

Light efficiency:

139 Lumens/Watt

Light quality:

CRI: 82.4

Color temperature:

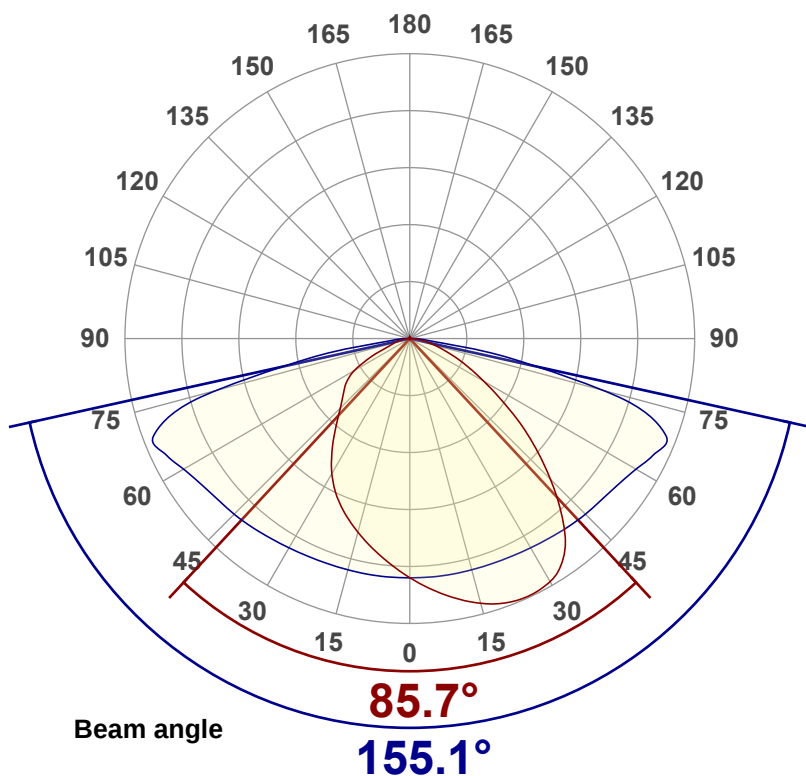
5170 K

Output: 33056 lm

Peak: 11623 cd

Power: 237.3 W

PF: 1.0



Product name:

PLLD4-50K240W-xLT3BR1

Date and time:

6/30/2022 1:33:05 PM

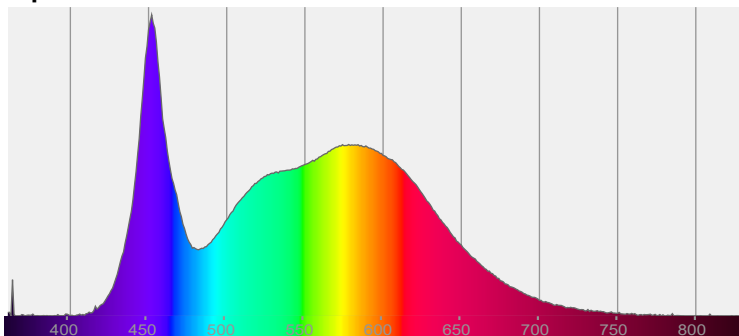


CIE 1931

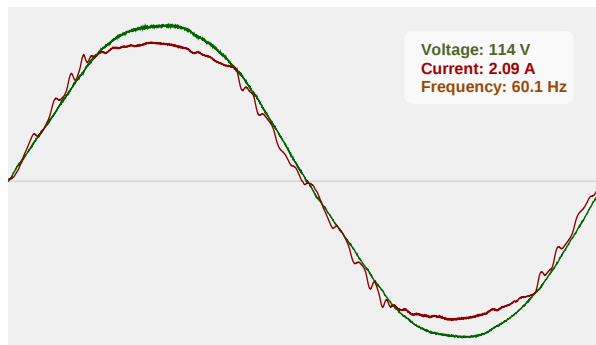
x: 0.341

y: 0.347

Spectra



Power



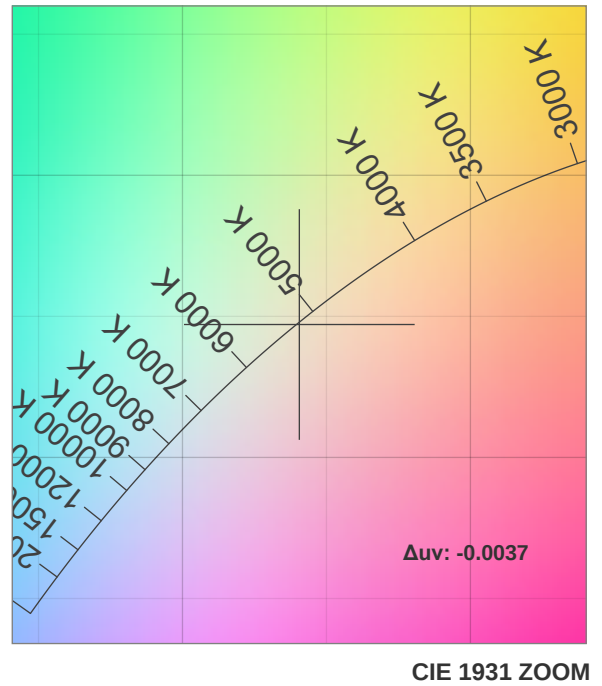
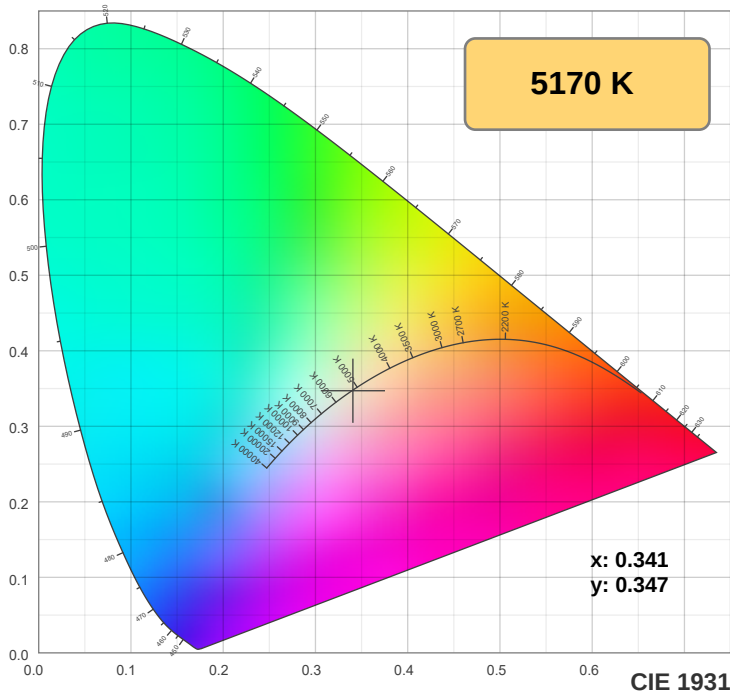
T 314.743.3067

F 314.972.6202

email: commercial-sales@superbrightleds.com

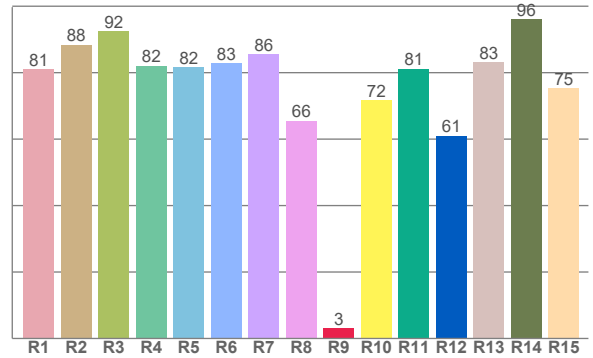
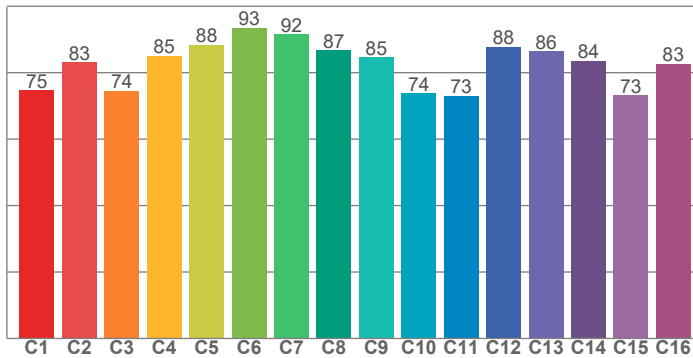
www.superbrightleds.com/

Color Specifications



TM30: 82.4

CRI: 82.4 (R1-R8)



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

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
81.0	88.4	92.5	82.0	81.6	82.9	85.5	65.5	3.0	71.8	81.2	61.0	83.1	96.1	75.3

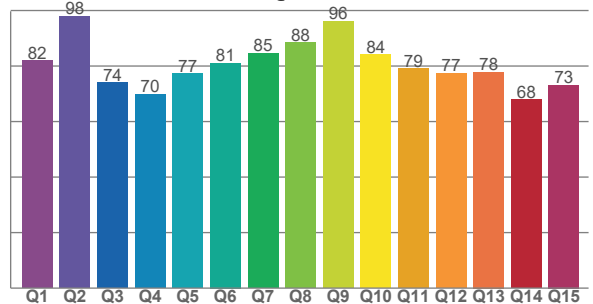
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
74.7	83.1	74.5	85.0	88.3	93.4	91.6	86.8	84.6	73.8	73.1	87.8	86.4	83.5	73.2	82.6

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
81.9	97.9	74.1	69.8	77.2	81.1	84.6	88.4	96.1	84.1	79.0	77.4	77.9	68.0	73.1

CQS: 79.0



Color parameters

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate	Color deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
5170 K	82.4	3.0	82.4	95.5	79.0	0.341	0.347	0.210	0.321	-0.0037



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TM30 Report

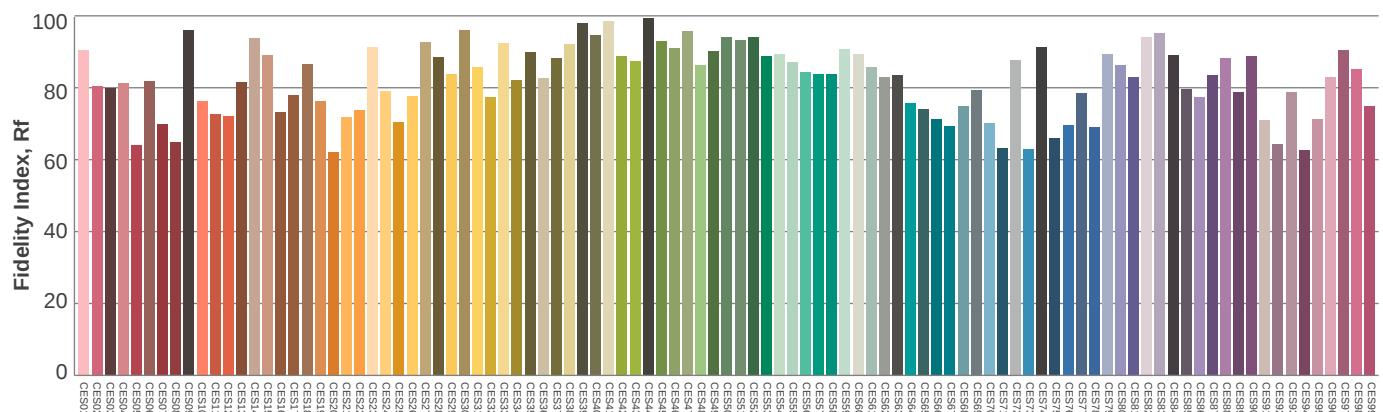
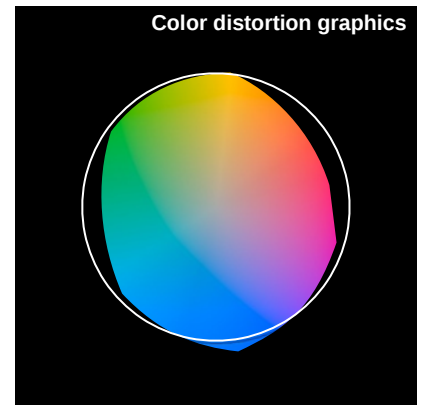
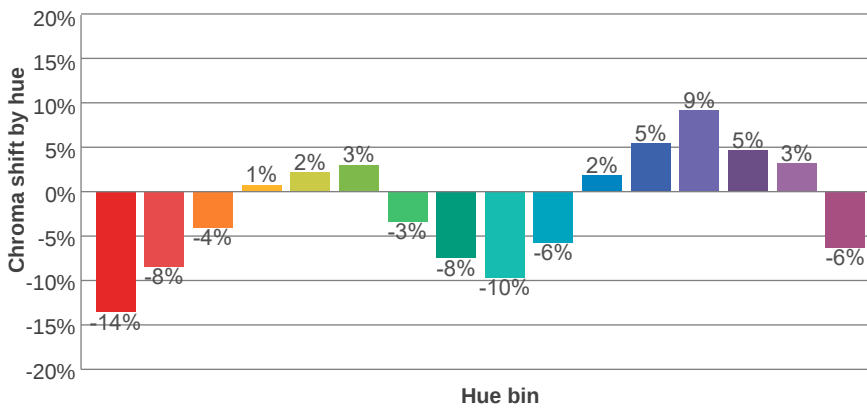
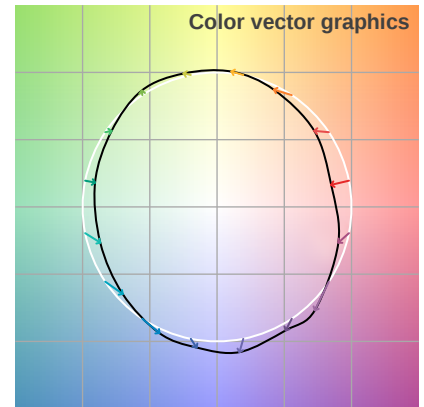
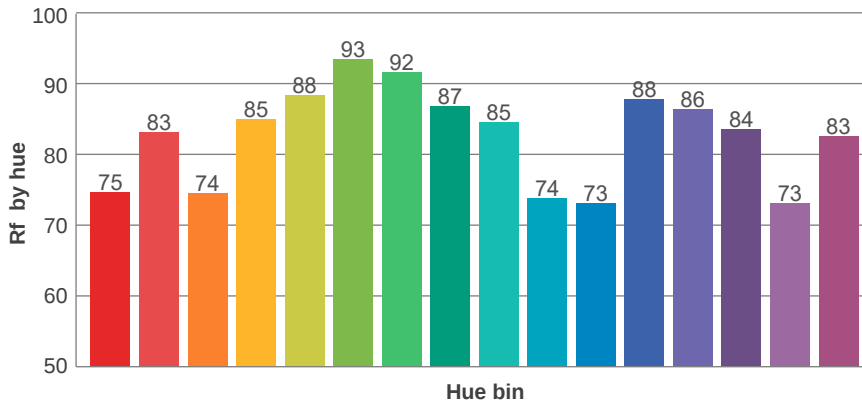
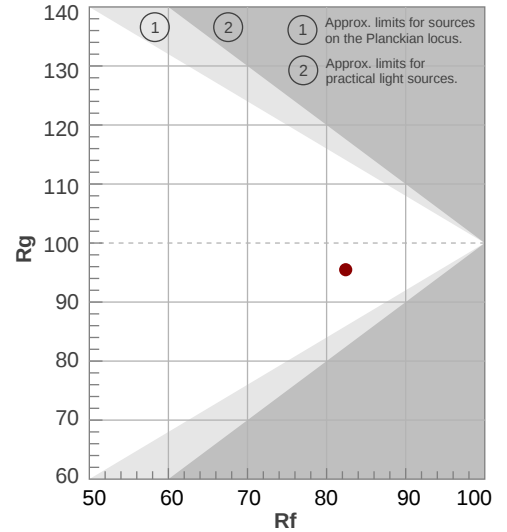
Rf 82.4

Fidelity index Rf

Rg 95.5

Gammut index Rg

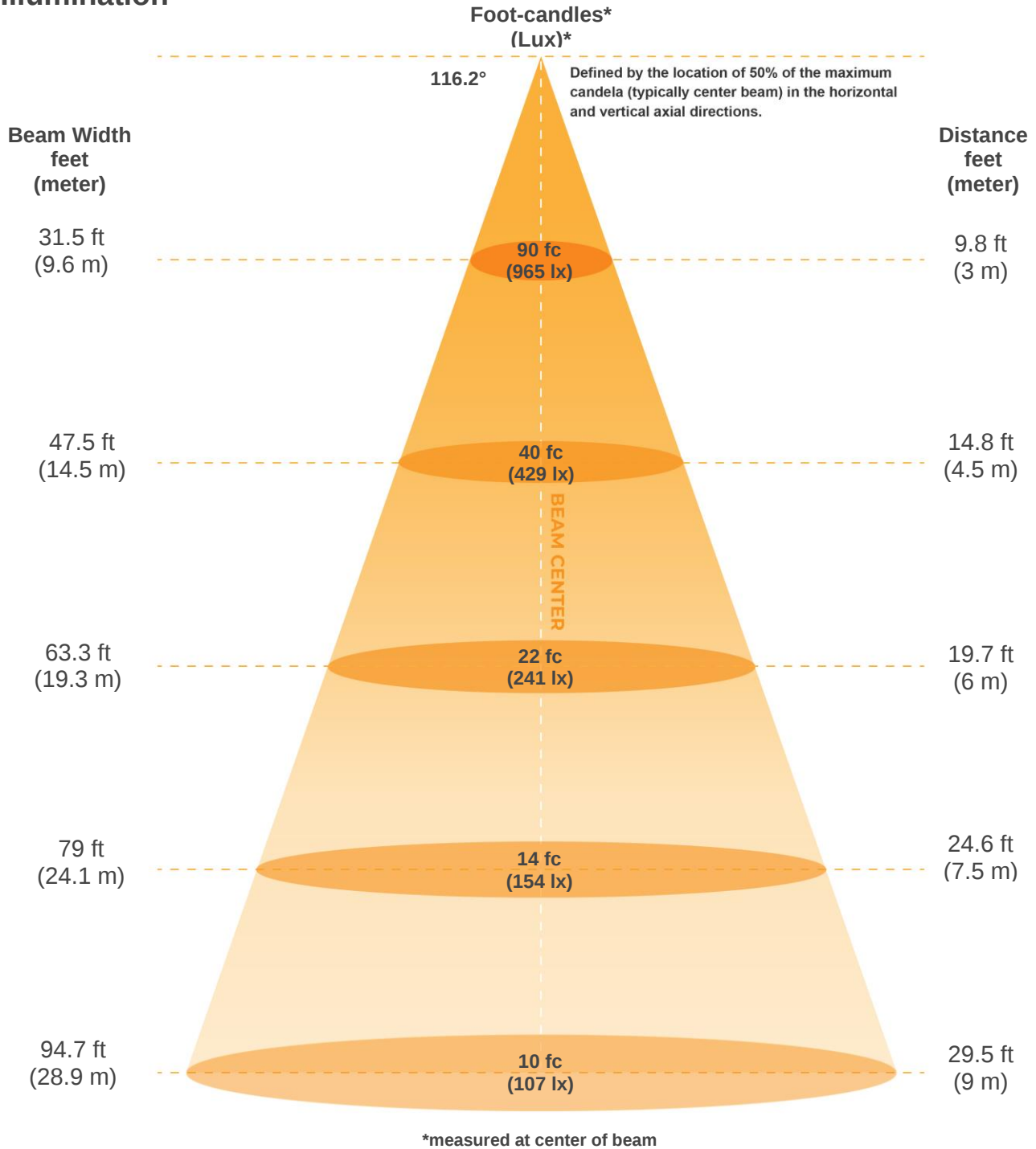
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	75	-14%	0%
2	83	-8%	7%
3	74	-4%	13%
4	85	1%	9%
5	88	2%	5%
6	93	3%	-1%
7	92	-3%	-3%
8	87	-8%	0%
9	85	-10%	9%
10	74	-6%	15%
11	73	2%	16%
12	88	5%	5%
13	86	9%	-5%
14	84	5%	-9%
15	73	3%	-23%
16	83	-6%	-8%



Color Evaluation Sample



Illumination



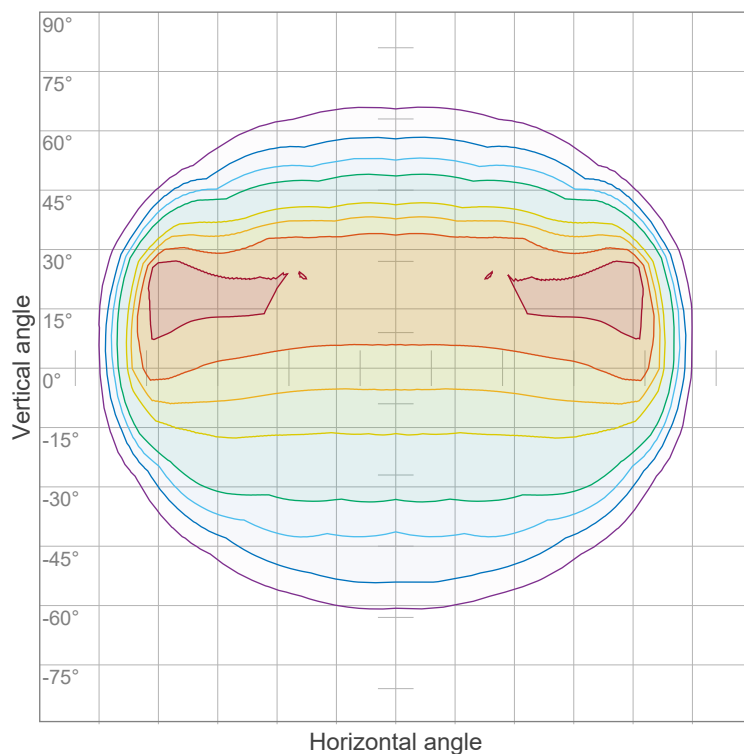
Beam intensities from 1-20m

m	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
ft	3.3	6.6	9.8	13.1	16.4	19.7	23	26.2	29.5	32.8	36.1	39.4	42.7	45.9	49.2	52.5	55.8	59.1	62.3	65.6
lux	8687	2172	965	543	347	241	177	136	107	87	72	60	51	44	39	34	30	27	24	22
fc	807.1	201.8	89.7	50.4	32.3	22.4	16.5	12.6	10	8.1	6.7	5.6	4.8	4.1	3.6	3.2	2.8	2.5	2.2	2

Beam angle H	Beam Angle V	Field angle H 10%	Field Angle V 10%	Cutoff Angle 2.5%	Intensity Ratio in 120°	Intensity Ratio in 90°
155.1°	85.7°	166.7°	142.5°	170.6°	72.3%	46.1%



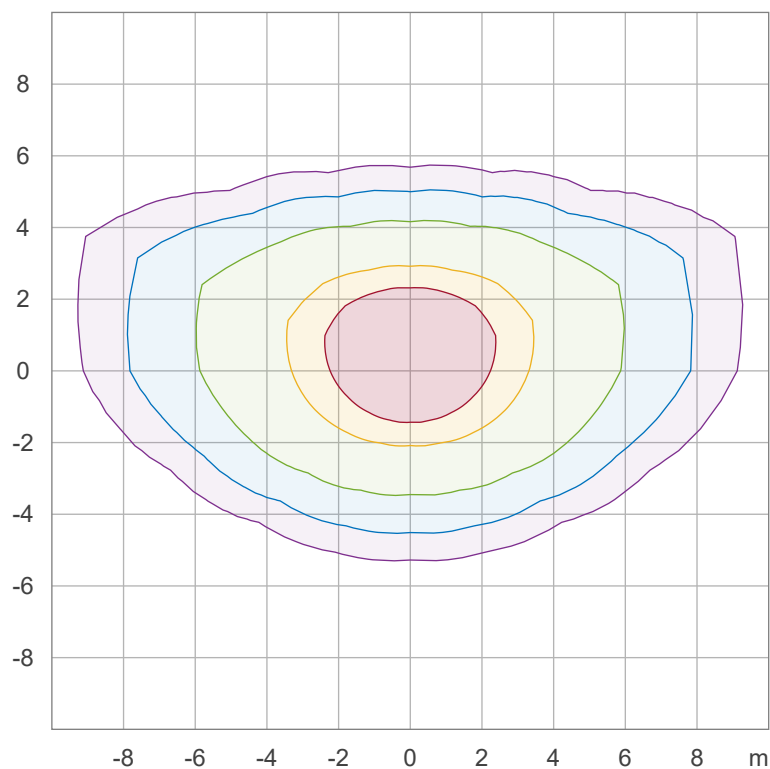
Iso-intensity Diagram (Iso-candela)



90 %	10440.8 cd
80 %	9280.7 cd
70 %	8120.6 cd
60 %	6960.6 cd
50 %	5800.5 cd
40 %	4640.4 cd
30 %	3480.3 cd
20 %	2320.2 cd
10 %	1160.1 cd

Peak intensity: 11600.9 cd
Number of c-planes: 16

Iso-illuminance Diagram (Iso-lux)



50.0 %	508.0 lx
30.0 %	304.8 lx
10.0 %	101.6 lx
5.0 %	50.8 lx
3.0 %	30.5 lx

Peak illuminance: 1016.1 lx
Mounting height: 3.0 m
Number of c-planes: 16



Outdoor Light Planning

Lumen per Zone

Zone (y)	Lumen	% Total
0-10°	829 lm	2.5%
10-20°	2451 lm	7.4%
20-30°	3949 lm	11.9%
30-40°	5156 lm	15.6%
40-50°	5775 lm	17.5%
50-60°	5733 lm	17.3%
60-70°	5099 lm	15.4%
70-80°	3259 lm	9.9%
80-90°	615 lm	1.9%
90-100°	30 lm	0.1%
100-110°	24 lm	0.1%
110-120°	26 lm	0.1%
120-130°	27 lm	0.1%
130-140°	26 lm	0.1%
140-150°	23 lm	0.1%
150-160°	18 lm	0.1%
160-170°	11 lm	0.0%
170-180°	4 lm	0.0%
Total	33056 lm	100.0%

Intensity peaks

Max intensity	11623 cd
Intensity, 90°	55 cd
Intensity, 0°	8687 cd

Zonal Lumen summary

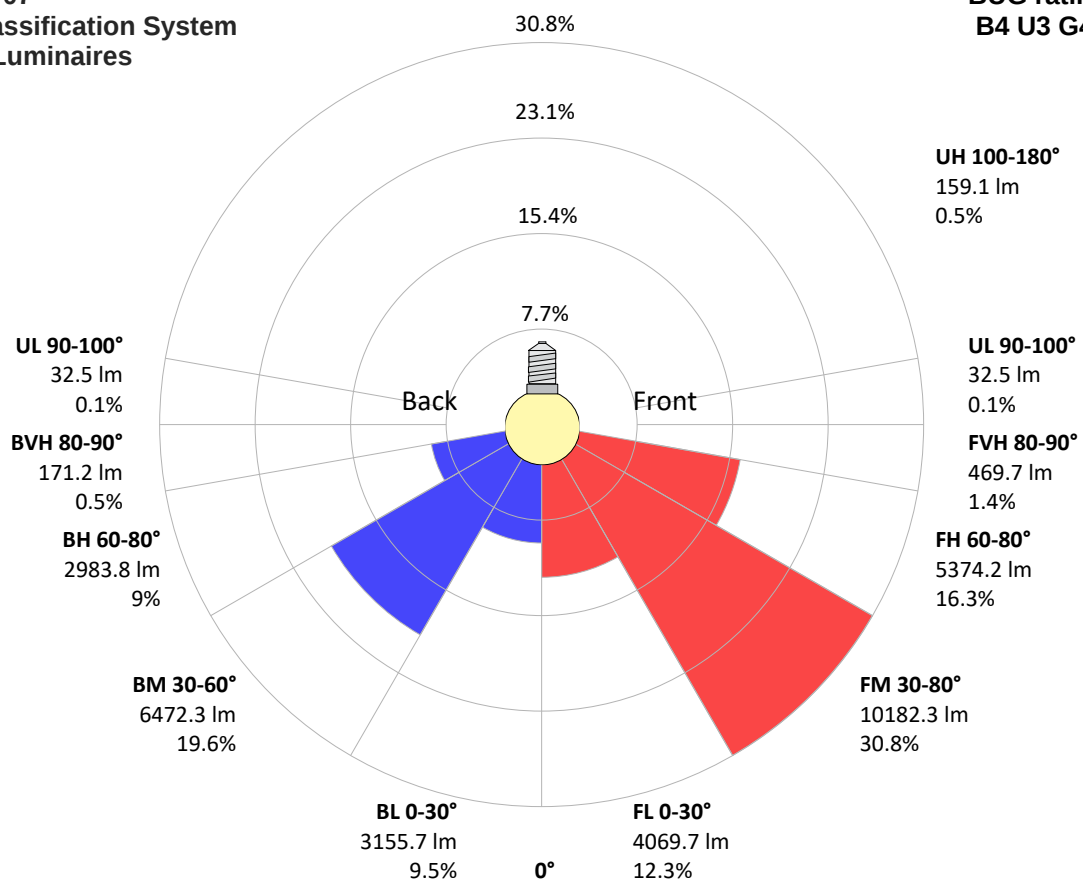
Zone (y)	Lumen	% Total
0-30°	7229 lm	21.9%
0-40°	12385 lm	37.5%
0-60°	23894 lm	72.3%
60-90°	8973 lm	27.1%
70-100°	3904 lm	11.8%
90-120°	80 lm	0.2%
0-90°	32867 lm	99.4%
90-180°	189 lm	0.6%
0-180°	33056 lm	100.0%

BUG rating

	Lumen	% Total
Forward light		
Low(0-30°)	4070 lm	12.3%
Medium(30-60°)	10182 lm	30.8%
High(60-80°)	5374 lm	16.3%
Very high(80-90°)	470 lm	1.4%
Back light		
Low(0-30°)	3156 lm	9.5%
Medium(30-60°)	6472 lm	19.6%
High(60-80°)	2984 lm	9.0%
Very high(80-90°)	171 lm	0.5%
Uplight		
Low(90-100°)	33 lm	0.1%
High(100-180°)	159 lm	0.5%

IESNA TM-15-07 Luminaire Classification System For Outdoor Luminaires

BUG rating
B4 U3 G4



UGR data could not be calculated due to missing/wrong symmetry. Goto Edit->Photometric->Corrections and select Correct asymmetry.

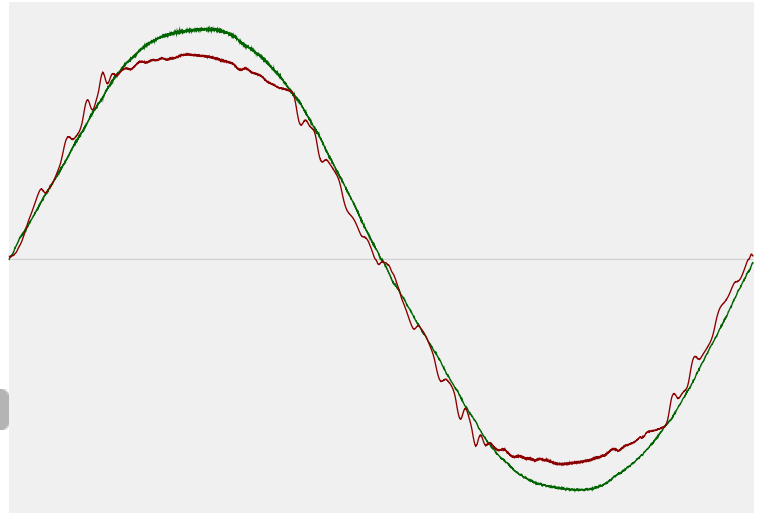


Power Details

Input Power

Power feed to light source	237.3 W
Frequency of input power	60.1 Hz
RMS Input voltage feed, V_{RMS}	114 V
RMS Input current feed, I_{RMS}	2.09 A
Volt-Ampere or apparent power = $V_{RMS} * I_{RMS}$	237.94 VA
Displacement factor of AC power feed	1.0
Power factor of AC current feed	1.0
Total harmonic distortion of the current	6.43%
Total harmonic distortion of the voltage	1.76%

Input Power Curve



Efficiency

Radiated power efficiency 43.2%



Lumen efficiency 139 lm/W



Stabilization Details

Warmup Conditions

Stable period	15 min
Stable change max	2.0%
Minimum time	15 min

Color Temperature Change

CCT start	5064 K
CCT shift	+106 K
CCT end	5170 K

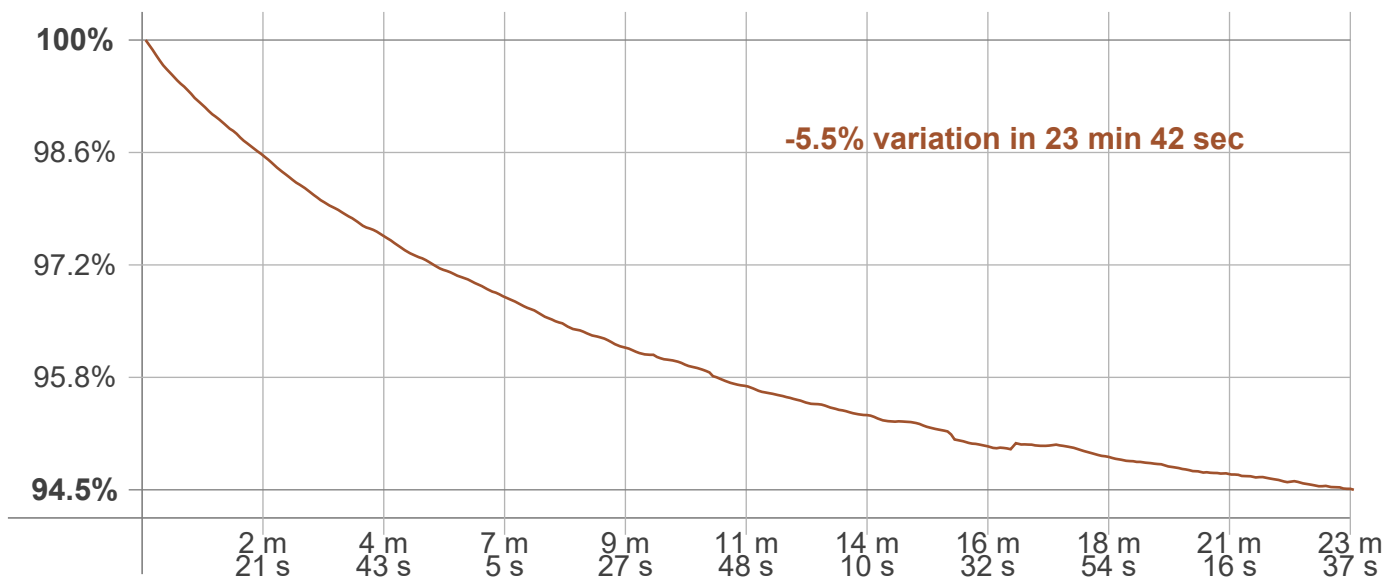
Warmup Result

Total warmup time	Lamp stabilized in 23 min 42 sec
Warmup variation	-5.6%

Output Change

Output start	34636 lm
Output change	-1579 lm
Output end	33056 lm

Stabilization Curve



Flicker /TLA details



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Flicker Meter Type Viso Systems LabFlicker
Frequency of input power 60.1 Hz
Flicker/TLA sample rate 20000 samples/s

Measurement time
PstLM 180 sec
All other indices 1.2 sec

Flicker indices according to Illuminating Engineering Society (IES)

Flicker frequency 119.76 Hz
Percent Flicker 59.08 %
Flicker index 0.18

Flicker indices per California Energy Commission (CEC) 2016b

JA8/10 40 Hz 0.44 %
JA8/10 90 Hz 1.35 %
JA8/10 200 Hz 57.56 %
JA8/10 400 Hz 59.22 %
JA8/10 1000 Hz 59.07 %

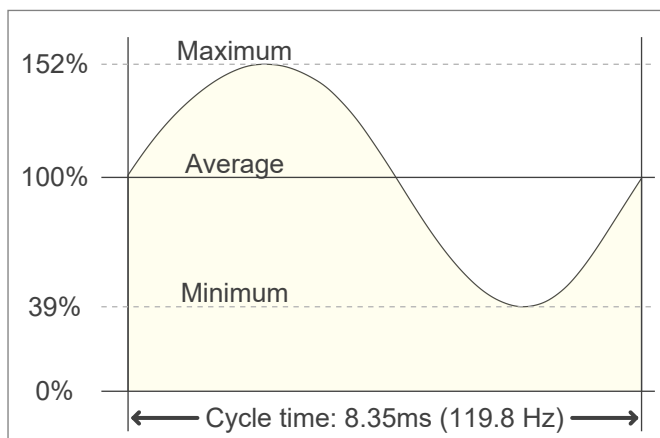
TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC 61000-4-15)

PstLM value ($F < 80$ Hz) 0.1
SVM value ($80 < F < 2000$ Hz) 2.07

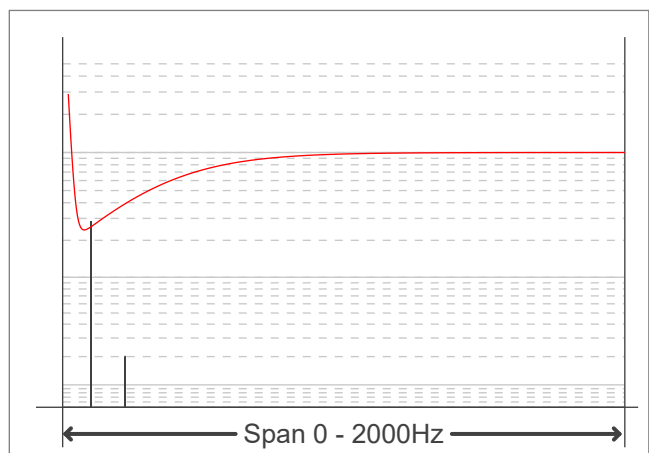
Flicker indices according to Lighting Research Center (2015)

Perception metric, Assist Mp 0.09

Flicker frame (frame of one flicker period in time domain)



Flicker FFT (flicker curve in frequency domain)



IEEE 1789 Frequency/modulation plot

