

Light efficiency:



Light quality:



Color temperature:

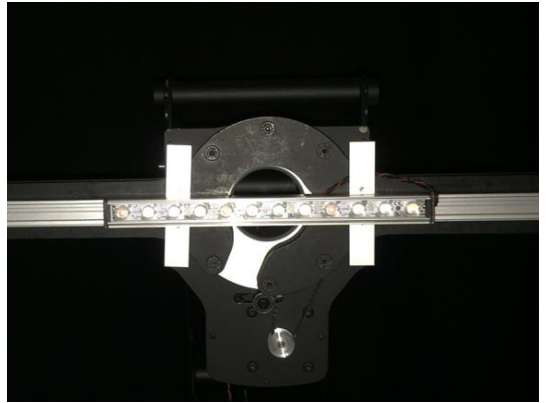


Output: 70,0 lm

Peak: 210 cd

Power: 7,1 W

PF: 0,82



Product name:

FLNP-F4CH-C-258-B-927-10774

Item number:

FLNP-F4CH-C-258-B-927-10774

Date and time:

18.02.2019 10:00:12

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

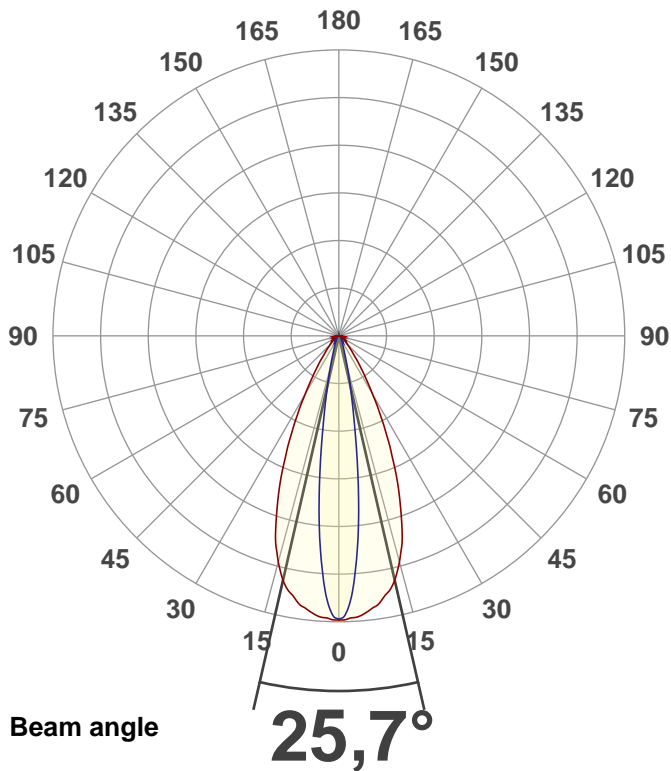
Master of Engineering

Pruefort:

Lichtlabor

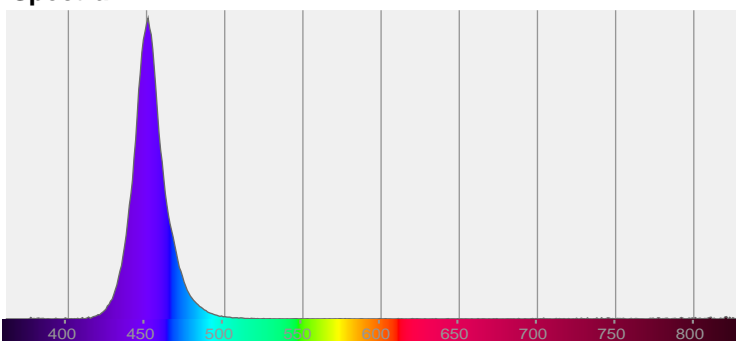
Gaustrasse13-15

55411 Bingen am Rhein

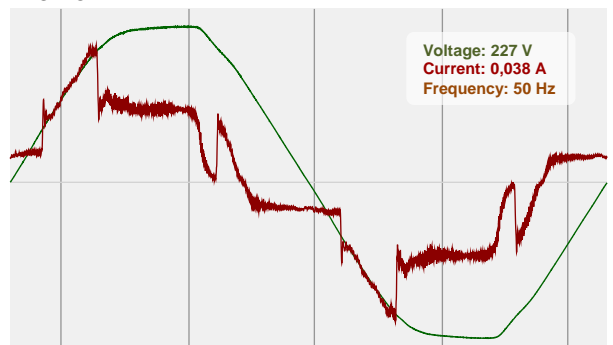


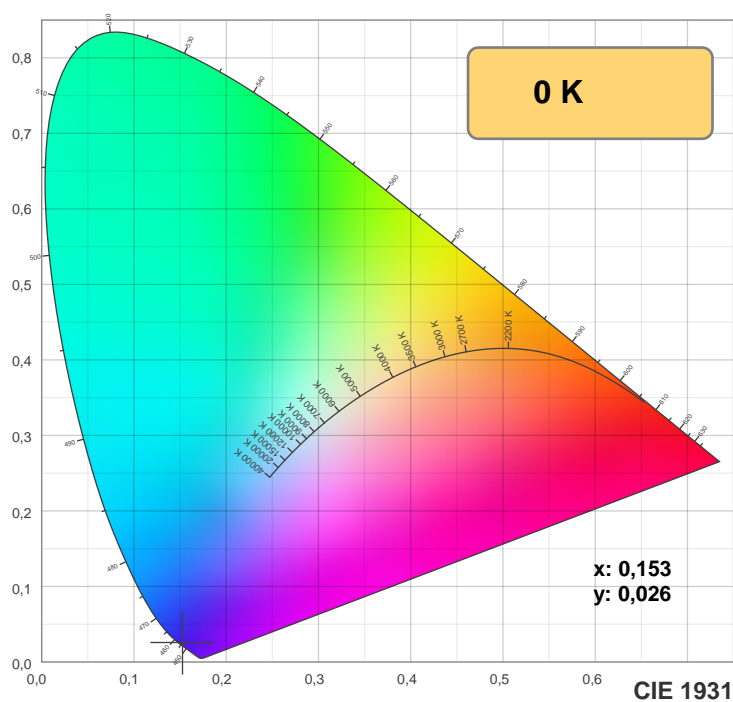
CIE 1931
x: 0,153
y: 0,026

Spectra

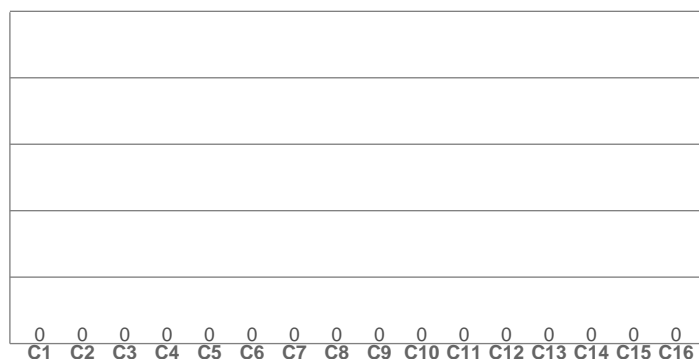


Power





TM30: 0,0



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

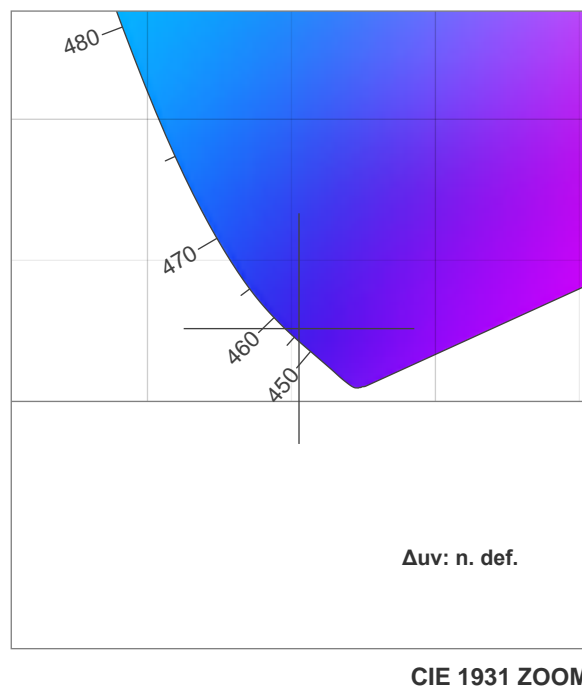
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

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

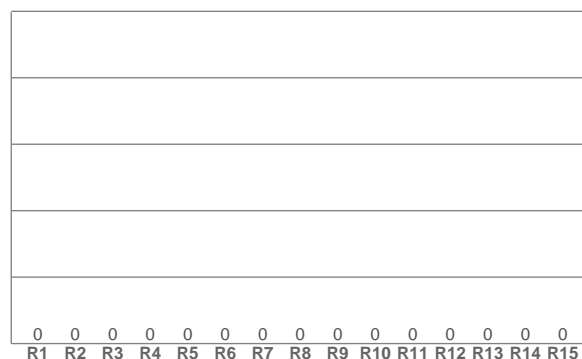
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

CQS Q values

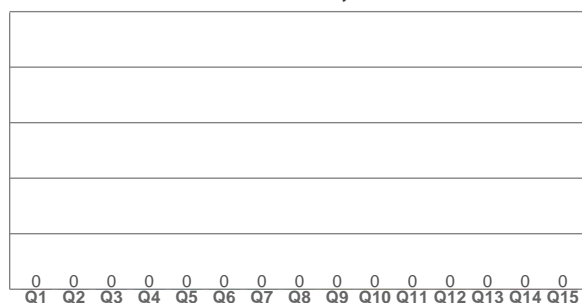
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



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	Δuv
0 K	0,0	0,0	0,0	0,0	0,0	0,153	0,026	0,203	0,052	n. def.

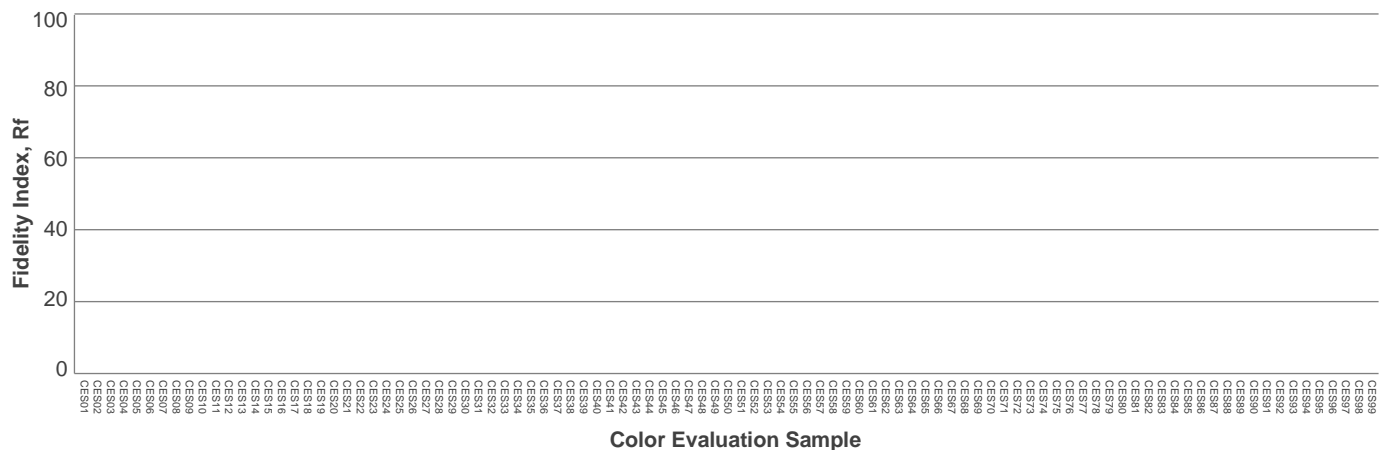
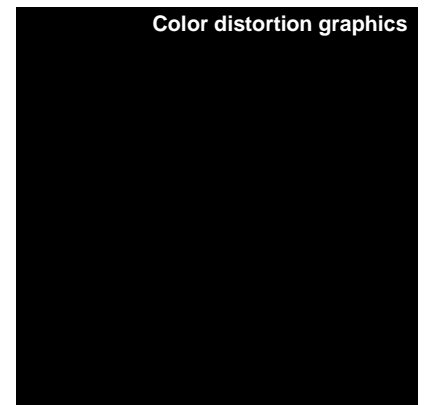
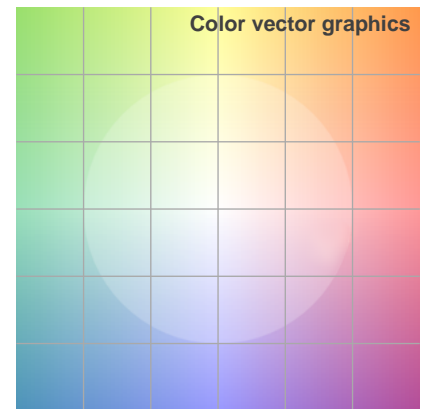
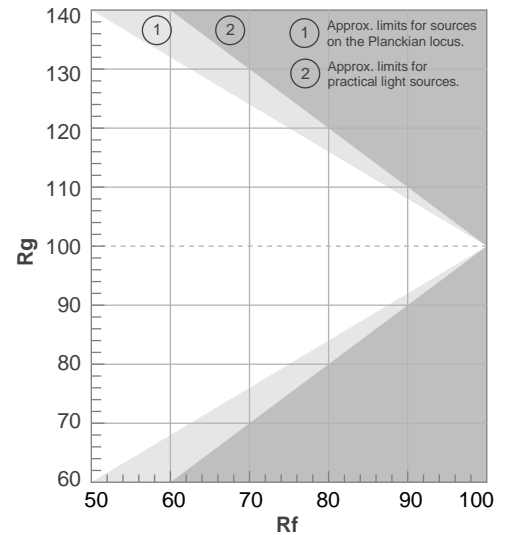
Rf 0,0

Fidelity index Rf

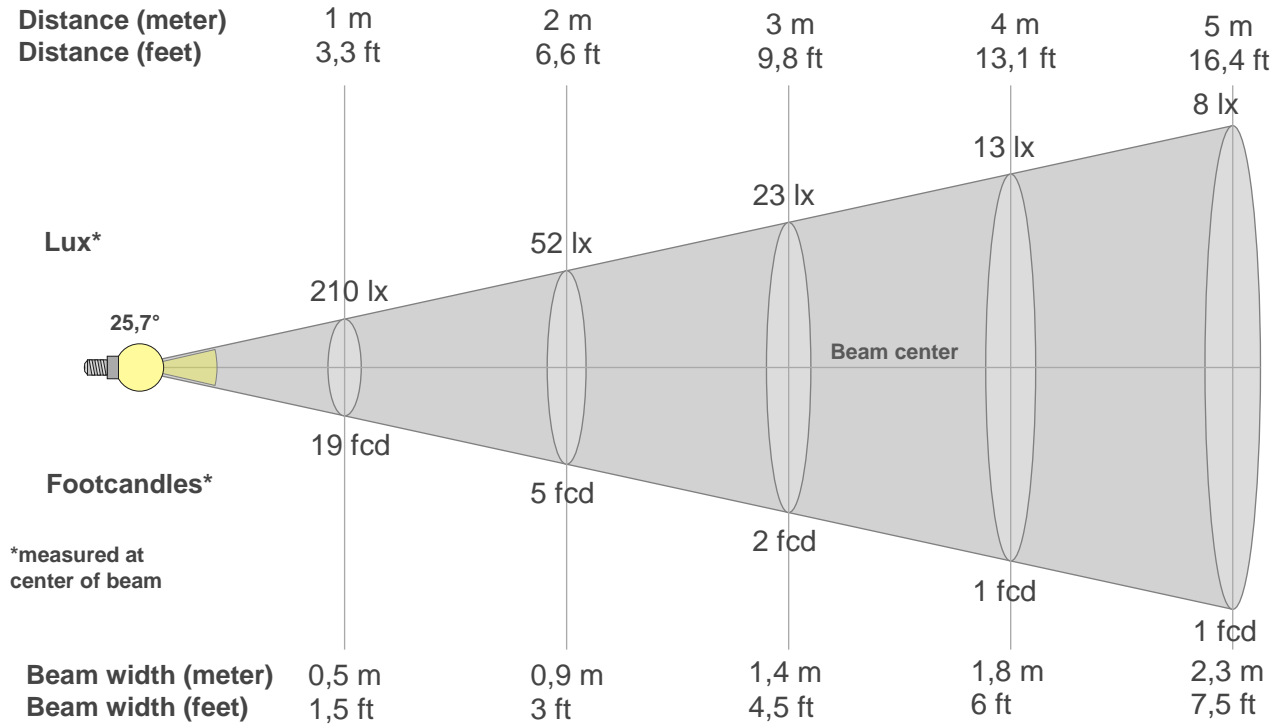
Rg 0,0

Gammut index Rg

Hue Bin	R _f	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
210lx	52lx	23lx	13lx	8lx	6lx	4lx	3lx	3lx	2lx	2lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx
19,5fcd	4,9fcd	2,2fcd	1,2fcd	0,8fcd	0,5fcd	0,4fcd	0,3fcd	0,2fcd	0,2fcd	0,2fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0fcd

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°
210	209	208	205	202	195	189	179	166	151	133	115	96	79	64	50	39	31	25	19
100%	100%	99%	98%	96%	93%	90%	85%	79%	72%	63%	55%	46%	38%	30%	24%	19%	15%	12%	9%

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°
210	201	174	139	100	67	44	30	21	14	11	9	7	6	5	5	5	4	4	4
100%	96%	83%	66%	48%	32%	21%	14%	10%	7%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%

Intensities in 180° c-plane

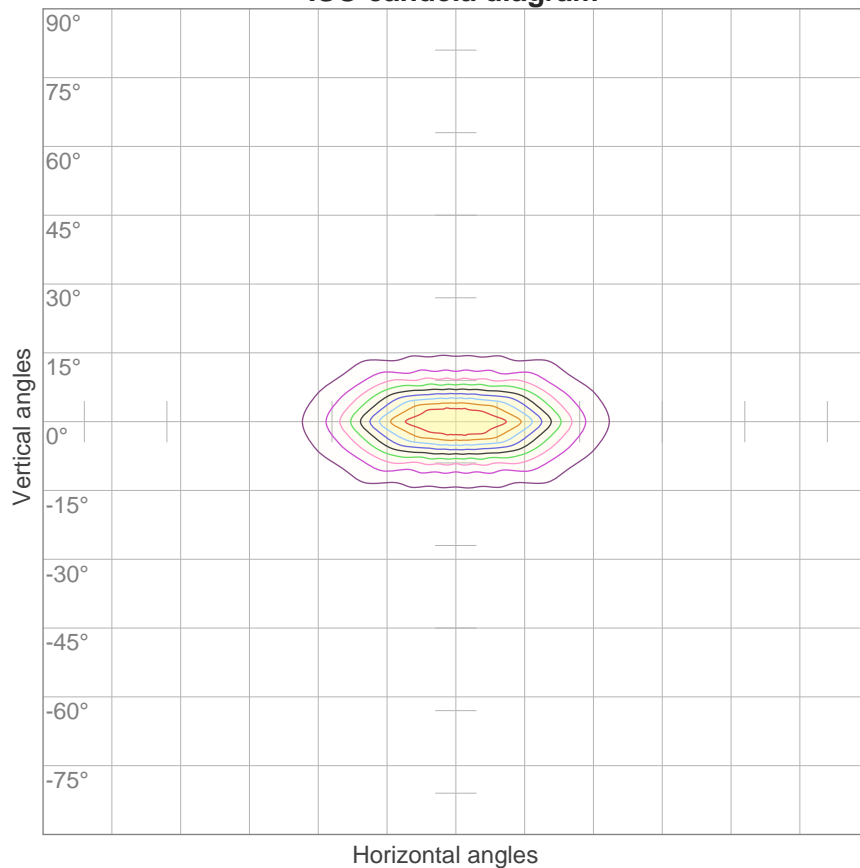
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
210	209	208	205	202	195	189	179	166	151	133	115	96	79	64	50	39	31	25	19
100%	100%	99%	98%	96%	93%	90%	85%	79%	72%	63%	55%	46%	38%	30%	24%	19%	15%	12%	9%

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°
210	201	174	139	100	67	44	30	21	14	11	9	7	6	5	5	5	4	4	4
100%	96%	83%	66%	48%	32%	21%	14%	10%	7%	5%	4%	3%	3%	3%	2%	2%	2%	2%	2%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
25,7°	47,1°	75,5°	89,0%	81,7%

ISO candela diagram



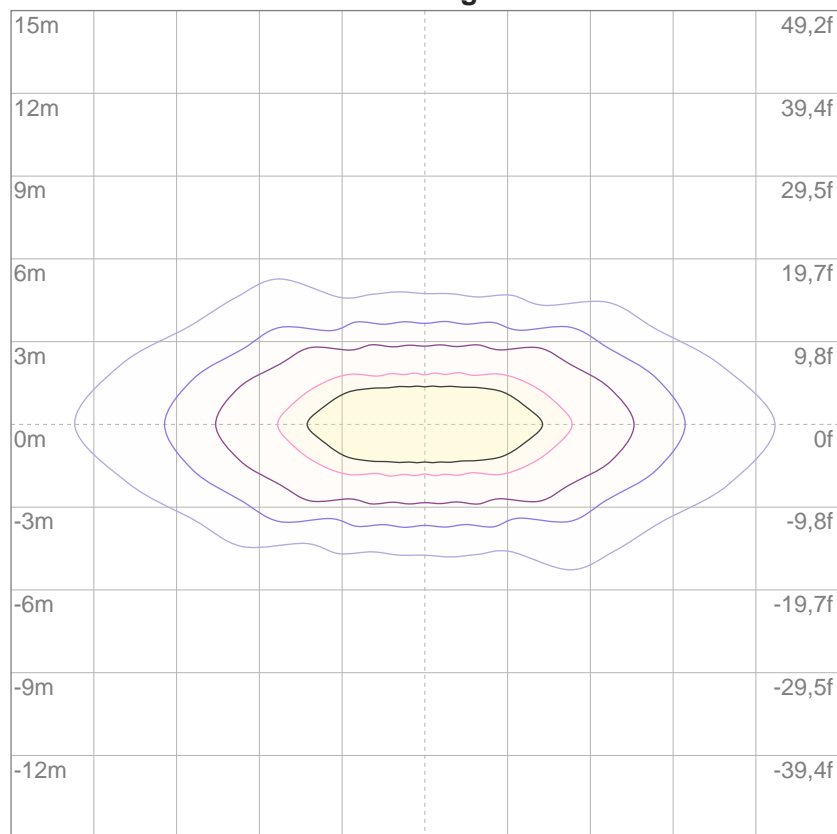
10%	21 cd
20%	42 cd
30%	63 cd
40%	84 cd
50%	105 cd
60%	126 cd
70%	147 cd
80%	168 cd
90%	189 cd

Conditions:

Number of c-planes: 16

Candela at center: 210 cd

ISO lux diagram



3%	62,9m lx
5%	0,105 lx
10%	0,210 lx
30%	0,629 lx
50%	1,05 lx

Conditions:

Number of c-planes: 16

Lux at center: 2,10 lx

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

Glare Evaluation According to UGR

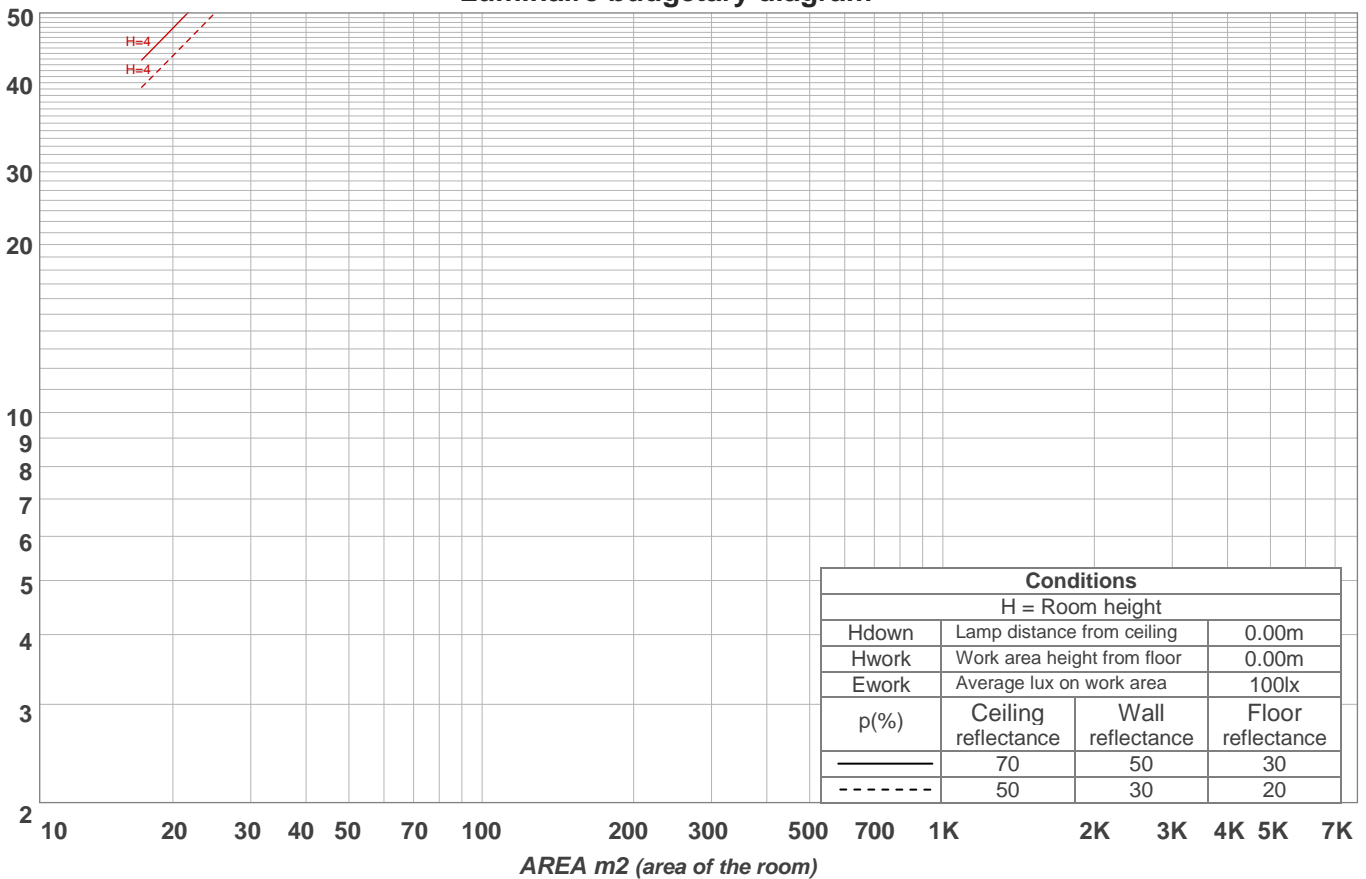
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	11,2	12,1	11,5	12,3	12,5	8,1	9,0	8,4	9,2	9,4
	3H	12,7	13,5	13,0	13,8	14,0	10,4	11,2	10,7	11,5	11,7
	4H	13,7	14,4	14,0	14,7	15,0	11,7	12,5	12,1	12,8	13,0
	6H	14,8	15,5	15,1	15,8	16,1	13,2	13,9	13,5	14,2	14,5
	8H	15,5	16,2	15,8	16,5	16,8	13,9	14,6	14,3	14,9	15,2
	12H	16,2	16,8	16,5	17,1	17,4	14,8	15,5	15,2	15,8	16,1
4H	2H	11,6	12,4	11,9	12,6	12,9	9,3	10,0	9,6	10,3	10,6
	3H	13,5	14,2	13,9	14,5	14,8	11,7	12,4	12,1	12,7	13,0
	4H	14,7	15,3	15,1	15,6	15,9	13,2	13,8	13,6	14,1	14,5
	6H	16,0	16,5	16,4	16,9	17,3	14,8	15,3	15,2	15,6	16,0
	8H	16,9	17,3	17,3	17,7	18,1	15,6	16,1	16,1	16,5	16,9
	12H	17,7	18,1	18,1	18,5	18,9	16,6	17,0	17,1	17,4	17,9
8H	4H	15,1	15,6	15,5	16,0	16,4	13,9	14,4	14,3	14,8	15,2
	6H	16,7	17,1	17,2	17,5	18,0	15,7	16,1	16,2	16,5	17,0
	8H	17,8	18,1	18,3	18,6	19,0	16,8	17,1	17,2	17,5	18,0
	12H	18,8	19,1	19,3	19,6	20,1	18,0	18,3	18,5	18,7	19,2
12H	4H	15,2	15,6	15,7	16,0	16,5	14,1	14,5	14,5	14,9	15,3
	6H	16,9	17,2	17,4	17,7	18,2	16,0	16,3	16,5	16,7	17,2
	8H	18,1	18,3	18,5	18,8	19,3	17,1	17,4	17,6	17,9	18,4
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,4 / -0,2					+0,1 / -0,1				
S = 1,5H		+0,8 / -0,3					+0,3 / -0,4				
S = 2,0H		+1,4 / -0,7					+0,5 / -0,5				
Standard table		BK09					BK12				
Correction summand		1,0					1,0				
Corrected glare indices referring to 70,0 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	119	119	119	119	116	116	116	116	110	110	110	105	105	105	101	101	101	99
1	112	108	105	102	109	106	103	101	102	99	97	98	96	94	94	92	91	89
2	106	100	95	91	103	98	94	90	95	91	88	91	88	86	88	86	84	82
3	100	93	88	83	98	92	86	82	89	84	81	86	82	79	84	81	78	76
4	95	87	81	77	93	86	81	76	84	79	75	81	77	74	79	76	73	72
5	91	82	76	72	89	81	76	71	79	74	71	77	73	70	76	72	69	68
6	87	78	72	68	85	77	71	67	75	70	67	74	70	66	73	69	66	64
7	83	74	68	64	82	73	68	64	72	67	63	71	66	63	70	66	63	61
8	80	71	65	61	79	70	65	61	69	64	60	68	63	60	67	63	60	58
9	77	68	62	58	76	67	62	58	66	61	58	65	61	58	64	60	57	56
10	74	65	60	56	73	65	59	56	64	59	56	63	58	55	62	58	55	54

LAMPS (number of lamps)

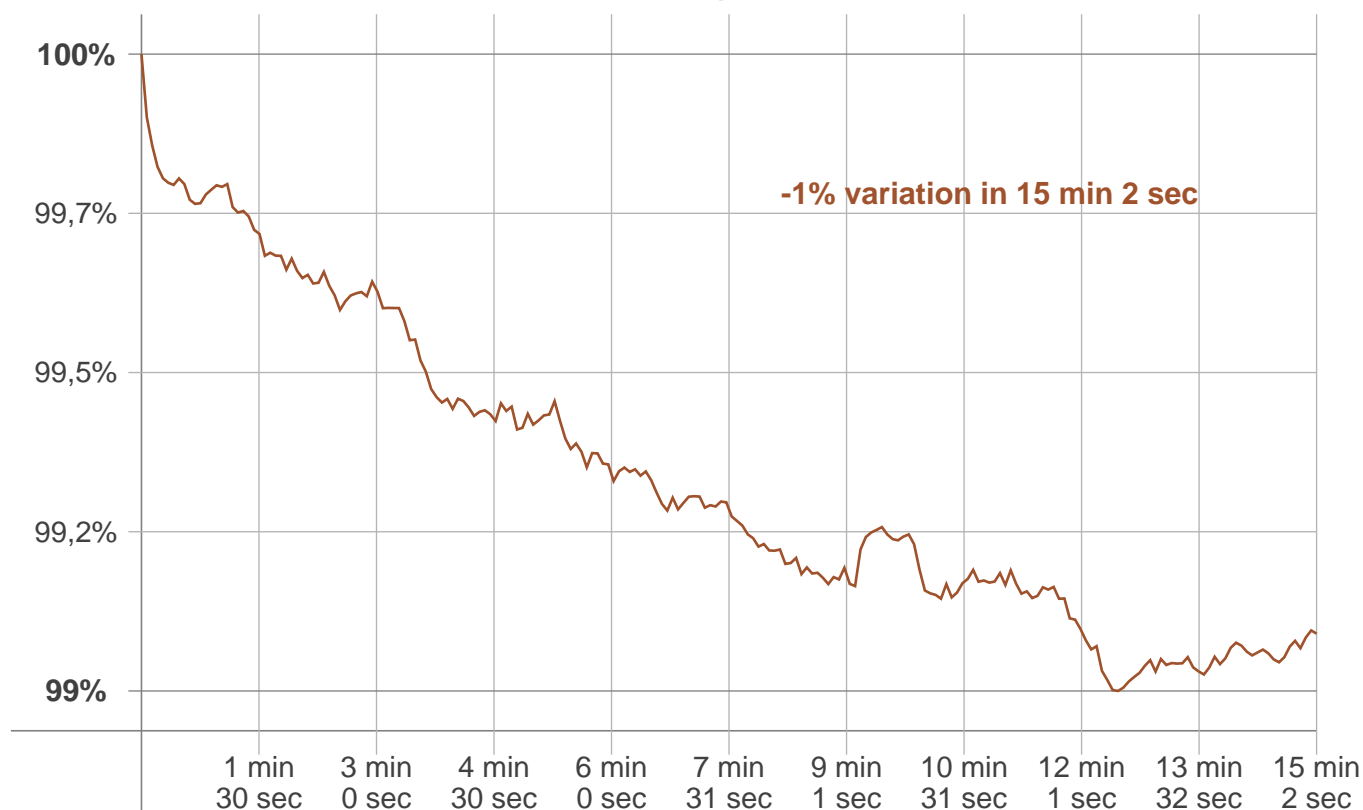
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	21,3 lm	12,5 lm	5,92 lm	3,85 lm	3,31 lm	2,75 lm	2,32 lm	1,71 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,306 lm	0,193 lm	0,181 lm	0,164 lm	0,060 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	-1,0%

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

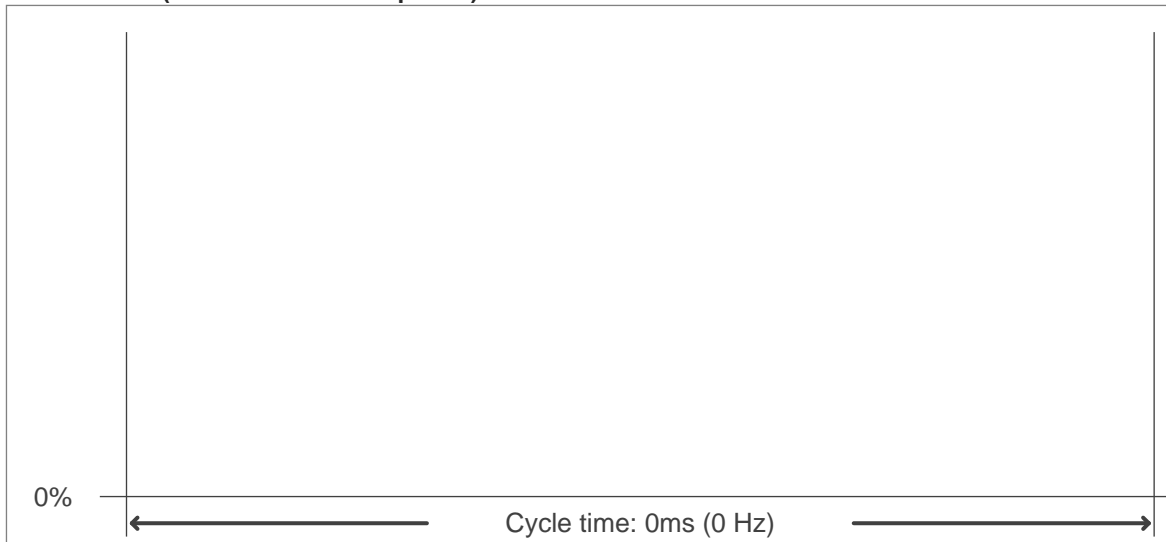
Output change

Output start	Output change	Output end
70,4 lm	-0,4 lm	70,0 lm

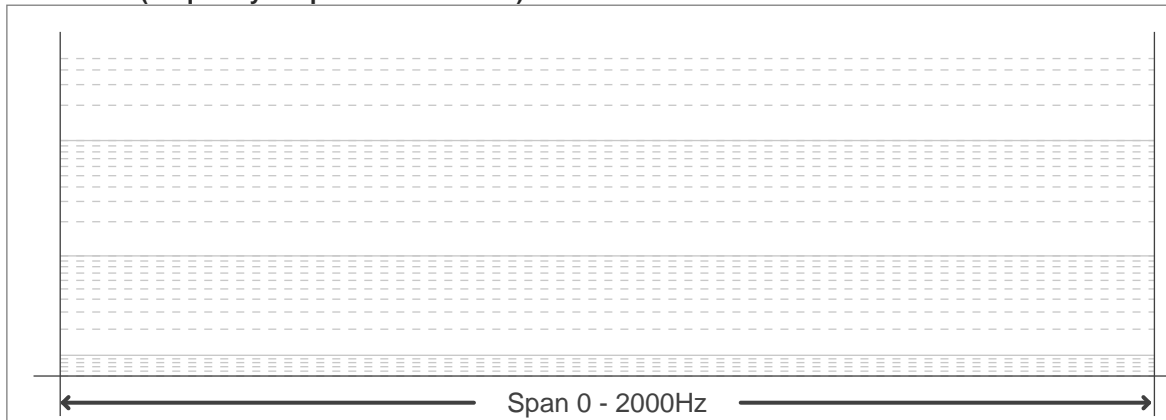
Flicker curve (complete sampled flicker signal)



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
--------------	-----------------------