

Light efficiency:

157 Lumen/Watt

Output: 16299 lm

Light quality:

CRI: 74.8

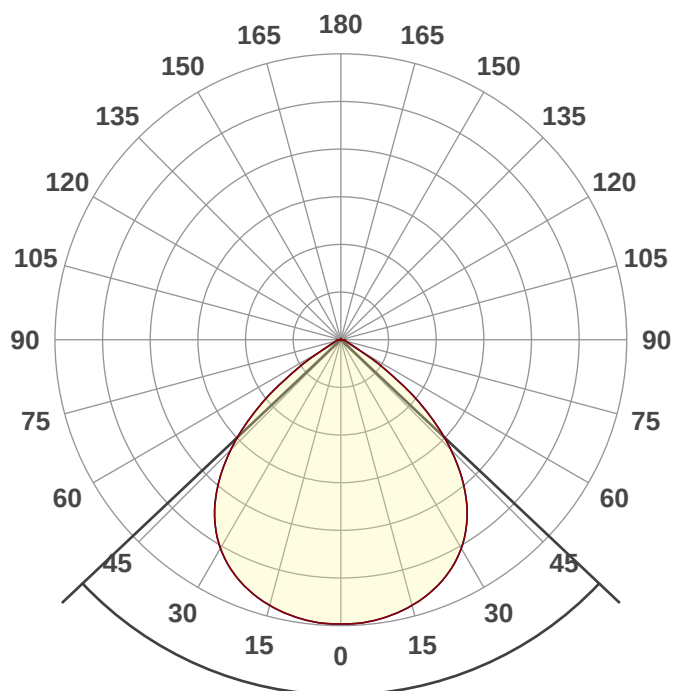
Peak: 8295 cd

Color temperature:

5394 K

Power: 103.5 W

PF: 1.0



Product name:

HPAL2-50K100-90

Date and time:

3/3/2021 8:54:56 AM

Beam angle

93.3°

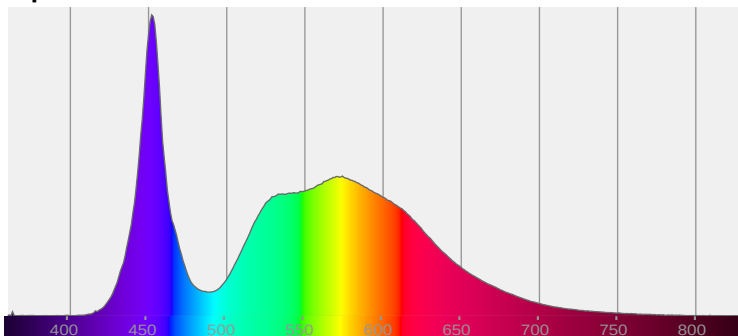


CIE 1931

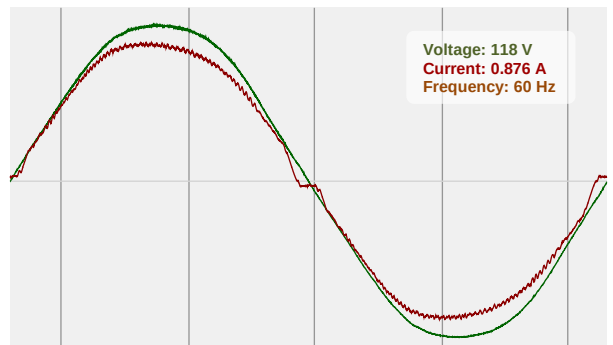
x: 0.335

y: 0.336

Spectra



Power



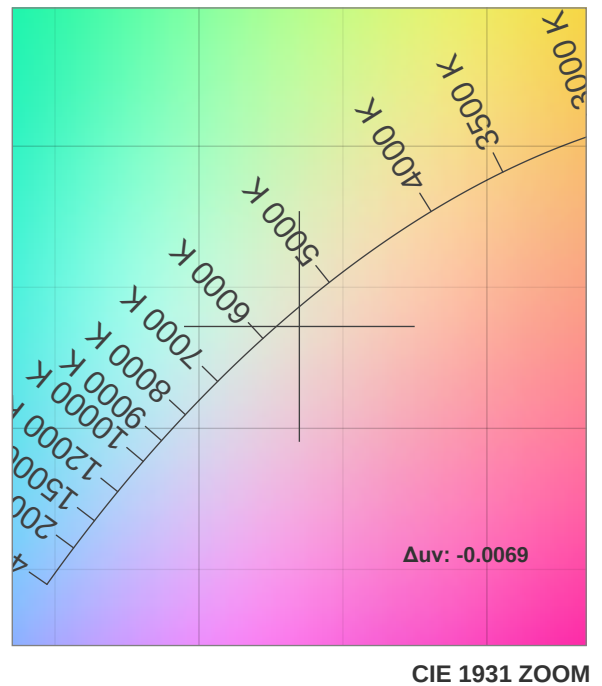
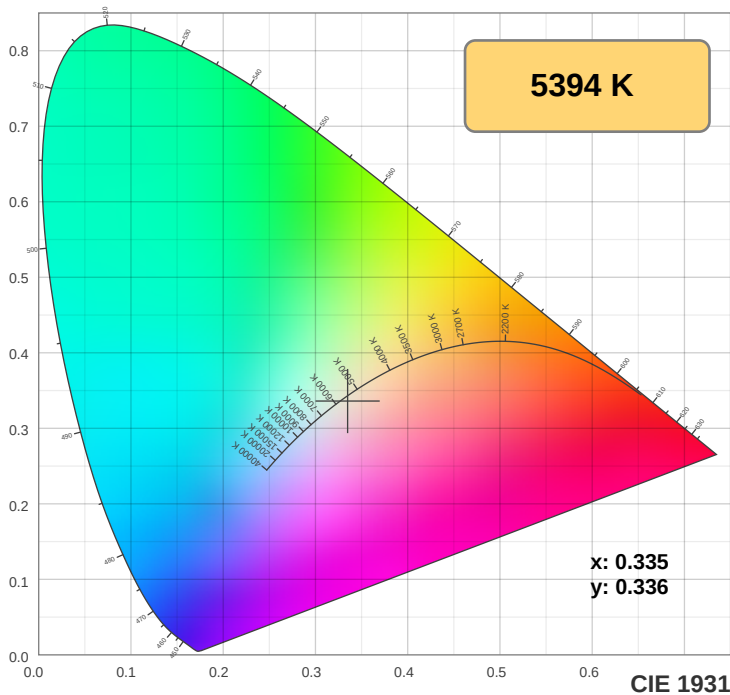
T 314.743.3067

F 314.972.6202

email: commercial-sales@superbrightleds.com

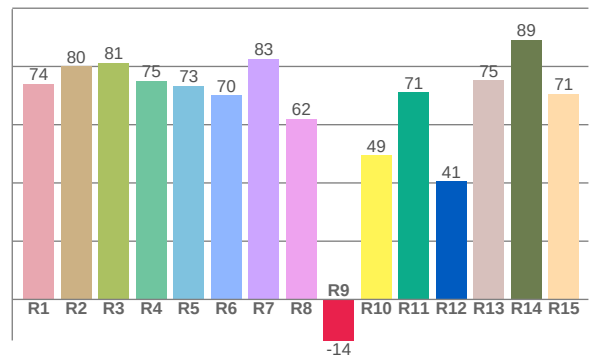
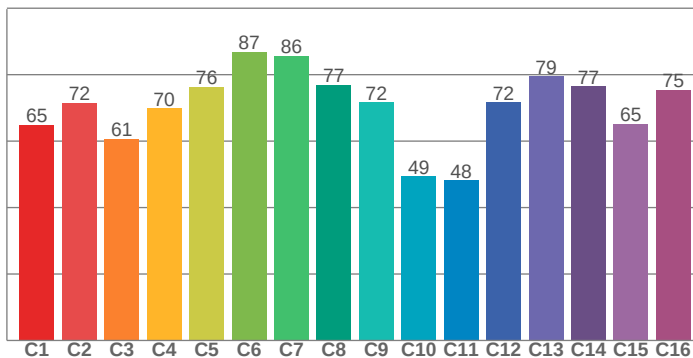
www.superbrightleds.com/

Color Specifications



TM30: 70.0

CRI: 74.8 (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
74.1	80.1	81.3	75.1	73.4	70.0	82.6	62.0	-14.1	49.4	71.1	40.6	75.2	89.2	70.6

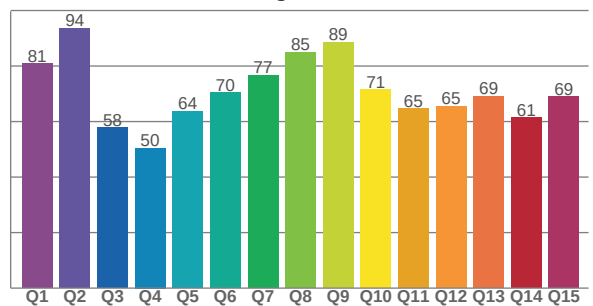
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
64.9	71.6	60.7	69.9	76.4	86.9	85.7	76.9	71.6	49.4	48.2	71.7	79.5	76.5	65.2	75.5

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
80.9	93.6	57.7	50.5	63.7	70.4	76.7	84.9	88.5	71.5	64.6	65.5	69.1	61.3	69.0

CQS: 69.0



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
5394 K	74.8	-14.1	70.0	93.9	69.0	0.335	0.336	0.210	0.317	-0.0069



TM30 Report

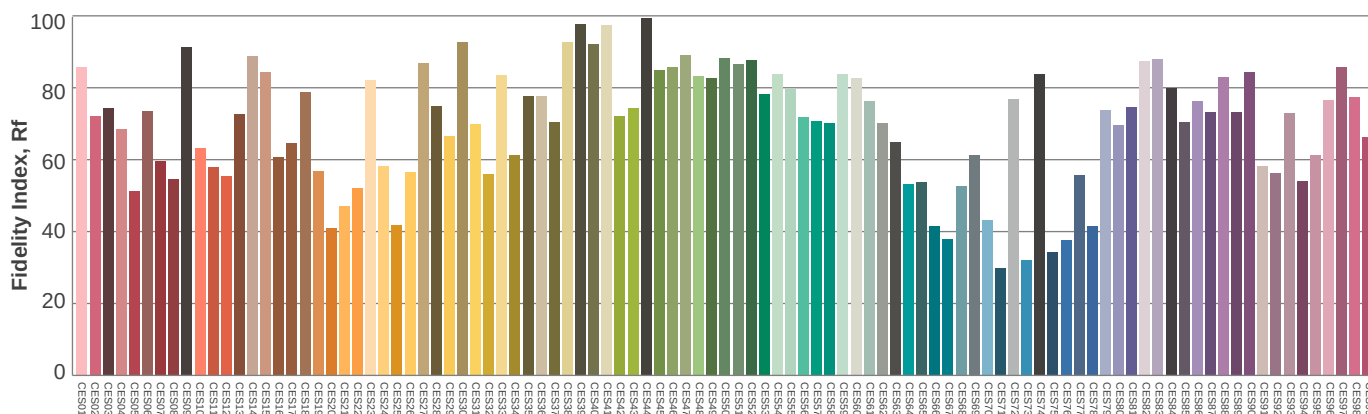
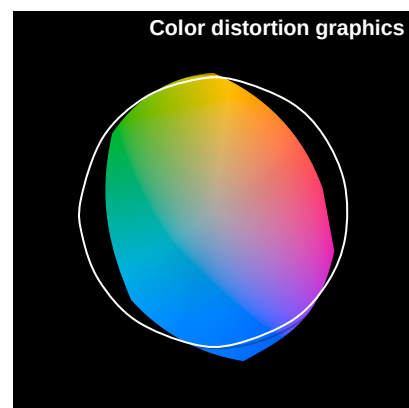
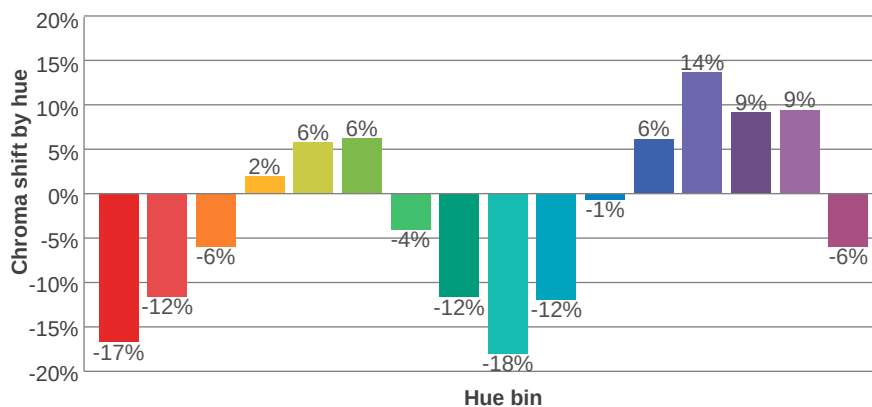
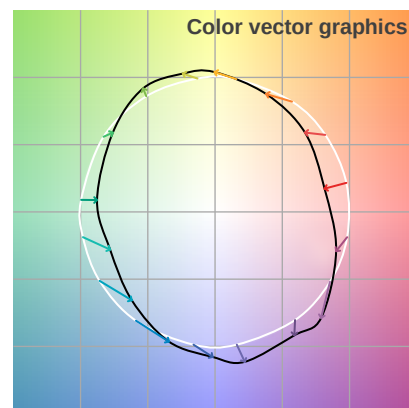
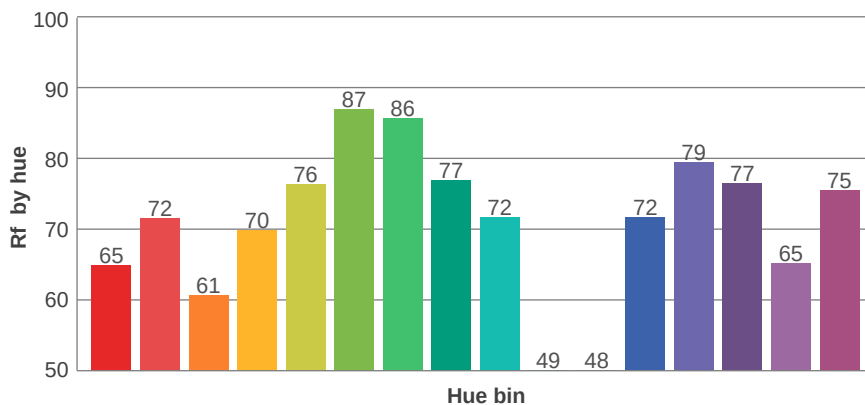
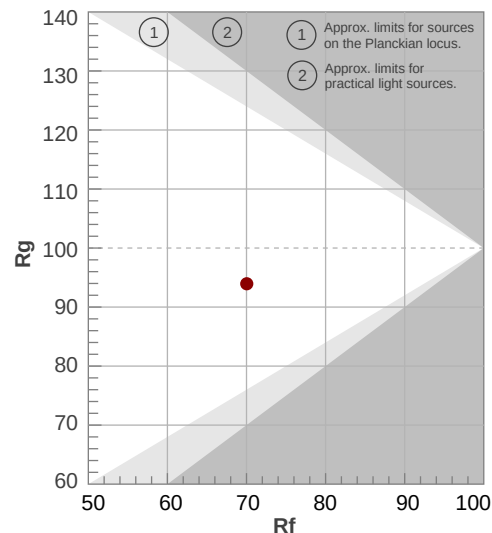
Rf 70.0

Fidelity index Rf

Rg 93.9

Gamut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	65	-17%	-1%
2	72	-12%	10%
3	61	-6%	19%
4	70	2%	17%
5	76	6%	10%
6	87	6%	-1%
7	86	-4%	-6%
8	77	-12%	-2%
9	72	-18%	13%
10	49	-12%	25%
11	48	-1%	29%
12	72	6%	16%
13	79	14%	3%
14	77	9%	-7%
15	65	9%	-26%
16	75	-6%	-12%



The diagram illustrates a light beam with a 93.3° spread. A vertical dashed line marks the **BEAM CENTER**. Horizontal dashed lines indicate distances from the source, with corresponding foot-candle (fc) and lux (lx) values. The beam's intensity decreases as distance increases.

Distance	Foot-candles (fc)	Lux (lx)
19.7 ft (6 m)	21 fc	230 lx
24.6 ft (7.5 m)	14 fc	147 lx
29.5 ft (9 m)	10 fc	102 lx
34.4 ft (10.5 m)	7 fc	75 lx
39.4 ft (12 m)	5 fc	58 lx

Foot-candles* (Lux)*
93.3°
 Defined by the location of 50% of the maximum candela (typically center beam) in the horizontal and vertical axial directions.

Distance feet (meter)

Beam intensities from 1-20m

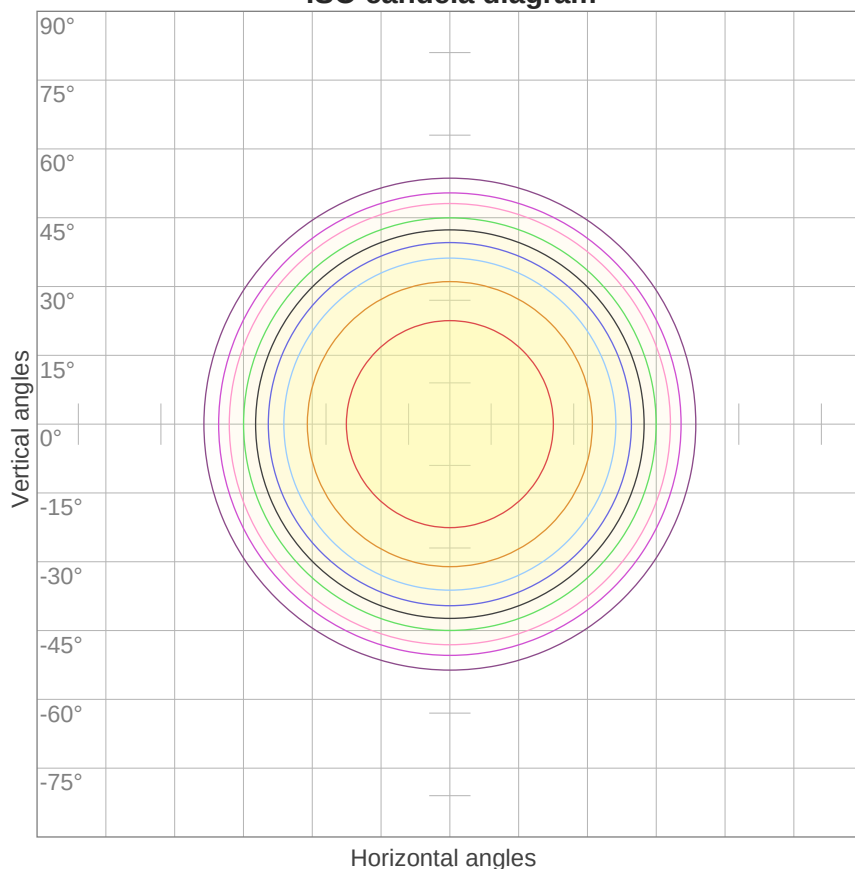
1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
8295lx	2074lx	922lx	518lx	332lx	230lx	169lx	130lx	102lx	83lx	69lx	58lx	49lx	42lx	37lx	32lx	29lx	26lx	23lx	21lx
770.6fc	192.7fc	85.6fcd	48.2fcd	30.8fcd	21.4fcd	15.7fcd	12fcd	9.5fcd	7.7fcd	6.4fcd	5.4fcd	4.6fcd	3.9fcd	3.4fcd	3fcd	2.7fcd	2.4fcd	2.1fcd	1.9fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
93.3°	119.9°	139.4°	96.2%	75.9%



ISO Diagrams

ISO candela diagram



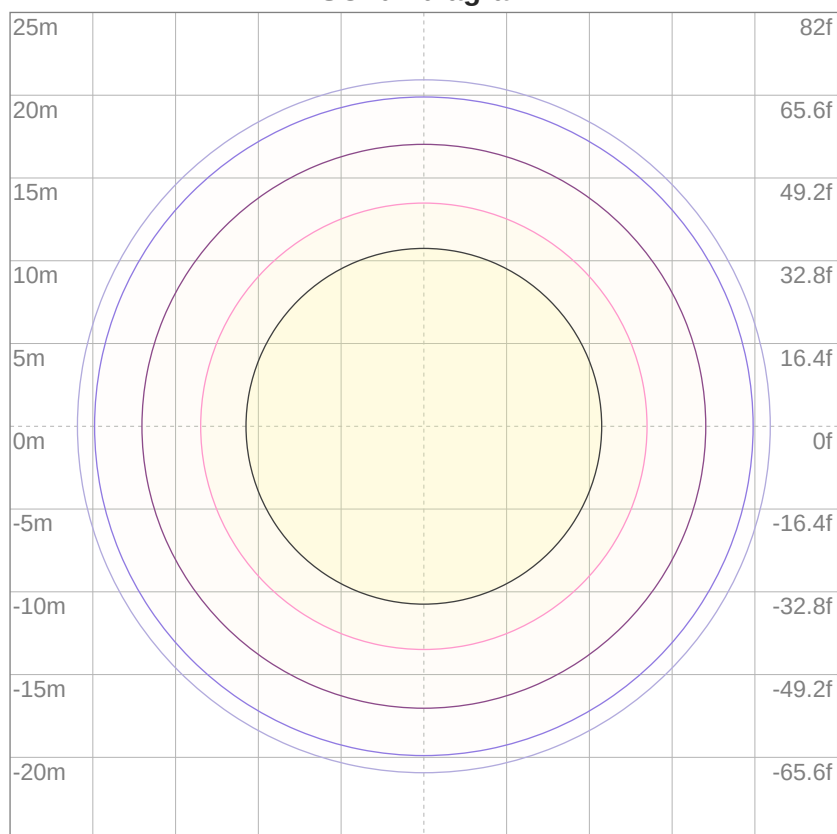
10%	829 cd
20%	1659 cd
30%	2488 cd
40%	3318 cd
50%	4147 cd
60%	4977 cd
70%	5806 cd
80%	6636 cd
90%	7465 cd

Conditions:

Number of c-planes: 16

Candela at center: 8295 cd

ISO lux diagram



3%	2.49 lx
5%	4.15 lx
10%	8.29 lx
30%	24.9 lx
50%	41.5 lx

Conditions:

Number of c-planes: 16

Lux at center: 82.9 lx

*Lux distribution on a surface
when lamp is mounted at 10
meters from the surface.*



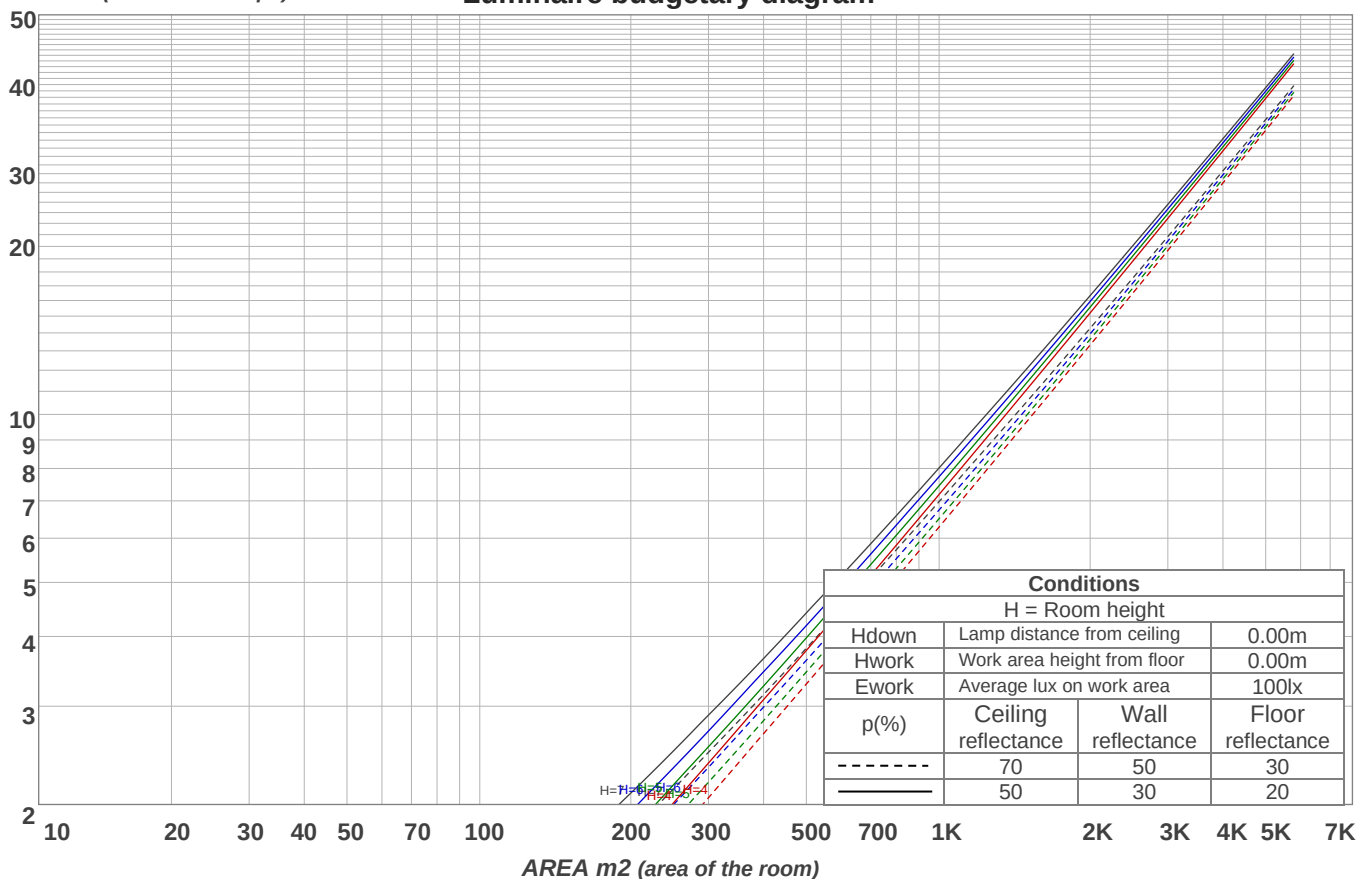
Light Planning

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 Lumens 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	112	108	105	102	109	106	103	100	102	99	97	98	96	94	94	93	91	89
2	104	98	92	88	102	96	91	87	92	88	85	89	86	83	86	84	81	79
3	97	88	82	77	94	87	81	76	84	79	75	81	77	73	79	75	72	70
4	90	80	73	67	88	79	72	67	76	71	66	74	69	65	72	68	64	62
5	83	73	65	60	82	72	65	59	70	63	59	68	62	58	66	61	57	56
6	78	66	59	53	76	65	58	53	64	57	53	62	56	52	61	56	52	50
7	73	61	53	48	71	60	53	48	59	52	47	57	51	47	56	51	47	45
8	68	56	48	43	66	55	48	43	54	47	43	53	47	43	52	46	42	41
9	64	52	44	39	62	51	44	39	50	43	39	49	43	39	48	43	39	37
10	60	48	41	36	59	47	40	36	46	40	36	45	40	36	45	39	35	34

LAMPS (number of lamps)

Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
787 lm	2268 lm	3444 lm	3991 lm	3464 lm	1720 lm	345 lm	147 lm	43.6 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
6.58 lm	8.19 lm	10.8 lm	13.1 lm	13.8 lm	13.6 lm	11.3 lm	7.67 lm	2.83 lm

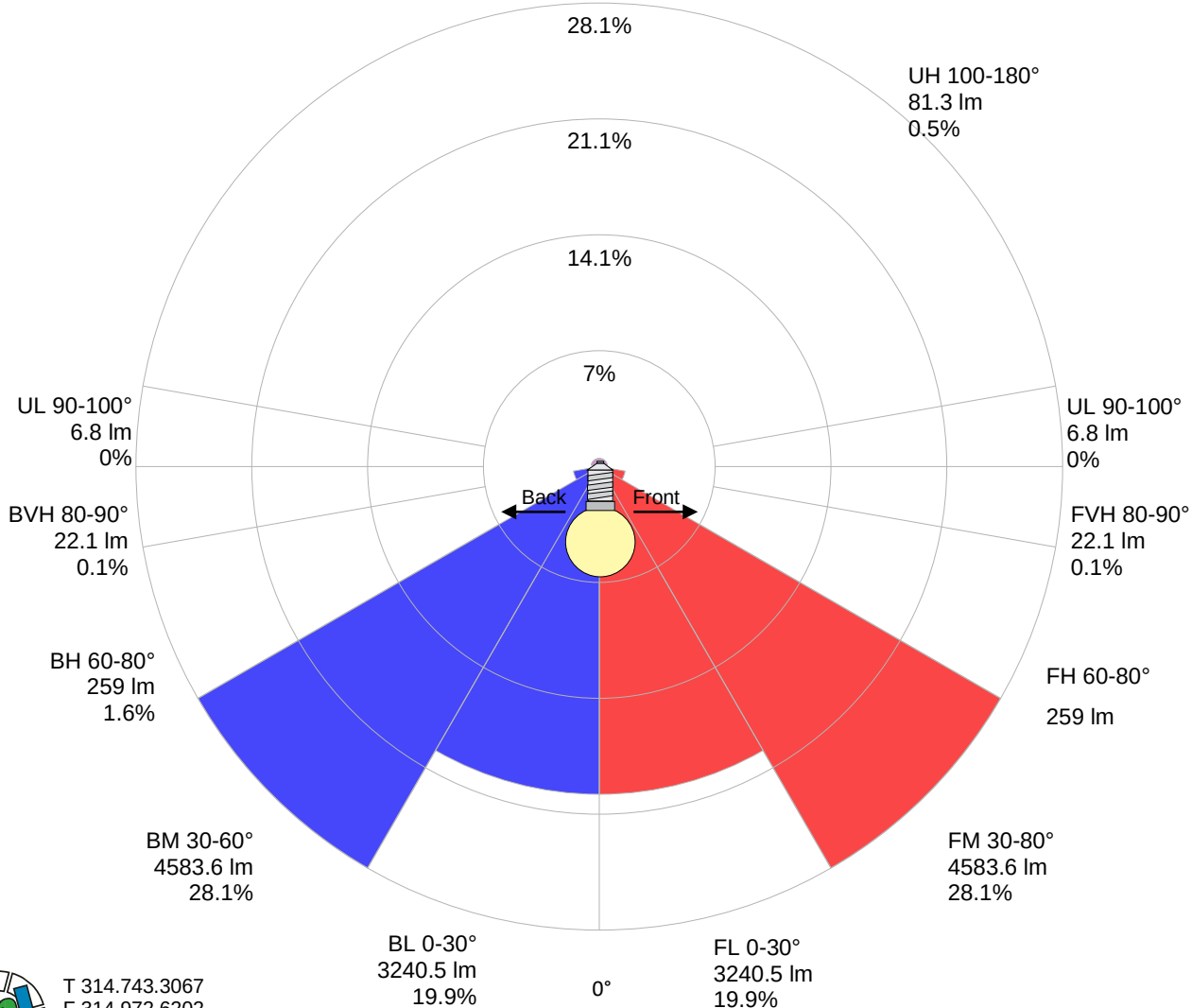


Road Report

LCS table

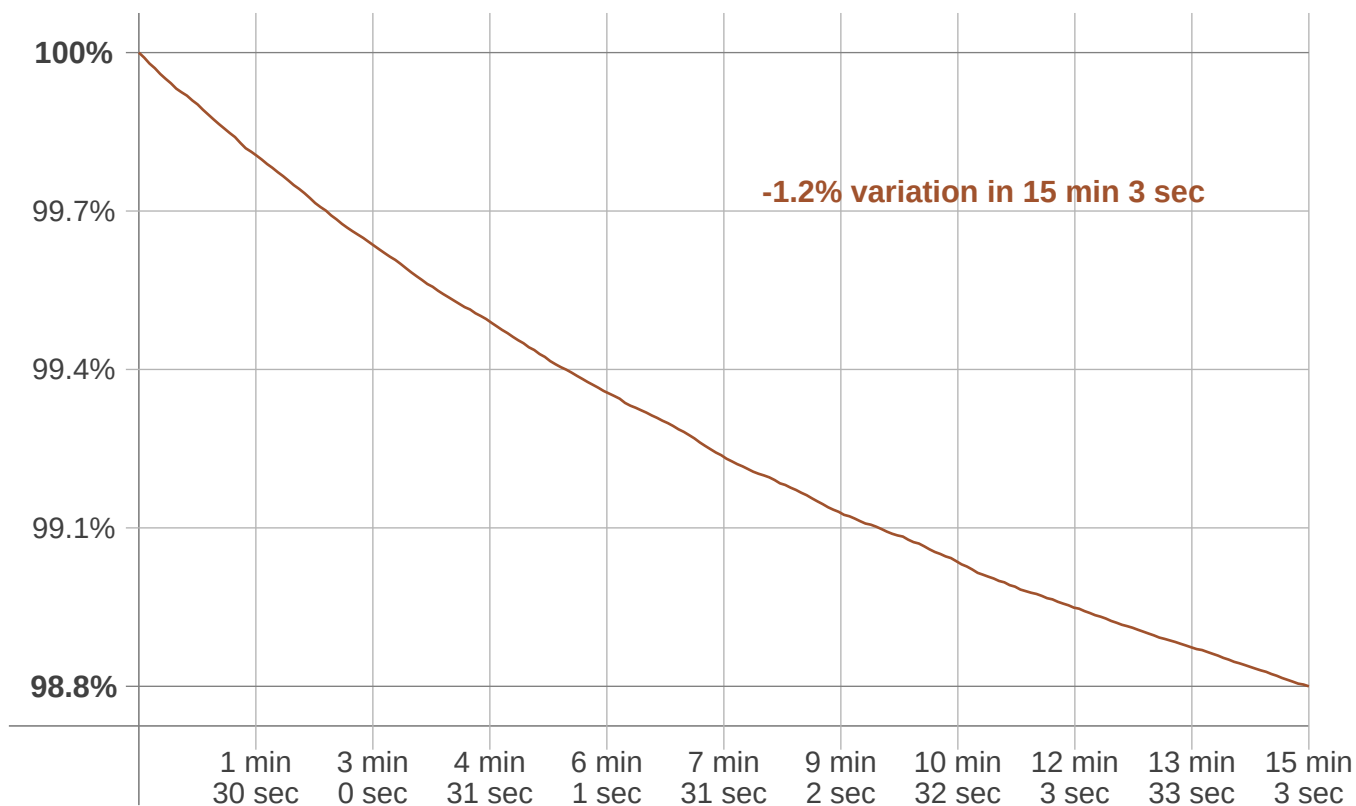
BUG rating:	B4 U3 G1	
Forward light	Lumens	Lumens %
Low(0-30):	3240.5	19.9%
Medium(30-60):	4583.6	28.1%
High(60-80):	259	1.6%
Very high(80-90):	22.1	0.1%
Back light		
Low(0-30):	3240.5	19.9%
Medium(30-60):	4583.6	28.1%
High(60-80):	259	1.6%
Very high(80-90):	22.1	0.1%
Uplight		
Low(90-100):	6.8	0%
High(100-180):	81.3	0.5%

LCS graph



Stabilization

Warmup curve



Warmup result

Warmup time:	15 min 3 sec
Warmup variation	-1.2%

Warmup conditions

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

Color temperature change

CCT start	CCT change	CCT end
5368 K	+26 K	5394 K

Output change

Output start	Output change	Output end
16498 lm	-199 lm	16299 lm

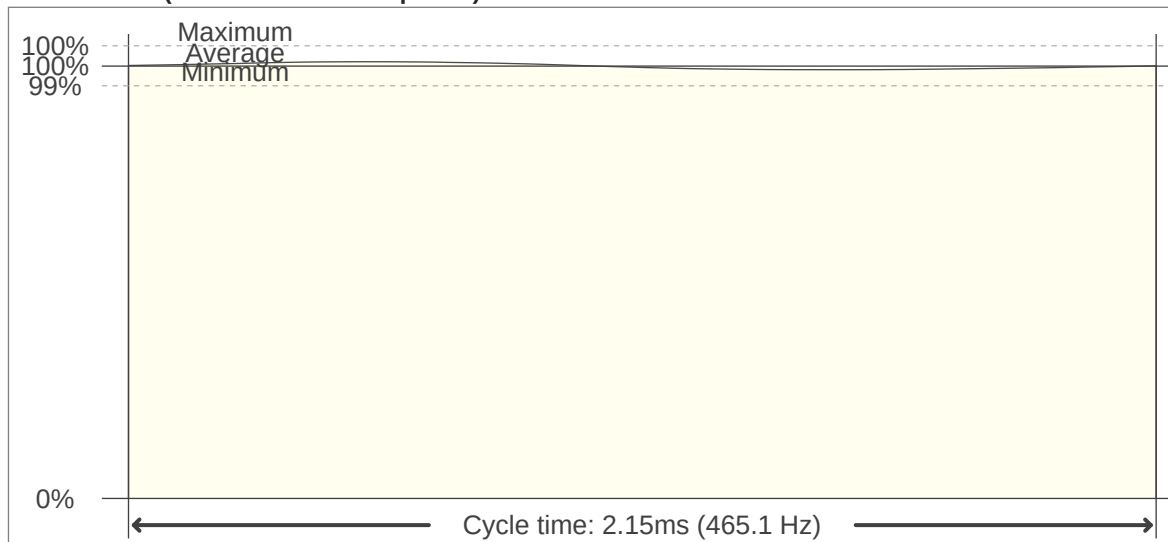


Flicker

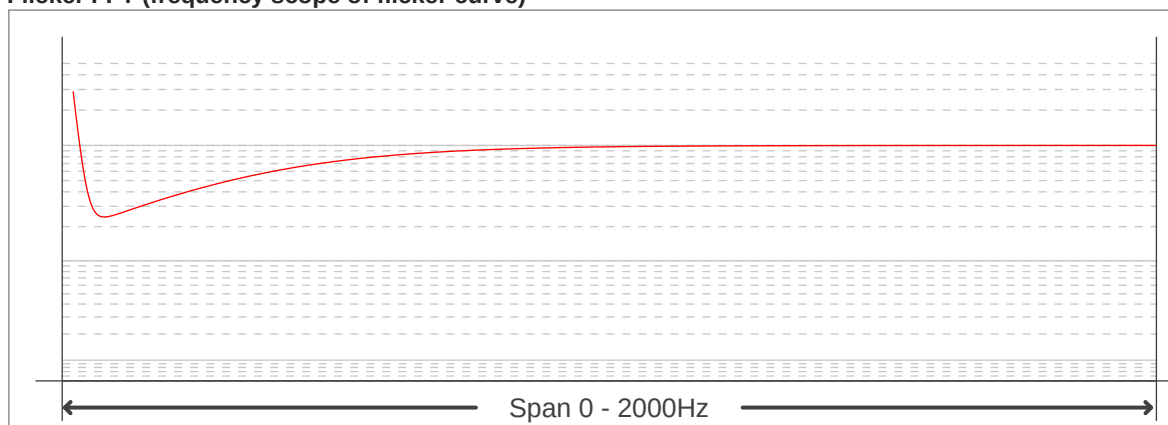
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	465.12 Hz
Flicker index:	0
Flicker percentage:	1.09 %
SVM: (Visual flicker)	0.01

Flicker conditions:

Sample rate:	40000 samples/second
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