

Light efficiency:



Light quality:



Color temperature:

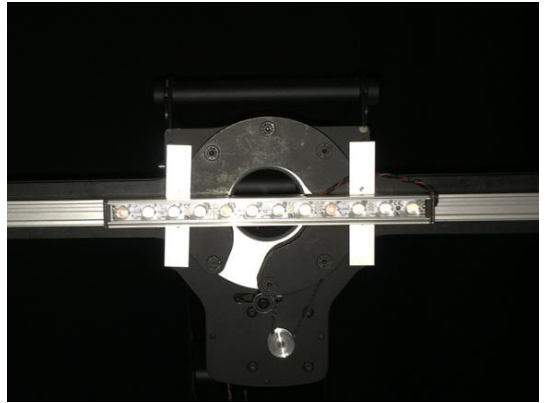


Output: 81,0 lm

Peak: 515 cd

Power: 7,1 W

PF: 0,81



Product name:

FLNP-F4CH-C-258-B-927-10771

Item number:

FLNP-F4CH-C-258-B-927-10771

Date and time:

14.02.2019 12:24:46

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

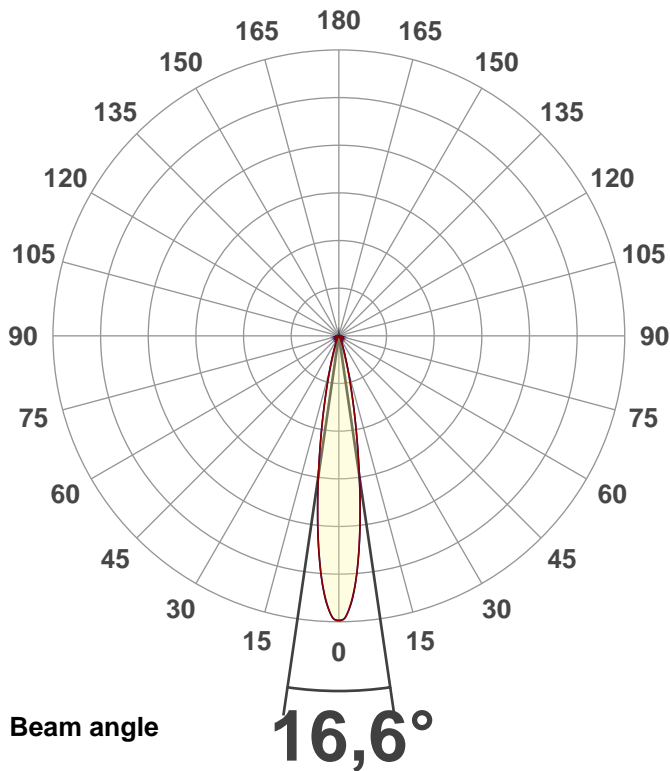
Master of Engineering

Pruefort:

Lichtlabor

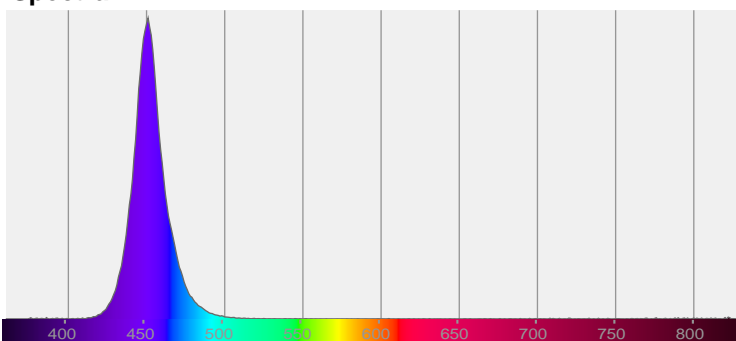
Gaustrasse13-15

55411 Bingen am Rhein

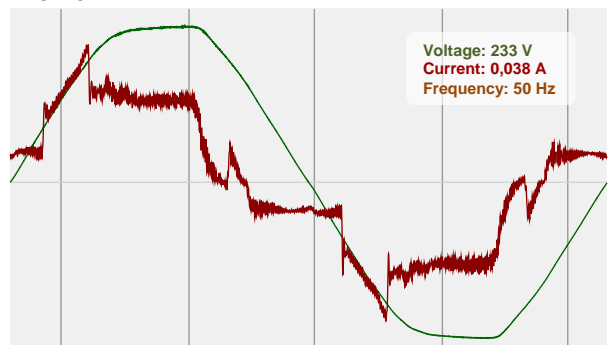


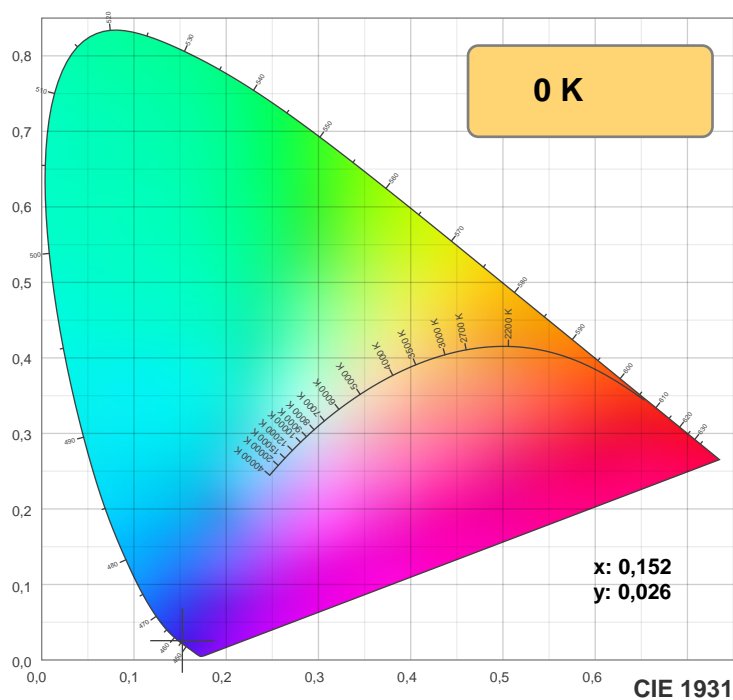
CIE 1931  
x: 0,152  
y: 0,026

Spectra



Power





TM30: 0,0



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

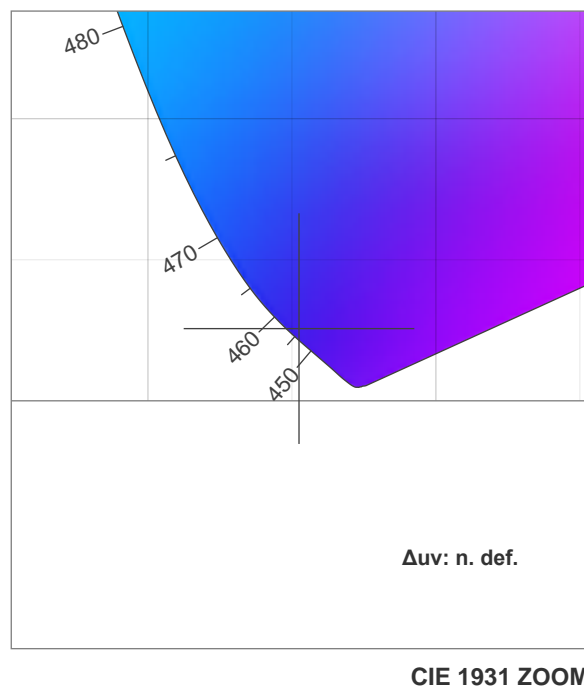
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

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

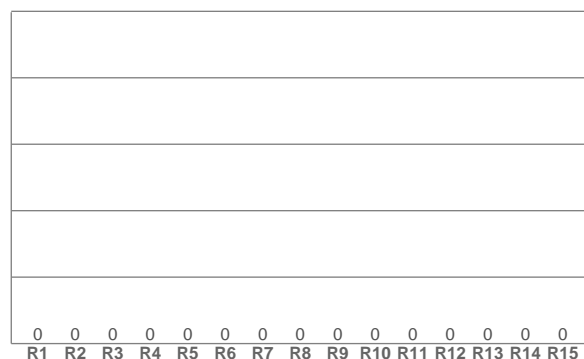
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

CQS Q values

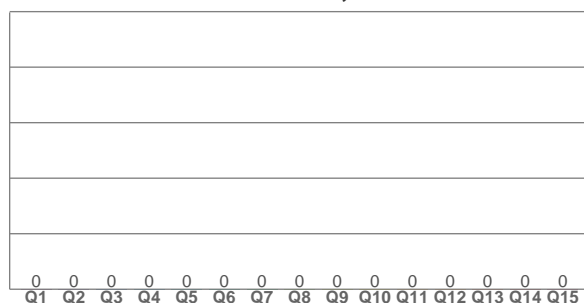
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



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	0,152	0,026	0,203	0,051	n. def.

## TM30 details

**Rf 0,0**

Fidelity index Rf

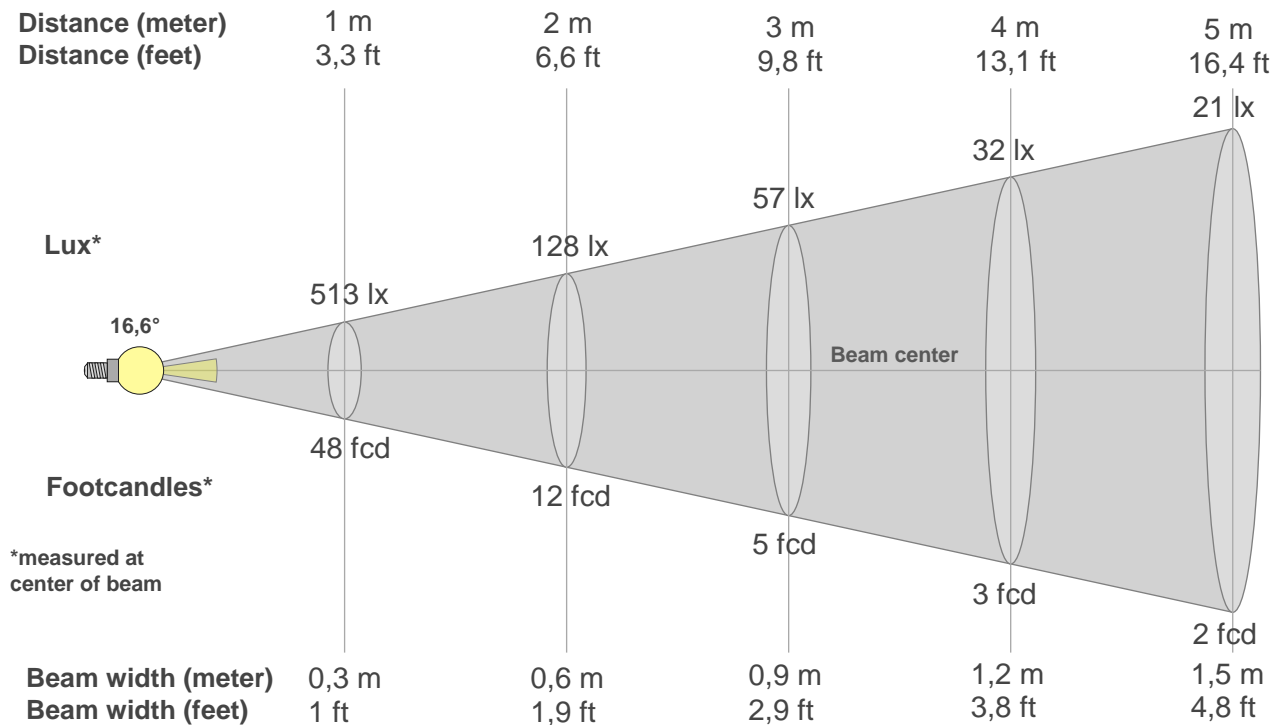
**Rg 0,0**

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
513lx	128lx	57lx	32lx	21lx	14lx	10lx	8lx	6lx	5lx	4lx	4lx	3lx	3lx	2lx	2lx	2lx	2lx	1lx	1lx
47,7fcd	11,9fcd	5,3fcd	3fcd	1,9fcd	1,3fcd	1fcd	0,7fcd	0,6fcd	0,5fcd	0,4fcd	0,3fcd	0,3fcd	0,2fcd	0,2fcd	0,2fcd	0,2fcd	0,1fcd	0,1fcd	0,1fcd

### 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°
513	510	495	471	440	403	359	314	270	227	188	154	125	100	79	63	50	40	32	25
100%	99%	96%	92%	86%	78%	70%	61%	53%	44%	37%	30%	24%	19%	15%	12%	10%	8%	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°
513	510	496	473	441	402	360	315	269	225	187	154	123	98	79	63	51	40	32	27
100%	99%	97%	92%	86%	78%	70%	61%	52%	44%	36%	30%	24%	19%	15%	12%	10%	8%	6%	5%

### Intensities in 180° c-plane

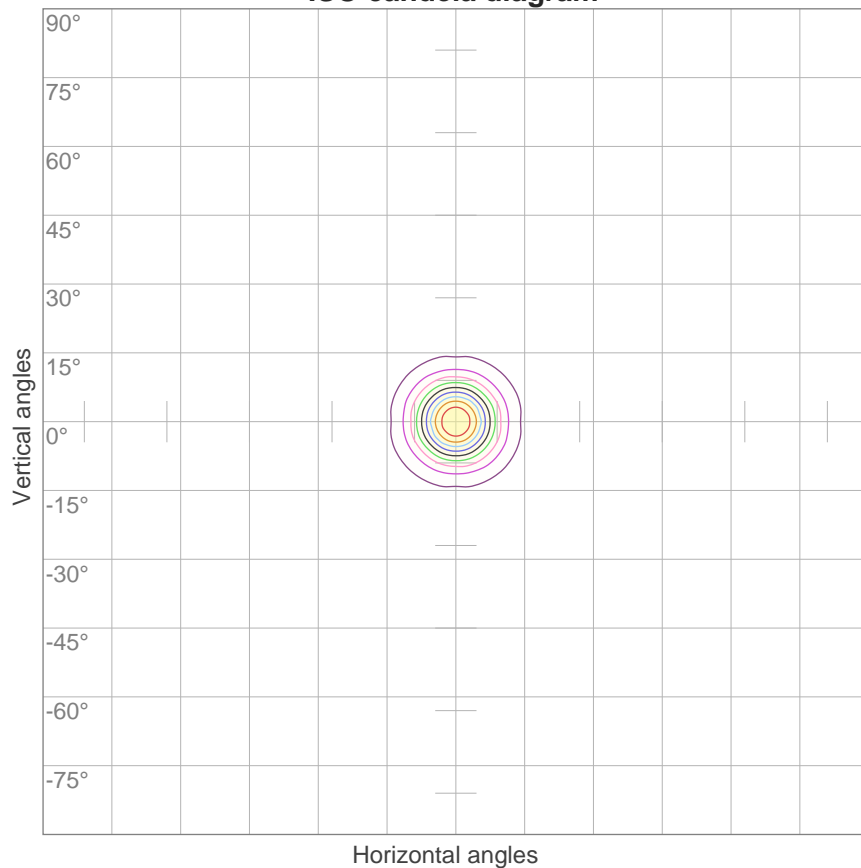
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
513	510	495	471	440	403	359	314	270	227	188	154	125	100	79	63	50	40	32	25
100%	99%	96%	92%	86%	78%	70%	61%	53%	44%	37%	30%	24%	19%	15%	12%	10%	8%	6%	5%

### 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°
513	510	496	473	441	402	360	315	269	225	187	154	123	98	79	63	51	40	32	27
100%	99%	97%	92%	86%	78%	70%	61%	52%	44%	36%	30%	24%	19%	15%	12%	10%	8%	6%	5%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
16,6°	32,2°	47,9°	83,6%	76,7%

ISO candela diagram



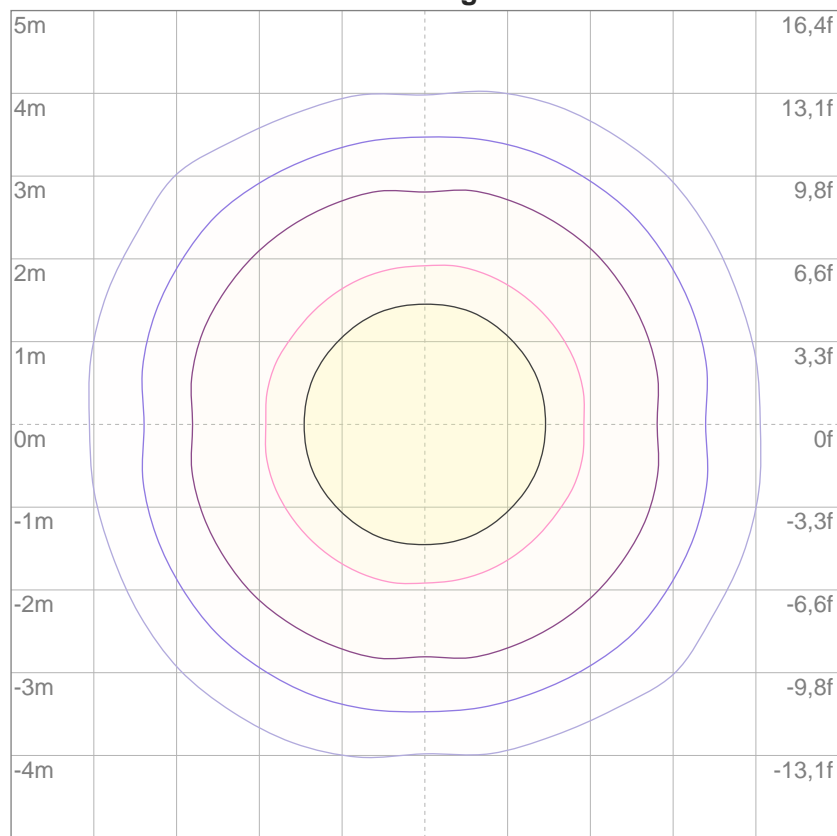
10%	51 cd
20%	103 cd
30%	154 cd
40%	205 cd
50%	257 cd
60%	308 cd
70%	359 cd
80%	411 cd
90%	462 cd

Conditions:

Number of c-planes: 16

Candela at center: 513 cd

ISO lux diagram



3%	0,154 lx
5%	0,257 lx
10%	0,513 lx
30%	1,54 lx
50%	2,57 lx

Conditions:

Number of c-planes: 16

Lux at center: 5,13 lx

*Lux distribution on a surface  
when lamp is mounted at 10  
meters from the surface.*

## Glare Evaluation According to UGR

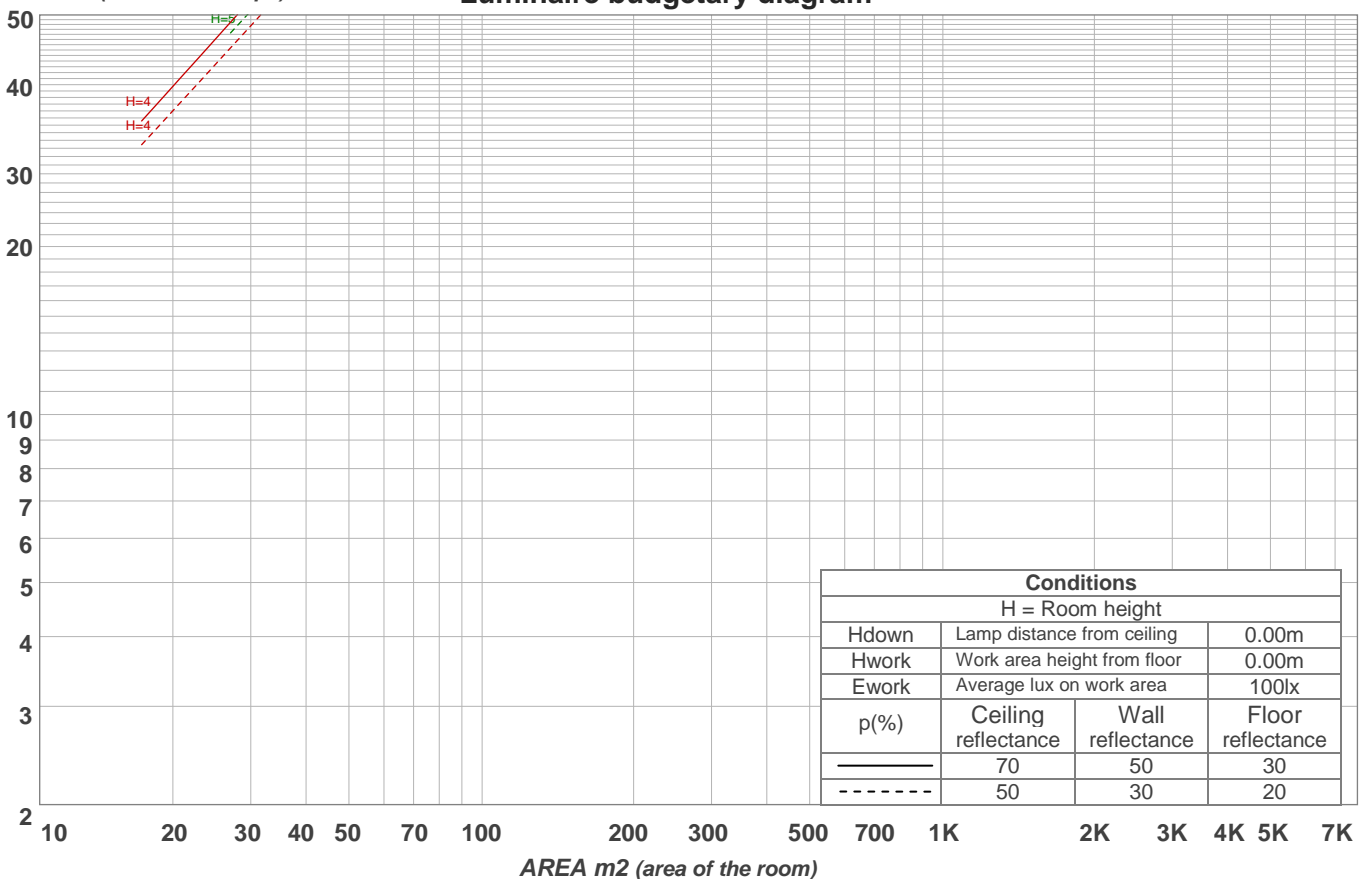
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X      Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	10,5	11,4	10,8	11,6	11,8	9,8	10,7	10,0	10,9	11,1
	3H	13,3	14,2	13,6	14,4	14,7	12,4	13,3	12,7	13,5	13,8
	4H	14,6	15,4	14,9	15,7	16,0	14,1	14,9	14,4	15,1	15,4
	6H	16,1	16,9	16,5	17,2	17,5	15,9	16,7	16,2	16,9	17,2
	8H	17,0	17,7	17,3	18,0	18,3	16,9	17,6	17,3	17,9	18,3
	12H	18,2	18,9	18,5	19,2	19,5	18,2	19,0	18,6	19,3	19,6
4H	2H	11,5	12,3	11,8	12,5	12,8	10,9	11,8	11,3	12,0	12,3
	3H	14,5	15,2	14,9	15,5	15,9	13,8	14,5	14,2	14,8	15,2
	4H	15,9	16,6	16,3	16,9	17,3	15,5	16,2	15,9	16,5	16,9
	6H	17,8	18,3	18,2	18,7	19,1	17,6	18,1	18,0	18,5	18,9
	8H	18,8	19,3	19,2	19,6	20,1	18,7	19,2	19,1	19,6	20,0
	12H	20,1	20,5	20,5	21,0	21,4	20,1	20,6	20,6	21,0	21,4
8H	4H	16,7	17,2	17,1	17,5	18,0	16,4	16,9	16,8	17,2	17,7
	6H	18,8	19,2	19,3	19,7	20,1	18,6	19,1	19,1	19,5	19,9
	8H	20,1	20,5	20,6	20,9	21,4	20,0	20,4	20,5	20,8	21,3
	12H	21,7	22,0	22,2	22,4	22,9	21,6	21,9	22,1	22,4	22,9
12H	4H	16,8	17,3	17,3	17,7	18,1	16,6	17,0	17,0	17,4	17,9
	6H	19,2	19,5	19,6	20,0	20,4	19,0	19,4	19,5	19,8	20,3
	8H	20,6	20,9	21,1	21,4	21,9	20,5	20,8	21,0	21,3	21,7
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					+0,3 / -0,3				
S = 2,0H		+0,4 / -0,6					+0,4 / -0,6				
Standard table		BK12					BK12				
Correction summand		4,0					3,9				
Corrected glare indices referring to 81,0 lm total luminous flux											

## 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	118	118	118	118	115	115	115	115	109	109	109	104	104	104	99	99	99	96
1	111	107	104	101	108	105	102	99	100	98	95	95	94	92	91	90	89	86
2	105	99	95	91	102	97	93	89	93	90	87	90	87	84	86	84	82	80
3	100	93	88	84	98	91	87	83	88	84	81	85	82	79	83	80	77	76
4	96	88	83	78	94	87	82	78	84	80	76	82	78	75	79	76	74	72
5	92	84	78	74	90	83	78	74	81	76	73	79	75	72	77	73	71	69
6	89	81	75	71	87	80	74	71	78	73	70	76	72	69	74	71	68	67
7	86	78	72	68	85	77	72	68	75	71	67	74	70	67	72	69	66	65
8	83	75	70	66	82	74	69	66	73	68	65	72	68	65	71	67	64	63
9	81	73	68	64	80	72	67	64	71	67	64	70	66	63	69	65	63	62
10	79	71	66	62	78	70	65	62	69	65	62	68	64	62	67	64	61	60

LAMPS (number of lamps)

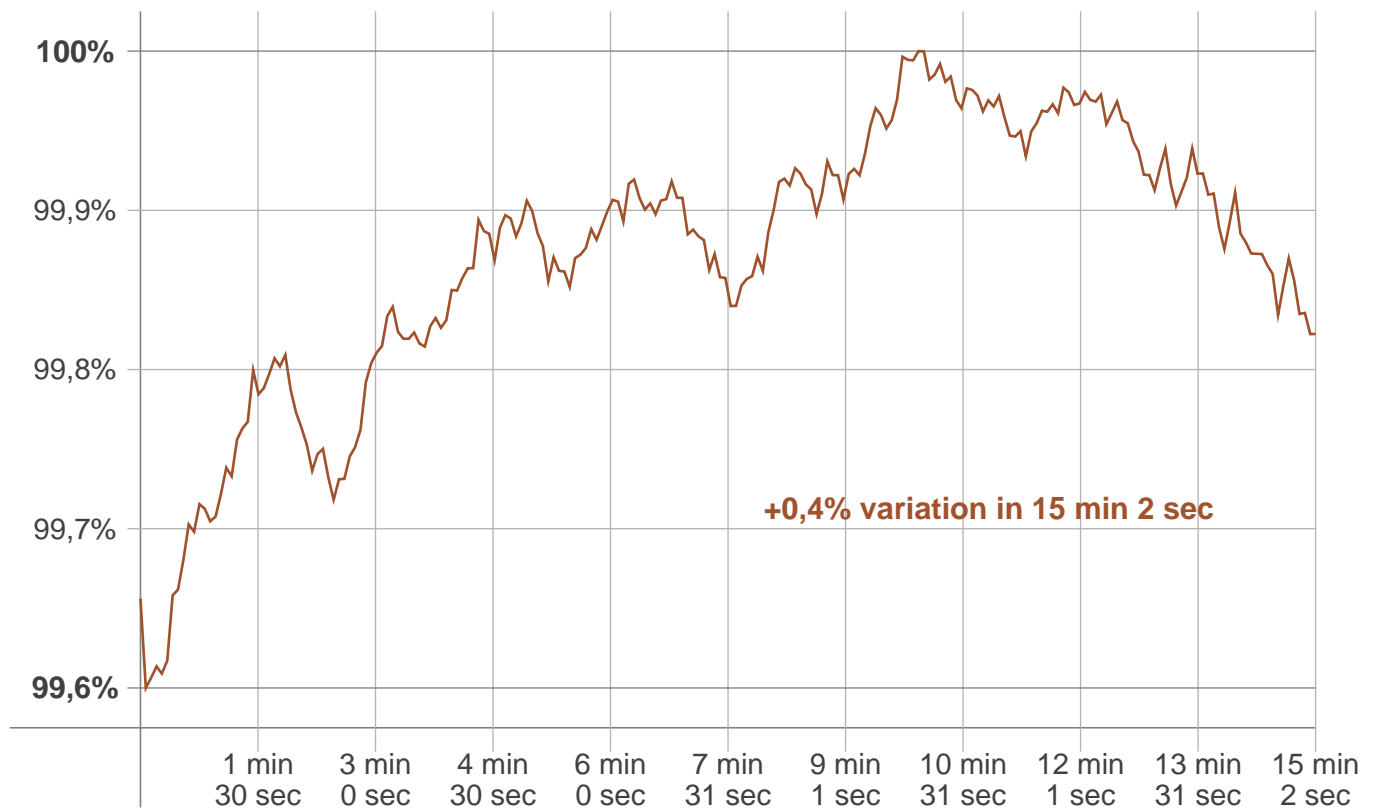
## Luminaire budgetary diagram



## Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	19,9 lm	5,61 lm	3,68 lm	3,64 lm	3,78 lm	3,79 lm	3,50 lm	3,04 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,832 lm	0,689 lm	0,647 lm	0,585 lm	0,219 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	+0,4%

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
81,0 lm	+0,0 lm	81,0 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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