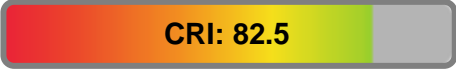


Light efficiency:



Output: 26577 lm

Light quality:



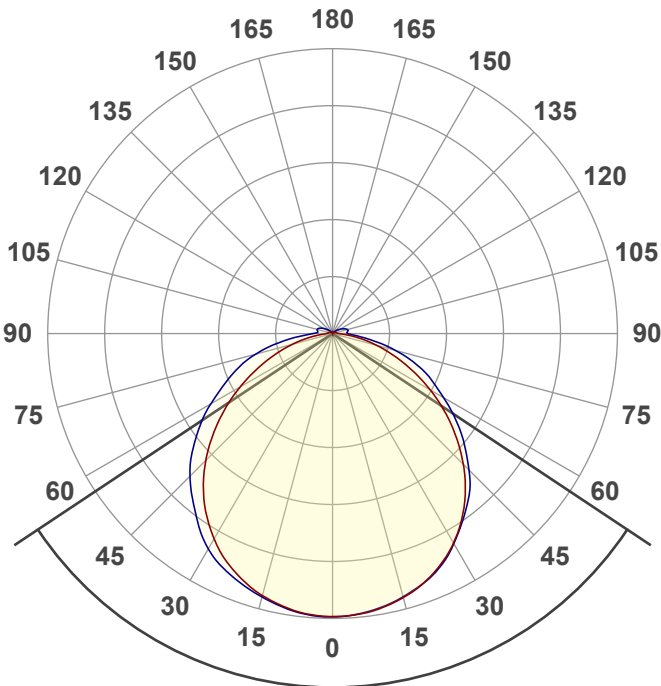
Peak: 8647 cd

Color temperature:



Power: 159.7 W

PF: 1.0



Product name:

VTS4D-M1-SW3C200 155W 40K

Date and time:

11/21/2024 2:05:48 PM

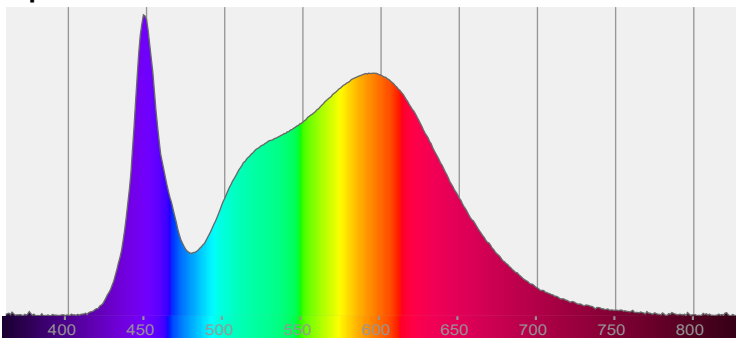
Beam angle

112.7°

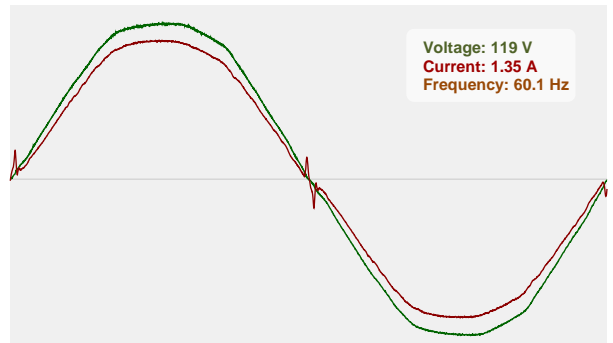


CIE 1931  
x: 0.376  
y: 0.373

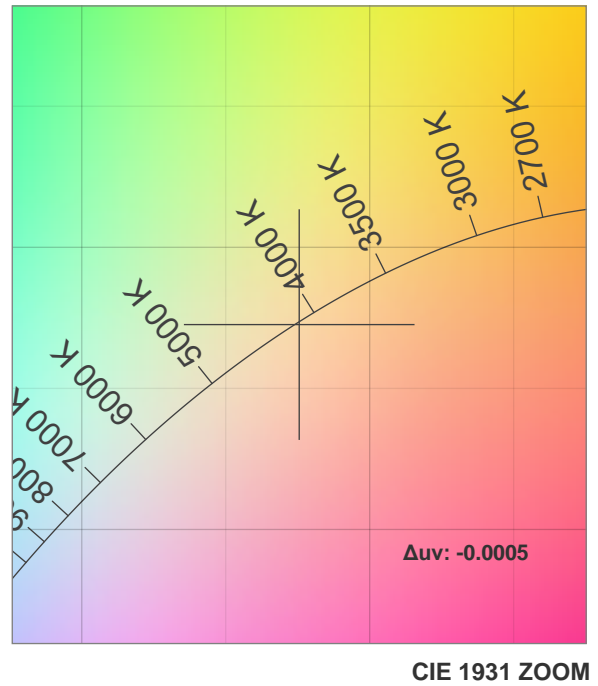
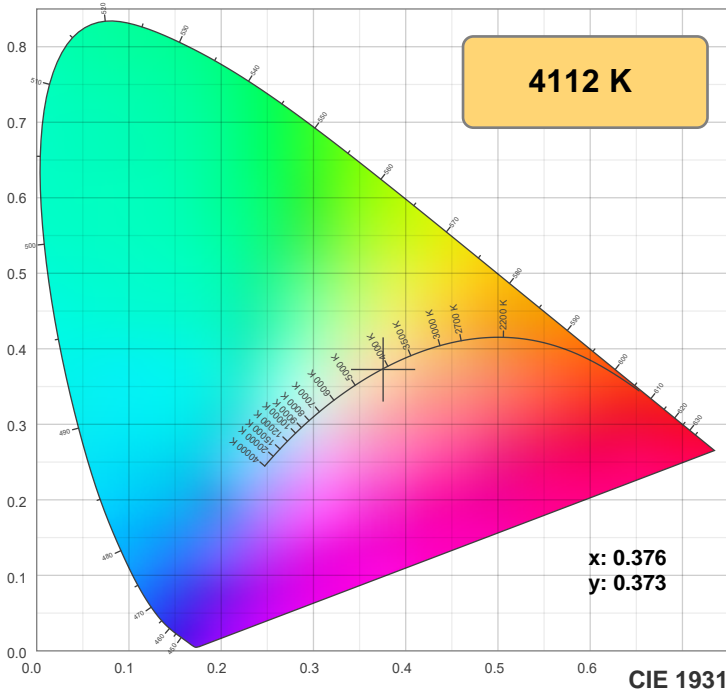
Spectra



Power

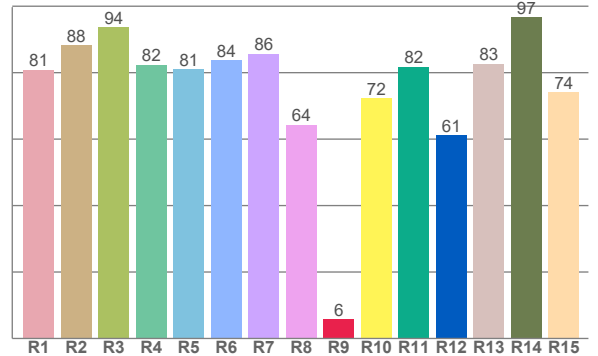
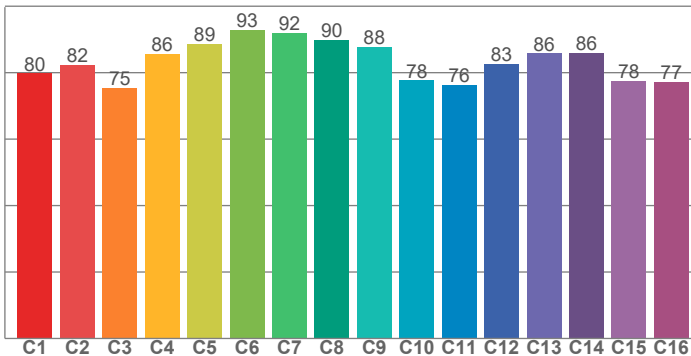


### Color Specifications



**TM30: 83.3**

**CRI: 82.5 (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
80.9	88.2	93.7	82.4	81.1	83.7	85.7	64.3	5.8	72.2	81.8	61.2	82.7	96.7	74.1

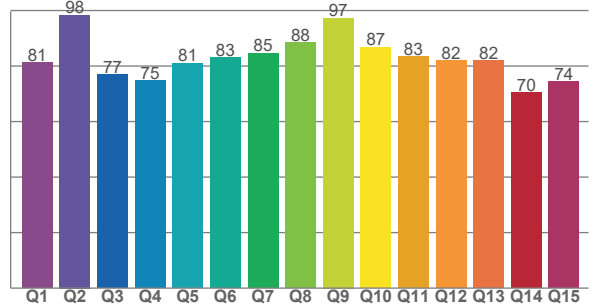
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
79.8	82.3	75.4	85.7	88.7	92.8	91.9	89.8	87.8	77.7	76.4	82.6	85.8	86.0	77.6	77.3

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
81.2	98.4	76.9	74.8	81.0	83.1	84.6	88.4	97.3	86.8	83.4	82.0	81.9	70.5	74.3

**CQS: 81.4**



### 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
4112 K	82.5	5.8	83.3	96.4	81.4	0.376	0.373	0.224	0.333	-0.0005

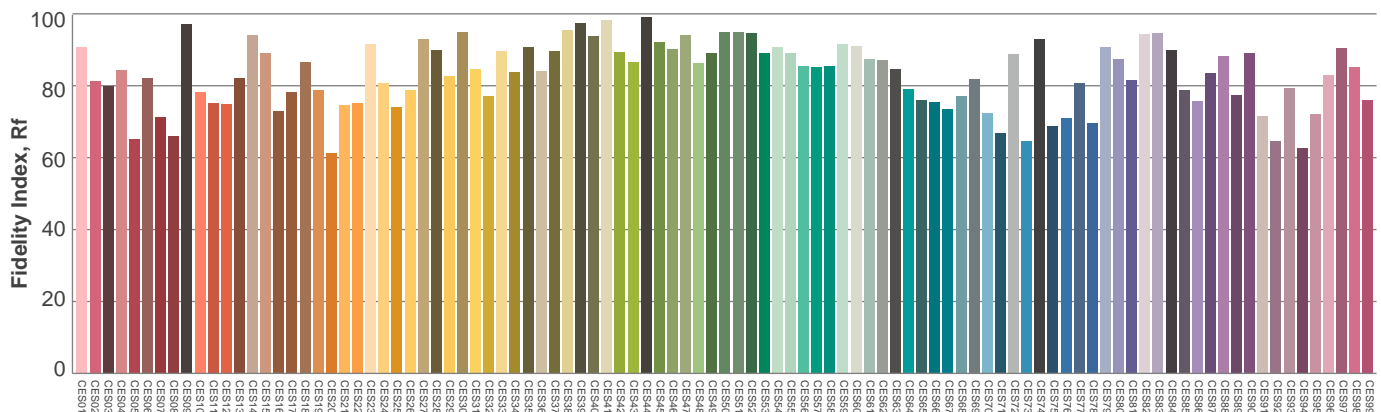
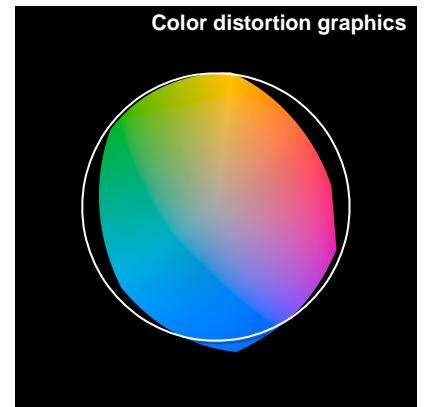
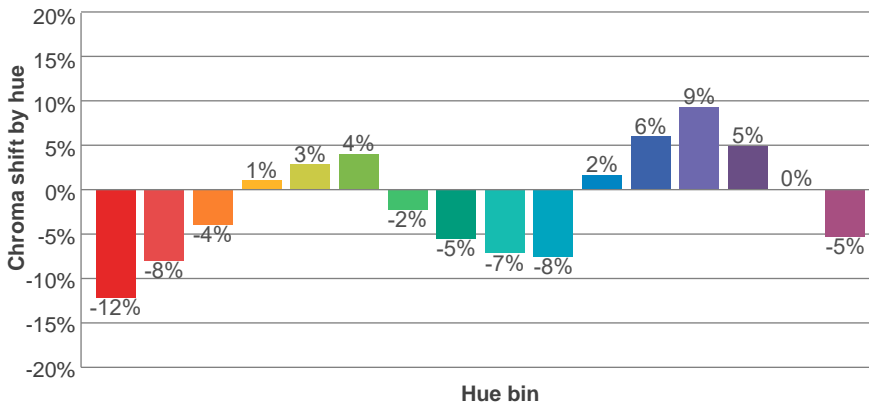
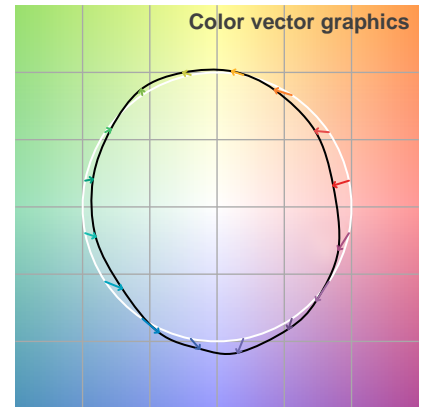
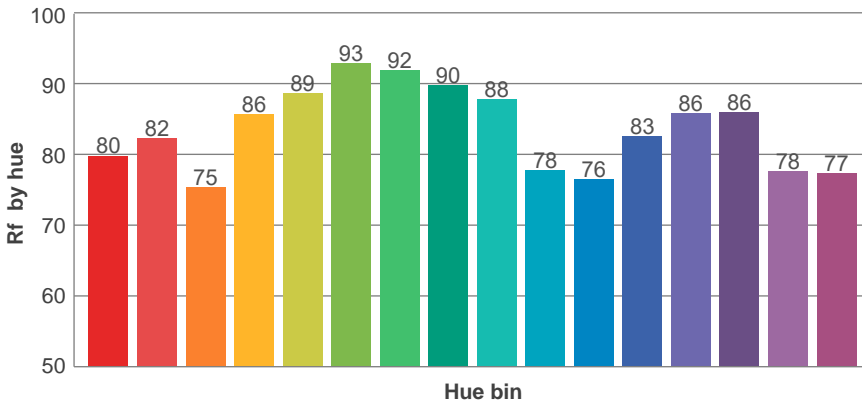
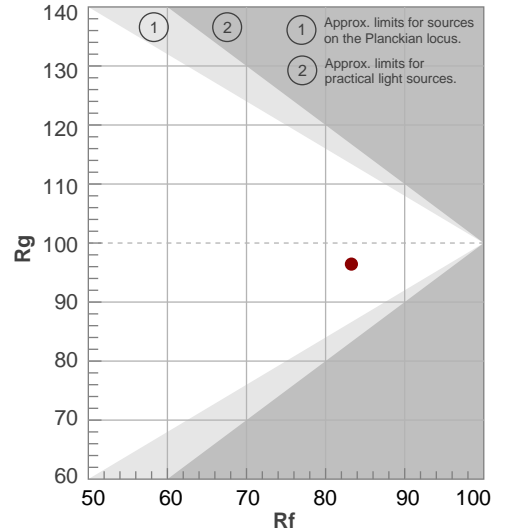


### TM30 Report

**Rf 83.3**  
Fidelity index Rf

**Rg 96.4**  
Gammut index Rg

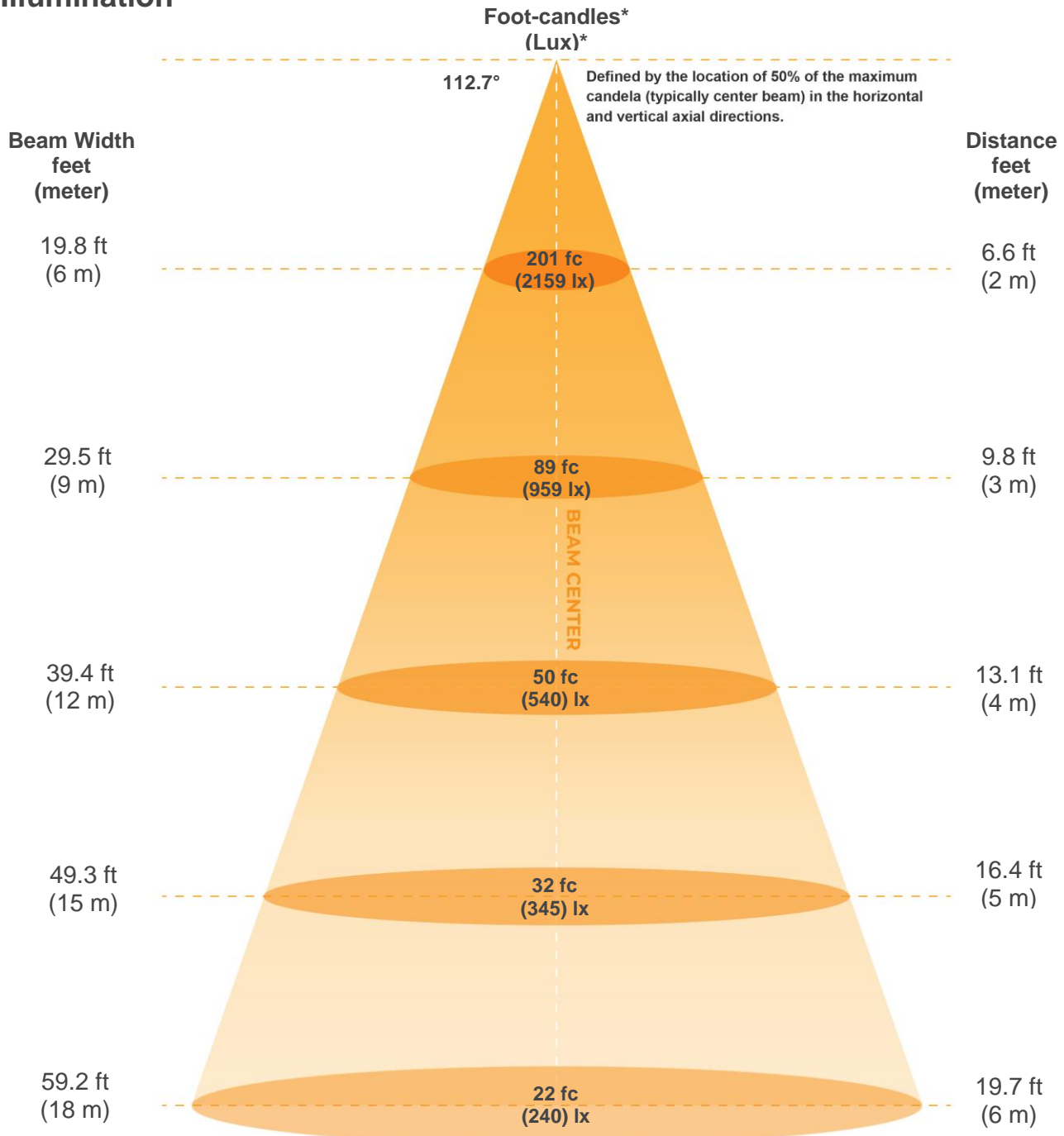
Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	80	-12%	-1%
2	82	-8%	6%
3	75	-4%	13%
4	86	1%	9%
5	89	3%	5%
6	93	4%	-2%
7	92	-2%	-4%
8	90	-5%	-2%
9	88	-7%	4%
10	78	-8%	11%
11	76	2%	16%
12	83	6%	8%
13	86	9%	-6%
14	86	5%	-6%
15	78	0%	-17%
16	77	-5%	-14%



Color Evaluation Sample



**Illumination**



\*measured at center of beam

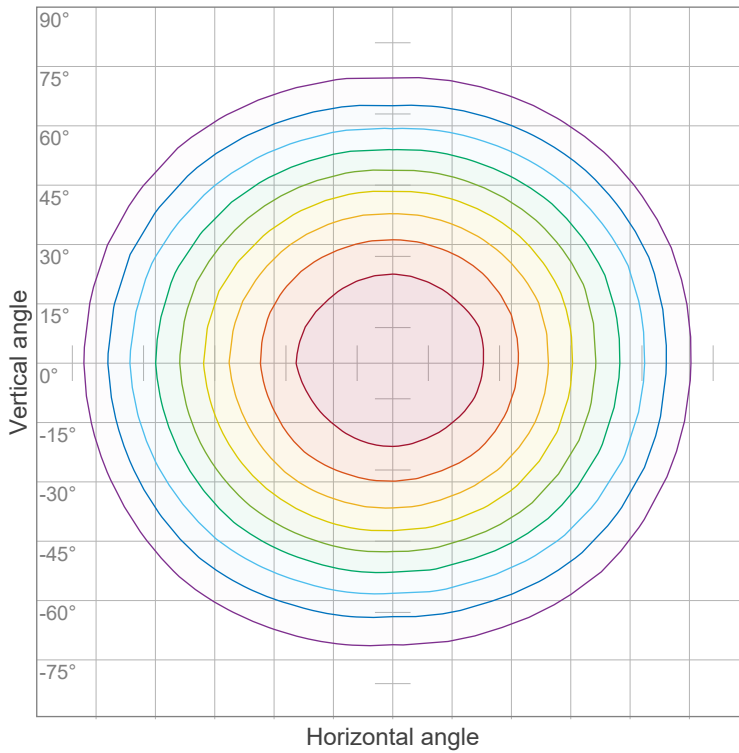
**Beam intensities from 1-20m**

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	8634	2159	959	540	345	240	176	135	107	86	71	60	51	44	38	34	30	27	24	22
fc	802.1	200.5	89.1	50.1	32.1	22.3	16.4	12.5	9.9	8	6.6	5.6	4.7	4.1	3.6	3.1	2.8	2.5	2.2	2

<b>Beam angle 50%</b>	<b>Field angle 10%</b>	<b>Cutoff Angle 2.5%</b>	<b>Intensity Ratio in 120° cone</b>	<b>Intensity Ratio in 90° cone</b>
<b>112.7°</b>	<b>166.7°</b>	<b>219°</b>	<b>73.7%</b>	<b>50.2%</b>



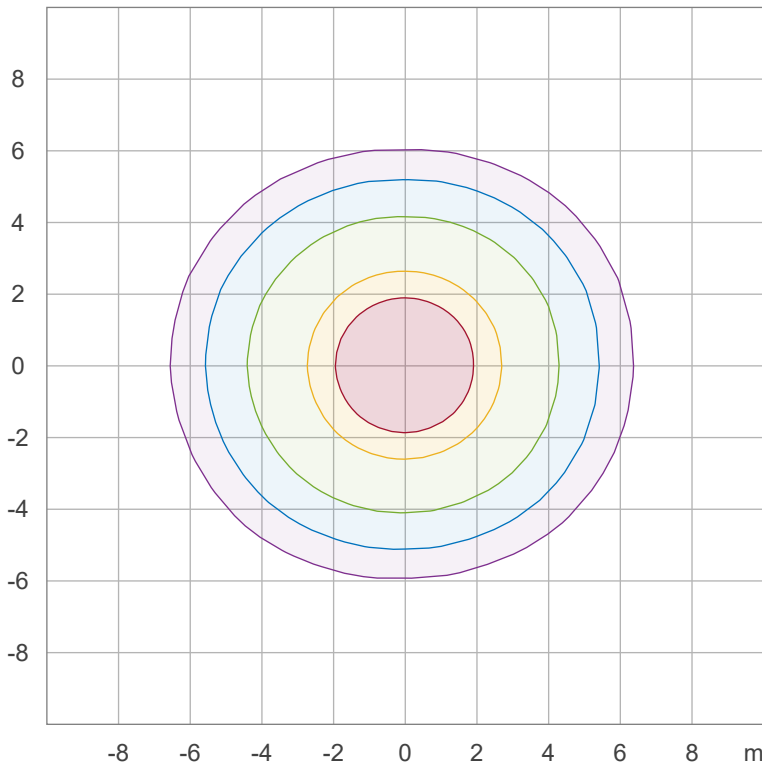
**Iso-intensity Diagram (Iso-candela)**



90 %	7781.5 cd
80 %	6916.9 cd
70 %	6052.3 cd
60 %	5187.7 cd
50 %	4323.1 cd
40 %	3458.5 cd
30 %	2593.8 cd
20 %	1729.2 cd
10 %	864.6 cd

Peak intensity: 8646.2 cd  
 Number of c-planes: 16

**Iso-illuminance Diagram (Iso-lux)**



50.0 %	480.1 lx
30.0 %	288.0 lx
10.0 %	96.0 lx
5.0 %	48.0 lx
3.0 %	28.8 lx

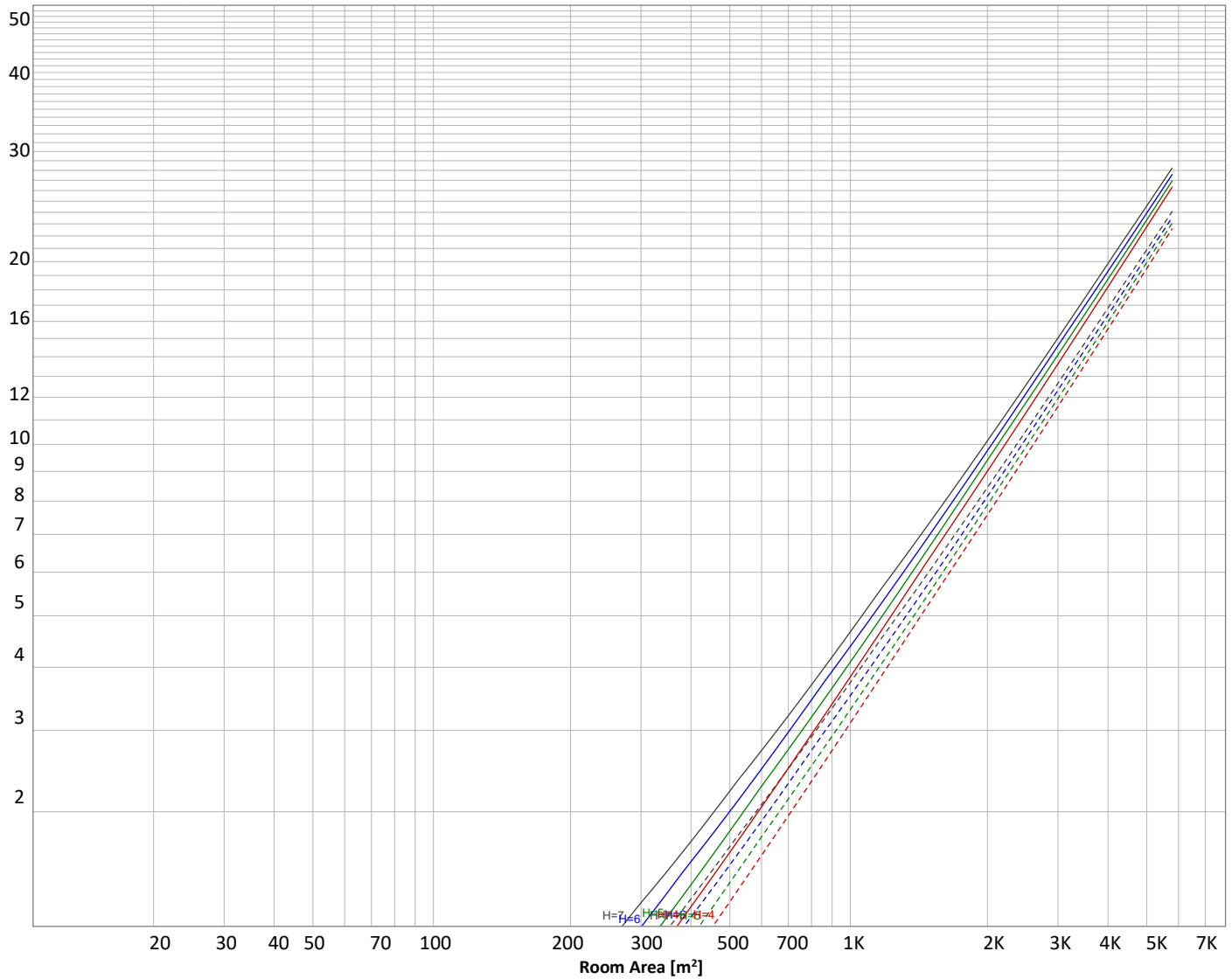
Peak illuminance: 960.2 lx  
 Mounting height: 3.0 m  
 Number of c-planes: 16





### Luminaire budgetary diagram

Uncorrected, comprehensive UGR table according to 117-1995  
LAMPS (number of lamps)



#### Conditions

H = Room height	Flux = 26577 lm	p(%)			
H <sub>down</sub> = Lamp distance from ceiling =	0.00 m	Line type	Ceiling reflectance	Wall reflectance	Floor reflectance
H <sub>work</sub> = Work area height from floor =	0.00 m	-----	70	50	30
E <sub>work</sub> = 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°
818 lm	2346 lm	3584 lm	4337 lm	4484 lm	4018 lm	3100 lm	1966 lm	817 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
375 lm	309 lm	201 lm	105 lm	50.4 lm	28.9 lm	20.3 lm	12.6 lm	4.37 lm

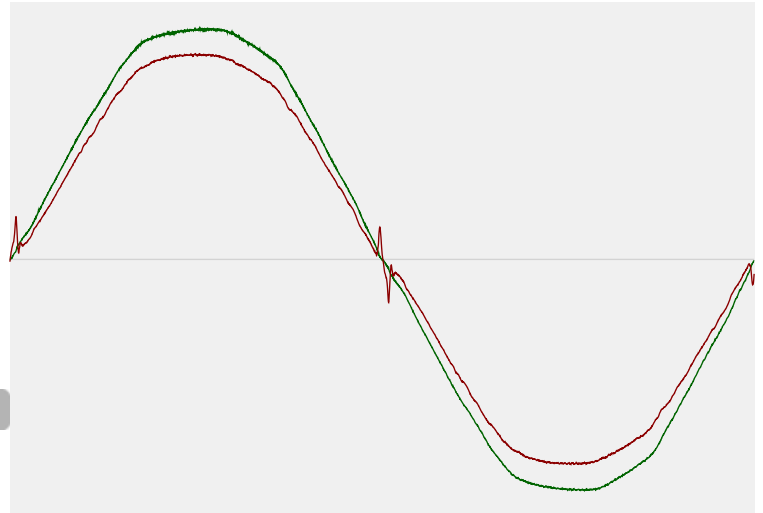


### Power Details

#### Input Power

Power feed to light source	159.7 W
Frequency of input power	60.1 Hz
RMS Input voltage feed, $V_{RMS}$	119 V
RMS Input current feed, $I_{RMS}$	1.35 A
Volt-Ampere or apparent power = $V_{RMS} * I_{RMS}$	159.84 VA
Displacement factor of AC power feed	1.0
Power factor of AC current feed	1.0
Total harmonic distortion of the current	3.83%
Total harmonic distortion of the voltage	2.51%

#### Input Power Curve



#### Efficiency

Radiated power efficiency 50.3%



Lumen efficiency 166 lm/W



### Stabilization Details

#### Warmup Conditions

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

#### Color Temperature Change

CCT start	4111 K
CCT shift	+1 K
CCT end	4112 K

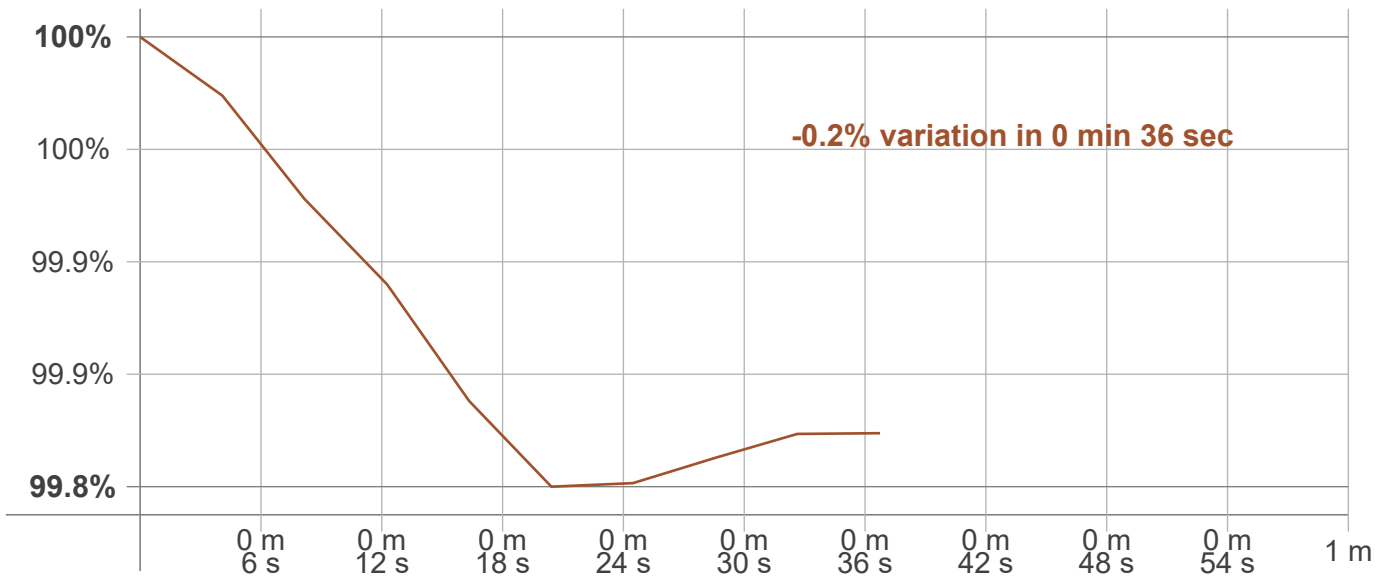
#### Warmup Result

Total warmup time	Not completed
Warmup variation	-0.2%

#### Output Change

Output start	26605 lm
Output change	-28 lm
Output end	26577 lm

#### Stabilization Curve



### Flicker /TLA details



T 314.743.3067  
 F 314.972.6202  
 email: [commercial-sales@superbrightleds.com](mailto:commercial-sales@superbrightleds.com)  
[www.superbrightleds.com/](http://www.superbrightleds.com/)

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                    120.48 Hz  
 Percent Flicker                    0.42 %  
 Flicker index                         0

**Flicker indices per California Energy Commission (CEC) 2016b**

JA8/10 40 Hz                         0.13 %  
 JA8/10 90 Hz                         0.14 %  
 JA8/10 200 Hz                        0.4 %  
 JA8/10 400 Hz                        0.41 %  
 JA8/10 1000 Hz                       0.41 %

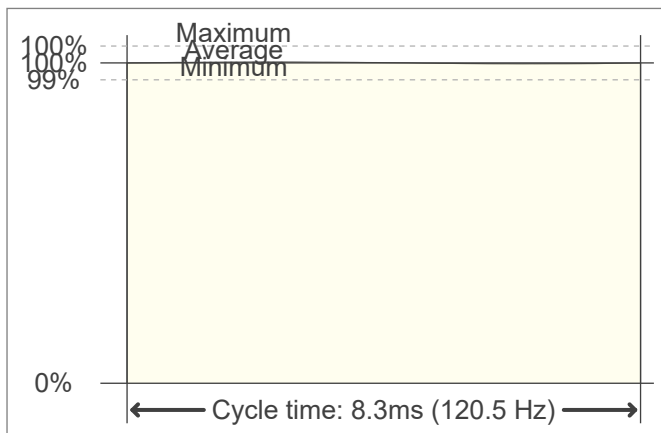
**TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC 61000-4-15)**

PstLM value (F < 80 Hz)            0.07  
 SVM value (80 < F < 2000 Hz)    0.01

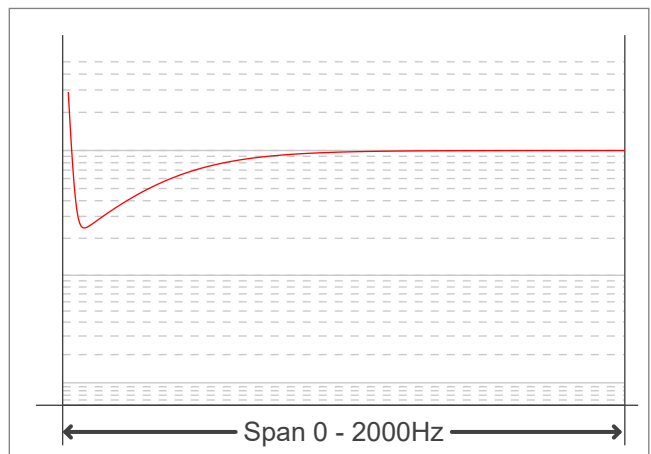
**Flicker indices according to Lighting Research Center (2015)**

Perception metric, Assist Mp        0.04

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



**Flicker FFT (flicker curve in frequency domain)**



**IEEE 1789 Frequency/modulation plot**

