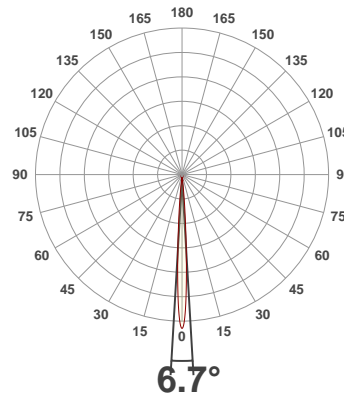
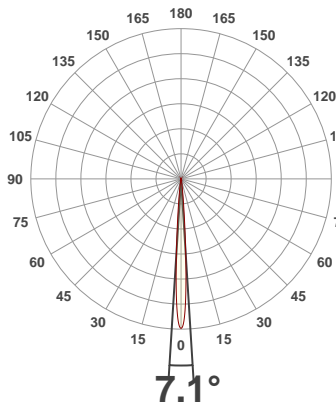




**PRODUCT INFORMATION**

SERIAL NUMBER:	LL-20191008-828
DATE OF MEASUREMENT:	2019-10-08
SIZE (dia. x h):	440 mm x 92 mm

**ANGULAR DISTRIBUTION AT C0/180 | ANGULAR DISTRIBUTION AT C90/270 | LIGHT OUTPUT DATA**

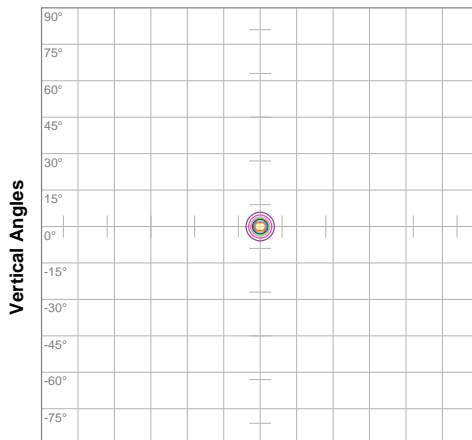


TOTAL LUMEN OUTPUT:	16539 lm
EFFICACY:	84 lm/W
PEAK INTENSITY:	805243 cd
COLOR RENDERING INDEX (CRI):	83.4
COLOR TEMPERATURE (CCT):	3961K
FIDELITY INDEX (TM30rf):	84.5
GAMUT INDEX (TM30Rg):	96.2

**BEAM OUTPUT DATA**

BEAM ANGLE (FWHM)   C0/180:	7.1°
BEAM ANGLE (FWHM)   C90/270:	6.7°
FIELD ANGLE (10%)   C0/180:	13.5°
FIELD ANGLE (10%)   C90/270:	13.9°
NUMBER OF PLANES MEASURED:	12

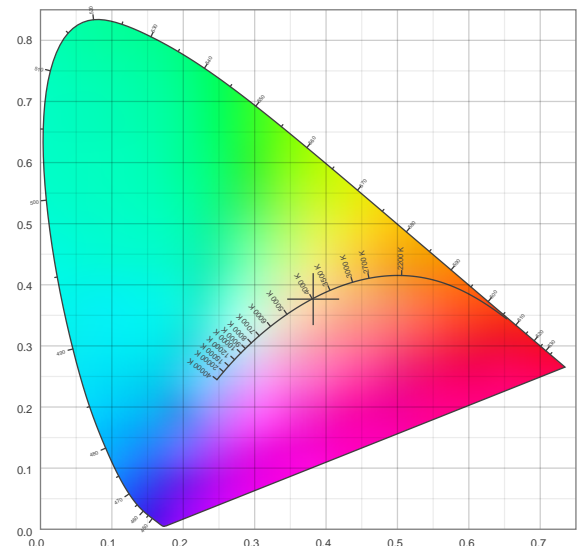
**ISO CANDELA DIAGRAM | DATA**



10%	80453 cd
20%	160905 cd
30%	241358 cd
40%	321811 cd
50%	402263 cd
60%	482716 cd
70%	563169 cd
80%	643621 cd
90%	724074 cd

INPUT POWER:	197.4 W
POWER FACTOR:	1.0
OPTICAL POWER:	50.2 mW
PEAK WAVELENGTH:	450 nm
DOMINANT WAVELENGTH:	582 nm

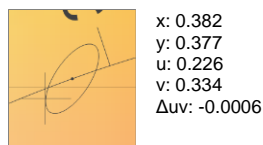
**CIE 1931:**



**SPECTRA**



**CIE 1931 ZOOM**



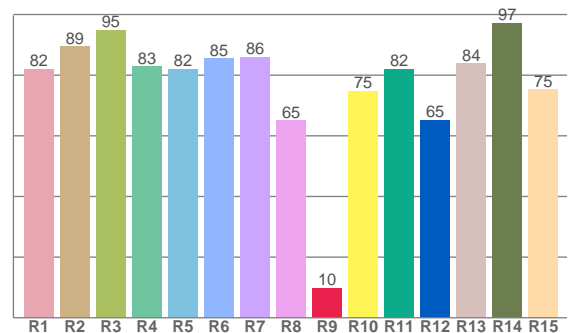
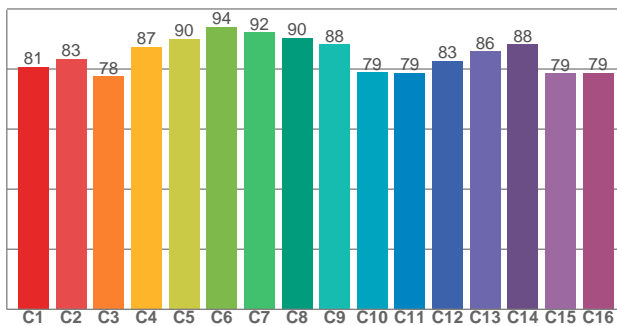
ZONAL LUMEN SUMMARY

0°-10° 14839 lm	10°-20° 1467 lm	20°-30° 201 lm	30°-40° 30.2 lm	40°-50° 0.675 lm	50°-60° 0.556 lm	60°-70° 0.347 lm	70°-80° 0.080 lm	80°-90° 0.060 lm
90°-100° 0.023 lm	100°-110° 0.022 lm	110°-120° 0.016 lm	120°-130° 0.013 lm	130°-140° 0.011 lm	140°-150° 0.008 lm	150°-160° 0.006 lm	160°-170° 0.004 lm	170°-180° 0.001 lm

COLOR DETAILS

TM30: 84.5

CRI: 83.4 (R1-R8)



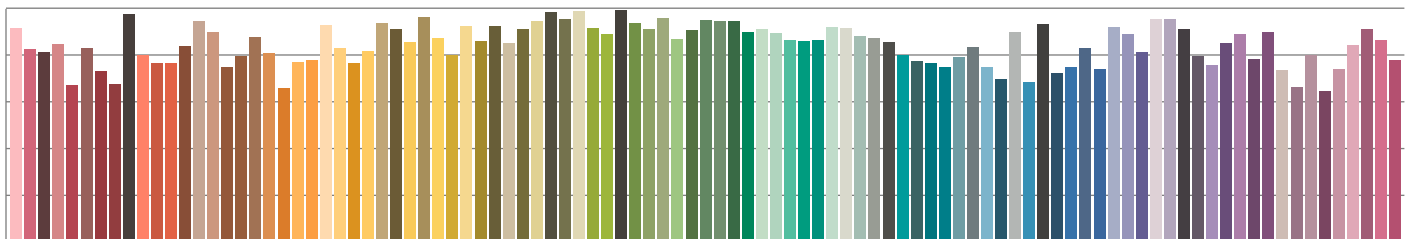
TM30 C values, 16 binned values out of total of 99 C values

CRI R values, only R1-R8 are used to calculate final CRI value

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
80.7	83.4	77.6	87.4	90.1	94.0	92.2	90.3	88.2	78.8	78.7	82.8	86.0	88.2	78.6	78.7

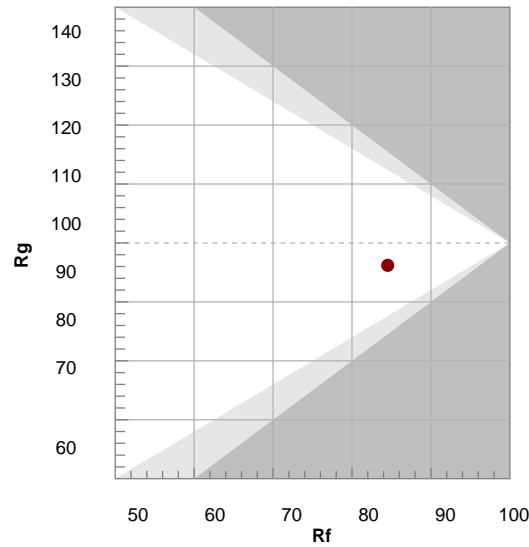
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
81.9	89.5	94.8	82.8	82.0	85.5	86.0	65.0	9.9	74.8	82.0	65.2	83.8	97.2	75.2

TM30 COLOR EVALUATION SAMPLE



TM30 DETAILS

Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	81	-12%	-1%
2	83	-7%	6%
3	78	-4%	11%
4	87	1%	8%
5	90	2%	4%
6	94	3%	-2%
7	92	-3%	-4%
8	90	-5%	-1%
9	88	-7%	5%
10	79	-7%	11%
11	79	2%	14%
12	83	5%	7%
13	86	7%	-6%
14	88	6%	-7%
15	79	-1%	-16%
16	79	-6%	-12%



FIDELITY INDEX

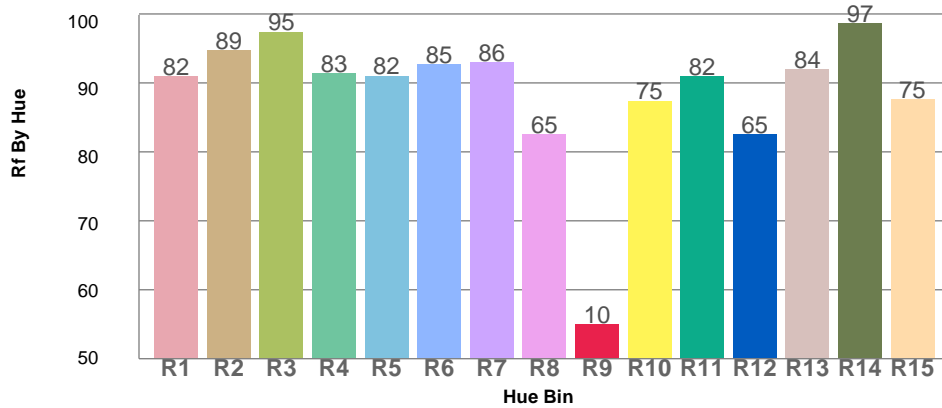
**R<sub>f</sub> 84.5**

GAMUT INDEX

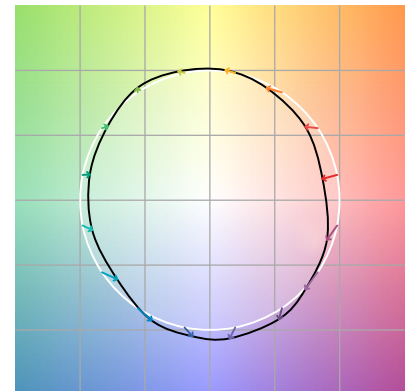
**R<sub>g</sub> 96.2**

Approx. limits for sources on the Planckian locus.  
Approx. limits for practical light sources.

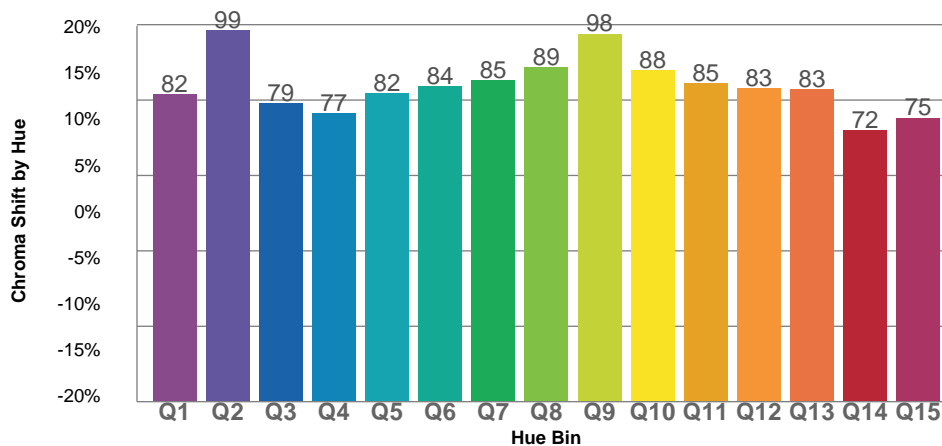
TM30 OVER 50



COLOR VECTOR GRAPHICS



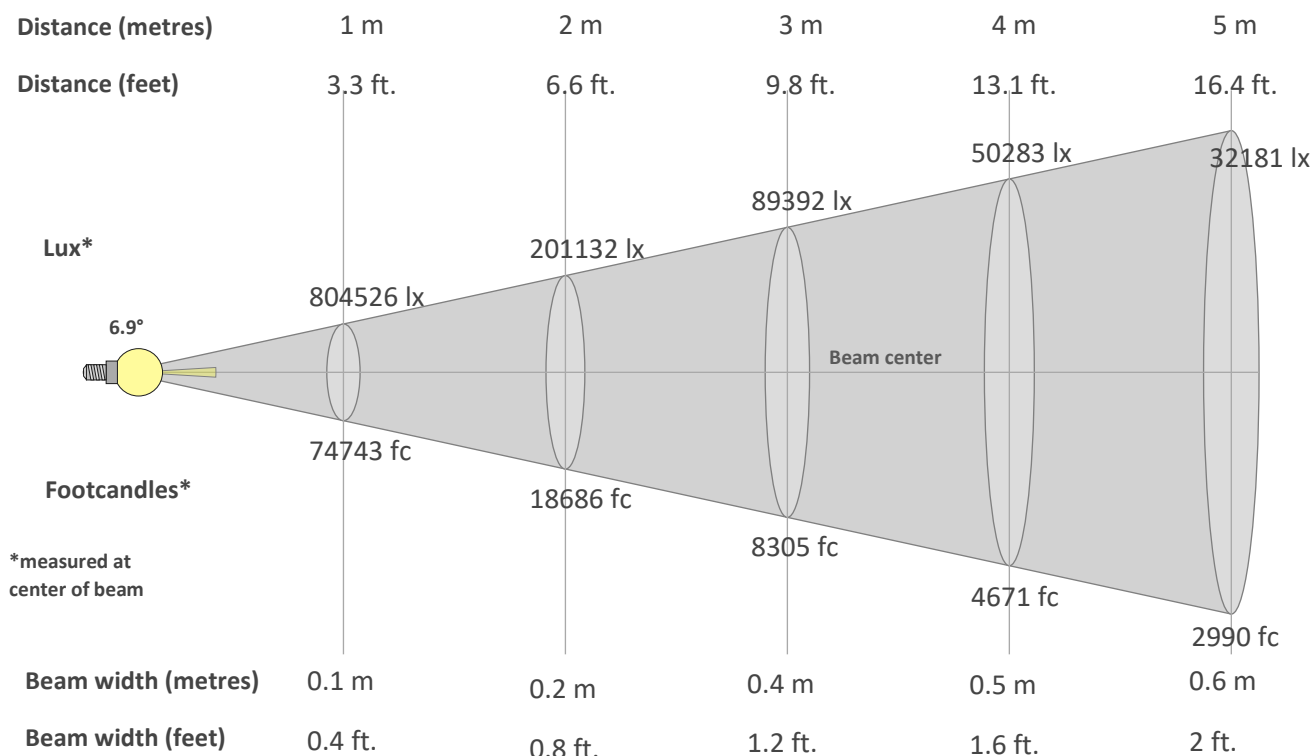
TM30 CHROMA SHIFT



COLOR DISTORTION GRAPHICS



**BEAM DETAILS**



\*measured at center of beam

**Beam intensity from 1-20m**

1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
804526lx	201132lx	89392lx	50283lx	32181lx	22348lx	16419lx	12571lx	9932lx	8045lx	6649lx	5587lx	4761lx	4105lx	3576lx	3143lx	2784lx	2483lx	2229lx	2011lx
74743fc	18685.7fc	8304.8fc	4671.4fc	2989.7fc	2076.2fc	1525.4fc	1167.9fc	922.8fc	747.4fc	617.7fc	519fc	442.3fc	381.3fc	332.2fc	292fc	258.6fc	230.7fc	207fc	186.9fc

**Intensity in 0° c-plane**

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
805K	776K	674K	507K	327K	197K	117K	71K	45K	29K	19K	13K	9K	7K	5K	3K	3K	2K	2K	2K
100%	96%	84%	63%	41%	25%	15%	9%	6%	4%	2%	2%	1%	1%	1%	0%	0%	0%	0%	0%

**Intensity in 90° c-plane**

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
805K	761K	634K	461K	305K	195K	122K	78K	51K	34K	23K	16K	12K	8K	6K	4K	4K	3K	3K	2K
100%	95%	79%	57%	38%	24%	15%	10%	6%	4%	3%	2%	1%	1%	1%	1%	0%	0%	0%	0%

**Intensity in 180° c-plane**

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
805K	776K	674K	507K	327K	197K	117K	71K	45K	29K	19K	13K	9K	7K	5K	3K	3K	2K	2K	2K
100%	96%	84%	63%	41%	25%	15%	9%	6%	4%	2%	2%	1%	1%	1%	0%	0%	0%	0%	0%

**Intensity in 270° c-plane**

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
805K	761K	634K	461K	305K	195K	122K	78K	51K	34K	23K	16K	12K	8K	6K	4K	4K	3K	3K	2K
100%	95%	79%	57%	38%	24%	15%	10%	6%	4%	3%	2%	1%	1%	1%	1%	0%	0%	0%	0%