

**Light efficiency:**

## 94 Lumen/Watt

**Light quality:**

**CRI: 0,0**

**Color temperature:**

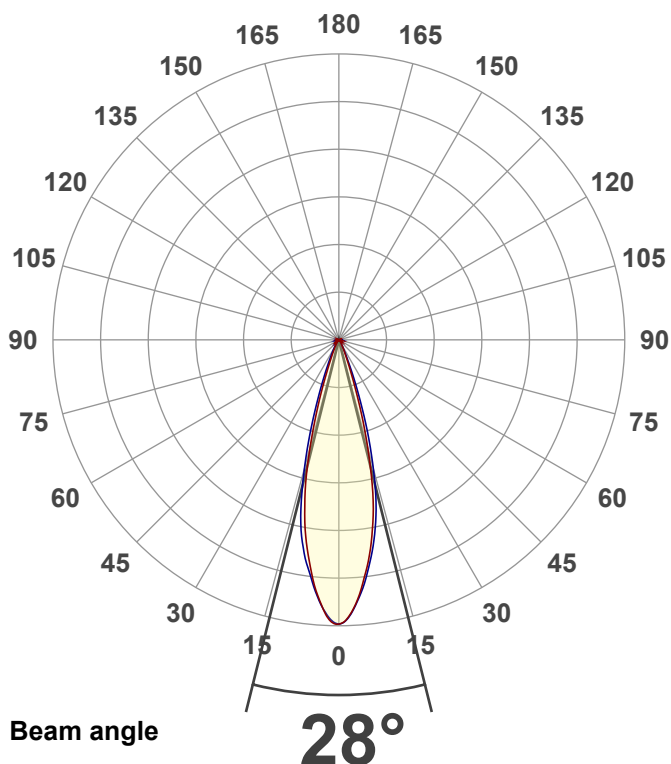
0 K

**Output: 295 lm**

**Peak: 1155 cd**

**Power: 3,2 W**

**PF: 1,0**



**Product name:**

**F L-S O - 2-4 C -1 0 0-R-LSLT-W**

**Item number:**

**FL/SO-2/4C/100/R/LSLT/W**

**Date and time:**

12.03.2019 13:51:12

**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**

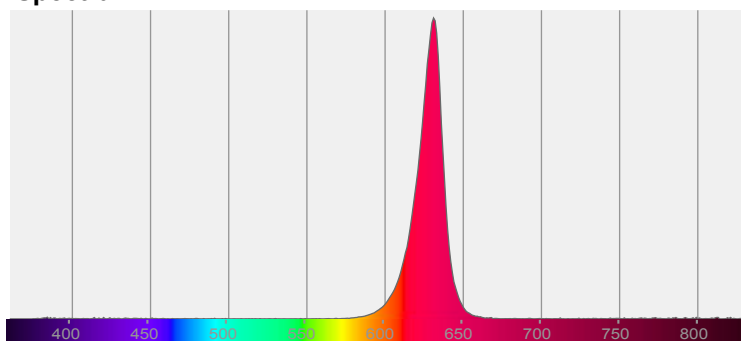
**55411 Bingen am Rhein**

**CIE 1931**

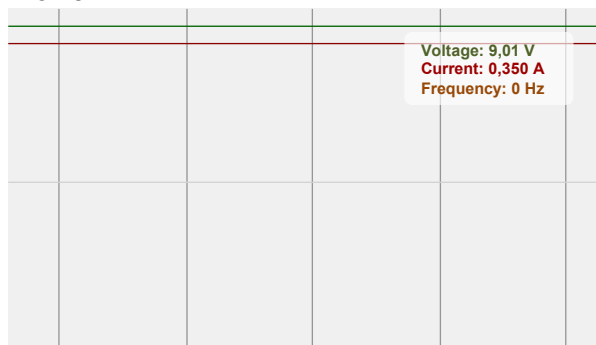
**x: 0,689**

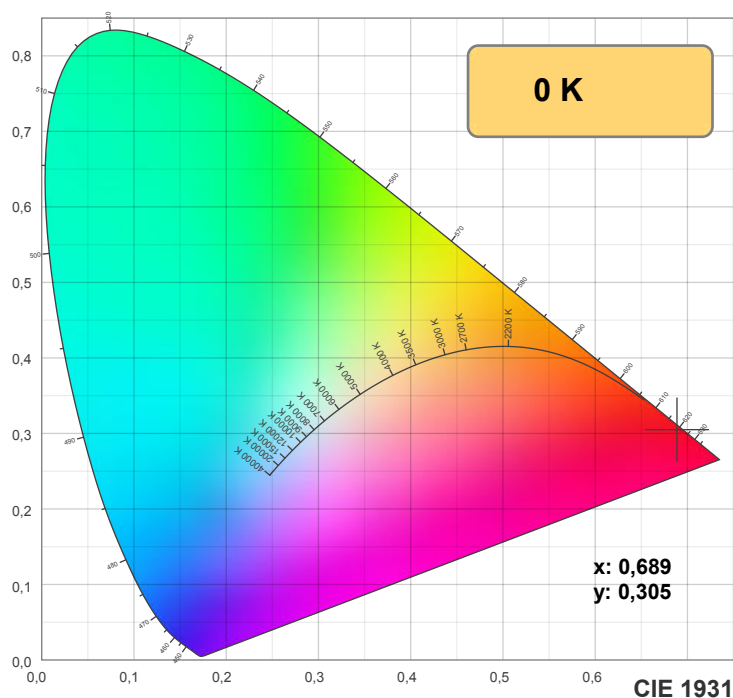
**y: 0,305**

## Spectra

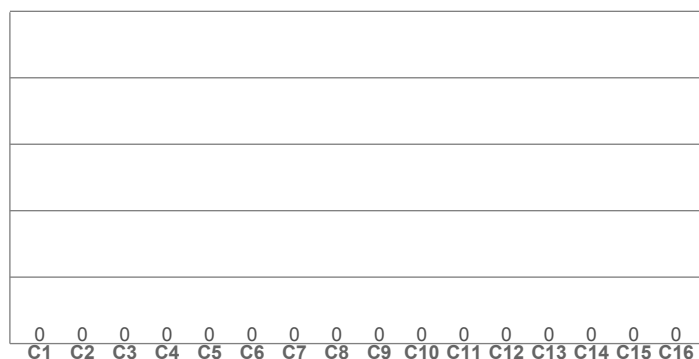


## Power





TM30: 0,0



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

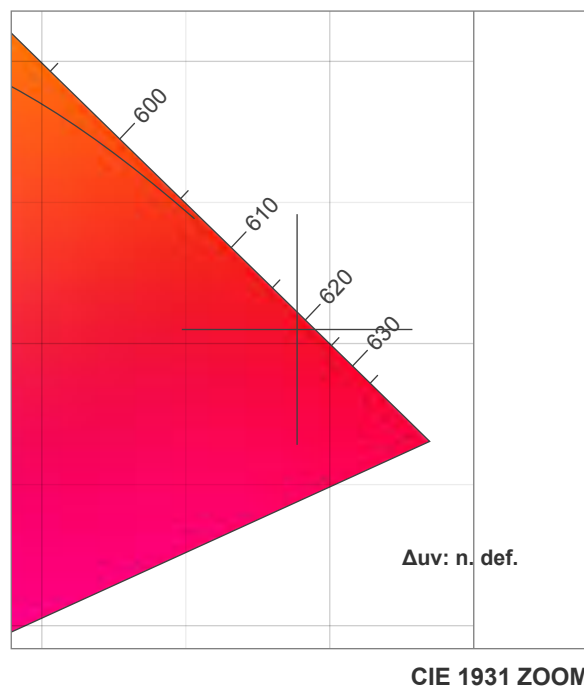
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

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

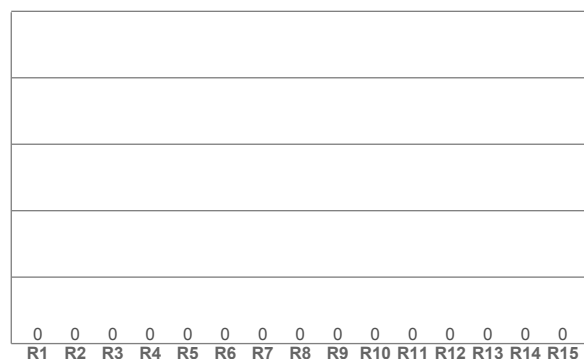
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

CQS Q values

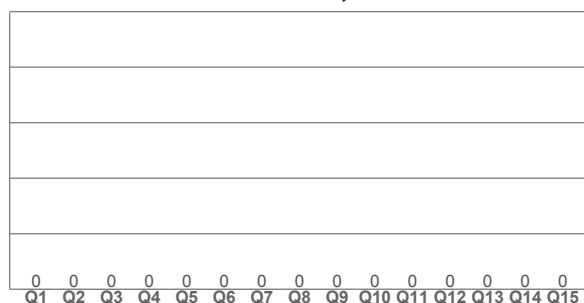
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



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	0,689	0,305	0,521	0,346	n. def.

## TM30 details

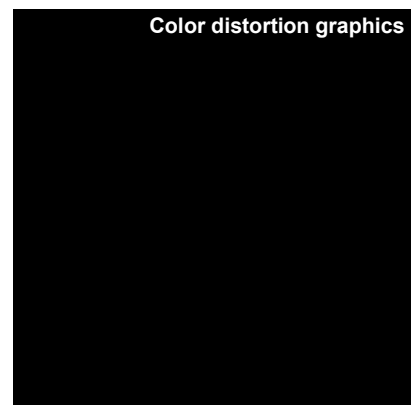
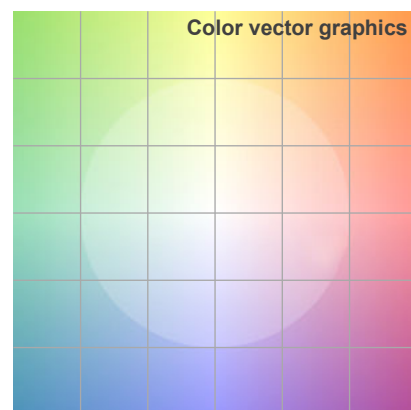
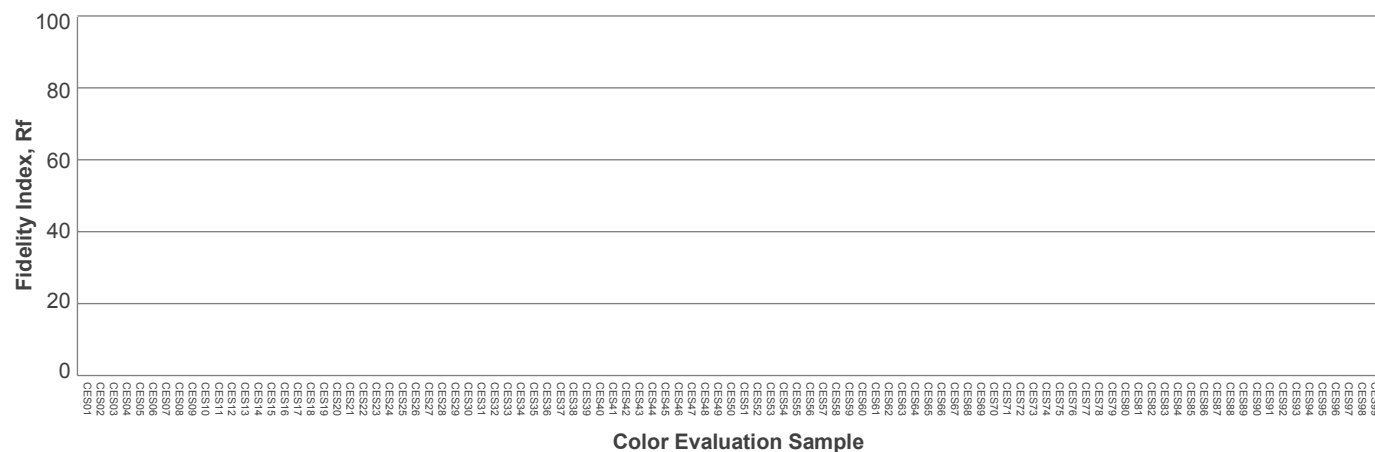
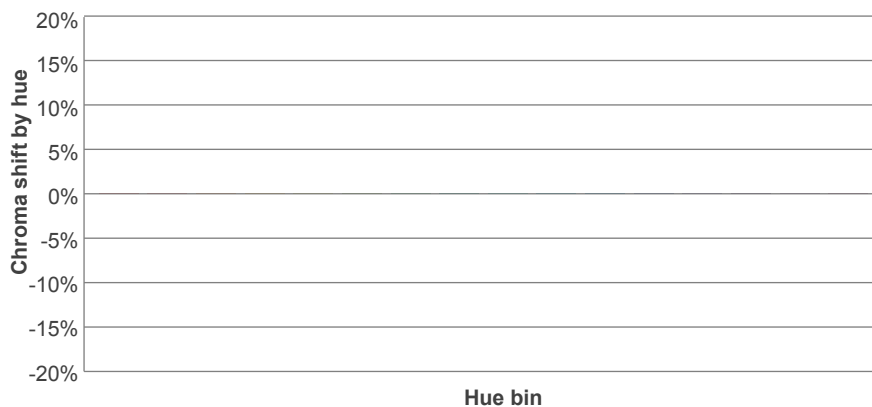
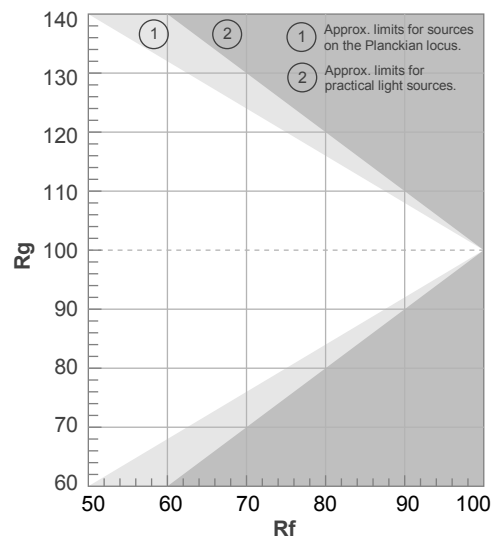
**Rf 0,0**

Fidelity index Rf

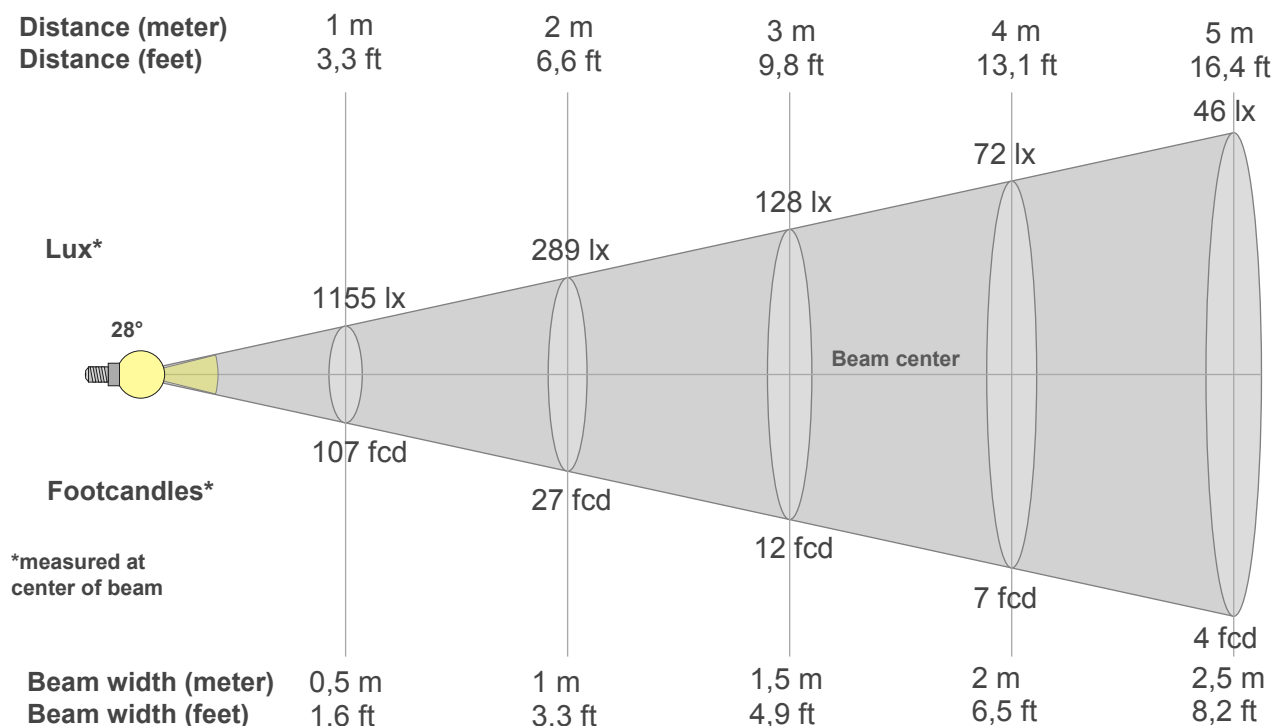
**Rg 0,0**

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
1155lx	289lx	128lx	72lx	46lx	32lx	24lx	18lx	14lx	12lx	10lx	8lx	7lx	6lx	5lx	5lx	4lx	4lx	3lx	3lx
107,3fcd	26,8fcd	11,9fcd	6,7fcd	4,3fcd	3fcd	2,2fcd	1,7fcd	1,3fcd	1,1fcd	0,9fcd	0,7fcd	0,6fcd	0,5fcd	0,5fcd	0,4fcd	0,4fcd	0,3fcd	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°
1155	1126	1063	976	888	784	671	526	381	248	153	96	63	45	32	24	19	16	12	11
100%	98%	92%	85%	77%	68%	58%	46%	33%	22%	13%	8%	5%	4%	3%	2%	2%	1%	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°
1155	1130	1067	996	911	824	726	609	474	345	227	141	84	52	33	23	19	15	12	11
100%	98%	92%	86%	79%	71%	63%	53%	41%	30%	20%	12%	7%	5%	3%	2%	2%	1%	1%	1%

### Intensities in 180° c-plane

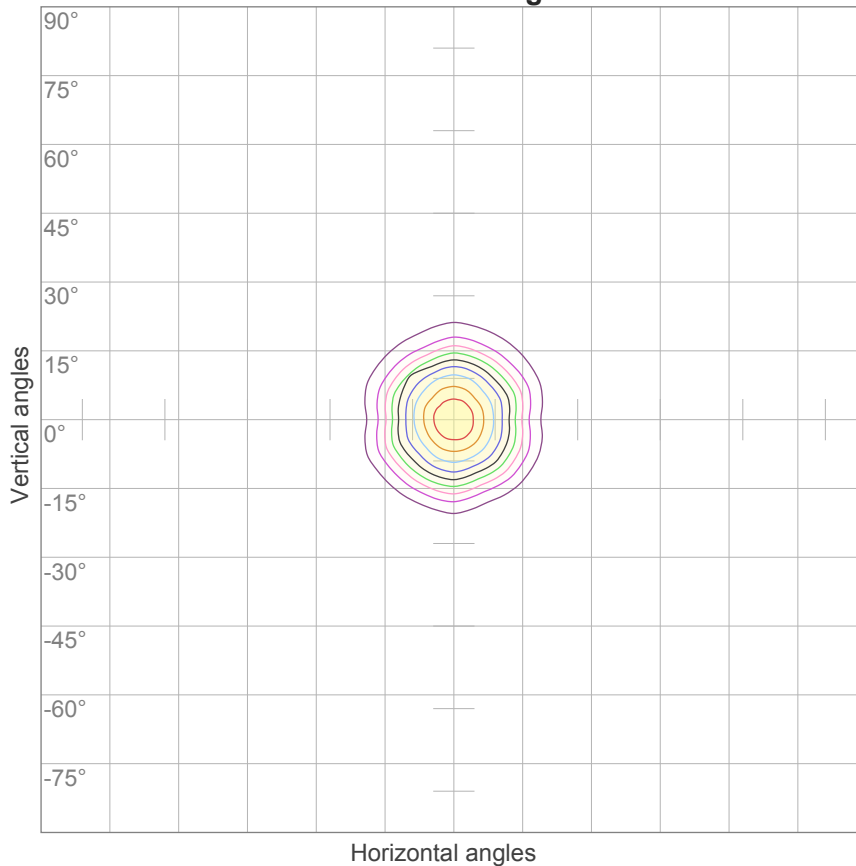
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
1155	1137	1071	988	889	786	664	528	380	255	157	99	65	45	34	25	20	16	14	11
100%	98%	93%	86%	77%	68%	58%	46%	33%	22%	14%	9%	6%	4%	3%	2%	2%	1%	1%	1%

### 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°
1155	1130	1075	1001	926	845	745	610	472	342	235	158	107	74	55	39	29	22	18	14
100%	98%	93%	87%	80%	73%	64%	53%	41%	30%	20%	14%	9%	6%	5%	3%	3%	2%	2%	1%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
28°	44,8°	60,1°	95,8%	93,0%

ISO candela diagram



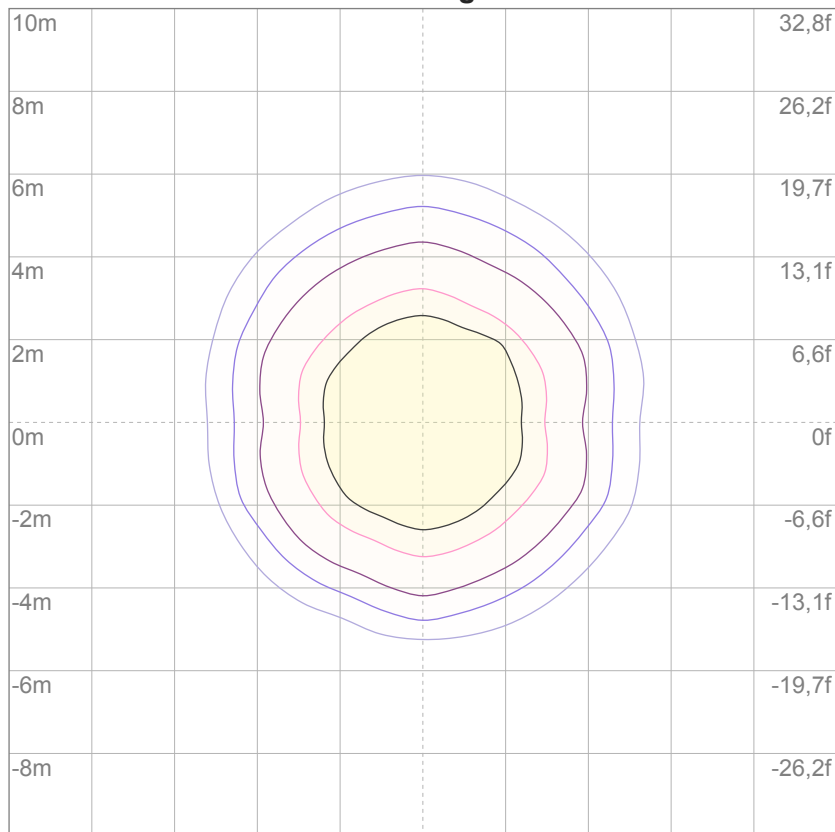
10%	115 cd
20%	231 cd
30%	346 cd
40%	462 cd
50%	577 cd
60%	693 cd
70%	808 cd
80%	924 cd
90%	1039 cd

Conditions:

Number of c-planes: 16

Candela at center: 1155 cd

ISO lux diagram



3%	0,346 lx
5%	0,577 lx
10%	1,15 lx
30%	3,46 lx
50%	5,77 lx

Conditions:

Number of c-planes: 16

Lux at center: 11,5 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	6,6	7,3	6,8	7,5	7,7	6,2	6,9	6,5	7,1	7,3
	3H	9,0	9,7	9,3	9,9	10,1	8,8	9,5	9,1	9,7	10,0
	4H	10,2	10,9	10,5	11,1	11,4	10,1	10,7	10,4	10,9	11,2
	6H	11,5	12,1	11,8	12,4	12,7	11,1	11,7	11,5	12,0	12,3
	8H	12,1	12,6	12,4	12,9	13,2	11,7	12,3	12,0	12,6	12,9
	12H	12,8	13,4	13,2	13,7	14,0	12,3	12,8	12,6	13,1	13,4
4H	2H	7,5	8,1	7,8	8,4	8,6	7,2	7,8	7,5	8,1	8,4
	3H	10,0	10,6	10,4	10,9	11,2	10,0	10,5	10,3	10,8	11,1
	4H	11,4	11,9	11,8	12,2	12,5	11,3	11,8	11,7	12,1	12,4
	6H	12,8	13,2	13,2	13,6	14,0	12,6	12,9	13,0	13,3	13,7
	8H	13,5	13,9	13,9	14,2	14,6	13,2	13,6	13,6	14,0	14,4
	12H	14,5	14,8	14,9	15,2	15,6	13,9	14,2	14,4	14,6	15,1
8H	4H	11,9	12,3	12,4	12,7	13,1	11,9	12,2	12,3	12,6	13,0
	6H	13,6	13,9	14,0	14,3	14,7	13,4	13,7	13,8	14,1	14,5
	8H	14,4	14,7	14,9	15,1	15,6	14,2	14,5	14,7	14,9	15,4
	12H	15,7	15,8	16,1	16,3	16,8	15,1	15,3	15,6	15,8	16,3
12H	4H	12,0	12,4	12,5	12,8	13,2	12,0	12,3	12,4	12,7	13,1
	6H	13,8	14,0	14,2	14,4	14,9	13,6	13,8	14,1	14,3	14,8
	8H	14,7	14,9	15,2	15,4	15,9	14,5	14,7	15,0	15,2	15,7
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,1 / -0,1					+0,1 / -0,2				
S = 1,5H		+0,2 / -0,4					+0,2 / -0,3				
S = 2,0H		+0,4 / -0,5					+0,4 / -0,4				
Standard table		BK11					BK10				
Correction summand		-1,6					-2,3				
Corrected glare indices referring to 295 lm total luminous flux											

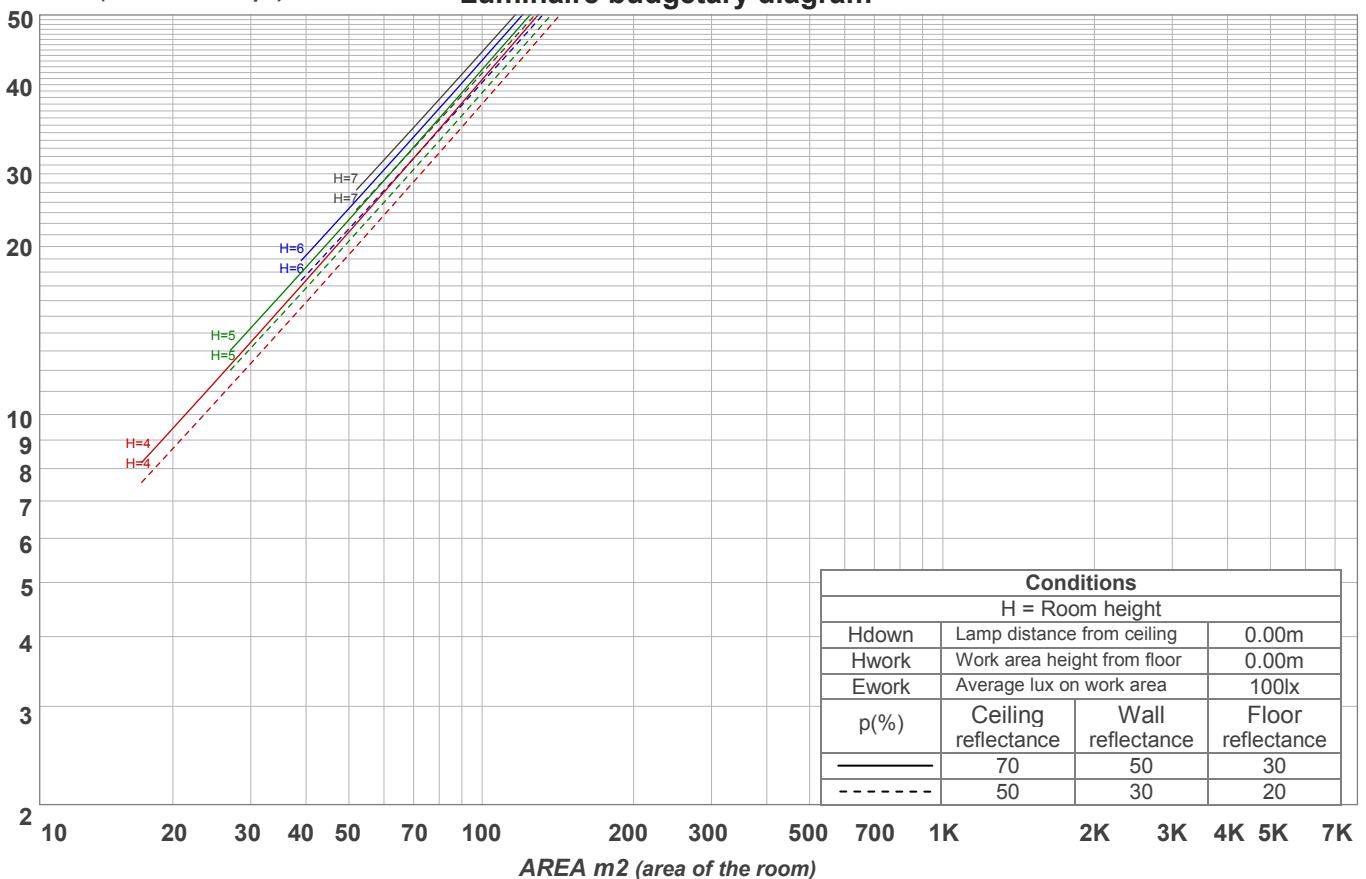
UGR data could be incorrect as lamp output is not symmetrical. Goto Edit->Photometric->Corrections and select Correct asymmetry.

## 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	112	109	107	105	105	104	102	101	100	99	98	97	96	94
2	109	105	102	99	107	103	100	98	100	98	95	97	95	93	95	93	91	90
3	105	100	96	92	104	99	95	92	96	93	90	94	91	89	92	89	88	86
4	102	95	91	87	100	94	90	87	92	89	86	90	87	85	89	86	84	83
5	98	92	87	83	97	91	86	83	89	85	82	87	84	82	86	83	81	80
6	95	88	83	80	94	87	83	80	86	82	79	85	81	79	84	81	78	77
7	92	85	80	77	91	84	80	77	83	79	76	82	79	76	81	78	76	75
8	89	82	78	74	88	82	77	74	81	77	74	80	76	74	79	76	73	72
9	87	80	75	72	86	79	75	72	78	74	72	78	74	72	77	74	71	70
10	85	77	73	70	84	77	73	70	76	72	70	75	72	69	75	72	69	68

LAMPS (number of lamps)

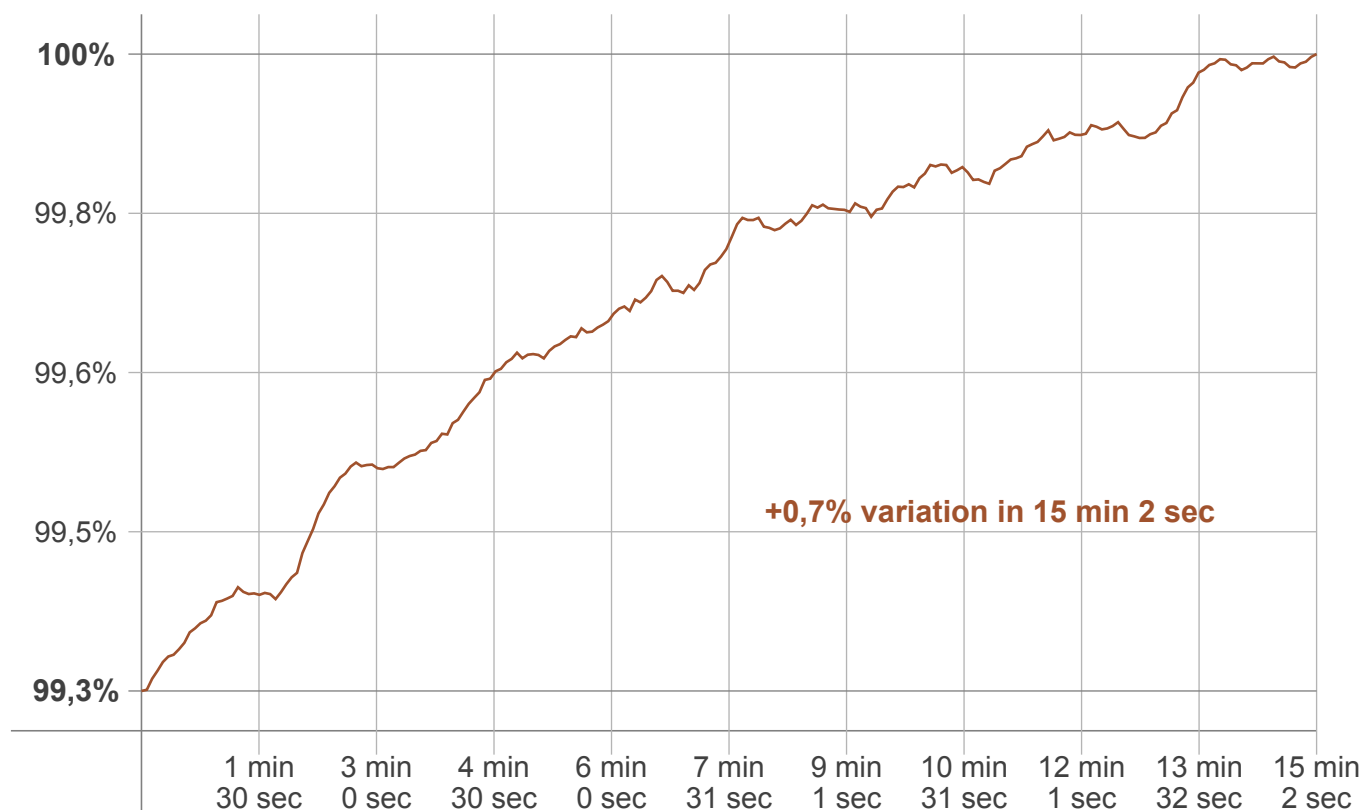
## Luminaire budgetary diagram



## Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	134 lm	35,9 lm	10,6 lm	6,20 lm	5,45 lm	5,21 lm	4,14 lm	2,81 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,144 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	+0,7%

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
293 lm	+2 lm	295 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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