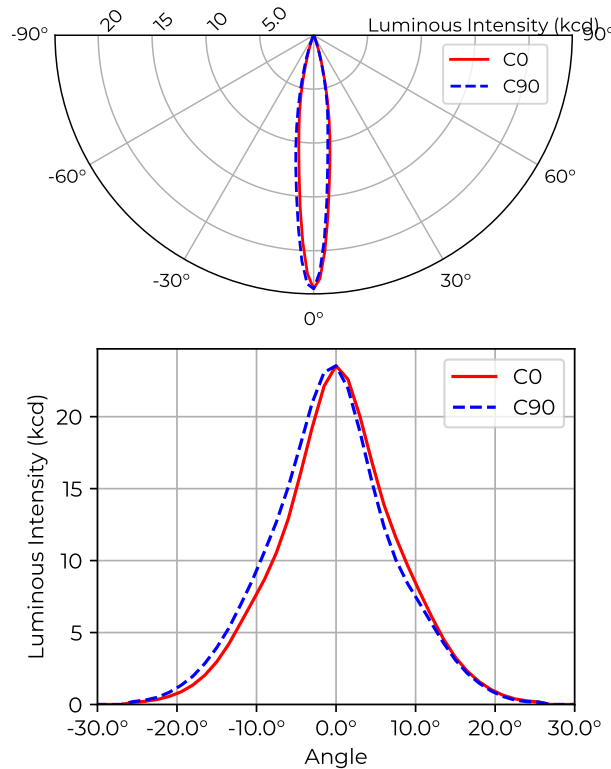


Figure 2: Iso-illuminance diagram of projected beam. Wide, RGBL TLO  
dist. from origin = throw dist. × throw dist. multiplier

Table 6: Quick calculation diagram for illuminance and beam diameter. Wide, RGBL TLO

Parameter	Factor	Projection Distance [m]									
		5	7.5	10	12.5	15	17.5	20	22.5	25	
Diameter [m]	0.60	3.0	4.5	6.0	7.5	9.1	11	12	14	15	
Illuminance [lx]	8.05k	320	140	81	52	36	26	20	16	13	

## 1.2 Medium, RGBL TLO Beam



Type B measurement, 1296 data points.

Table 7: Opening angles for different intensity thresholds. Medium, RGBL TLO

		C0	C90
Beam Angle	50 %	14°	14°
Field Angle	10 %	32°	33°
Cutoff Angle	3 %	41°	42°

Table 8: Luminous flux, integrated over the beam for several minimum threshold intensities. Medium, RGBL TLO

		Flux (lm)
Half-Peak Output	@50 %	787
Tenth-Peak Output	@10 %	2060
Total Lumen Output	@3 %	2270

$$\text{diameter} = 0.25 \times \text{distance}$$

$$\text{illuminance} = \frac{23\,500 \text{ lx}}{(\text{distance [m]})^2}$$

Figure 3: Polar and cartesian light intensity distributions. Medium, RGBL TLO

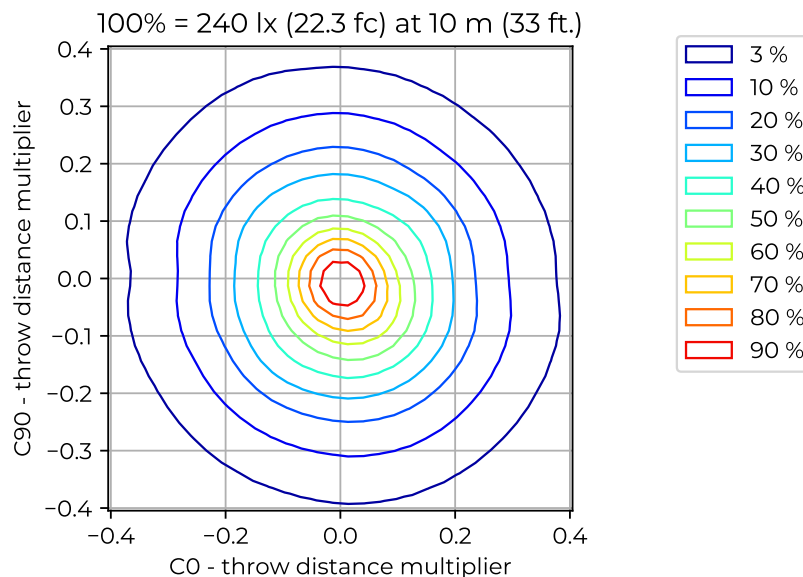
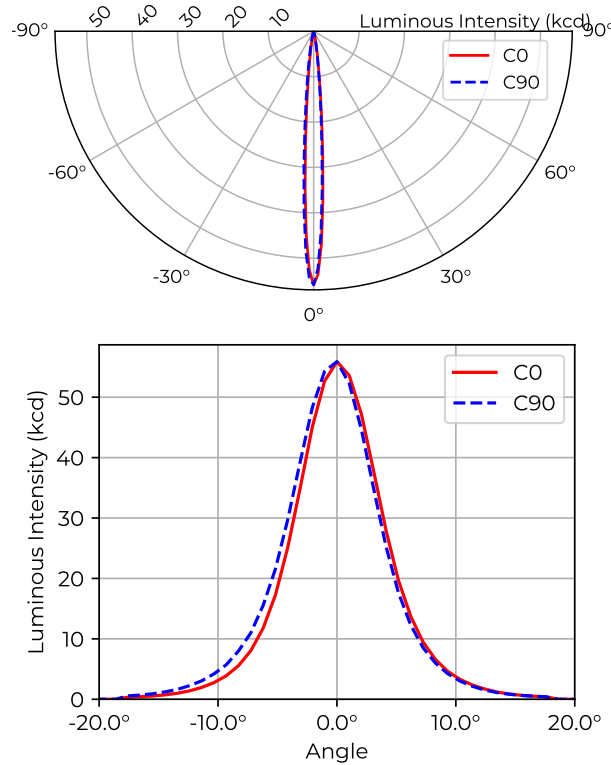


Figure 4: Iso-illuminance diagram of projected beam. Medium, RGBL TLO  
dist. from origin = throw dist. × throw dist. multiplier

Table 9: Quick calculation diagram for illuminance and beam diameter. Medium, RGBL TLO

Parameter	Factor	Projection Distance [m]									
		5	7.5	10	12.5	15	17.5	20	22.5	25	
Diameter [m]	0.25	1.2	1.9	2.5	3.1	3.7	4.4	5.0	5.6	6.2	
Illuminance [lx]	23.5k	940	420	240	150	100	77	59	46	38	

### 1.3 Narrow, RGBL TLO Beam



Type B measurement, 1296 data points.

Table 10: Opening angles for different intensity thresholds. Narrow, RGBL TLO

		C0	C90
Beam Angle	50 %	8.0°	8.2°
Field Angle	10 %	17°	18°
Cutoff Angle	3 %	24°	25°

Table 11: Luminous flux, integrated over the beam for several minimum threshold intensities. Narrow, RGBL TLO

		Flux (lm)
Half-Peak Output	@50 %	638
Tenth-Peak Output	@10 %	1390
Total Lumen Output	@3 %	1640

$$\text{diameter} = 0.14 \times \text{distance}$$

$$\text{illuminance} = \frac{55\,900 \text{ lx}}{(\text{distance [m]})^2}$$

Figure 5: Polar and cartesian light intensity distributions. Narrow, RGBL TLO

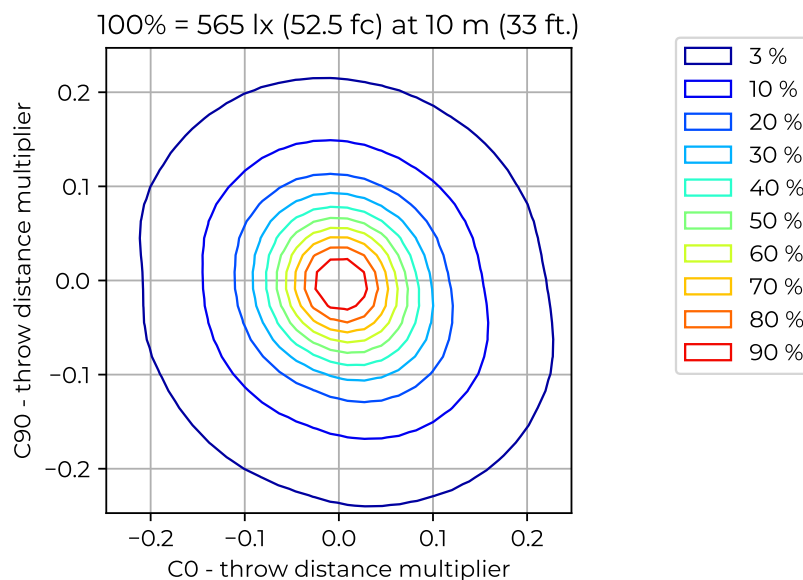


Figure 6: Iso-illuminance diagram of projected beam. Narrow, RGBL TLO  
dist. from origin = throw dist. × throw dist. multiplier

Table 12: Quick calculation diagram for illuminance and beam diameter. Narrow, RGBL TLO

Parameter	Factor	Projection Distance [m]								
		5	7.5	10	12.5	15	17.5	20	22.5	25
Diameter [m]	0.14	0.71	1.1	1.4	1.8	2.1	2.5	2.8	3.2	3.5
Illuminance [lx]	55.9k	2.2k	990	560	360	250	180	140	110	89