

Light efficiency:



Light quality:



Color temperature:



Output: 111 lm

Peak: 935 cd

Power: 4,4 W

PF: 1,0



Product name:

F L-S O - 2-4 C -1 0 0-B-LSTT-SS

Item number:

F L / S O - 2 / 4 C / 1 0 0 / B / LSTT/SS

Date and time:

11.03.2019 14:06:56

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

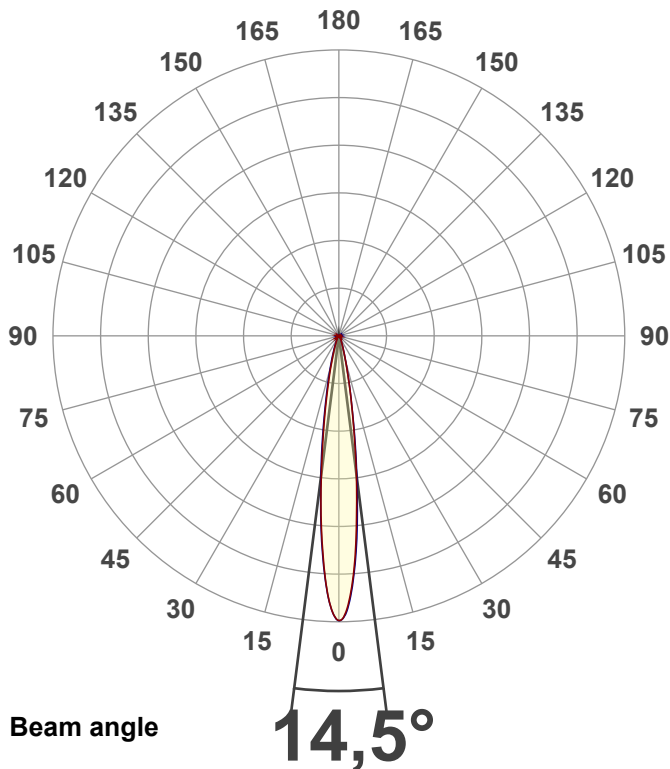
Master of Engineering

Pruefort:

Lichtlabor

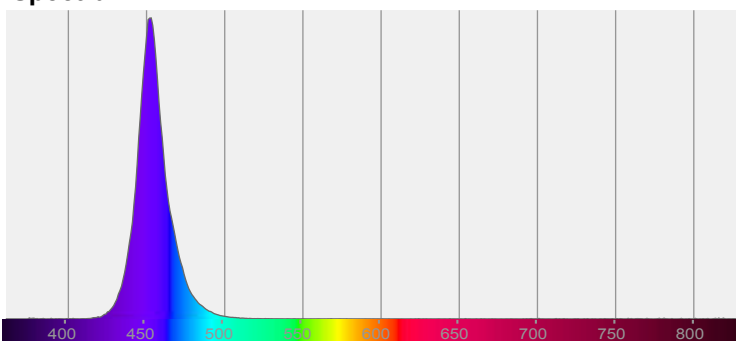
Gaustasse13-15

55411 Bingen am Rhein

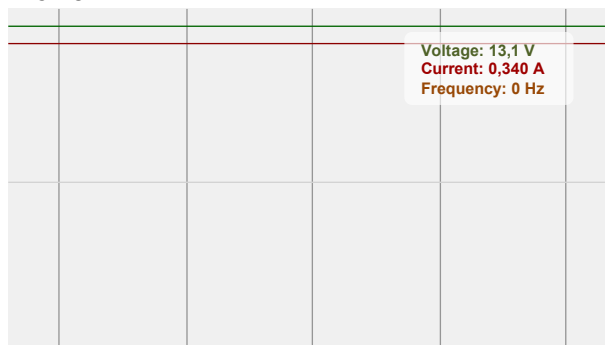


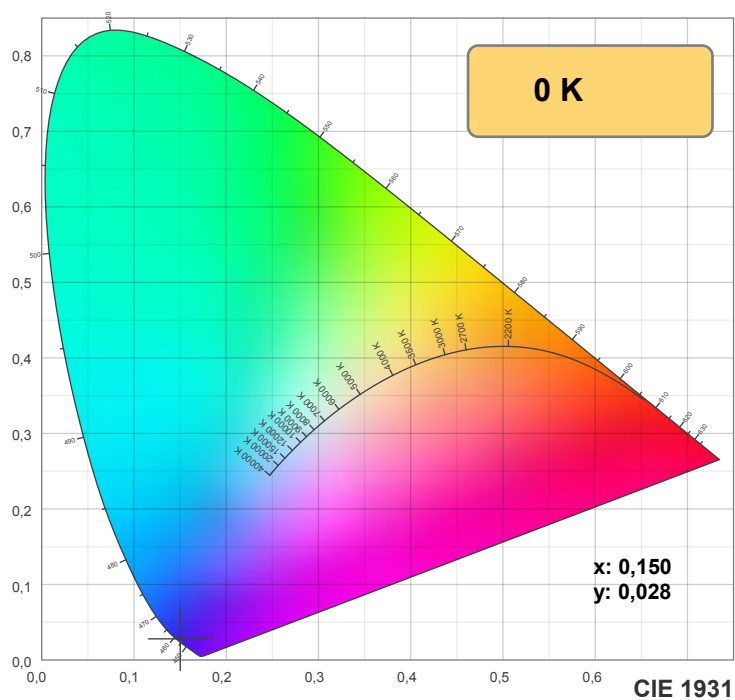
CIE 1931
x: 0,150
y: 0,028

Spectra

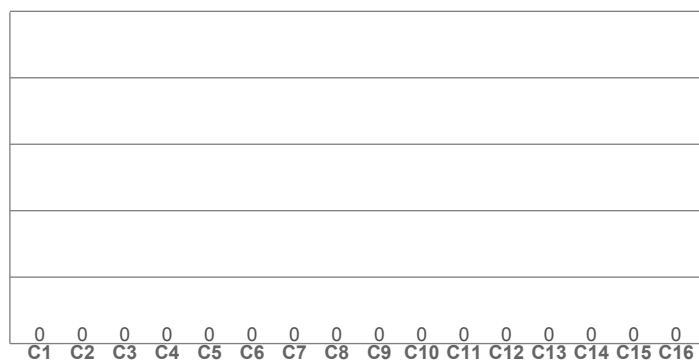


Power





TM30: 0,0



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

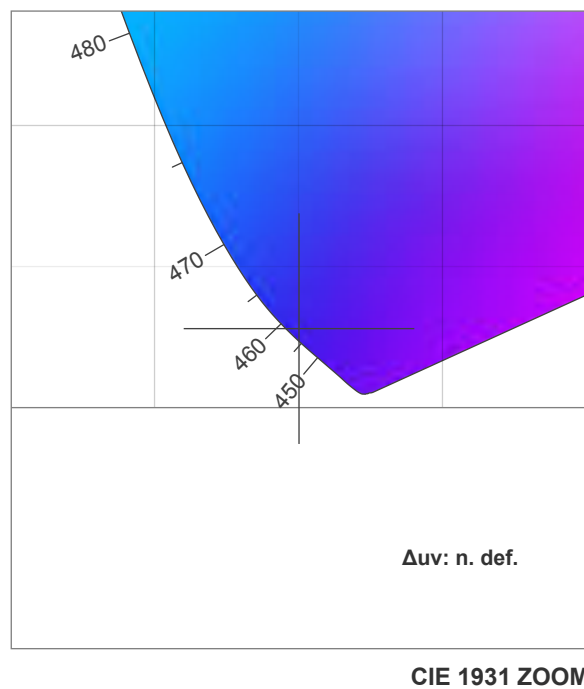
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

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

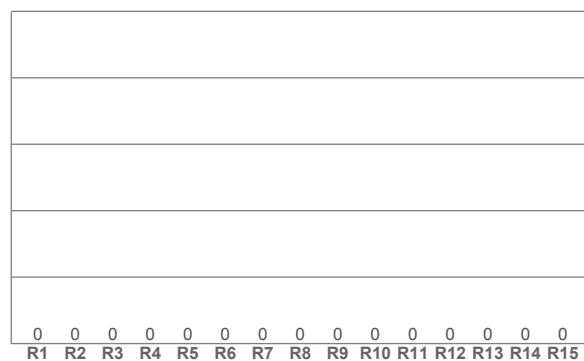
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

CQS Q values

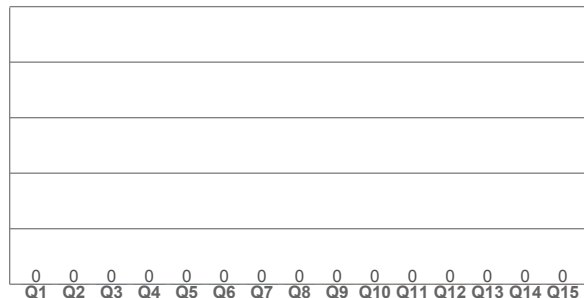
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



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	0,055	n. def.

TM30 details

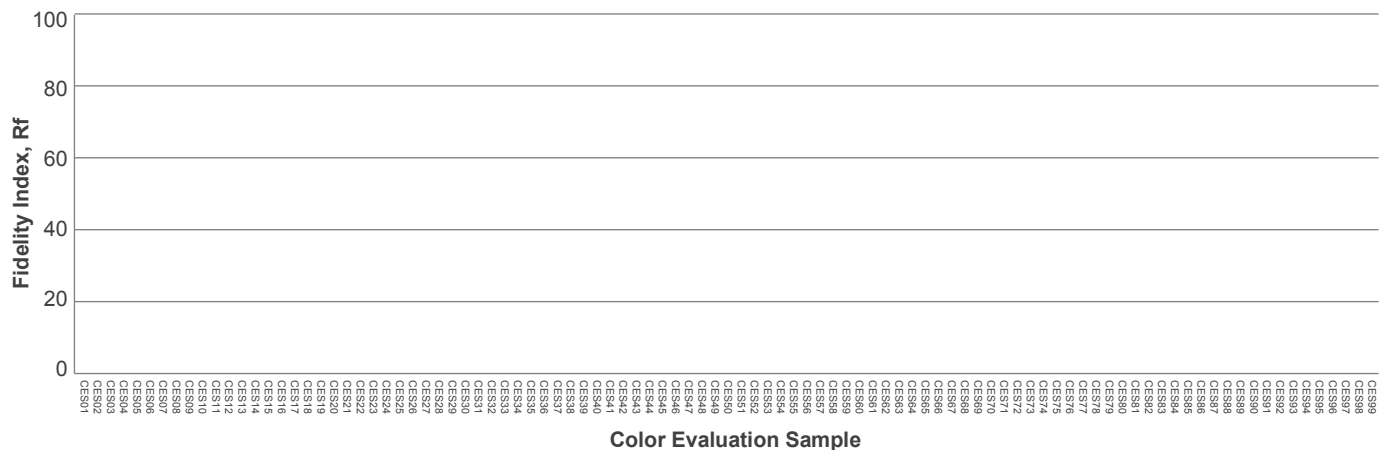
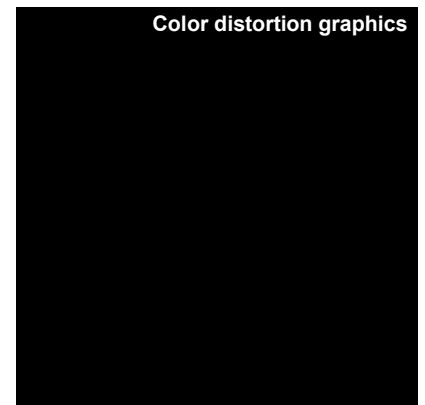
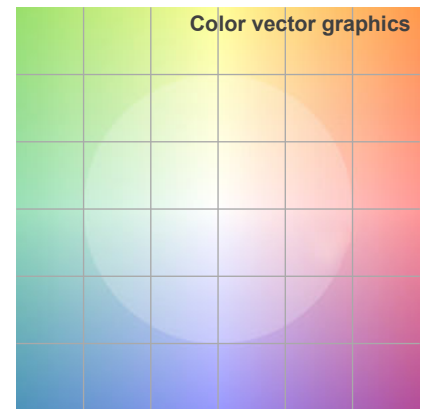
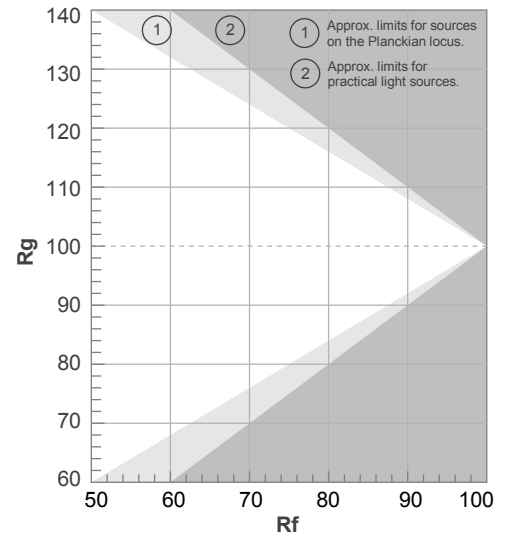
Rf 0,0

Fidelity index Rf

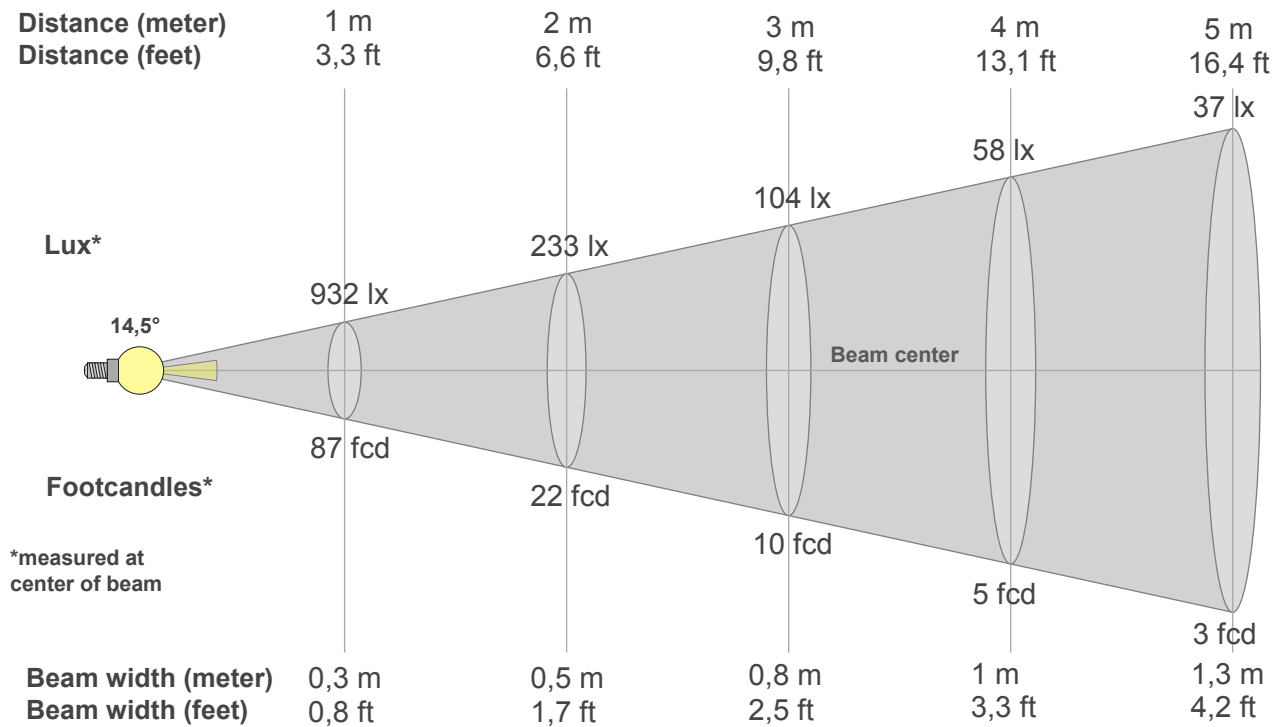
Rg 0,0

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
932lx	233lx	104lx	58lx	37lx	26lx	19lx	15lx	12lx	9lx	8lx	6lx	6lx	5lx	4lx	4lx	3lx	3lx	3lx	2lx
86,6fcd	21,7fcd	9,6fcd	5,4fcd	3,5fcd	2,4fcd	1,8fcd	1,4fcd	1,1fcd	0,9fcd	0,7fcd	0,6fcd	0,5fcd	0,4fcd	0,4fcd	0,3fcd	0,3fcd	0,3fcd	0,2fcd	0,2fcd

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°
932	920	880	819	743	653	560	475	393	319	258	209	168	133	107	87	71	58	48	41
100%	99%	94%	88%	80%	70%	60%	51%	42%	34%	28%	22%	18%	14%	11%	9%	8%	6%	5%	4%

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°
932	922	886	828	755	672	581	490	406	330	263	210	168	133	106	85	70	59	48	41
100%	99%	95%	89%	81%	72%	62%	53%	44%	35%	28%	23%	18%	14%	11%	9%	7%	6%	5%	4%

Intensities in 180° c-plane

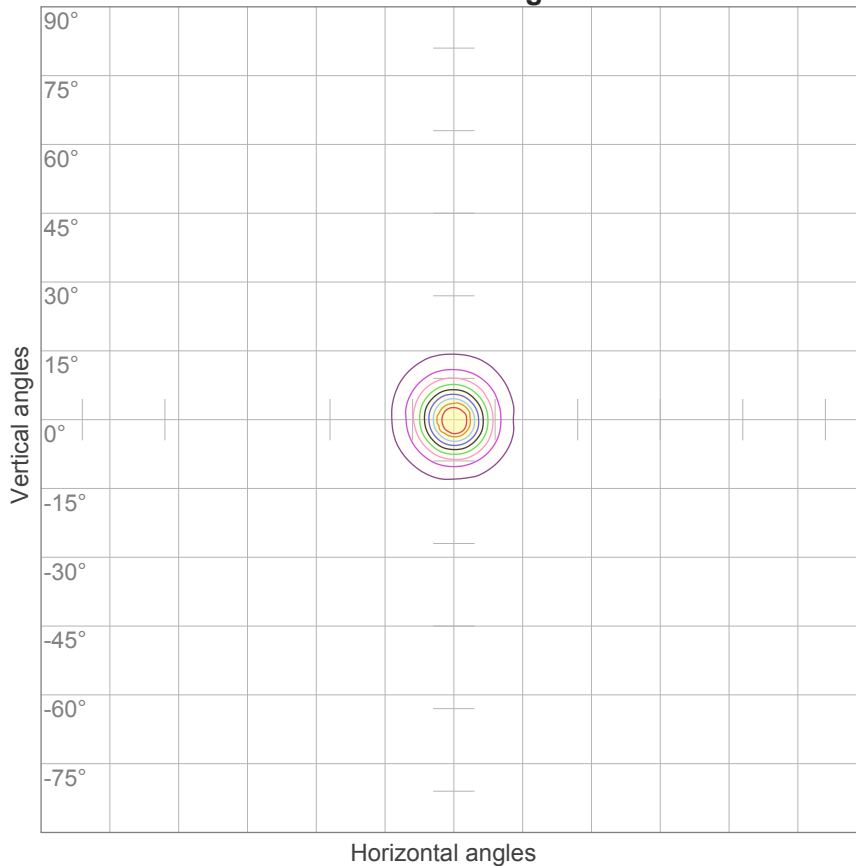
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
932	916	875	811	732	649	563	476	395	326	268	217	175	143	118	94	77	64	53	44
100%	98%	94%	87%	79%	70%	60%	51%	42%	35%	29%	23%	19%	15%	13%	10%	8%	7%	6%	5%

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°
932	916	875	814	739	658	571	488	414	345	285	234	193	161	131	108	91	76	63	53
100%	98%	94%	87%	79%	71%	61%	52%	44%	37%	31%	25%	21%	17%	14%	12%	10%	8%	7%	6%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
14,5°	30,5°	47°	91,4%	86,3%

ISO candela diagram



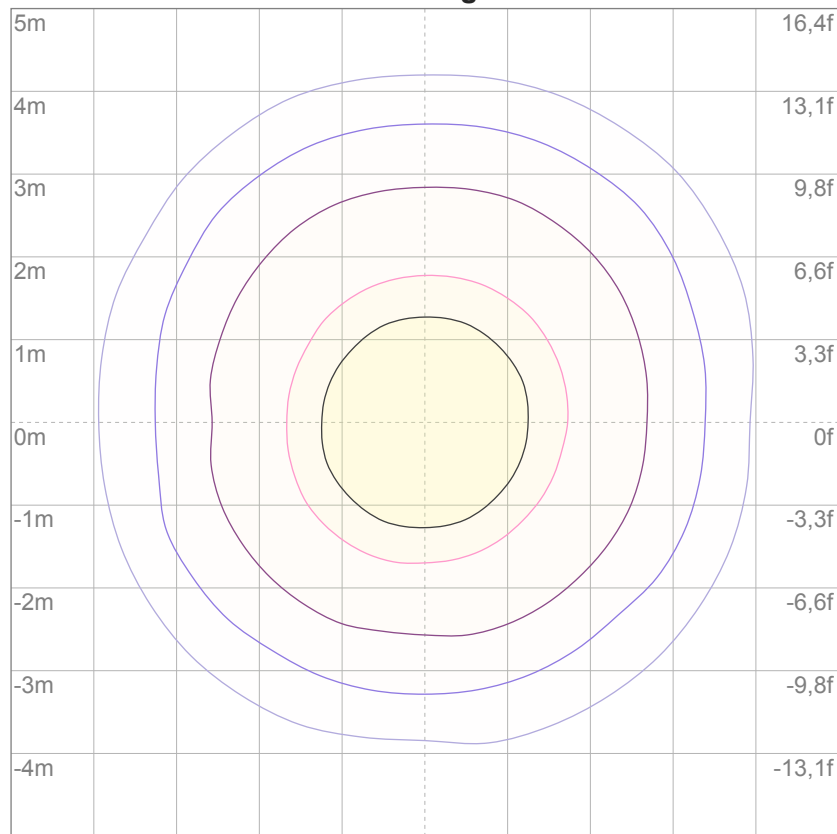
10%	93 cd
20%	186 cd
30%	280 cd
40%	373 cd
50%	466 cd
60%	559 cd
70%	653 cd
80%	746 cd
90%	839 cd

Conditions:

Number of c-planes: 16

Candela at center: 932 cd

ISO lux diagram



3%	0,280 lx
5%	0,466 lx
10%	0,932 lx
30%	2,80 lx
50%	4,66 lx

Conditions:

Number of c-planes: 16

Lux at center: 9,32 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	7,0	7,8	7,2	8,0	8,2	7,0	7,8	7,3	8,0	8,2
	3H	9,1	9,9	9,4	10,1	10,4	9,6	10,3	9,9	10,6	10,8
	4H	10,8	11,5	11,1	11,8	12,1	11,0	11,7	11,3	11,9	12,2
	6H	12,3	13,0	12,7	13,3	13,6	12,7	13,3	13,0	13,6	13,9
	8H	13,3	13,9	13,6	14,2	14,5	13,5	14,1	13,8	14,4	14,7
	12H	14,7	15,3	15,0	15,6	15,9	14,8	15,4	15,2	15,7	16,1
4H	2H	7,9	8,6	8,2	8,8	9,1	7,8	8,6	8,2	8,8	9,1
	3H	10,2	10,8	10,6	11,1	11,5	10,6	11,2	10,9	11,5	11,8
	4H	12,1	12,6	12,5	13,0	13,3	12,2	12,8	12,6	13,1	13,5
	6H	13,8	14,3	14,2	14,7	15,0	14,1	14,5	14,5	14,9	15,3
	8H	14,9	15,3	15,3	15,7	16,1	15,0	15,4	15,4	15,8	16,2
	12H	16,4	16,8	16,8	17,2	17,6	16,5	16,9	17,0	17,3	17,7
8H	4H	12,9	13,3	13,3	13,7	14,1	12,9	13,3	13,3	13,7	14,1
	6H	14,8	15,2	15,3	15,6	16,1	15,0	15,3	15,4	15,7	16,2
	8H	16,1	16,4	16,6	16,8	17,3	16,2	16,5	16,7	16,9	17,4
	12H	17,7	18,0	18,2	18,4	18,9	17,9	18,2	18,4	18,7	19,2
12H	4H	13,1	13,4	13,5	13,8	14,3	13,1	13,5	13,5	13,9	14,3
	6H	15,2	15,5	15,7	15,9	16,4	15,3	15,6	15,8	16,1	16,5
	8H	16,5	16,8	17,0	17,2	17,7	16,7	16,9	17,2	17,4	17,9
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,1 / -0,2					+0,2 / -0,2				
S = 1,5H		+0,3 / -0,3					+0,4 / -0,4				
S = 2,0H		+0,6 / -0,6					+0,6 / -0,5				
Standard table		---					BK12				
Correction summand		---					0,4				
Corrected glare indices referring to 111 lm total luminous flux											

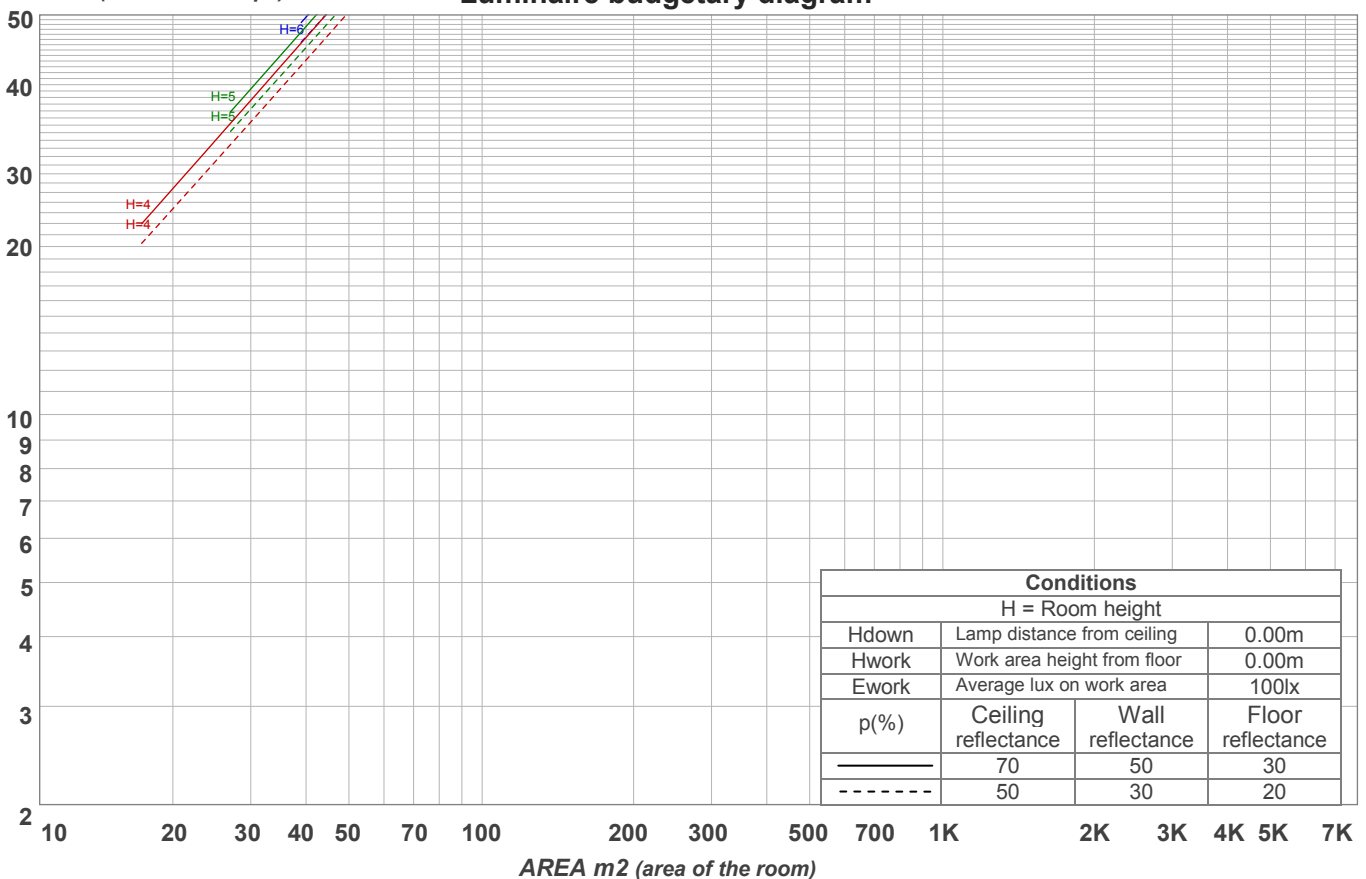
UGR data could be incorrect as lamp output is not symmetrical. Goto Edit->Photometric->Corrections and select Correct asymmetry.

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	113	110	107	105	110	108	105	103	104	102	100	100	98	97	97	95	94	92
2	108	103	99	96	106	102	98	95	98	95	93	95	93	91	93	91	89	87
3	104	98	93	90	102	97	92	89	94	90	88	92	89	86	89	87	85	83
4	100	94	89	85	99	92	88	85	90	87	84	88	85	83	87	84	82	80
5	97	90	85	81	95	89	84	81	87	83	80	86	82	80	84	81	79	78
6	94	87	82	78	93	86	81	78	85	81	78	83	80	77	82	79	77	75
7	91	84	79	76	90	83	79	76	82	78	75	81	78	75	80	77	74	73
8	89	82	77	74	88	81	77	74	80	76	73	79	76	73	78	75	73	72
9	87	79	75	72	86	79	75	72	78	74	71	77	74	71	77	73	71	70
10	85	77	73	70	84	77	73	70	76	73	70	76	72	70	75	72	70	69

LAMPS (number of lamps)

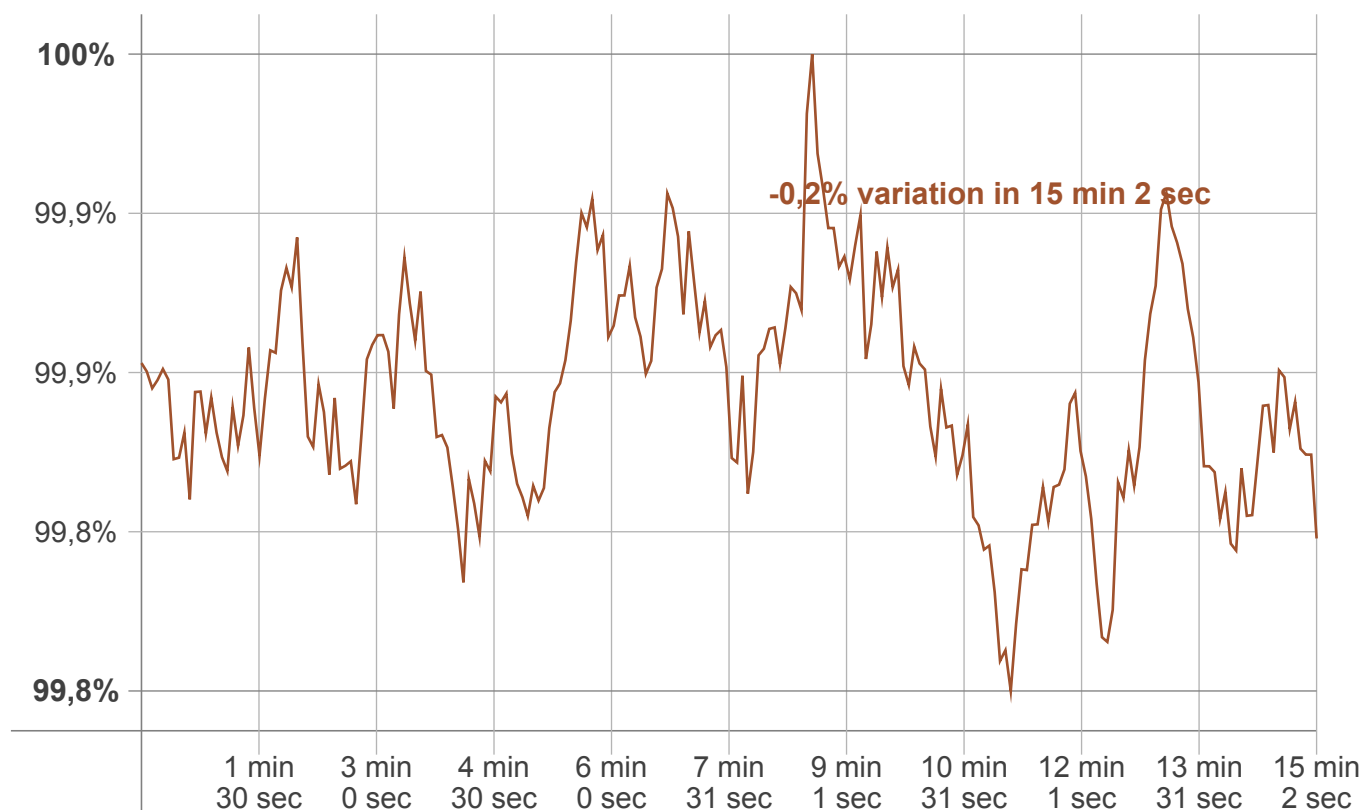
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	29,6 lm	9,45 lm	4,92 lm	3,96 lm	3,60 lm	3,48 lm	3,15 lm	2,77 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,155 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
111 lm	+ 1m	111 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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