

Light efficiency:

95 Lumen/Watt

Light quality:

CRI: 0,0

Color temperature:

0 K

Output: 299 lm

Peak: 2646 cd

Power: 3,2 W

PF: 1,0



Product name:

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

Item number:

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

Date and time:

11.03.2019 11:23:37

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

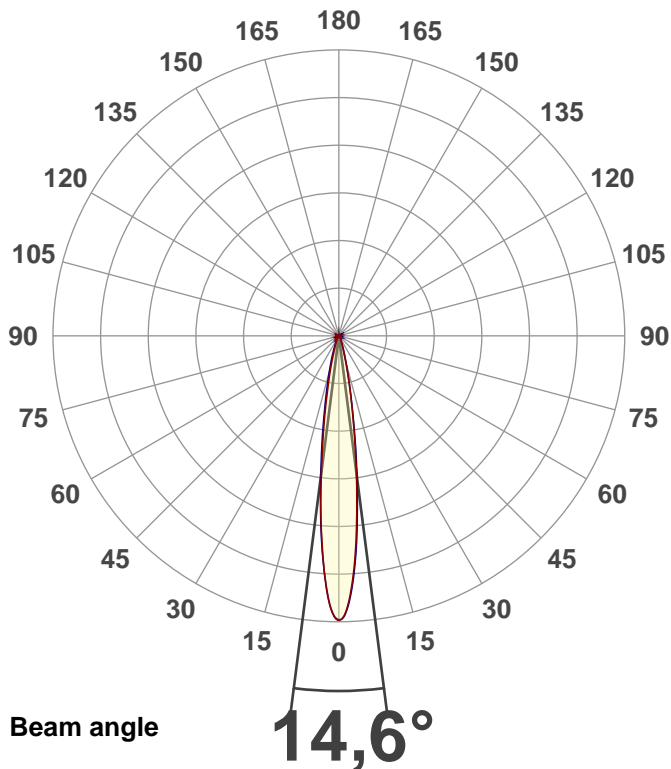
Master of Engineering

Pruefort:

Lichtlabor

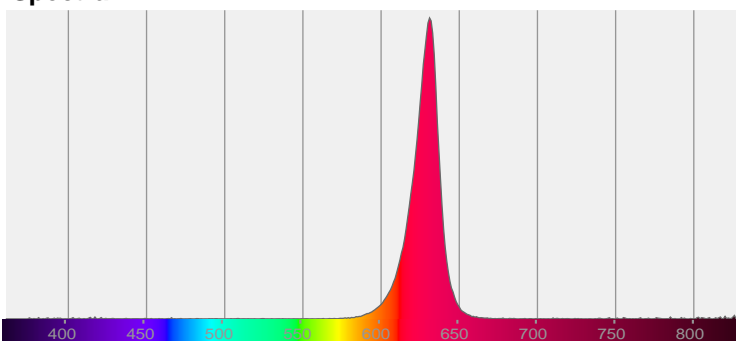
Gaustasse13-15

55411 Bingen am Rhein

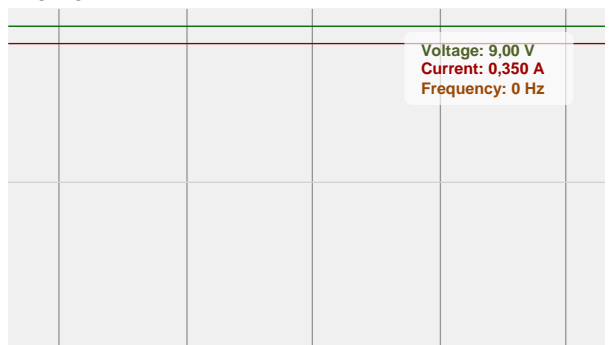


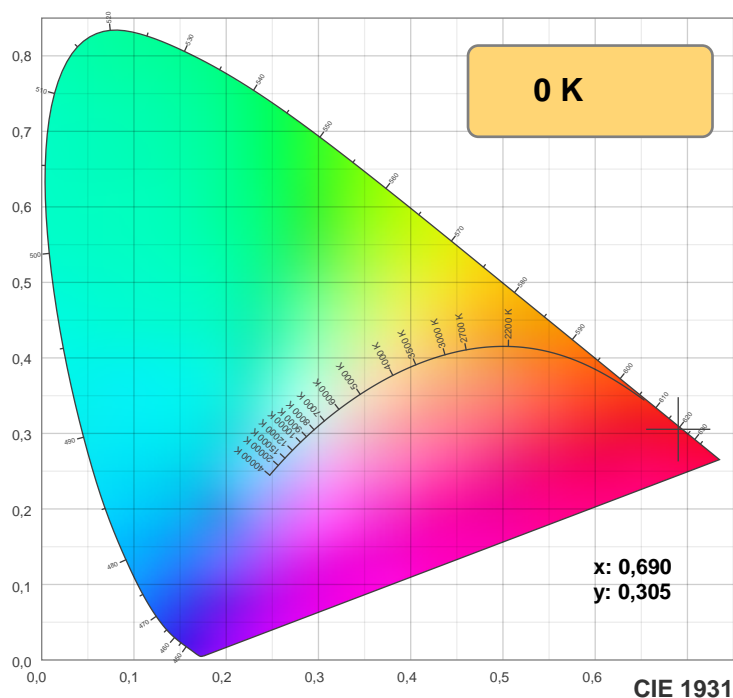
CIE 1931  
x: 0,690  
y: 0,305

Spectra



Power





TM30: 0,0



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

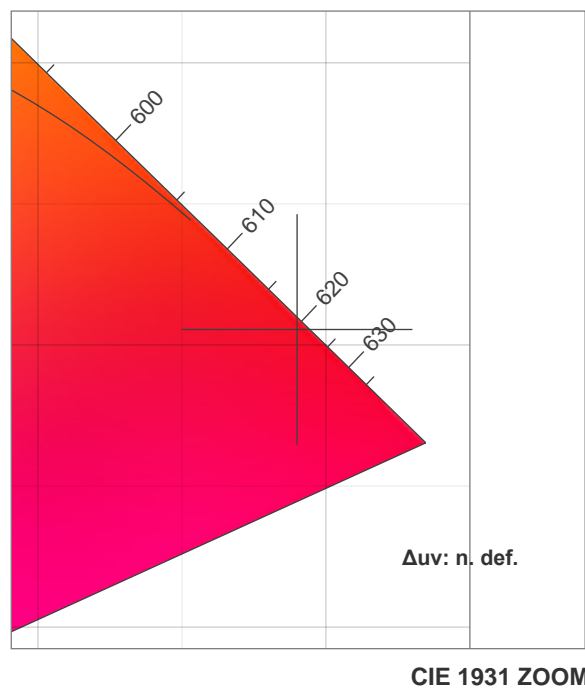
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

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

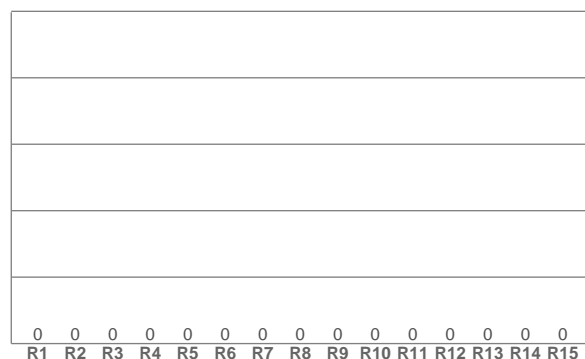
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

CQS Q values

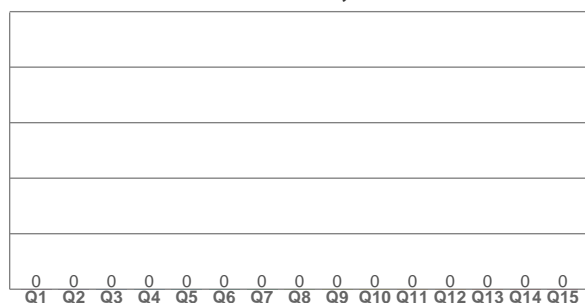
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



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	0,690	0,305	0,522	0,347	n. def.

## TM30 details

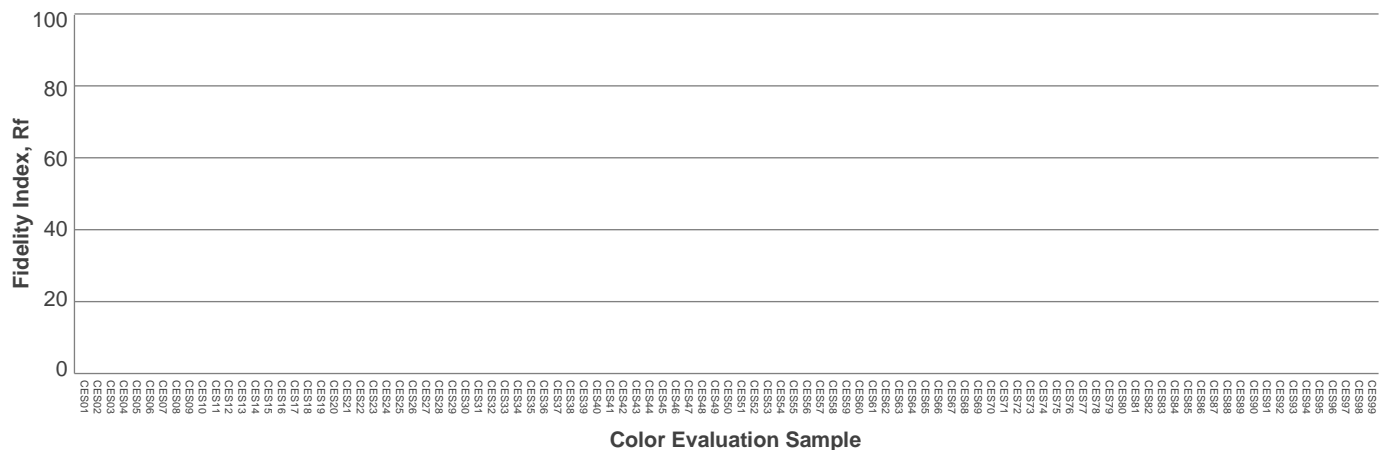
**Rf 0,0**

Fidelity index Rf

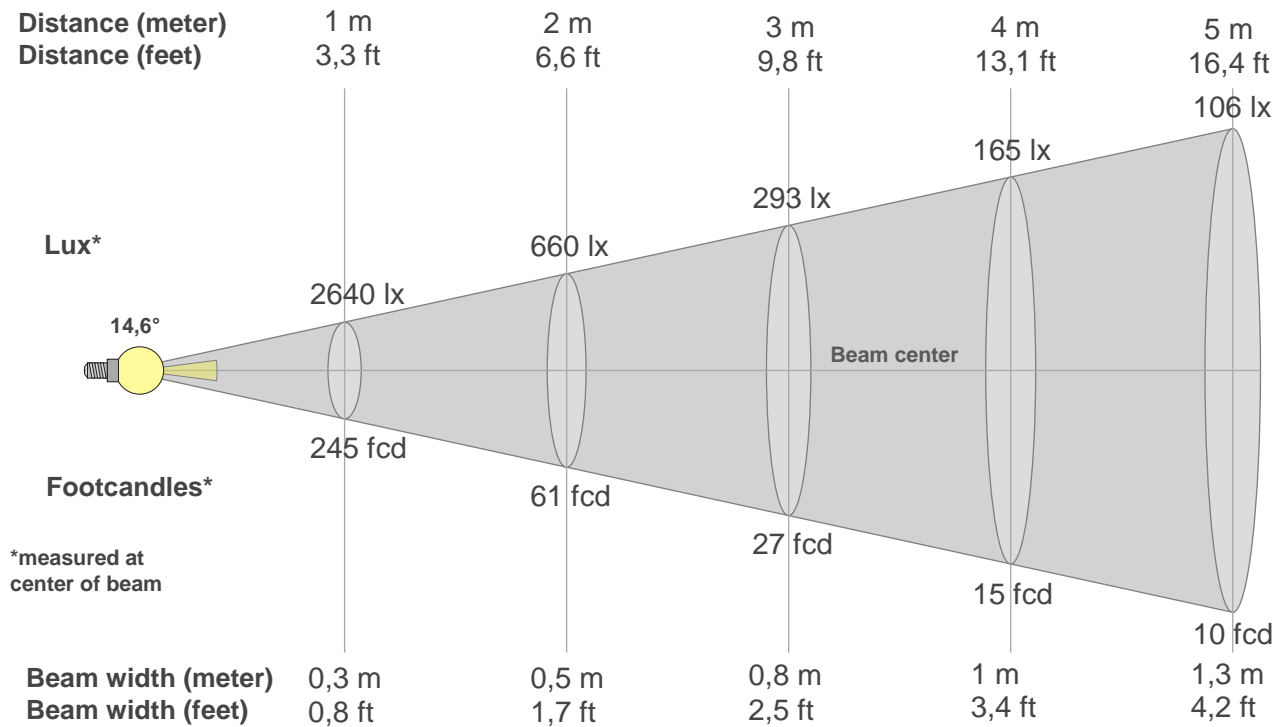
**Rg 0,0**

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
2640lx	660lx	293lx	165lx	106lx	73lx	54lx	41lx	33lx	26lx	22lx	18lx	16lx	13lx	12lx	10lx	9lx	8lx	7lx	7lx
245,3fc	61,3fcd	27,3fcd	15,3fcd	9,8fcd	6,8fcd	5fcd	3,8fcd	3fcd	2,5fcd	2fcd	1,7fcd	1,5fcd	1,3fcd	1,1fcd	1fcd	0,8fcd	0,8fcd	0,7fcd	0,6fcd

### 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°
2640	2603	2490	2316	2103	1857	1597	1356	1128	919	744	603	490	394	318	261	217	176	147	120
100%	99%	94%	88%	80%	70%	60%	51%	43%	35%	28%	23%	19%	15%	12%	10%	8%	7%	6%	5%

### 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°
2640	2616	2510	2345	2139	1905	1645	1395	1169	952	763	609	486	383	301	237	193	159	130	108
100%	99%	95%	89%	81%	72%	62%	53%	44%	36%	29%	23%	18%	15%	11%	9%	7%	6%	5%	4%

### Intensities in 180° c-plane

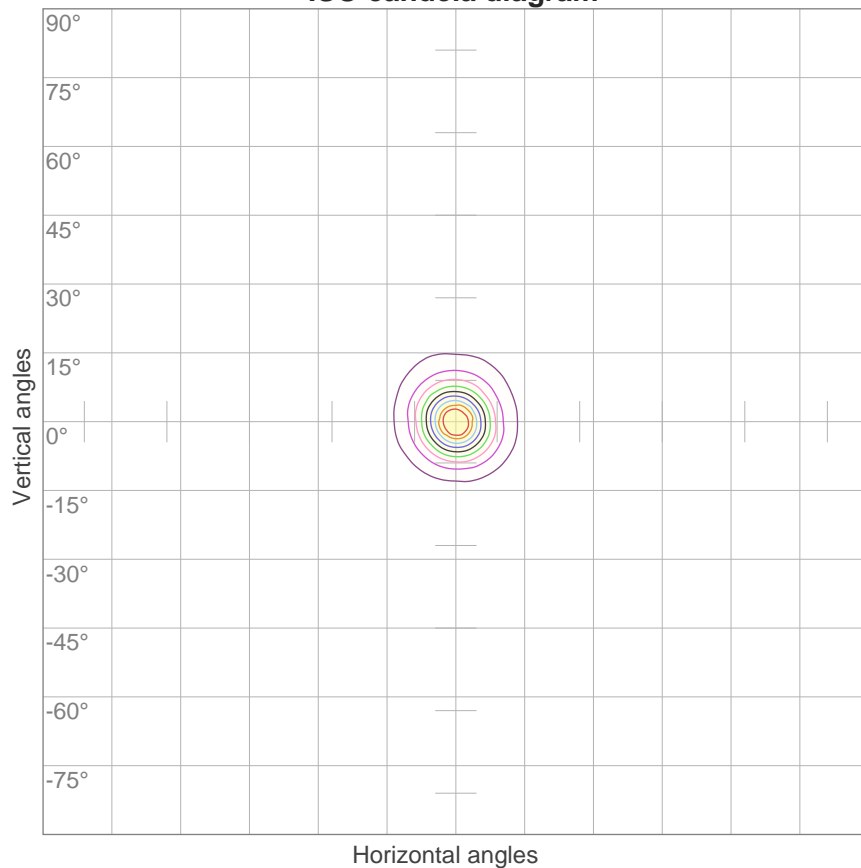
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
2640	2602	2490	2313	2088	1849	1608	1358	1126	929	761	613	492	401	326	264	216	177	145	120
100%	99%	94%	88%	79%	70%	61%	51%	43%	35%	29%	23%	19%	15%	12%	10%	8%	7%	6%	5%

### 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°
2640	2601	2489	2308	2099	1872	1629	1391	1181	1000	833	690	578	485	405	337	284	242	204	170
100%	99%	94%	87%	79%	71%	62%	53%	45%	38%	32%	26%	22%	18%	15%	13%	11%	9%	8%	6%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
14,6°	31°	46,8°	94,2%	90,5%

ISO candela diagram



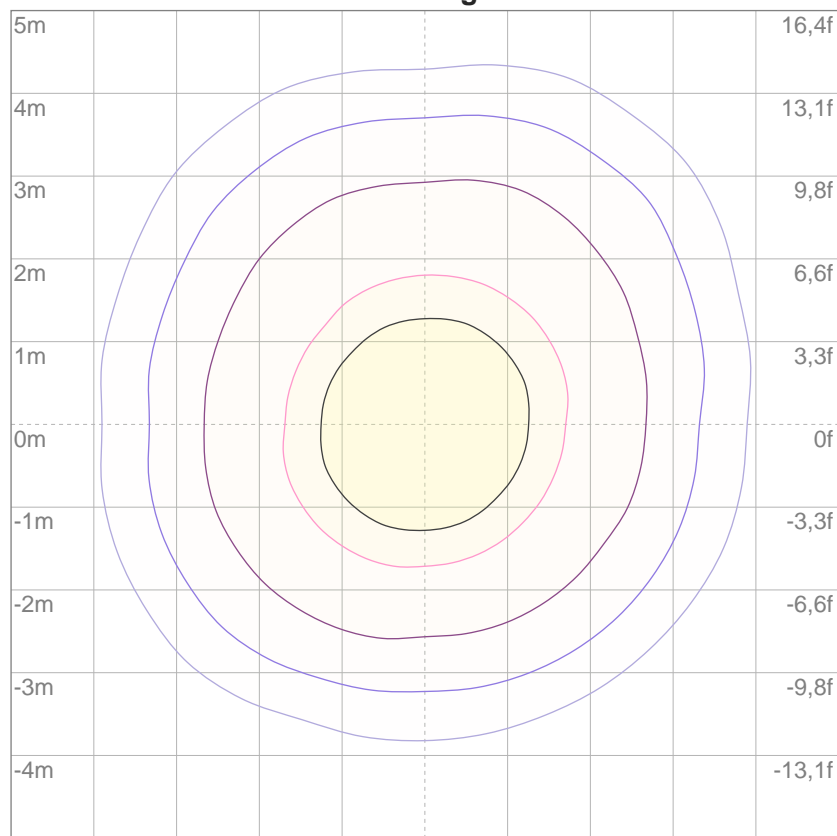
10%	264 cd
20%	528 cd
30%	792 cd
40%	1056 cd
50%	1320 cd
60%	1584 cd
70%	1848 cd
80%	2112 cd
90%	2376 cd

Conditions:

Number of c-planes: 16

Candela at center: 2640 cd

ISO lux diagram



3%	0,792 lx
5%	1,32 lx
10%	2,64 lx
30%	7,92 lx
50%	13,2 lx

Conditions:

Number of c-planes: 16

Lux at center: 26,4 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	8,2	8,9	8,4	9,1	9,3	8,2	8,9	8,4	9,1	9,3
	3H	10,7	11,4	11,0	11,6	11,9	10,5	11,2	10,8	11,4	11,7
	4H	12,1	12,7	12,4	13,0	13,3	12,1	12,7	12,4	13,0	13,2
	6H	13,4	14,0	13,7	14,3	14,6	14,0	14,6	14,3	14,9	15,2
	8H	14,0	14,6	14,4	14,9	15,2	15,1	15,7	15,5	16,0	16,3
	12H	14,9	15,4	15,2	15,7	16,0	16,3	16,8	16,6	17,2	17,5
4H	2H	9,0	9,7	9,3	10,0	10,2	9,1	9,7	9,4	10,0	10,2
	3H	11,7	12,3	12,1	12,6	12,9	11,7	12,2	12,0	12,5	12,9
	4H	13,3	13,8	13,6	14,1	14,4	13,3	13,8	13,7	14,1	14,5
	6H	14,7	15,1	15,1	15,5	15,9	15,3	15,7	15,7	16,1	16,5
	8H	15,5	15,9	16,0	16,3	16,7	16,5	16,9	16,9	17,2	17,6
	12H	16,5	16,9	17,0	17,3	17,7	17,8	18,1	18,2	18,5	18,9
8H	4H	13,9	14,3	14,3	14,7	15,1	14,0	14,4	14,4	14,7	15,1
	6H	15,6	15,9	16,1	16,3	16,8	16,0	16,3	16,5	16,8	17,2
	8H	16,7	17,0	17,2	17,4	17,9	17,3	17,5	17,8	18,0	18,4
	12H	17,9	18,1	18,4	18,6	19,1	18,7	18,9	19,2	19,4	19,9
12H	4H	14,0	14,4	14,5	14,8	15,2	14,1	14,5	14,6	14,9	15,3
	6H	15,9	16,2	16,4	16,6	17,1	16,3	16,5	16,7	17,0	17,4
	8H	17,1	17,3	17,6	17,8	18,3	17,6	17,8	18,1	18,3	18,8
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,1 / -0,1					+0,2 / -0,1				
S = 1,5H		+0,3 / -0,3					+0,3 / -0,3				
S = 2,0H		+0,4 / -0,4					+0,4 / -0,4				
Standard table		BK12					---				
Correction summand		0,9					---				
Corrected glare indices referring to 299 lm total luminous flux											

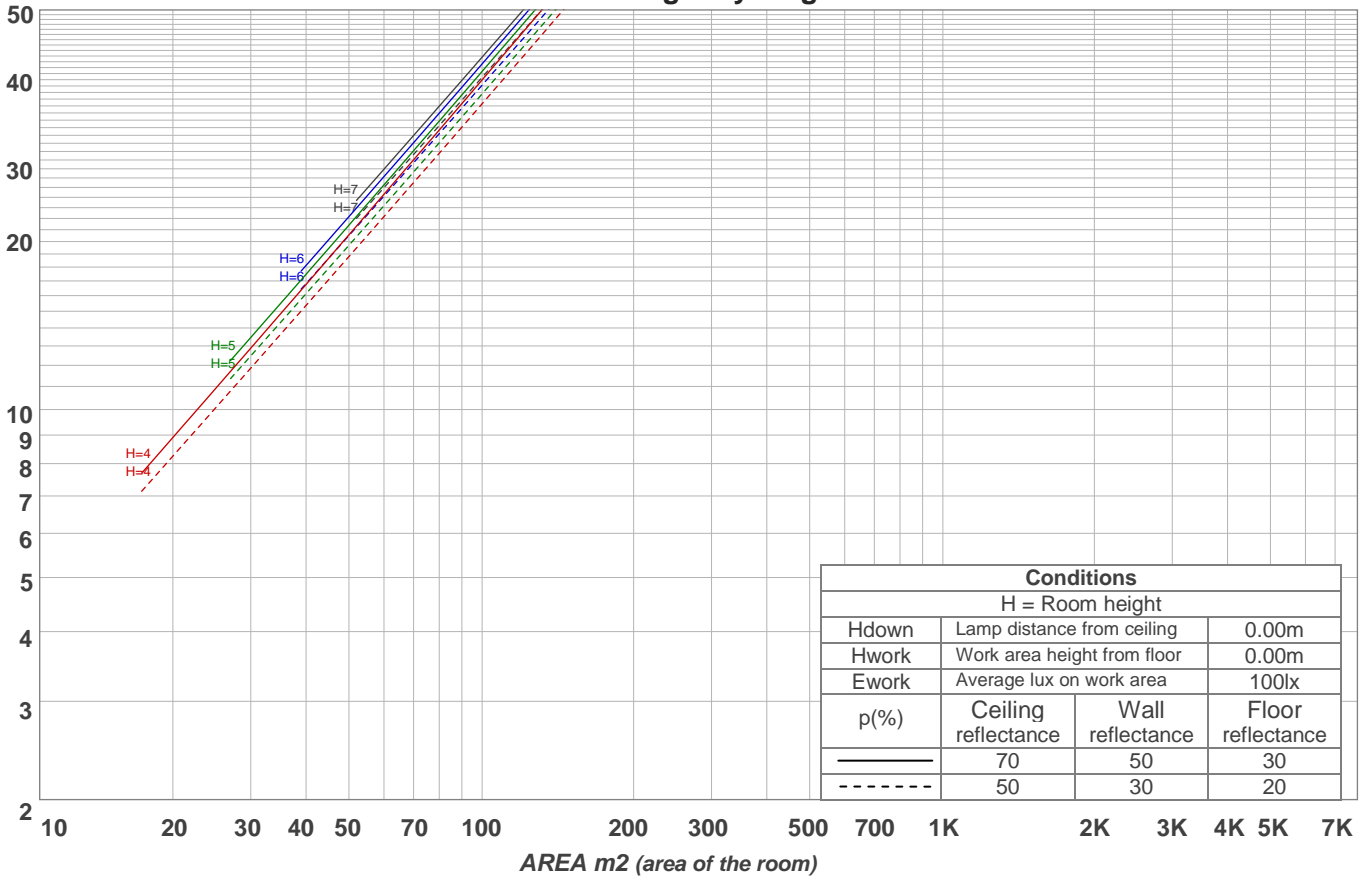
UGR data could be incorrect as lamp output is not symmetrical. Goto Edit->Photometric->Corrections and select Correct asymmetry.

## 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	102	99	107	104	100	98	100	98	95	97	95	93	95	93	92	90
3	106	100	96	93	104	99	95	92	96	93	91	94	91	89	92	90	88	87
4	102	96	92	88	101	95	91	88	93	90	87	91	88	86	89	87	85	84
5	99	93	88	85	98	92	88	85	90	87	84	89	86	83	87	85	82	81
6	96	90	85	82	95	89	85	82	88	84	81	86	83	81	85	82	80	79
7	94	87	83	80	93	87	82	79	85	82	79	84	81	79	83	80	78	77
8	92	85	81	78	91	84	80	77	83	80	77	82	79	77	82	79	77	76
9	90	83	79	76	89	82	78	76	81	78	75	81	77	75	80	77	75	74
10	88	81	77	74	87	80	77	74	80	76	74	79	76	74	79	76	73	73

LAMPS (number of lamps)

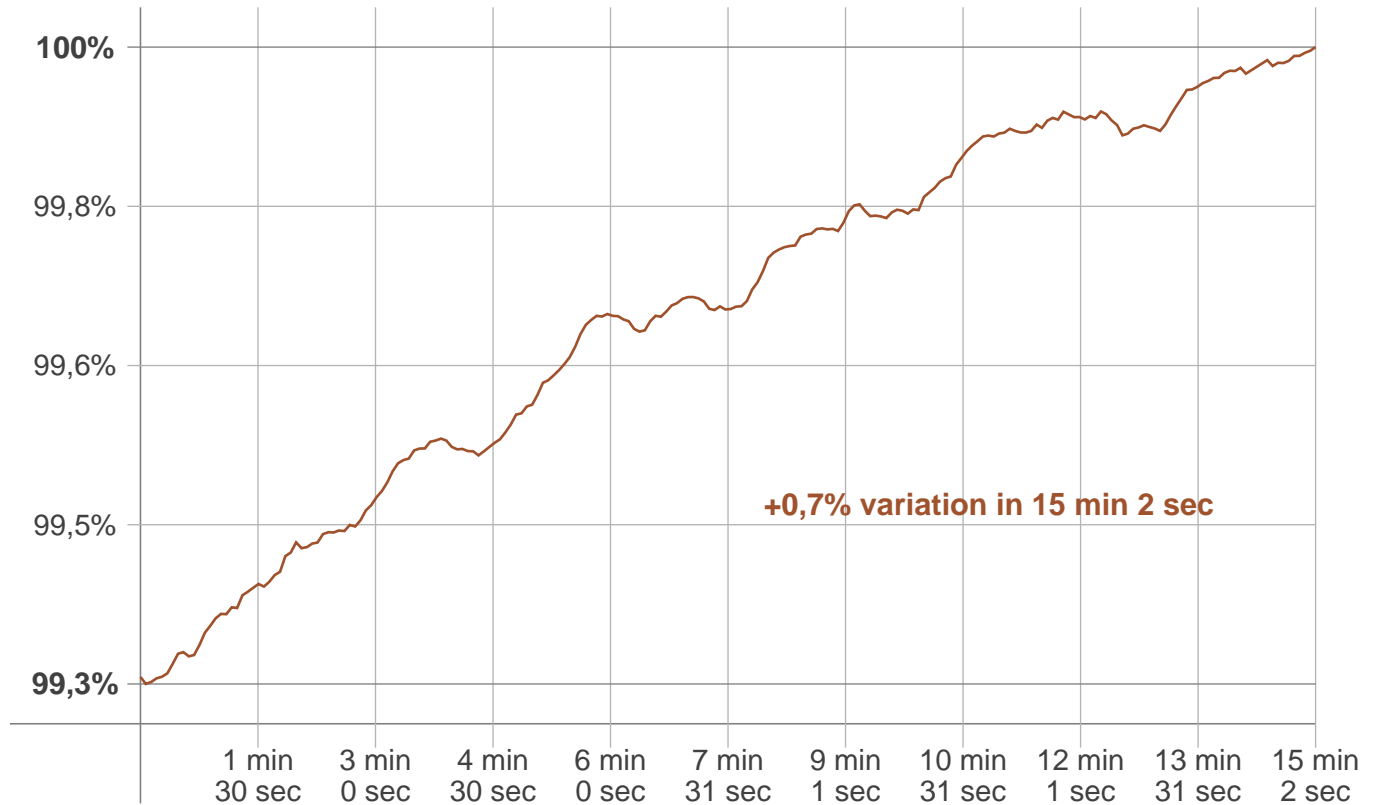
## Luminaire budgetary diagram



## Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	87,0 lm	26,2 lm	11,4 lm	8,05 lm	7,31 lm	6,63 lm	5,89 lm	4,47 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,220 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
297 lm	+2 lm	299 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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