

Light efficiency:



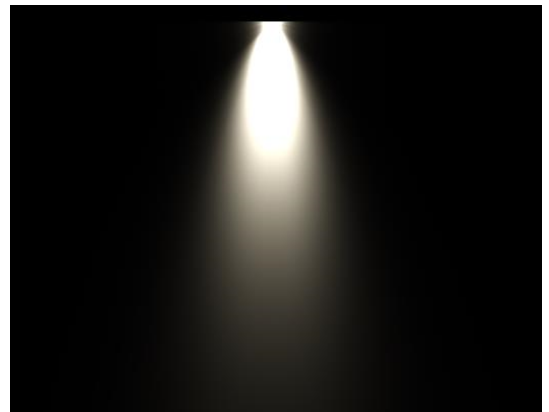
Light quality:



Color temperature:



Output: 325 lm
Peak: 1274 cd
Power: 13,1 W
PF: 0,91



Product name:

br 10W ww35 Grad

Item number:

30210.827.35.XX

Date and time:

21.07.2017 11:55:54

Description:

Toleranzen:

Lumen +/-4%

Candela +/-2,5%

Colour Temp +/-35 Grad K

CRI +/-0,7

Angular Resolution 1 Grad step

Last Calibration 30.06.2017

Pruefer:

Mourad Benzineb

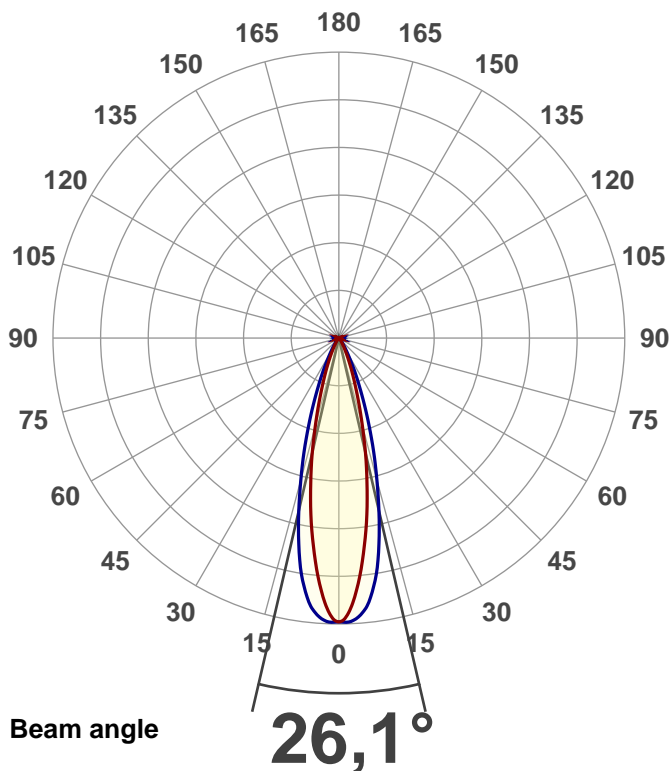
Master of Engineering

Pruefort:

Lichtlabor

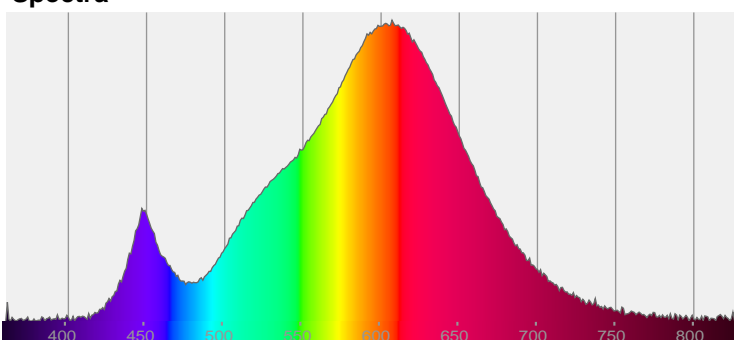
Gaustrasse13-15

55411 Bingen am Rhein

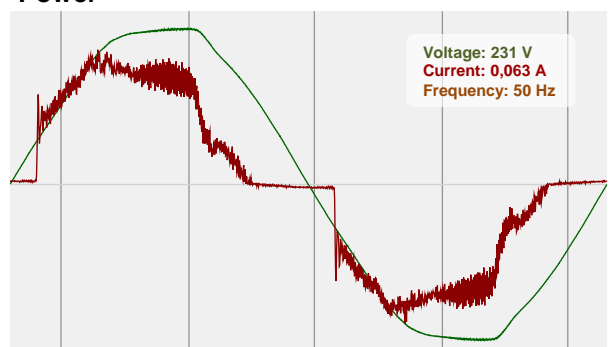


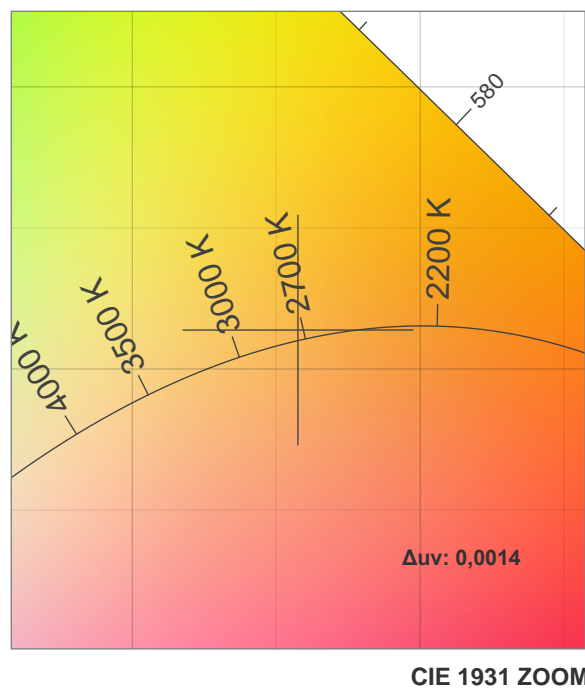
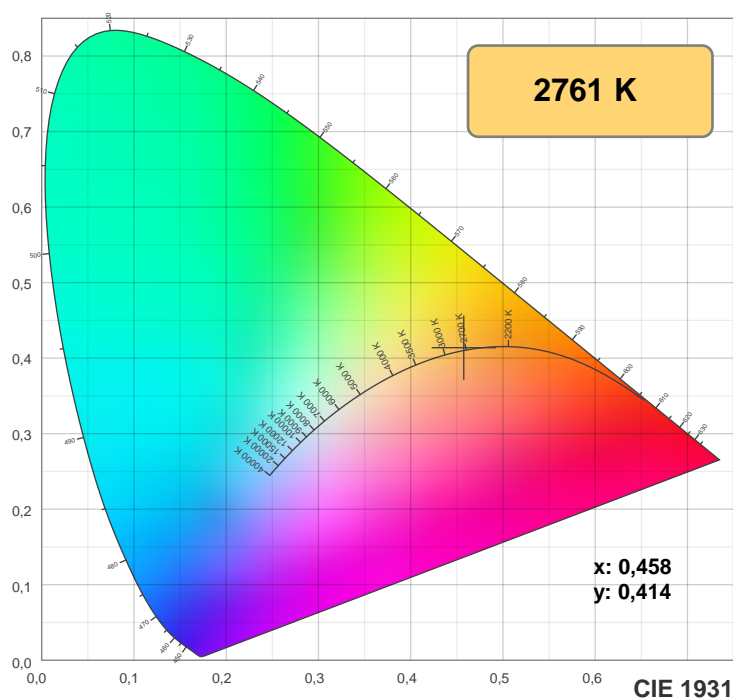
CIE 1931
x: 0,458
y: 0,414

Spectra

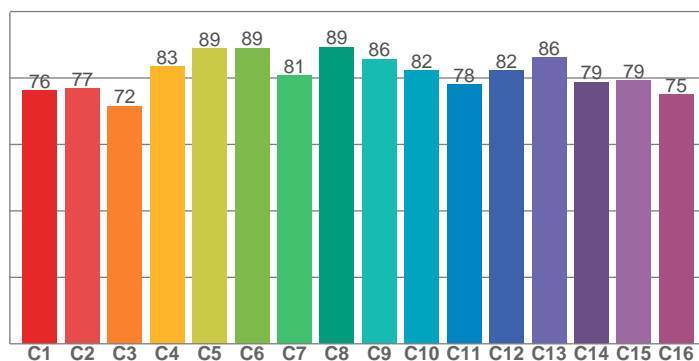


Power

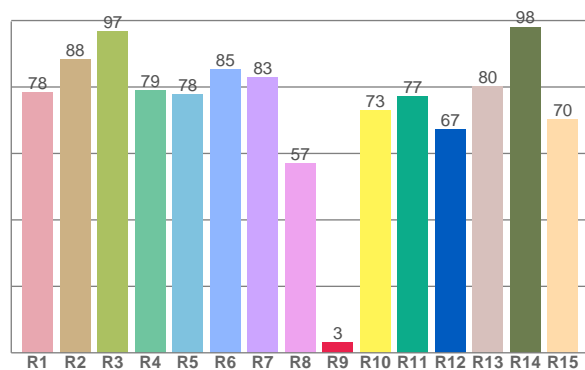




TM30: 81,2



CRI: 80,7 (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
78,4	88,2	96,8	78,9	77,7	85,3	82,9	57,1	3,2	73,0	77,2	67,2	80,3	98,1	70,3

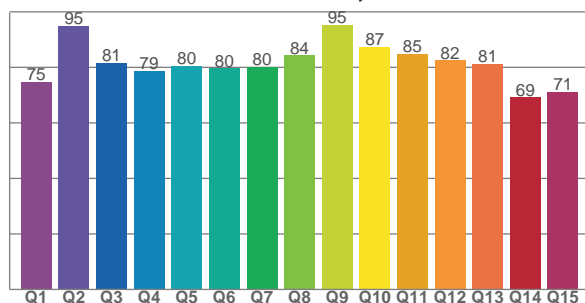
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
76,3	76,9	71,6	83,4	88,9	89,1	80,8	89,3	85,7	82,3	78,0	82,2	86,2	78,8	79,3	75,1

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
74,8	94,8	81,4	78,6	80,4	79,6	80,0	84,3	95,3	87,5	84,8	82,5	81,3	69,1	71,0

CQS: 80,2



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
2761 K	80,7	3,2	81,2	96,5	80,2	0,458	0,414	0,260	0,352	0,0014

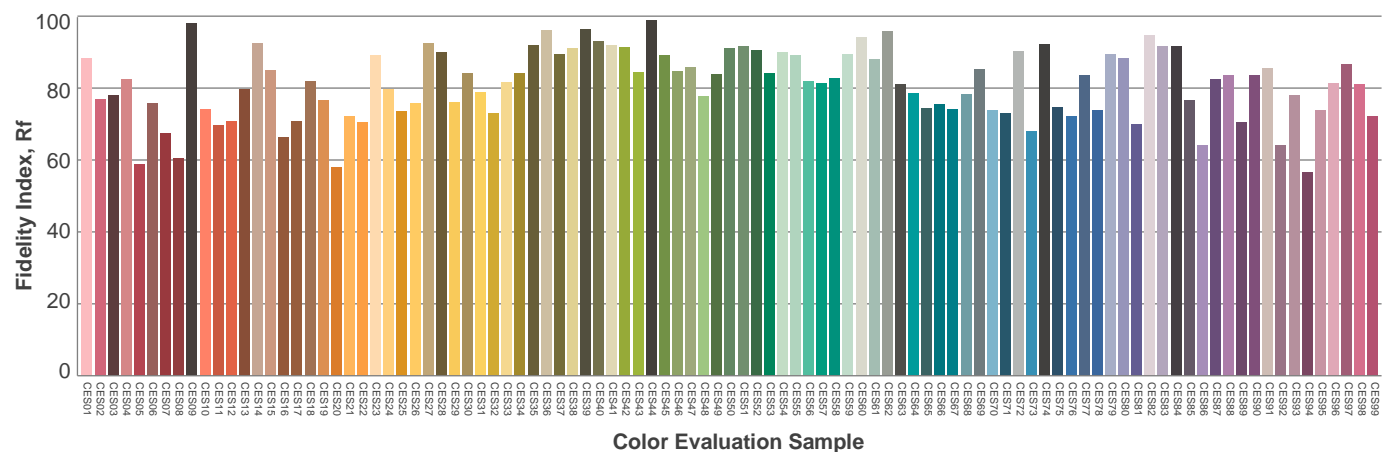
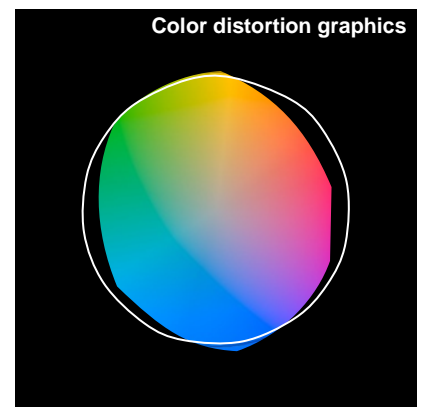
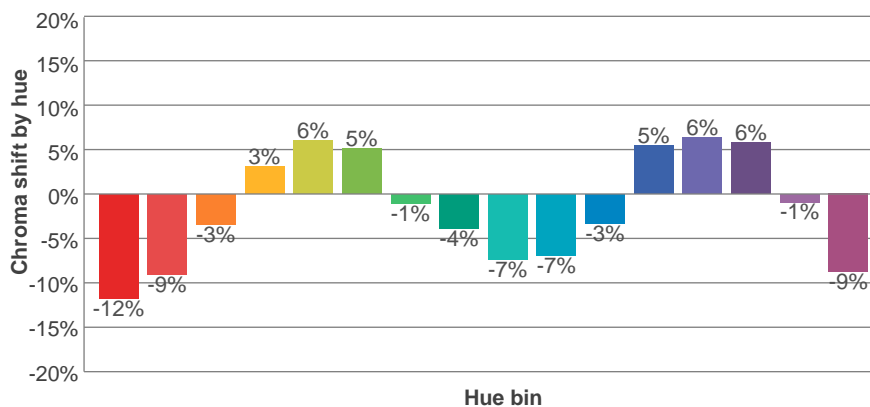
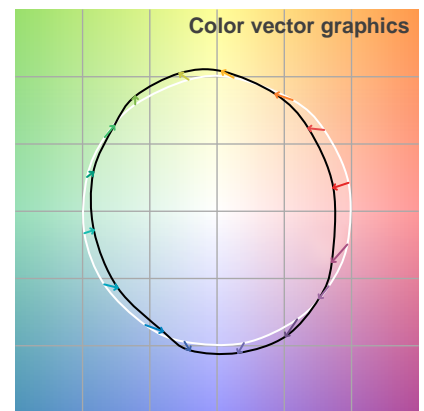
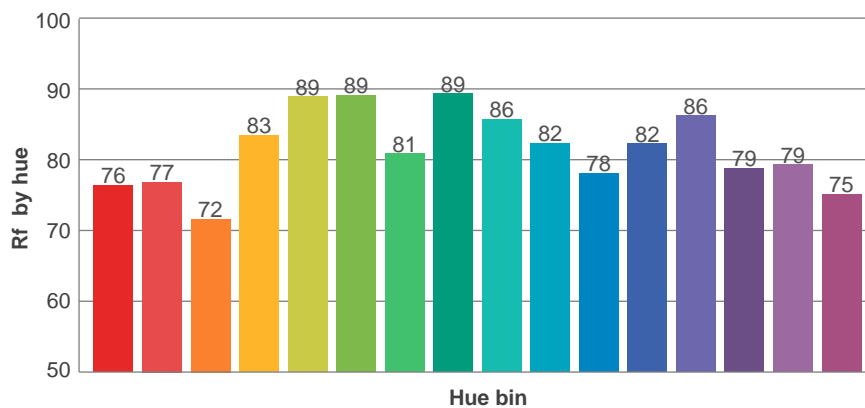
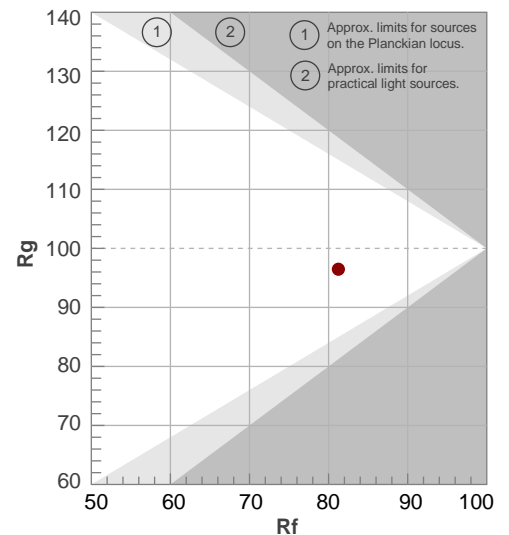
Rf 81,2

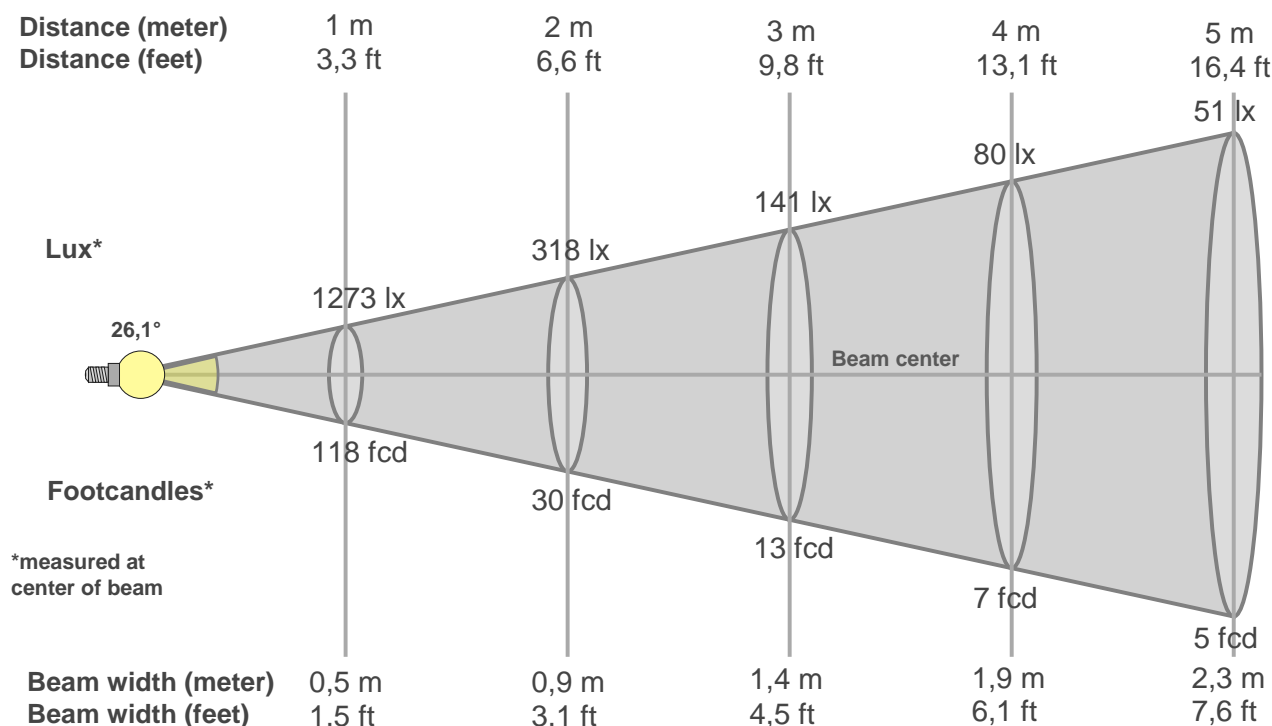
Fidelity index Rf

Rg 96,5

Gamut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	76	-12%	-1%
2	77	-9%	8%
3	72	-3%	13%
4	83	3%	10%
5	89	6%	6%
6	89	5%	-3%
7	81	-1%	-11%
8	89	-4%	-4%
9	86	-7%	-1%
10	82	-7%	8%
11	78	-3%	13%
12	82	5%	5%
13	86	6%	-6%
14	79	6%	-14%
15	79	-1%	-11%
16	75	-9%	-15%





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
1273lx	318lx	141lx	80lx	51lx	35lx	26lx	20lx	16lx	13lx	11lx	9lx	8lx	6lx	6lx	5lx	4lx	4lx	4lx	3lx
118,2fcd	29,6fcd	13,1fcd	7,4fcd	4,7fcd	3,3fcd	2,4fcd	1,8fcd	1,5fcd	1,2fcd	1fcd	0,8fcd	0,7fcd	0,6fcd	0,5fcd	0,5fcd	0,4fcd	0,4fcd	0,3fcd	0,3fcd

Intensities in 0° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
1273	1234	1134	1007	871	731	596	467	355	265	196	145	104	74	52	38	28	20	14	10
100%	97%	89%	79%	68%	57%	47%	37%	28%	21%	15%	11%	8%	6%	4%	3%	2%	2%	1%	1%

Intensities in 90° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
1273	1274	1254	1209	1123	1011	871	728	595	474	366	275	206	150	104	75	54	39	28	19
100%	100%	99%	95%	88%	79%	68%	57%	47%	37%	29%	22%	16%	12%	8%	6%	4%	3%	2%	2%

Intensities in 180° c-plane

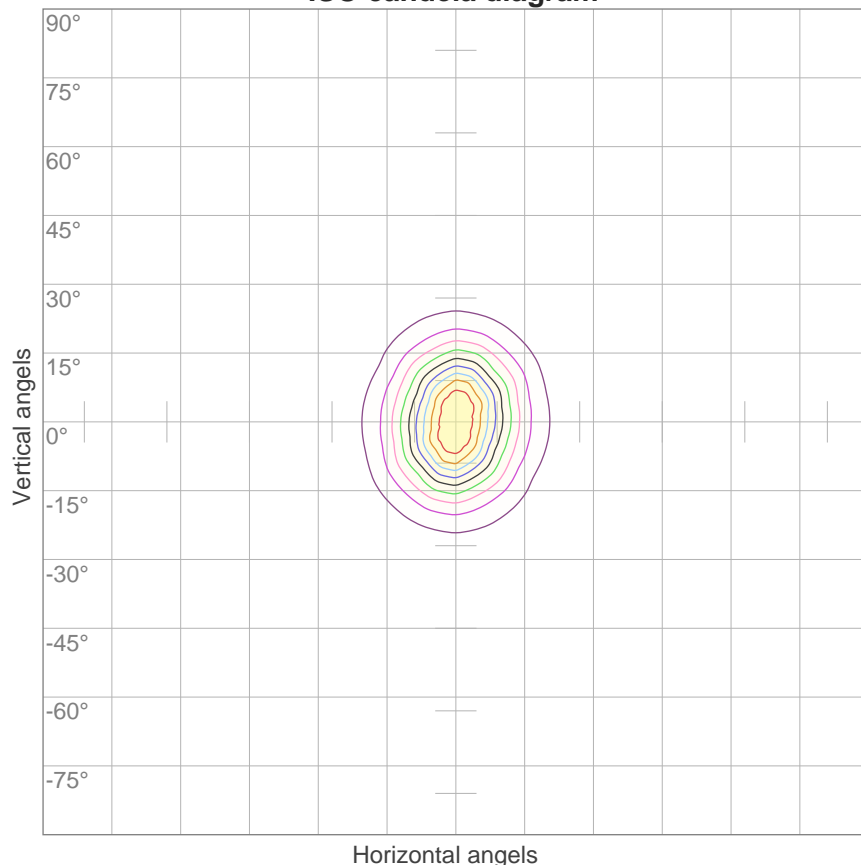
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
1273	1234	1134	1007	871	731	596	467	355	265	196	145	104	74	52	38	28	20	14	10
100%	97%	89%	79%	68%	57%	47%	37%	28%	21%	15%	11%	8%	6%	4%	3%	2%	2%	1%	1%

Intensities in 270° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
1273	1274	1254	1209	1123	1011	871	728	595	474	366	275	206	150	104	75	54	39	28	19
100%	100%	99%	95%	88%	79%	68%	57%	47%	37%	29%	22%	16%	12%	8%	6%	4%	3%	2%	2%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
26,1°	49,3°	65,6°	99,2%	98,4%

ISO candela diagram



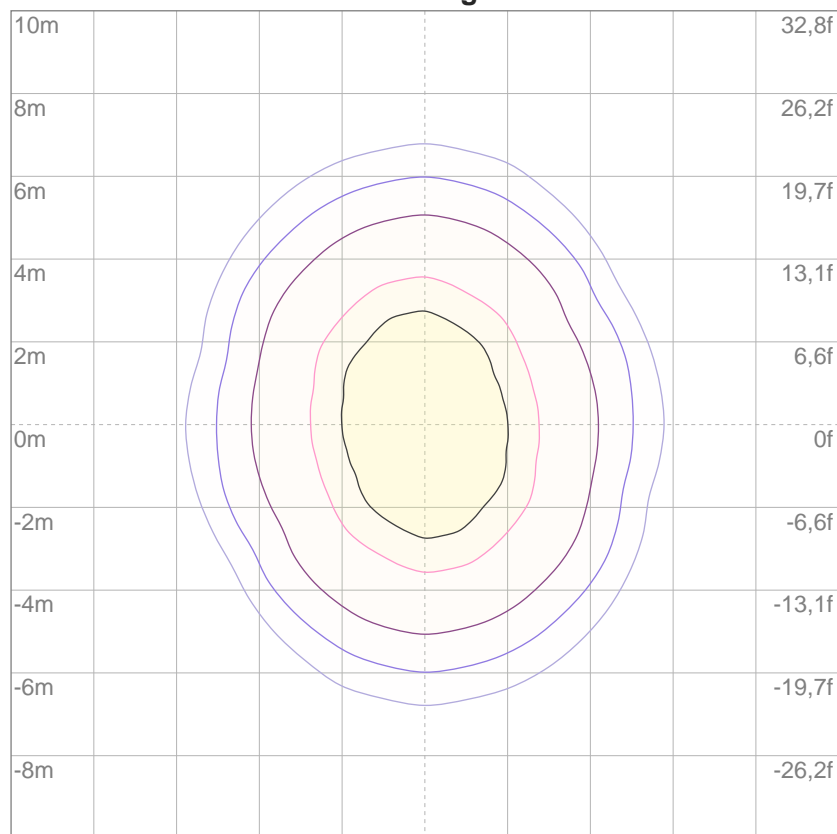
10%	127 cd
20%	255 cd
30%	382 cd
40%	509 cd
50%	636 cd
60%	764 cd
70%	891 cd
80%	1018 cd
90%	1145 cd

Conditions:

Number of c-planes: 20

Candela at center: 1273 cd

ISO lux diagram



3%	0,382 lx
5%	0,636 lx
10%	1,27 lx
30%	3,82 lx
50%	6,36 lx

Conditions:

Number of c-planes: 20

Lux at center: 12,7 lx

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

Glare Evaluation According to UGR

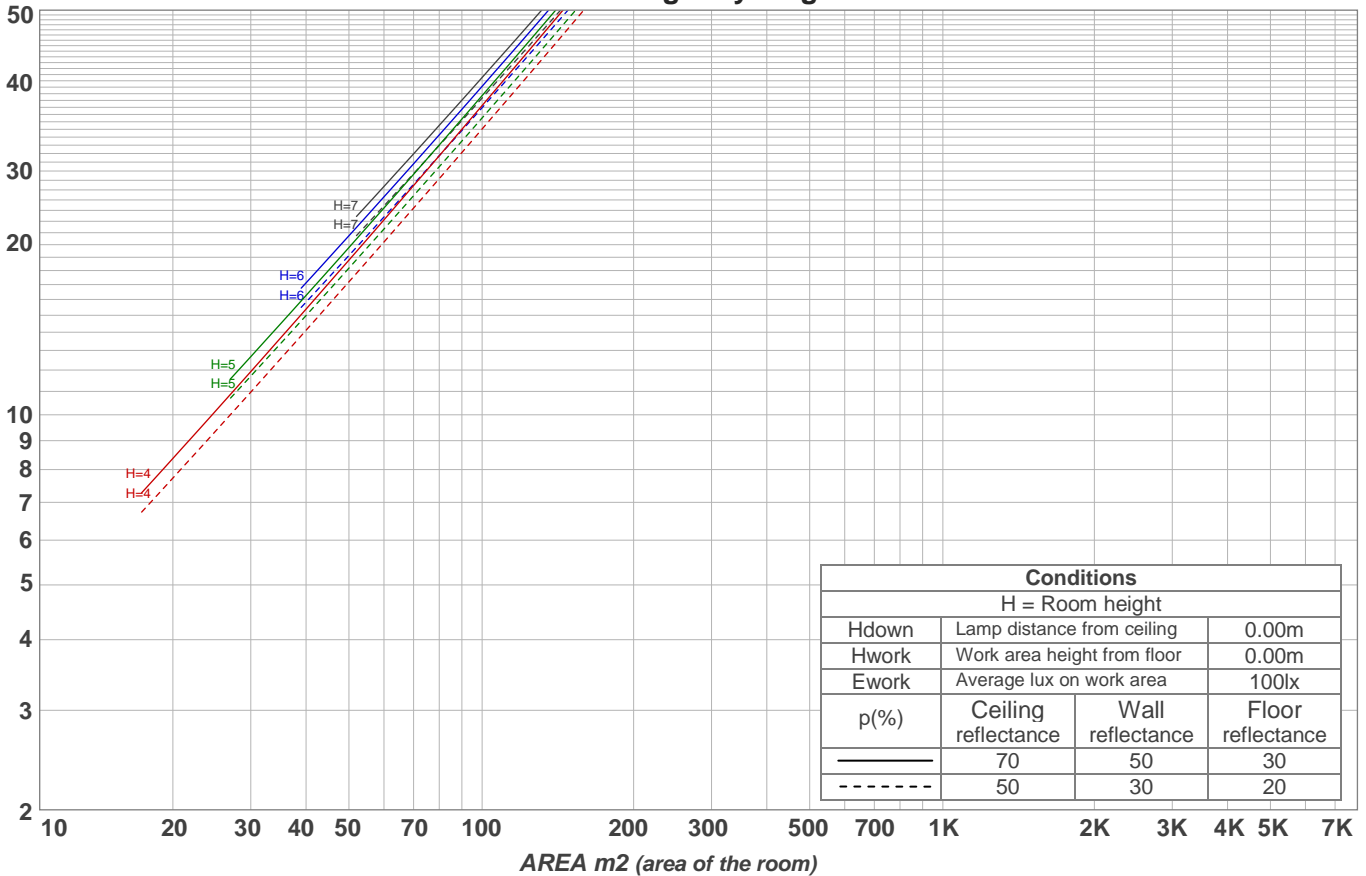
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	4,6	5,3	4,9	5,5	5,7	4,6	5,3	4,9	5,5	5,7
	3H	5,0	5,6	5,3	5,8	6,1	5,0	5,6	5,3	5,8	6,1
	4H	5,4	6,0	5,7	6,2	6,5	5,4	6,0	5,7	6,2	6,5
	6H	6,1	6,6	6,4	6,9	7,2	6,1	6,6	6,4	6,9	7,2
	8H	6,5	7,0	6,8	7,3	7,6	6,5	7,0	6,8	7,3	7,6
	12H	7,0	7,5	7,4	7,8	8,1	7,0	7,5	7,4	7,8	8,1
4H	2H	4,6	5,2	4,9	5,4	5,7	4,6	5,2	4,9	5,4	5,7
	3H	5,2	5,7	5,5	6,0	6,3	5,2	5,7	5,5	6,0	6,3
	4H	5,8	6,3	6,2	6,6	6,9	5,8	6,3	6,2	6,6	6,9
	6H	6,9	7,2	7,3	7,6	8,0	6,9	7,2	7,3	7,6	8,0
	8H	7,5	7,8	7,9	8,1	8,5	7,5	7,8	7,9	8,1	8,5
	12H	8,1	8,4	8,6	8,8	9,2	8,1	8,4	8,6	8,8	9,2
8H	4H	6,2	6,5	6,6	6,8	7,2	6,2	6,5	6,6	6,8	7,2
	6H	7,5	7,7	7,9	8,1	8,6	7,5	7,7	7,9	8,1	8,6
	8H	8,2	8,4	8,7	8,9	9,3	8,2	8,4	8,7	8,9	9,3
	12H	9,1	9,3	9,6	9,8	10,2	9,1	9,3	9,6	9,8	10,2
12H	4H	6,3	6,5	6,7	6,9	7,3	6,3	6,5	6,7	6,9	7,3
	6H	7,7	7,9	8,1	8,3	8,8	7,7	7,9	8,1	8,3	8,8
	8H	8,5	8,7	9,0	9,1	9,6	8,5	8,7	9,0	9,1	9,6
Variation of the observer position for the luminaire distance S											
S = 1,0H		+1,9 / -0,8					+1,9 / -0,8				
S = 1,5H		+3,8 / -1,0					+3,8 / -1,0				
S = 2,0H		+5,4 / -1,3					+5,4 / -1,3				
Standard table		---					---				
Correction summand		---					---				
Corrected glare indices referring to 325 lm total luminous flux											

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	100
1	115	112	110	109	112	110	108	107	106	105	104	103	102	100	99	98	98	96
2	111	107	104	101	109	105	102	100	102	100	98	99	97	96	96	95	94	92
3	107	102	98	95	105	101	97	94	98	95	93	96	93	91	94	92	90	89
4	103	98	93	90	102	96	93	90	94	91	89	93	90	88	91	89	87	85
5	100	94	89	86	98	93	89	86	91	88	85	90	87	84	88	86	84	82
6	97	90	86	83	96	89	85	82	88	84	82	87	84	81	86	83	81	80
7	94	87	83	79	93	86	82	79	85	82	79	84	81	78	83	80	78	77
8	91	84	80	77	90	84	79	76	83	79	76	82	78	76	81	78	76	75
9	88	81	77	74	87	81	77	74	80	76	74	79	76	74	79	76	73	72
10	86	79	75	72	85	78	74	72	78	74	71	77	74	71	76	73	71	70

LAMPS (number of lamps)

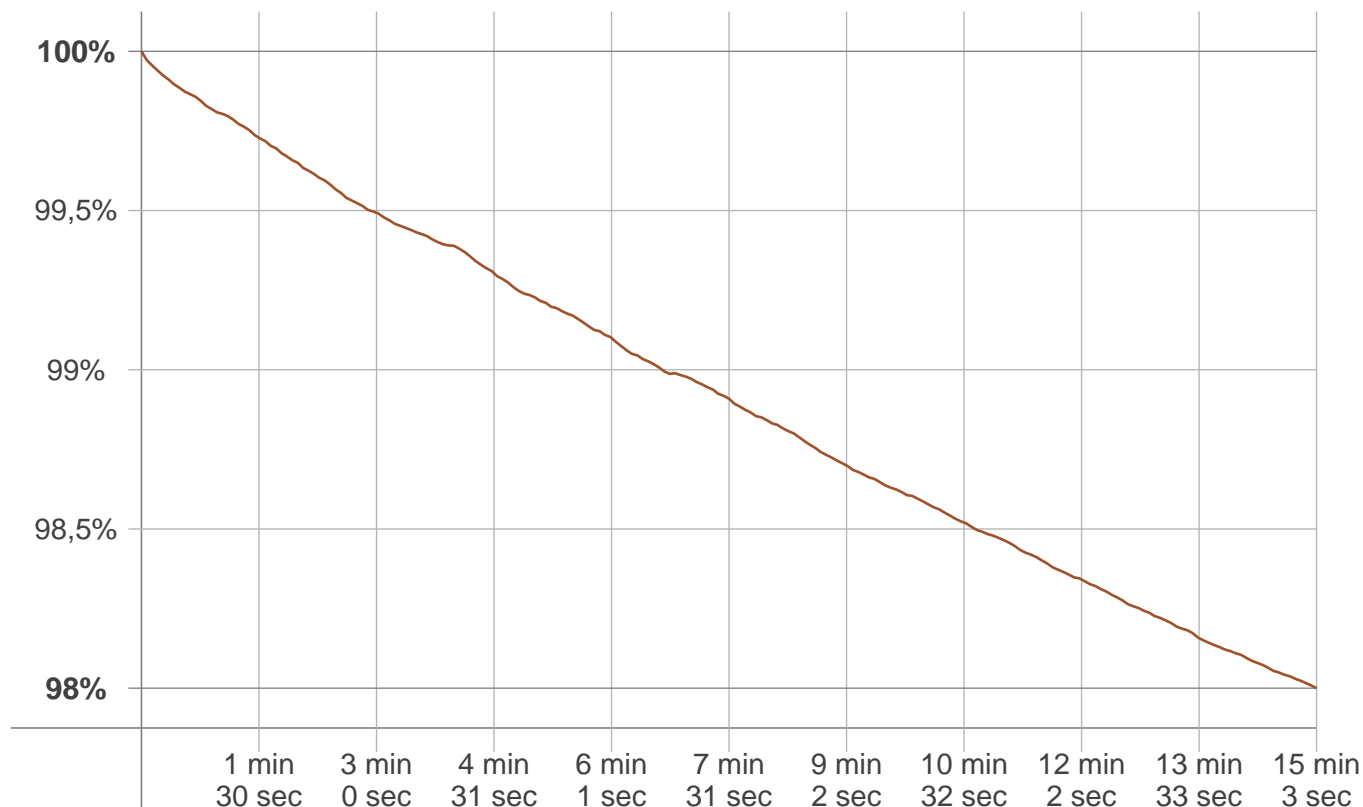
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	142 lm	59,9 lm	15,3 lm	3,64 lm	1,28 lm	0,985 lm	0,884 lm	0,846 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,029 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm

Warmup curve



Warmup result

Warmup time:	15 min 3 sec
Warmup variation	-2,0%

Warmup conditions

Stable period:	15 min
Stable change max:	2,0%
Minimum time:	15 min

Color temperature change

CCT start	CCT change	CCT end
2764 K	-3 K	2761 K

Output change

Output start	Output change	Output end
331 lm	-6 lm	325 lm