

Light efficiency:

95 Lumen/Watt

Light quality:

CRI: 0,0

Color temperature:

0 K

Output: 438 lm

Peak: 2127 cd

Power: 4,6 W

PF: 1,0



Product name:

F L-S O - 2-4 C -1 0 0-G-LSOT-O

Item number:

F L / S O - 2 / 4 C / 1 0 0 / G/LSOT/O

Date and time:

18.03.2019 15:08:47

Description:

HEIDI.D8°

Toleranzen:

Lumen +/-4%

Candela +/-2,5%

Colour Temp +/-35 Grad K

CRI +/-0,7

Angular Resolution 1 Grad step

Last Calibration 06.06.2018

Pruefer:

Mourad Benzineb

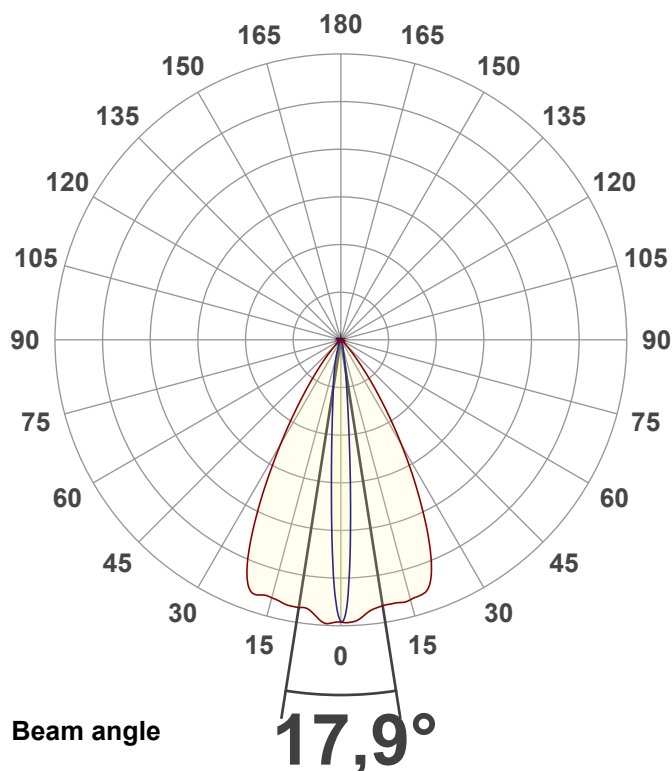
Master of Engineering

Pruefort:

Lichtlabor

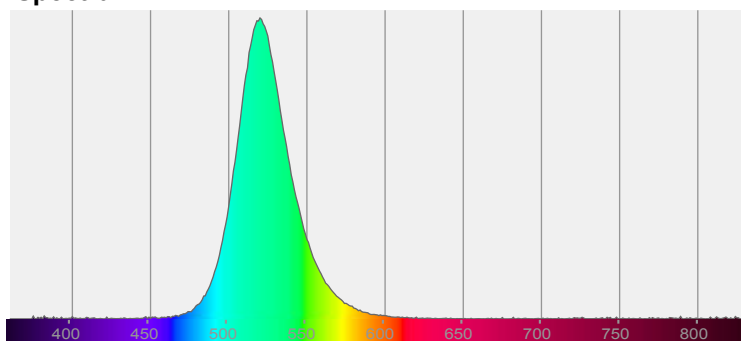
Gaustasse13-15

55411 Bingen am Rhein

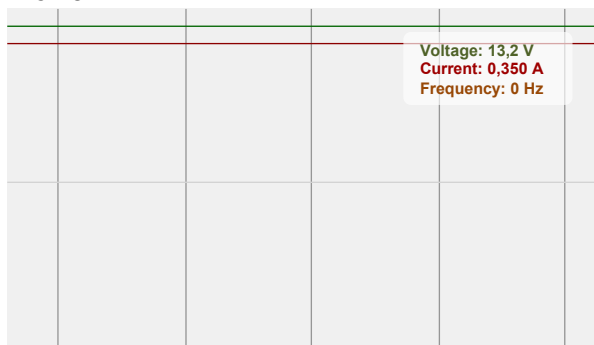


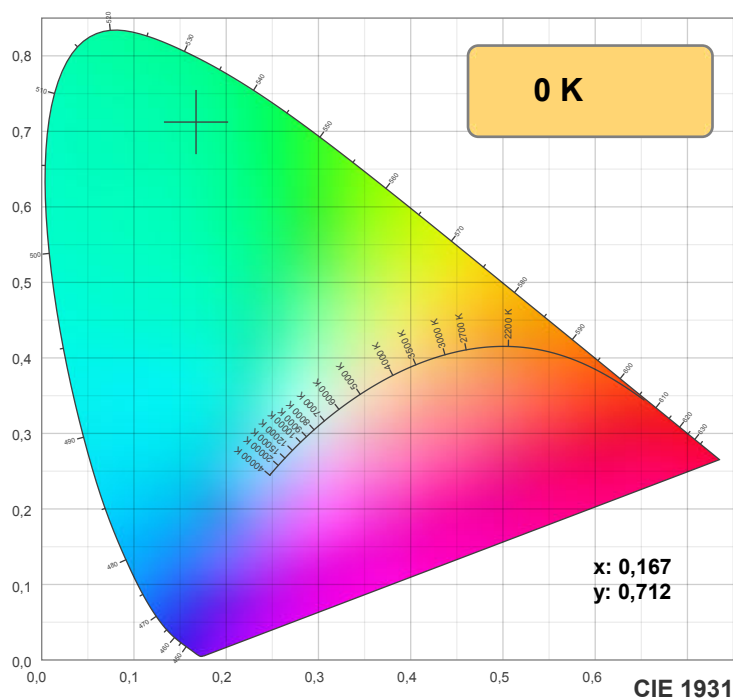
CIE 1931
x: 0,167
y: 0,712

Spectra

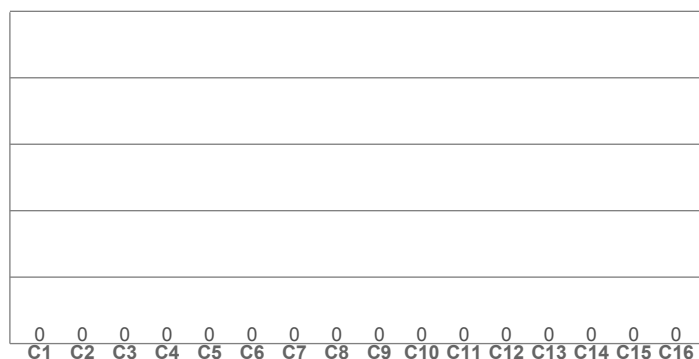


Power





TM30: 0,0



CRI R values, only R1-R8 are used to calculate final CRI value

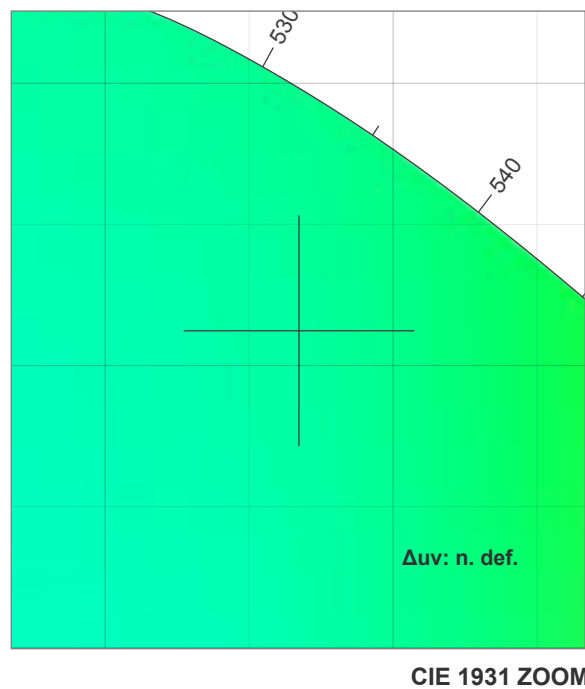
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

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

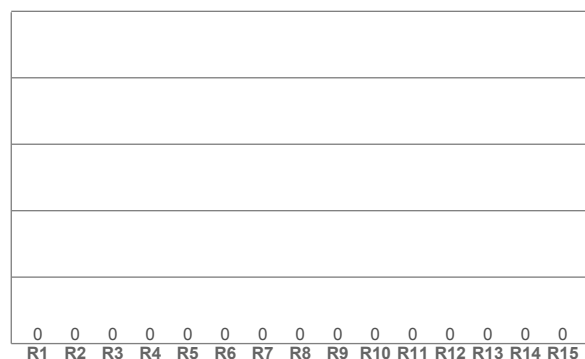
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

CQS Q values

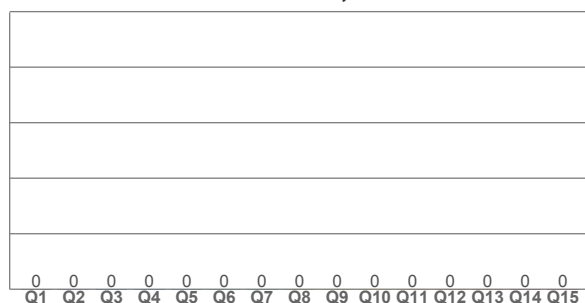
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



CRI: 0,0 (R1-R8)



CQS: 0,0



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
0 K	0,0	0,0	0,0	0,0	0,0	0,167	0,712	0,060	0,381	n. def.

TM30 details

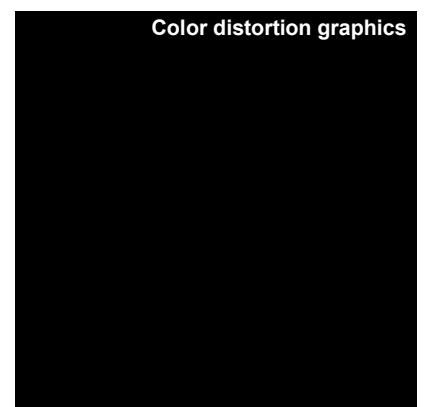
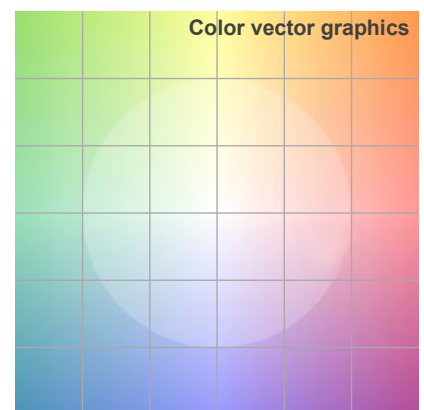
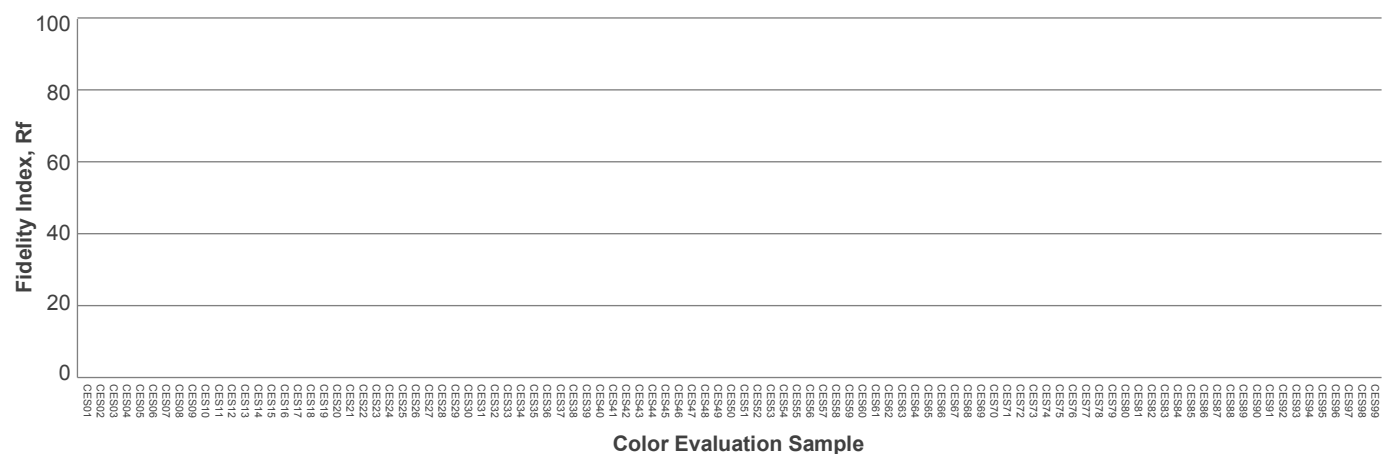
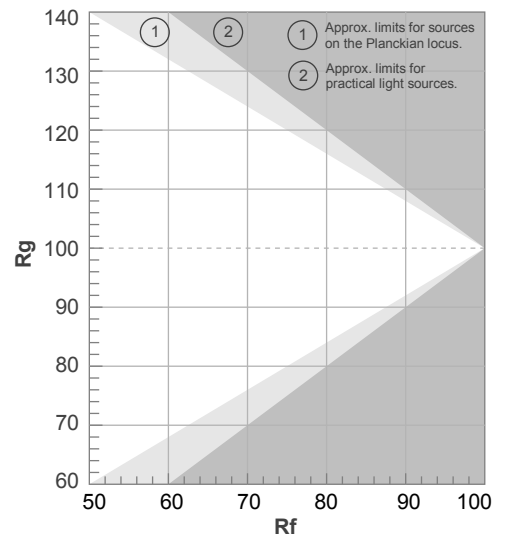
Rf 0,0

Fidelity index Rf

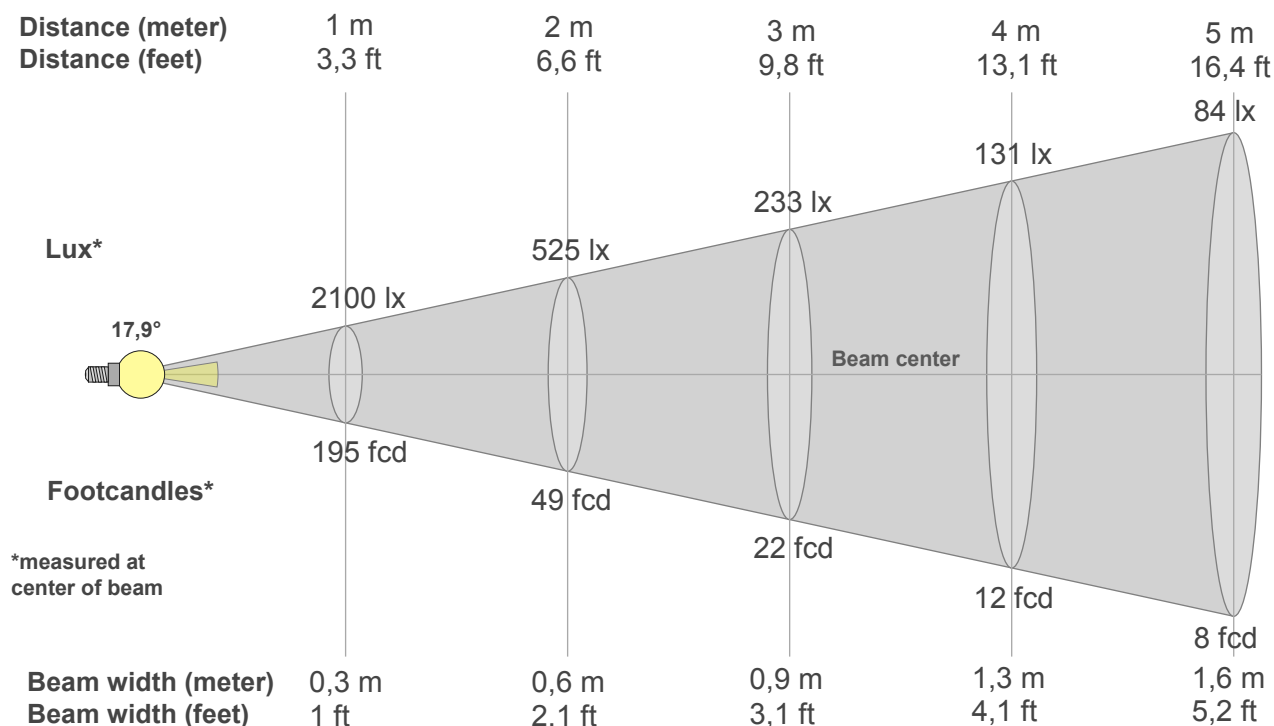
Rg 0,0

Gammut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	0	0%	0%
2	0	0%	0%
3	0	0%	0%
4	0	0%	0%
5	0	0%	0%
6	0	0%	0%
7	0	0%	0%
8	0	0%	0%
9	0	0%	0%
10	0	0%	0%
11	0	0%	0%
12	0	0%	0%
13	0	0%	0%
14	0	0%	0%
15	0	0%	0%
16	0	0%	0%



Beam details



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
2100lx	525lx	233lx	131lx	84lx	58lx	43lx	33lx	26lx	21lx	17lx	15lx	12lx	11lx	9lx	8lx	7lx	6lx	6lx	5lx
195,1fcd	48,8fcd	21,7fcd	12,2fcd	7,8fcd	5,4fcd	4fcd	3fcd	2,4fcd	2fcd	1,6fcd	1,4fcd	1,2fcd	1fcd	0,9fcd	0,8fcd	0,7fcd	0,6fcd	0,5fcd	0,5fcd

Intensities in 0° c-plane

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
2100	2118	2115	2108	2091	2065	2042	2029	2021	2015	2012	2012	2012	2017	2020	2014	2007	2004	1997	1980
100%	101%	101%	100%	100%	98%	97%	97%	96%	96%	96%	96%	96%	96%	96%	96%	96%	95%	95%	94%

Intensities in 90° c-plane

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
2100	2026	1769	1388	1010	706	496	360	269	205	157	122	99	82	70	61	56	50	43	37
100%	96%	84%	66%	48%	34%	24%	17%	13%	10%	7%	6%	5%	4%	3%	3%	3%	2%	2%	2%

Intensities in 180° c-plane

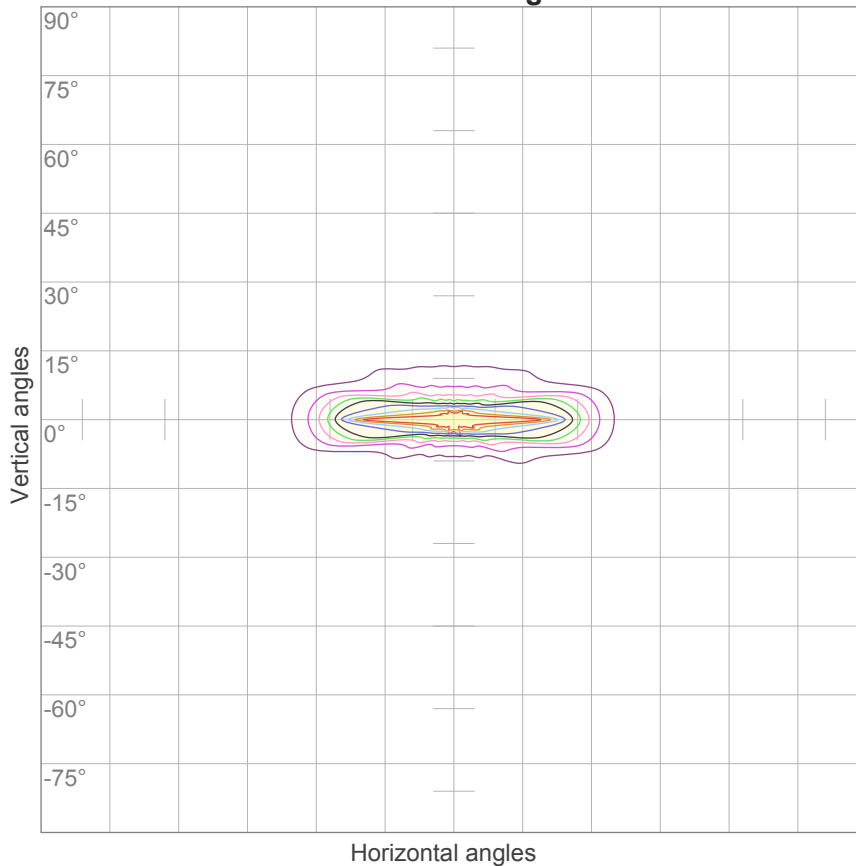
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
2100	2113	2121	2126	2111	2082	2052	2030	2023	2028	2028	2026	2021	2012	2004	1999	1995	1997	2007	2008
100%	101%	101%	101%	100%	99%	98%	97%	96%	97%	97%	96%	96%	96%	95%	95%	95%	95%	96%	96%

Intensities in 270° c-plane

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
2100	1964	1689	1335	1021	791	624	505	422	363	315	272	237	206	175	146	123	103	85	68
100%	94%	80%	64%	49%	38%	30%	24%	20%	17%	15%	13%	11%	10%	8%	7%	6%	5%	4%	3%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
17,9°	37,4°	55,1°	97,5%	94,8%

ISO candela diagram



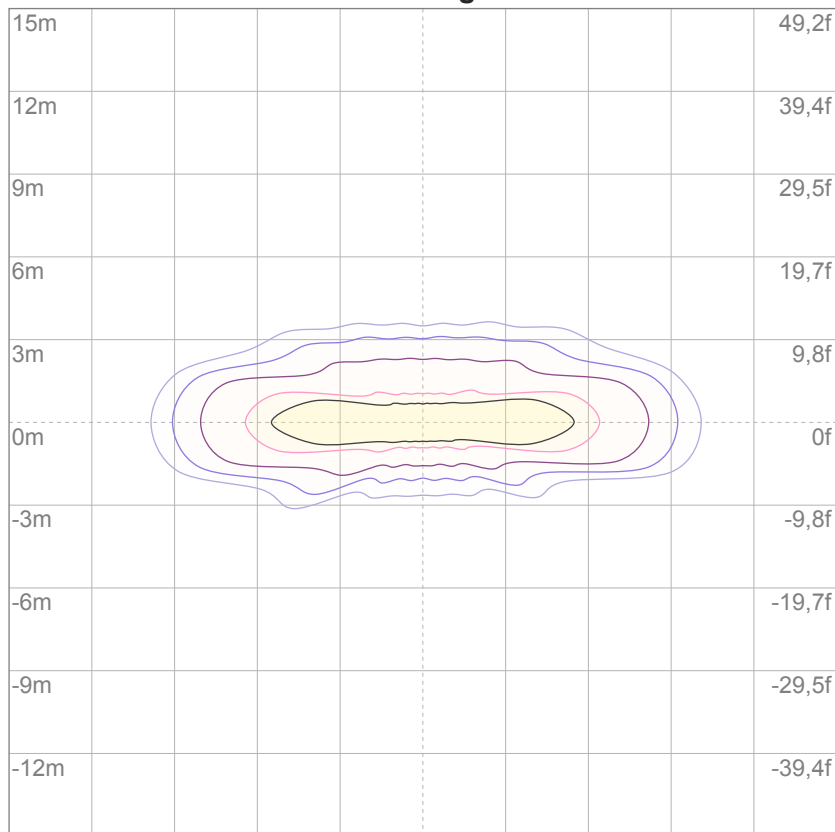
10%	210 cd
20%	420 cd
30%	630 cd
40%	840 cd
50%	1050 cd
60%	1260 cd
70%	1470 cd
80%	1680 cd
90%	1890 cd

Conditions:

Number of c-planes: 16

Candela at center: 2100 cd

ISO lux diagram



3%	0,630 lx
5%	1,05 lx
10%	2,10 lx
30%	6,30 lx
50%	10,5 lx

Conditions:

Number of c-planes: 16

Lux at center: 21,0 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	16,6	17,3	16,9	17,5	17,7	4,3	5,0	4,5	5,2	5,4
	3H	16,7	17,3	17,0	17,6	17,8	6,0	6,7	6,3	6,9	7,1
	4H	16,7	17,3	17,0	17,6	17,9	6,8	7,4	7,1	7,7	7,9
	6H	16,8	17,4	17,1	17,7	17,9	7,6	8,2	7,9	8,4	8,7
	8H	16,9	17,4	17,2	17,7	18,0	8,0	8,6	8,4	8,9	9,2
	12H	16,9	17,4	17,2	17,7	18,0	8,6	9,1	9,0	9,4	9,7
4H	2H	16,5	17,1	16,8	17,3	17,6	5,5	6,1	5,8	6,3	6,6
	3H	16,5	17,1	16,9	17,4	17,7	7,4	7,9	7,7	8,2	8,5
	4H	16,7	17,1	17,0	17,4	17,8	8,3	8,7	8,7	9,1	9,4
	6H	16,8	17,2	17,2	17,6	18,0	9,1	9,5	9,5	9,9	10,2
	8H	16,9	17,3	17,4	17,6	18,0	9,6	10,0	10,1	10,4	10,8
	12H	17,0	17,2	17,4	17,6	18,1	10,3	10,6	10,8	11,0	11,4
8H	4H	16,6	16,9	17,0	17,3	17,7	8,8	9,1	9,2	9,5	9,9
	6H	16,9	17,1	17,3	17,5	18,0	9,9	10,1	10,3	10,5	11,0
	8H	17,0	17,2	17,5	17,7	18,1	10,6	10,8	11,0	11,2	11,7
	12H	17,0	17,2	17,5	17,7	18,2	11,5	11,7	12,0	12,1	12,6
12H	4H	16,6	16,9	17,0	17,3	17,7	9,0	9,2	9,4	9,6	10,1
	6H	16,8	17,1	17,3	17,5	18,0	10,1	10,3	10,6	10,8	11,3
	8H	17,0	17,2	17,5	17,6	18,1	10,9	11,1	11,4	11,6	12,1
Variation of the observer position for the luminaire distance S											
S = 1,0H		+5,5 / -3,8					+0,2 / -0,1				
S = 1,5H		+8,2 / -4,1					+0,3 / -0,3				
S = 2,0H		+10,2 / -4,6					+0,6 / -1,0				
Standard table		BK01					BK08				
Correction summand		-1,2					-6,3				
Corrected glare indices referring to 438 lm total luminous flux											

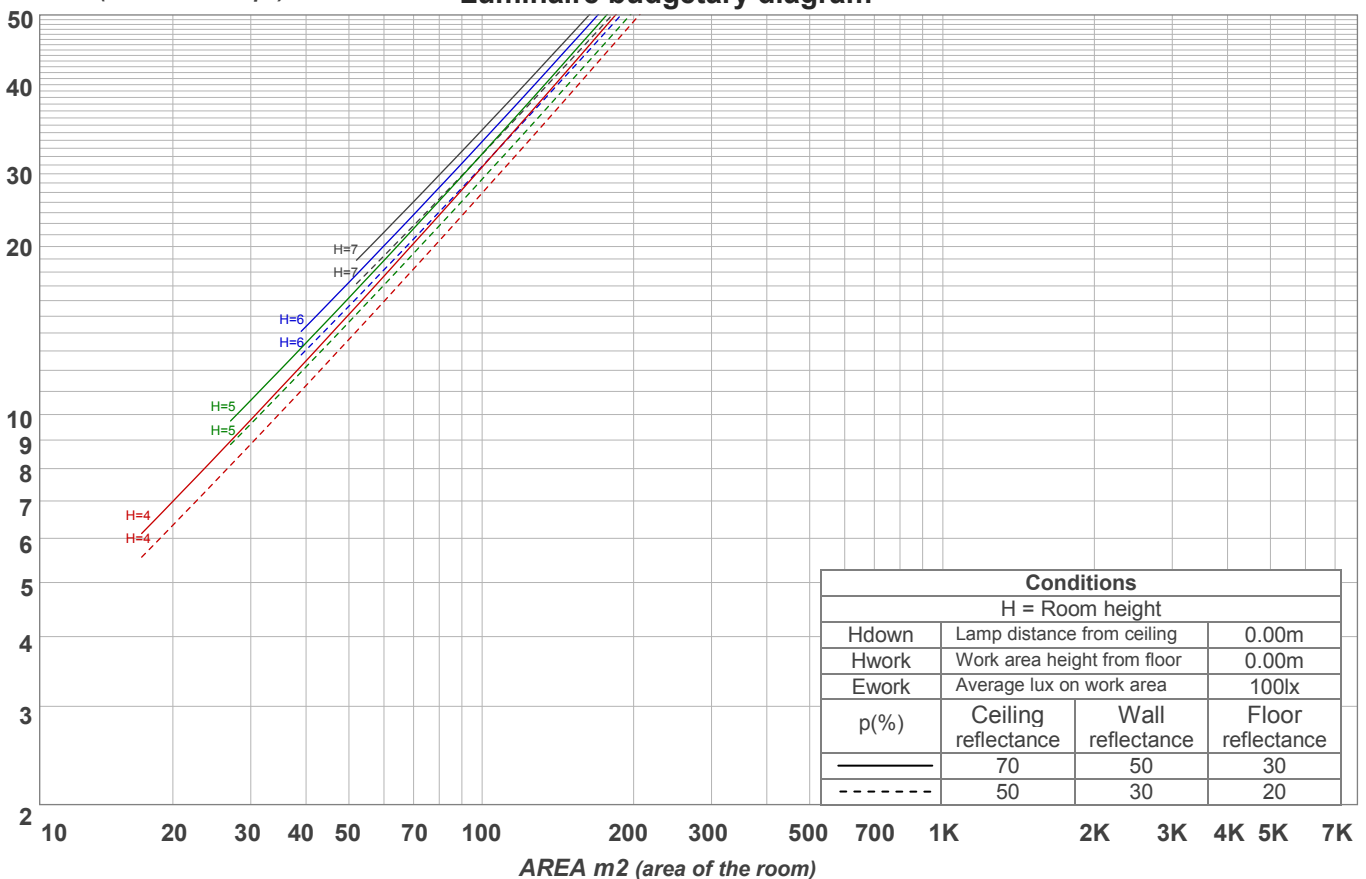
UGR data could be incorrect as lamp output is not symmetrical. Goto Edit->Photometric->Corrections and select Correct asymmetry.

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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94
2	109	104	101	97	107	103	99	96	99	97	94	96	94	92	94	92	90	89
3	104	98	94	90	102	97	93	89	94	91	88	92	89	87	90	87	85	84
4	100	93	88	84	98	92	87	84	90	86	83	88	85	82	86	83	81	79
5	96	88	83	79	94	87	83	79	86	81	78	84	80	78	83	79	77	76
6	92	84	79	75	90	83	78	75	82	77	74	80	77	74	79	76	73	72
7	88	80	75	71	87	80	75	71	78	74	71	77	73	70	76	73	70	69
8	85	77	71	68	84	76	71	68	75	71	68	74	70	67	73	70	67	66
9	82	74	68	65	81	73	68	65	72	68	65	71	67	64	71	67	64	63
10	79	71	66	62	78	70	65	62	69	65	62	69	65	62	68	64	62	61

LAMPS (number of lamps)

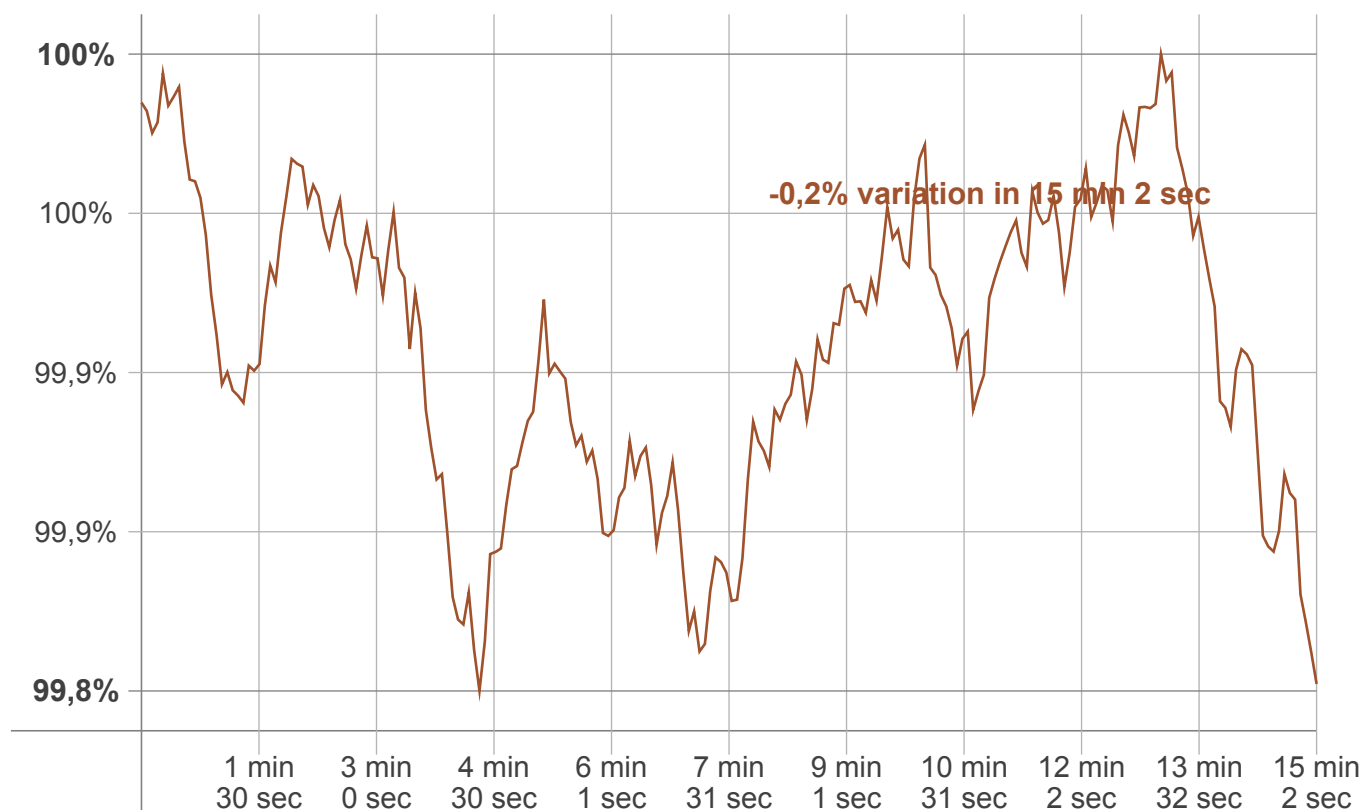
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	137 lm	115 lm	49,1 lm	14,0 lm	6,92 lm	5,35 lm	3,42 lm	1,65 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,426 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 2 sec
Warmup variation	-0,2%

Warmup conditions

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

Color temperature change

CCT start	CCT change	CCT end
0 K	0 K	0 K

Output change

Output start	Output change	Output end
438 lm	lm	438 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
Flicker percentage:	n/a %
SVM: (Visual flicker)	n/a

Flicker conditions:

Sample rate:	60.000 samples/second
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