

Light efficiency:



Output: 32695 lm

Light quality:



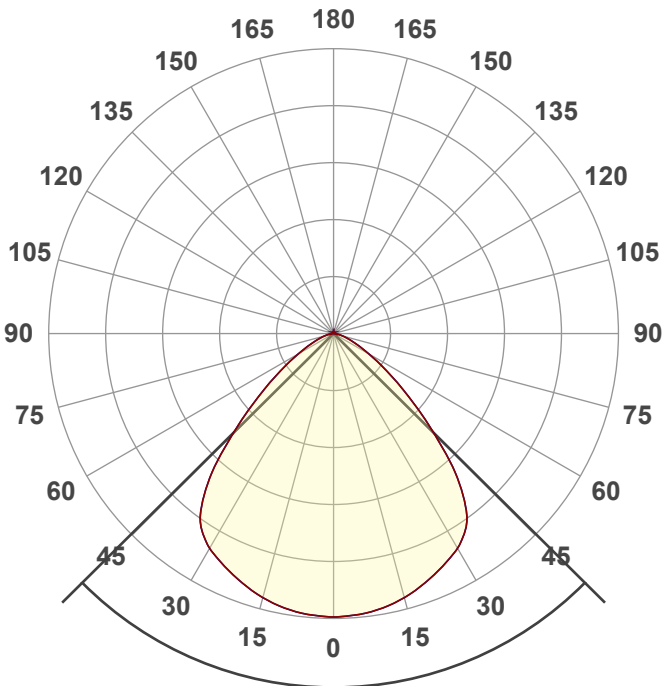
Peak: 16020 cd

Color temperature:



Power: 183.6 W

PF: 1.0



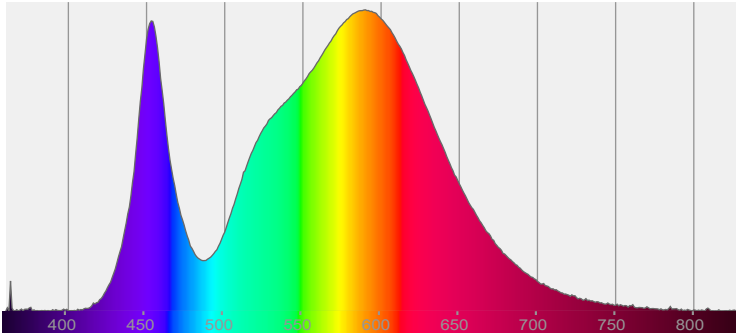
Product name:  
**HBUD3-SW3B300S-HDGLY 40K 200W**  
Date and time:  
**8/29/2024 10:23:35 AM**

Beam angle **90.5°**

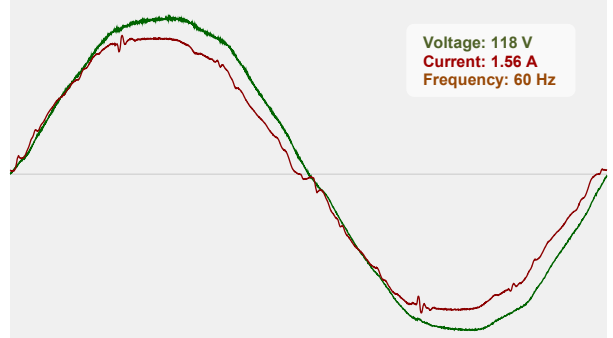


CIE 1931  
x: 0.391  
y: 0.382

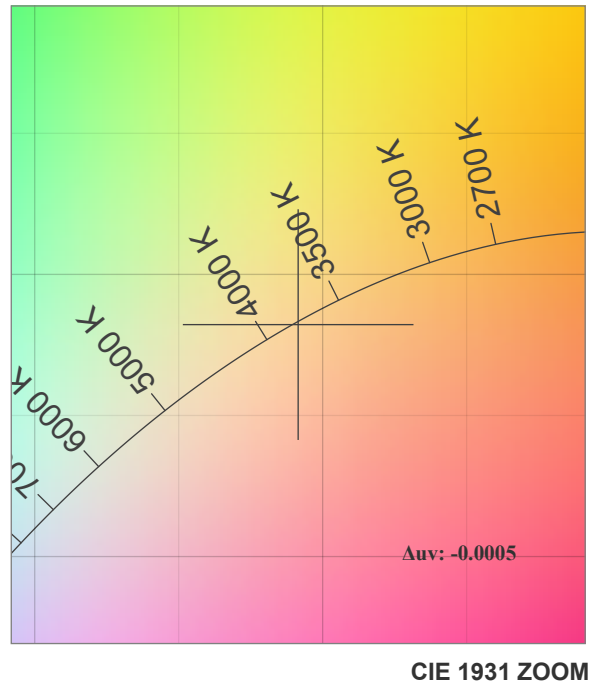
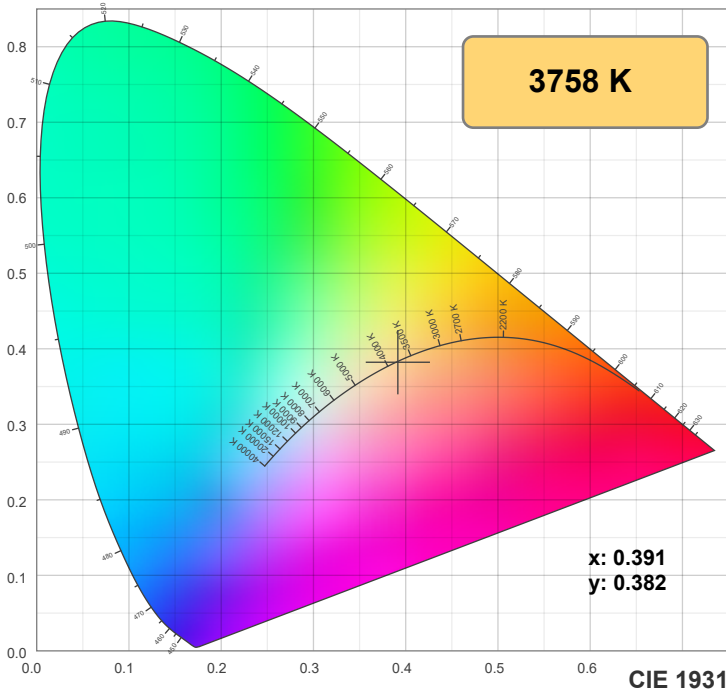
Spectra



Power

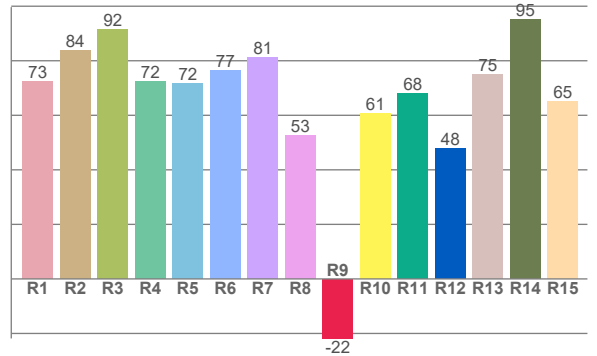
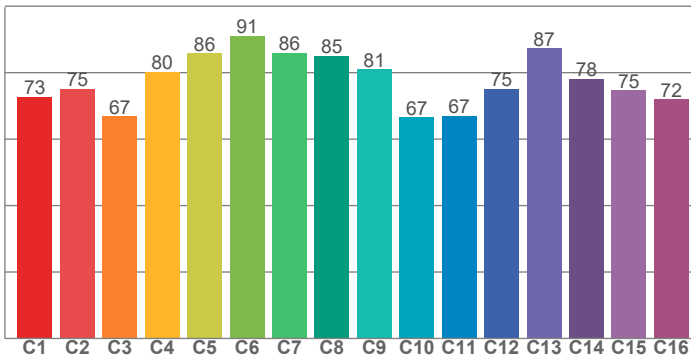


### Color Specifications



**TM30: 77.2**

**CRI: 75.3 (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
72.5	83.8	91.7	72.3	71.7	76.5	81.4	52.6	-21.8	60.7	67.9	47.8	75.1	95.3	65.2

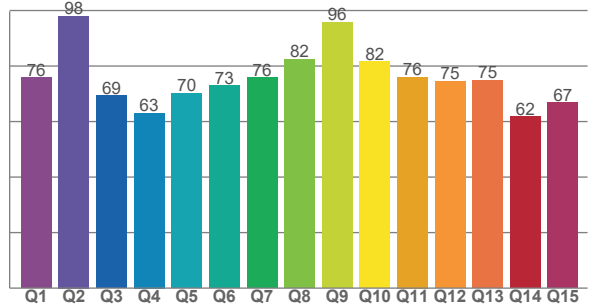
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
72.8	75.1	66.9	80.2	85.8	91.1	85.9	85.1	81.0	66.6	67.1	75.1	87.3	78.2	74.7	72.0

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
75.9	98.0	69.4	63.1	70.2	72.9	75.9	82.4	95.7	81.7	76.0	74.5	74.9	61.8	66.8

**CQS: 73.9**



### 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
<b>CCT</b>	<b>CRI</b>	<b>CRI R9</b>	<b>TM30 Rf</b>	<b>TM30 Rg</b>	<b>CQS</b>	<b>x</b>	<b>y</b>	<b>u</b>	<b>v</b>	<b>Δuv</b>
<b>3758 K</b>	<b>75.3</b>	<b>-21.8</b>	<b>77.2</b>	<b>93.2</b>	<b>73.9</b>	<b>0.391</b>	<b>0.382</b>	<b>0.230</b>	<b>0.337</b>	<b>-0.0005</b>

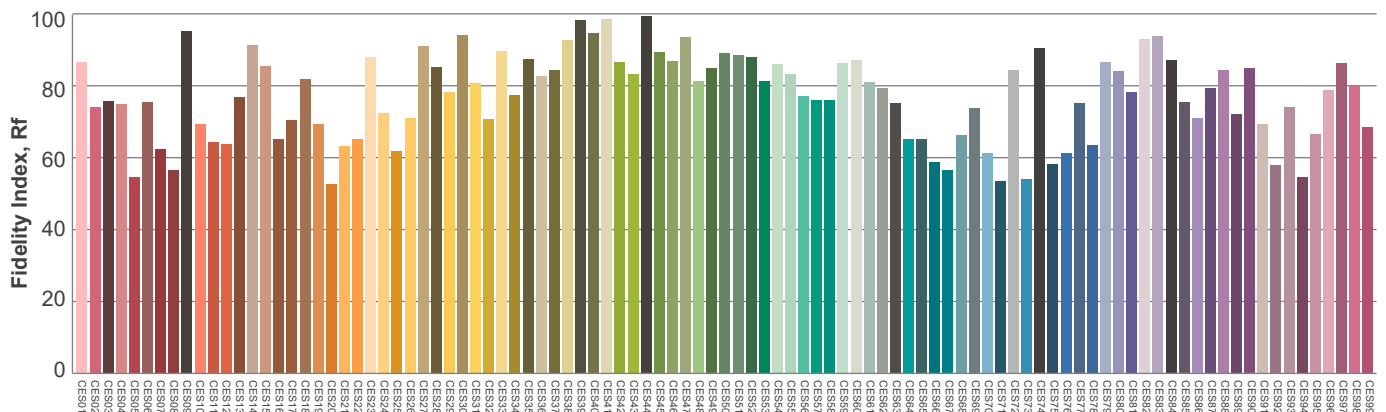
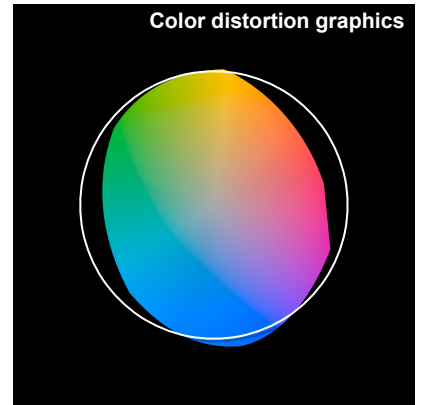
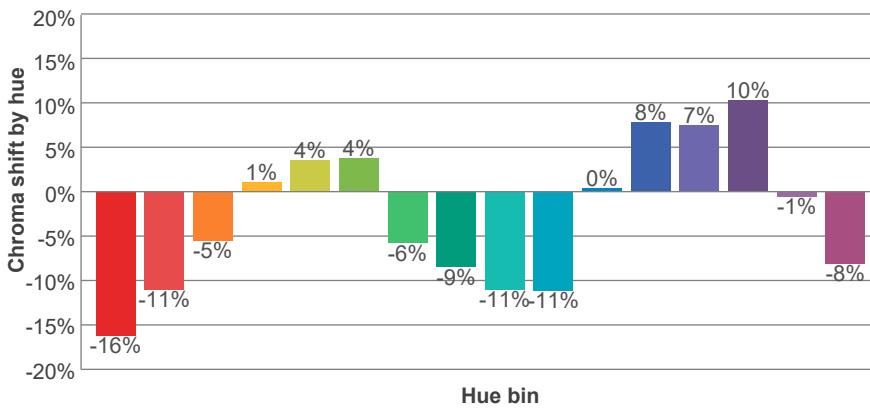
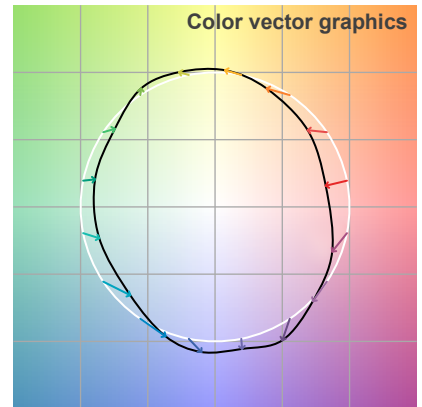
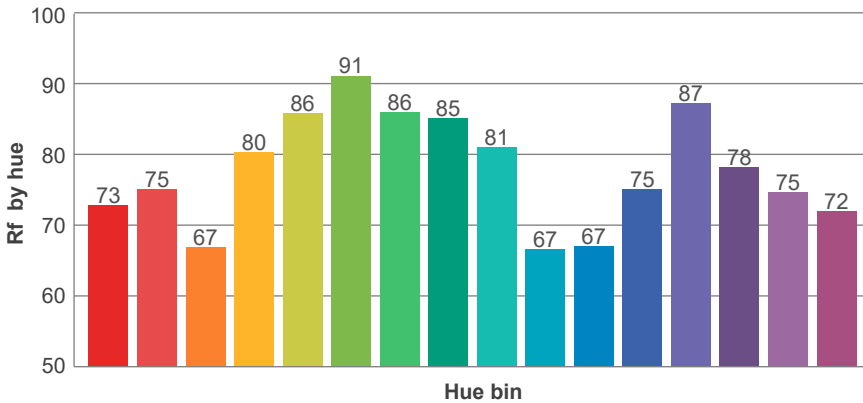
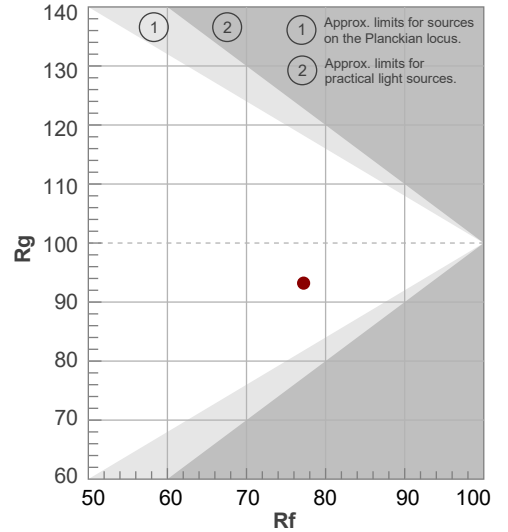


### TM30 Report

**Rf 77.2**  
Fidelity index Rf

**Rg 93.2**  
Gammut index Rg

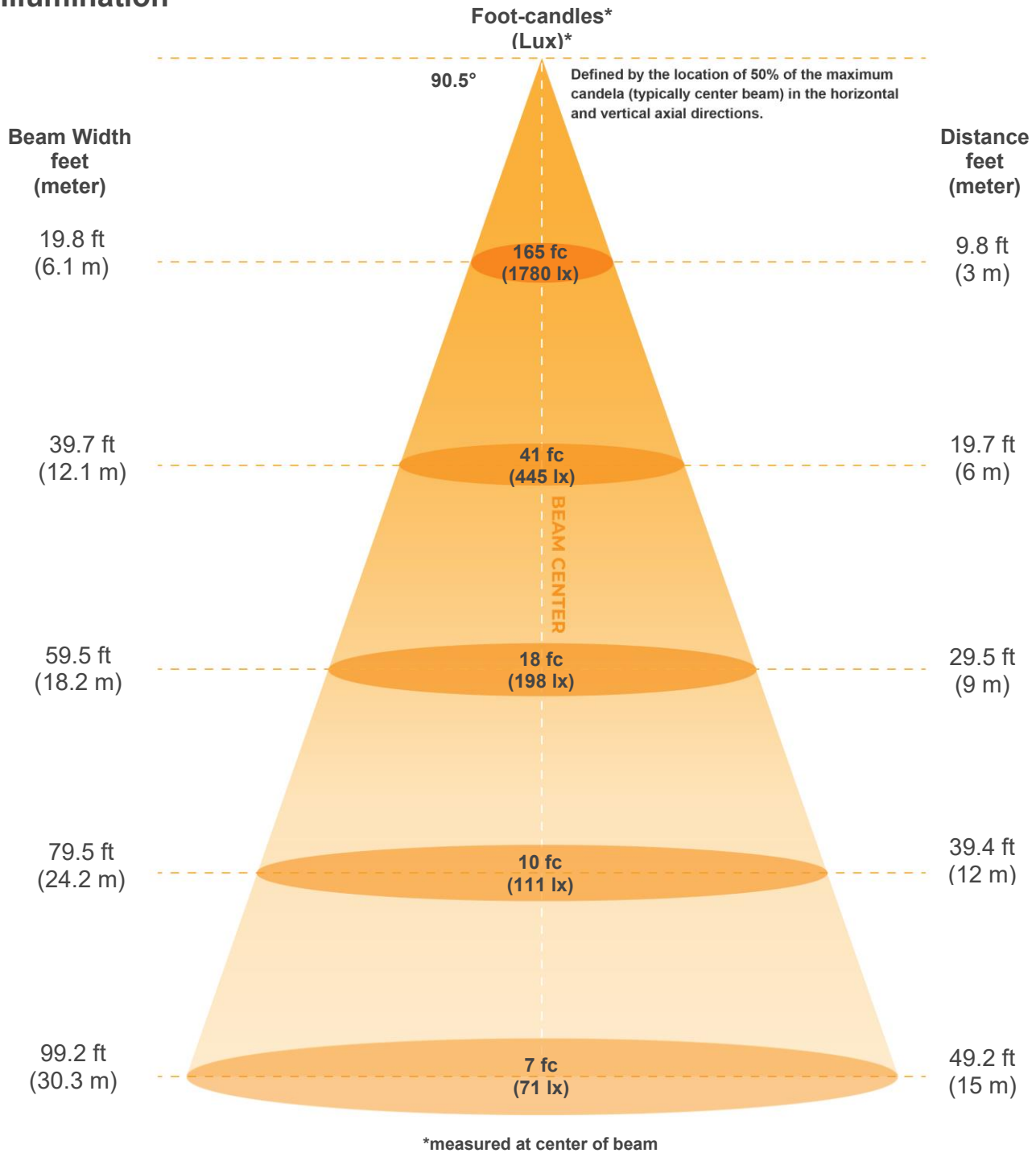
Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	73	-16%	-1%
2	75	-11%	9%
3	67	-5%	17%
4	80	1%	12%
5	86	4%	7%
6	91	4%	-3%
7	86	-6%	-7%
8	85	-9%	-3%
9	81	-11%	6%
10	67	-11%	20%
11	67	0%	23%
12	75	8%	11%
13	87	7%	-1%
14	78	10%	-14%
15	75	-1%	-18%
16	72	-8%	-16%



Color Evaluation Sample



**Illumination**



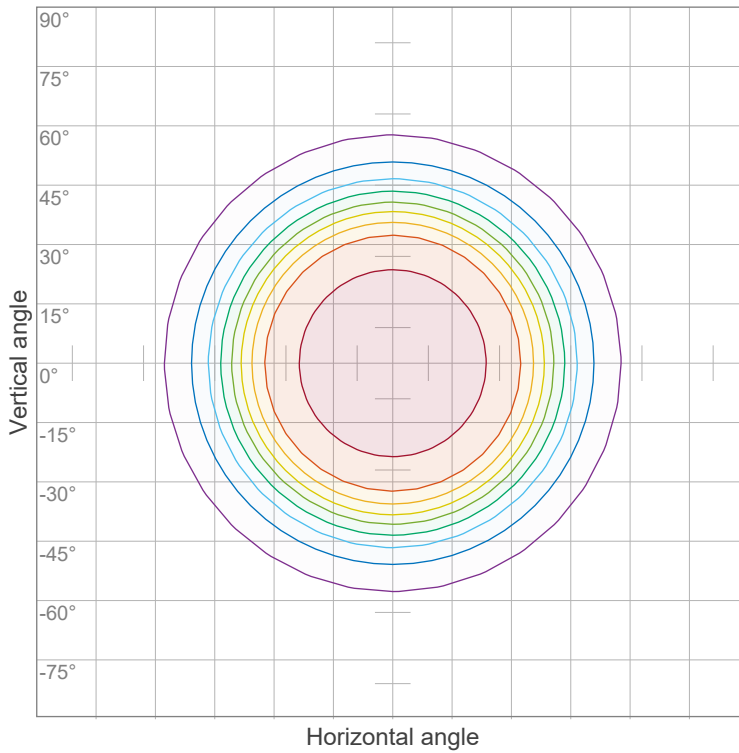
**Beam intensities from 1-20m**

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	16020	4005	1780	1001	641	445	327	250	198	160	132	111	95	82	71	63	55	49	44	40
fc	1488.3	372.1	165.4	93	59.5	41.3	30.4	23.3	18.4	14.9	12.3	10.3	8.8	7.6	6.6	5.8	5.1	4.6	4.1	3.7

Beam Angle 50%	Field Angle 10%	Cutoff Angle 2.5%	Intensity Ratio in 120° cone	Intensity Ratio in 90° cone
90.5°	128.3°	155.6°	92.6%	74.0%



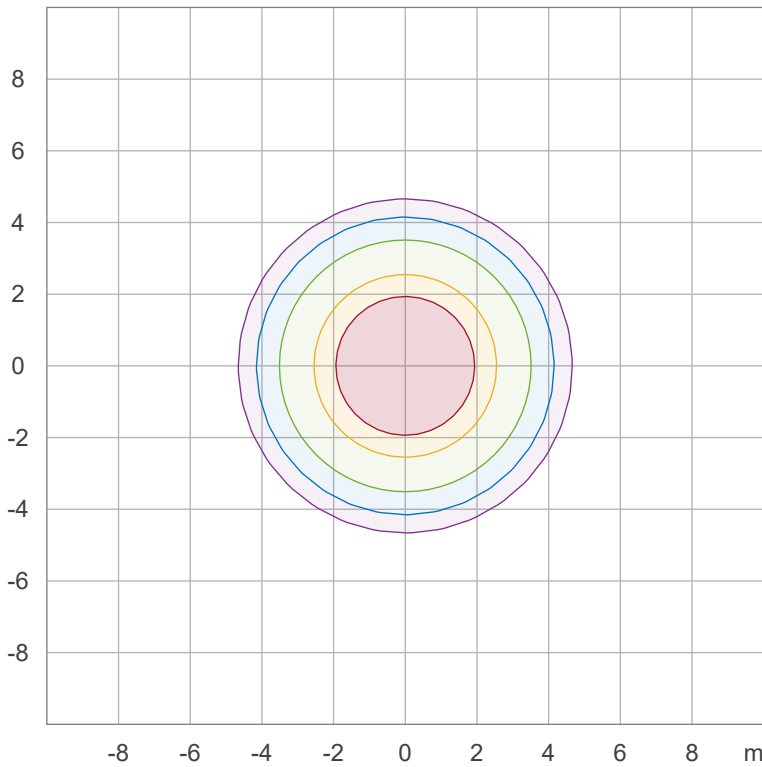
**Iso-intensity Diagram (Iso-candela)**



90 %	14417.8 cd
80 %	12815.8 cd
70 %	11213.9 cd
60 %	9611.9 cd
50 %	8009.9 cd
40 %	6407.9 cd
30 %	4805.9 cd
20 %	3204.0 cd
10 %	1602.0 cd

Peak intensity: 16019.8 cd  
 Number of c-planes: 16

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



50.0 %	890.0 lx
30.0 %	534.0 lx
10.0 %	178.0 lx
5.0 %	89.0 lx
3.0 %	53.4 lx

Peak illuminance: 1780.0 lx  
 Mounting height: 3.0 m  
 Number of c-planes: 16



**Light Planning – UGR table**

Uncorrected, comprehensive UGR table according to 117-1995

Reflectances		70	70	50	50	30	70	70	50	50	30
ρ Ceiling		70	70	50	50	30	70	70	50	50	30
ρ Walls		50	30	50	30	30	50	30	50	30	30
ρ Floor		20	20	20	20	20	20	20	20	20	20
Room size		Viewed Crosswise					Viewed Endwise				
H = mounting height above eye level		(Viewing direction orthogonal to lamp length axis)					(Viewing direction parallel to lamp length axis)				
X	Y										
2H	2H	28.3	29.3	28.5	29.6	29.8	28.3	29.3	28.5	29.6	29.8
	3H	28.4	29.5	28.9	29.7	30.0	28.4	29.5	28.9	29.7	30.0
	4H	28.5	29.5	28.9	29.8	30.0	28.5	29.5	28.9	29.8	30.0
	6H	28.6	29.5	28.9	29.8	30.1	28.6	29.5	28.9	29.8	30.1
	8H	28.6	29.4	28.9	29.7	30.2	28.6	29.4	28.9	29.7	30.2
	12H	28.6	29.4	28.9	29.7	30.2	28.6	29.4	28.9	29.7	30.2
4H	2H	28.3	29.3	28.7	29.6	29.8	28.3	29.3	28.7	29.6	29.8
	3H	28.7	29.5	29.1	29.9	30.3	28.7	29.5	29.1	29.9	30.3
	4H	28.8	29.5	29.2	29.9	30.5	28.8	29.5	29.2	29.9	30.5
	6H	28.9	29.6	29.4	29.9	30.3	28.9	29.6	29.4	29.9	30.3
	8H	28.9	29.5	29.4	29.9	30.3	28.9	29.5	29.4	29.9	30.3
	12H	28.9	29.4	29.4	29.8	30.3	28.9	29.4	29.4	29.8	30.3
8H	4H	28.8	29.4	29.3	29.8	30.2	28.8	29.4	29.3	29.8	30.2
	6H	28.9	29.4	29.4	29.9	30.4	28.9	29.4	29.4	29.9	30.4
	8H	29.0	29.4	29.5	29.9	30.6	29.0	29.4	29.5	29.9	30.6
	12H	29.0	29.3	29.6	29.8	30.5	29.0	29.3	29.6	29.8	30.5
12H	4H	28.7	29.3	29.2	29.7	30.2	28.7	29.3	29.2	29.7	30.2
	6H	28.9	29.3	29.5	29.9	30.5	28.9	29.3	29.5	29.9	30.5
	8H	29.0	29.3	29.6	29.8	30.4	29.0	29.3	29.6	29.8	30.4
<b>Variations with the observer position for the luminaire spacings, S:</b>											
S = 1.0H		0.6 / -1.0					0.6 / -1.0				
S = 1.5H		1.8 / -2.3					1.8 / -2.3				
S = 2.0H		3.2 / -3.4					3.2 / -3.4				

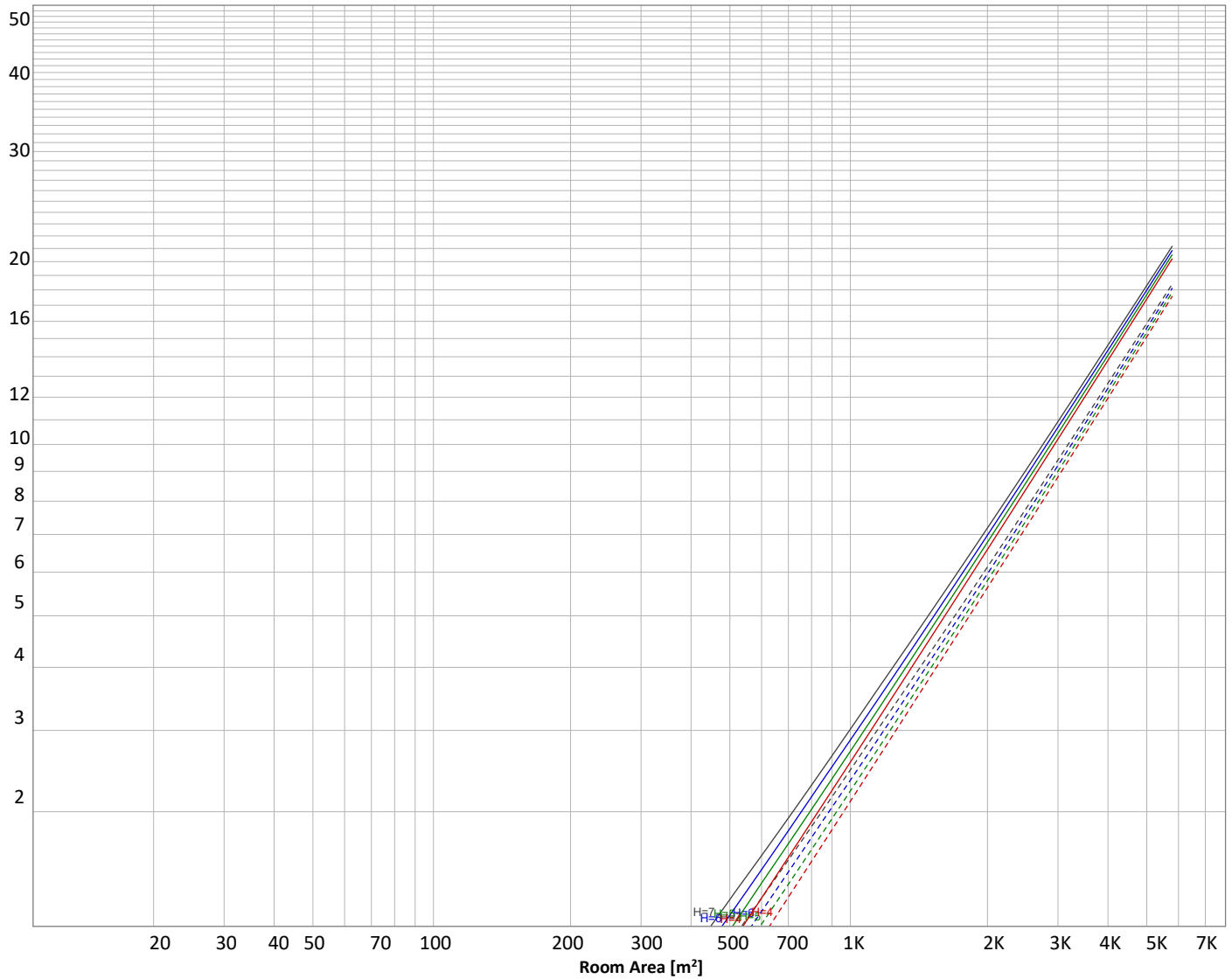
**Coefficients of Utilization**

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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	99
1	111	107	104	101	109	105	102	99	101	99	96	97	95	93	93	92	90	88
2	103	97	91	87	101	95	90	86	91	87	84	88	85	82	85	82	80	78
3	96	87	80	75	93	85	79	74	83	77	73	80	75	72	77	74	70	69
4	89	79	71	66	87	77	71	65	75	69	64	73	68	63	71	66	63	61
5	82	71	64	58	81	70	63	58	68	62	57	66	61	56	65	60	56	54
6	77	65	57	52	75	64	57	51	62	56	51	61	55	51	59	54	50	48
7	72	60	52	46	70	59	51	46	57	51	46	56	50	46	55	49	45	43
8	67	55	47	42	65	54	47	42	53	46	42	52	46	41	50	45	41	39
9	63	51	43	38	61	50	43	38	49	42	38	48	42	38	47	41	37	36
10	59	47	40	35	58	46	39	35	45	39	35	44	39	34	44	38	34	33



**Luminaire budgetary diagram**

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



**Conditions**

H = Room height	Flux = 32695 lm	ρ(%)			
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°
1517 lm	4366 lm	6712 lm	8043 lm	6308 lm	3341 lm	1487 lm	591 lm	143 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
16.7 lm	18.0 lm	22.1 lm	26.1 lm	28.6 lm	27.8 lm	23.9 lm	16.5 lm	5.94 lm

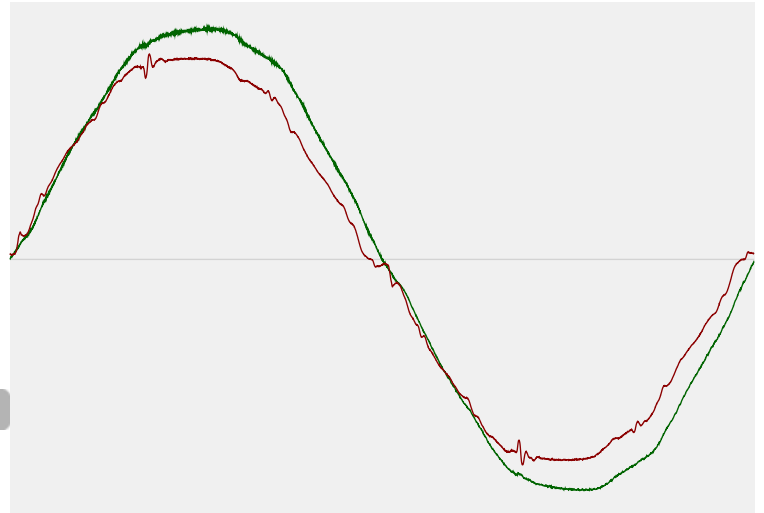


**Power Details**

**Input Power**

Power feed to light source	183.6 W
Frequency of input power	60 Hz
RMS Input voltage feed, $V_{RMS}$	118 V
RMS Input current feed, $I_{RMS}$	1.56 A
Volt-Ampere or apparent power = $V_{RMS} * I_{RMS}$	184.49 VA
Displacement factor of AC power feed	1.0
Power factor of AC current feed	1.0
Total harmonic distortion of the current	3.78%
Total harmonic distortion of the voltage	2.31%

**Input Power Curve**



**Efficiency**

Radiated power efficiency 51.4%



Lumen efficiency 178 lm/W



**Stabilization Details**

**Warmup Conditions**

Stable period	n/a
Stable change max	n/a%
Minimum time	n/a

**Color Temperature Change**

CCT start	n/a K
CCT shift	n/a K
CCT end	3758 K

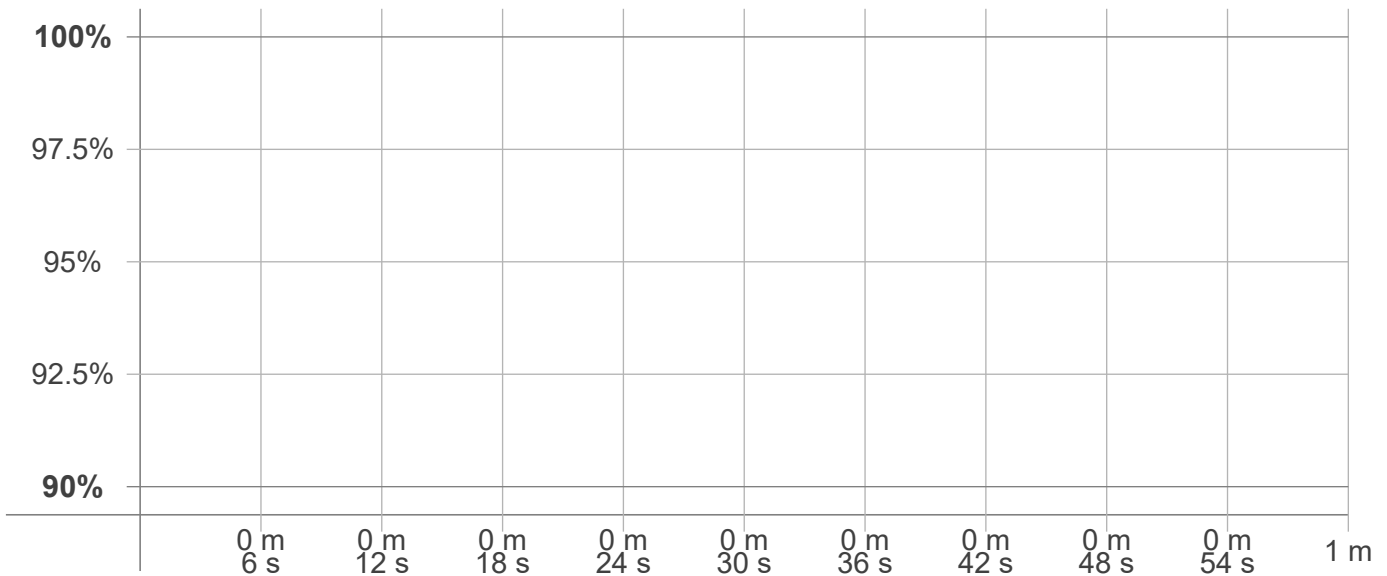
**Warmup Result**

Total warmup time	n/a
Warmup variation	n/a%

**Output Change**

Output start	n/a lm
Output change	n/a lm
Output end	32695 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 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                    118.34 Hz  
 Percent Flicker                    0.1 %  
 Flicker index                        0

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

JA8/10 40 Hz                        0.01 %  
 JA8/10 90 Hz                       0.01 %  
 JA8/10 200 Hz                    0.09 %  
 JA8/10 400 Hz                    0.09 %  
 JA8/10 1000 Hz                   0.09 %

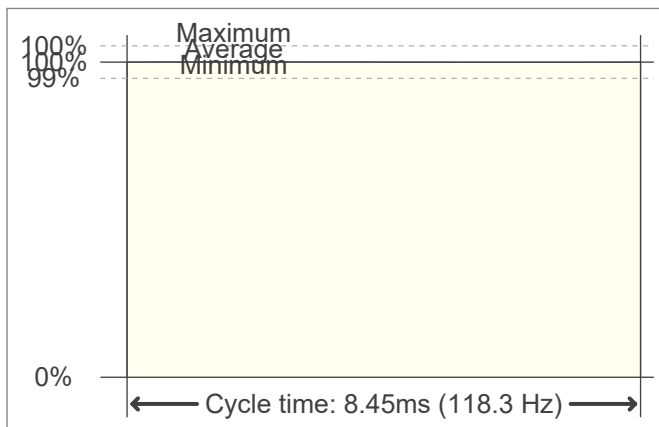
**TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC 61000-4-15)**

PstLM value (F < 80 Hz)            0  
 SVM value (80 < F < 2000 Hz)    0

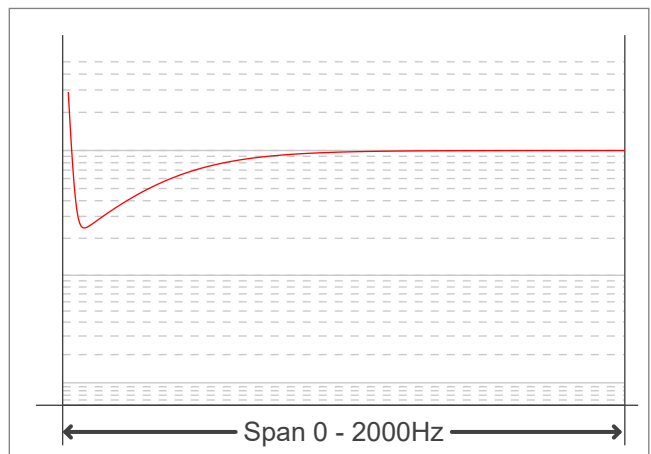
**Flicker indices according to Lighting Research Center (2015)**

Perception metric, Assist Mp        0

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



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



**IEEE 1789 Frequency/modulation plot**

