

Light efficiency:

157 Lumens/Watt

Light quality:

CRI: 84.5

Color temperature:

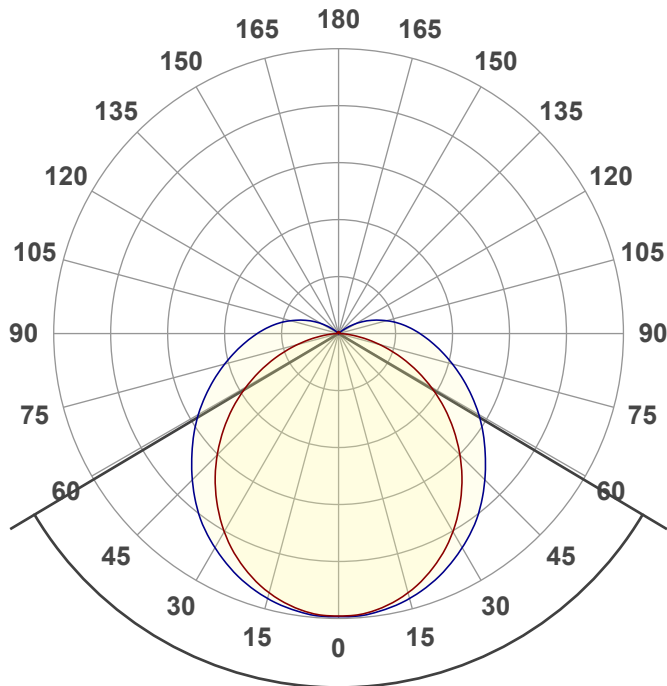
4165 K

Output: 6797 lm

Peak: 1904 cd

Power: 43.4 W

PF: 0.99



Product name:

LSRD-M1-SW3C45 45W 40K

Date and time:

9/26/2024 1:34:23 PM

Beam angle

118.5°

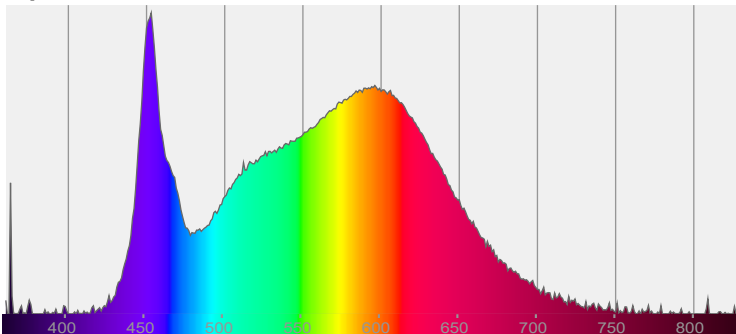


CIE 1931

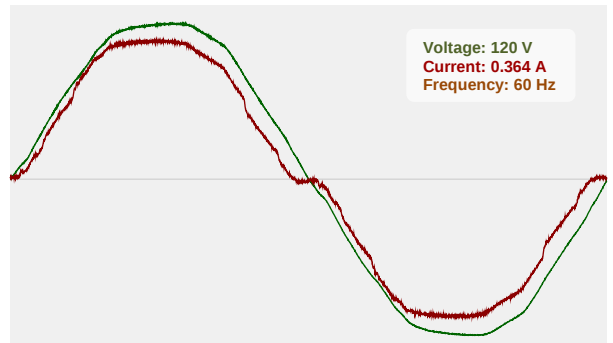
x: 0.374

y: 0.372

Spectra



Power



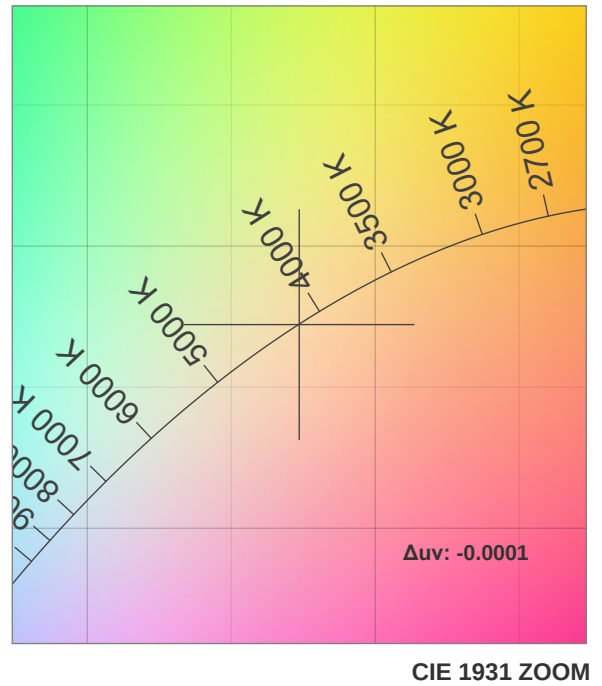
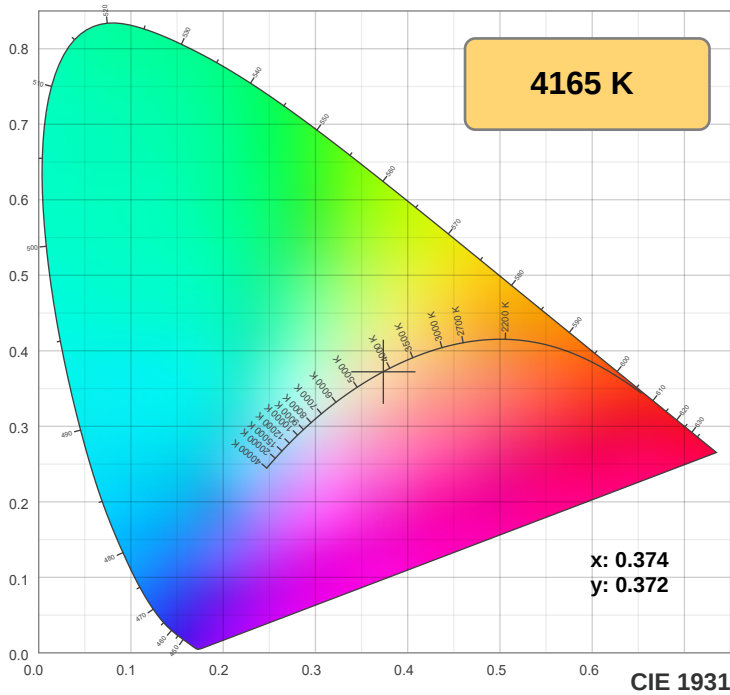
T 314.743.3067

F 314.972.6202

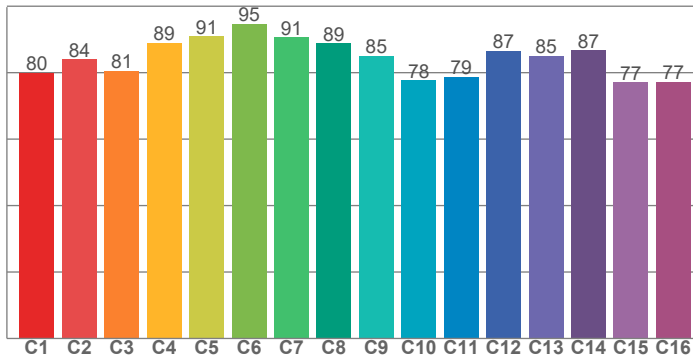
email: commercial-sales@superbrightleds.com

www.superbrightleds.com/

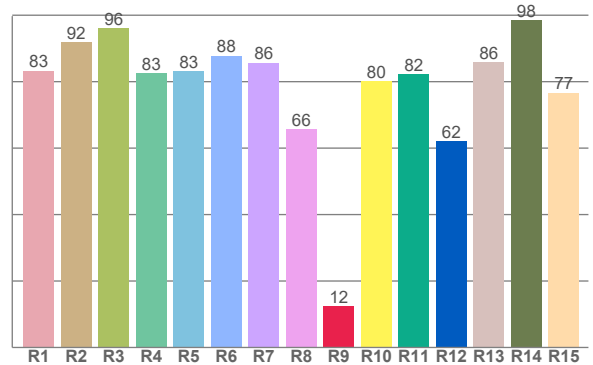
Color Specifications



TM30: 84.4



CRI: 84.5 (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
83.3	91.9	96.0	82.6	83.2	87.8	85.7	65.6	12.5	80.2	82.2	62.2	85.9	98.4	76.6

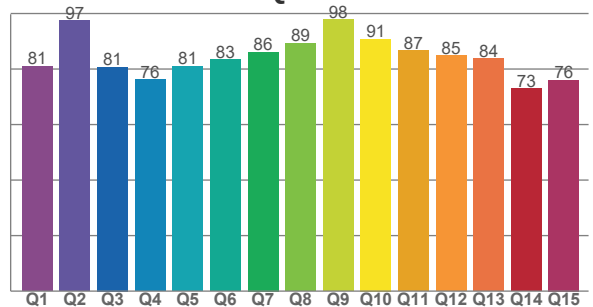
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
80.0	84.0	80.6	89.0	90.9	94.7	90.6	88.8	85.1	77.7	78.8	86.5	85.1	86.7	77.1	77.2

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
81.0	97.5	80.8	76.2	81.0	83.4	86.1	89.3	97.8	90.8	86.7	84.7	83.8	72.9	76.1

CQS: 83.0



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
4165 K	84.5	12.5	84.4	94.5	83.0	0.374	0.372	0.222	0.332	-0.0001



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TM30 Report

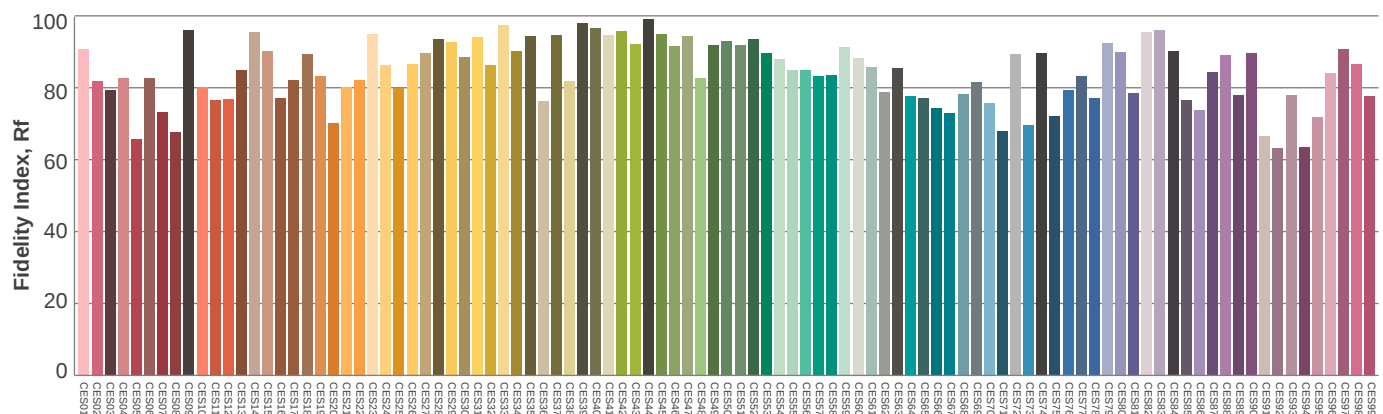
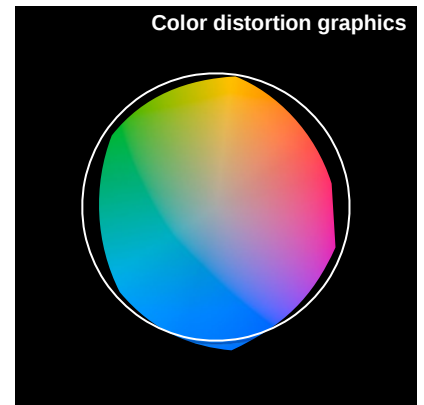
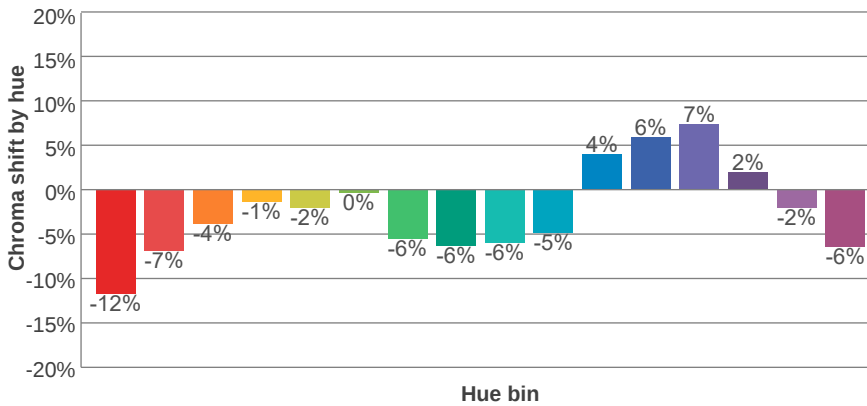
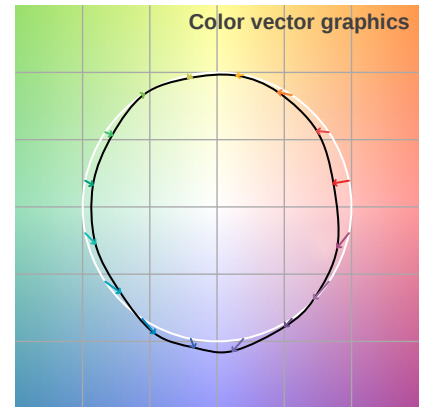
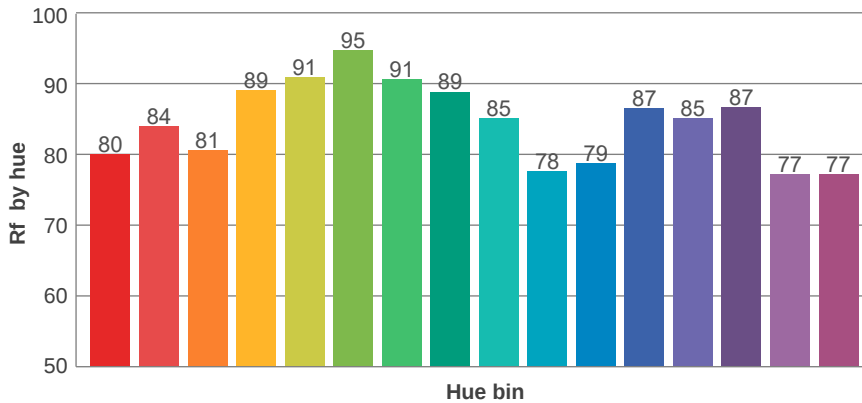
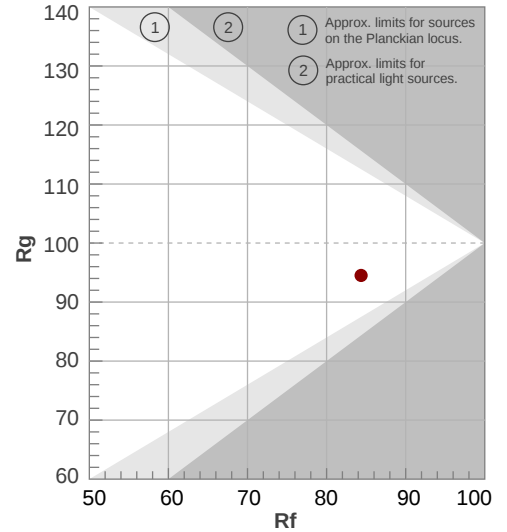
Rf 84.4

Fidelity index Rf

Rg 94.5

Gammut index Rg

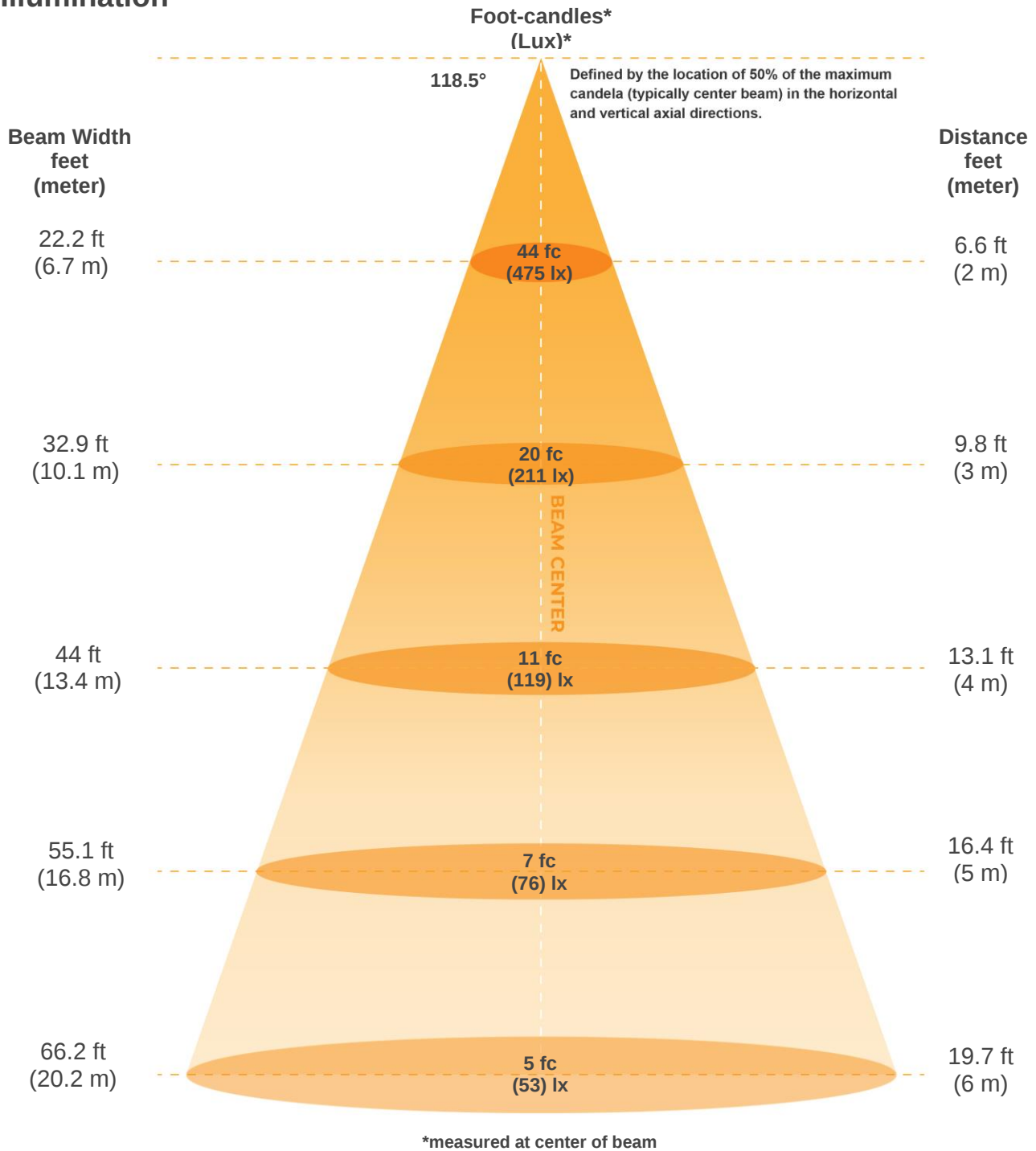
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	80	-12%	0%
2	84	-7%	6%
3	81	-4%	9%
4	89	-1%	5%
5	91	-2%	2%
6	95	0%	-2%
7	91	-6%	-1%
8	89	-6%	2%
9	85	-6%	9%
10	78	-5%	13%
11	79	4%	14%
12	87	6%	4%
13	85	7%	-9%
14	87	2%	-7%
15	77	-2%	-17%
16	77	-6%	-12%



Color Evaluation Sample



Illumination



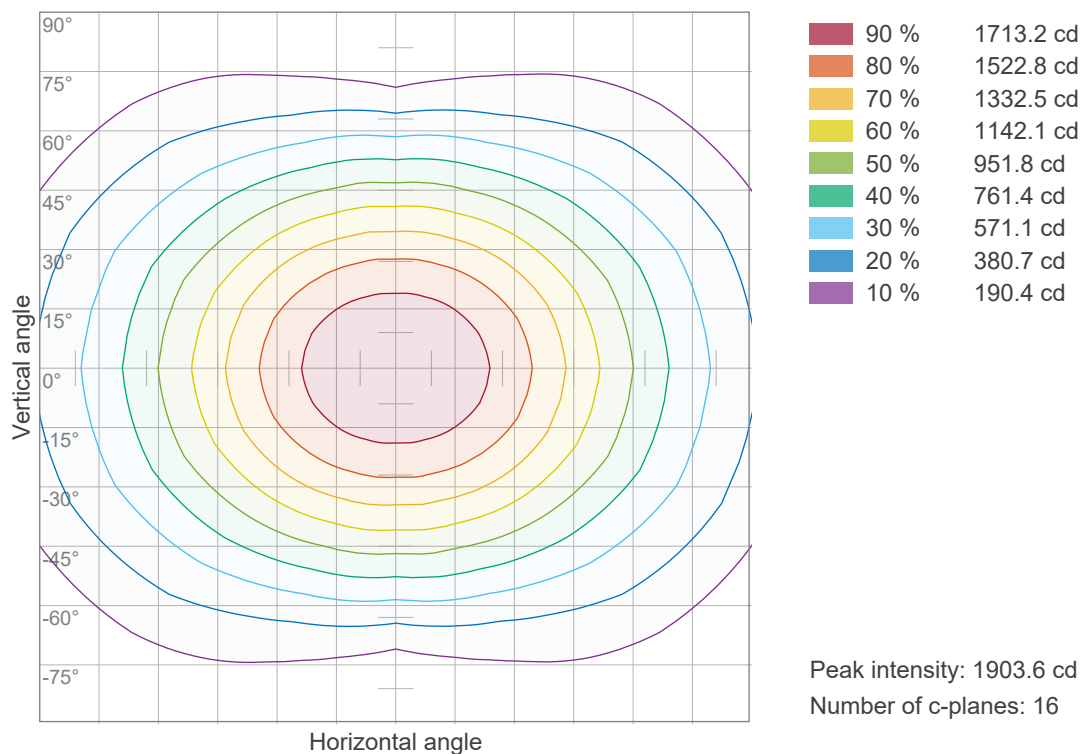
Beam intensities from 1-20m

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	1899	475	211	119	76	53	39	30	23	19	16	13	11	10	8	7	7	6	5	5
fc	176.4	44.1	19.6	11	7.1	4.9	3.6	2.8	2.2	1.8	1.5	1.2	1	0.9	0.8	0.7	0.6	0.5	0.5	0.4

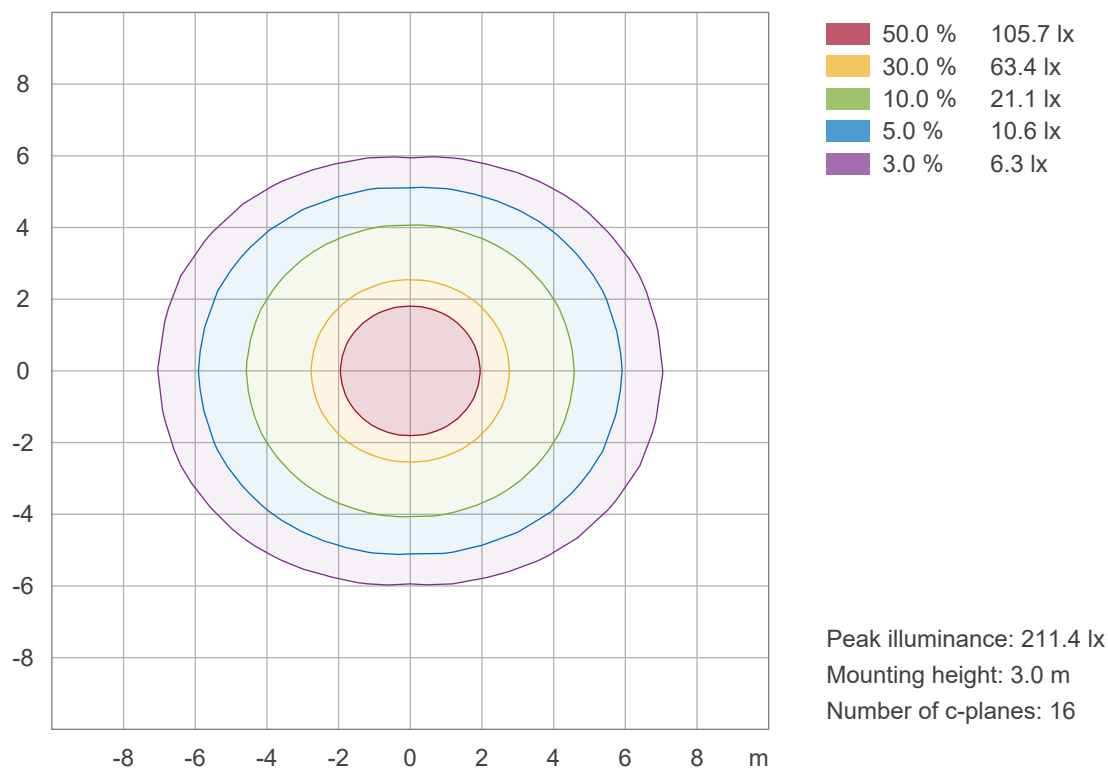
Beam angle 50%	Field angle 10%	Cutoff Angle 2.5%	Intensity Ratio in 120° cone	Intensity Ratio in 90° cone
118.5°	202.3°	226.7°	63.6%	42.7%



Iso-intensity Diagram (Iso-candela)



Iso-illuminance Diagram (Iso-lux)



Light Planning – UGR table

Uncorrected, comprehensive UGR table according to 117-1995

[illegible]

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

Coefficients of Utilization

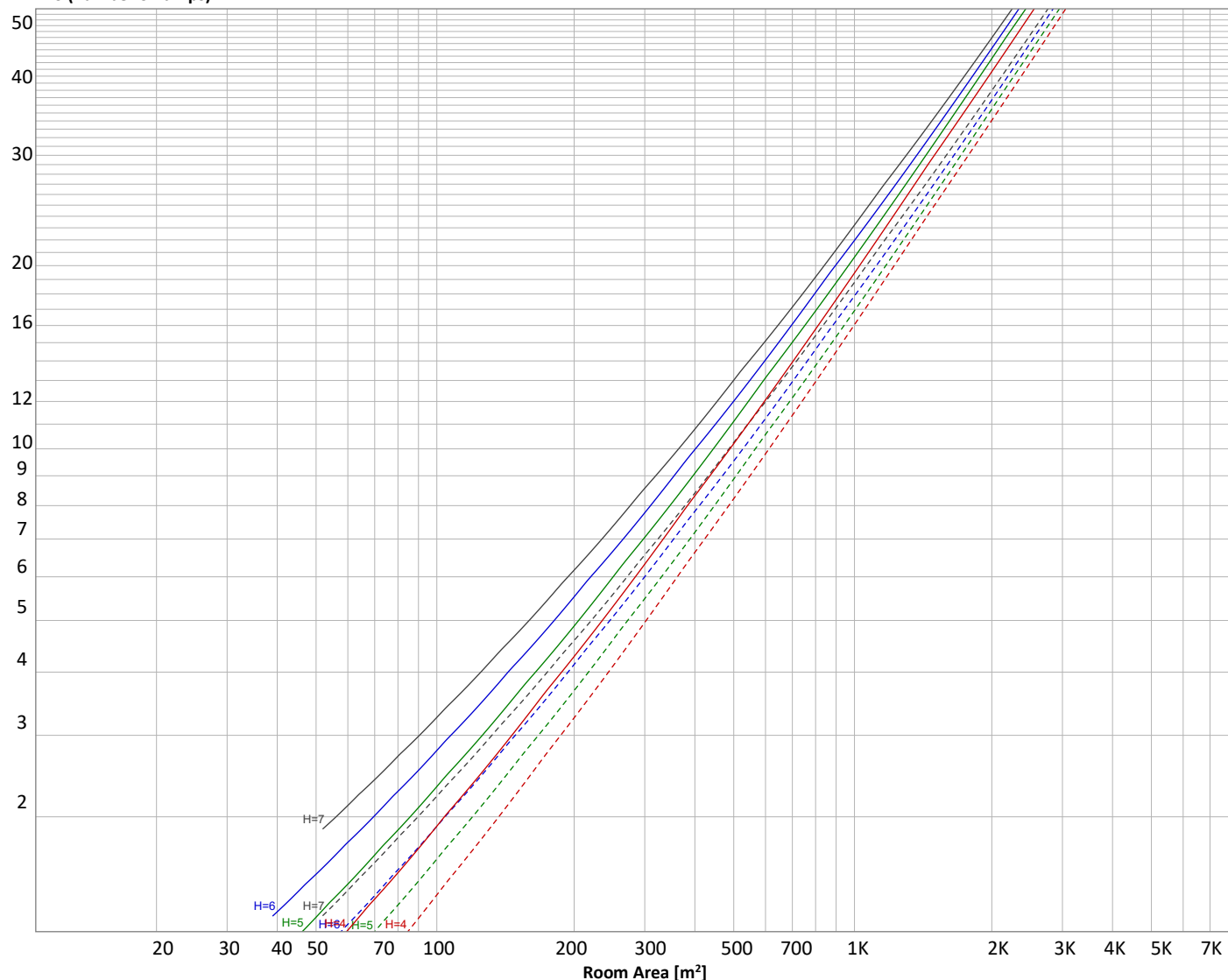
Ceiling reflectance	80			70			50			30			10			0		
Wall reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Floor reflectance	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	0
RCR			(RCR: Room Cavity Ratio)															
			Room Values are expressed as percentage of Lumen delivered to the task surface															
0	117	117	117	117	113	113	113	113	106	106	106	100	100	100	94	94	94	91
1	104	99	93	89	101	95	91	86	89	85	82	84	81	78	79	76	74	71
2	94	85	77	71	90	82	75	69	77	71	66	72	67	63	68	64	60	58
3	85	74	65	58	82	72	63	57	67	60	55	63	57	53	59	55	51	48
4	78	65	56	49	75	63	55	48	59	52	46	56	50	45	53	47	43	40
5	72	58	49	42	69	56	48	41	53	46	40	50	44	38	47	42	37	35
6	66	52	43	36	63	51	42	36	48	40	35	45	39	34	43	37	33	30
7	61	47	38	32	59	46	37	31	43	36	30	41	35	30	39	33	29	27
8	57	43	34	28	55	42	34	28	40	32	27	38	31	26	36	30	26	24
9	53	39	31	25	51	38	30	25	37	29	24	35	28	24	33	27	23	21
10	50	36	28	23	48	35	28	23	34	27	22	32	26	22	31	25	21	19



Luminaire budgetary diagram

Uncorrected, comprehensive UGR table according to 117-1995

LAMPS (number of lamps)



Conditions

H = Room height	Flux = 6797 lm	p(%)		
H _{down} = Lamp distance from ceiling =	0.00 m	Line type	Ceiling reflectance	Wall reflectance
H _{work} = Work area height from floor =	0.00 m	-----	70	50
E _{work} = Average lux on work area =	100 lx	-----	50	30
		-----		20

Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
180 lm	514 lm	777 lm	939 lm	985 lm	927 lm	791 lm	615 lm	443 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
306 lm	184 lm	88.1 lm	25.9 lm	7.32 lm	5.82 lm	4.36 lm	2.72 lm	0.918 lm

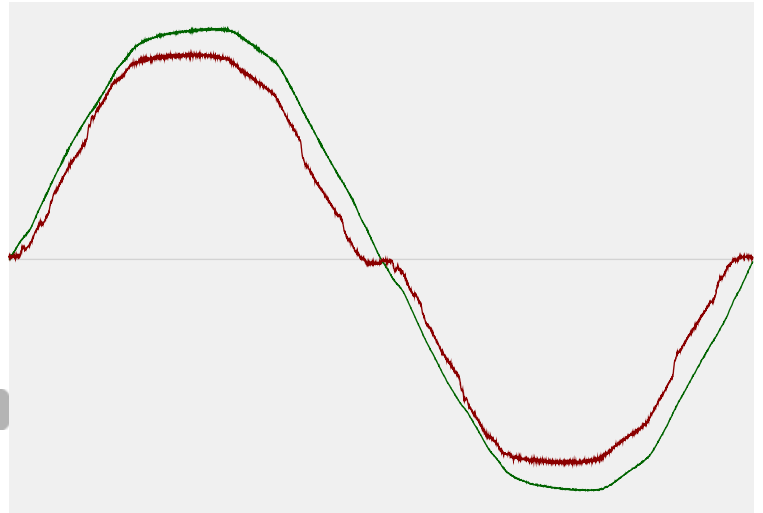


Power Details

Input Power

Power feed to light source	43.4 W
Frequency of input power	60 Hz
RMS Input voltage feed, V_{RMS}	120 V
RMS Input current feed, I_{RMS}	0.364 A
Volt-Ampere or apparent power = $V_{RMS} * I_{RMS}$	43.69 VA
Displacement factor of AC power feed	1.0
Power factor of AC current feed	0.99
Total harmonic distortion of the current	10.12%
Total harmonic distortion of the voltage	2.67%

Input Power Curve



Efficiency

Radiated power efficiency 47.9%



Lumen efficiency 157 lm/W



Stabilization Details

Warmup Conditions

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

Color Temperature Change

CCT start	4151 K
CCT shift	+14 K
CCT end	4165 K

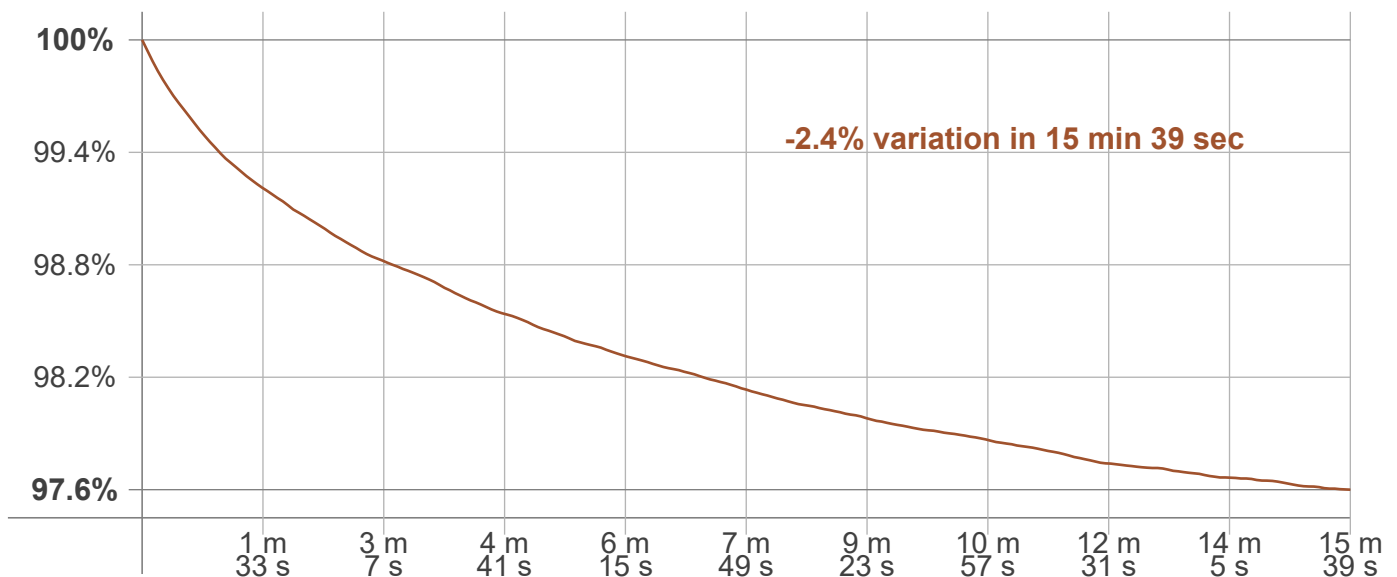
Warmup Result

Total warmup time	Lamp stabilized in 15 min 39 sec
Warmup variation	-2.4%

Output Change

Output start	6955 lm
Output change	-158 lm
Output end	6797 lm

Stabilization Curve



Flicker /TLA details



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Flicker Meter Type Viso Systems LabFlicker
Frequency of input power 60 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 117.65 Hz
Percent Flicker 1 %
Flicker index 0

Flicker indices per California Energy Commission (CEC) 2016b

JA8/10 40 Hz 0.09 %
JA8/10 90 Hz 0.1 %
JA8/10 200 Hz 0.6 %
JA8/10 400 Hz 0.86 %
JA8/10 1000 Hz 0.92 %

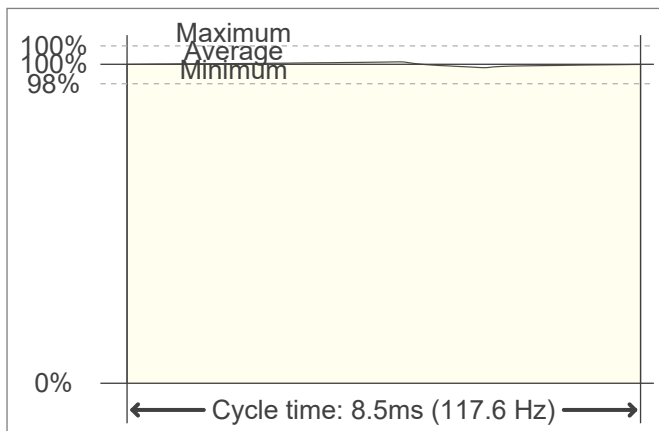
TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC 61000-4-15)

PstLM value ($F < 80$ Hz) 0.17
SVM value ($80 < F < 2000$ Hz) 0.02

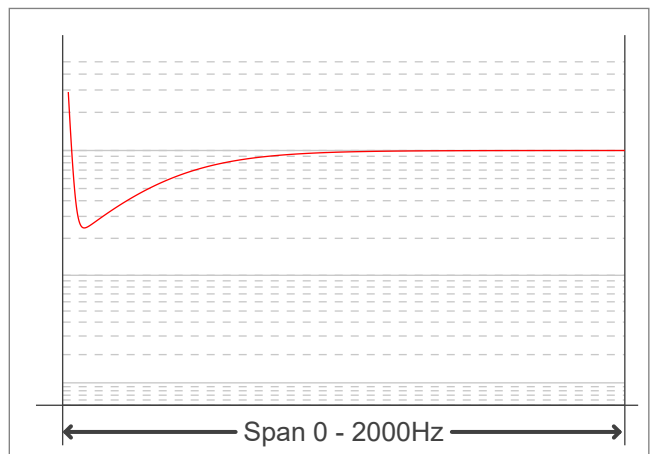
Flicker indices according to Lighting Research Center (2015)

Perception metric, Assist Mp 0.07

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



Flicker FFT (flicker curve in frequency domain)



IEEE 1789 Frequency/modulation plot

