

## Light efficiency:

n/a Lumen/Watt

## Light quality:

CRI: 93.1

## Color temperature:

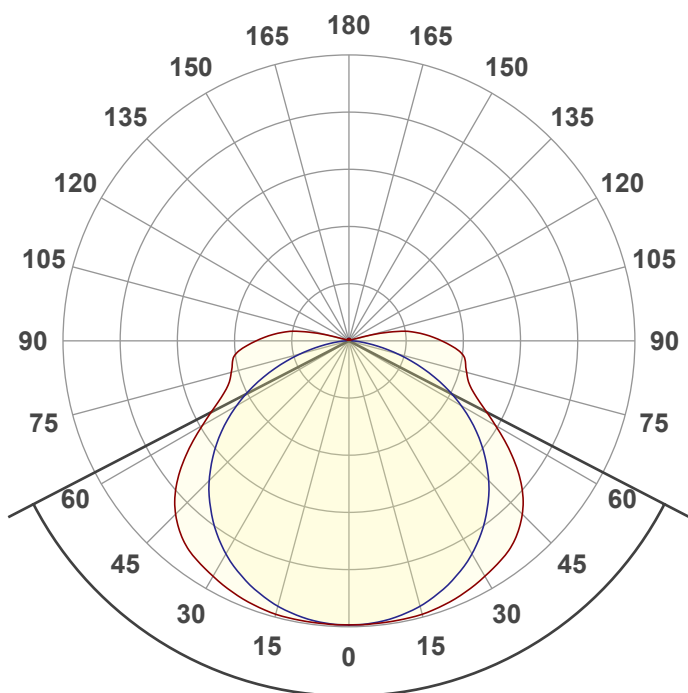
3452 K

Output: 412 lm

Peak: 109 cd

Power: 0.00 W

PF: n/a



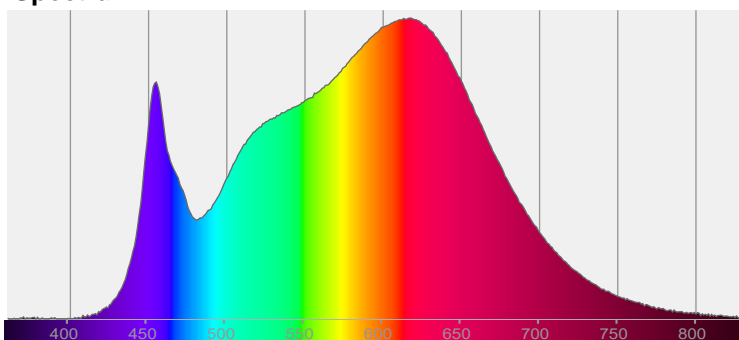
Beam angle

125.2°

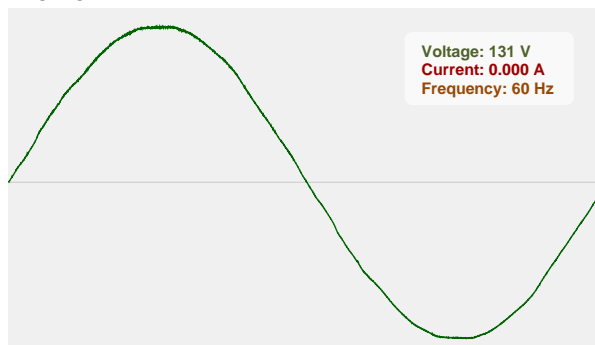


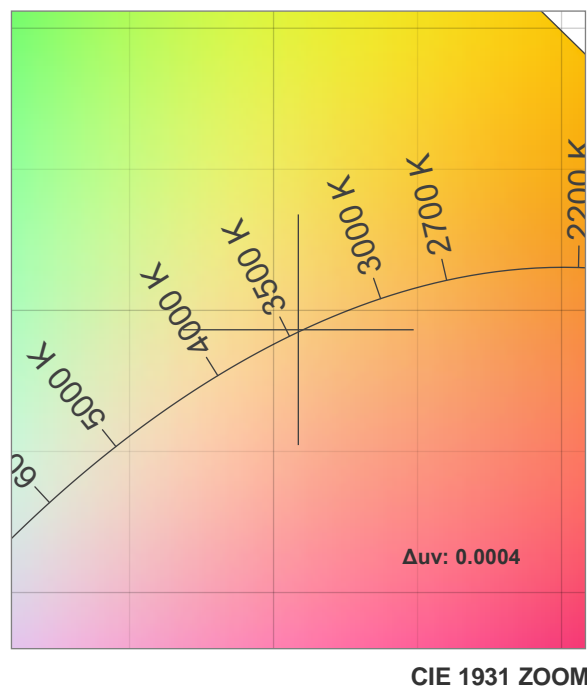
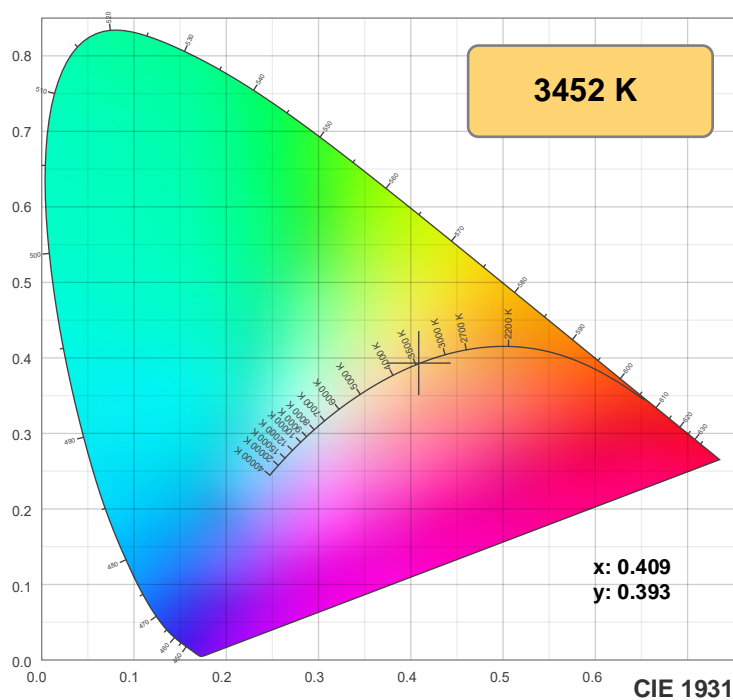
CIE 1931  
x: 0.409  
y: 0.393

## Spectra

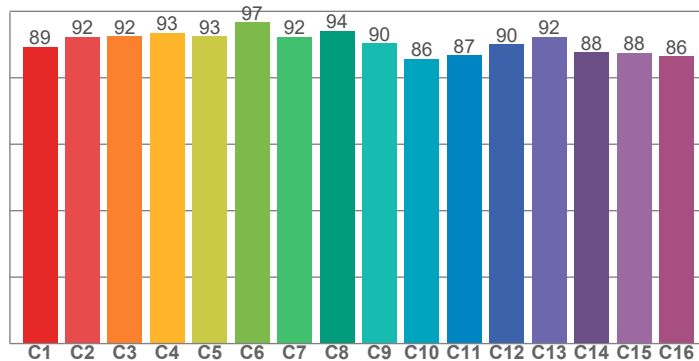


## Power

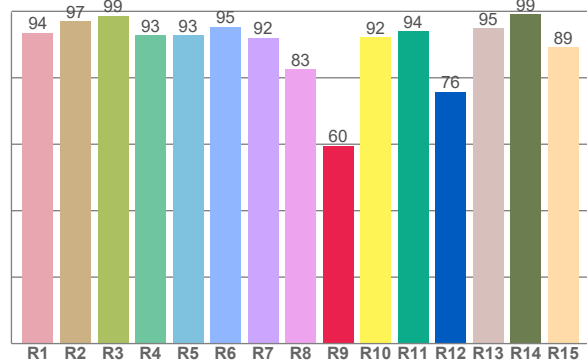




### TM-30: 90.5



### CRI: 93.1 (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
93.5	97.1	98.7	92.7	92.8	95.4	92.1	82.6	59.6	92.2	94.0	75.8	94.8	99.2	89.1

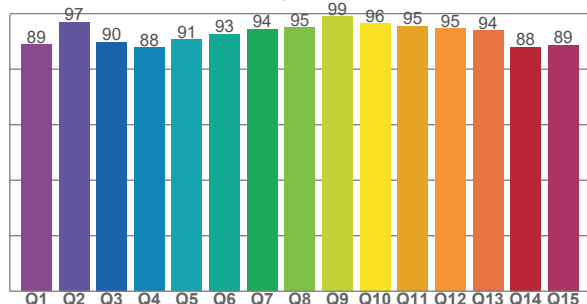
#### TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
89.4	92.4	92.5	93.4	92.5	96.7	92.2	94.1	90.3	85.7	86.7	90.1	92.2	87.7	87.5	86.5

#### CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
88.9	97.0	89.7	87.7	90.6	92.6	94.4	94.9	98.9	96.5	95.4	94.6	93.9	88.1	88.6

### CQS: 92.0



### 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
3452 K	93.1	59.6	90.5	97.2	92.0	0.409	0.393	0.237	0.342	0.0004

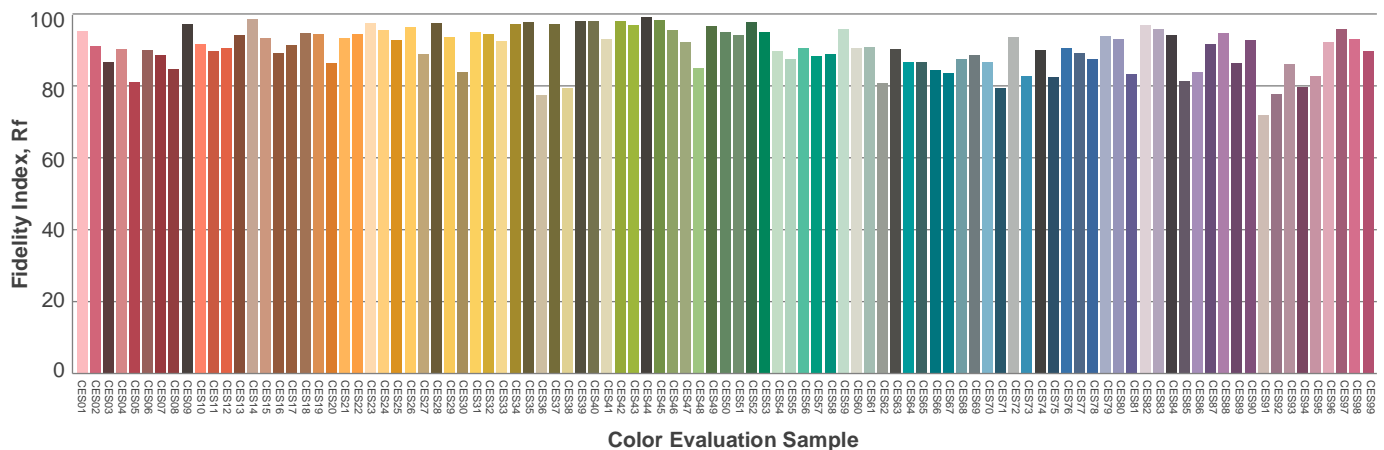
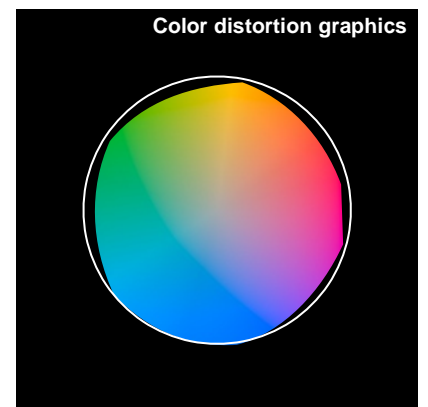
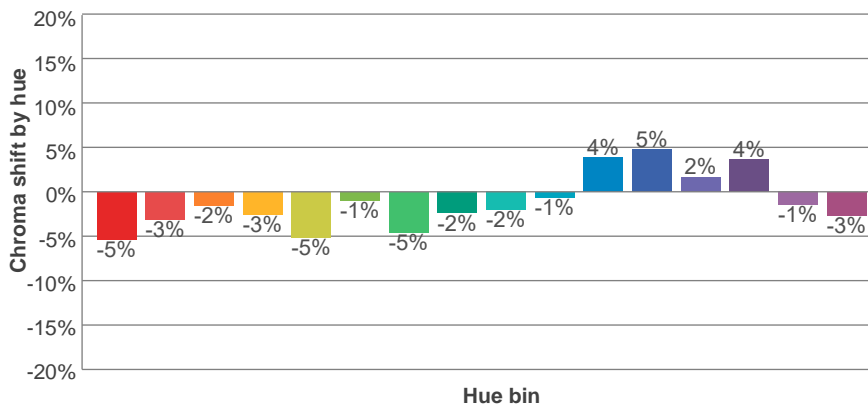
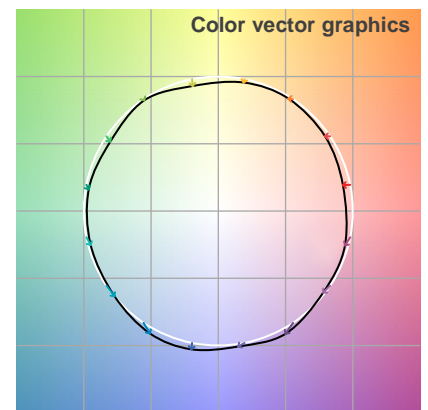
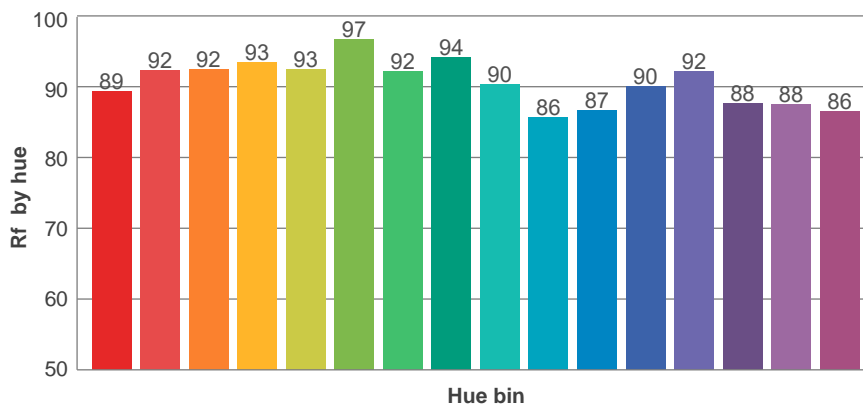
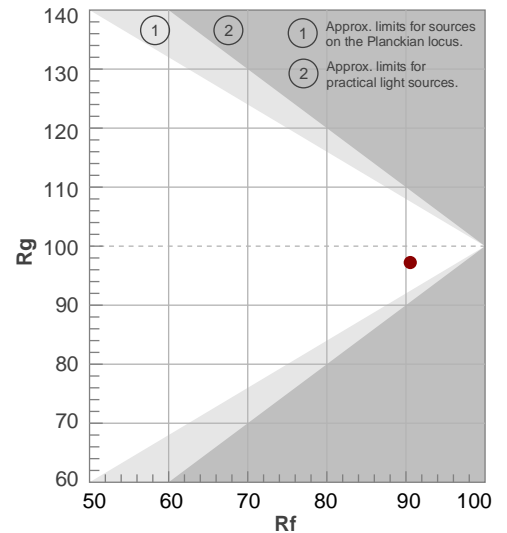
**Rf 90.5**

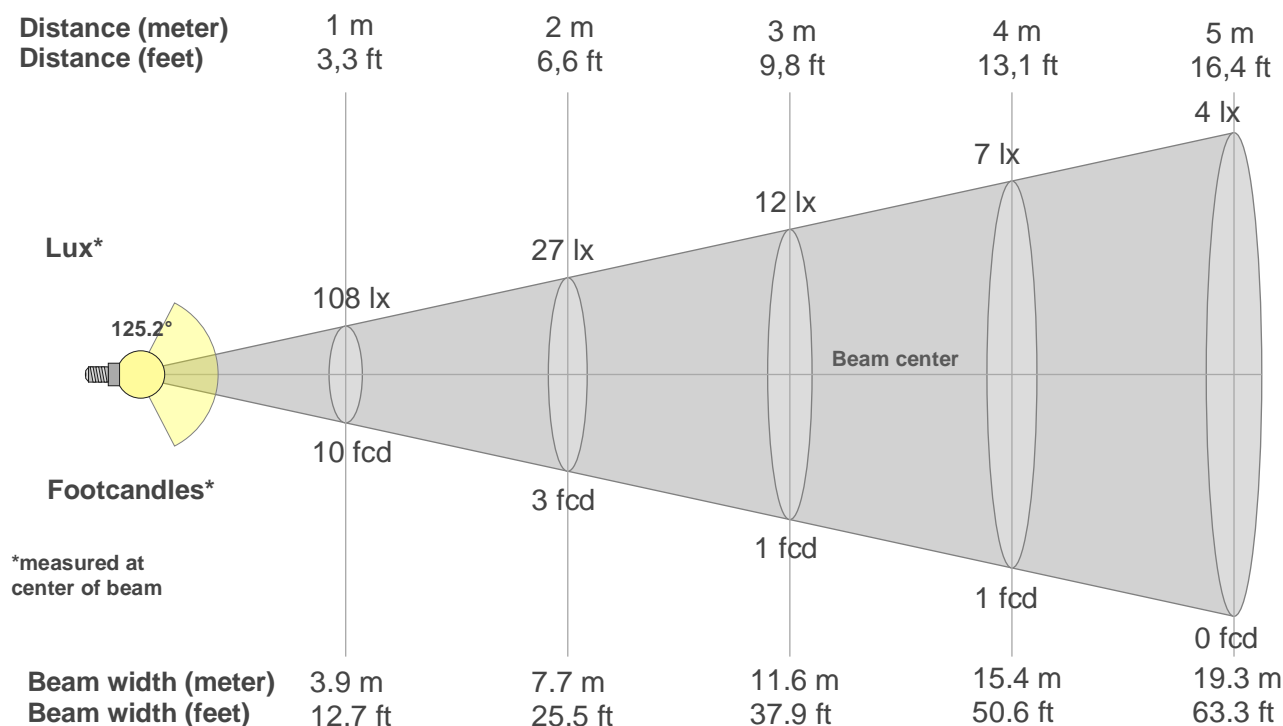
Fidelity index Rf

**Rg 97.2**

Gamut index Rg

Hue Bin	R <sub>f</sub>	Shifts (%)	
		Chroma	Hue
1	89	-5%	1%
2	92	-3%	2%
3	92	-2%	3%
4	93	-3%	0%
5	93	-5%	1%
6	97	-1%	0%
7	92	-5%	2%
8	94	-2%	3%
9	90	-2%	6%
10	86	-1%	10%
11	87	4%	8%
12	90	5%	0%
13	92	2%	-5%
14	88	4%	-9%
15	88	-1%	-7%
16	86	-3%	-7%





### 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
108lx	27lx	12lx	7lx	4lx	3lx	2lx	2lx	1lx	1lx	1lx	1lx	1lx	1lx	0lx	0lx	0lx	0lx	0lx	0lx
10.1fcd	2.5fcd	1.1fcd	0.6fcd	0.4fcd	0.3fcd	0.2fcd	0.2fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd

### Intensities in 0° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
108	108	107	105	101	93	78	59	48	45	35	23	3	1	1	1	1	1	1	1
100%	100%	99%	97%	93%	86%	72%	54%	44%	41%	33%	21%	2%	1%	1%	1%	1%	1%	1%	1%

### Intensities in 90° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
108	107	103	97	87	75	61	44	25	9	1	1	1	1	1	1	1	1	1	1
100%	99%	95%	89%	81%	70%	56%	40%	23%	8%	1%	1%	1%	0%	1%	1%	1%	1%	1%	1%

### Intensities in 180° c-plane

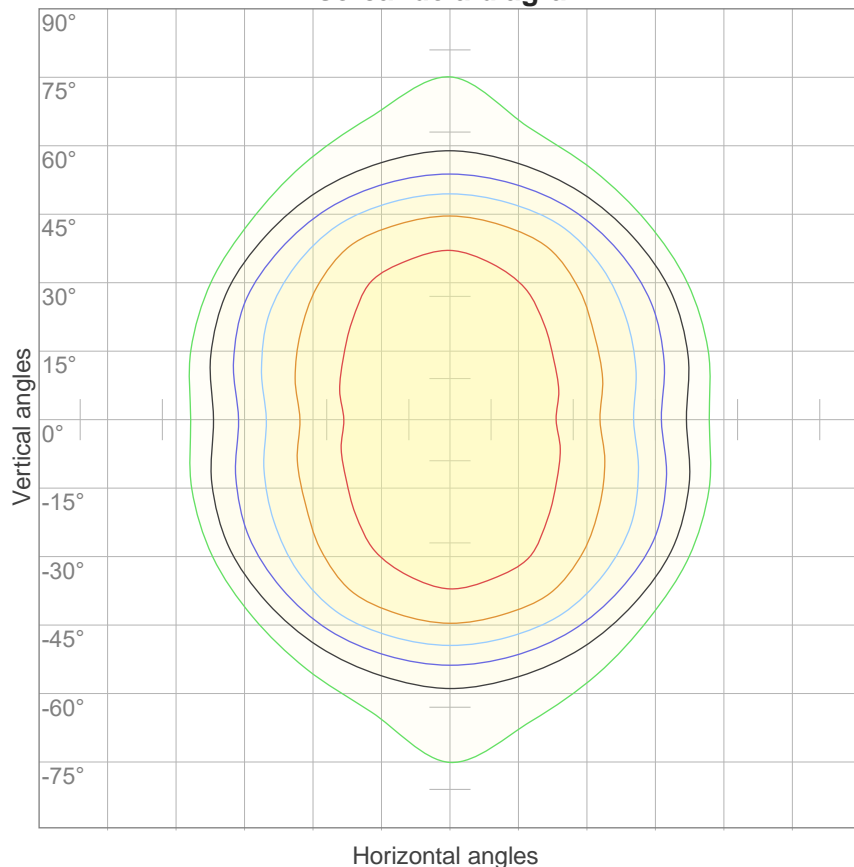
0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
108	108	107	105	101	93	78	59	48	45	35	23	3	1	1	1	1	1	1	1
100%	100%	99%	97%	93%	86%	72%	54%	44%	41%	33%	21%	2%	1%	1%	1%	1%	1%	1%	1%

### Intensities in 270° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
108	107	103	97	87	75	61	44	25	9	1	1	1	1	1	1	1	1	1	1
100%	99%	95%	89%	81%	70%	56%	40%	23%	8%	1%	1%	1%	0%	1%	1%	1%	1%	1%	1%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
125.2°	190.7°	203.2°	67.2%	43.9%

**iso-candela diagram**



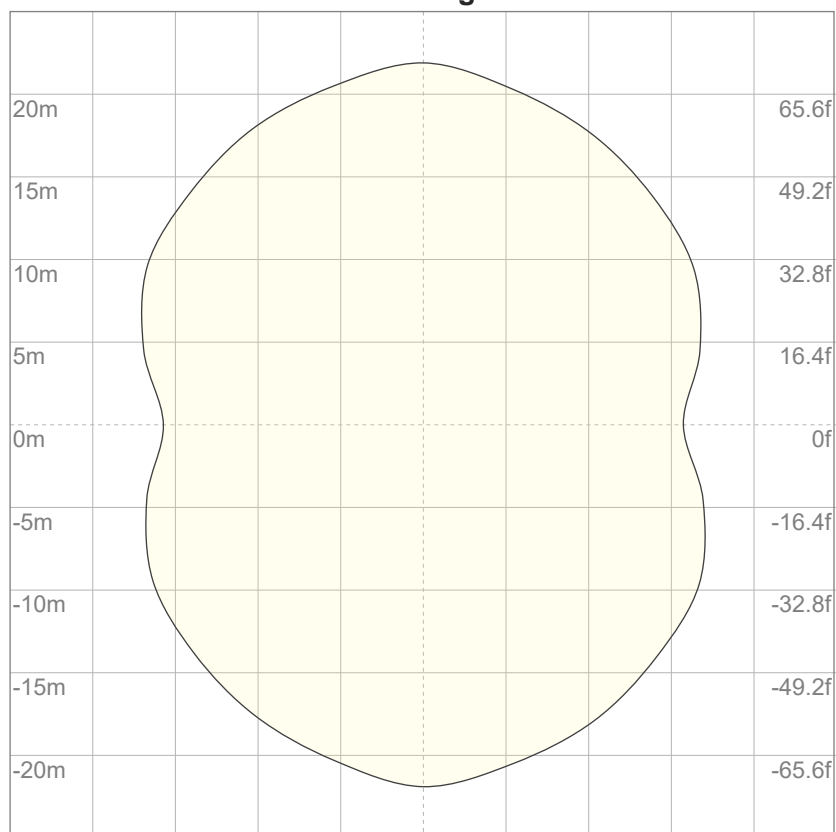
10%	11 cd
20%	22 cd
30%	33 cd
40%	43 cd
50%	54 cd
60%	65 cd
70%	76 cd
80%	87 cd
90%	98 cd

Conditions:

Number of c-planes: 12

Candela at center: 108 cd

**iso-lux diagram**



3%	32.5m lx
5%	54.2m lx
10%	0.108 lx
30%	0.325 lx
50%	0.542 lx

Conditions:

Number of c-planes: 12

Lux at center: 1.08 lx

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

**Glare evaluation according to UGR**

p Ceiling	70	70	50	50	30	70	70	50	50	30
p Walls	50	30	50	30	30	50	30	50	30	30
p Floor	20	20	20	20	20	20	20	20	20	20
Room size X      Y	Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Variation of the observer position for the luminaire distance S										
n/a	n/a					n/a				
n/a	n/a					n/a				
n/a	n/a					n/a				
CIE 117-1995. Corrected glare indices referring to 412 lm total luminous flux										

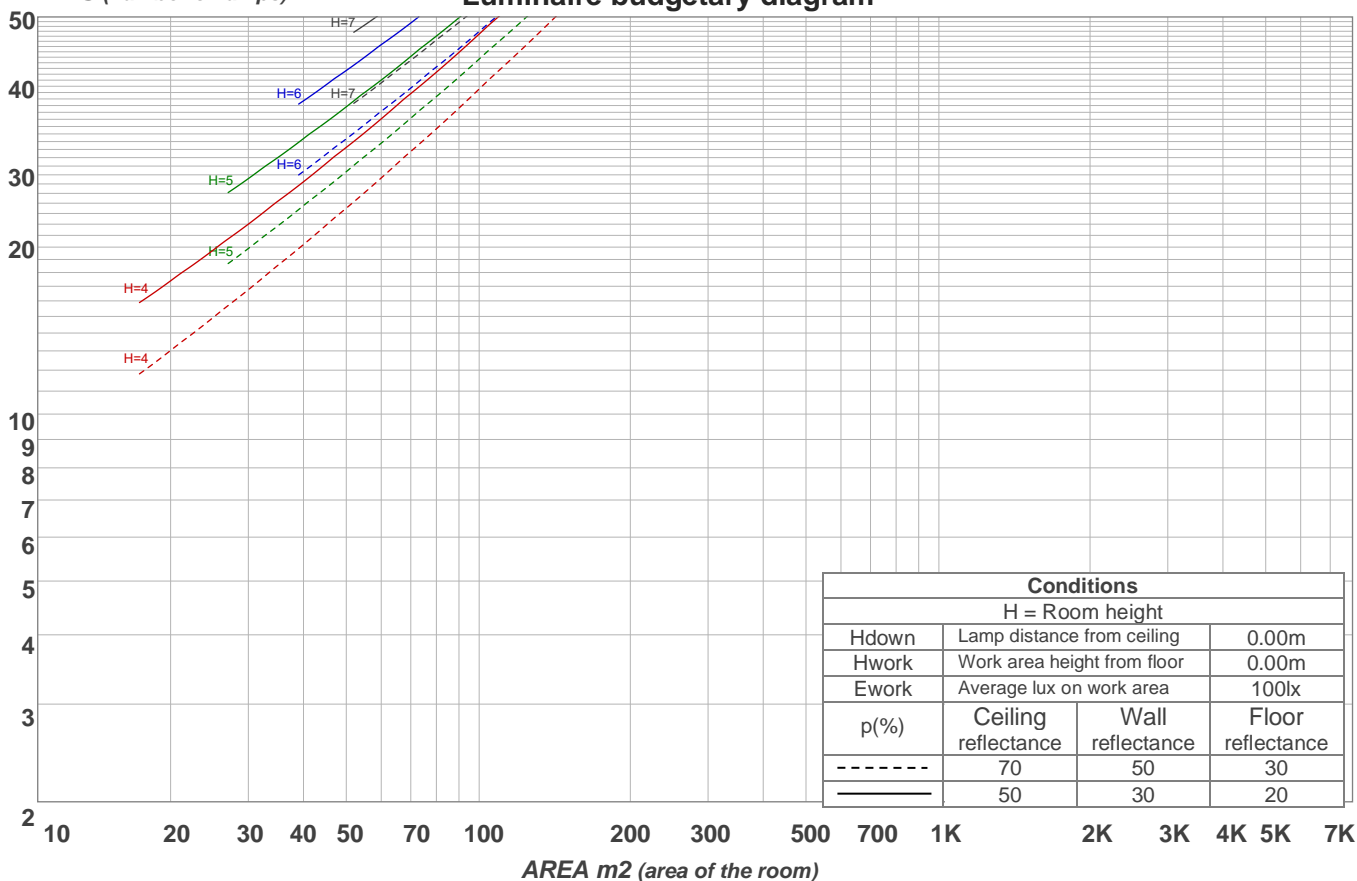
UGR data could not be calculated due to missing/wrong symmetry. Goto Edit->Photometric->Corrections and select Correct asymmetry.

### 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 Lumens delivered to the task surface																	
0	118	118	118	118	114	114	114	114	108	108	108	102	102	102	97	97	97	94
1	105	99	94	90	102	96	92	88	91	87	84	86	83	80	82	79	77	74
2	95	85	78	71	91	83	76	70	78	73	67	74	69	65	70	66	63	60
3	86	74	66	58	83	72	64	58	68	61	56	65	59	54	62	57	52	50
4	78	66	56	49	76	64	55	48	60	53	47	57	51	46	55	49	44	42
5	72	58	49	42	69	57	48	41	54	46	40	51	45	39	49	43	38	36
6	66	52	43	36	64	51	42	36	48	41	35	46	39	34	44	38	33	31
7	61	47	38	32	59	46	37	31	44	36	31	42	35	30	40	34	29	27
8	57	43	34	28	55	42	34	28	40	33	27	38	32	27	37	31	26	24
9	53	39	31	25	51	38	30	25	37	29	24	35	29	24	34	28	23	22
10	50	36	28	23	48	35	28	22	34	27	22	33	26	22	31	25	21	19

LAMPS (number of lamps)

Luminaire budgetary diagram



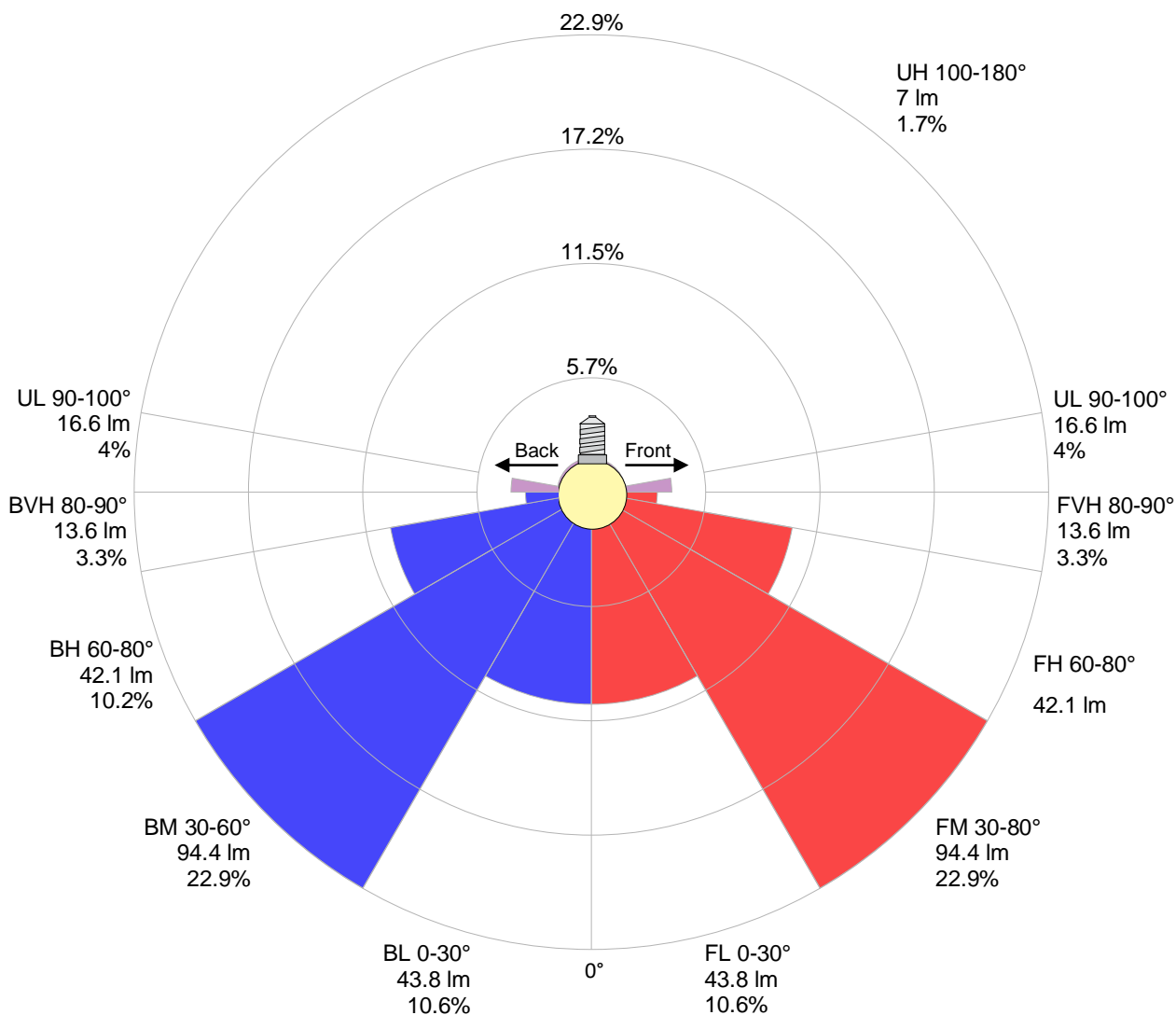
### Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	30.1 lm	47.2 lm	60.0 lm	66.3 lm	62.6 lm	48.9 lm	35.4 lm	27.3 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
16.6 lm	4.35 lm	0.680 lm	0.510 lm	0.464 lm	0.417 lm	0.315 lm	0.203 lm	0.076 lm

**LCS table**

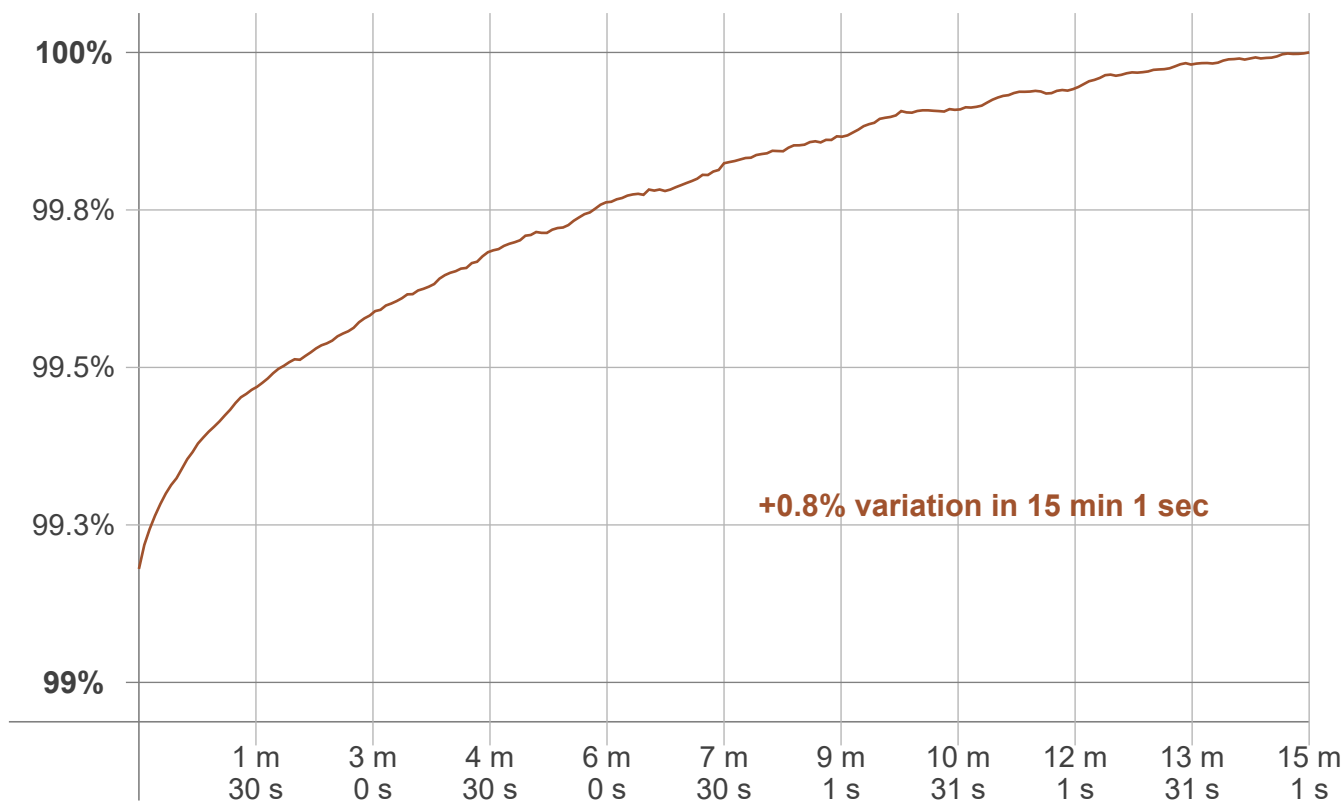
BUG rating:	B0 U2 G1	
Forward light	Lumens	Lumens %
Low(0-30):	43.8	10.6%
Medium(30-60):	94.4	22.9%
High(60-80):	42.1	10.2%
Very high(80-90):	13.6	3.3%
Back light		
Low(0-30):	43.8	10.6%
Medium(30-60):	94.4	22.9%
High(60-80):	42.1	10.2%
Very high(80-90):	13.6	3.3%
Uplight		
Low(90-100):	16.6	4%
High(100-180):	7	1.7%

**LCS graph**





**Warmup curve**



**Warmup result**

Warmup time:	Lamp stabilized in 15 min 1 sec
Warmup variation	+0.8%

**Warmup conditions**

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

**Color temperature change**

CCT start	CCT change	CCT end
3455 K	-3 K	3452 K

**Output change**

Output start	Output change	Output end
409 lm	+3 lm	412 lm

**Flicker curve (complete sampled flicker signal)**



**Flicker frame (frame of one flicker period)**



**Flicker FFT (frequency scope of flicker curve)**



**Flicker results:**

Flicker frequency:		n/a Hz	
Flicker index:	n/a	JA8/10 40Hz	n/a %
Flicker percentage:	n/a %	JA8/10 90Hz	n/a %
SVM: (Visual flicker)	n/a	JA8/10 200Hz	n/a %
PstLM	n/a	JA8/10 400Hz	n/a %
Mp	n/a	JA8/10 1000Hz	n/a %

**Flicker conditions:**

Sample rate:	n/a samples/second
--------------	--------------------