

Light efficiency:



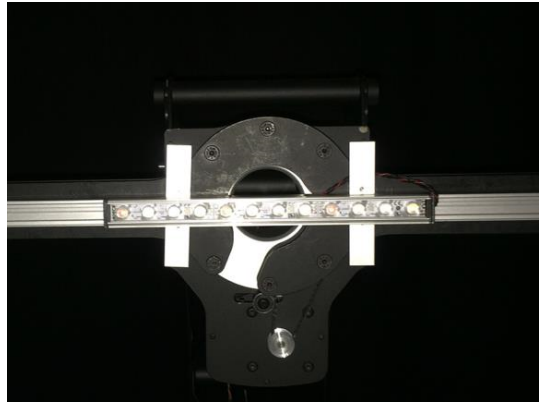
Light quality:



Color temperature:



Output: 225 lm
Peak: 2029 cd
Power: 7,0 W
PF: 0,81



Product name:

FLNP-F4CH-C-258-W-927-10770

Item number:

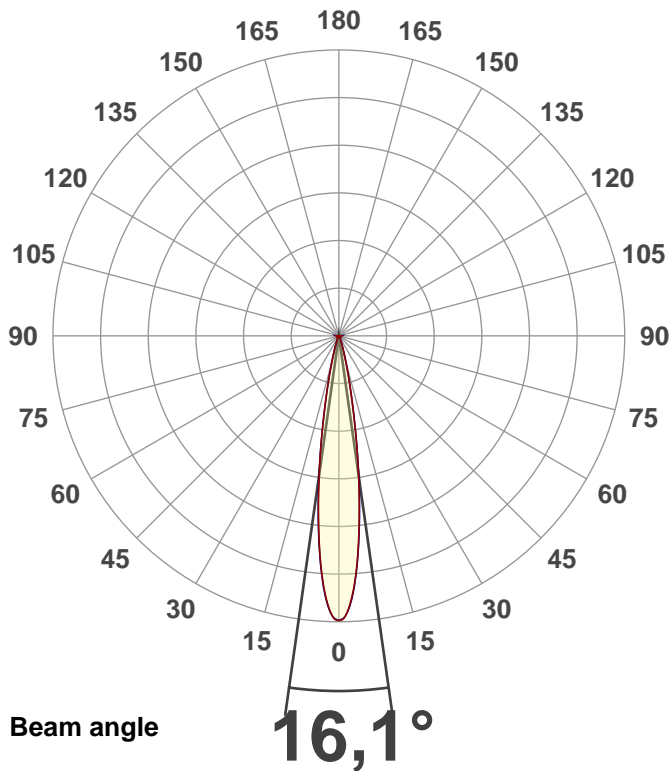
FLNP-F4CH-C-258-W-927-10770

Date and time:

14.02.2019 14:18:33

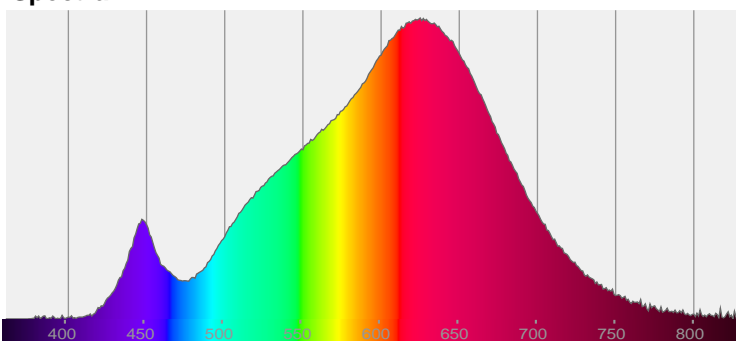
Description:

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

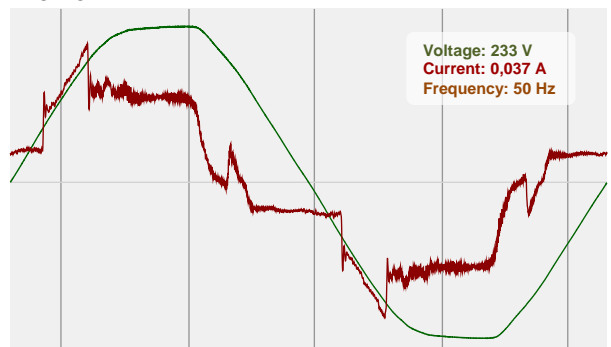


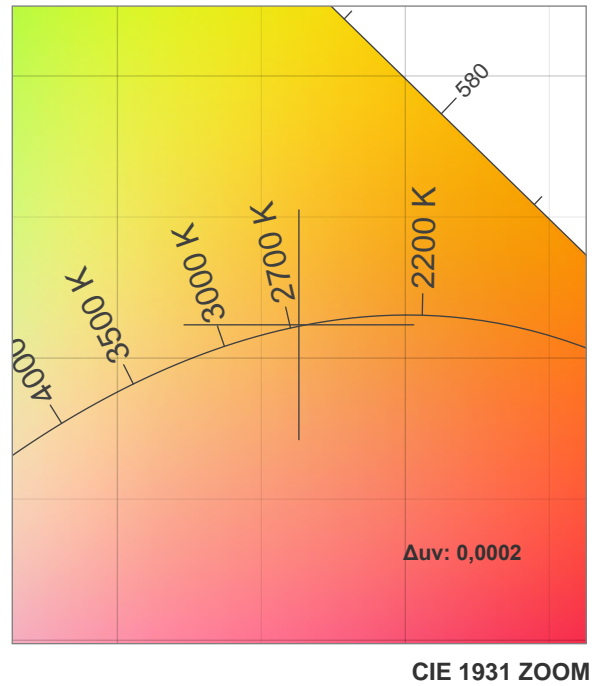
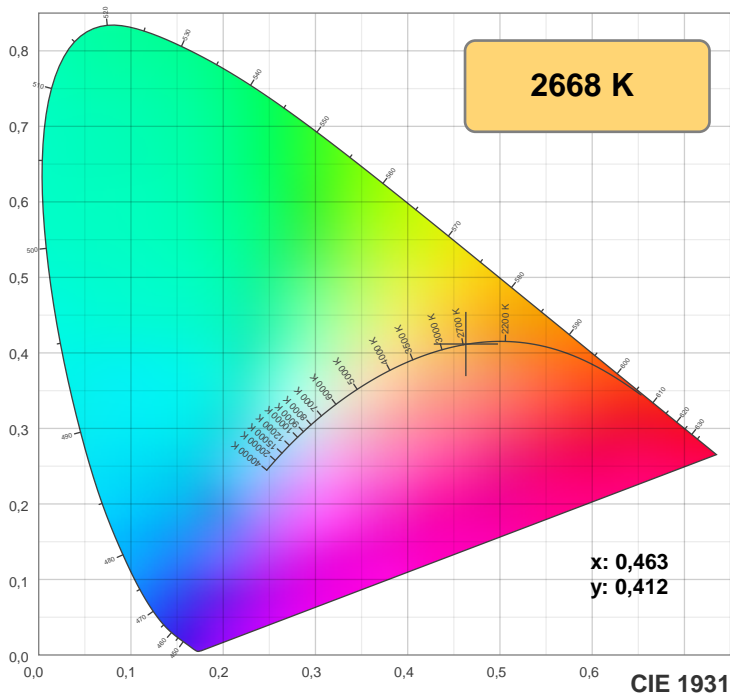
CIE 1931
x: 0,463
y: 0,412

Spectra

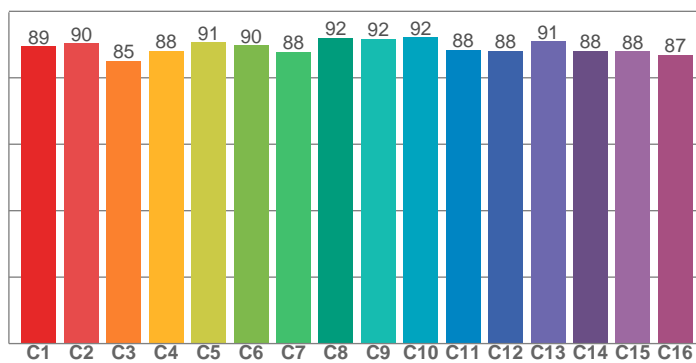


Power

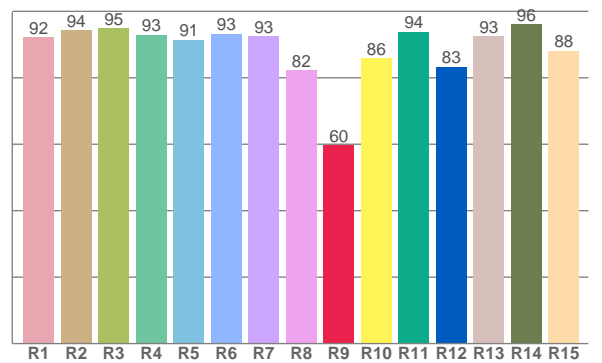




TM30: 89,3



CRI: 91,8 (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
92,2	94,4	94,9	92,9	91,4	93,3	92,6	82,4	59,7	85,8	93,8	83,3	92,6	96,2	88,2

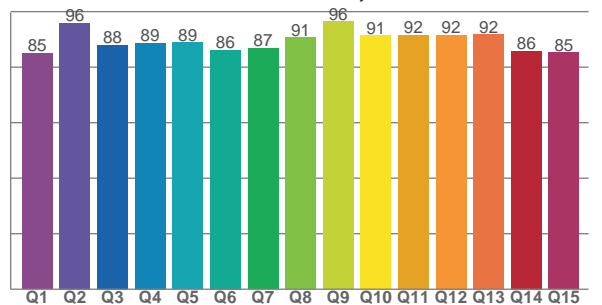
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
89,5	90,3	85,0	88,1	90,6	89,7	87,8	92,1	91,6	92,1	88,5	88,2	90,9	88,1	88,0	86,9

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
85,0	95,8	87,9	88,8	88,8	86,2	86,8	90,6	96,4	91,4	91,6	91,7	91,8	85,8	85,3

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
2668 K	91,8	59,7	89,3	101,7	88,9	0,463	0,412	0,264	0,352	0,0002

TM30 details

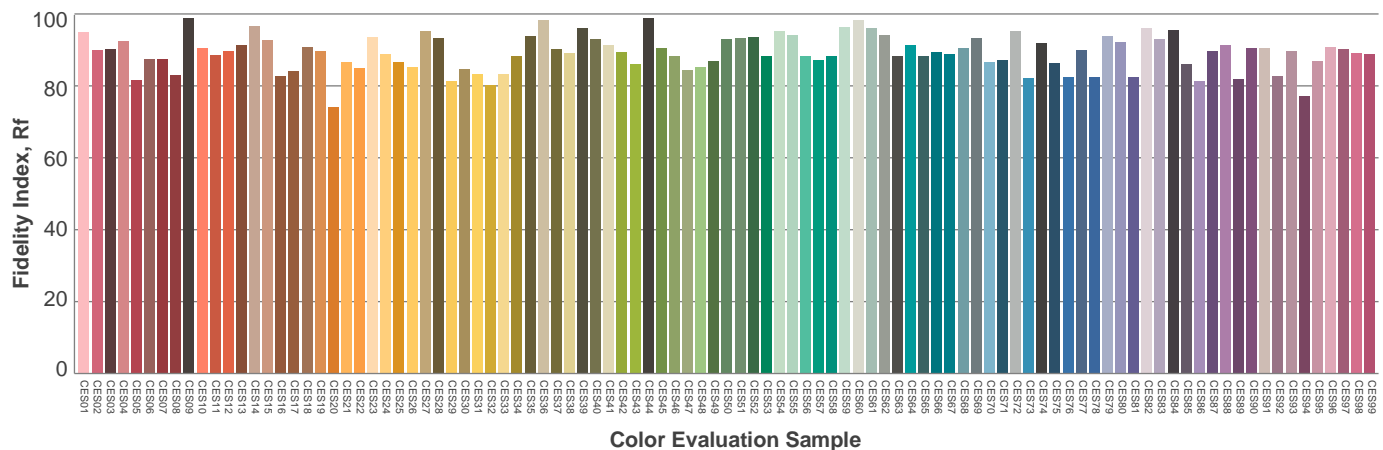
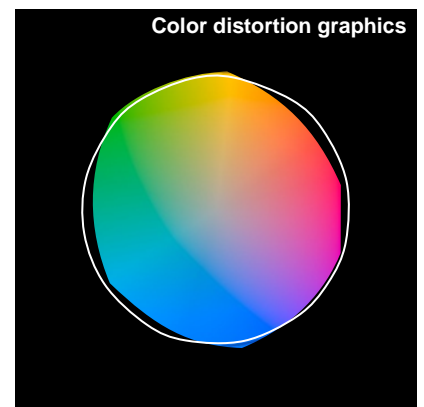
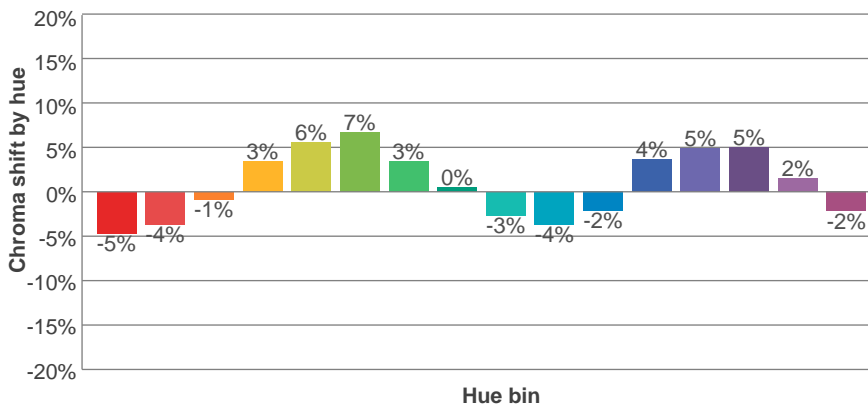
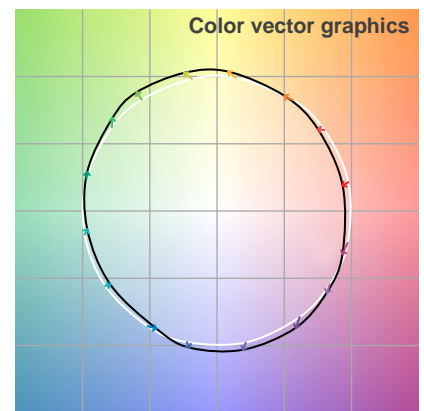
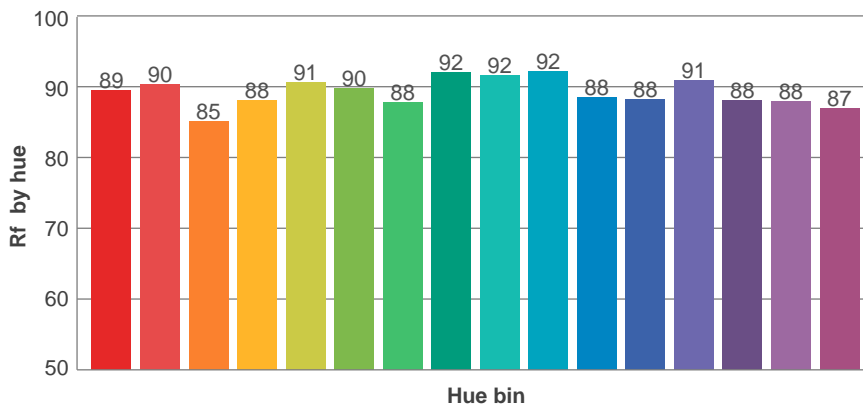
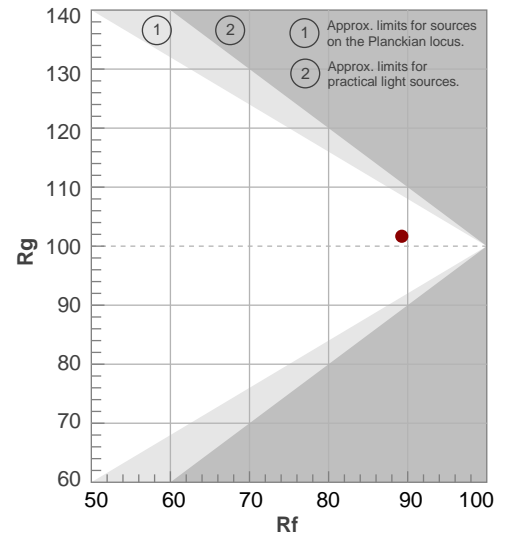
Rf 89,3

Fidelity index Rf

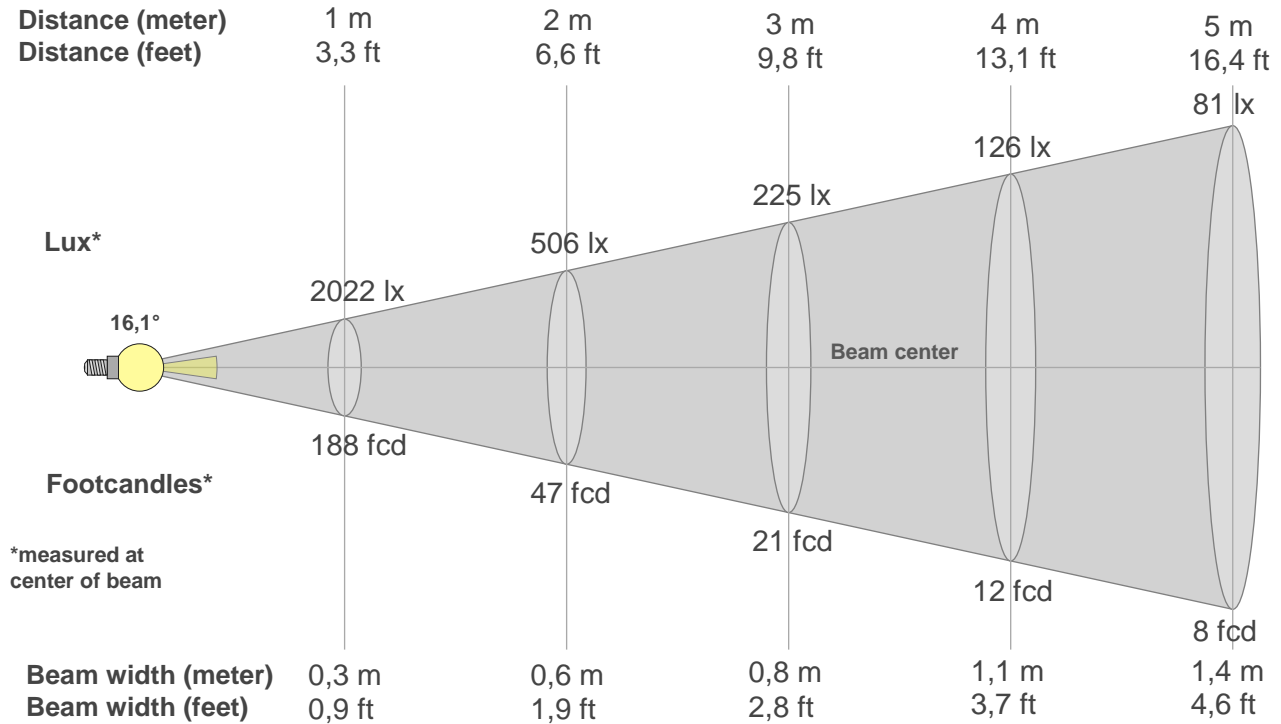
Rg 101,7

Gammut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	89	-5%	-2%
2	90	-4%	3%
3	85	-1%	7%
4	88	3%	6%
5	91	6%	5%
6	90	7%	0%
7	88	3%	-6%
8	92	0%	-5%
9	92	-3%	-3%
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
2022lx	506lx	225lx	126lx	81lx	56lx	41lx	32lx	25lx	20lx	17lx	14lx	12lx	10lx	9lx	8lx	7lx	6lx	6lx	5lx
187,9fcd	47fcd	20,9fcd	11,7fcd	7,5fcd	5,2fcd	3,8fcd	2,9fcd	2,3fcd	1,9fcd	1,6fcd	1,3fcd	1,1fcd	1fcd	0,8fcd	0,7fcd	0,7fcd	0,6fcd	0,5fcd	0,5fcd

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°
2022	2005	1942	1841	1710	1551	1372	1190	1011	837	676	537	423	329	252	194	150	118	92	73
100%	99%	96%	91%	85%	77%	68%	59%	50%	41%	33%	27%	21%	16%	12%	10%	7%	6%	5%	4%

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°
2022	2005	1949	1852	1719	1560	1386	1205	1024	842	673	527	410	319	250	195	152	120	94	74
100%	99%	96%	92%	85%	77%	69%	60%	51%	42%	33%	26%	20%	16%	12%	10%	8%	6%	5%	4%

Intensities in 180° c-plane

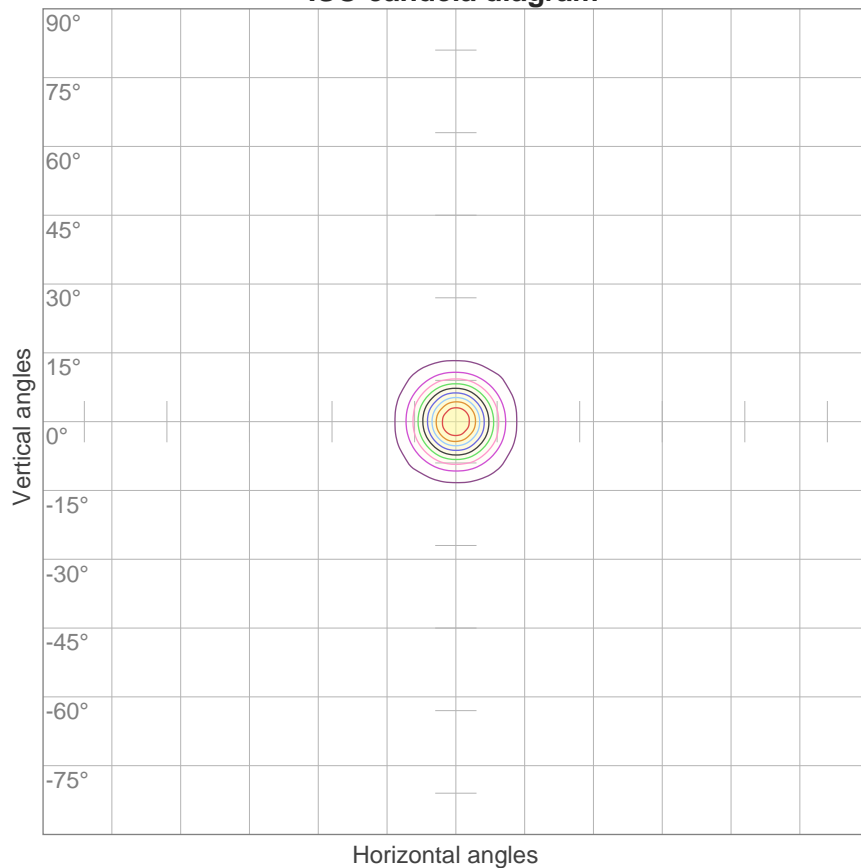
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
2022	2005	1942	1841	1710	1551	1372	1190	1011	837	676	537	423	329	252	194	150	118	92	73
100%	99%	96%	91%	85%	77%	68%	59%	50%	41%	33%	27%	21%	16%	12%	10%	7%	6%	5%	4%

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°
2022	2005	1949	1852	1719	1560	1386	1205	1024	842	673	527	410	319	250	195	152	120	94	74
100%	99%	96%	92%	85%	77%	69%	60%	51%	42%	33%	26%	20%	16%	12%	10%	8%	6%	5%	4%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
16,1°	30,3°	43,4°	96,4%	92,9%

ISO candela diagram



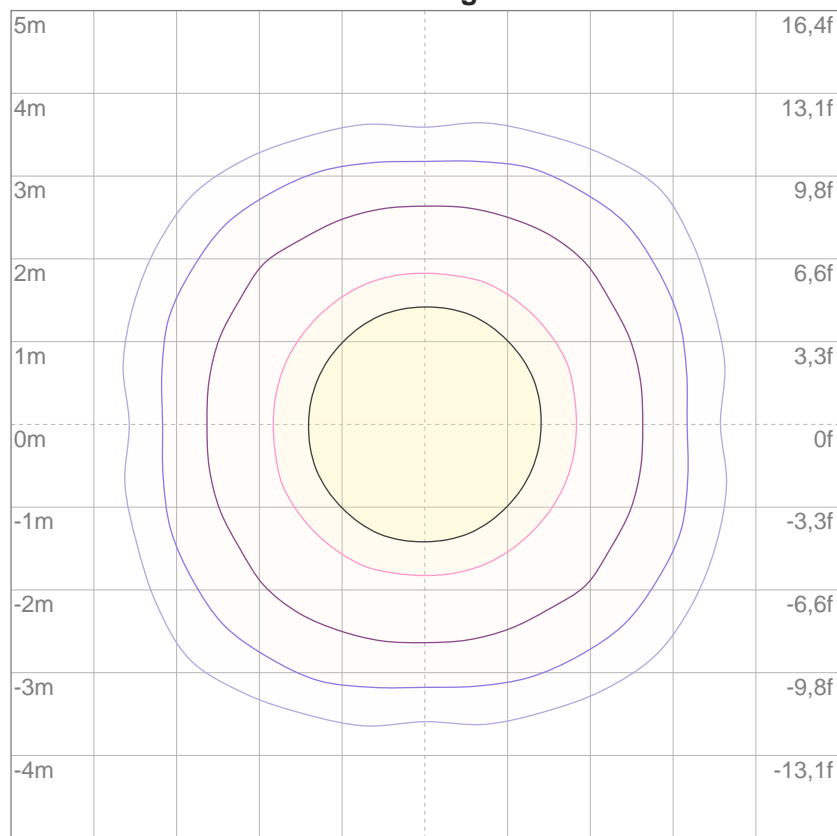
10%	202 cd
20%	404 cd
30%	607 cd
40%	809 cd
50%	1011 cd
60%	1213 cd
70%	1415 cd
80%	1618 cd
90%	1820 cd

Conditions:

Number of c-planes: 16

Candela at center: 2022 cd

ISO lux diagram



3%	0,607 lx
5%	1,01 lx
10%	2,02 lx
30%	6,07 lx
50%	10,1 lx

Conditions:

Number of c-planes: 16

Lux at center: 20,2 lx

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

Glare Evaluation According to UGR

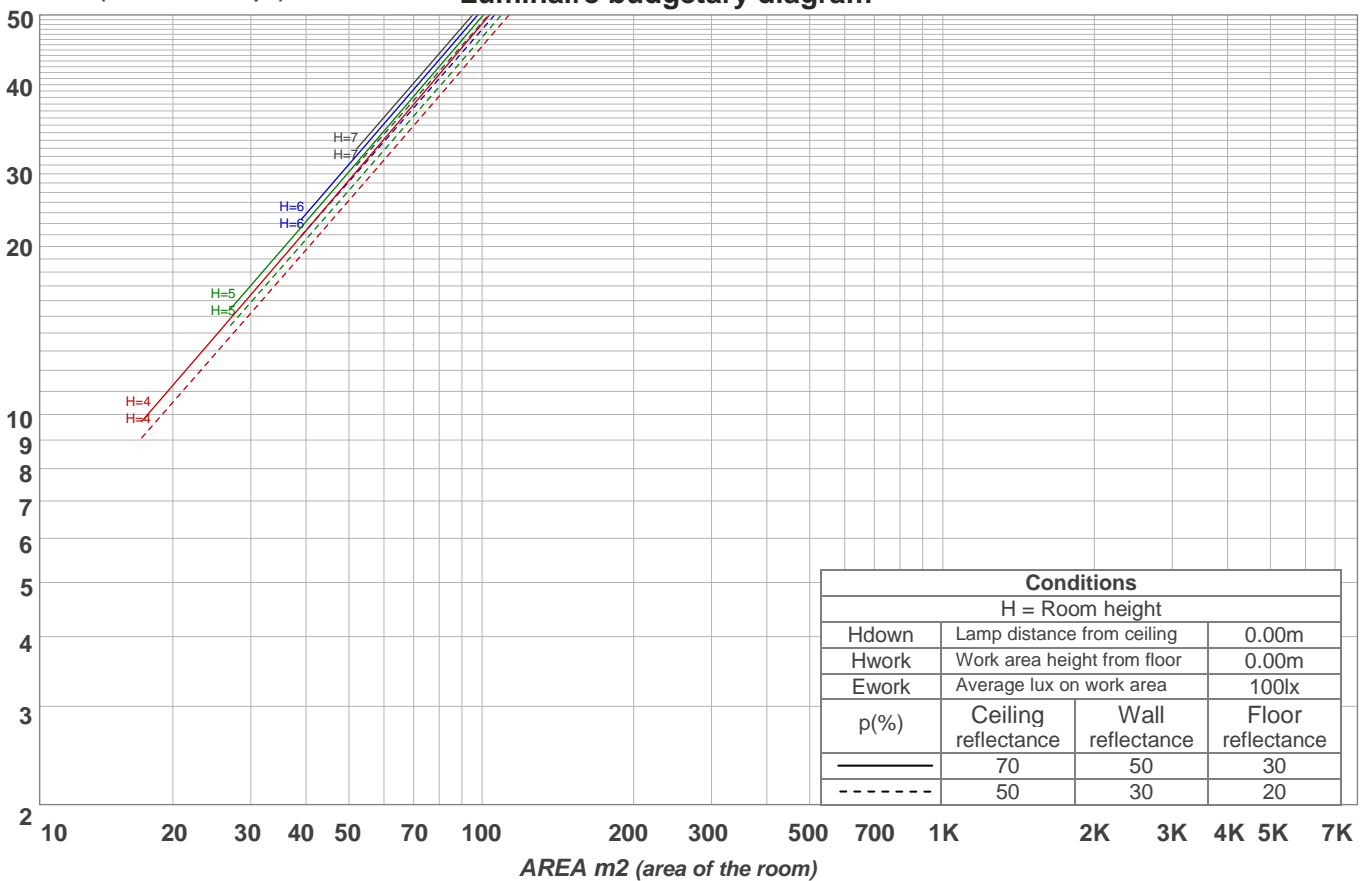
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	8,7	9,4	9,0	9,6	9,8	7,4	8,2	7,7	8,4	8,6
	3H	10,3	11,0	10,6	11,2	11,5	8,9	9,5	9,1	9,8	10,0
	4H	10,8	11,4	11,1	11,7	11,9	9,5	10,2	9,8	10,4	10,7
	6H	11,1	11,7	11,5	12,0	12,3	10,1	10,7	10,4	10,9	11,2
	8H	11,3	11,8	11,6	12,1	12,4	10,3	10,9	10,6	11,1	11,4
	12H	11,5	12,0	11,8	12,3	12,6	10,5	11,1	10,9	11,4	11,7
4H	2H	9,3	9,9	9,6	10,1	10,4	8,3	8,9	8,6	9,2	9,4
	3H	11,1	11,6	11,4	11,9	12,2	9,9	10,5	10,3	10,8	11,1
	4H	11,7	12,1	12,1	12,5	12,8	10,7	11,2	11,1	11,5	11,9
	6H	12,2	12,6	12,6	12,9	13,3	11,4	11,8	11,8	12,1	12,5
	8H	12,4	12,7	12,8	13,1	13,5	11,7	12,0	12,1	12,4	12,8
	12H	12,7	13,0	13,1	13,4	13,8	12,0	12,3	12,4	12,7	13,1
8H	4H	12,0	12,3	12,4	12,7	13,1	11,1	11,5	11,6	11,9	12,3
	6H	12,6	12,9	13,1	13,3	13,8	12,0	12,2	12,4	12,7	13,1
	8H	13,0	13,2	13,5	13,7	14,1	12,4	12,6	12,8	13,0	13,5
	12H	13,5	13,6	13,9	14,1	14,6	12,8	13,0	13,3	13,5	14,0
12H	4H	12,0	12,3	12,4	12,7	13,1	11,2	11,5	11,6	11,9	12,3
	6H	12,7	12,9	13,2	13,4	13,8	12,1	12,3	12,6	12,8	13,2
	8H	13,1	13,3	13,6	13,8	14,3	12,5	12,7	13,0	13,2	13,7
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,2 / -0,1					+0,1 / -0,1				
S = 1,5H		+0,2 / -0,3					+0,3 / -0,3				
S = 2,0H		+0,8 / -0,5					+0,5 / -0,8				
Standard table		BK06					BK06				
Correction summand		-4,3					-5,1				
Corrected glare indices referring to 225 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	100
1	115	112	110	109	112	110	108	107	106	105	103	102	101	100	99	98	97	96
2	111	107	104	101	109	105	102	100	102	100	98	99	97	96	96	95	94	92
3	107	103	99	96	105	101	98	95	99	96	94	96	94	92	94	92	91	89
4	104	99	95	92	103	98	94	91	96	93	90	94	91	89	92	90	88	87
5	101	96	92	89	100	95	91	88	93	90	87	92	89	87	90	88	86	85
6	99	93	89	86	98	92	88	86	91	87	85	90	87	84	88	86	84	83
7	97	90	86	84	96	90	86	83	89	85	83	88	85	83	87	84	82	81
8	94	88	84	82	94	88	84	82	87	84	81	86	83	81	85	83	81	80
9	93	86	83	80	92	86	82	80	85	82	80	84	81	79	84	81	79	78
10	91	85	81	78	90	84	81	78	84	80	78	83	80	78	82	80	78	77

LAMPS (number of lamps)

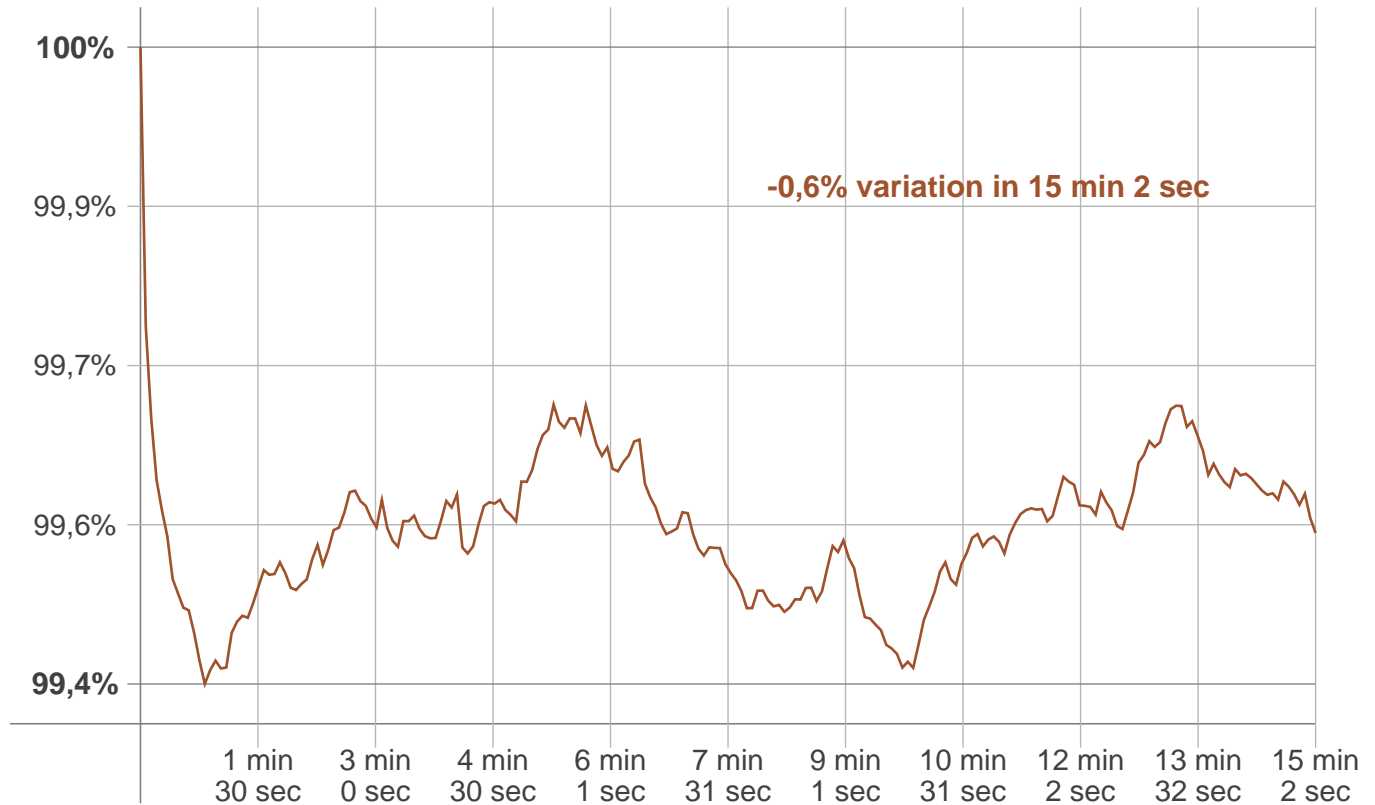
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	66,1 lm	14,6 lm	6,58 lm	5,47 lm	5,08 lm	3,82 lm	2,20 lm	1,02 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,260 lm	0,237 lm	0,222 lm	0,201 lm	0,082 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	-0,6%

Warmup conditions

Stable period:	15 min
Stable change max:	2,0%
Minimum time:	15 min

Color temperature change

CCT start	CCT change	CCT end
2671 K	-3 K	2668 K

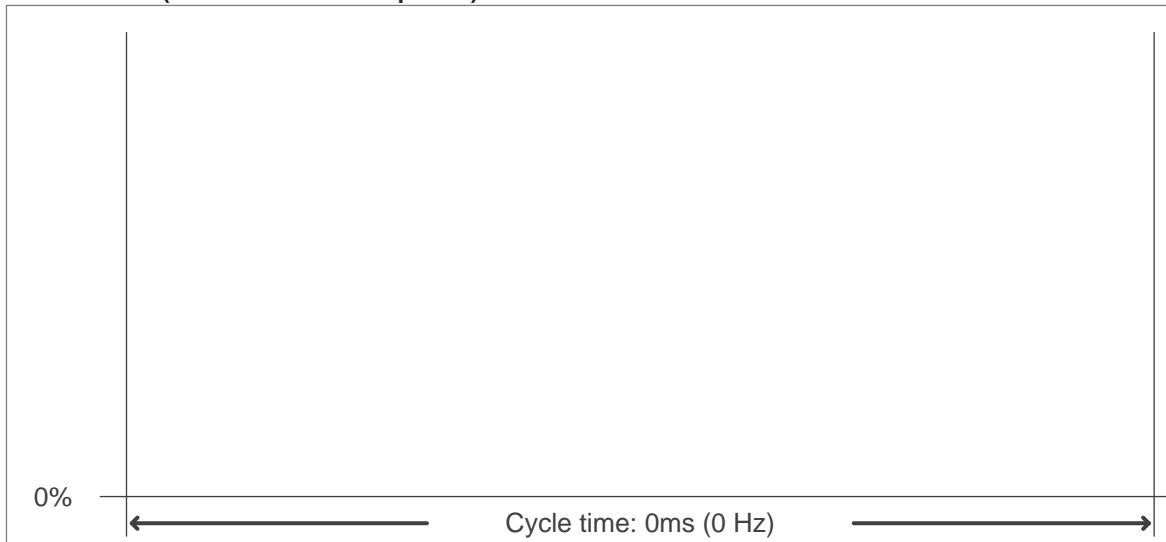
Output change

Output start	Output change	Output end
225 lm	lm	225 lm

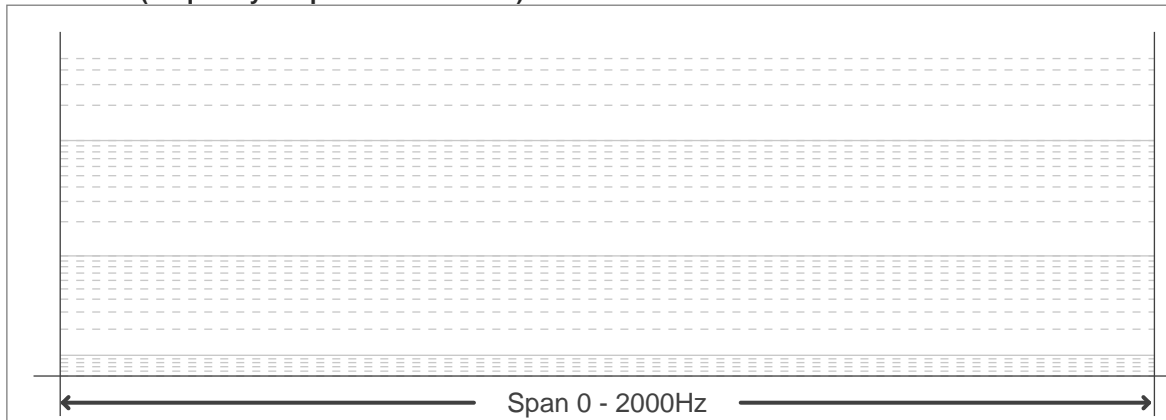
Flicker curve (complete sampled flicker signal)



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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