

Light efficiency:



Light quality:



Color temperature:

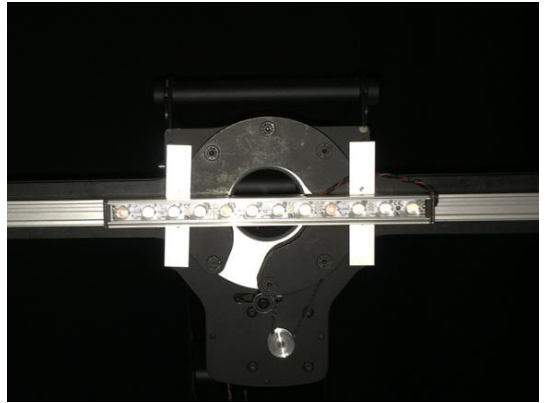


Output: 221 lm

Peak: 895 cd

Power: 7,0 W

PF: 0,81



Product name:

FLNP-F4CH-C-258-W-927-10772

Item number:

FLNP-F4CH-C-258-W-927-10772

Date and time:

15.02.2019 14:41:41

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

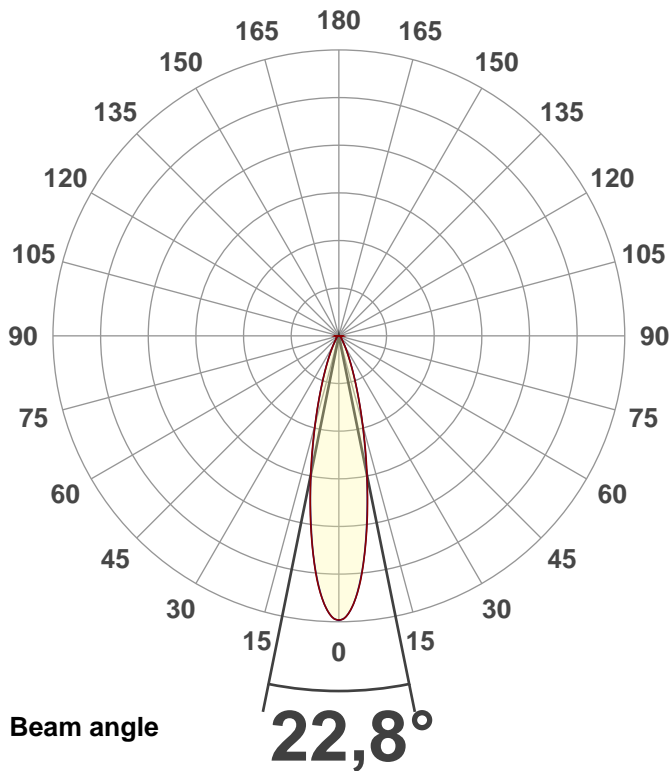
Master of Engineering

Pruefort:

Lichtlabor

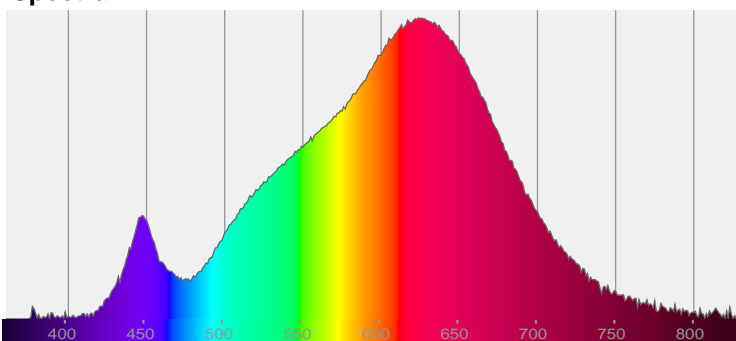
Gaustrasse13-15

55411 Bingen am Rhein

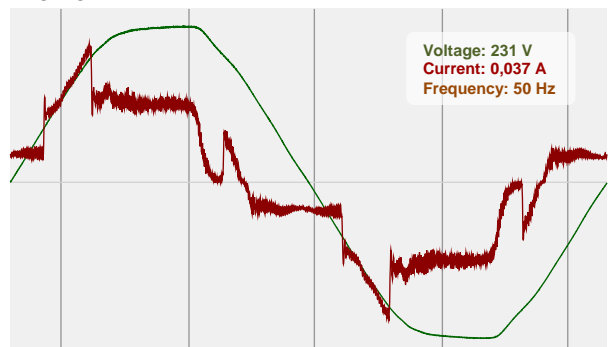


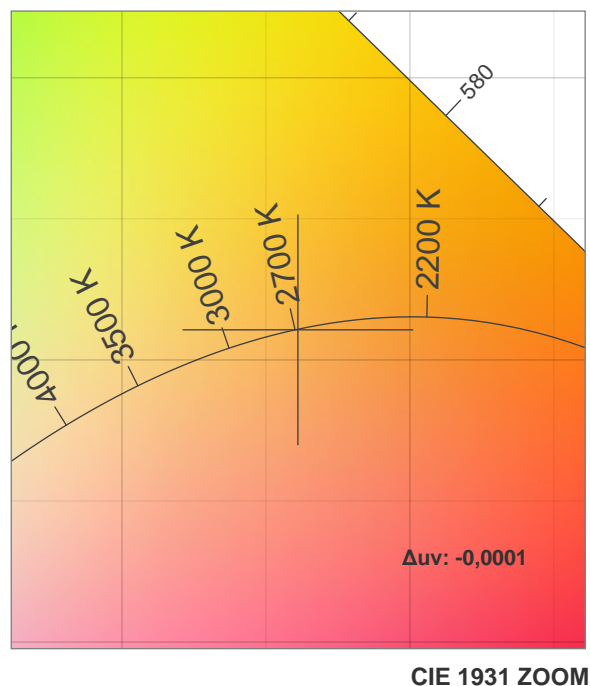
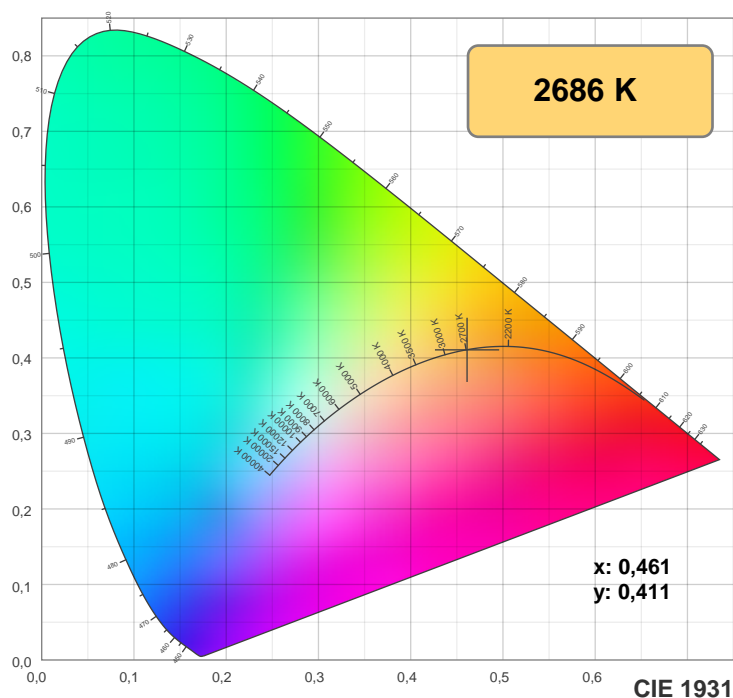
CIE 1931
x: 0,461
y: 0,411

Spectra

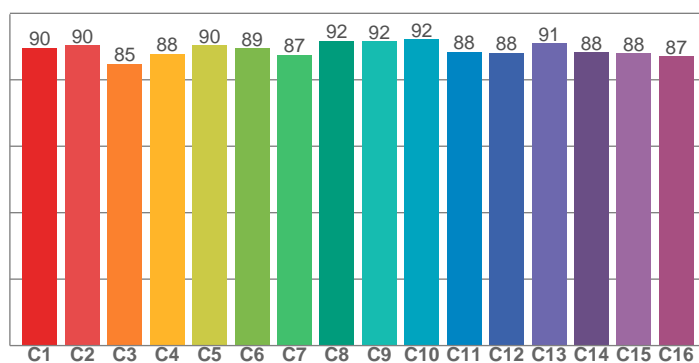


Power

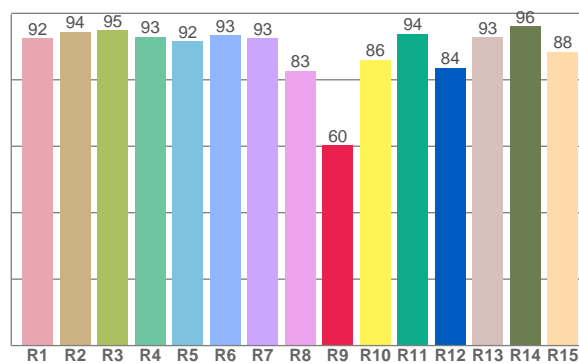




TM30: 89,2



CRI: 91,9 (R1-R8)



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
92,4	94,4	94,9	93,0	91,6	93,4	92,6	82,7	60,4	86,0	93,9	83,6	92,7	96,2	88,5

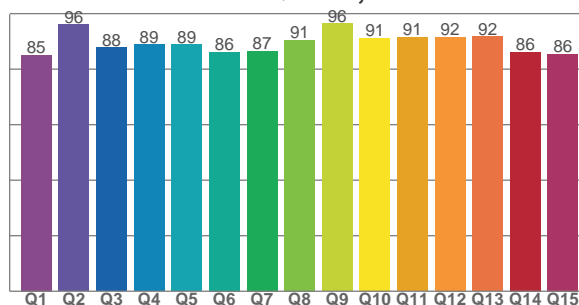
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
89,6	90,4	84,9	87,8	90,4	89,4	87,5	91,8	91,5	92,1	88,4	88,1	90,9	88,2	88,0	87,0

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
85,1	96,0	87,8	88,8	88,9	86,2	86,6	90,6	96,4	91,3	91,5	91,6	91,8	86,1	85,5

CQS: 88,9



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
2686 K	91,9	60,4	89,2	101,9	88,9	0,461	0,411	0,263	0,352	-0,0001

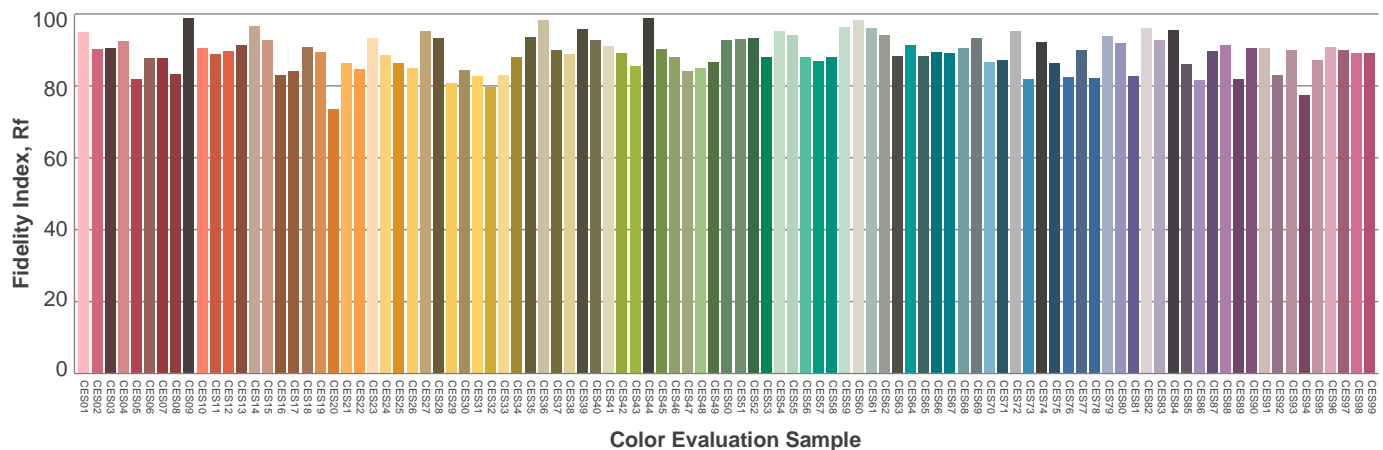
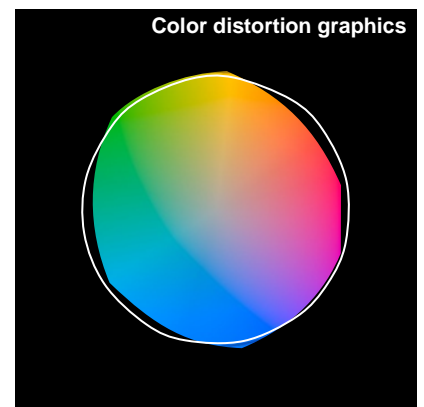
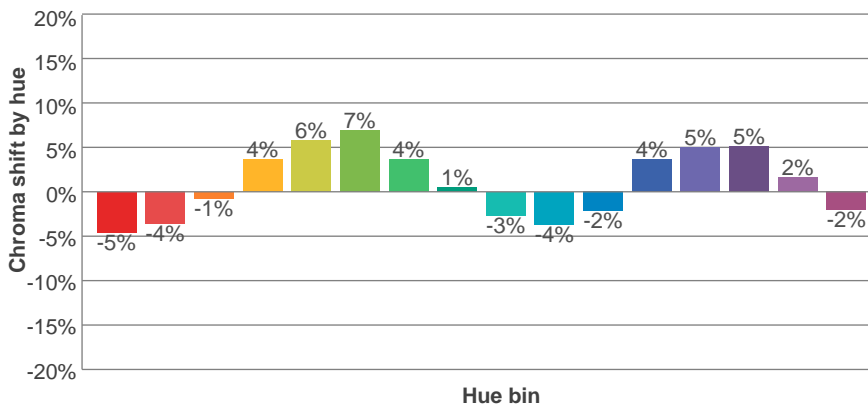
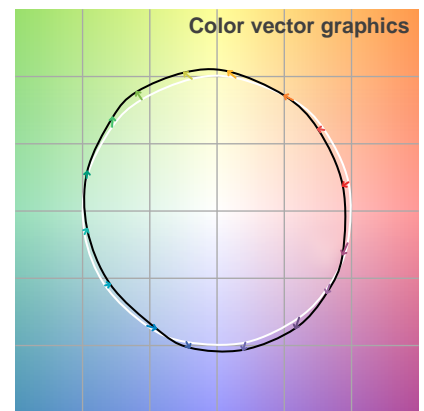
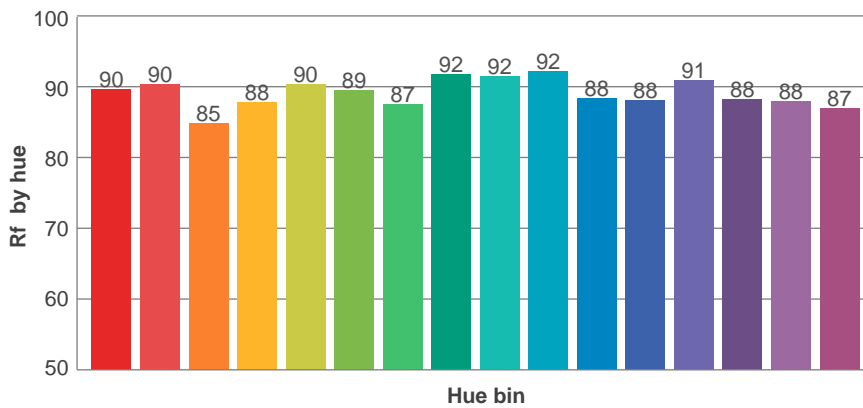
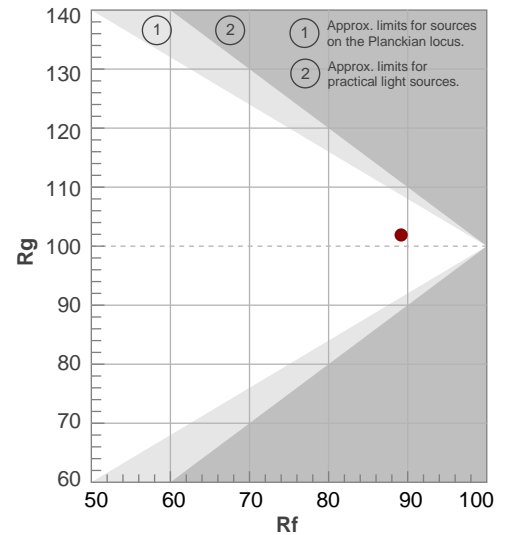
Rf 89,2

Fidelity index Rf

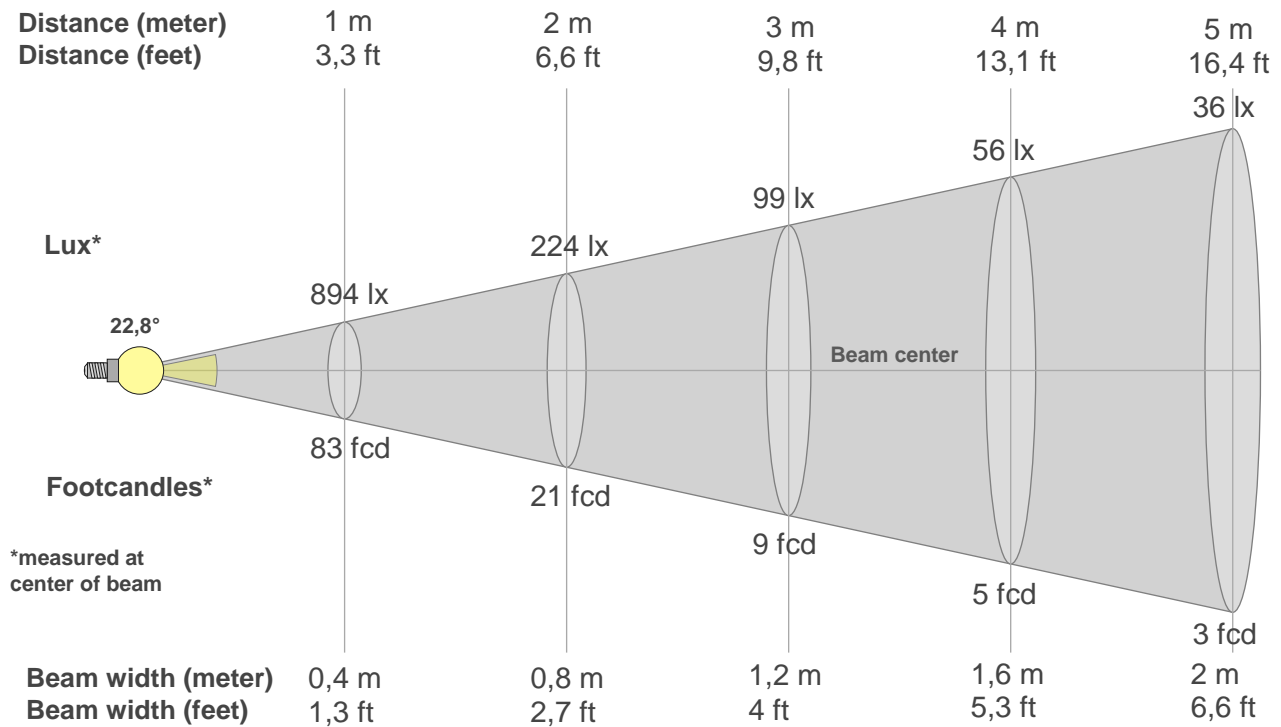
Rg 101,9

Gammut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	90	-5%	-2%
2	90	-4%	3%
3	85	-1%	7%
4	88	4%	6%
5	90	6%	5%
6	89	7%	0%
7	87	4%	-6%
8	92	1%	-5%
9	92	-3%	-4%
10	92	-4%	1%
11	88	-2%	6%
12	88	4%	3%
13	91	5%	-3%
14	88	5%	-7%
15	88	2%	-6%
16	87	-2%	-9%



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
894lx	224lx	99lx	56lx	36lx	25lx	18lx	14lx	11lx	9lx	7lx	6lx	5lx	5lx	4lx	3lx	3lx	3lx	2lx	2lx
83,1fcd	20,8fcd	9,2fcd	5,2fcd	3,3fcd	2,3fcd	1,7fcd	1,3fcd	1fcd	0,8fcd	0,7fcd	0,6fcd	0,5fcd	0,4fcd	0,4fcd	0,3fcd	0,3fcd	0,3fcd	0,2fcd	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°
894	873	815	728	626	520	420	330	255	194	147	111	84	65	50	39	31	26	21	18
100%	98%	91%	81%	70%	58%	47%	37%	29%	22%	16%	12%	9%	7%	6%	4%	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°
894	873	814	726	621	515	414	325	251	191	145	110	83	63	49	38	30	24	19	16
100%	98%	91%	81%	69%	58%	46%	36%	28%	21%	16%	12%	9%	7%	5%	4%	3%	3%	2%	2%

Intensities in 180° c-plane

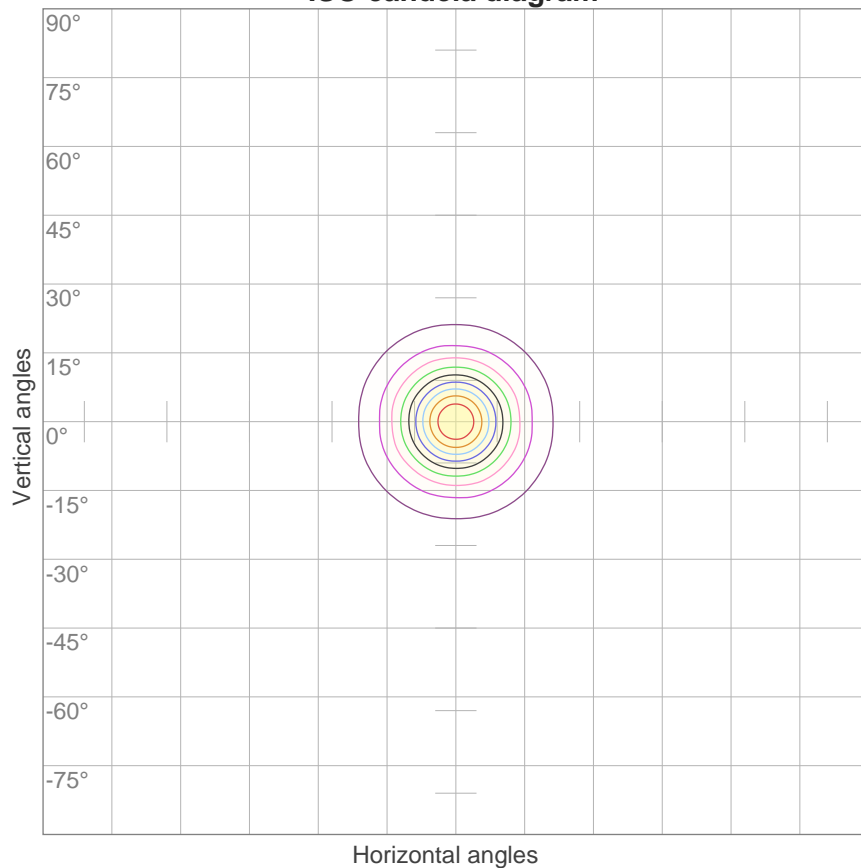
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
894	873	815	728	626	520	420	330	255	194	147	111	84	65	50	39	31	26	21	18
100%	98%	91%	81%	70%	58%	47%	37%	29%	22%	16%	12%	9%	7%	6%	4%	4%	3%	2%	2%

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°
894	873	814	726	621	515	414	325	251	191	145	110	83	63	49	38	30	24	19	16
100%	98%	91%	81%	69%	58%	46%	36%	28%	21%	16%	12%	9%	7%	5%	4%	3%	3%	2%	2%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
22,8°	47,5°	69,7°	95,7%	91,1%

ISO candela diagram



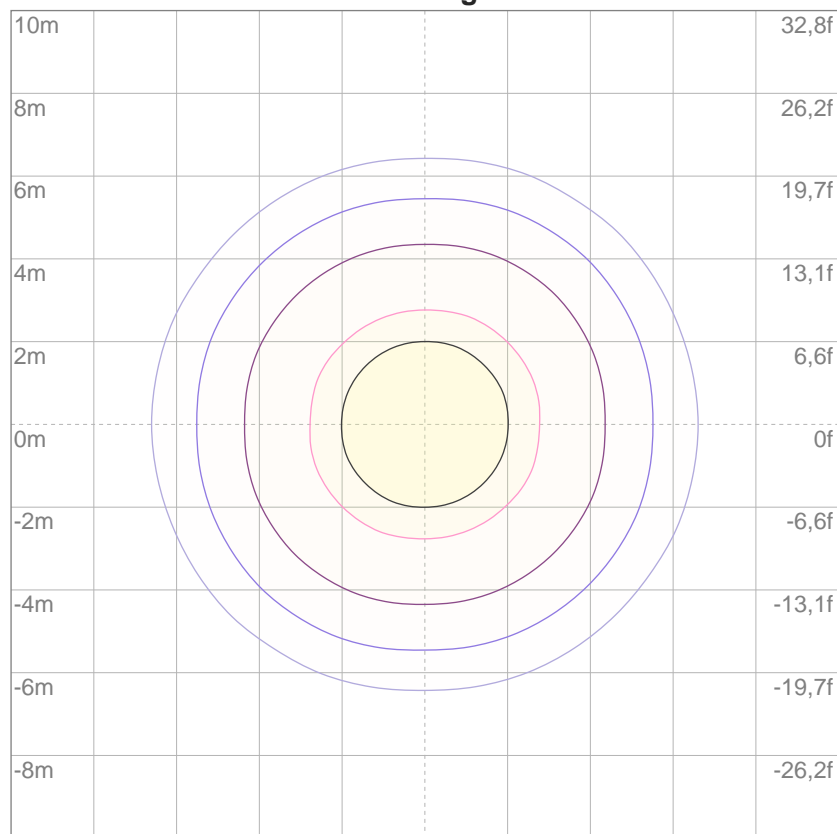
10%	89 cd
20%	179 cd
30%	268 cd
40%	358 cd
50%	447 cd
60%	537 cd
70%	626 cd
80%	715 cd
90%	805 cd

Conditions:

Number of c-planes: 16

Candela at center: 894 cd

ISO lux diagram



3%	0,268 lx
5%	0,447 lx
10%	0,894 lx
30%	2,68 lx
50%	4,47 lx

Conditions:

Number of c-planes: 16

Lux at center: 8,94 lx

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

Glare Evaluation According to UGR

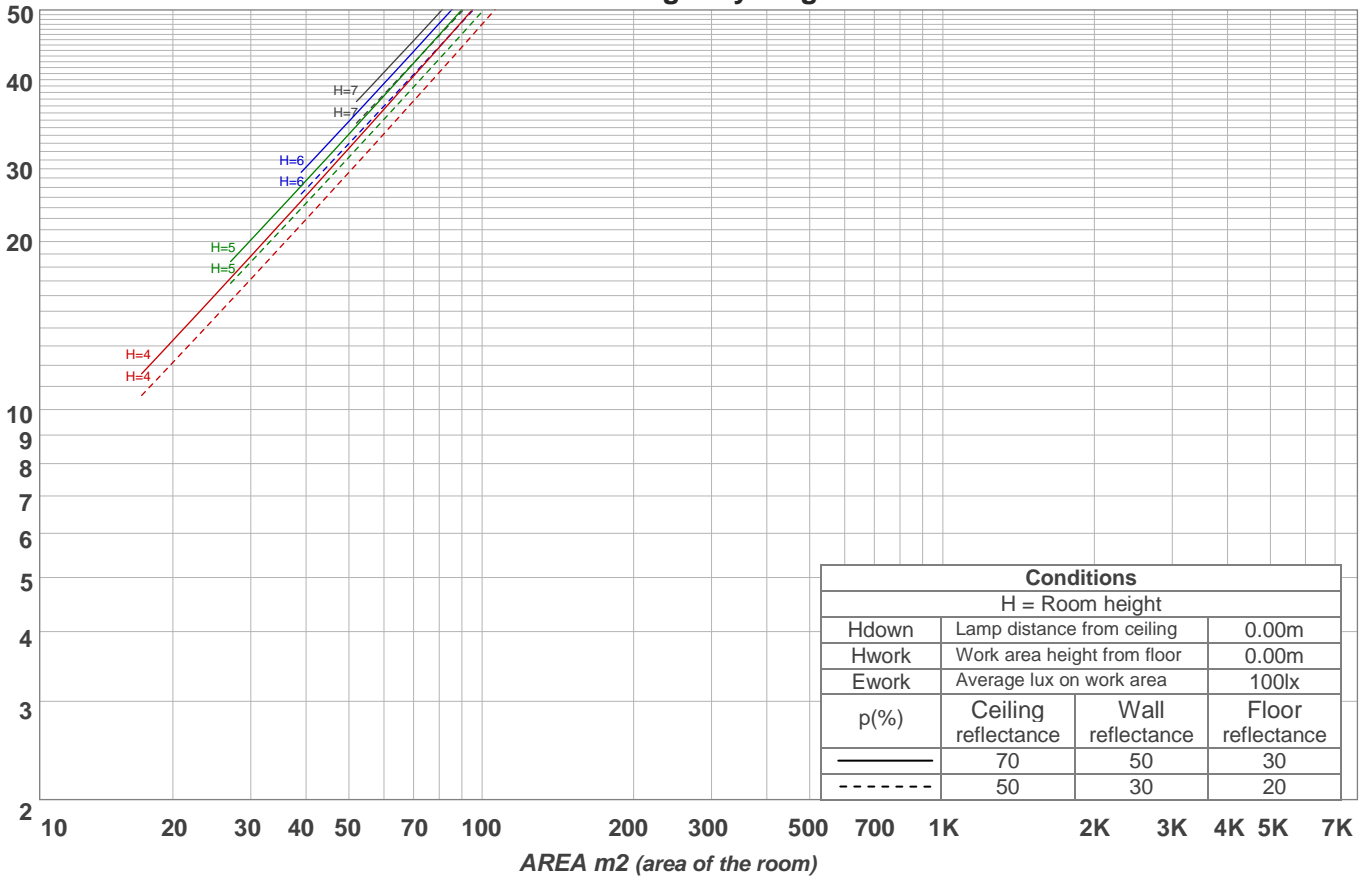
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	10,6	11,4	10,9	11,6	11,8	9,8	10,6	10,1	10,8	11,0
	3H	12,0	12,7	12,3	12,9	13,2	10,9	11,6	11,2	11,9	12,1
	4H	12,4	13,1	12,7	13,3	13,6	11,5	12,1	11,8	12,4	12,7
	6H	12,7	13,3	13,0	13,6	13,9	12,0	12,6	12,3	12,8	13,1
	8H	12,8	13,4	13,2	13,7	14,0	12,2	12,7	12,5	13,0	13,3
	12H	12,9	13,5	13,3	13,8	14,1	12,4	12,9	12,7	13,2	13,5
4H	2H	11,1	11,8	11,4	12,0	12,3	10,4	11,1	10,7	11,3	11,6
	3H	12,7	13,2	13,0	13,5	13,8	11,8	12,3	12,1	12,6	12,9
	4H	13,2	13,7	13,6	14,0	14,4	12,5	13,0	12,9	13,3	13,6
	6H	13,7	14,1	14,1	14,4	14,8	13,1	13,5	13,5	13,8	14,2
	8H	13,9	14,2	14,3	14,6	15,0	13,3	13,7	13,8	14,1	14,5
	12H	14,1	14,4	14,5	14,8	15,2	13,6	13,9	14,0	14,3	14,7
8H	4H	13,5	13,8	13,9	14,2	14,6	12,8	13,2	13,2	13,5	13,9
	6H	14,1	14,4	14,6	14,8	15,2	13,6	13,8	14,0	14,3	14,7
	8H	14,4	14,6	14,9	15,1	15,6	14,0	14,2	14,4	14,6	15,1
	12H	14,7	14,9	15,2	15,4	15,9	14,3	14,5	14,8	15,0	15,5
12H	4H	13,5	13,8	13,9	14,2	14,6	12,8	13,2	13,3	13,6	14,0
	6H	14,2	14,4	14,6	14,9	15,3	13,7	13,9	14,1	14,3	14,8
	8H	14,5	14,7	15,0	15,2	15,7	14,1	14,3	14,6	14,8	15,3
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,4 / -0,2					+0,3 / -0,4				
S = 1,5H		+0,9 / -0,4					+0,9 / -0,6				
S = 2,0H		+1,5 / -0,7					+1,5 / -1,1				
Standard table		BK05					BK06				
Correction summand		-3,2					-3,3				
Corrected glare indices referring to 221 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	111	111	111	106	106	106	102	102	102	99
1	114	111	109	107	111	109	107	105	105	103	102	101	100	98	97	96	96	94
2	109	104	101	98	107	103	99	96	99	97	94	96	94	92	94	92	90	89
3	104	99	94	91	102	97	93	90	95	91	88	92	89	87	90	88	86	84
4	100	94	89	85	99	93	88	85	90	87	84	88	85	83	87	84	82	80
5	97	89	84	81	95	88	84	80	87	83	80	85	82	79	83	81	78	77
6	93	86	80	77	92	85	80	77	83	79	76	82	78	76	81	77	75	74
7	90	82	77	74	89	81	77	73	80	76	73	79	75	73	78	75	72	71
8	87	79	74	71	86	78	74	71	77	73	70	76	73	70	76	72	70	69
9	84	76	71	68	83	76	71	68	75	71	68	74	70	68	73	70	67	66
10	82	74	69	66	81	73	69	66	73	68	66	72	68	65	71	68	65	64

LAMPS (number of lamps)

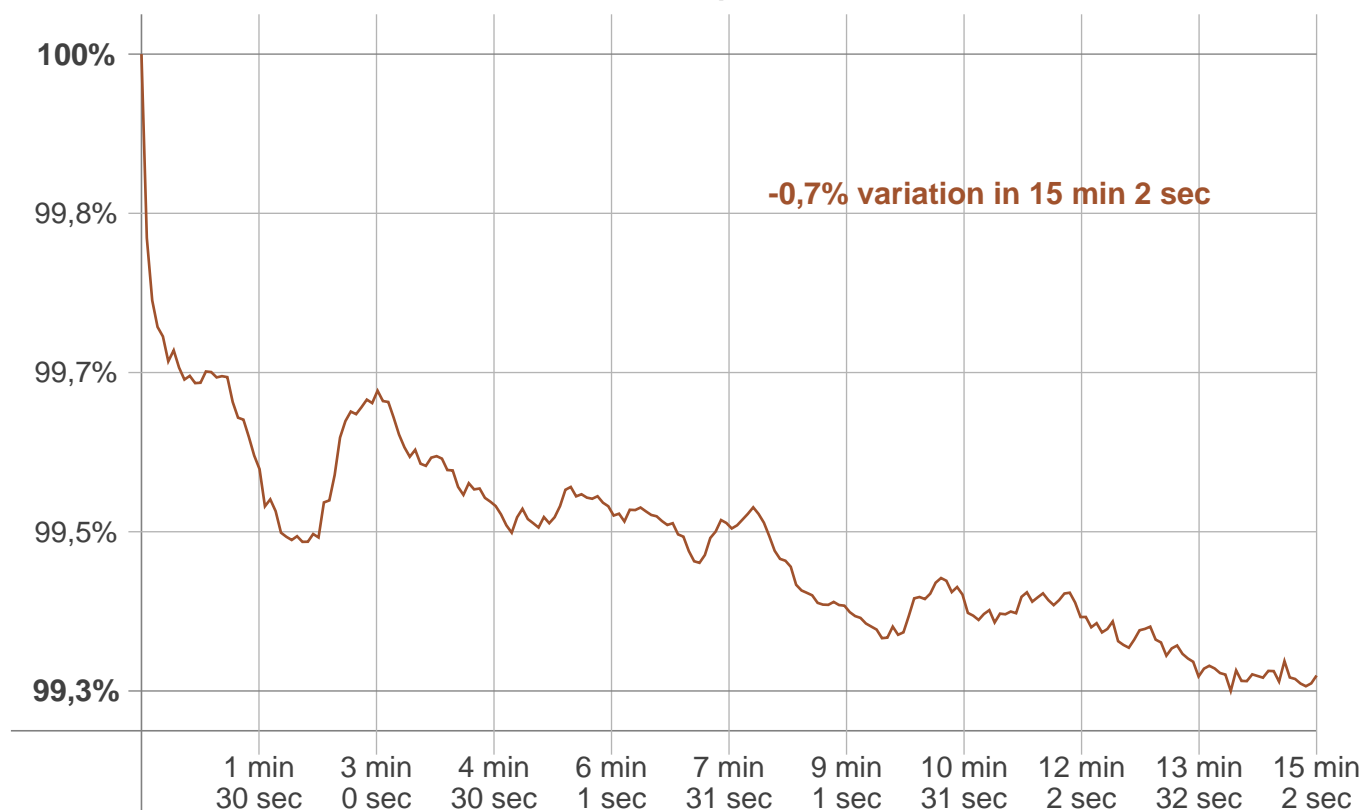
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	81,1 lm	36,4 lm	14,5 lm	8,21 lm	6,31 lm	4,57 lm	2,62 lm	1,09 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,325 lm	0,303 lm	0,285 lm	0,257 lm	0,098 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
2689 K	-3 K	2686 K

Output change

Output start	Output change	Output end
222 lm	-1 lm	221 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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