

Light efficiency:



Light quality:



Color temperature:



Output: 118 lm

Peak: 523 cd

Power: 4,4 W

PF: 1,0



Product name:

F L-S O - 2-4 C -1 0 0-W-LSOT-O90

Item number:

F L / S O - 2 / 4 C / 1 0 0 / W/LSOT/O90

Date and time:

03.04.2019 12:22:43

Description:

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

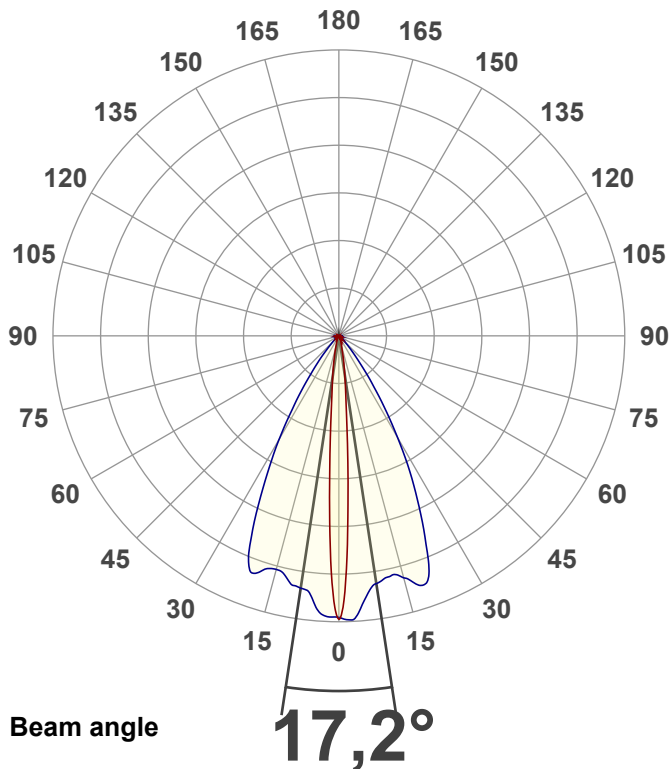
Master of Engineering

Pruefort:

Lichtlabor

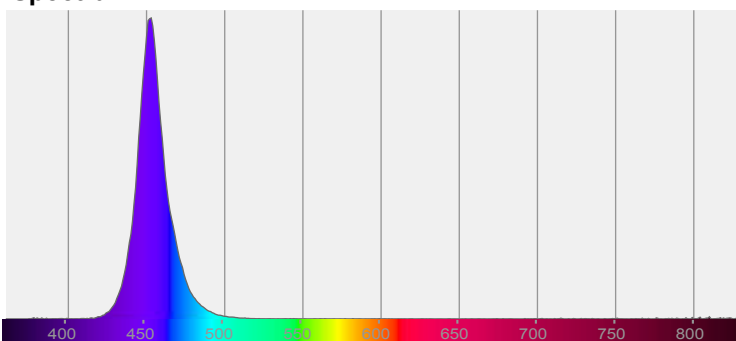
Gaustasse13-15

55411 Bingen am Rhein

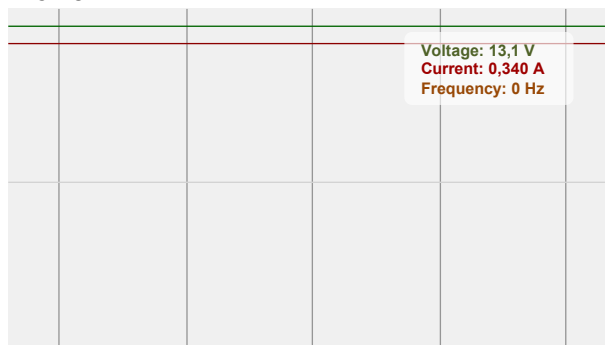


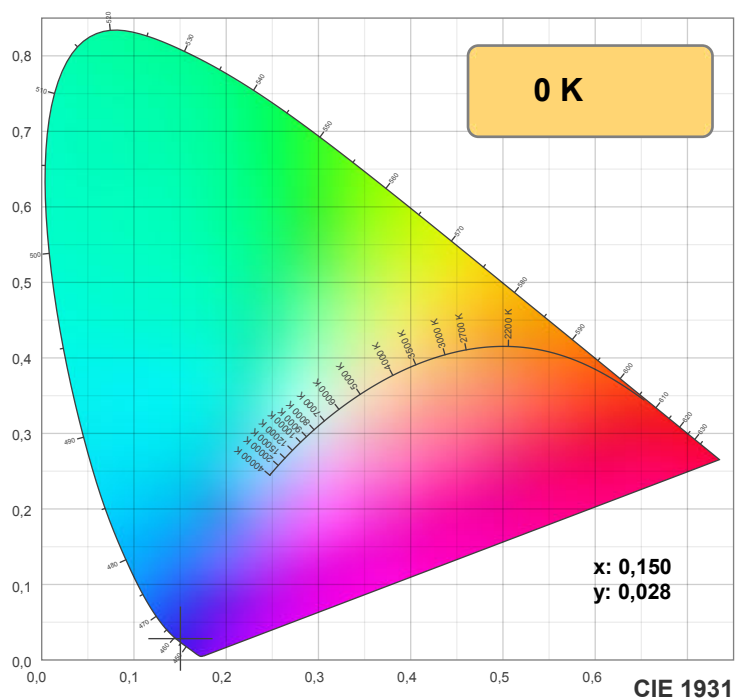
CIE 1931
x: 0,150
y: 0,028

Spectra

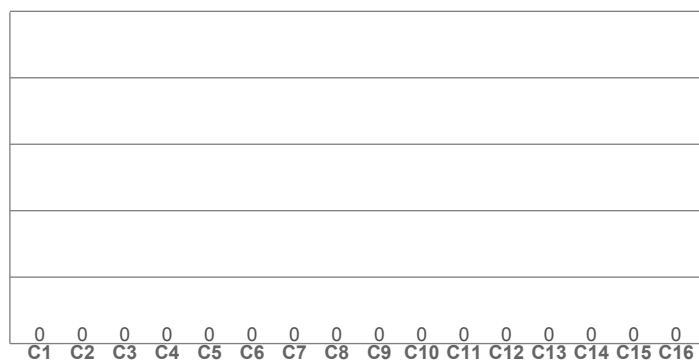


Power





TM30: 0,0



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

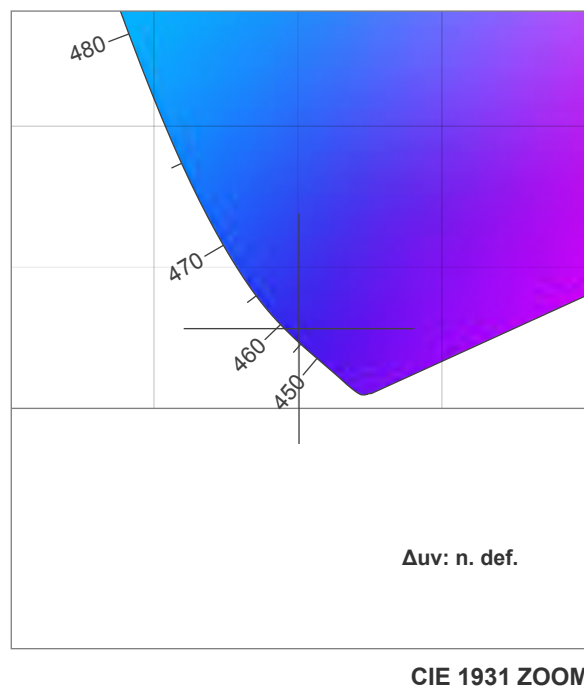
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

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

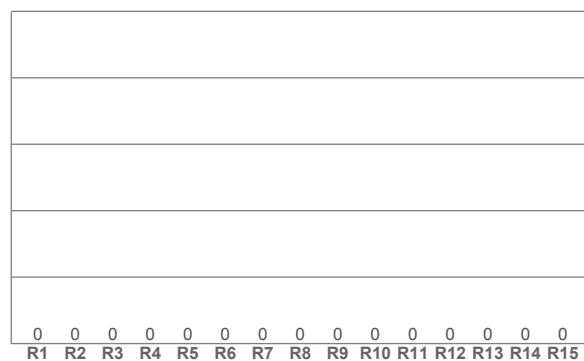
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

CQS Q values

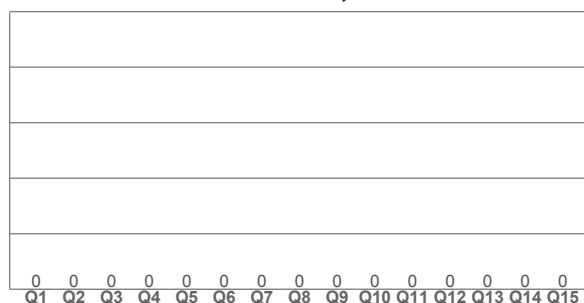
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



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	0,150	0,028	0,198	0,056	n. def.

TM30 details

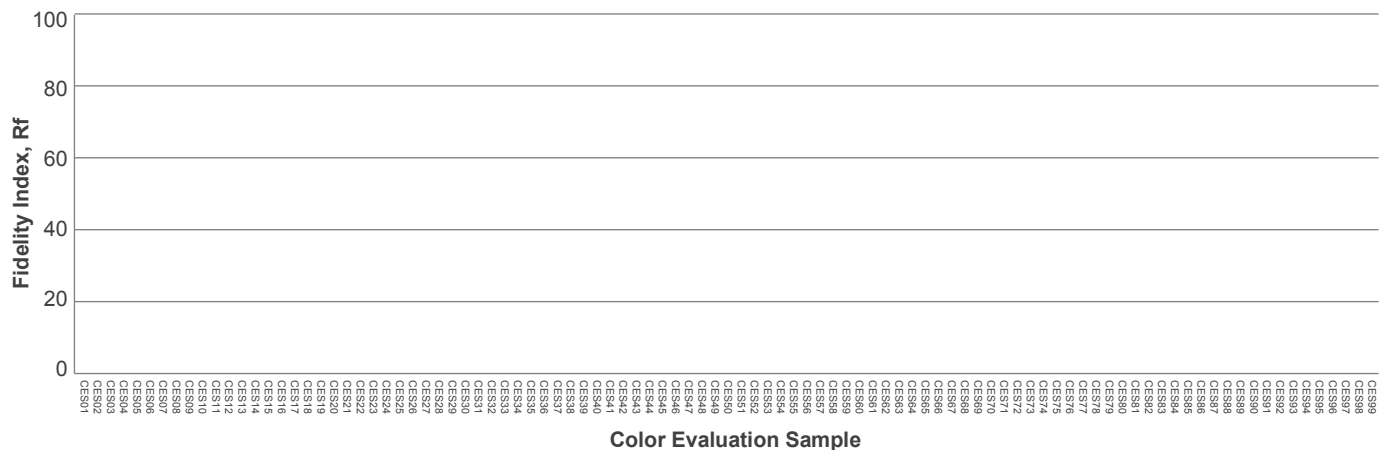
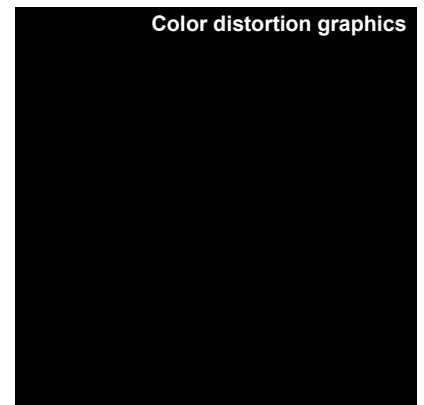
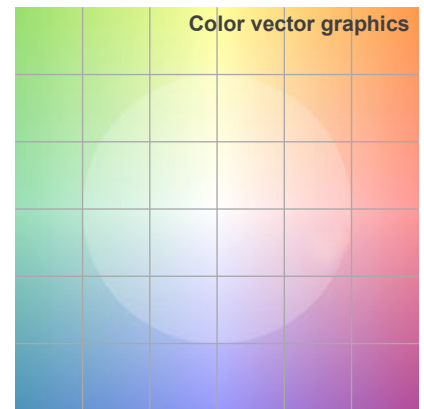
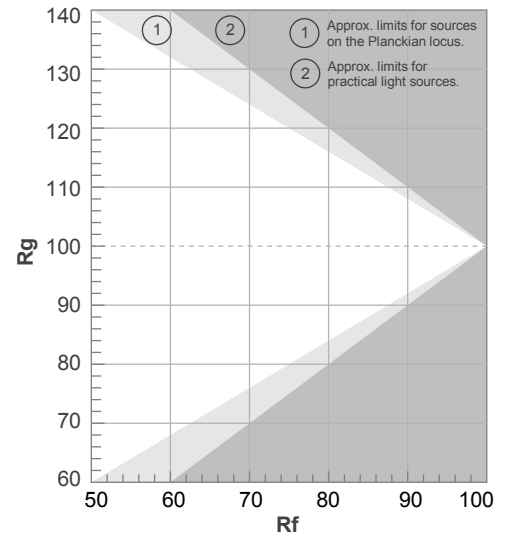
Rf 0,0

Fidelity index Rf

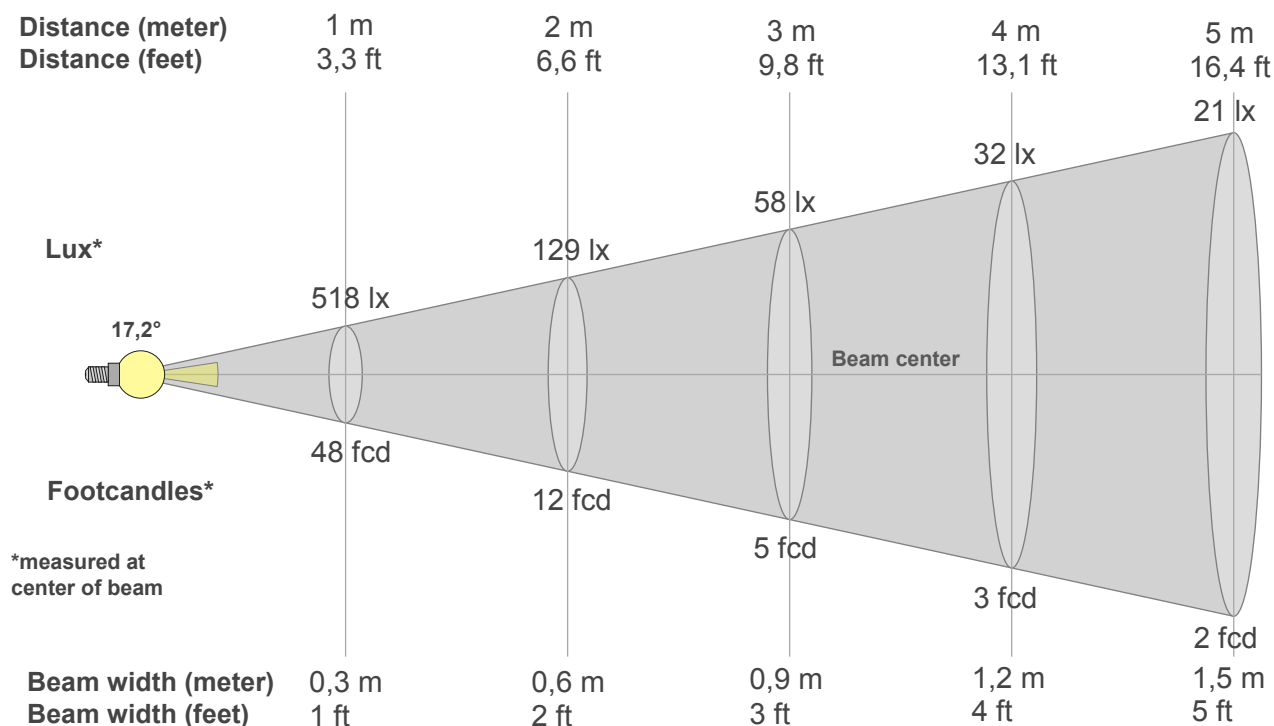
Rg 0,0

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
518lx	129lx	58lx	32lx	21lx	14lx	11lx	8lx	6lx	5lx	4lx	4lx	3lx	3lx	2lx	2lx	2lx	2lx	1lx	1lx
48,1fcd	12fcd	5,3fcd	3fcd	1,9fcd	1,3fcd	1fcd	0,8fcd	0,6fcd	0,5fcd	0,4fcd	0,3fcd	0,3fcd	0,2fcd	0,2fcd	0,2fcd	0,2fcd	0,1fcd	0,1fcd	0,1fcd

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°
518	490	416	320	239	173	128	102	82	67	54	45	35	27	23	19	16	14	13	11
100%	95%	80%	62%	46%	33%	25%	20%	16%	13%	10%	9%	7%	5%	4%	4%	3%	3%	3%	2%

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°
518	521	523	522	512	496	482	470	462	460	457	453	452	451	454	461	466	475	482	483
100%	101%	101%	101%	99%	96%	93%	91%	89%	89%	88%	88%	87%	87%	88%	89%	90%	92%	93%	93%

Intensities in 180° c-plane

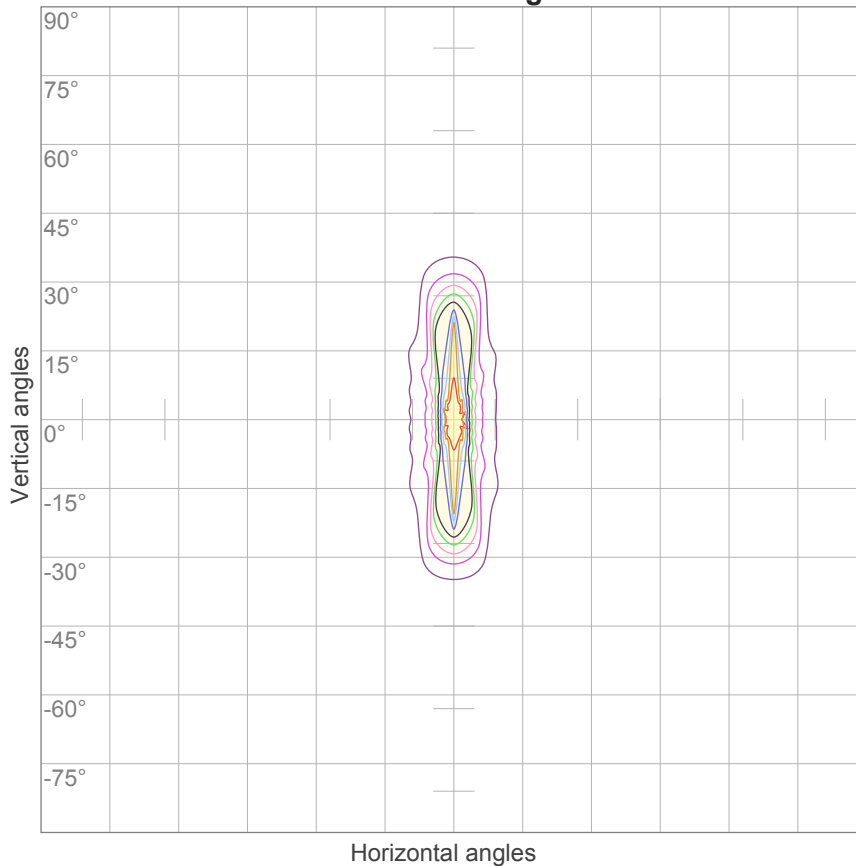
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
518	490	419	327	241	177	132	103	85	71	58	49	40	33	27	22	18	16	14	13
100%	95%	81%	63%	46%	34%	25%	20%	16%	14%	11%	9%	8%	6%	5%	4%	4%	3%	3%	2%

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°
518	517	517	515	510	498	483	473	470	469	467	464	457	450	446	445	446	448	454	461
100%	100%	100%	99%	98%	96%	93%	91%	91%	90%	90%	90%	88%	87%	86%	86%	86%	87%	88%	89%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
17,2°	36,7°	56°	90,2%	84,6%

ISO candela diagram



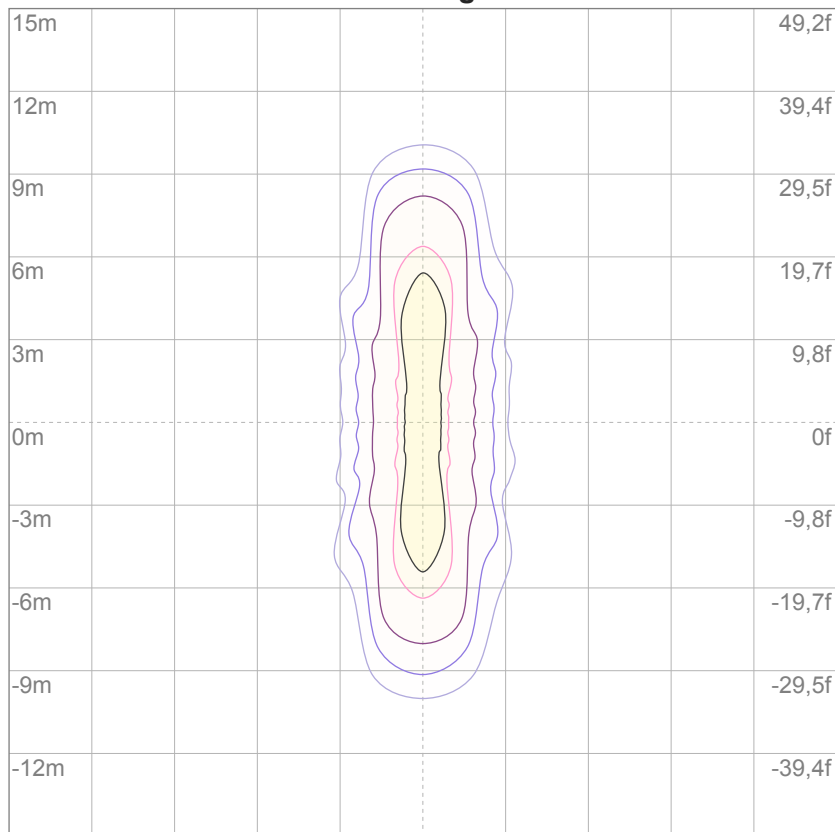
10%	52 cd
20%	104 cd
30%	155 cd
40%	207 cd
50%	259 cd
60%	311 cd
70%	363 cd
80%	414 cd
90%	466 cd

Conditions:

Number of c-planes: 16

Candela at center: 518 cd

ISO lux diagram



3%	0,155 lx
5%	0,259 lx
10%	0,518 lx
30%	1,55 lx
50%	2,59 lx

Conditions:

Number of c-planes: 16

Lux at center: 5,18 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	7,2	8,1	7,5	8,3	8,5	12,2	13,0	12,4	13,2	13,4
	3H	9,8	10,6	10,1	10,9	11,1	13,0	13,8	13,3	14,1	14,3
	4H	11,3	12,0	11,6	12,3	12,6	13,8	14,5	14,1	14,8	15,0
	6H	13,2	13,9	13,5	14,2	14,5	15,1	15,8	15,5	16,1	16,4
	8H	14,2	14,9	14,6	15,2	15,5	16,2	16,9	16,6	17,2	17,5
	12H	15,2	15,8	15,5	16,1	16,5	17,4	18,1	17,8	18,4	18,7
4H	2H	8,4	9,1	8,7	9,4	9,7	12,3	13,1	12,6	13,3	13,6
	3H	11,2	11,9	11,6	12,2	12,5	13,5	14,2	13,9	14,5	14,8
	4H	12,8	13,3	13,1	13,7	14,0	14,6	15,2	15,0	15,5	15,9
	6H	14,8	15,3	15,2	15,7	16,0	16,3	16,8	16,7	17,2	17,6
	8H	15,9	16,3	16,3	16,7	17,1	17,5	18,0	18,0	18,4	18,8
	12H	17,0	17,4	17,4	17,8	18,2	18,9	19,3	19,3	19,7	20,1
8H	4H	13,7	14,1	14,1	14,5	14,9	15,1	15,5	15,5	15,9	16,3
	6H	15,8	16,2	16,3	16,6	17,1	17,1	17,4	17,5	17,9	18,3
	8H	17,1	17,4	17,6	17,8	18,3	18,4	18,7	18,9	19,2	19,6
	12H	18,5	18,7	19,0	19,2	19,7	19,9	20,2	20,4	20,6	21,1
12H	4H	13,9	14,3	14,3	14,7	15,1	15,2	15,6	15,7	16,0	16,5
	6H	16,2	16,5	16,7	17,0	17,4	17,3	17,6	17,8	18,1	18,5
	8H	17,6	17,8	18,1	18,3	18,8	18,7	19,0	19,2	19,5	20,0
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,1 / -0,2					+1,0 / -0,3				
S = 1,5H		+0,3 / -0,2					+2,2 / -0,4				
S = 2,0H		+0,3 / -0,5					+3,5 / -0,7				
Standard table		BK12					---				
Correction summand		1,0					---				
Corrected glare indices referring to 118 lm total luminous flux											

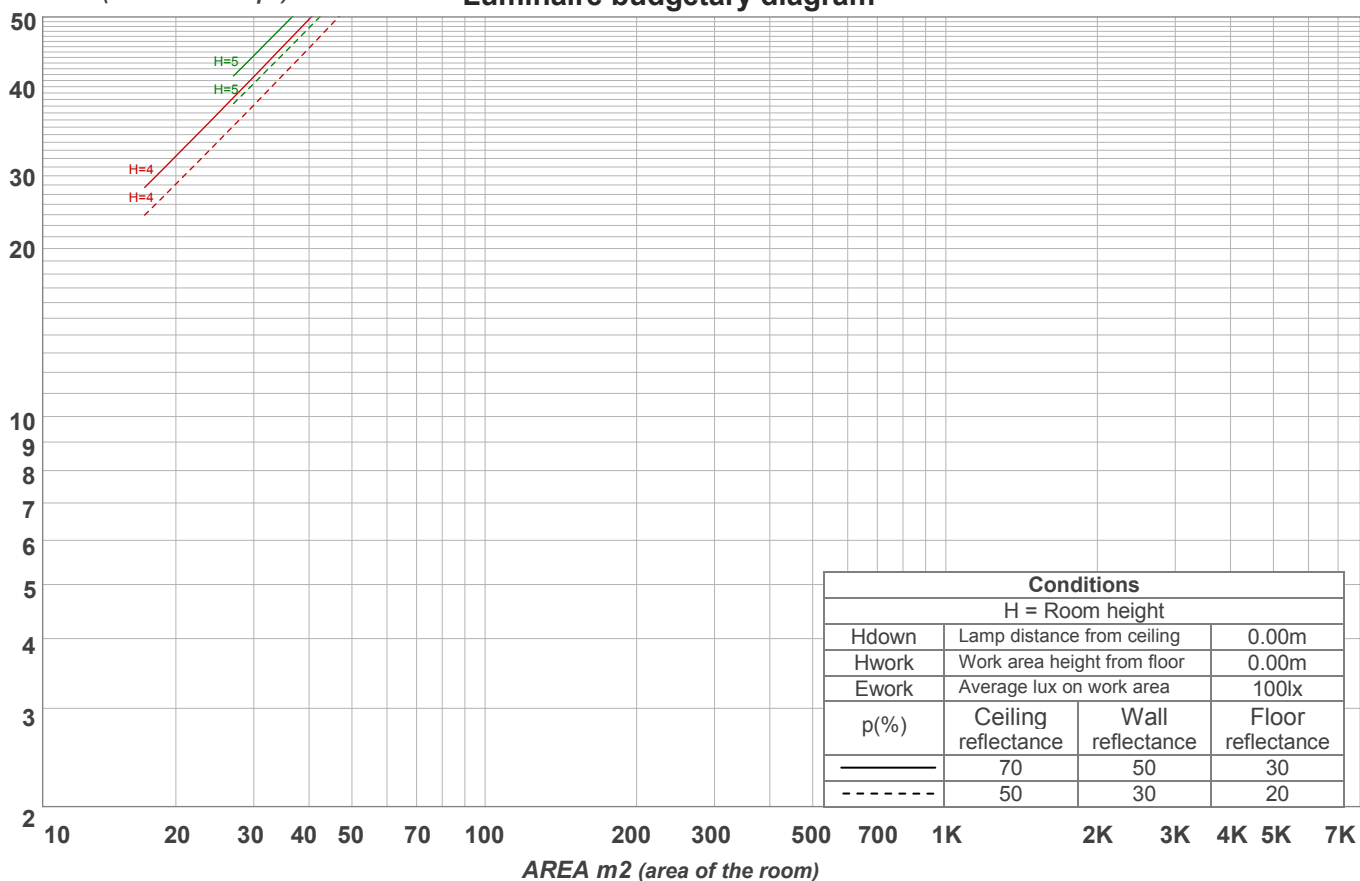
UGR data could be incorrect as lamp output is not symmetrical. Goto Edit->Photometric->Corrections and select Correct asymmetry.

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	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83
3	100	93	88	83	98	92	87	83	89	85	81	87	83	80	84	81	79	77
4	95	87	81	77	94	86	81	76	84	79	75	82	78	75	80	77	74	72
5	91	82	76	72	89	81	76	71	79	75	71	78	73	70	76	72	69	68
6	87	78	72	67	85	77	71	67	76	70	67	74	70	66	73	69	66	64
7	83	74	68	64	82	73	68	64	72	67	63	71	66	63	70	66	62	61
8	80	70	65	60	79	70	64	60	69	64	60	68	63	60	67	63	60	58
9	77	67	62	58	76	67	61	58	66	61	57	65	60	57	64	60	57	56
10	74	64	59	55	73	64	59	55	63	58	55	62	58	55	62	58	55	53

LAMPS (number of lamps)

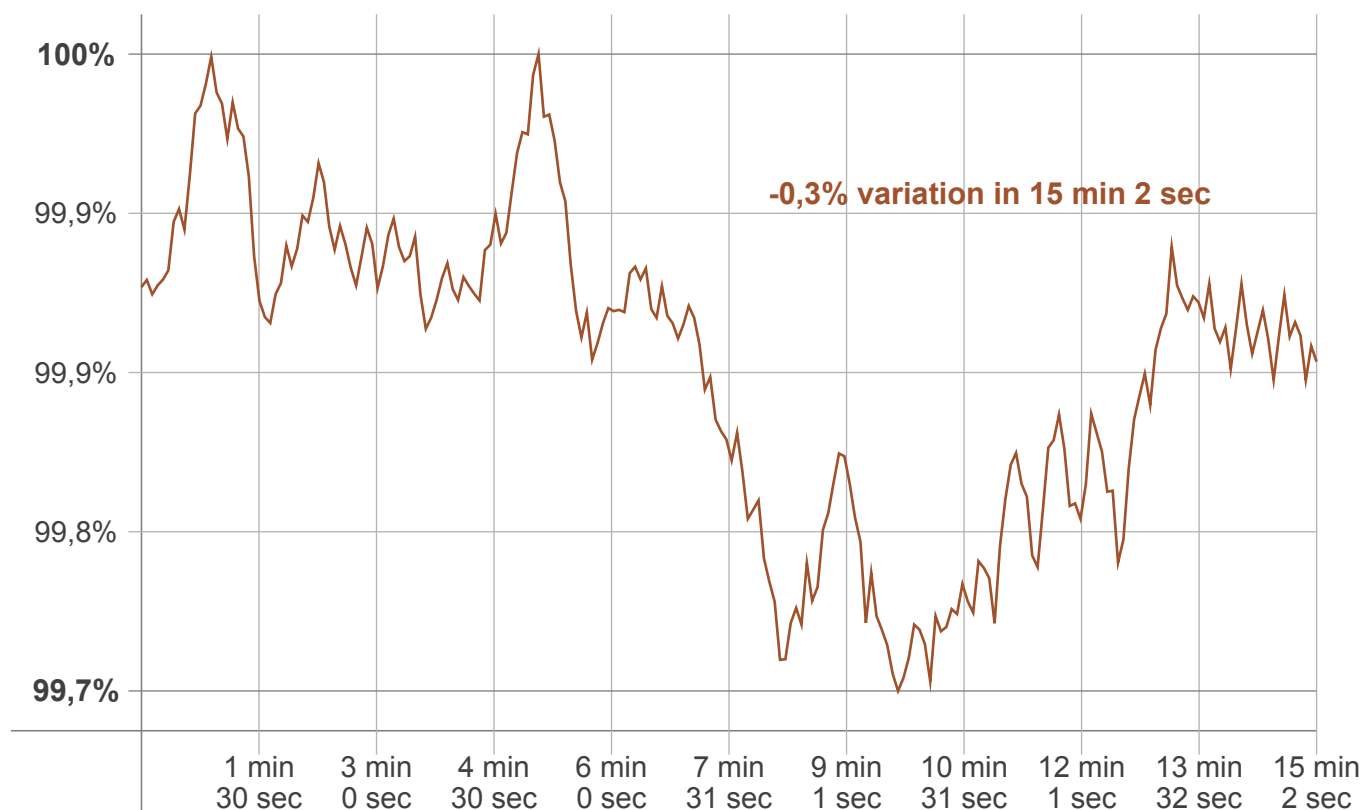
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	31,1 lm	27,7 lm	13,1 lm	5,37 lm	4,25 lm	4,08 lm	3,85 lm	3,43 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,170 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	-0,3%

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
118 lm	lm	118 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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