

Light efficiency:

86 Lumen/Watt

Light quality:

CRI: 0,0

Color temperature:

0 K

Output: 271 lm

Peak: 478 cd

Power: 3,2 W

PF: 1,0



Product name:

F L-S O - 2-4 C -1 0 0-R-LSWT-W2

Item number:

F L / S O - 2 / 4 C / 1 0 0 / R /LSWT/W2

Date and time:

08.03.2019 12:43:04

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

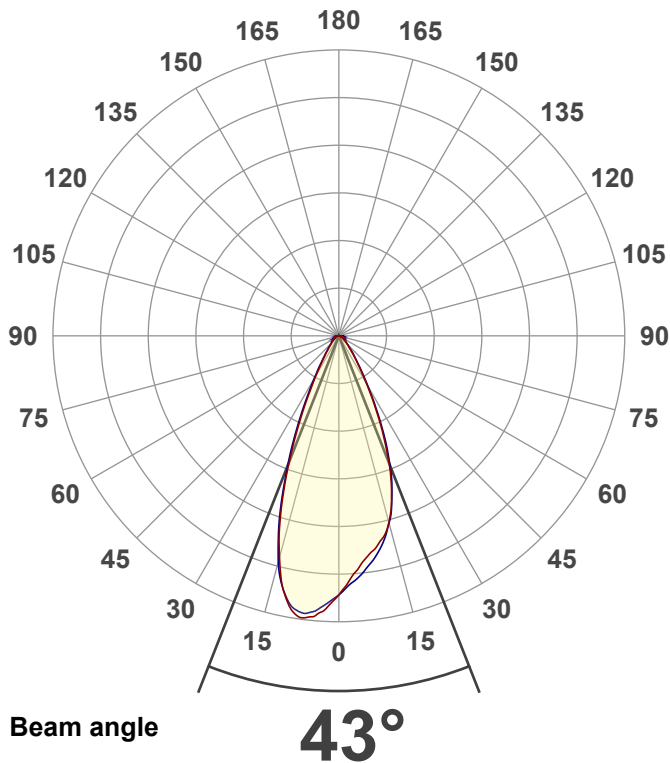
Master of Engineering

Pruefort:

Lichtlabor

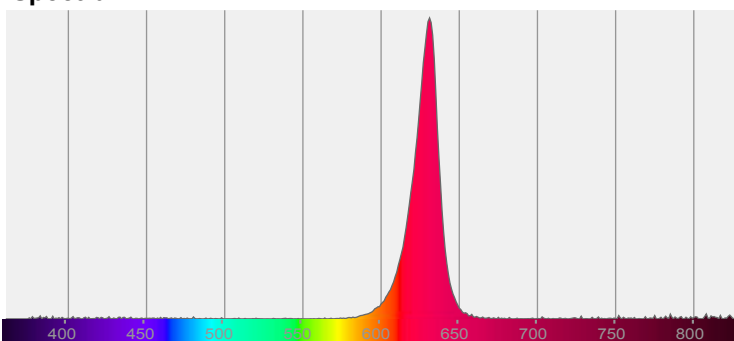
Gaustasse13-15

55411 Bingen am Rhein

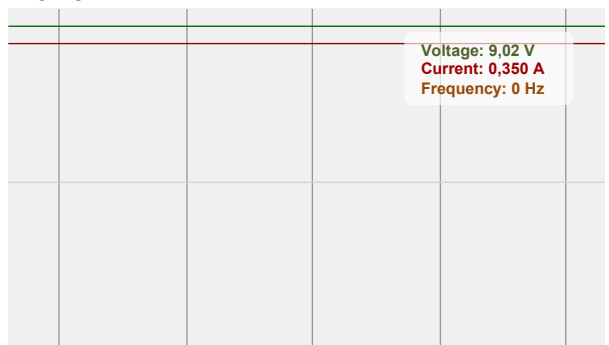


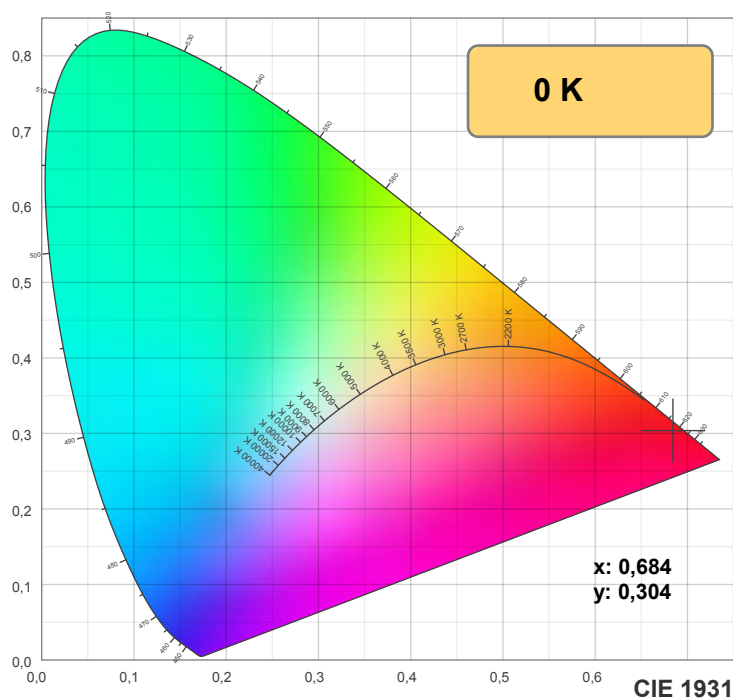
CIE 1931
x: 0,684
y: 0,304

Spectra

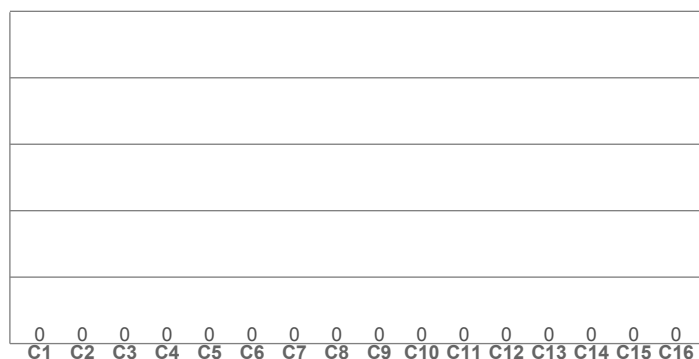


Power





TM30: 0,0



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

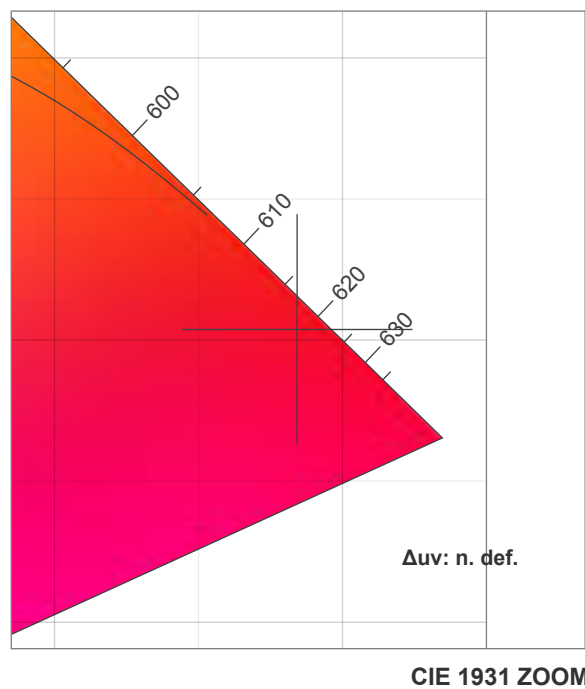
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

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

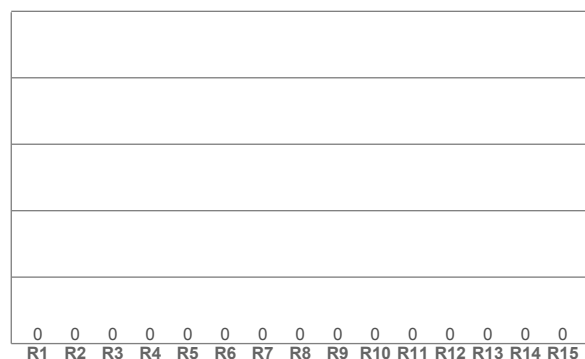
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

CQS Q values

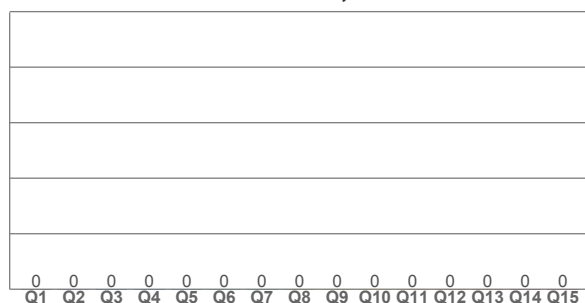
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



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	0,684	0,304	0,519	0,345	n. def.

TM30 details

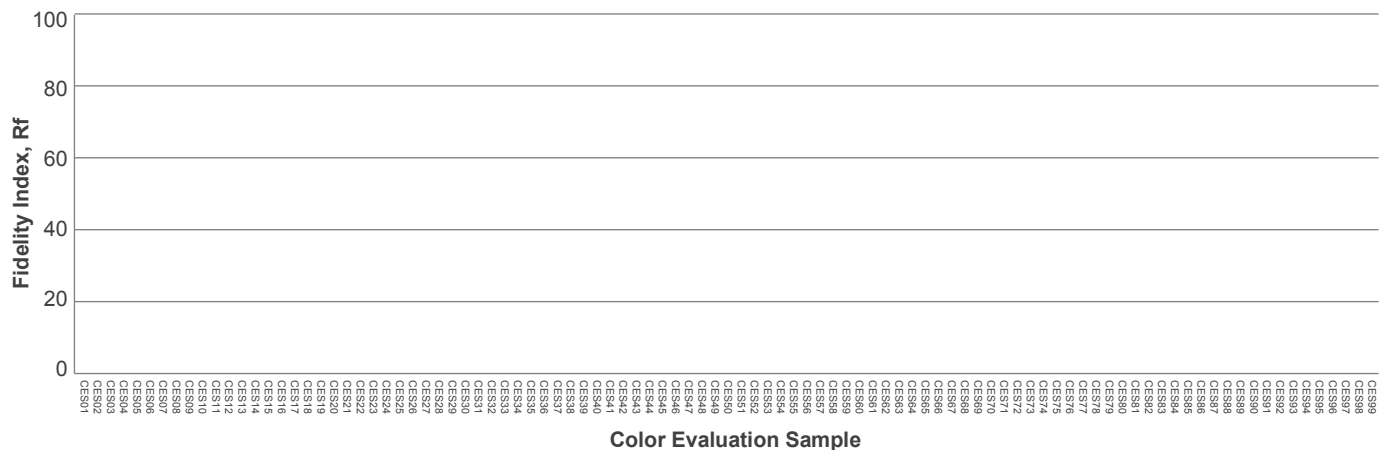
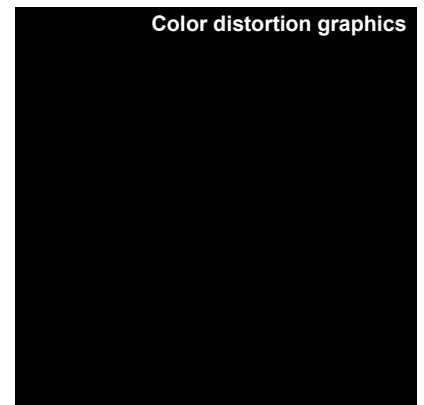
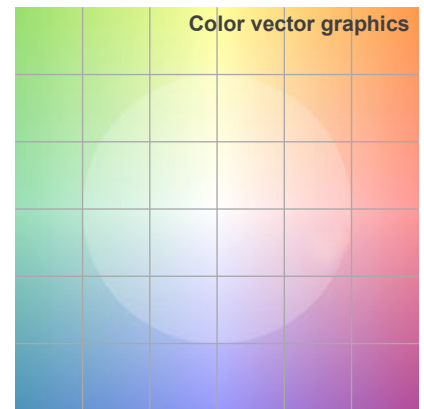
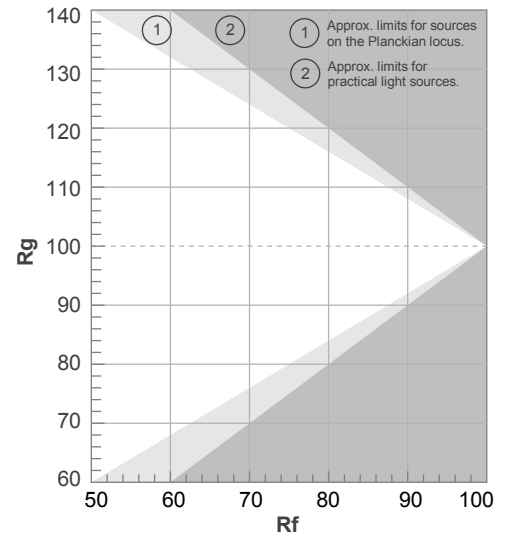
Rf 0,0

Fidelity index Rf

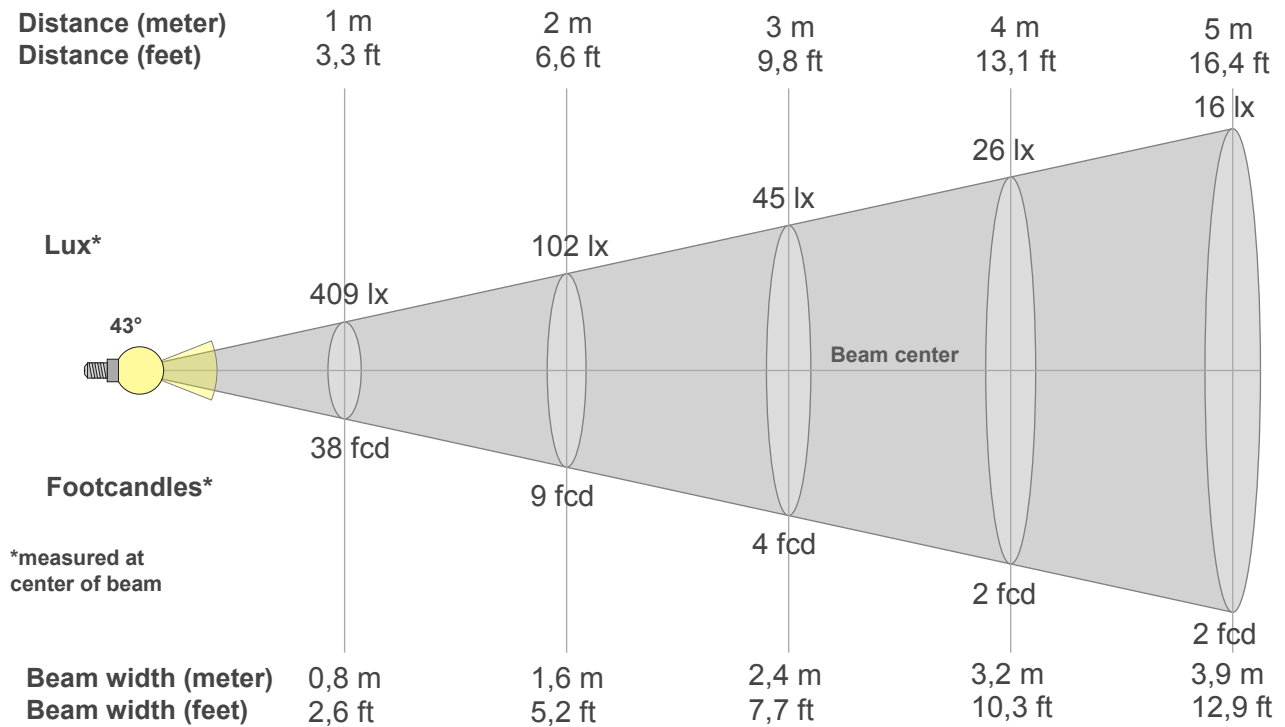
Rg 0,0

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
409lx	102lx	45lx	26lx	16lx	11lx	8lx	6lx	5lx	4lx	3lx	3lx	2lx	2lx	2lx	2lx	1lx	1lx	1lx	1lx
38fcd	9,5fcd	4,2fcd	2,4fcd	1,5fcd	1,1fcd	0,8fcd	0,6fcd	0,5fcd	0,4fcd	0,3fcd	0,3fcd	0,2fcd	0,2fcd	0,2fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd

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°
409	391	374	359	348	339	328	314	294	269	240	207	174	141	113	88	69	54	44	35
100%	96%	91%	88%	85%	83%	80%	77%	72%	66%	59%	51%	42%	35%	28%	22%	17%	13%	11%	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°
409	396	386	375	362	349	334	316	296	271	244	212	180	147	118	92	73	57	46	38
100%	97%	94%	92%	89%	85%	82%	77%	72%	66%	60%	52%	44%	36%	29%	22%	18%	14%	11%	9%

Intensities in 180° c-plane

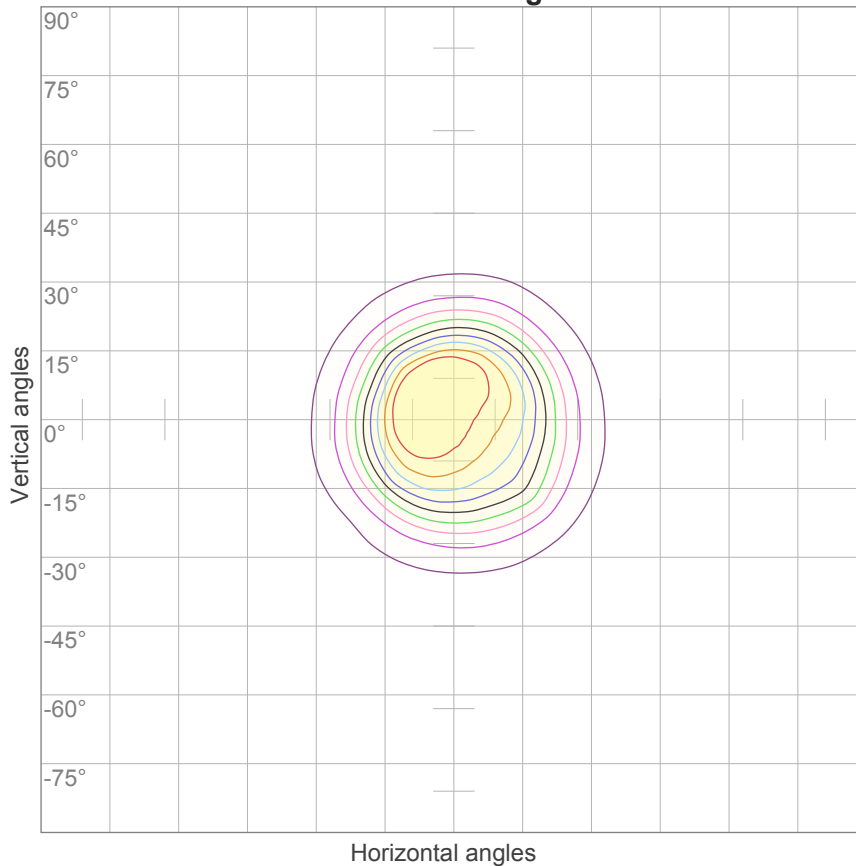
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
409	425	438	446	448	437	415	382	342	298	250	202	160	124	93	72	55	43	35	28
100%	104%	107%	109%	110%	107%	101%	93%	84%	73%	61%	49%	39%	30%	23%	18%	13%	11%	9%	7%

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°
409	420	431	439	440	433	414	387	348	304	255	210	168	132	102	78	61	47	38	31
100%	103%	105%	107%	108%	106%	101%	95%	85%	74%	62%	51%	41%	32%	25%	19%	15%	12%	9%	8%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
43°	70,8°	107,6°	95,3%	89,4%

ISO candela diagram



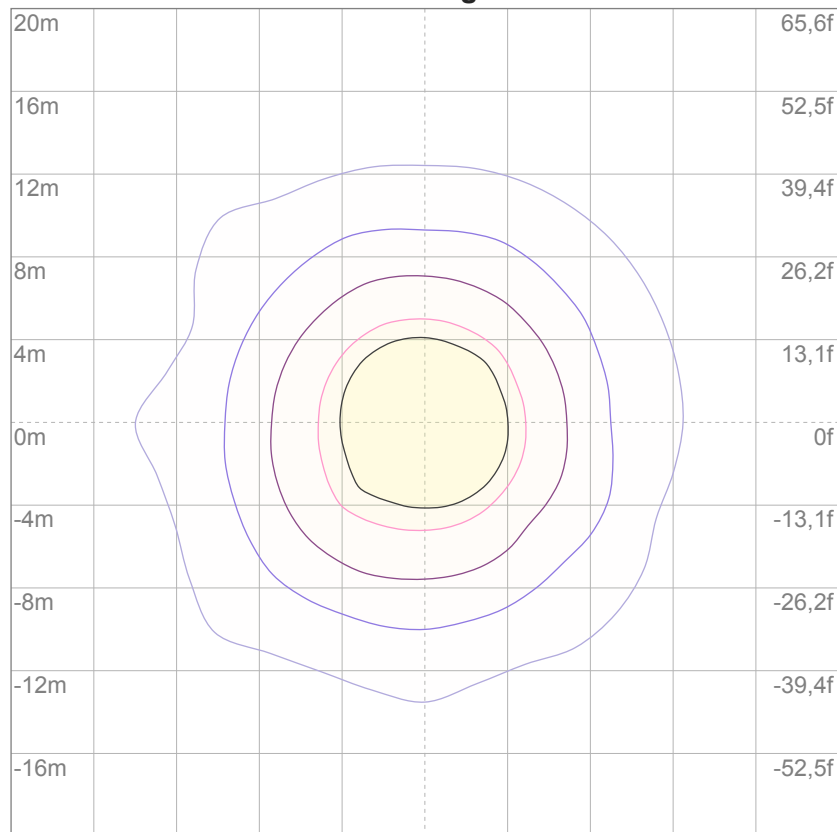
10%	41 cd
20%	82 cd
30%	123 cd
40%	164 cd
50%	204 cd
60%	245 cd
70%	286 cd
80%	327 cd
90%	368 cd

Conditions:

Number of c-planes: 16

Candela at center: 409 cd

ISO lux diagram



3%	0,123 lx
5%	0,204 lx
10%	0,409 lx
30%	1,23 lx
50%	2,04 lx

Conditions:

Number of c-planes: 16

Lux at center: 4,09 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	11,6	12,4	11,8	12,6	12,8	11,7	12,5	11,9	12,7	12,9
	3H	12,5	13,2	12,8	13,5	13,7	12,6	13,3	12,9	13,5	13,8
	4H	13,0	13,7	13,3	14,0	14,2	13,1	13,8	13,4	14,1	14,3
	6H	13,5	14,2	13,9	14,4	14,7	13,6	14,2	13,9	14,5	14,8
	8H	13,7	14,3	14,1	14,6	14,9	13,8	14,4	14,1	14,7	15,0
	12H	13,9	14,5	14,3	14,8	15,1	14,0	14,5	14,3	14,8	15,2
4H	2H	11,9	12,6	12,2	12,8	13,1	12,0	12,7	12,3	12,9	13,2
	3H	13,1	13,7	13,4	14,0	14,3	13,1	13,7	13,5	14,0	14,3
	4H	13,8	14,3	14,2	14,6	15,0	13,8	14,3	14,2	14,7	15,0
	6H	14,5	14,9	14,9	15,3	15,6	14,5	14,9	14,9	15,3	15,7
	8H	14,7	15,1	15,2	15,5	15,9	14,7	15,1	15,2	15,5	15,9
	12H	15,0	15,4	15,5	15,8	16,2	15,0	15,3	15,4	15,7	16,2
8H	4H	14,1	14,5	14,5	14,9	15,3	14,1	14,5	14,6	14,9	15,3
	6H	15,0	15,3	15,4	15,7	16,2	15,0	15,2	15,4	15,7	16,1
	8H	15,4	15,6	15,8	16,1	16,5	15,3	15,6	15,8	16,0	16,5
	12H	15,8	16,0	16,3	16,5	17,0	15,7	15,9	16,2	16,4	16,9
12H	4H	14,1	14,5	14,6	14,9	15,3	14,2	14,5	14,6	14,9	15,3
	6H	15,1	15,4	15,6	15,8	16,3	15,1	15,3	15,5	15,7	16,2
	8H	15,6	15,8	16,0	16,2	16,7	15,5	15,7	16,0	16,2	16,7
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,7 / -0,4					+0,8 / -0,6				
S = 1,5H		+1,6 / -0,6					+2,0 / -0,8				
S = 2,0H		+2,6 / -1,1					+3,0 / -1,4				
Standard table		BK05					BK05				
Correction summand		-2,5					-2,5				
Corrected glare indices referring to 271 lm total luminous flux											

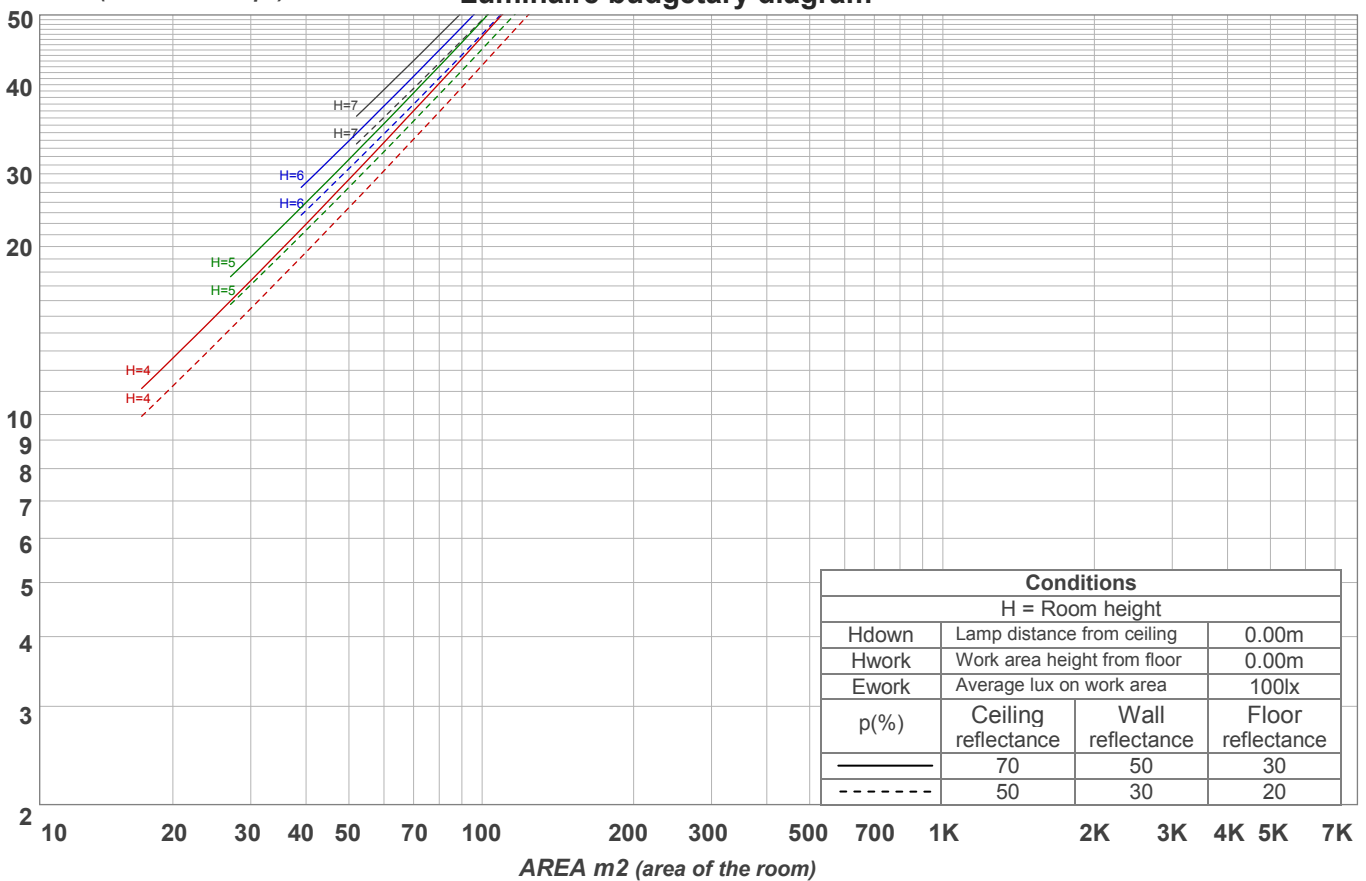
UGR data could be incorrect as lamp output is not symmetrical. Goto Edit->Photometric->Corrections and select Correct asymmetry.

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	113	110	107	105	110	108	105	103	104	102	100	100	98	97	97	95	94	92
2	107	102	98	94	105	100	96	93	97	94	91	94	91	89	91	89	87	86
3	102	95	90	86	100	94	89	85	91	87	84	89	85	83	86	84	81	80
4	97	89	84	79	95	88	83	79	86	81	78	84	80	77	82	79	76	74
5	92	84	78	74	91	83	77	73	81	76	73	79	75	72	78	74	71	70
6	88	79	73	69	86	78	73	69	77	72	68	75	71	68	74	70	67	66
7	84	75	69	65	83	74	69	65	73	68	64	72	67	64	71	67	64	62
8	80	71	65	61	79	70	65	61	69	64	61	68	64	61	67	63	60	59
9	77	68	62	58	76	67	62	58	66	61	58	65	61	57	64	60	57	56
10	74	64	59	55	73	64	59	55	63	58	55	62	58	55	62	58	55	53

LAMPS (number of lamps)

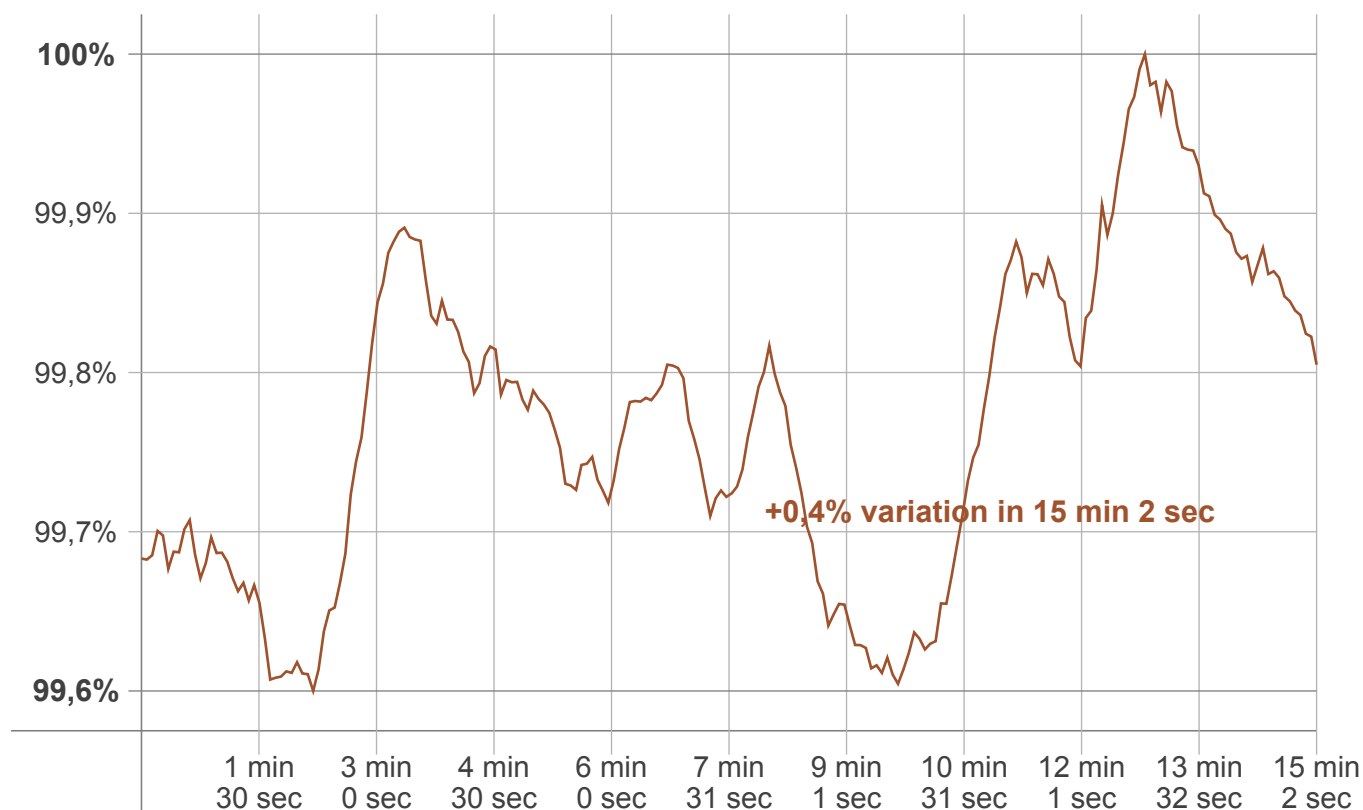
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	92,0 lm	72,4 lm	30,7 lm	15,0 lm	9,43 lm	6,35 lm	4,25 lm	2,12 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,051 lm	0,000 lm	0,000 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	+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

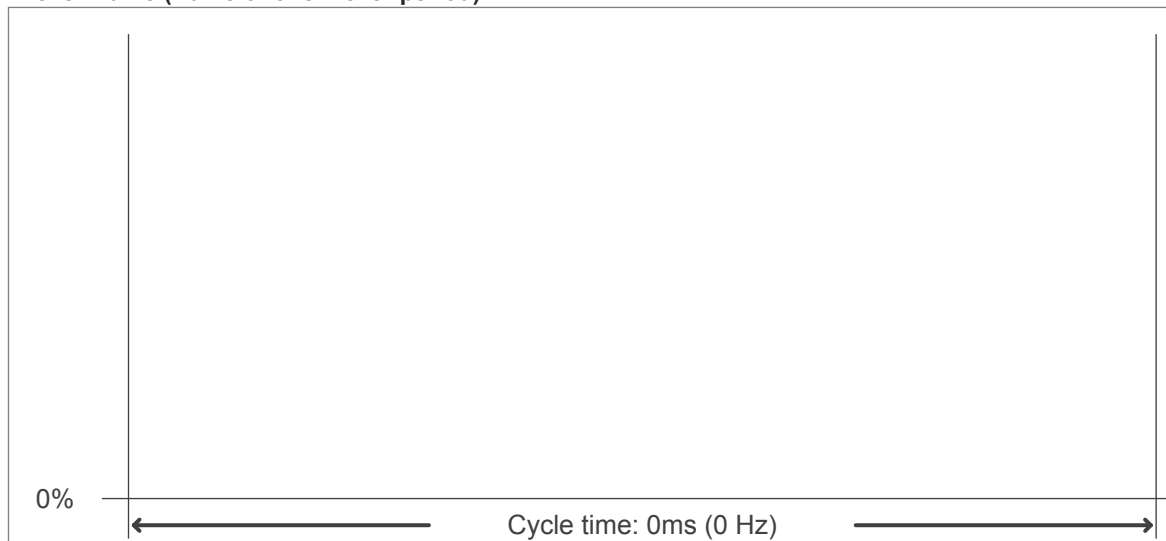
Output change

Output start	Output change	Output end
270 lm	+ 1m	271 lm

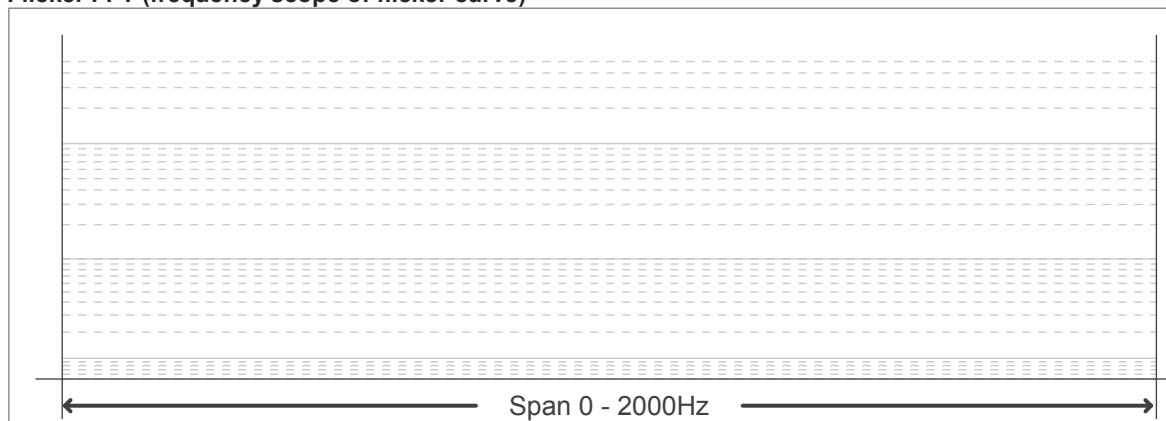
Flicker curve (complete sampled flicker signal)



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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