



## Fusion FS10 Photometric Report

Report 2021-06-10-1

GLP German Light Products GmbH  
GLP LightLab

Maximum Total Lumens	2250 lm
Maximum Intensity	126000 cd
CRI	74
Energy Efficiency Class	B
Energy Efficiency Index	0.77
Power Consumption	139 $\frac{\text{kWh}}{1000\text{h}}$
Measurement Date	2021-06-10 11:05
Analysis Date	2021-07-14 11:36
Measurement SW Version	2.2.1
Analysis SW Version	2.4.1

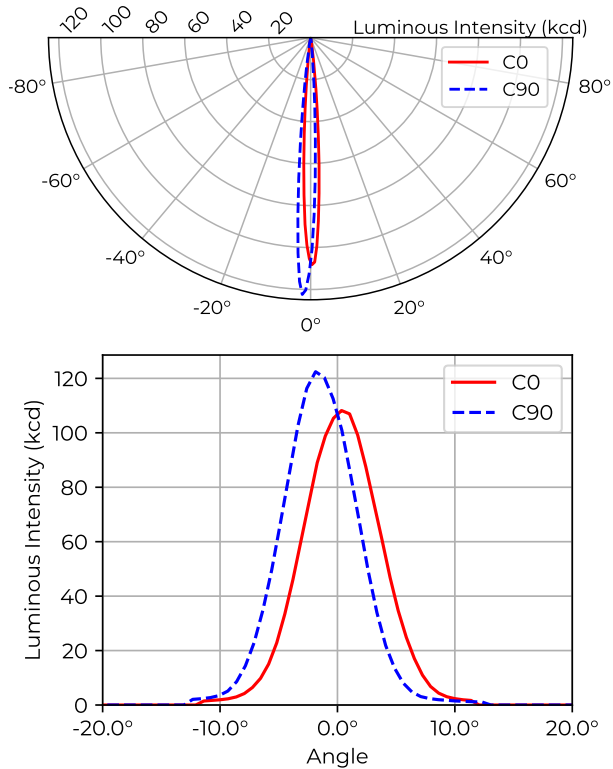




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# 1 Light Distribution Full, Standard Beam



Type B measurement, 1296 data points.

Table 1: Opening angles for different intensity thresholds. Full, Standard

		C0	C90
Beam Angle	50 %	7.5°	7.2°
Field Angle	10 %	14°	13°
Cutoff Angle	3 %	18°	17°

Table 2: Luminous flux, integrated over the beam for several minimum threshold intensities. Full, Standard

		Flux (lm)
Half-Peak Output	@50 %	1130
Tenth-Peak Output	@10 %	2060
Total Lumen Output	@3 %	2250

$$\text{diameter} = 0.26 \times \text{distance}$$

$$\text{illuminance} = \frac{106\,000 \text{ lx}}{(\text{distance [m]})^2}$$

Figure 1: Polar and cartesian light intensity distributions. Full, Standard

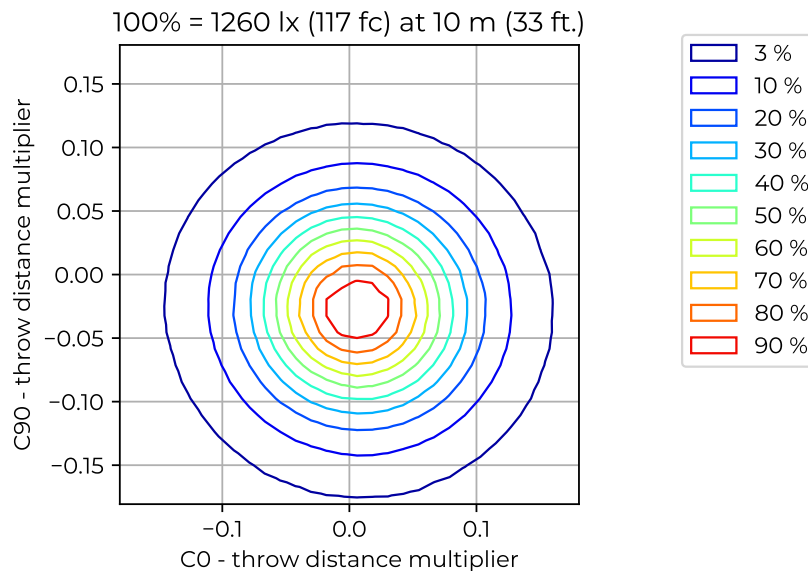


Figure 2: Iso-illuminance diagram of projected beam. Full, Standard  
dist. from origin = throw dist. × throw dist. multiplier

Table 3: Quick calculation diagram for illuminance and beam diameter. Full, Standard

Parameter	Factor	Projection Distance [m]									
		5	7.5	10	12.5	15	17.5	20	22.5	25	
Diameter [m]	0.26	1.3	1.9	2.6	3.2	3.9	4.5	5.2	5.8	6.4	
Illuminance [lx]	106k	4.2k	1.9k	1.1k	680	470	350	270	210	170	

## 2 White Quality – White

Table 4: Summary for White spectral measurement results and color metrics.

Metric	Value
CCT	6568 K
CCT $D_{uv}$	0.000048
CRI $R_a$	74
CRI $R_g$	-11
TLCI-2015	54
TM-30-15 $R_f$	96
TM-30-15 $R_g$	70
CIE 1931 x	0.312
CIE 1931 y	0.323
CIE 1960 u	0.200
CIE 1960 v	0.310

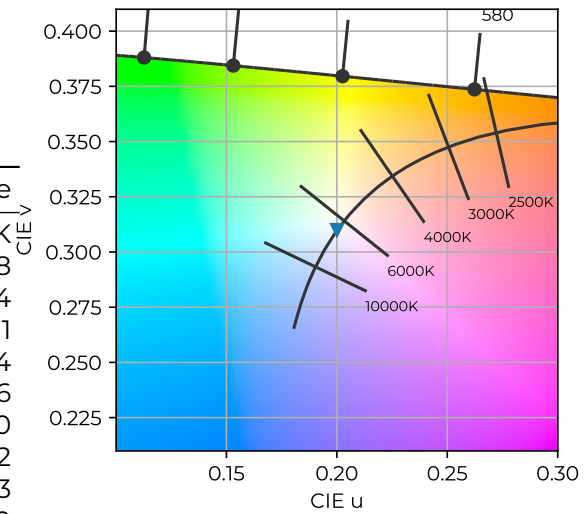


Figure 3: Color coordinates in CIE 1960 chromaticity diagram. White

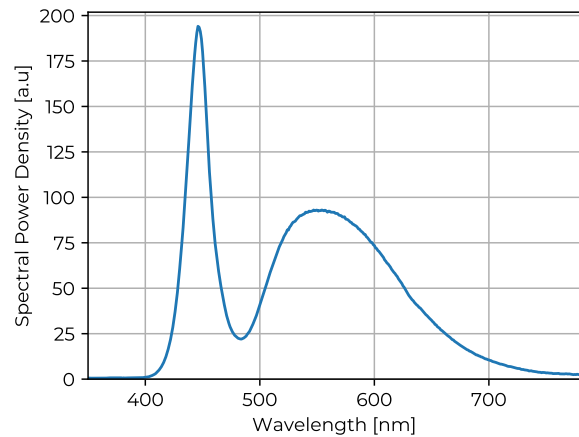
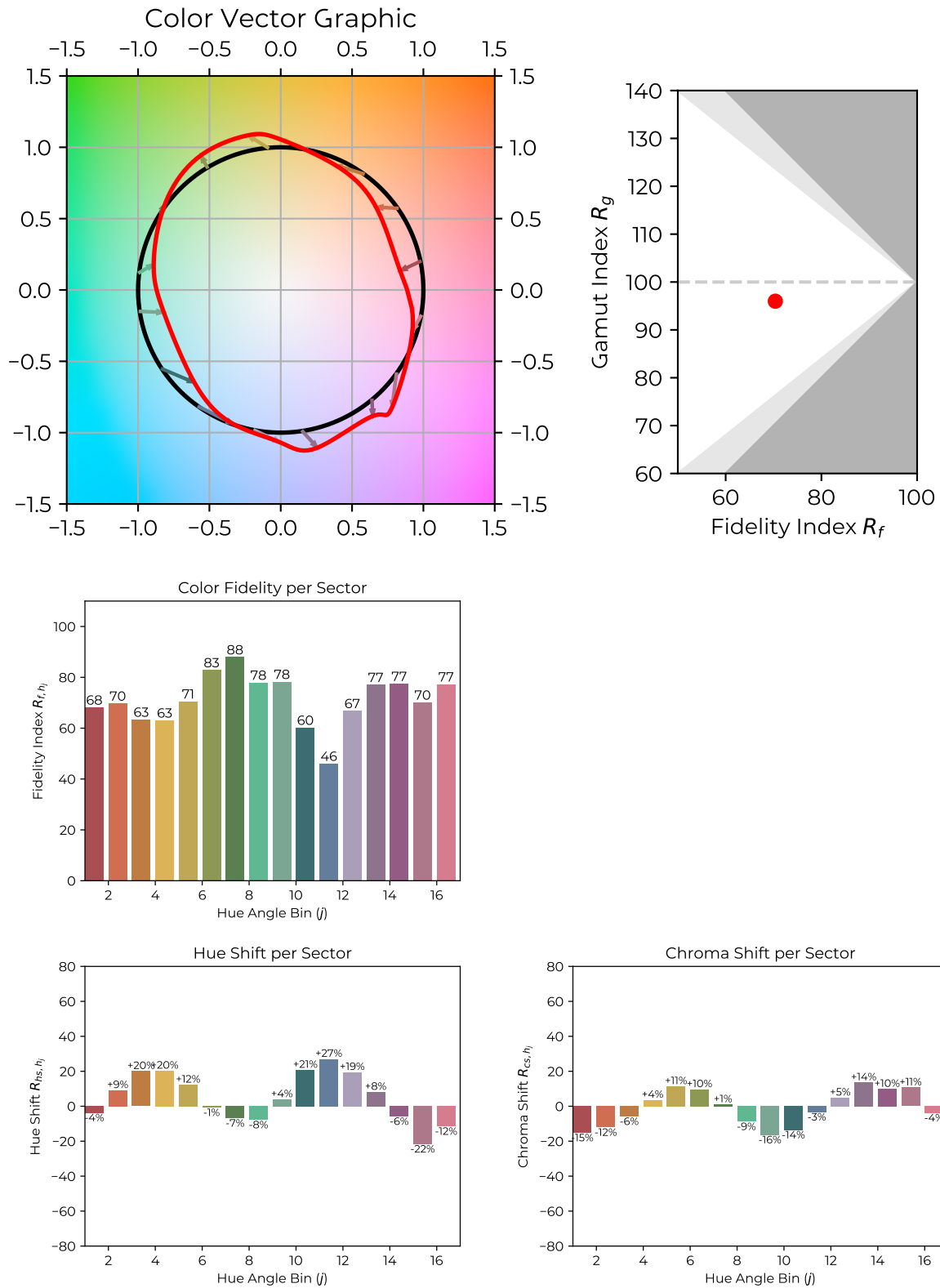
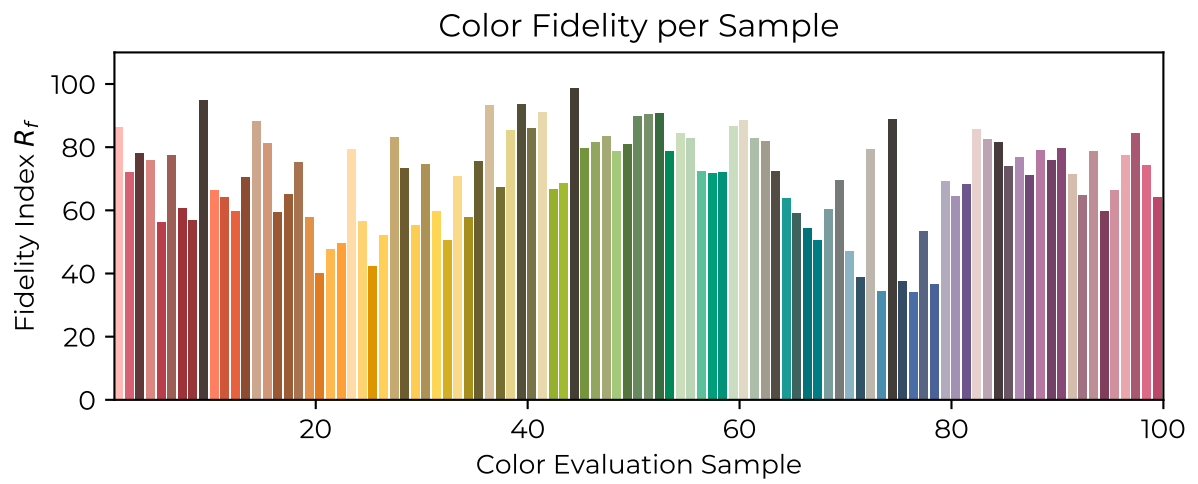


Figure 4: Measured Spectral Power Distribution of light source. White

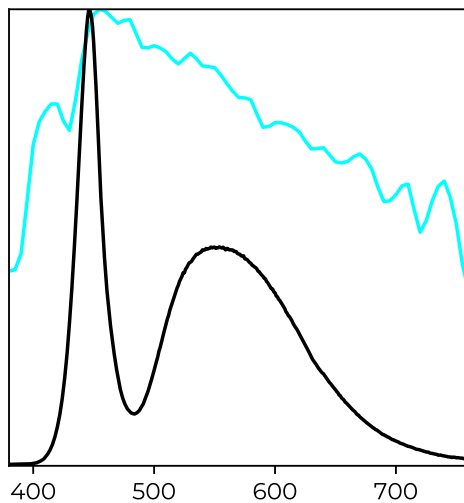
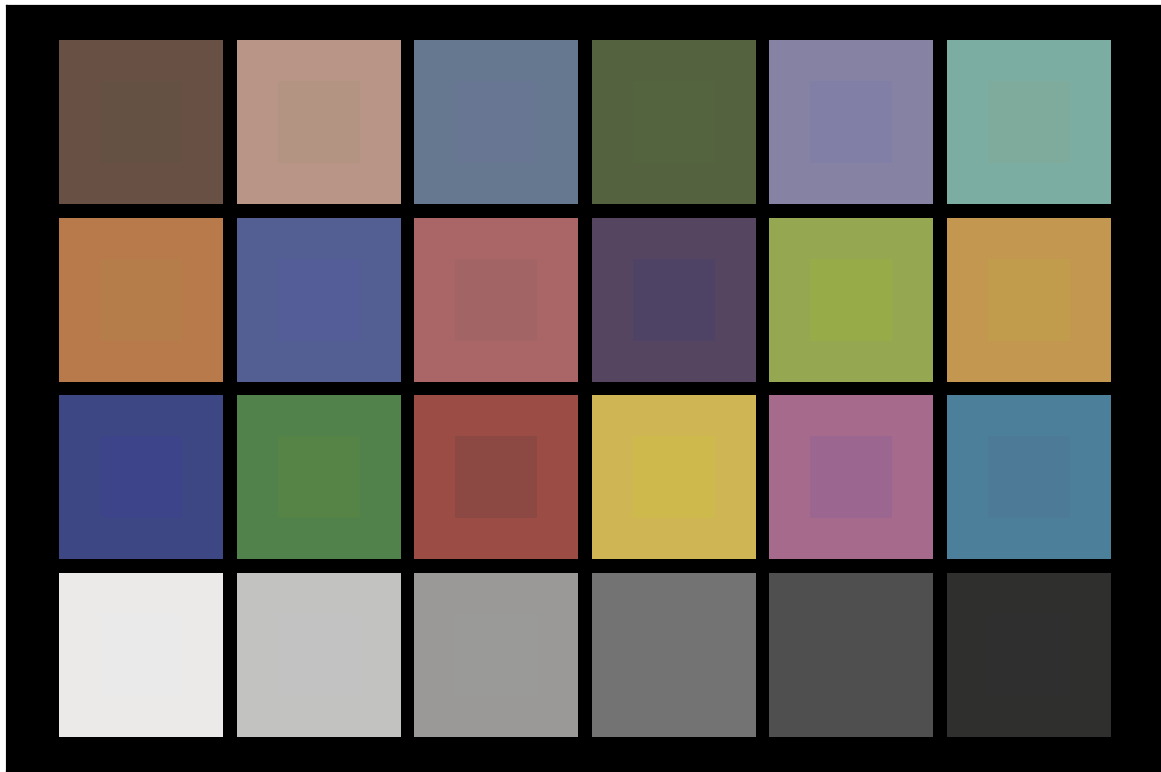
## 2.1 TM-30-15 Detail Plots





## 2.2 TLCI-2012 Results

Fusion FS10 White : CCT = D6574 -0.60, TLCI = 54



Sector	Lightness	Chroma	Hue
R	5	5	5
R/Y	2	2	2
Y	6	6	6
Y/G	2	2	2
G	4	4	4
G/C	4	4	4
C	4	4	4
C/B	5	5	5
B	4	4	4
B/M	5	5	5
M	6	6	6
M/R	8	8	8

### 3 Colors

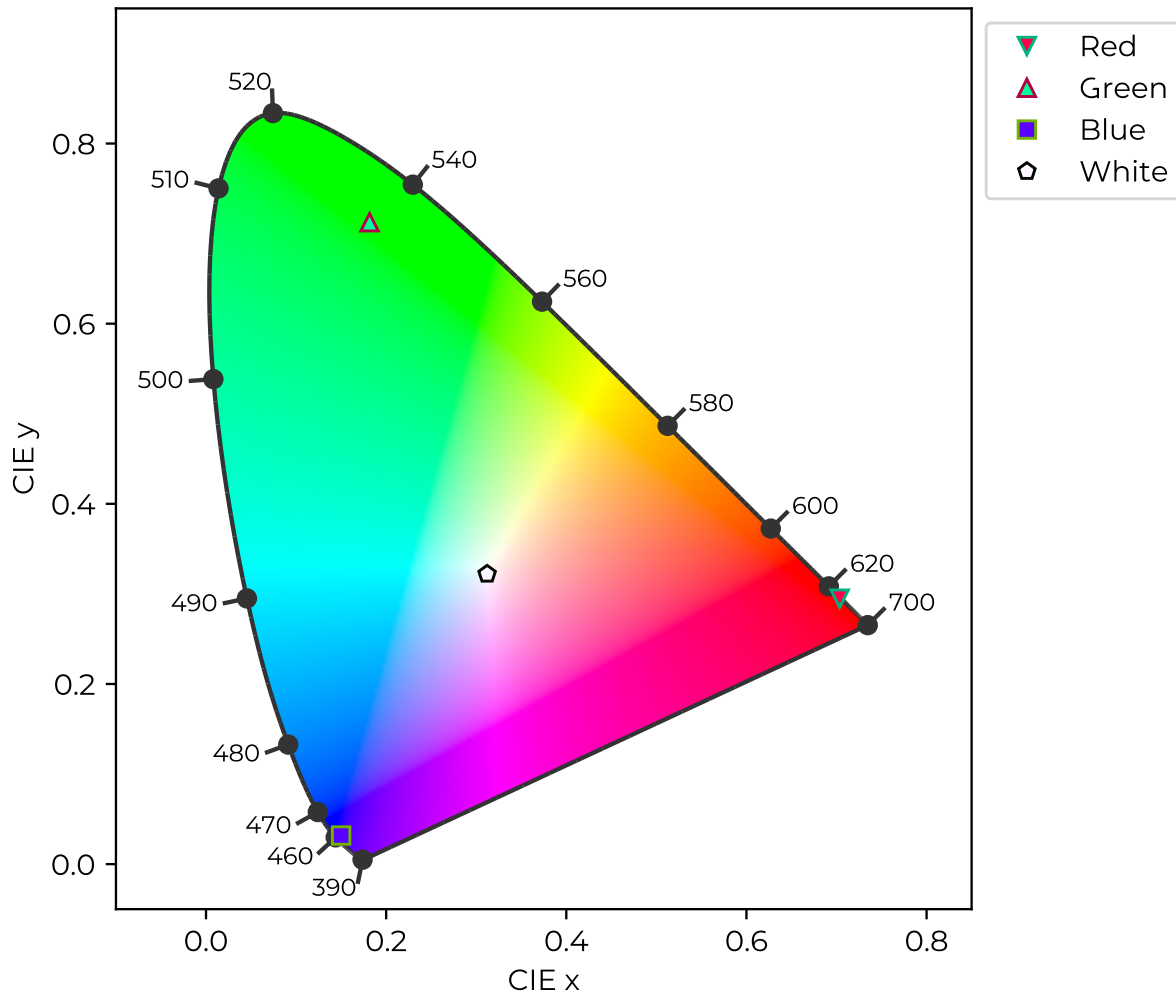


Figure 5: Chromaticity coordinates of device colors in a CIE 1931 chromaticity diagram.

Table 5: Chromaticity coordinates for figure 5, in CIE 1931 xy and CIE 1960 UCS uv coordinates. Color swatches are illustrative only, limited by screen and print color space. Color appearance will be different when used for illumination.

Color	xy	uv
<span style="color: red;">■</span> Red	0.704, 0.295	0.549, 0.345
<span style="color: green;">■</span> Green	0.182, 0.713	0.0649, 0.382
<span style="color: blue;">■</span> Blue	0.15, 0.0318	0.195, 0.0618
<span style="color: white;">■</span> White	0.312, 0.322	0.2, 0.31