

Light efficiency:

77 Lumen/Watt

Light quality:

CRI: 93,5

Color temperature:

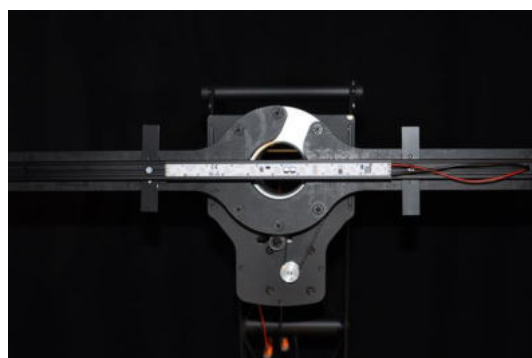
3004 K

Output: 478 lm

Peak: 851 cd

Power: 6,2 W

PF: 1,0



Product name:

Focus-4-F1C-D0258-930-LSLF-10773

Item number:

FLNP-F1C-D0258-930-LSLF-10773

Date and time:

10.12.2020 09:30:02

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:

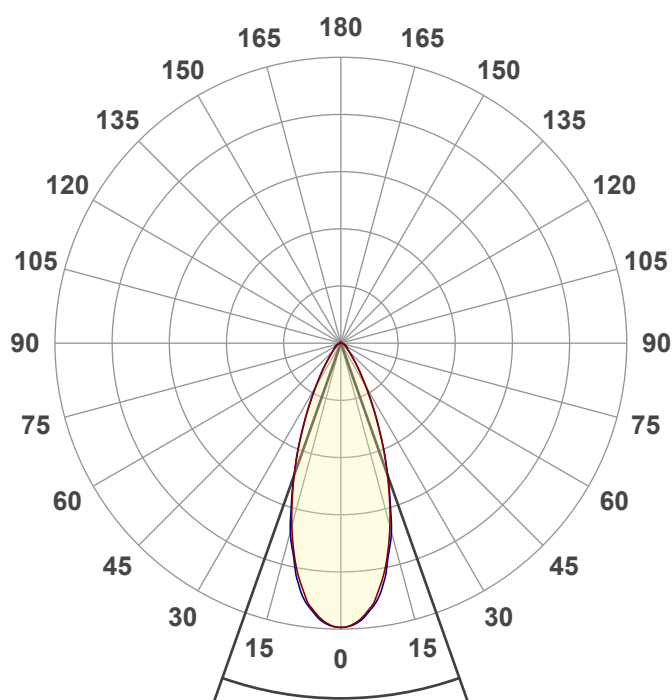
Peter Ulrich

Pruefort:

Lichtlabor

Gaustrasse13

55411 Bingen am Rhein



Beam angle

39°

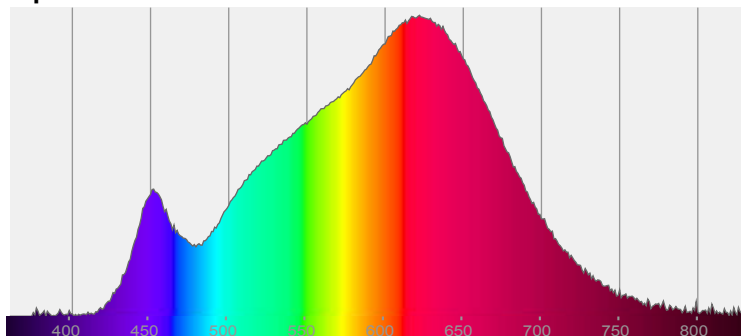


CIE 1931

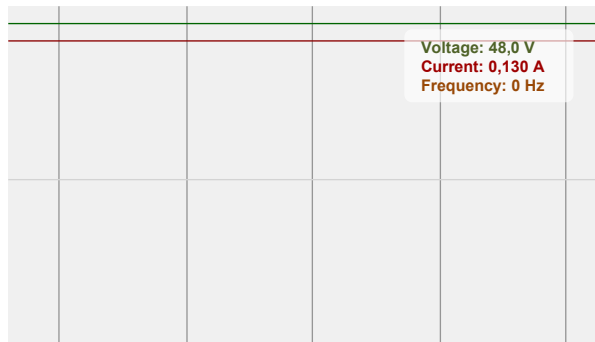
x: 0,437

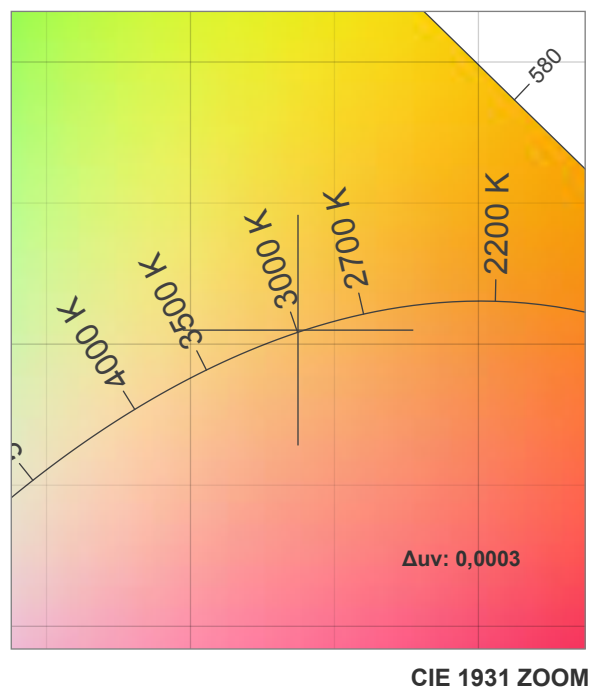
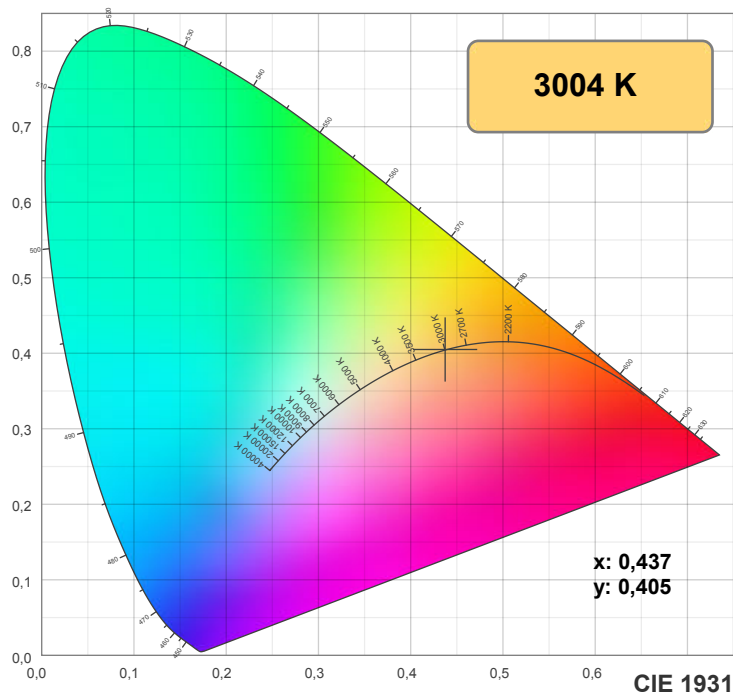
y: 0,405

Spectra

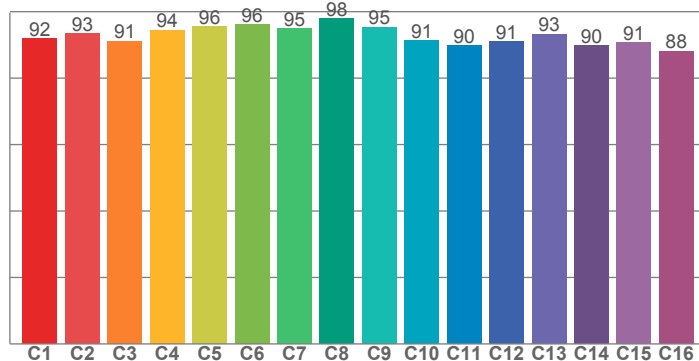


Power

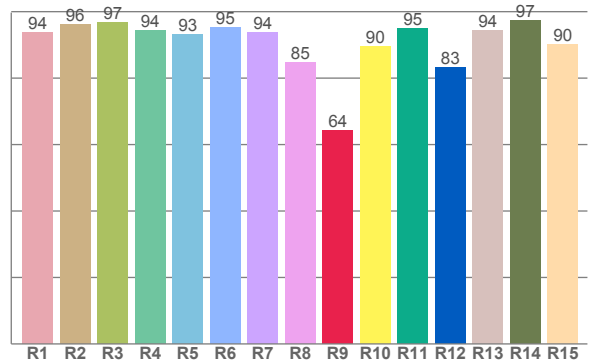




**TM30: 92,8**



**CRI: 93,5 (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
93,8	96,1	96,9	94,3	93,3	95,2	93,7	84,7	64,1	89,7	94,8	83,4	94,4	97,5	90,2

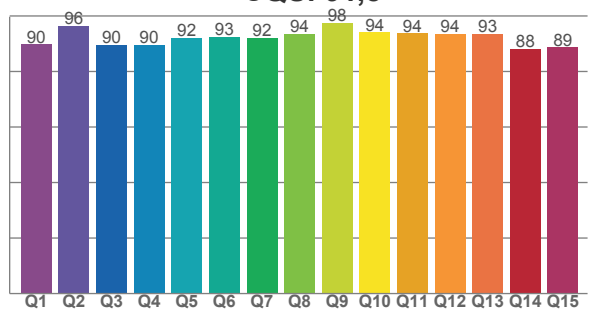
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
92,0	93,3	91,2	94,5	95,5	96,2	94,8	98,0	95,3	91,4	89,8	91,0	93,3	89,8	90,8	88,1

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
89,8	96,5	89,6	89,6	92,2	92,5	92,2	93,7	97,5	94,0	93,7	93,6	93,5	88,2	88,6

**CQS: 91,8**



## 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
3004 K	93,5	64,1	92,8	99,6	91,8	0,437	0,405	0,250	0,348	0,0003

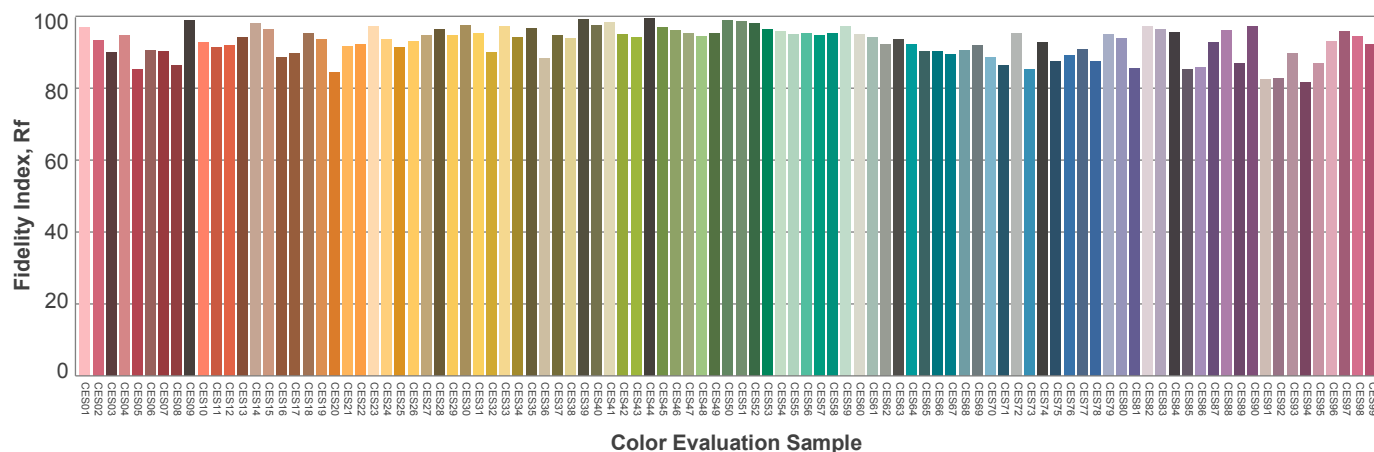
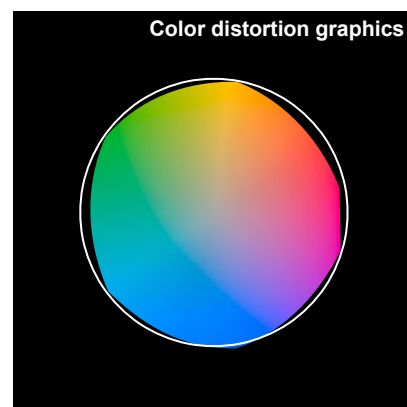
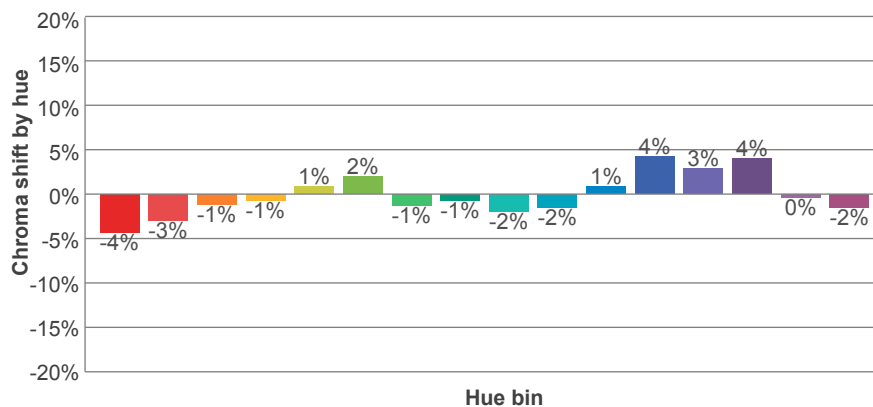
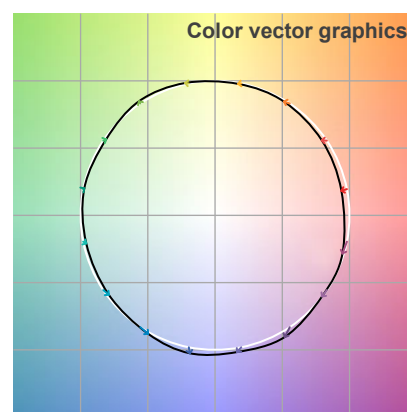
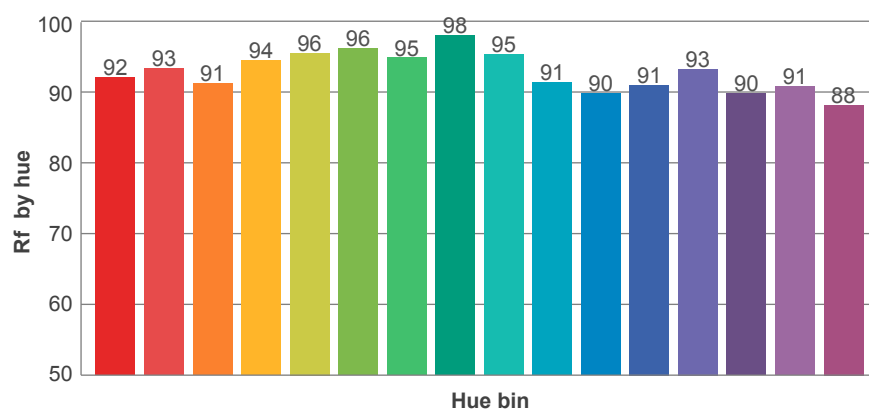
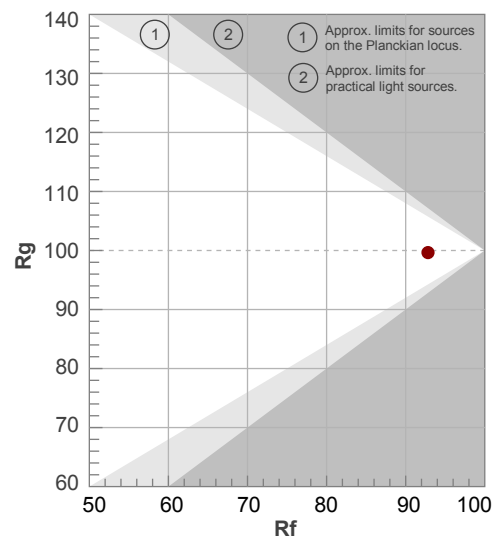
**Rf 92,8**

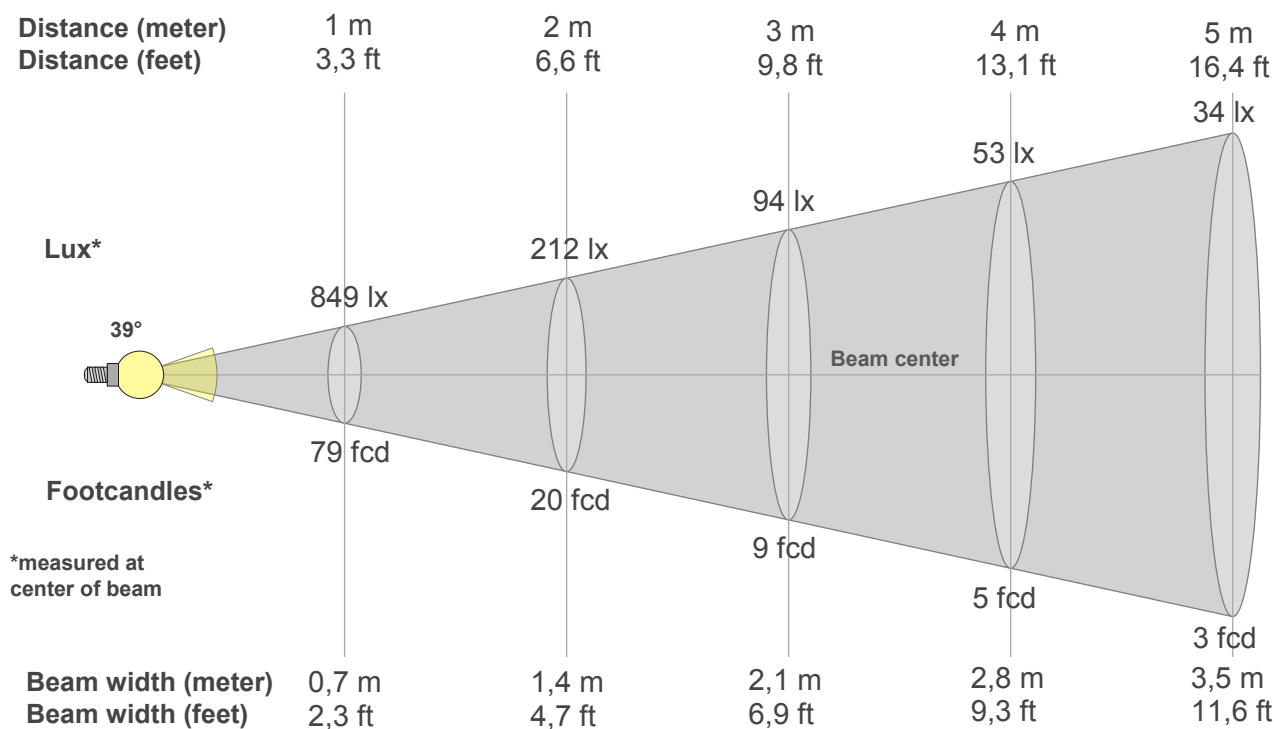
### Fidelity index $R_f$

**Rg 99,6**

## Gammut index Rg

		Graphic shifts (%)	
Hue Bin	$R_f$	Chroma	Hue
1	92	-4%	0%
2	93	-3%	2%
3	91	-1%	4%
4	94	-1%	2%
5	96	1%	3%
6	96	2%	0%
7	95	-1%	-2%
8	98	-1%	-1%
9	95	-2%	2%
10	91	-2%	5%
11	90	1%	8%
12	91	4%	2%
13	93	3%	-4%
14	90	4%	-7%
15	91	0%	-6%
16	88	-2%	-9%





## 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
849lx	212lx	94lx	53lx	34lx	24lx	17lx	13lx	10lx	8lx	7lx	6lx	5lx	4lx	4lx	3lx	3lx	3lx	2lx	2lx
78,9fcd	19,7fcd	8,8fcd	4,9fcd	3,2fcd	2,2fcd	1,6fcd	1,2fcd	1fcd	0,8fcd	0,7fcd	0,5fcd	0,5fcd	0,4fcd	0,4fcd	0,3fcd	0,3fcd	0,2fcd	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°
849	844	827	801	764	716	660	598	533	466	401	339	283	233	190	153	122	98	79	63
100%	99%	97%	94%	90%	84%	78%	70%	63%	55%	47%	40%	33%	27%	22%	18%	14%	12%	9%	7%

## 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°
849	845	832	806	776	730	670	613	546	472	403	341	279	230	184	148	119	97	78	63
100%	100%	98%	95%	91%	86%	79%	72%	64%	56%	47%	40%	33%	27%	22%	17%	14%	11%	9%	7%

## Intensities in 180° c-plane

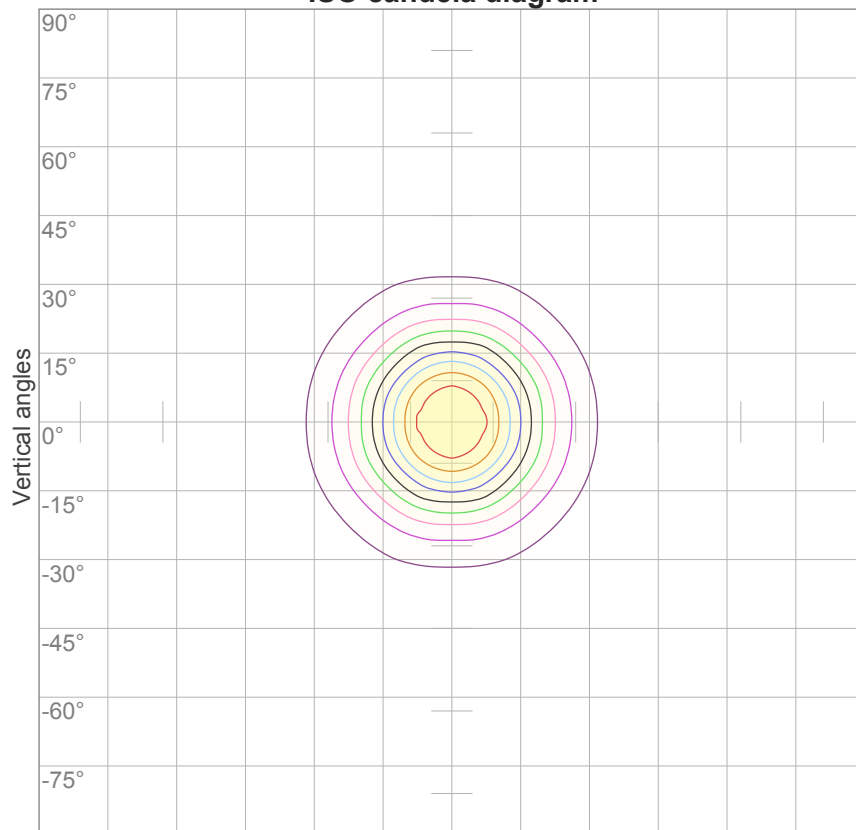
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
849	844	827	801	764	716	660	598	533	466	401	339	283	233	190	153	122	98	79	63
100%	99%	97%	94%	90%	84%	78%	70%	63%	55%	47%	40%	33%	27%	22%	18%	14%	12%	9%	7%

## 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°
849	845	832	806	776	730	670	613	546	472	403	341	279	230	184	148	119	97	78	63
100%	100%	98%	95%	91%	86%	79%	72%	64%	56%	47%	40%	33%	27%	22%	17%	14%	11%	9%	7%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
39°	71,1°	104,9°	94,9%	89,0%

### ISO candela diagram



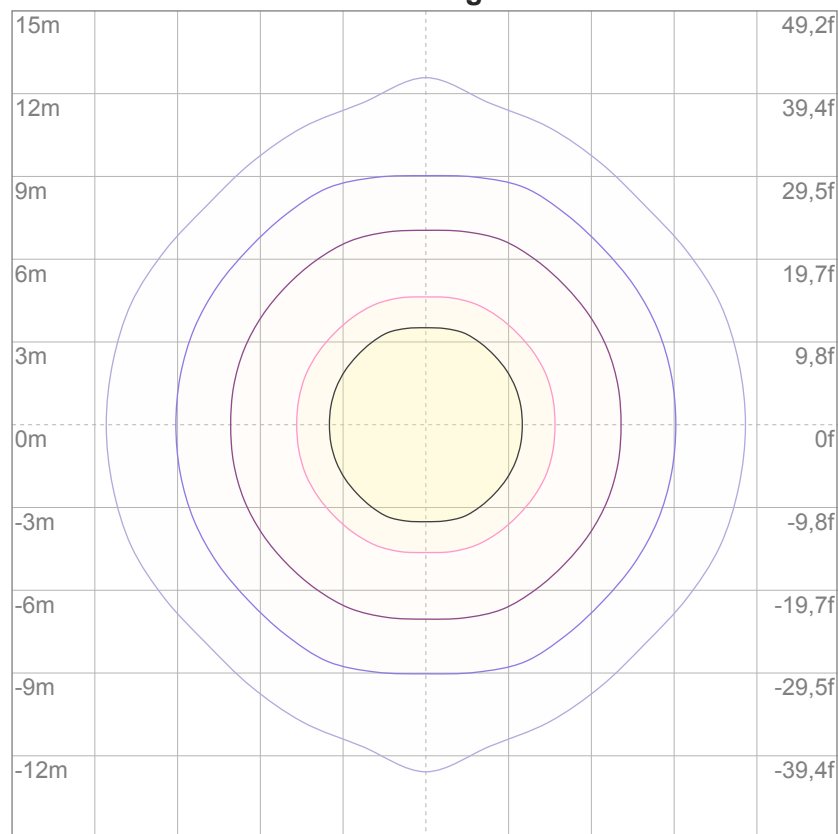
10%	85 cd
20%	170 cd
30%	255 cd
40%	340 cd
50%	425 cd
60%	510 cd
70%	595 cd
80%	680 cd
90%	764 cd

#### Conditions:

Number of c-planes: 16

Candela at center: 849 cd

### ISO lux diagram



3%	0,255 lx
5%	0,425 lx
10%	0,849 lx
30%	2,55 lx
50%	4,25 lx

#### Conditions:

Number of c-planes: 16

Lux at center: 8,49 lx

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

### Glare Evaluation According to UGR

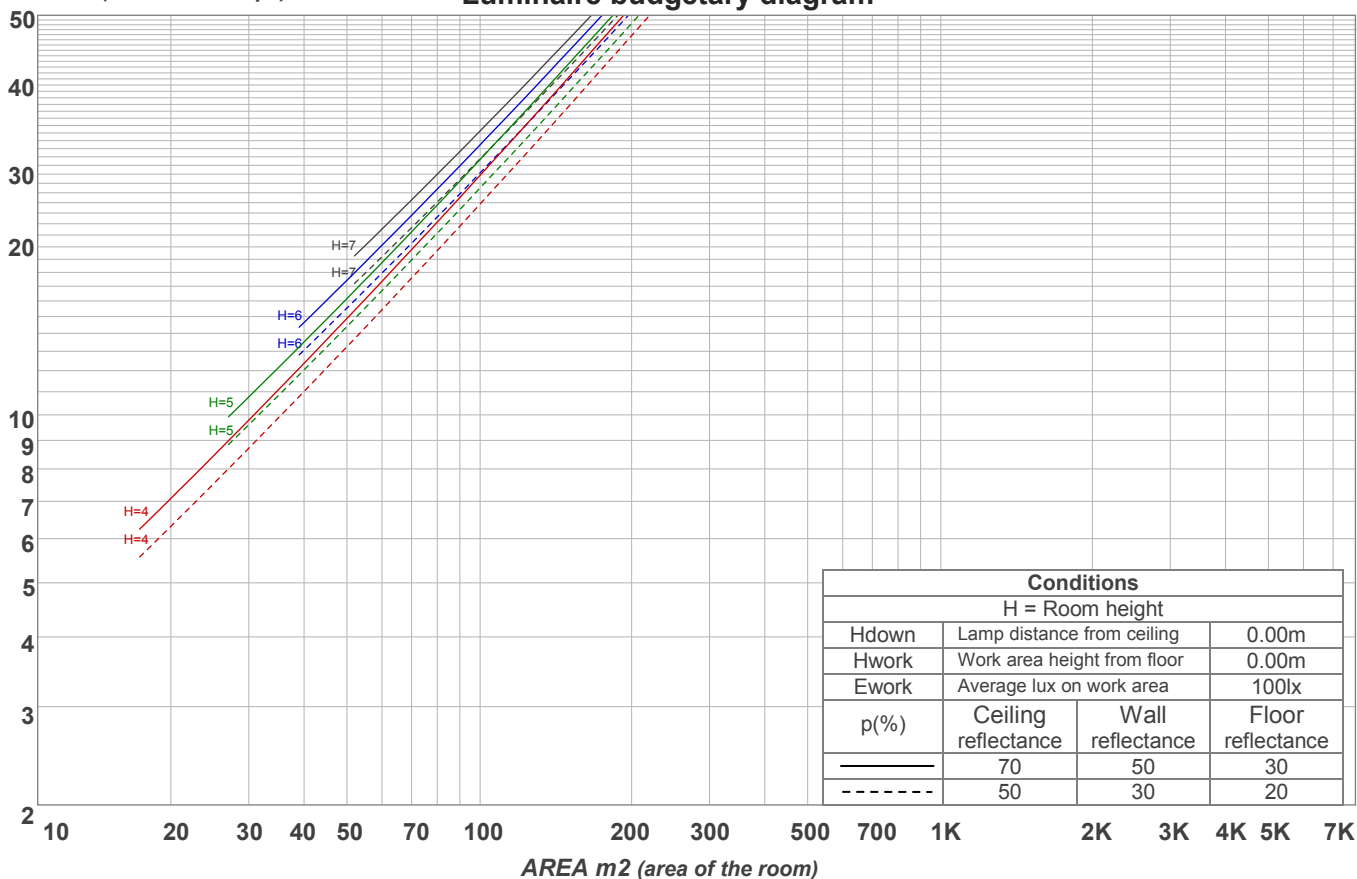
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X      Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	14,7	15,3	14,8	15,6	15,8	16,2	16,8	16,3	17,1	17,3
	3H	15,1	15,9	15,5	16,1	16,3	17,0	17,8	17,4	18,0	18,2
	4H	15,3	16,1	15,7	16,3	16,5	17,4	18,2	17,8	18,4	18,6
	6H	15,4	16,1	15,7	16,4	16,7	17,8	18,4	18,1	18,7	19,0
	8H	15,4	16,1	15,8	16,4	16,8	17,8	18,4	18,1	18,8	19,1
	12H	15,4	16,0	15,8	16,4	16,8	17,8	18,4	18,2	18,8	19,2
4H	2H	14,9	15,6	15,2	15,8	16,1	16,2	16,9	16,6	17,2	17,4
	3H	15,7	16,3	16,0	16,6	17,1	17,4	18,0	17,7	18,3	18,7
	4H	15,9	16,5	16,3	16,9	17,4	17,8	18,3	18,2	18,8	19,3
	6H	16,0	16,6	16,5	16,9	17,3	18,2	18,7	18,7	19,1	19,4
	8H	16,0	16,6	16,5	16,9	17,3	18,3	18,8	18,8	19,1	19,5
	12H	16,0	16,4	16,5	16,8	17,3	18,3	18,7	18,8	19,1	19,6
8H	4H	16,1	16,6	16,6	17,0	17,3	17,8	18,4	18,3	18,7	19,1
	6H	16,3	16,7	16,8	17,1	17,6	18,3	18,7	18,8	19,1	19,7
	8H	16,4	16,7	16,9	17,2	17,8	18,5	18,8	19,0	19,3	19,9
	12H	16,4	16,6	16,9	17,1	17,7	18,6	18,9	19,2	19,4	20,0
12H	4H	16,1	16,5	16,6	16,9	17,4	17,8	18,2	18,3	18,6	19,1
	6H	16,4	16,7	16,9	17,2	17,8	18,3	18,6	18,8	19,2	19,8
	8H	16,4	16,6	17,0	17,1	17,8	18,5	18,7	19,1	19,3	19,9
Variation of the observer position for the luminaire distance S											
S = 1.0H		1,7 / -1,1					1,3 / -0,7				
S = 1.5H		3,4 / -1,5					2,7 / -1,0				
S = 2.0H		4,9 / -2,0					3,9 / -1,6				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 478 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	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94	92
2	107	102	98	94	105	100	96	93	97	94	91	94	91	89	91	89	87	85
3	102	95	90	86	100	94	89	85	91	87	84	89	85	82	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	71	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	58	65	60	57	56
10	74	65	59	55	73	64	59	55	63	58	55	63	58	55	62	58	55	53

LAMPS (number of lamps)

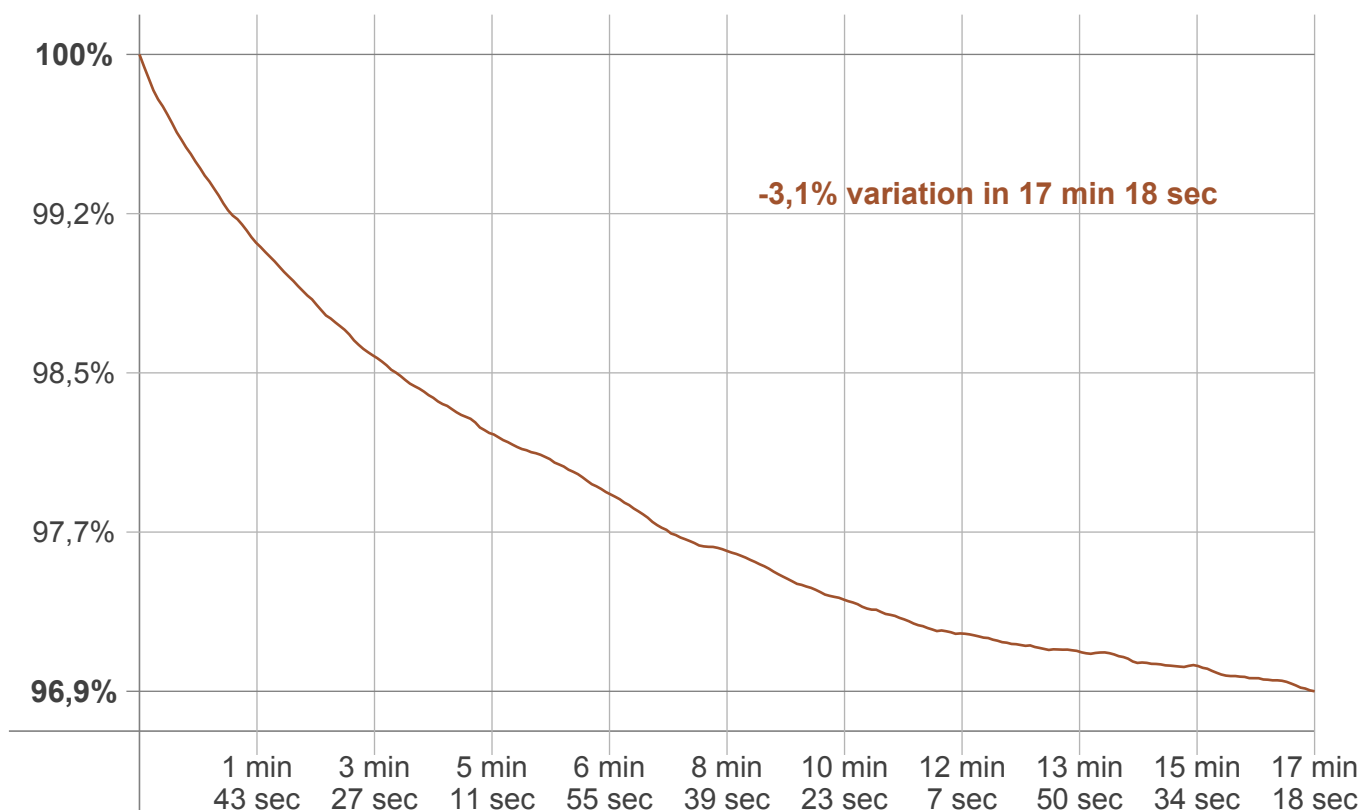
## Luminaire budgetary diagram



## Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
75,1 lm	157 lm	120 lm	58,0 lm	27,2 lm	16,9 lm	12,6 lm	7,33 lm	2,37 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,681 lm	0,286 lm	0,256 lm	0,232 lm	0,170 lm	0,123 lm	0,091 lm	0,056 lm	0,019 lm

## Warmup curve



## Warmup result

Warmup time:	17 min 18 sec
Warmup variation	-3,1%

## Warmup conditions

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

## Color temperature change

CCT start	CCT change	CCT end
3030 K	-26 K	3004 K

## Output change

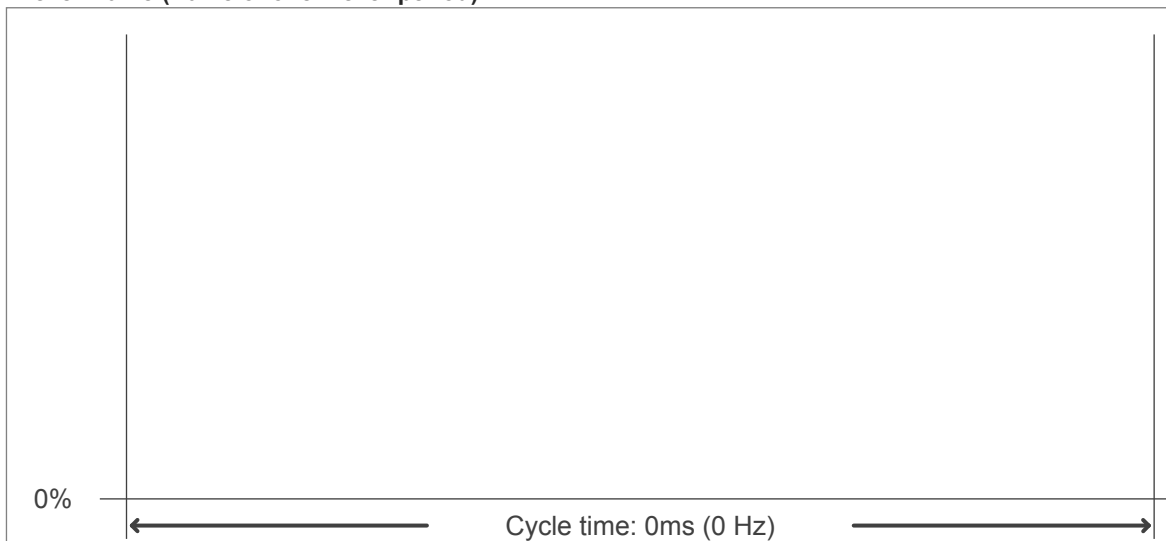
Output start	Output change	Output end
492 lm	-14 lm	478 lm



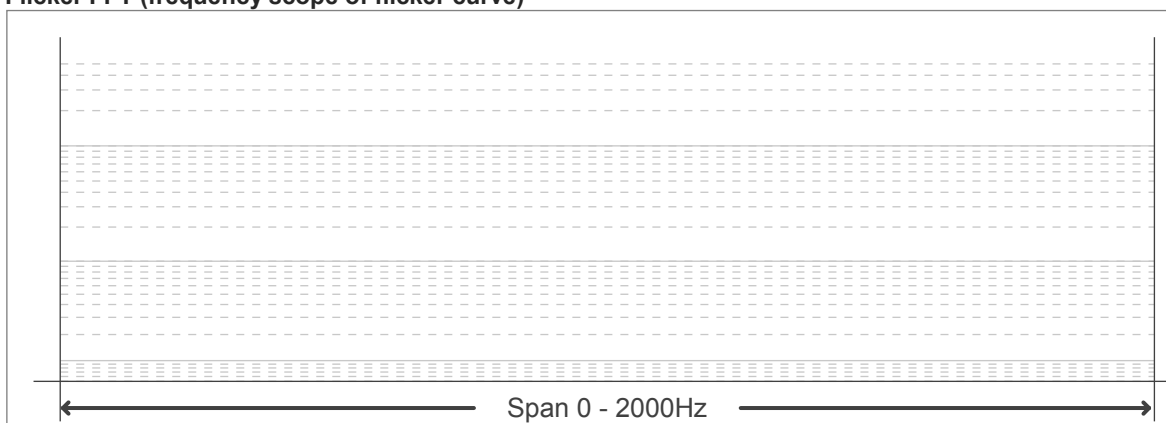
**Flicker curve (complete sampled flicker signal)**



**Flicker frame (frame of one flicker period)**



**Flicker FFT (frequency scope of flicker curve)**



**Flicker results:**

<b>Flicker frequency:</b>	<b>n/a Hz</b>
<b>Flicker index:</b>	<b>n/a</b>
<b>Flicker percentage:</b>	<b>n/a %</b>
<b>SVM: (Visual flicker)</b>	<b>n/a</b>

**Flicker conditions:**

<b>Sample rate:</b>	<b>60.000 samples/second</b>
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