

Light efficiency:



Light quality:



Color temperature:



**Output:** 137 lm  
**Peak:** 3454 cd  
**Power:** 4,4 W  
**PF:** 1,0



Product name:

**F L-S O - 2-4 C -1 0 0-B-LSST-RS**

Item number:

**F L / S O - 2 / 4 C / 1 0 0 / B/LSST/RS**

Date and time:

**03.04.2019 10:22:39**

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**

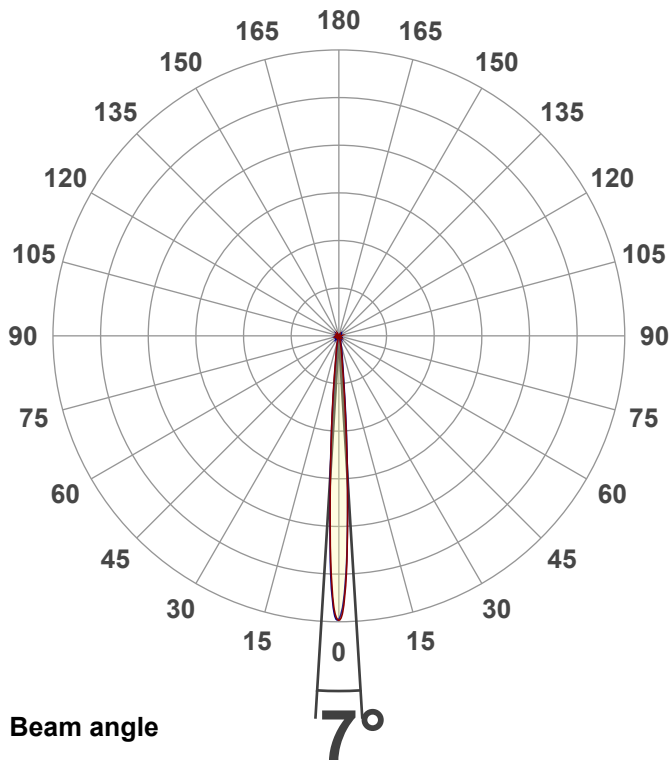
**Master of Engineering**

**Pruefort:**

**Lichtlabor**

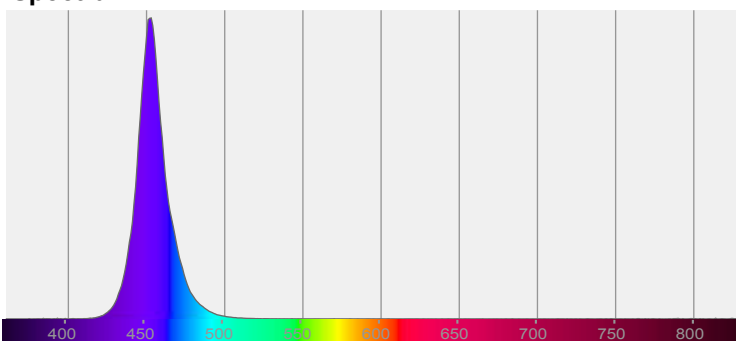
**Gaustasse13-15**

**55411 Bingen am Rhein**

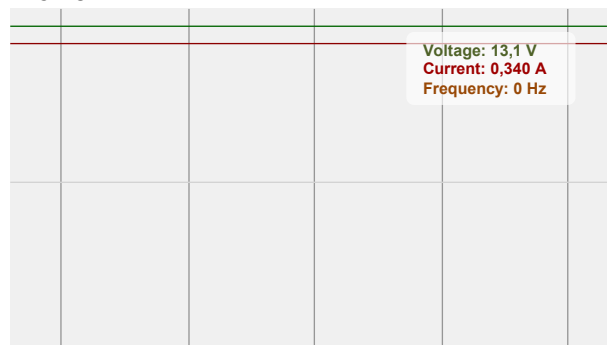


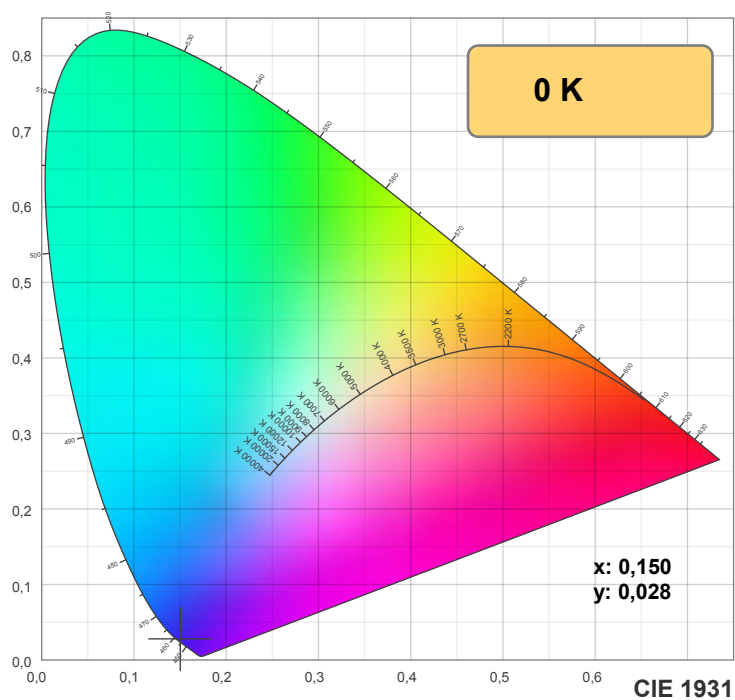
CIE 1931  
x: 0,150  
y: 0,028

Spectra

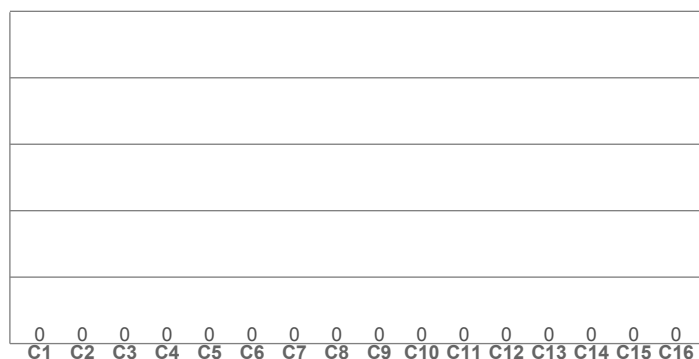


Power





TM30: 0,0



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

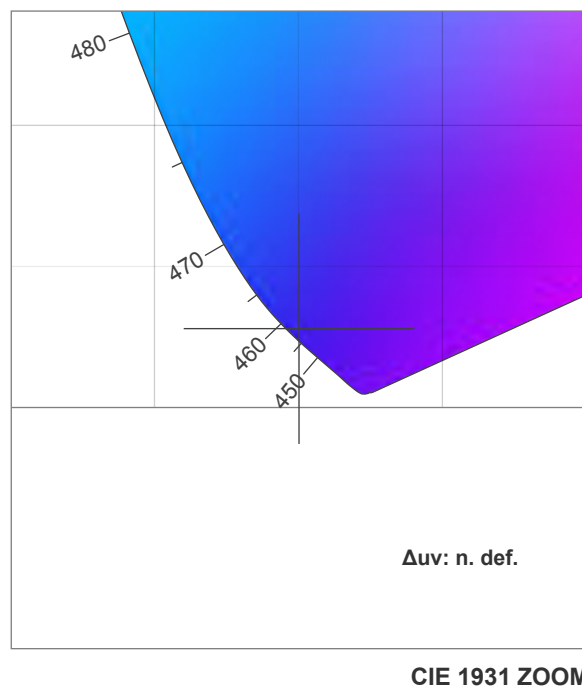
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

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

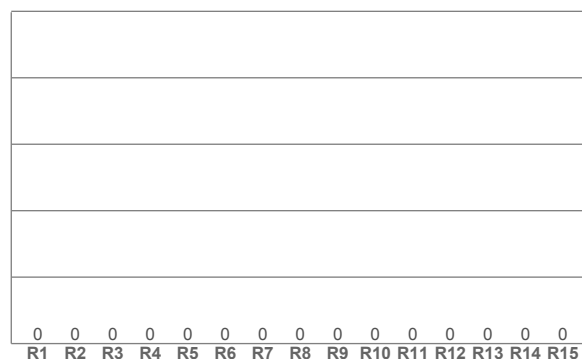
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

CQS Q values

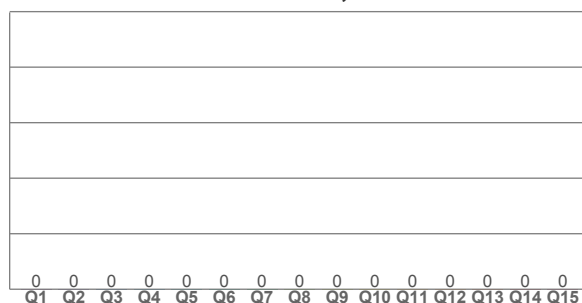
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



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

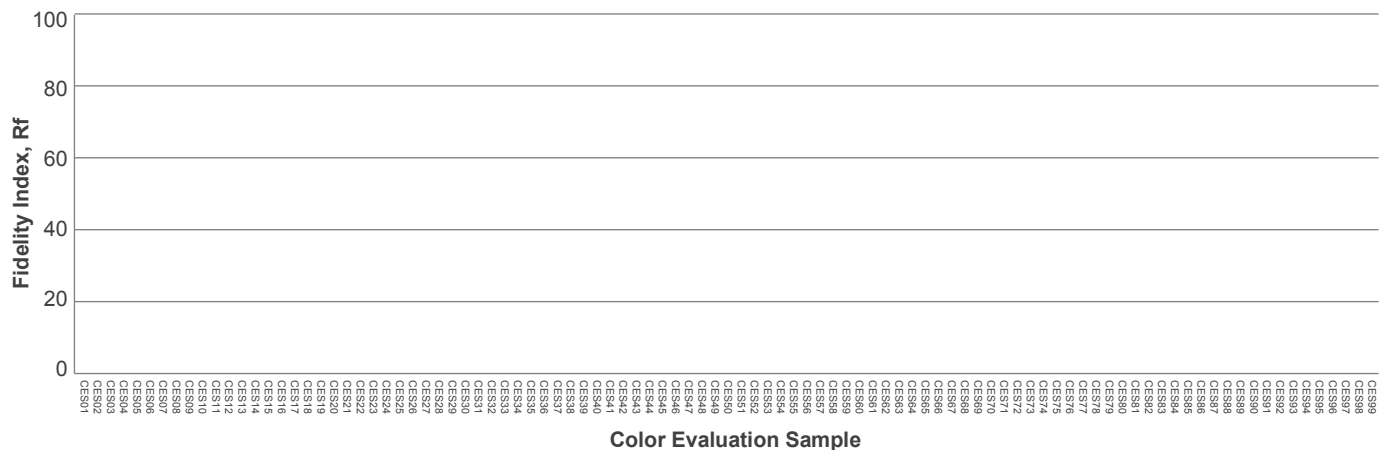
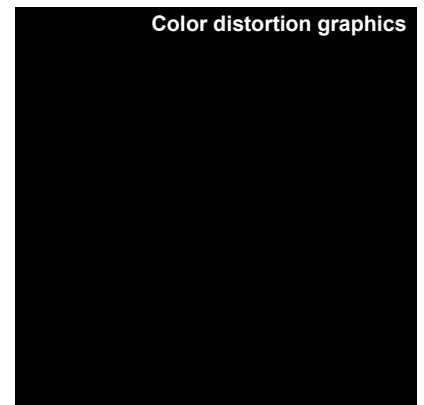
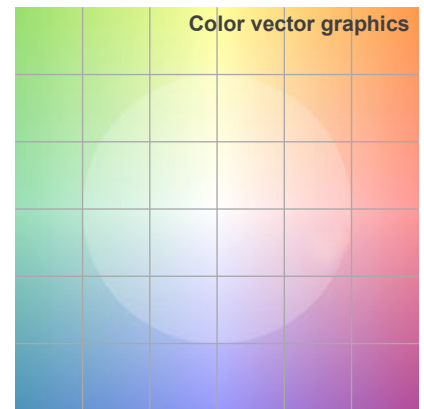
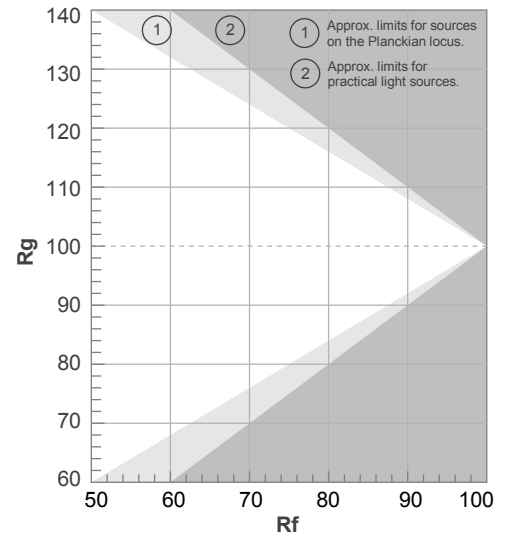
**Rf 0,0**

Fidelity index Rf

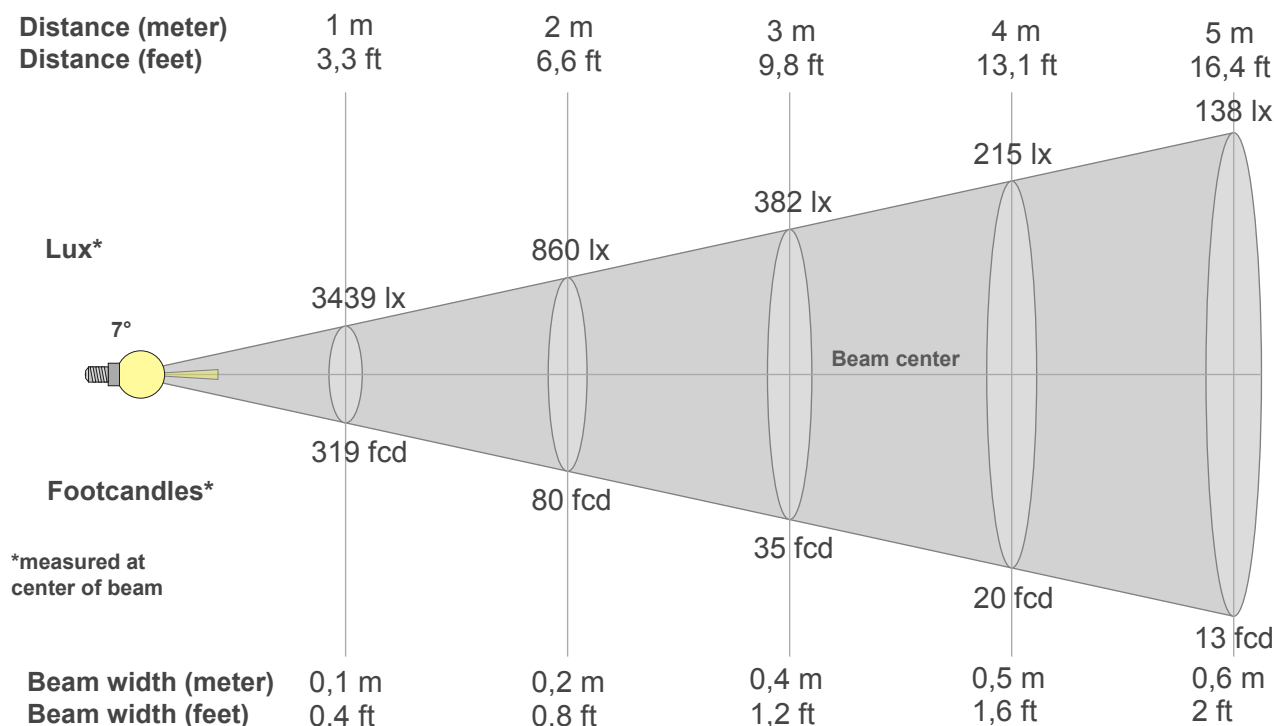
**Rg 0,0**

Gammut index Rg

Hue Bin	R <sub>f</sub>	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
3439lx	860lx	382lx	215lx	138lx	96lx	70lx	54lx	42lx	34lx	28lx	24lx	20lx	18lx	15lx	13lx	12lx	11lx	10lx	9lx
319,5fcd	79,9fcd	35,5fcd	20fcd	12,8fcd	8,9fcd	6,5fcd	5fcd	3,9fcd	3,2fcd	2,6fcd	2,2fcd	1,9fcd	1,6fcd	1,4fcd	1,2fcd	1,1fcd	1fcd	0,9fcd	0,8fcd

### 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°
3439	3270	2756	2040	1375	864	534	354	263	207	164	129	101	78	60	50	41	35	32	27
100%	95%	80%	59%	40%	25%	16%	10%	8%	6%	5%	4%	3%	2%	2%	1%	1%	1%	1%	1%

### 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°
3439	3224	2719	2032	1421	937	606	433	332	266	223	189	160	133	108	90	75	61	49	39
100%	94%	79%	59%	41%	27%	18%	13%	10%	8%	6%	6%	5%	4%	3%	3%	2%	2%	1%	1%

### Intensities in 180° c-plane

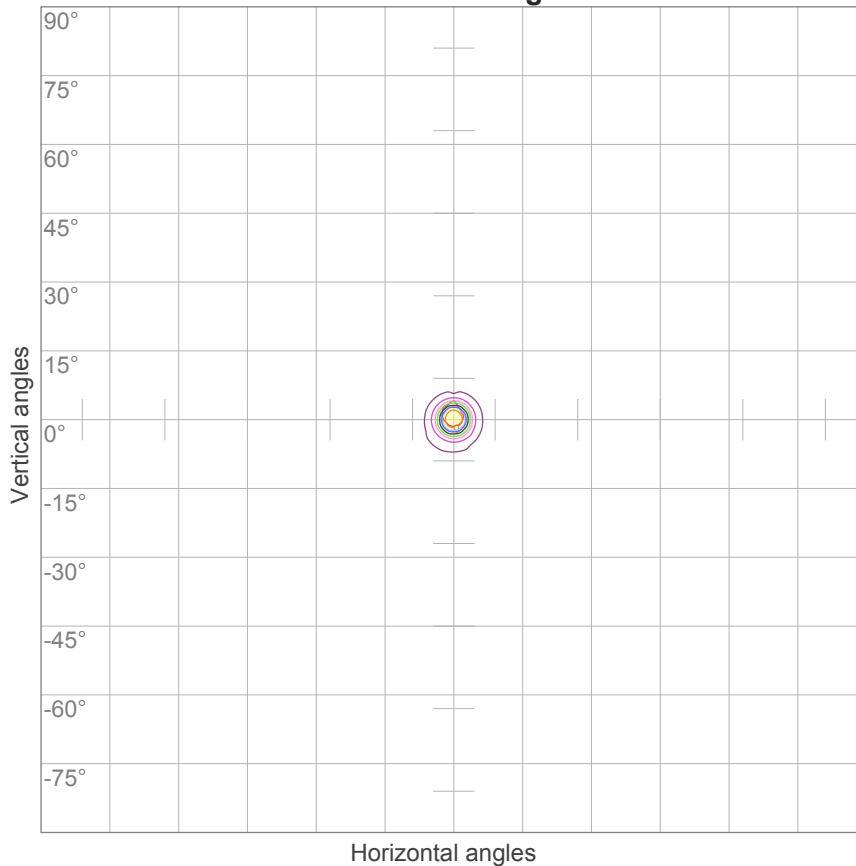
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
3439	3298	2779	2028	1365	909	583	376	267	214	176	141	113	91	71	57	46	37	32	26
100%	96%	81%	59%	40%	26%	17%	11%	8%	6%	5%	4%	3%	3%	2%	2%	1%	1%	1%	1%

### 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°
3439	3353	2863	2067	1396	874	513	316	215	161	124	96	73	58	48	44	37	32	30	27
100%	98%	83%	60%	41%	25%	15%	9%	6%	5%	4%	3%	2%	2%	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
7°	14,7°	27,1°	84,8%	77,5%

ISO candela diagram



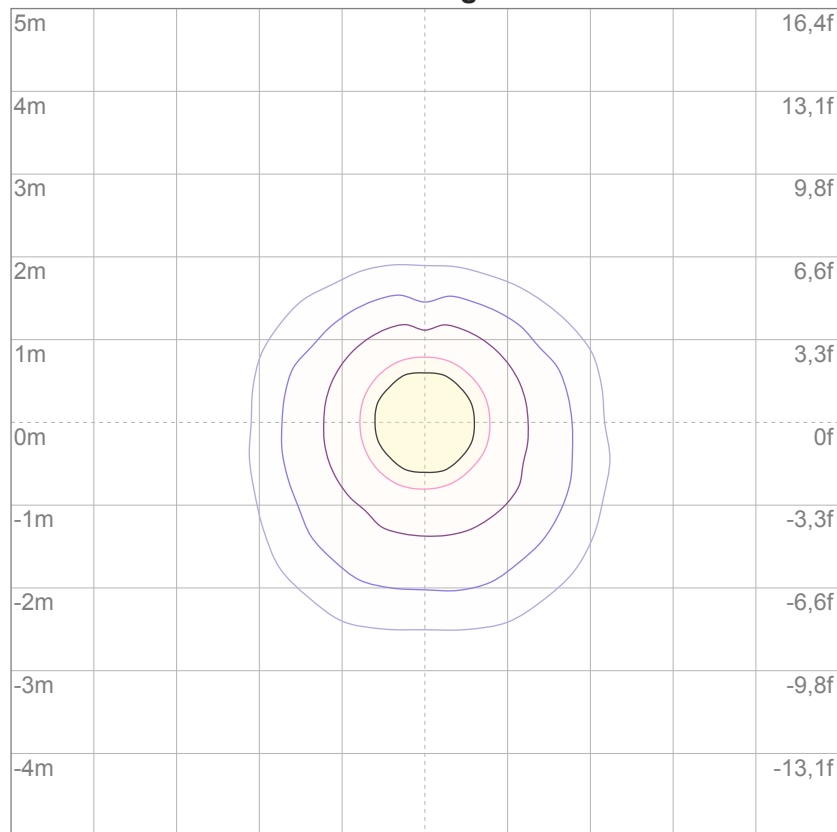
10%	344 cd
20%	688 cd
30%	1032 cd
40%	1375 cd
50%	1719 cd
60%	2063 cd
70%	2407 cd
80%	2751 cd
90%	3095 cd

Conditions:

Number of c-planes: 16

Candela at center: 3439 cd

ISO lux diagram



3%	1,03 lx
5%	1,72 lx
10%	3,44 lx
30%	10,3 lx
50%	17,2 lx

Conditions:

Number of c-planes: 16

Lux at center: 34,4 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	10,2	11,1	10,5	11,4	11,6	10,4	11,4	10,7	11,6	11,8
	3H	13,4	14,2	13,7	14,5	14,7	13,0	13,9	13,3	14,1	14,4
	4H	15,2	16,1	15,6	16,4	16,6	14,7	15,6	15,0	15,8	16,1
	6H	17,4	18,2	17,7	18,5	18,8	16,7	17,5	17,1	17,8	18,1
	8H	18,4	19,2	18,8	19,5	19,8	17,7	18,5	18,1	18,8	19,1
	12H	19,4	20,1	19,8	20,4	20,8	18,9	19,6	19,2	19,9	20,2
4H	2H	11,3	12,2	11,6	12,4	12,7	11,4	12,3	11,8	12,5	12,8
	3H	14,7	15,5	15,1	15,8	16,1	14,4	15,1	14,7	15,4	15,8
	4H	16,7	17,4	17,1	17,7	18,1	16,4	17,0	16,8	17,4	17,7
	6H	19,0	19,6	19,4	20,0	20,3	18,5	19,1	18,9	19,5	19,8
	8H	20,1	20,6	20,5	21,0	21,4	19,5	20,1	20,0	20,5	20,9
	12H	21,2	21,7	21,6	22,1	22,5	20,7	21,2	21,2	21,6	22,1
8H	4H	17,5	18,1	18,0	18,5	18,9	17,2	17,8	17,7	18,2	18,6
	6H	20,1	20,5	20,5	20,9	21,4	19,6	20,0	20,0	20,4	20,9
	8H	21,3	21,7	21,8	22,2	22,6	20,8	21,2	21,3	21,6	22,1
	12H	22,6	23,0	23,1	23,4	23,9	22,2	22,5	22,7	23,0	23,5
12H	4H	17,8	18,3	18,2	18,7	19,1	17,5	18,0	18,0	18,4	18,8
	6H	20,4	20,8	20,9	21,2	21,7	20,0	20,4	20,5	20,8	21,3
	8H	21,8	22,1	22,2	22,6	23,1	21,3	21,6	21,8	22,1	22,6
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,2 / -0,1					+0,2 / -0,1				
S = 1,5H		+0,3 / -0,4					+0,3 / -0,3				
S = 2,0H		+0,4 / -0,4					+0,4 / -0,6				
Standard table		---					---				
Correction summand		---					---				
Corrected glare indices referring to 137 lm total luminous flux											

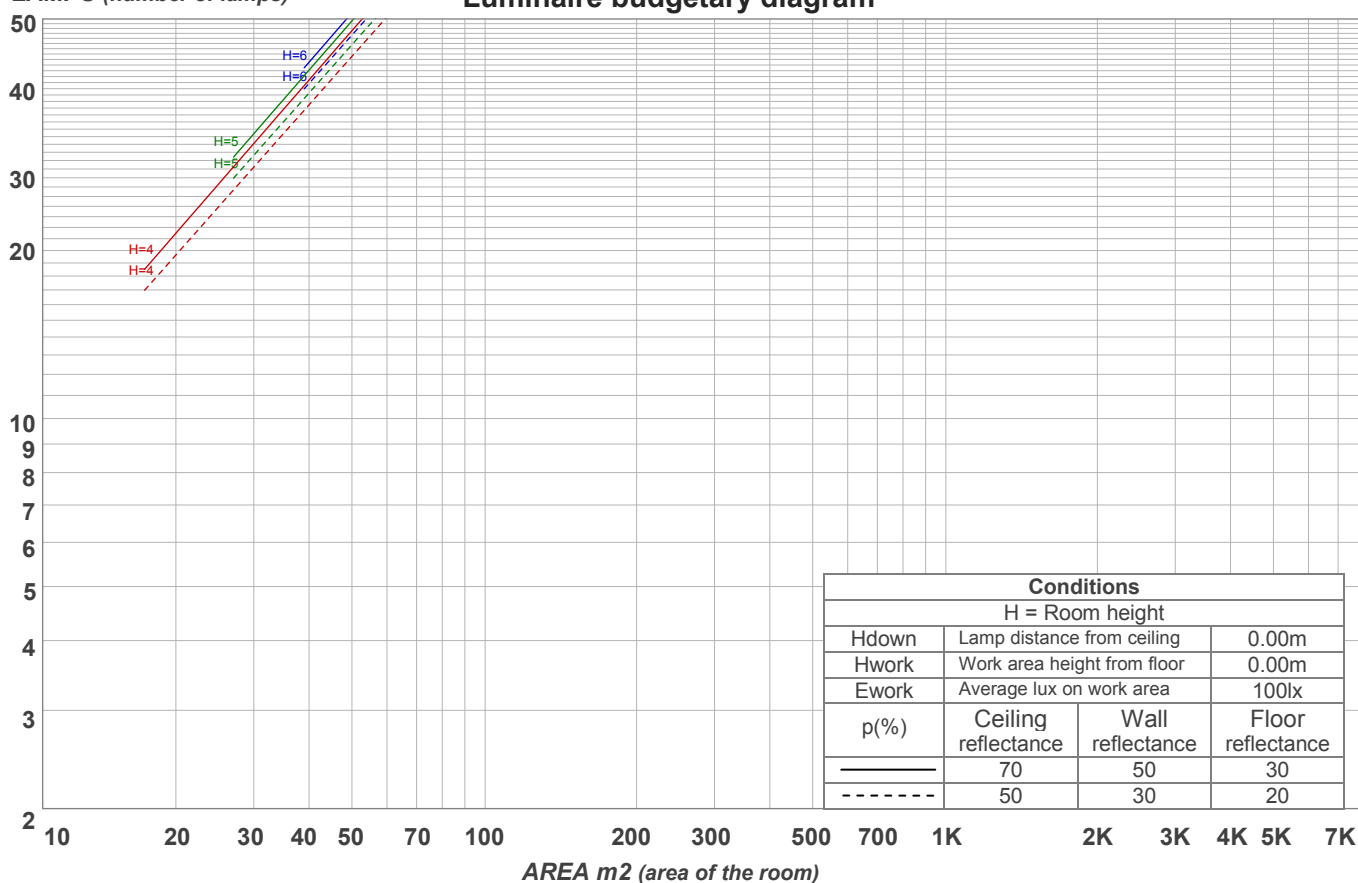
UGR data could be incorrect as lamp output is not symmetrical. Goto Edit->Photometric->Corrections and select Correct asymmetry.

## 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	111	108	104	101	109	105	102	100	101	99	97	97	95	94	94	92	91	89
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83
3	101	94	89	85	99	93	88	84	90	86	83	88	84	81	85	82	80	78
4	97	90	84	80	95	89	83	80	86	82	79	84	81	78	82	79	77	75
5	94	86	81	77	92	85	80	76	83	79	75	82	78	75	80	77	74	73
6	91	83	78	74	90	82	77	74	81	76	73	79	76	73	78	75	72	71
7	89	81	75	72	87	80	75	71	79	74	71	77	74	71	76	73	70	69
8	86	78	73	70	85	78	73	70	77	72	69	76	72	69	75	71	69	68
9	84	76	72	68	83	76	71	68	75	71	68	74	71	68	74	70	68	67
10	83	75	70	67	82	74	70	67	74	70	67	73	69	67	72	69	67	65

LAMPS (number of lamps)

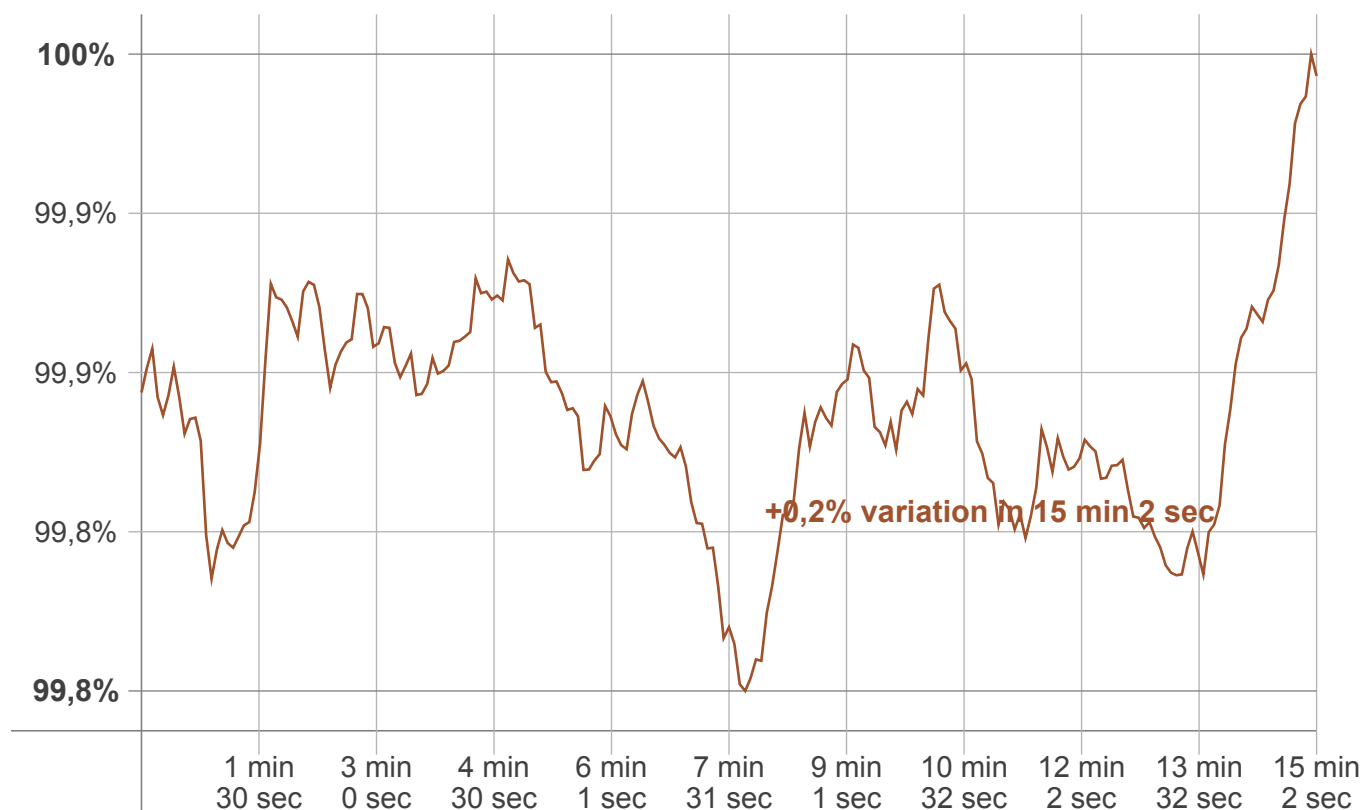
## Luminaire budgetary diagram



## Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	19,8 lm	7,22 lm	5,77 lm	6,13 lm	6,73 lm	6,68 lm	7,20 lm	6,58 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,377 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

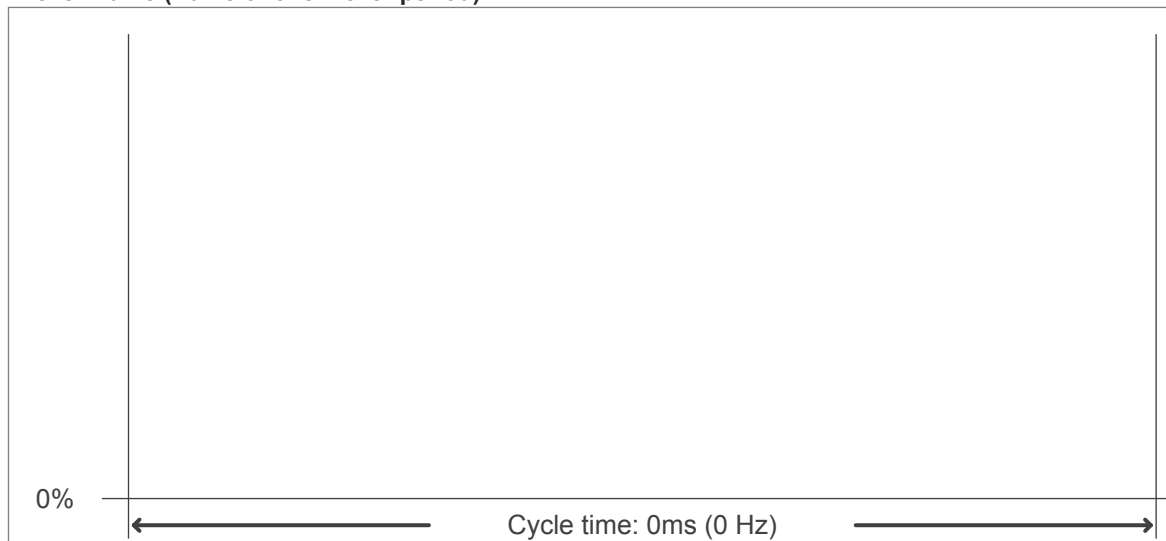
Output start	Output change	Output end
137 lm	lm	137 lm



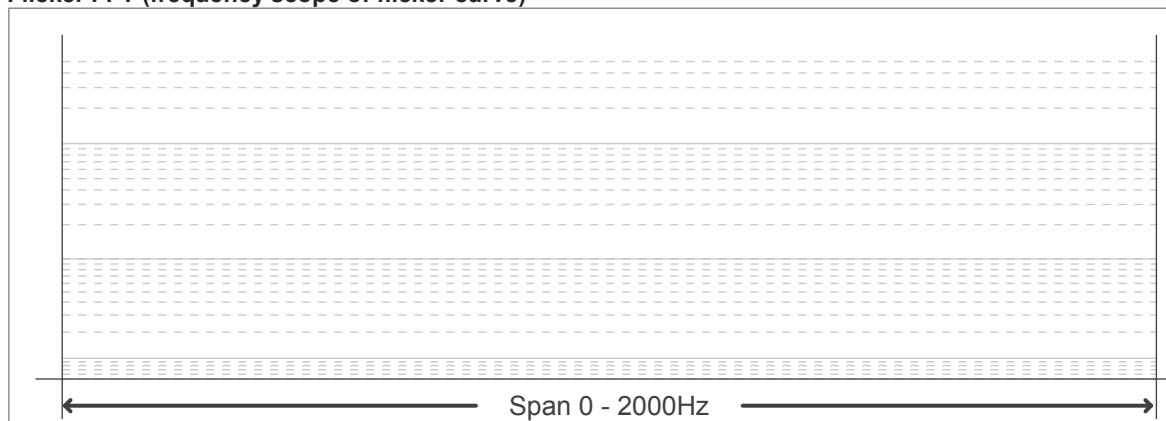
## Flicker curve (complete sampled flicker signal)



## 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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