

Light efficiency:

84 Lumen/Watt

Light quality:

CRI: 93,3

Color temperature:

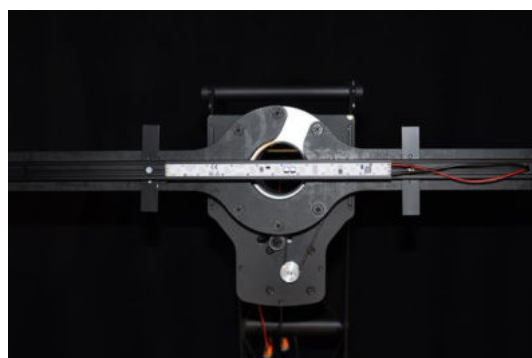
2967 K

Output: 527 lm

Peak: 4393 cd

Power: 6,2 W

PF: 1,0



Product name:

Focus-4-F1C-D0258-930-LSNT-10770

Item number:

FLNP-F1C-D0258-930-LSNT-10770

Date and time:

11.12.2020 10:14:44

Description:

Rank: P4-7D2

Bestromung: 220mA

Toleranzen:

Lumen +/-4%

Candela +/-2,5%

Colour Temp +/-35 Grad K

CRI +/-0,7

Angular Resolution 1 Grad Step

Last Calibration 20.05.2019

Abstand:248mm

Pruefer:

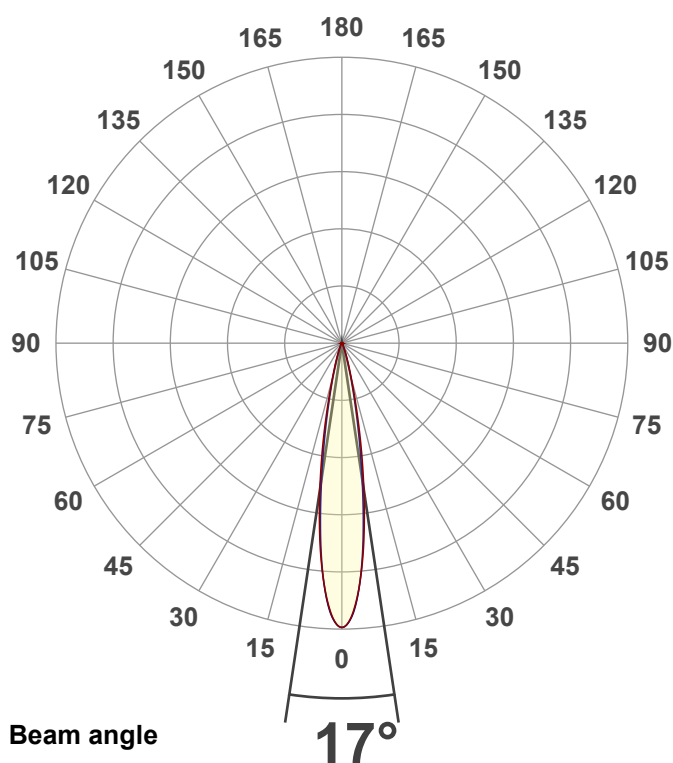
Peter Ulrich

Pruefort:

Lichtlabor

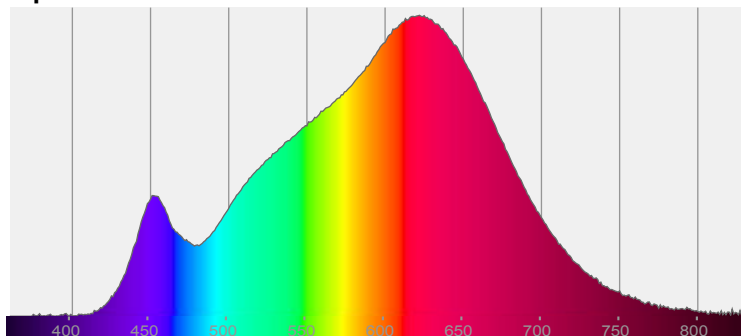
Gaustrasse13

55411 Bingen am Rhein

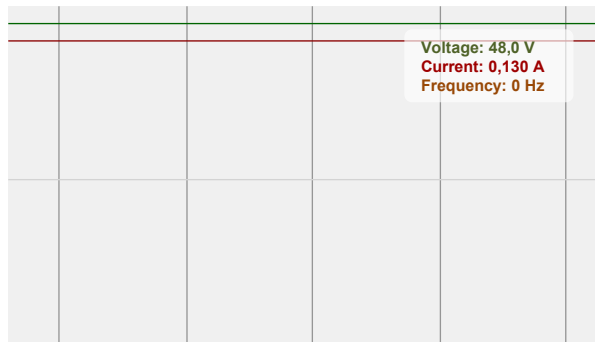


CIE 1931
x: 0,440
y: 0,405

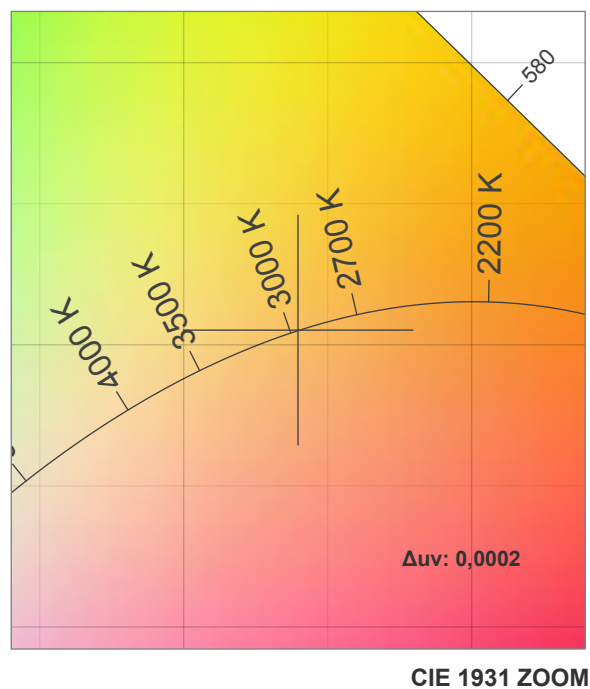
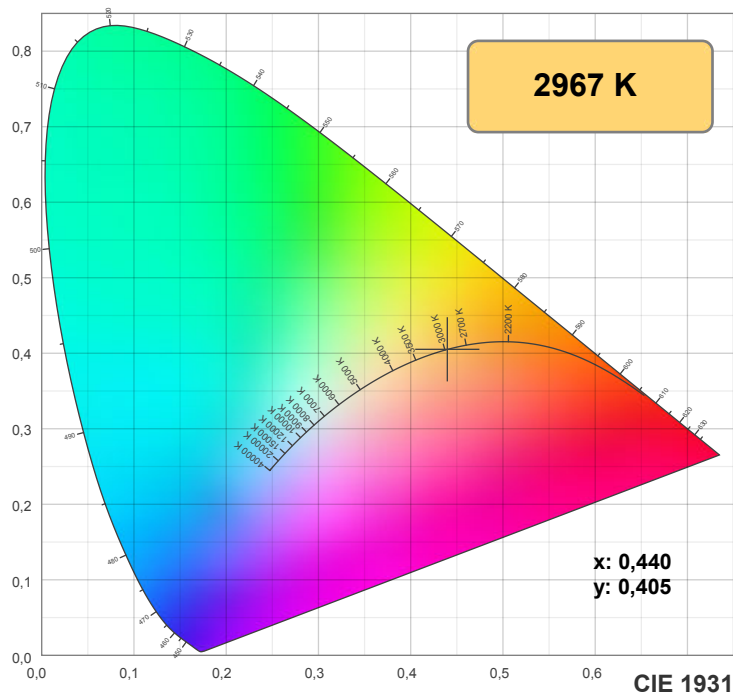
Spectra



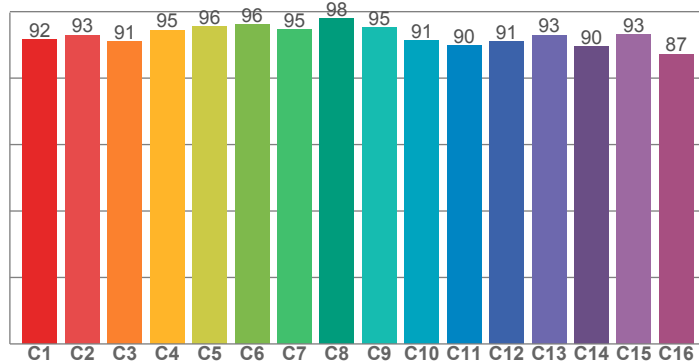
Power



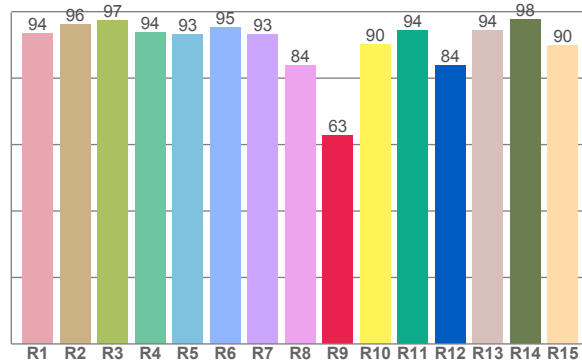
Voltage: 48,0 V
Current: 0,130 A
Frequency: 0 Hz



TM30: 92,7



CRI: 93,3 (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
93,6	96,2	97,3	93,9	93,1	95,4	93,2	83,8	62,6	90,0	94,5	84,0	94,3	97,7	89,8

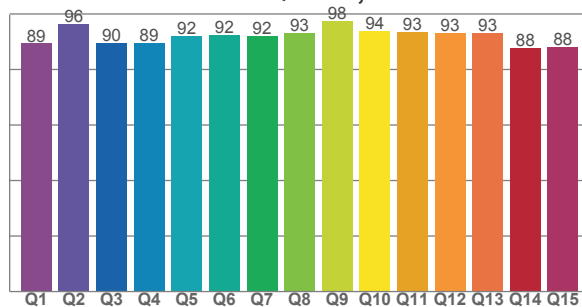
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
91,7	93,0	90,9	94,5	95,6	96,2	94,7	97,9	95,2	91,3	89,9	91,0	92,9	89,5	93,1	87,2

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
89,3	96,3	89,6	89,4	92,0	92,4	92,0	93,3	97,5	94,0	93,5	93,2	93,0	87,8	88,2

CQS: 91,5



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
2967 K	93,3	62,6	92,7	99,4	91,5	0,440	0,405	0,252	0,348	0,0002

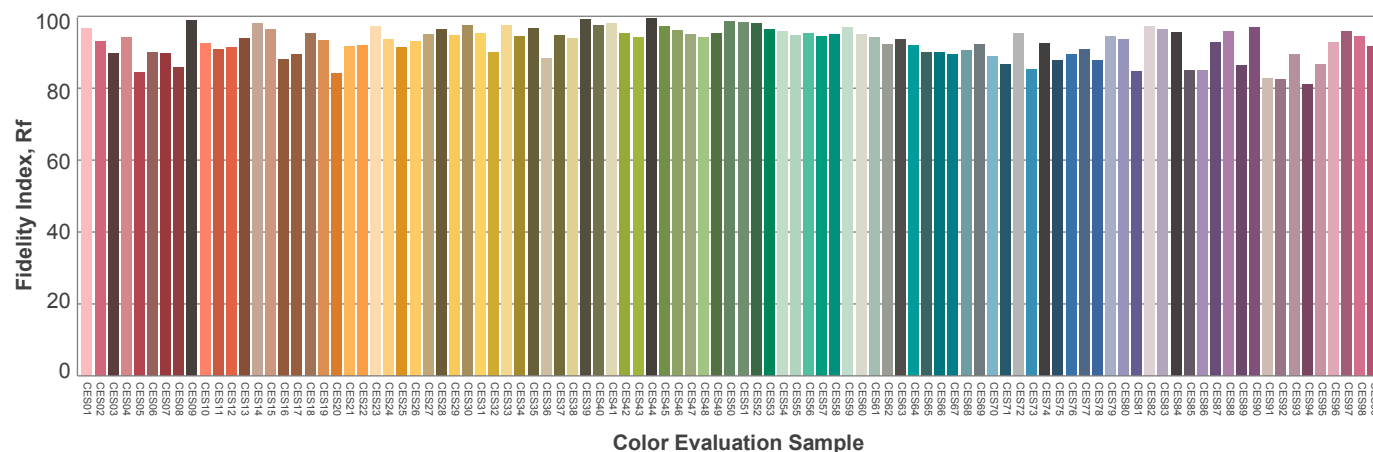
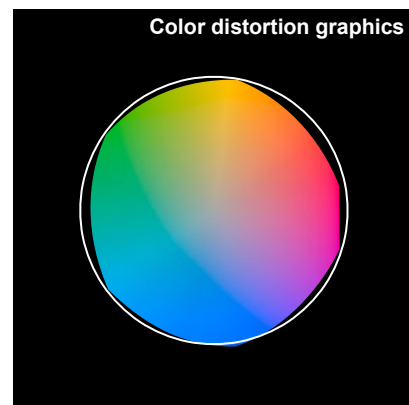
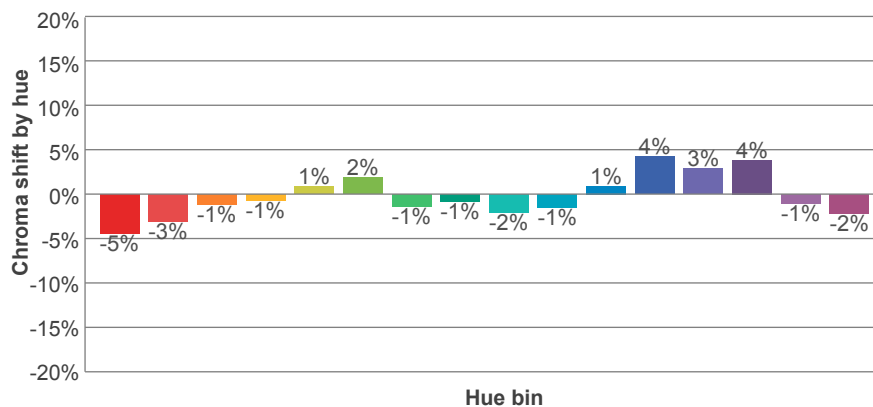
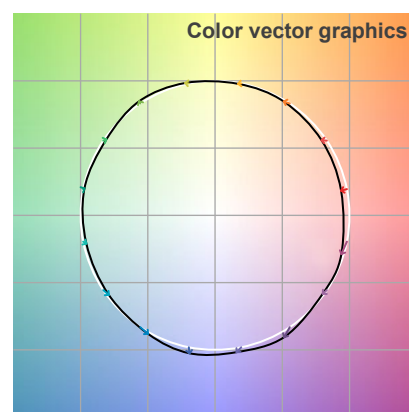
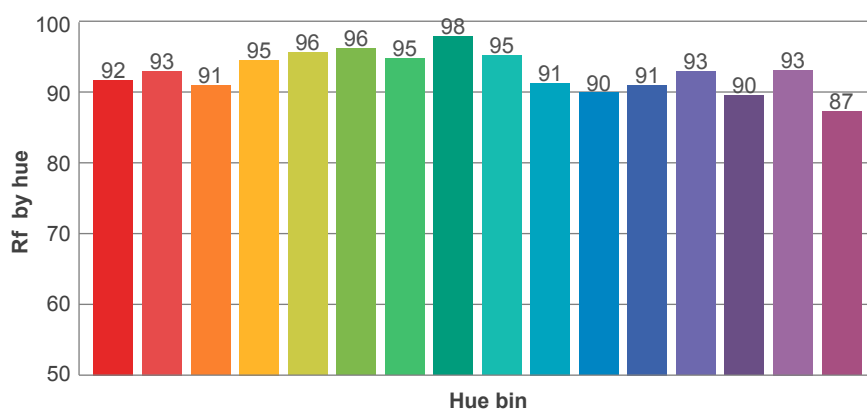
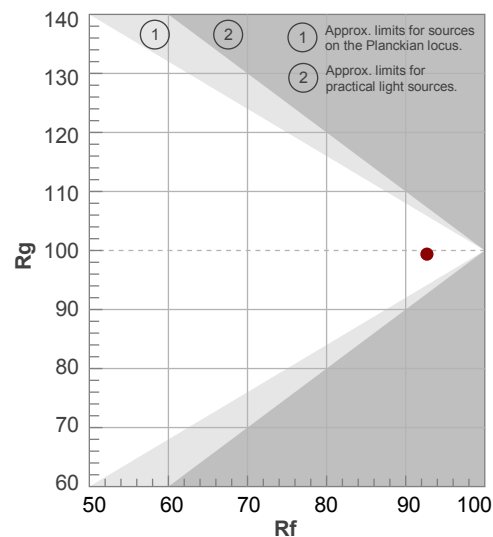
Rf 92,7

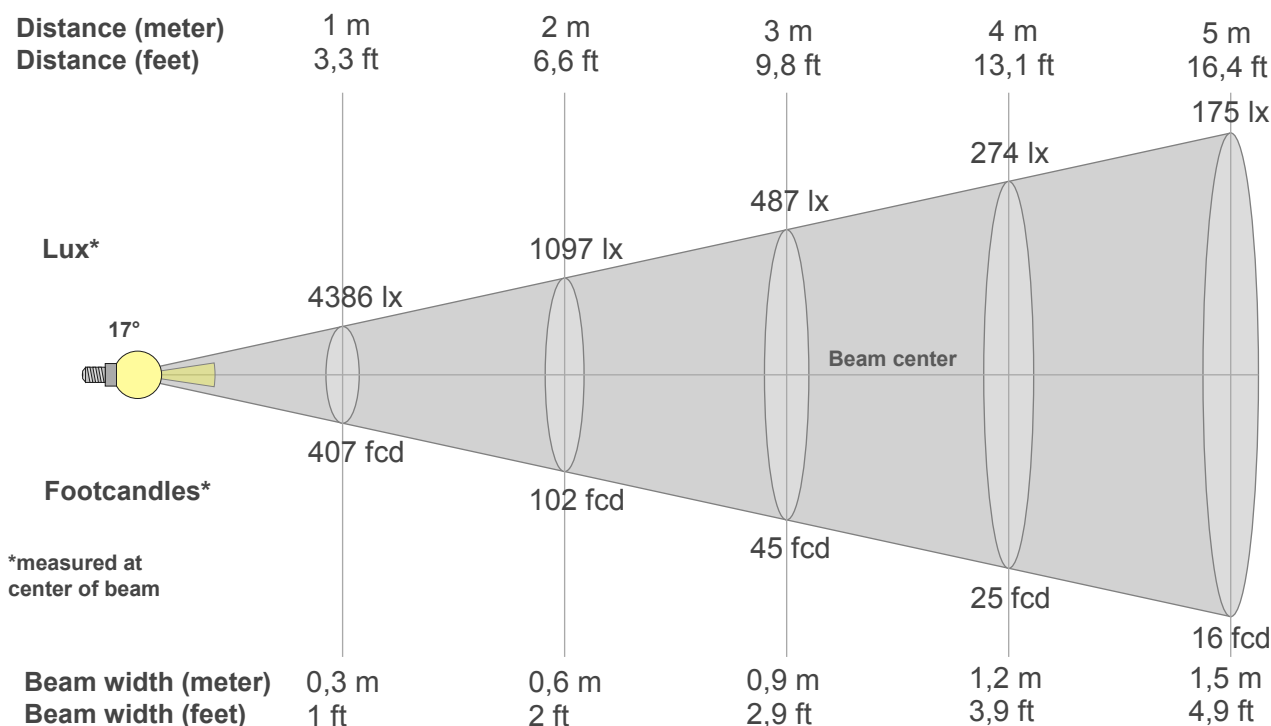
Fidelity index Rf

Rg 99,4

Gammut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	92	-5%	0%
2	93	-3%	2%
3	91	-1%	5%
4	95	-1%	2%
5	96	1%	3%
6	96	2%	0%
7	95	-1%	-2%
8	98	-1%	-1%
9	95	-2%	2%
10	91	-1%	5%
11	90	1%	7%
12	91	4%	1%
13	93	3%	-4%
14	90	4%	-8%
15	93	-1%	-4%
16	87	-2%	-10%





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
4386lx	1097lx	487lx	274lx	175lx	122lx	90lx	69lx	54lx	44lx	36lx	30lx	26lx	22lx	19lx	17lx	15lx	14lx	12lx	11lx
407,5fcd	101,9fcd	45,3fcd	25,5fcd	16,3fcd	11,3fcd	8,3fcd	6,4fcd	5fcd	4,1fcd	3,4fcd	2,8fcd	2,4fcd	2,1fcd	1,8fcd	1,6fcd	1,4fcd	1,3fcd	1,1fcd	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°
4386	4349	4228	4036	3793	3507	3188	2836	2479	2126	1788	1471	1178	929	721	566	447	353	281	226
100%	99%	96%	92%	86%	80%	73%	65%	57%	48%	41%	34%	27%	21%	16%	13%	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°
4386	4351	4239	4055	3798	3483	3119	2719	2316	1936	1589	1283	1017	804	630	496	389	307	242	191
100%	99%	97%	92%	87%	79%	71%	62%	53%	44%	36%	29%	23%	18%	14%	11%	9%	7%	6%	4%

Intensities in 180° c-plane

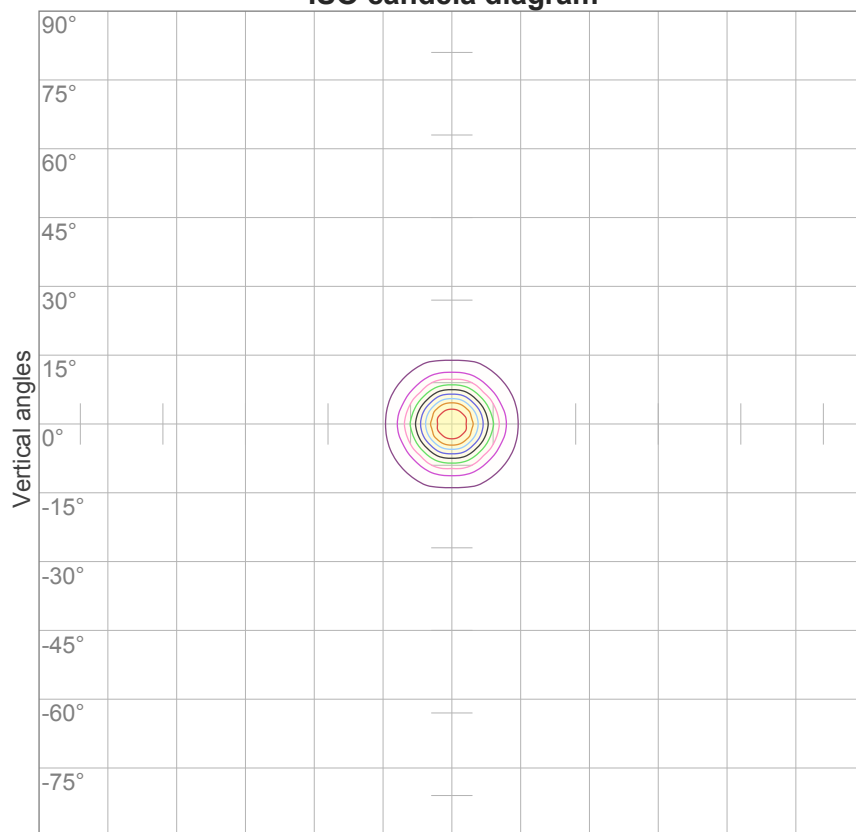
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
4386	4349	4228	4036	3793	3507	3188	2836	2479	2126	1788	1471	1178	929	721	566	447	353	281	226
100%	99%	96%	92%	86%	80%	73%	65%	57%	48%	41%	34%	27%	21%	16%	13%	10%	8%	6%	5%

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°
4386	4351	4239	4055	3798	3483	3119	2719	2316	1936	1589	1283	1017	804	630	496	389	307	242	191
100%	99%	97%	92%	87%	79%	71%	62%	53%	44%	36%	29%	23%	18%	14%	11%	9%	7%	6%	4%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
17°	32,1°	45,5°	97,3%	94,6%

ISO candela diagram



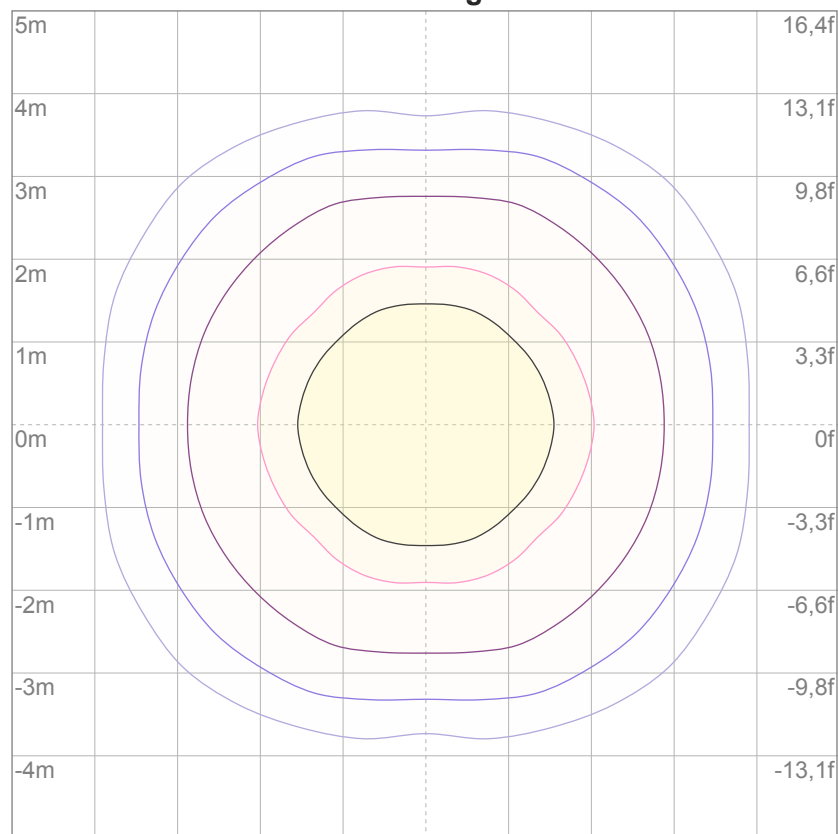
10%	439 cd
20%	877 cd
30%	1316 cd
40%	1754 cd
50%	2193 cd
60%	2632 cd
70%	3070 cd
80%	3509 cd
90%	3947 cd

Conditions:

Number of c-planes: 16

Candela at center: 4386 cd

ISO lux diagram



3%	1,32 lx
5%	2,19 lx
10%	4,39 lx
30%	13,2 lx
50%	21,9 lx

Conditions:

Number of c-planes: 16

Lux at center: 43,9 lx

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

Glare Evaluation According to UGR

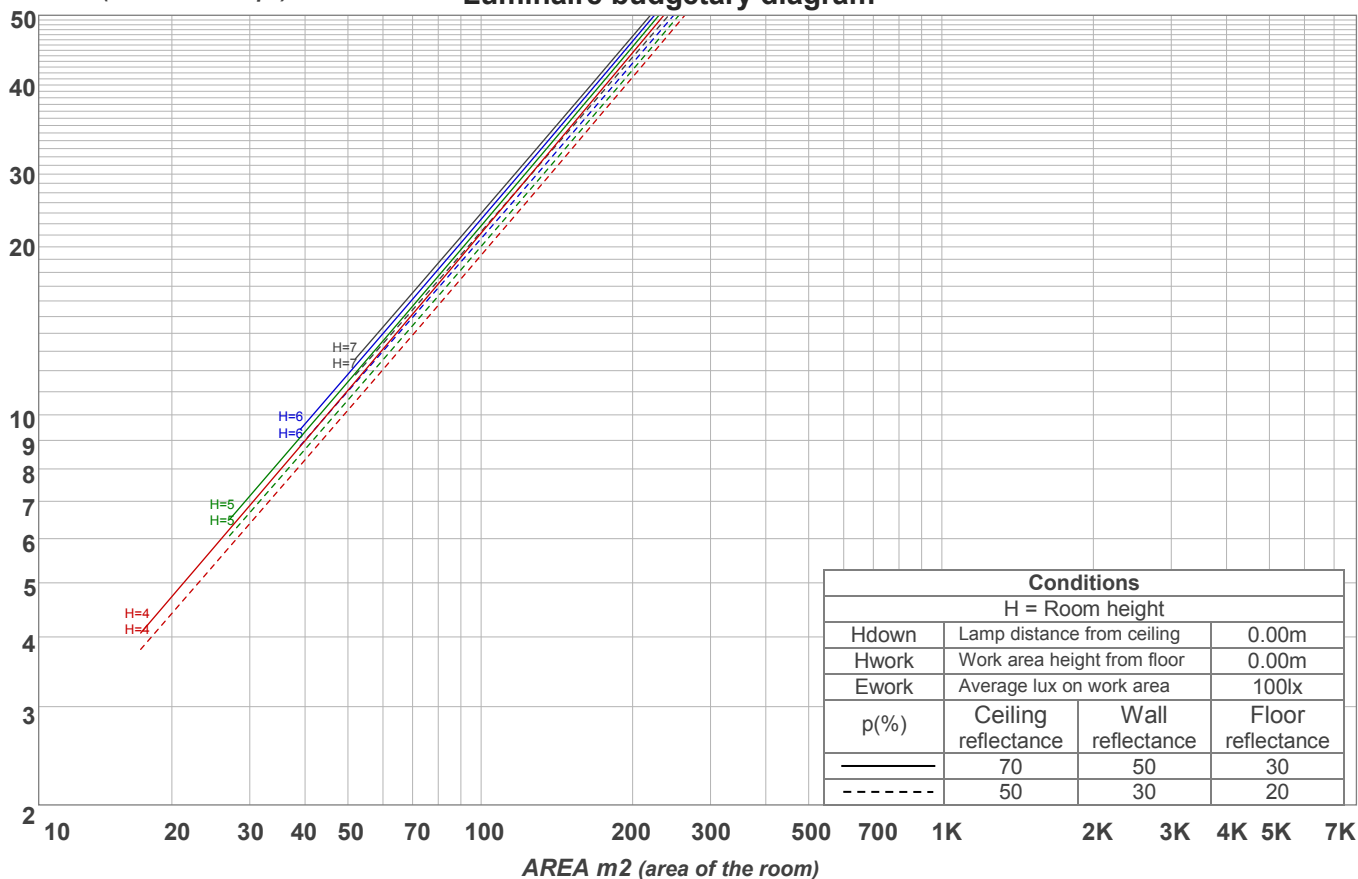
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	8,0	8,4	8,1	8,6	8,8	11,1	11,5	11,2	11,7	11,9
	3H	9,0	9,5	9,3	9,7	9,9	12,5	13,1	12,9	13,3	13,5
	4H	9,4	10,0	9,8	10,2	10,4	13,1	13,6	13,5	13,9	14,1
	6H	9,8	10,2	10,1	10,5	10,9	13,5	13,9	13,8	14,2	14,6
	8H	9,9	10,3	10,2	10,7	11,0	13,6	14,1	13,9	14,4	14,8
	12H	10,0	10,4	10,3	10,8	11,2	13,7	14,2	14,1	14,5	14,9
4H	2H	8,7	9,2	9,0	9,4	9,7	11,2	11,8	11,6	12,0	12,2
	3H	10,0	10,4	10,3	10,8	11,2	12,9	13,4	13,3	13,7	14,1
	4H	10,4	10,8	10,8	11,2	11,7	13,5	13,9	13,9	14,3	14,8
	6H	10,8	11,2	11,3	11,6	11,9	14,0	14,4	14,5	14,8	15,1
	8H	10,9	11,4	11,4	11,7	12,0	14,1	14,6	14,7	14,9	15,3
	12H	11,0	11,4	11,5	11,8	12,2	14,3	14,6	14,8	15,0	15,5
8H	4H	10,7	11,1	11,2	11,5	11,8	13,6	14,0	14,1	14,3	14,7
	6H	11,2	11,5	11,7	11,9	12,5	14,1	14,4	14,6	14,9	15,4
	8H	11,5	11,7	12,0	12,2	12,8	14,4	14,6	15,0	15,2	15,8
	12H	11,7	11,8	12,3	12,3	12,9	14,7	14,9	15,3	15,4	16,0
12H	4H	10,7	11,0	11,2	11,4	11,9	13,5	13,8	14,0	14,2	14,7
	6H	11,3	11,5	11,8	12,1	12,7	14,2	14,4	14,7	14,9	15,5
	8H	11,6	11,7	12,2	12,3	12,8	14,4	14,6	15,0	15,1	15,7
Variation of the observer position for the luminaire distance S											
S = 1.0H		0,1 / -0,2					0,3 / -0,3				
S = 1.5H		0,6 / -0,5					0,7 / -0,7				
S = 2.0H		0,9 / -0,8					1,5 / -1,2				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 527 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	113	111	109	112	111	109	107	107	105	104	103	102	101	99	99	98	96
2	111	107	104	102	109	106	103	101	103	100	99	100	98	96	97	96	94	93
3	108	103	99	97	106	102	98	96	99	97	94	97	95	93	95	93	92	90
4	105	99	96	93	103	98	95	92	96	93	91	95	92	90	93	91	89	88
5	102	96	92	89	101	95	92	89	94	91	88	92	90	87	91	89	87	86
6	99	94	90	87	98	93	89	86	92	88	86	90	87	85	89	87	85	84
7	97	91	87	84	96	91	87	84	89	86	84	88	86	83	87	85	83	82
8	95	89	85	82	94	88	85	82	88	84	82	87	84	82	86	83	81	80
9	93	87	83	81	92	87	83	81	86	83	80	85	82	80	84	82	80	79
10	91	85	82	79	91	85	81	79	84	81	79	84	81	79	83	80	78	78

LAMPS (number of lamps)

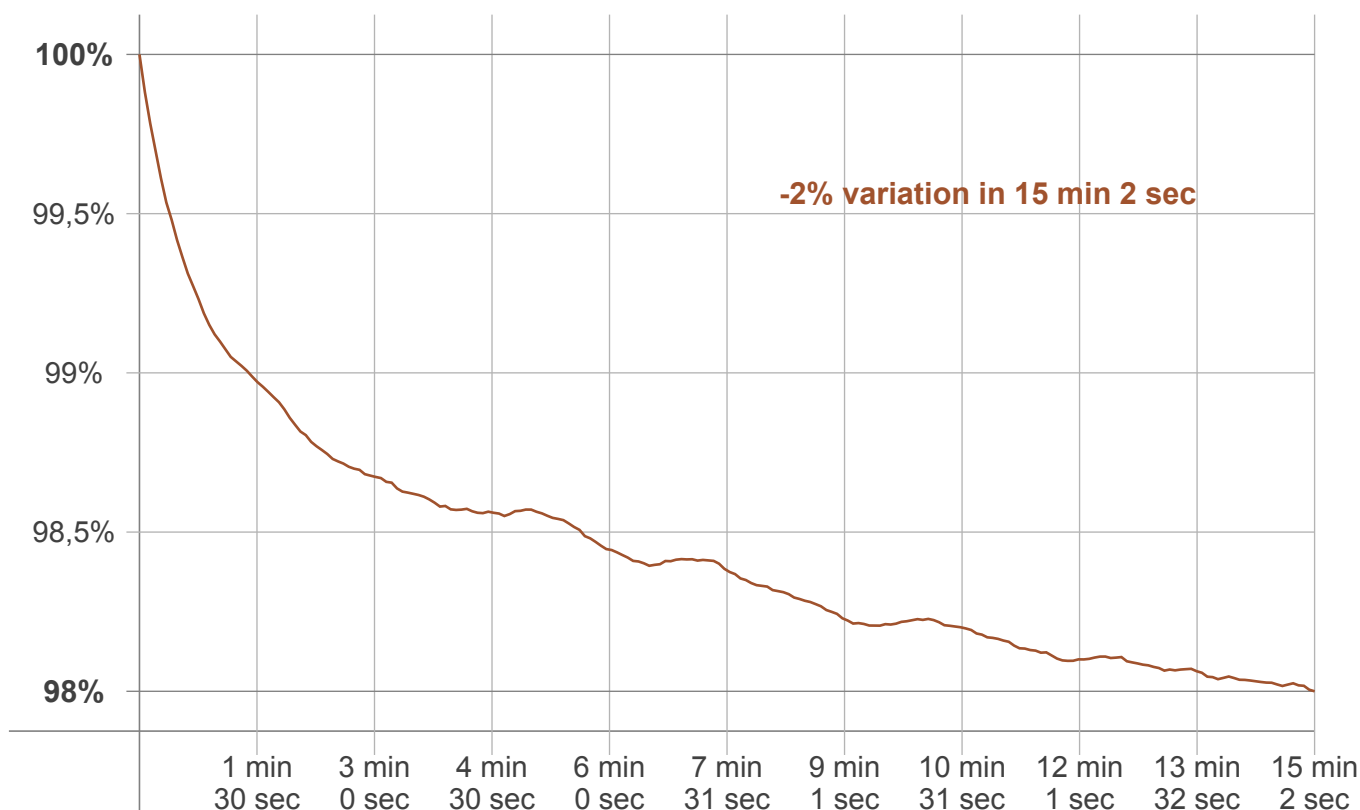
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
271 lm	171 lm	37,1 lm	13,8 lm	10,3 lm	9,30 lm	7,52 lm	4,33 lm	1,97 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,254 lm	0,222 lm	0,039 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	-2,0%

Warmup conditions

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

Color temperature change

CCT start	CCT change	CCT end
2982 K	-15 K	2967 K

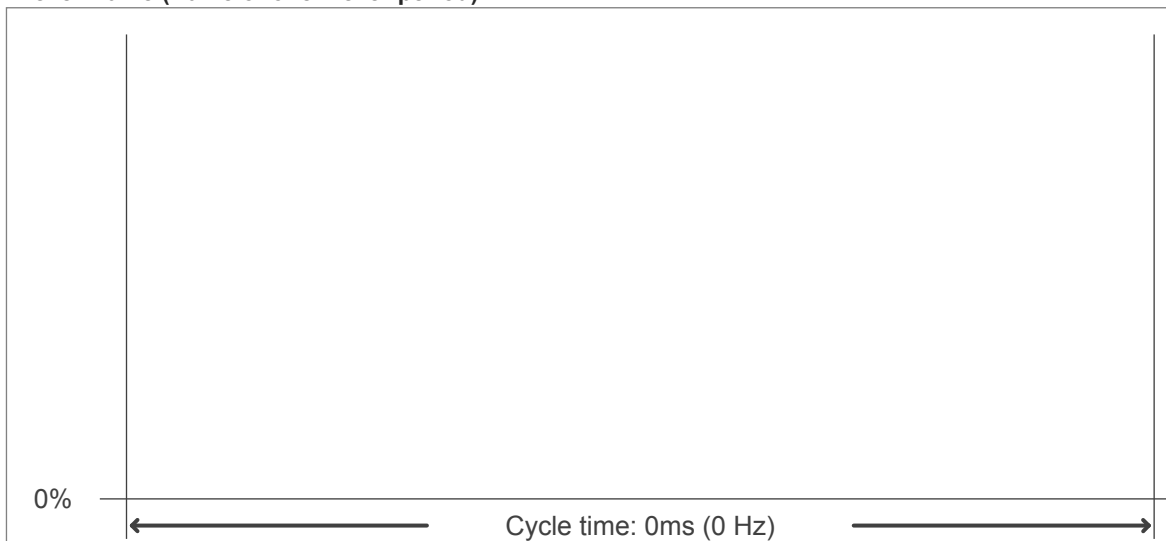
Output change

Output start	Output change	Output end
536 lm	-9 lm	527 lm

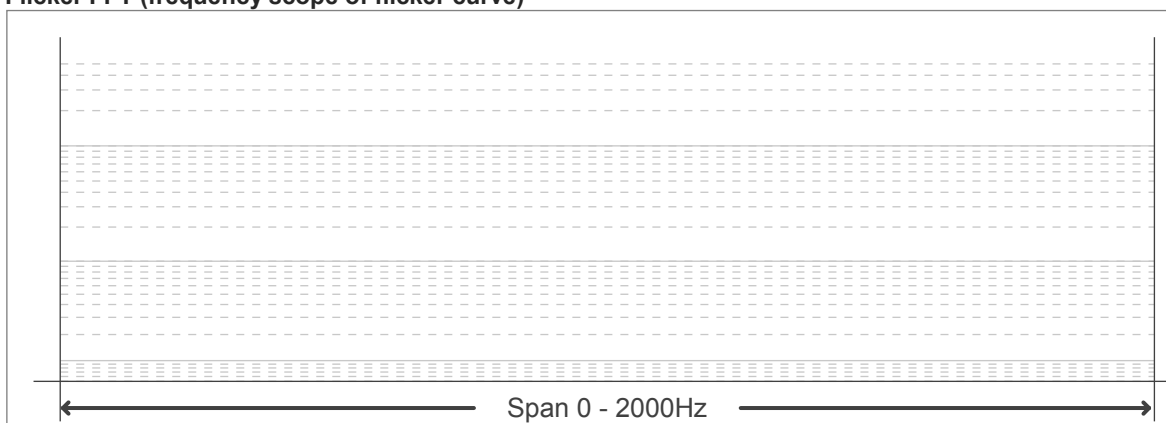
Flicker curve (complete sampled flicker signal)



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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