

Light efficiency:

94 Lumen/Watt

Light quality:

CRI: 0,0

Color temperature:

0 K

Output: 297 lm

Peak: 1020 cd

Power: 3,2 W

PF: 1,0



Product name:

F L-S O - 2-4 C -1 0 0-R-LSMT-M

Item number:

F L / S O - 2 / 4 C / 1 0 0 / R / LSMT/M

Date and time:

13.03.2019 12:43:34

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

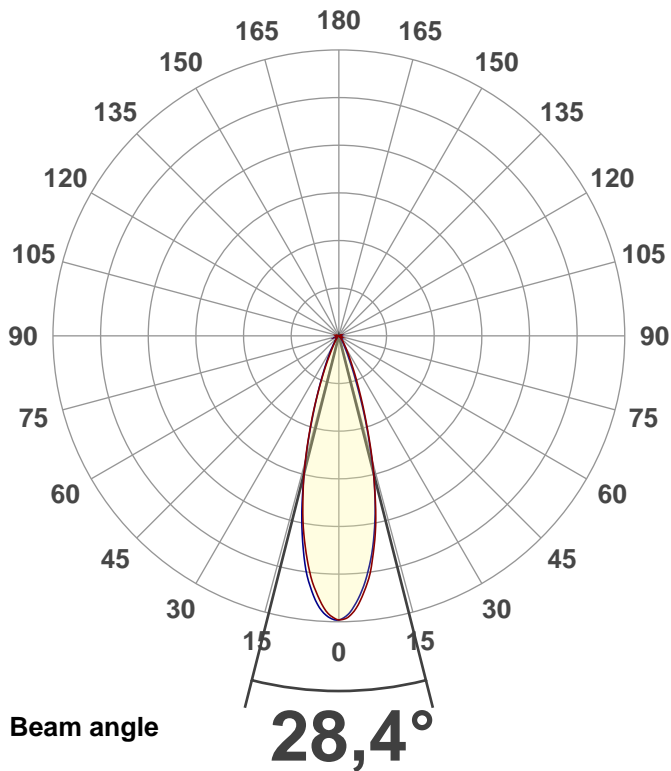
Master of Engineering

Pruefort:

Lichtlabor

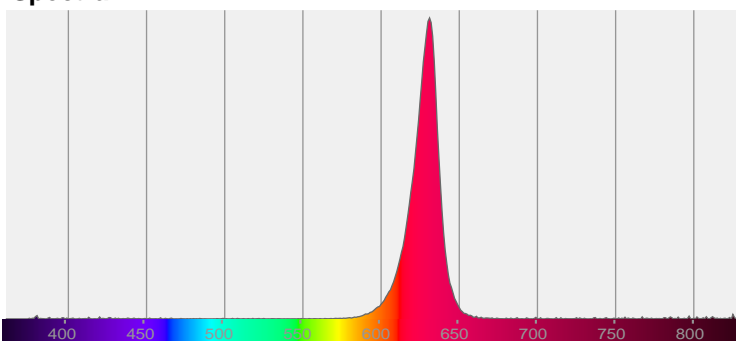
Gaustasse13-15

55411 Bingen am Rhein

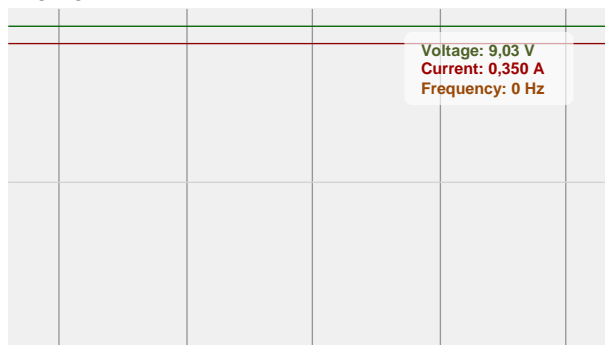


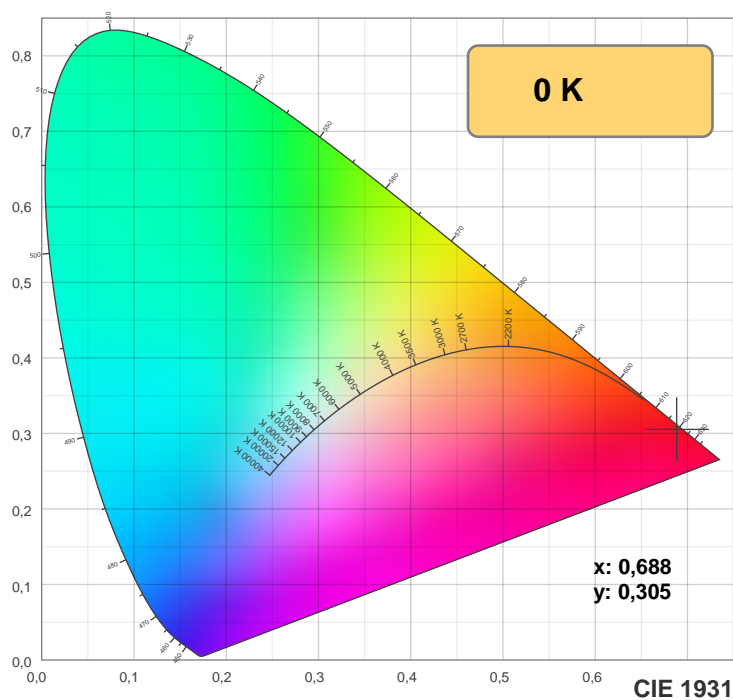
CIE 1931  
x: 0,688  
y: 0,305

Spectra

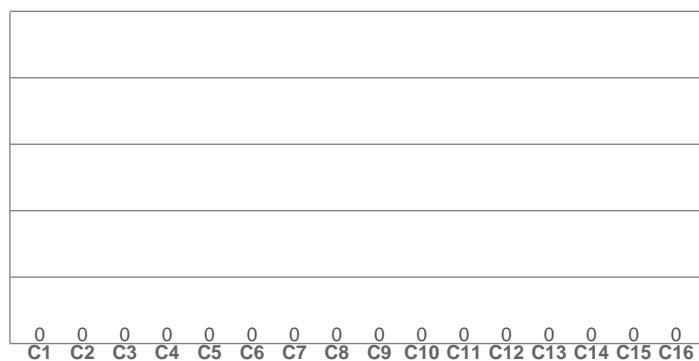


Power





TM30: 0,0



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

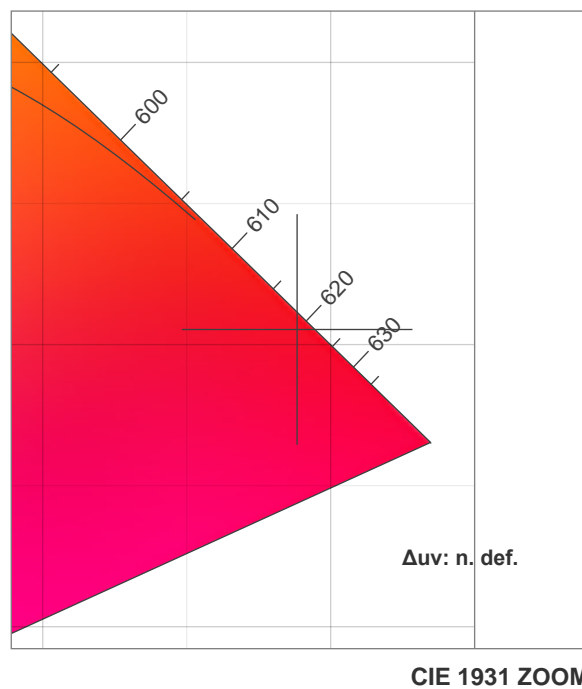
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

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

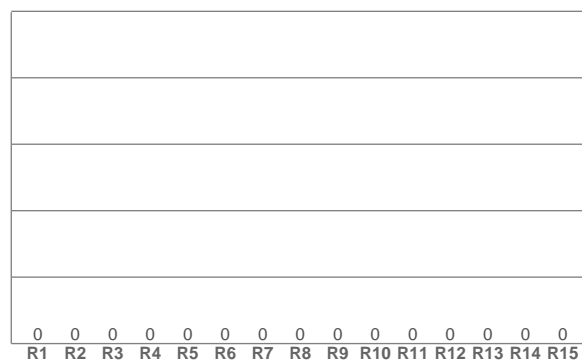
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

CQS Q values

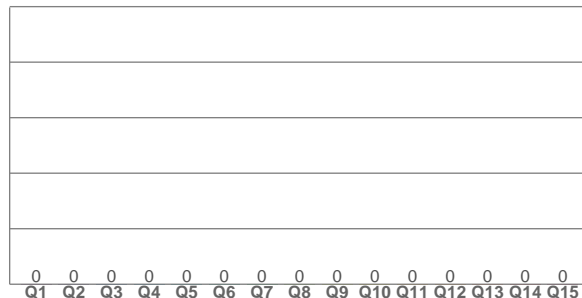
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



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	$\Delta uv$
0 K	0,0	0,0	0,0	0,0	0,0	0,688	0,305	0,521	0,346	n. def.

## TM30 details

**Rf 0,0**

Fidelity index Rf

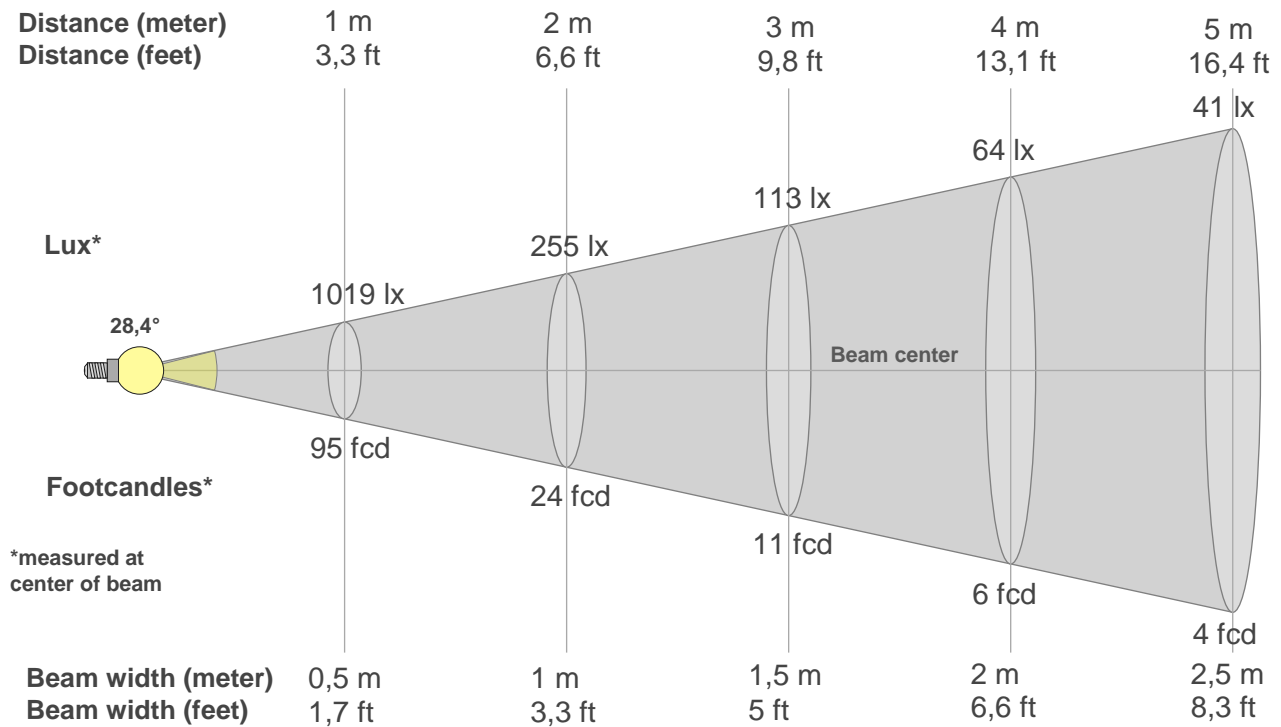
**Rg 0,0**

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
1019lx	255lx	113lx	64lx	41lx	28lx	21lx	16lx	13lx	10lx	8lx	7lx	6lx	5lx	5lx	4lx	4lx	3lx	3lx	3lx
94,6fcd	23,7fcd	10,5fcd	5,9fcd	3,8fcd	2,6fcd	1,9fcd	1,5fcd	1,2fcd	0,9fcd	0,8fcd	0,7fcd	0,6fcd	0,5fcd	0,4fcd	0,4fcd	0,3fcd	0,3fcd	0,3fcd	0,2fcd

### 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°
1019	1008	970	911	837	742	635	520	408	306	226	165	120	89	67	51	39	31	25	19
100%	99%	95%	89%	82%	73%	62%	51%	40%	30%	22%	16%	12%	9%	7%	5%	4%	3%	2%	2%

### 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°
1019	998	952	891	815	726	626	517	395	290	197	133	87	59	40	31	23	18	14	11
100%	98%	93%	87%	80%	71%	61%	51%	39%	28%	19%	13%	9%	6%	4%	3%	2%	2%	1%	1%

### Intensities in 180° c-plane

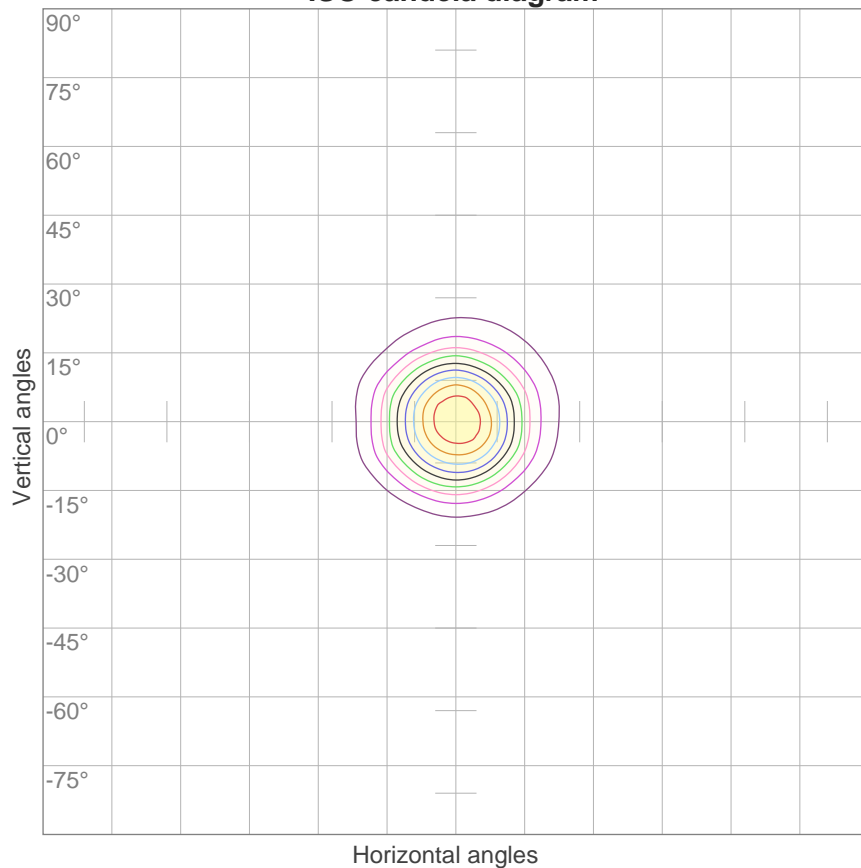
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
1019	1000	954	893	813	723	622	520	412	313	225	157	108	73	51	38	29	23	18	16
100%	98%	94%	88%	80%	71%	61%	51%	40%	31%	22%	15%	11%	7%	5%	4%	3%	2%	2%	2%

### 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°
1019	1010	979	923	848	749	638	517	406	304	225	166	123	91	67	50	39	29	24	19
100%	99%	96%	91%	83%	73%	63%	51%	40%	30%	22%	16%	12%	9%	7%	5%	4%	3%	2%	2%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
28,4°	49,1°	68,1°	95,7%	92,4%

ISO candela diagram



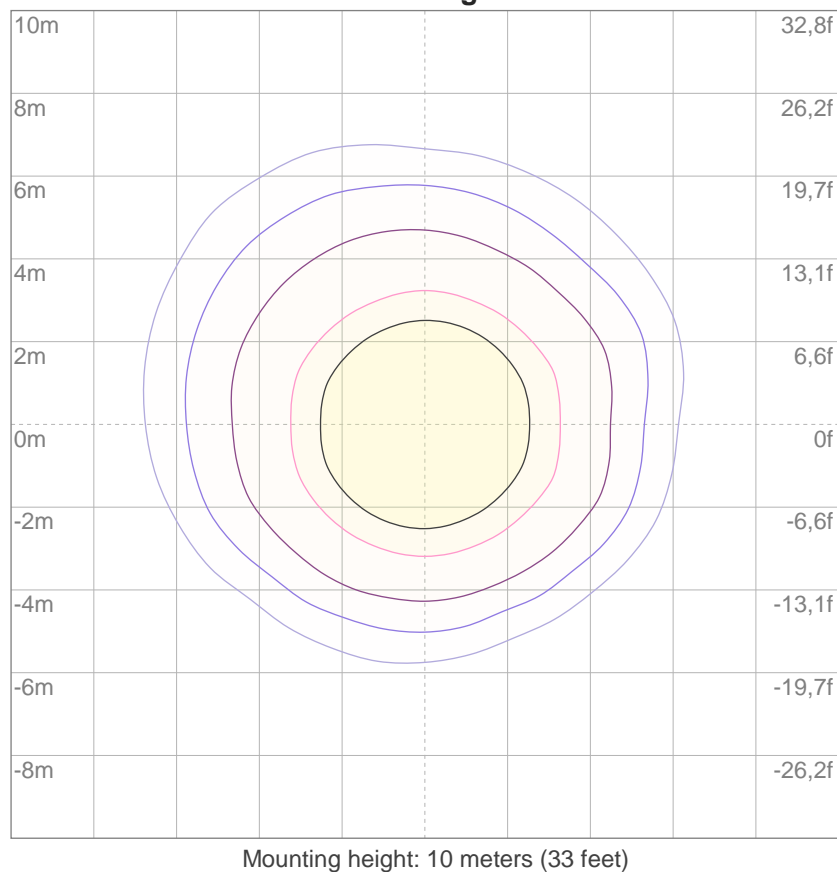
10%	102 cd
20%	204 cd
30%	306 cd
40%	407 cd
50%	509 cd
60%	611 cd
70%	713 cd
80%	815 cd
90%	917 cd

Conditions:

Number of c-planes: 16

Candela at center: 1019 cd

ISO lux diagram



3%	0,306 lx
5%	0,509 lx
10%	1,02 lx
30%	3,06 lx
50%	5,09 lx

Conditions:

Number of c-planes: 16

Lux at center: 10,2 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	8,2	8,9	8,4	9,1	9,3	6,8	7,5	7,0	7,7	7,9
	3H	9,8	10,4	10,0	10,7	10,9	9,1	9,8	9,4	10,0	10,2
	4H	10,8	11,4	11,1	11,7	11,9	10,5	11,2	10,9	11,4	11,7
	6H	11,7	12,3	12,0	12,5	12,8	11,8	12,4	12,1	12,7	13,0
	8H	12,2	12,7	12,5	13,0	13,3	12,5	13,0	12,8	13,3	13,6
	12H	12,7	13,3	13,1	13,6	13,9	13,0	13,6	13,4	13,9	14,2
4H	2H	8,8	9,4	9,1	9,7	10,0	7,7	8,3	8,0	8,6	8,8
	3H	10,6	11,2	11,0	11,5	11,8	10,2	10,8	10,6	11,1	11,4
	4H	11,8	12,3	12,2	12,6	13,0	11,8	12,2	12,1	12,6	12,9
	6H	12,9	13,3	13,3	13,7	14,1	13,2	13,6	13,7	14,0	14,4
	8H	13,6	13,9	14,0	14,3	14,7	14,0	14,3	14,4	14,7	15,1
	12H	14,2	14,5	14,7	14,9	15,4	14,7	15,0	15,1	15,4	15,8
8H	4H	12,3	12,6	12,7	13,0	13,4	12,3	12,7	12,7	13,1	13,5
	6H	13,7	14,0	14,2	14,4	14,9	14,1	14,3	14,5	14,8	15,2
	8H	14,5	14,7	15,0	15,2	15,7	14,9	15,2	15,4	15,6	16,1
	12H	15,4	15,6	15,9	16,0	16,5	15,8	16,0	16,3	16,5	17,0
12H	4H	12,4	12,7	12,8	13,1	13,5	12,4	12,7	12,9	13,1	13,6
	6H	13,9	14,2	14,4	14,6	15,1	14,3	14,5	14,7	15,0	15,4
	8H	14,9	15,0	15,3	15,5	16,0	15,2	15,4	15,7	15,9	16,4
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,3 / -0,2					+0,1 / -0,1				
S = 1,5H		+0,7 / -0,3					+0,2 / -0,2				
S = 2,0H		+1,1 / -0,7					+0,3 / -0,4				
Standard table		BK09					BK11				
Correction summand		-2,2					-1,3				
Corrected glare indices referring to 297 lm total luminous flux											

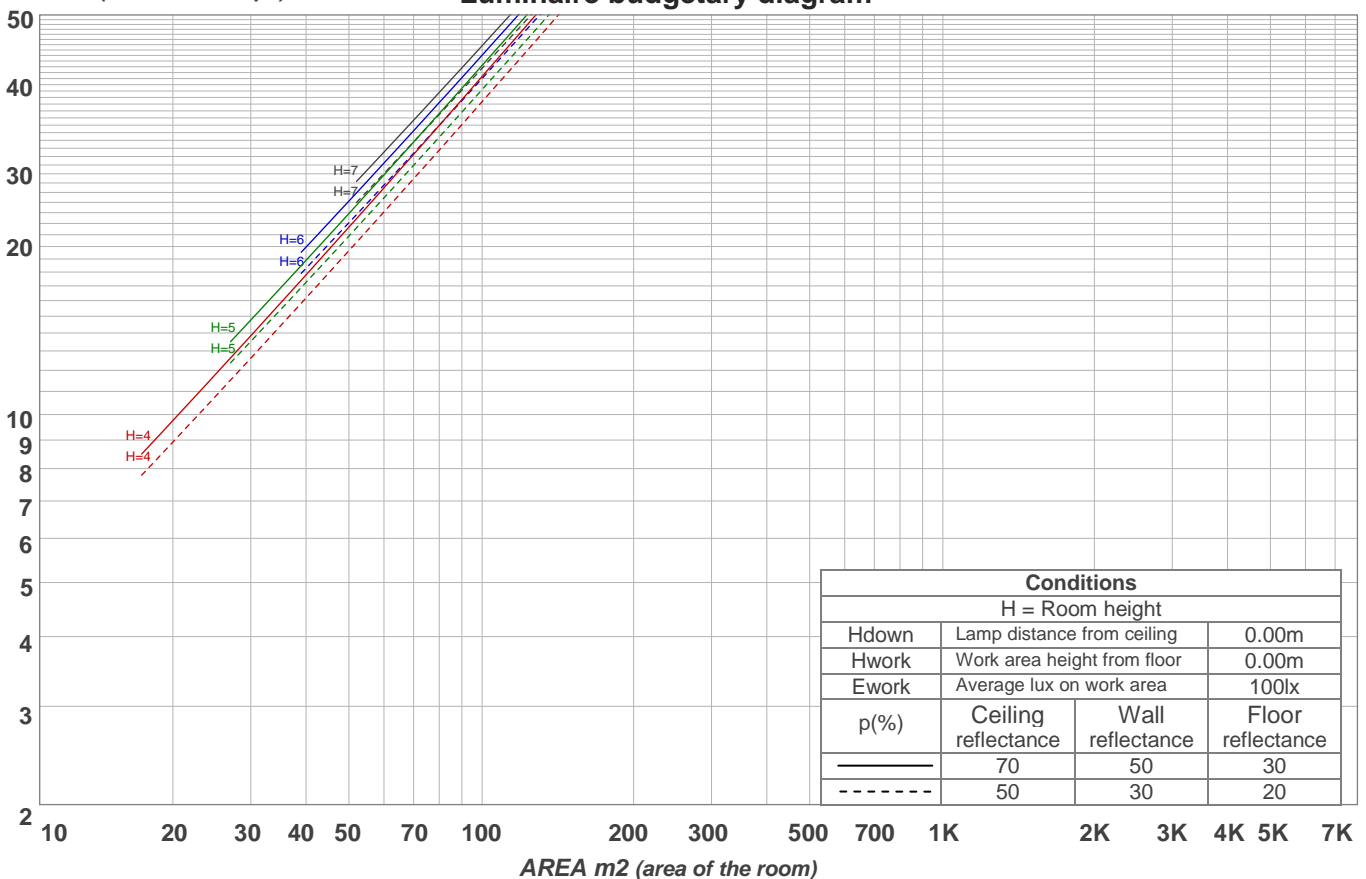
UGR data could be incorrect as lamp output is not symmetrical. Goto Edit->Photometric->Corrections and select Correct asymmetry.

## 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	105	101	98	107	103	99	97	100	97	95	97	94	93	94	92	91	89
3	105	99	95	91	103	98	94	90	95	92	89	93	90	88	90	88	86	85
4	101	94	89	86	99	93	89	85	91	87	84	89	86	83	87	85	82	81
5	97	90	85	82	96	89	85	81	87	83	80	86	82	80	84	81	79	78
6	94	86	81	78	92	86	81	78	84	80	77	83	79	77	82	79	76	75
7	91	83	78	75	89	82	78	74	81	77	74	80	76	74	79	76	73	72
8	88	80	75	72	87	79	75	72	78	74	71	78	74	71	77	73	71	70
9	85	77	72	69	84	77	72	69	76	72	69	75	71	69	74	71	69	67
10	82	75	70	67	82	74	70	67	74	70	67	73	69	67	72	69	66	65

LAMPS (number of lamps)

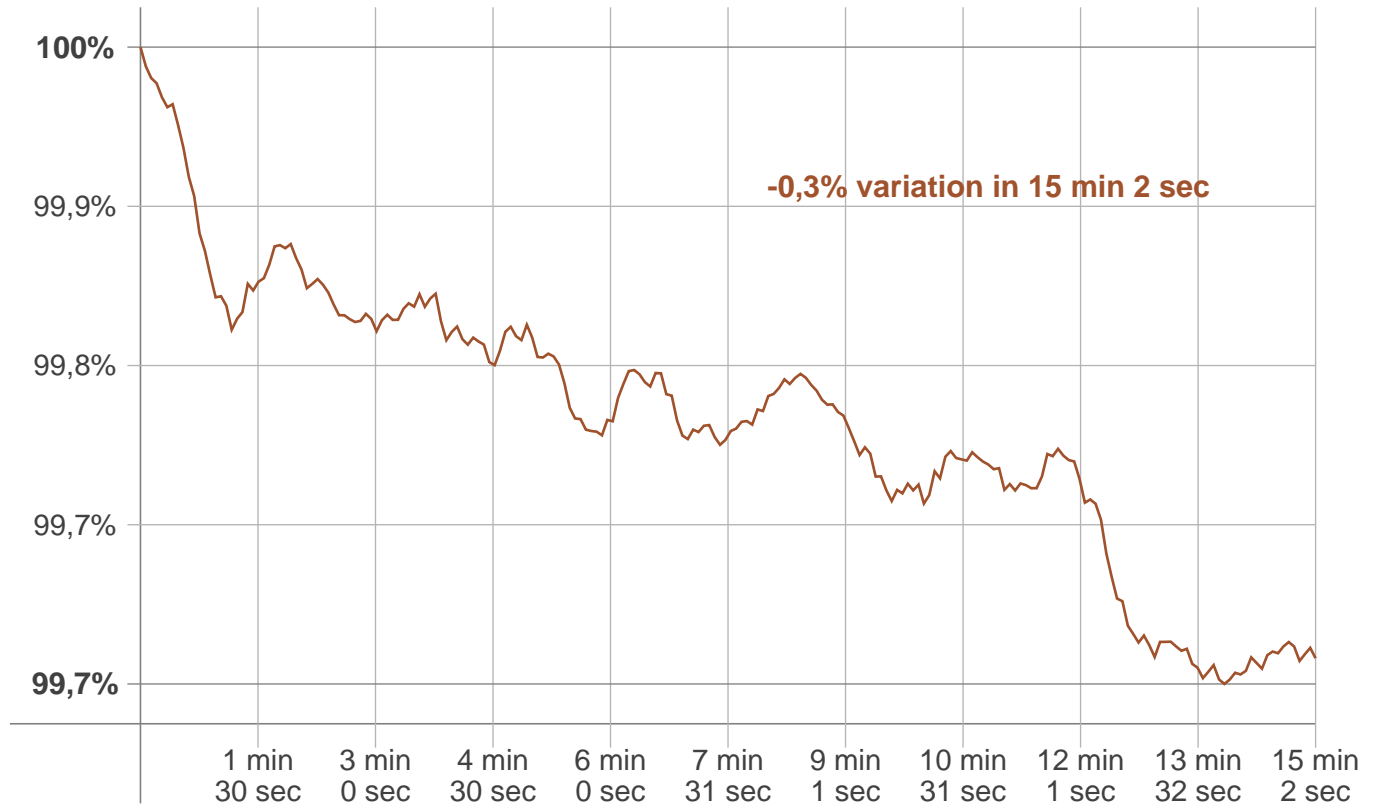
## Luminaire budgetary diagram



## Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	124 lm	46,5 lm	15,4 lm	8,05 lm	6,24 lm	5,39 lm	4,29 lm	2,93 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,219 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

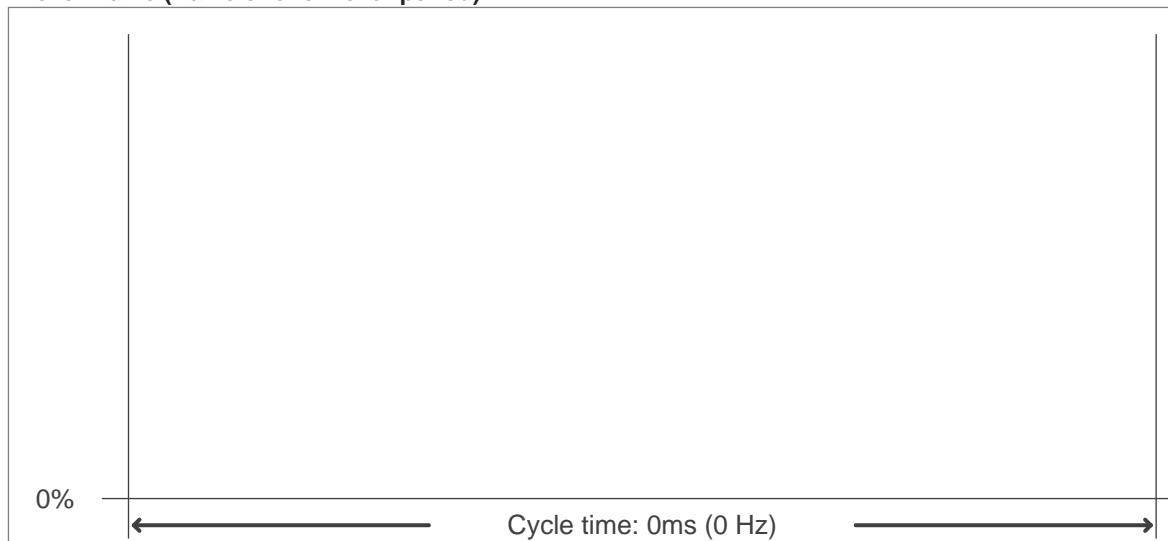
Output start	Output change	Output end
297 lm	-1 lm	297 lm



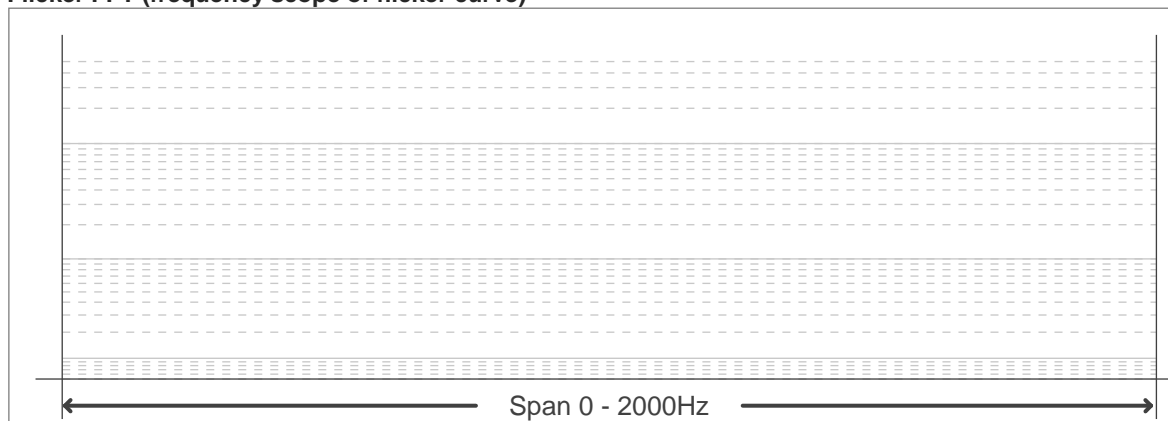
## Flicker curve (complete sampled flicker signal)



## 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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