Light efficiency:

76 Lumen/Watt

Light quality:

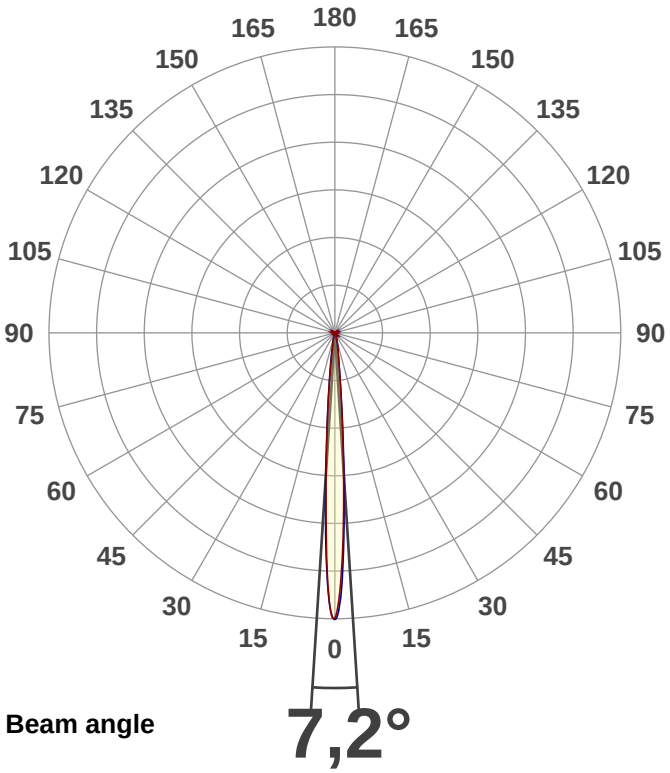
CRI: 92,4

Color temperature:

2740 K

Output: 346 lm
Peak: 10654 cd

Power: 4,5 W
PF: 1,0



Beam angle

7,2°

CIE 1931
x: 0,456
y: 0,408

Product name:
F L-S O - 2-4 C -1 0 0-W-LSST-RS

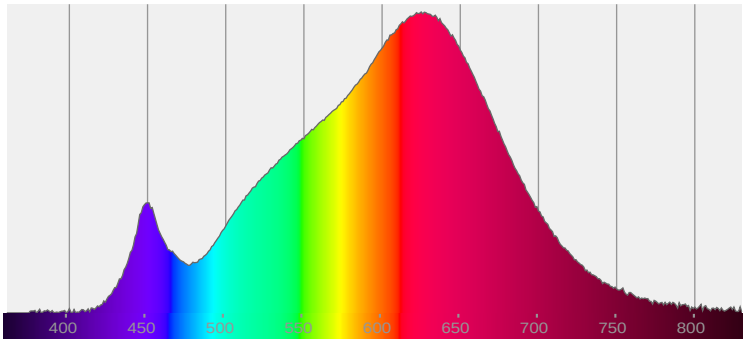
Item number:
F L / S O - 2 / 4 C / 1 0 0 / W /LSST/RS

Date and time:
02.04.2019 14:55:58

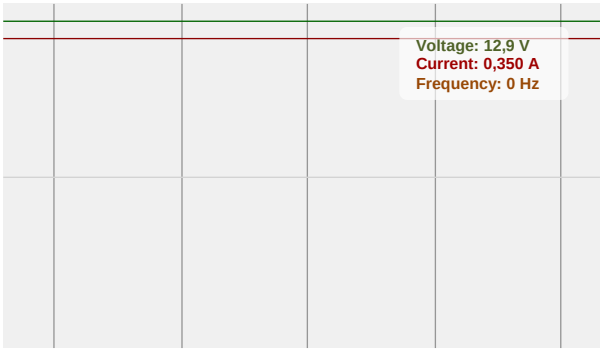
Description:

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

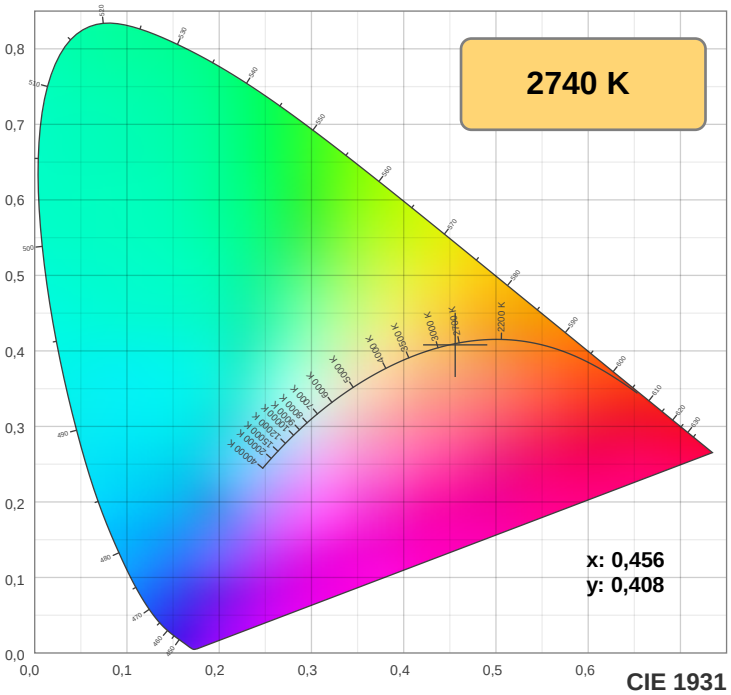
Spectra



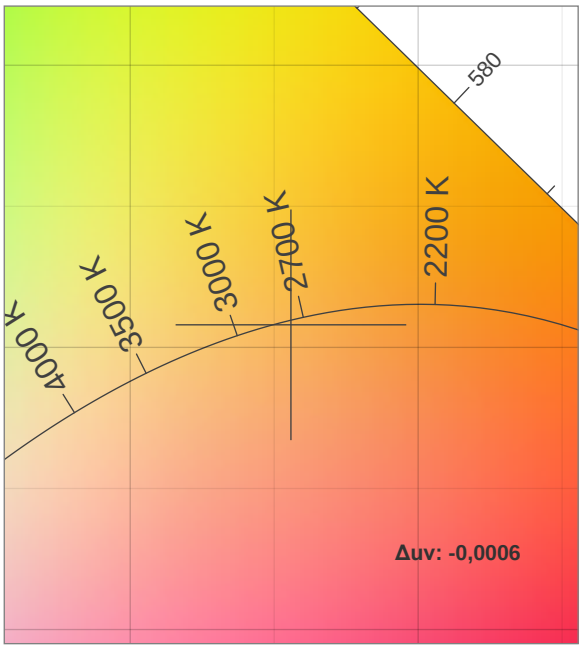
Power



Color details

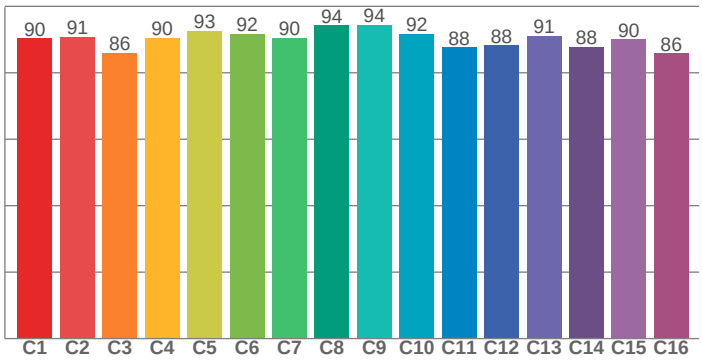


CIE 1931

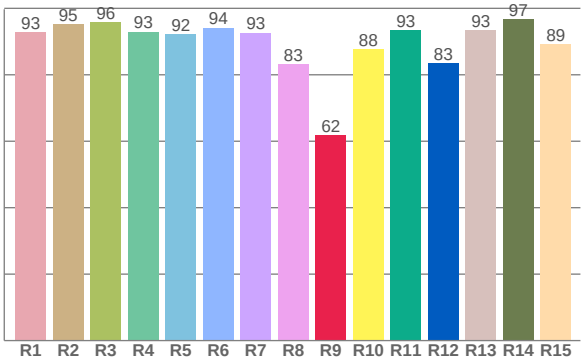


CIE 1931 ZOOM

TM30: 90,2



CRI: 92,4 (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
92,8	95,3	95,8	93,0	92,1	94,1	92,7	83,1	61,8	87,6	93,4	83,4	93,4	96,7	89,2

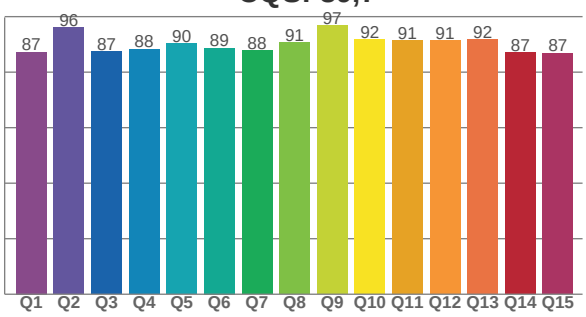
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
90,3	90,9	86,0	90,4	92,6	91,7	90,4	94,3	94,3	91,7	87,7	88,2	91,2	87,7	90,0	85,8

CQS Q values

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

CQS: 89,7



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 diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
2740 K	92,4	61,8	90,2	101,1	89,7	0,456	0,408	0,261	0,350	-0,0006

FLASHAAR

TM30 details

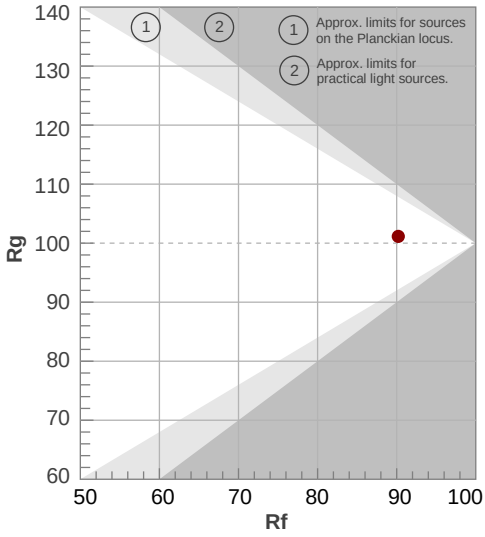
Rf 90,2

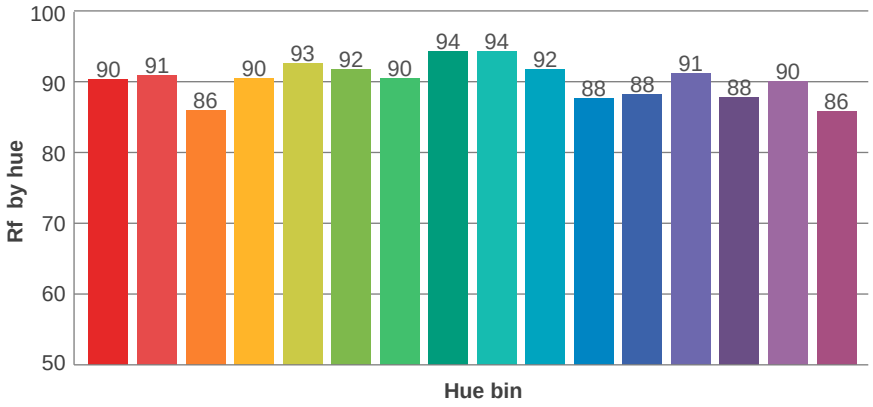
Fidelity index Rf

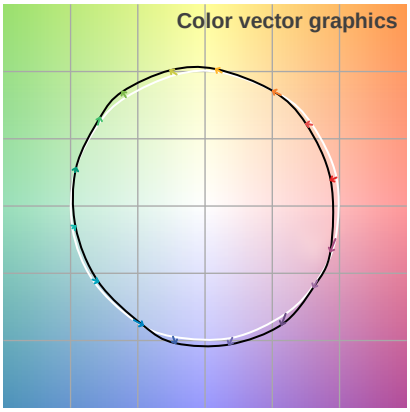
Rg 101,1

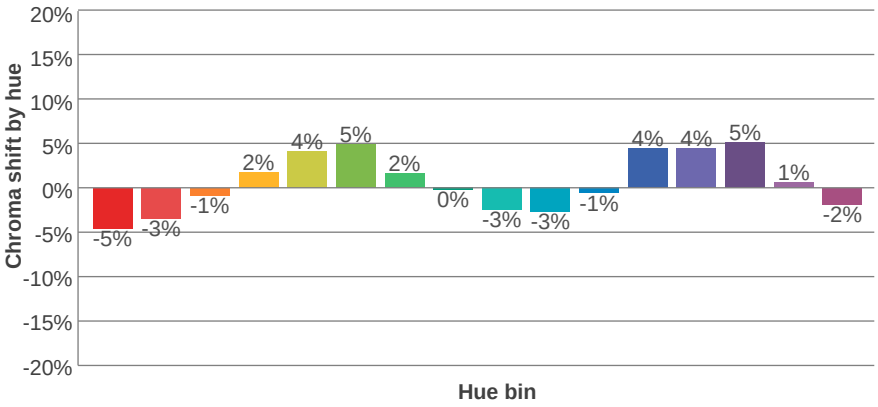
Gammut index Rg

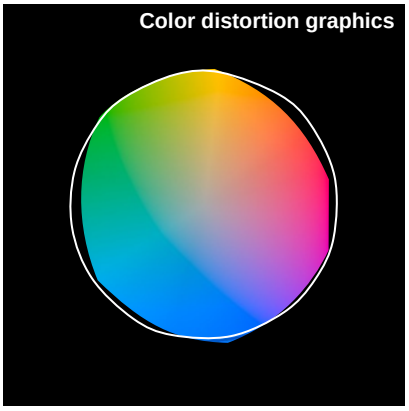
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	90	-5%	-1%
2	91	-3%	3%
3	86	-1%	7%
4	90	2%	5%
5	93	4%	4%
6	92	5%	0%
7	90	2%	-5%
8	94	0%	-3%
9	94	-3%	-1%
10	92	-3%	4%
11	88	-1%	8%
12	88	4%	3%
13	91	4%	-3%
14	88	5%	-7%
15	90	1%	-5%
16	86	-2%	-10%

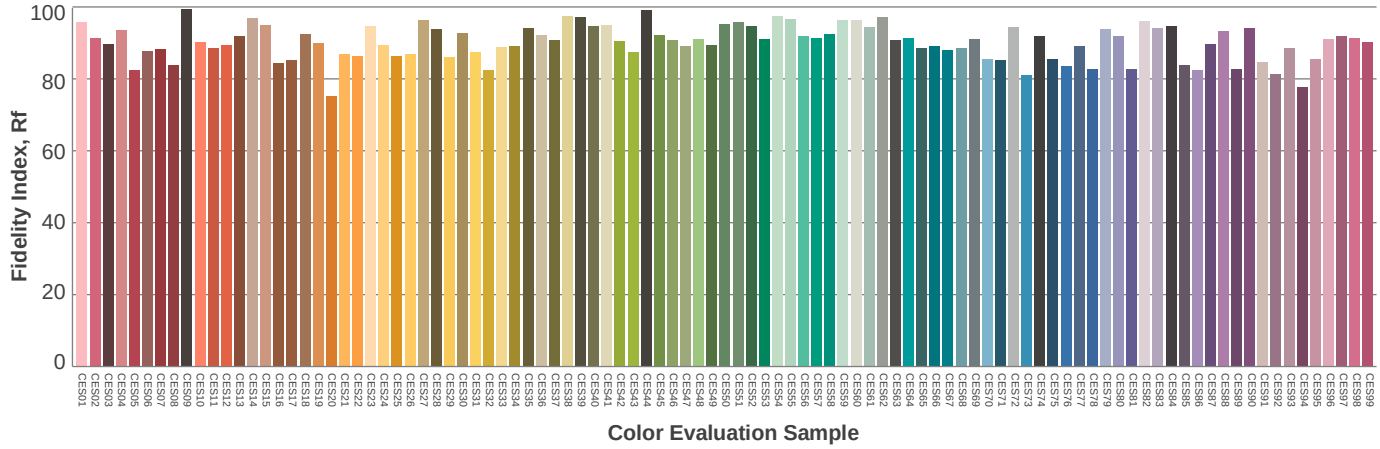






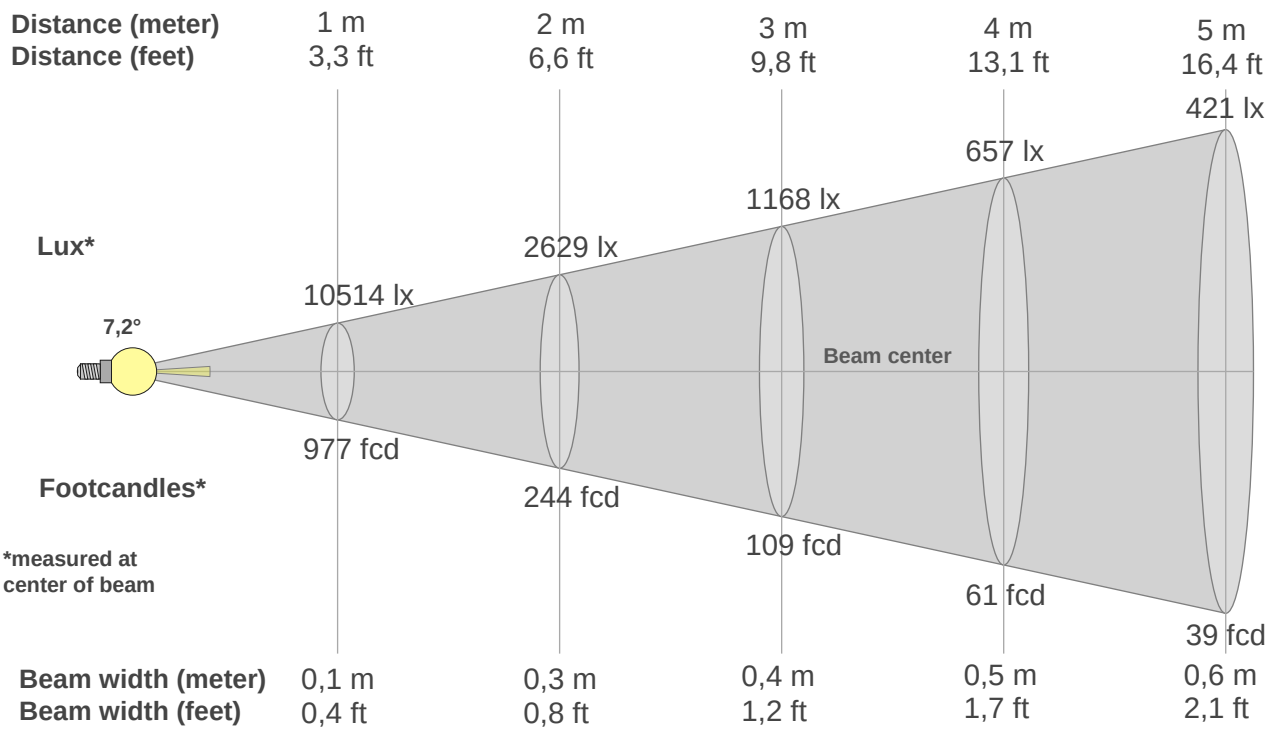






FLASHAAR

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
10514lx	2629lx	1168lx	657lx	421lx	292lx	215lx	164lx	130lx	105lx	87lx	73lx	62lx	54lx	47lx	41lx	36lx	32lx	29lx	26lx
976,8fcd	244,2fcd	108,5fcd	61,1fcd	39,1fcd	27,1fcd	19,9fcd	15,3fcd	12,1fcd	9,8fcd	8,1fcd	6,8fcd	5,8fcd	5fcd	4,3fcd	3,8fcd	3,4fcd	3fcd	2,7fcd	2,4fcd

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°
10,5K	9,7K	8,1K	6,2K	4,4K	3,0K	2,0K	1,4K	1,1K	0,9K	0,7K	0,6K	0,5K	0,5K	0,4K	0,3K	0,3K	0,2K	0,2K	0,1K
100%	92%	77%	59%	42%	28%	19%	13%	10%	8%	7%	6%	5%	4%	4%	3%	3%	2%	2%	1%

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°
10,5K	10,0K	8,6K	6,6K	4,7K	3,2K	2,1K	1,5K	1,1K	0,8K	0,6K	0,5K	0,4K	0,3K	0,3K	0,2K	0,2K	0,1K	0,1K	0,1K
100%	95%	81%	63%	45%	31%	20%	14%	10%	8%	6%	5%	4%	3%	2%	2%	2%	1%	1%	1%

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°
10,5K	10,1K	8,5K	6,3K	4,5K	3,1K	2,1K	1,3K	0,8K	0,6K	0,4K	0,4K	0,3K	0,2K	0,2K	0,2K	0,1K	0,1K	0,1K	0,1K
100%	96%	81%	60%	43%	30%	20%	12%	8%	5%	4%	3%	3%	2%	2%	2%	1%	1%	1%	1%

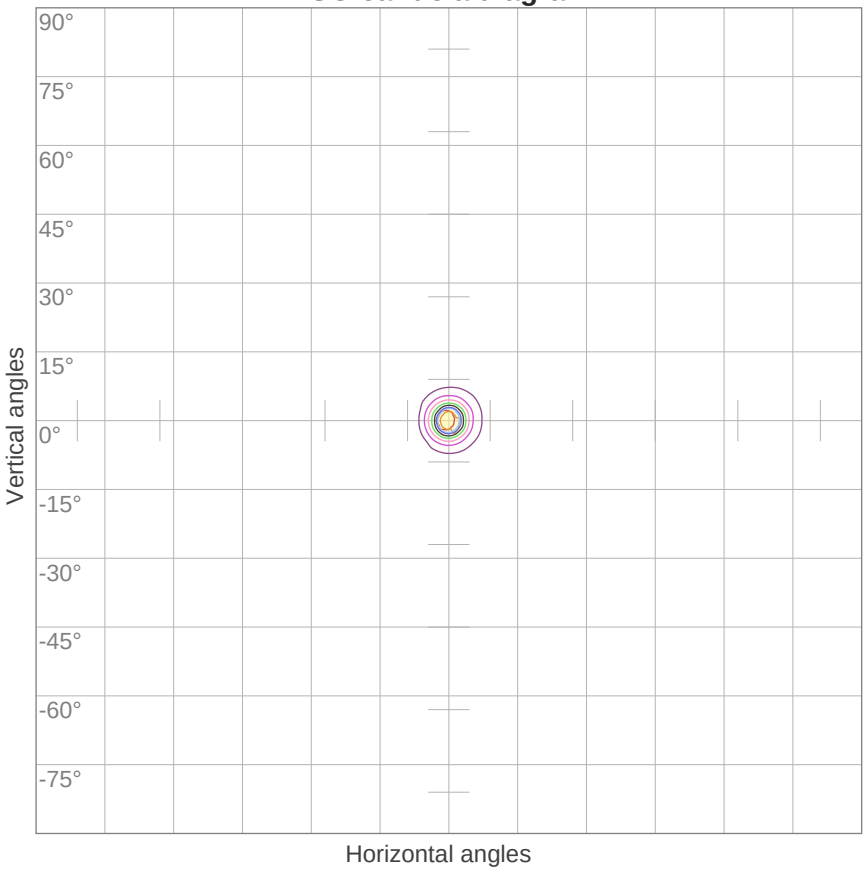
Intensities in 270° c-plane

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
10,5K	10,1K	8,7K	6,7K	4,7K	3,2K	2,2K	1,5K	1,1K	0,8K	0,6K	0,4K	0,3K	0,3K	0,2K	0,2K	0,1K	0,1K	0,1K	0,1K
100%	96%	82%	63%	45%	31%	21%	15%	10%	7%	5%	4%	3%	2%	2%	2%	1%	1%	1%	1%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
7,2°	16°	28,7°	97,4%	95,6%

ISO Diagrams

ISO candela diagram



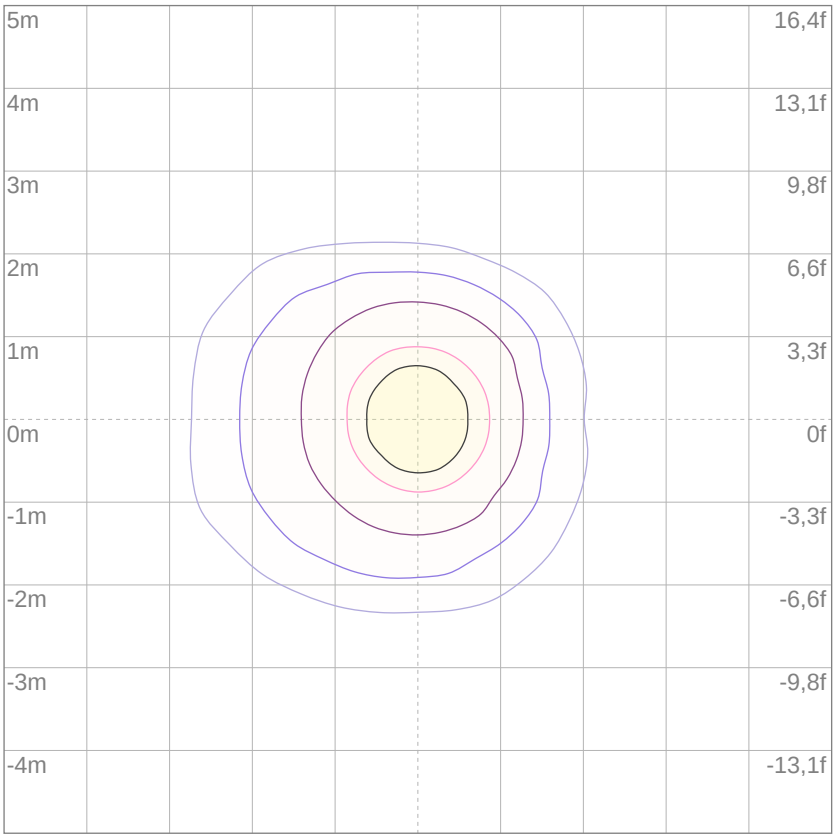
10%	1051 cd
20%	2103 cd
30%	3154 cd
40%	4206 cd
50%	5257 cd
60%	6309 cd
70%	7360 cd
80%	8411 cd
90%	9463 cd

Conditions:

Number of c-planes: 16

Candela at center: 10514 cd

ISO lux diagram



3%	3,15 lx
5%	5,26 lx
10%	10,5 lx
30%	31,5 lx
50%	52,6 lx

Conditions:

Number of c-planes: 16

Lux at center: 105 lx

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

UGR

Glare Evaluation According to UGR

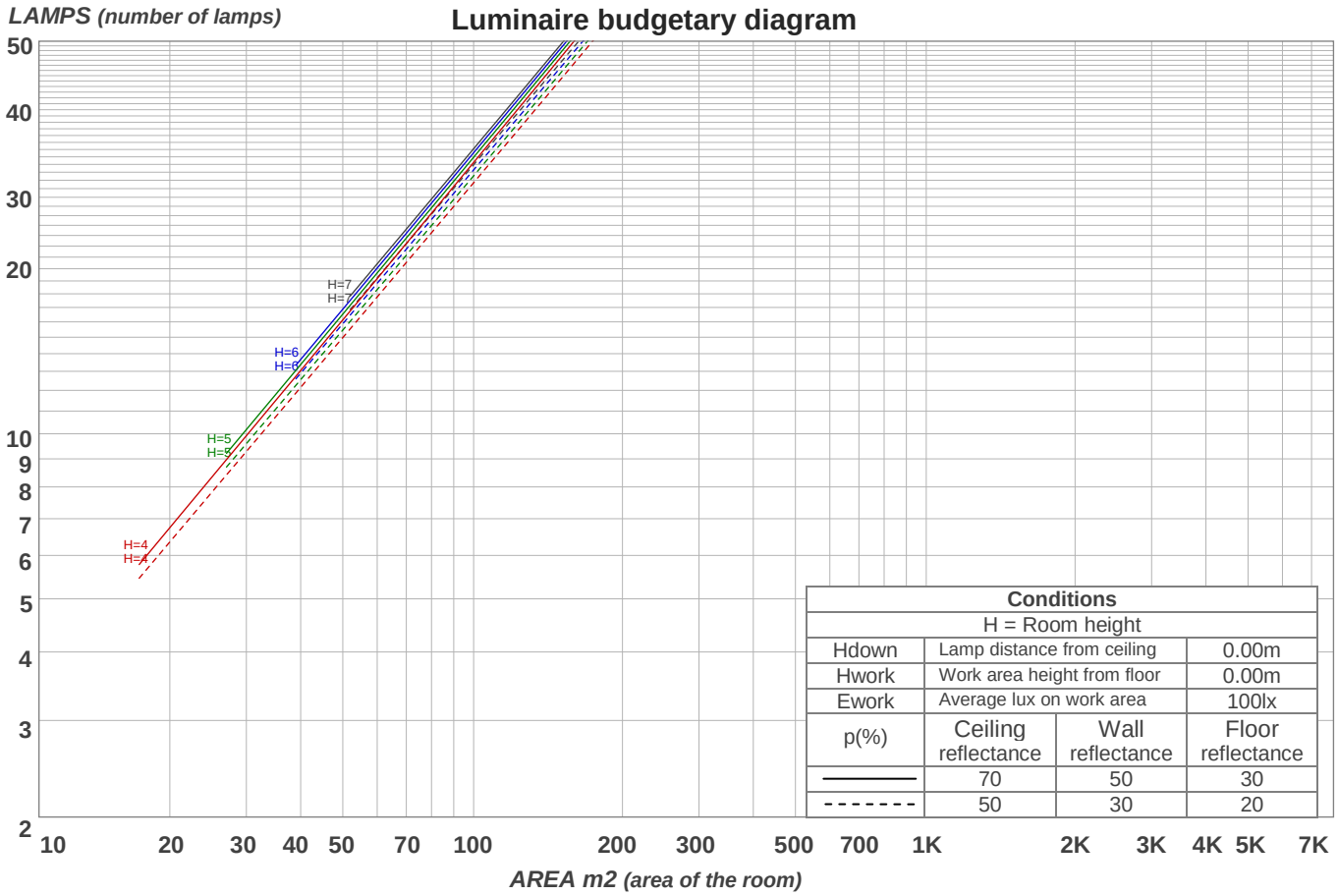
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X	Y	Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	4,0	4,7	4,3	4,9	5,1	3,4	4,1	3,7	4,3	4,5
	3H	6,1	6,8	6,4	7,0	7,2	5,6	6,2	5,8	6,4	6,7
	4H	7,5	8,1	7,8	8,3	8,6	7,0	7,6	7,3	7,8	8,1
	6H	8,7	9,3	9,0	9,5	9,8	8,4	8,9	8,7	9,2	9,5
	8H	9,4	9,9	9,7	10,2	10,5	9,0	9,6	9,4	9,9	10,2
	12H	10,3	10,8	10,7	11,1	11,5	9,7	10,2	10,1	10,5	10,9
4H	2H	4,7	5,3	5,0	5,6	5,8	4,3	4,9	4,6	5,1	5,4
	3H	7,1	7,6	7,5	7,9	8,3	6,6	7,1	7,0	7,4	7,8
	4H	8,6	9,0	9,0	9,4	9,7	8,1	8,6	8,5	8,9	9,2
	6H	10,1	10,5	10,5	10,8	11,2	9,8	10,2	10,2	10,6	10,9
	8H	10,8	11,1	11,2	11,5	11,9	10,6	11,0	11,0	11,3	11,7
	12H	11,9	12,2	12,4	12,6	13,1	11,4	11,7	11,9	12,1	12,5
8H	4H	9,2	9,5	9,6	9,9	10,3	8,8	9,1	9,2	9,5	9,9
	6H	11,0	11,2	11,4	11,6	12,1	10,8	11,1	11,3	11,5	12,0
	8H	11,8	12,0	12,3	12,5	12,9	11,8	12,0	12,3	12,4	12,9
	12H	13,2	13,3	13,6	13,8	14,3	12,8	12,9	13,3	13,4	13,9
12H	4H	9,3	9,6	9,8	10,0	10,4	8,9	9,2	9,4	9,6	10,1
	6H	11,2	11,4	11,7	11,9	12,3	11,1	11,3	11,6	11,8	12,3
	8H	12,2	12,4	12,7	12,8	13,3	12,2	12,4	12,7	12,8	13,3
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,2 / -0,2					+0,1 / -0,1				
S = 1,5H		+0,4 / -0,4					+0,3 / -0,3				
S = 2,0H		+0,6 / -0,7					+0,4 / -0,3				
Standard table		BK11					BK11				
Correction summand		-4,2					-4,7				
Corrected glare indices referring to 346 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	115	113	111	110	113	111	109	108	107	106	105	103	102	102	100	99	99	97
2	112	109	106	104	110	107	105	102	104	102	100	101	99	98	98	97	96	95
3	109	105	102	99	107	104	101	98	101	99	97	99	97	95	97	95	94	93
4	107	102	99	96	105	101	98	95	99	96	94	97	95	93	96	94	92	91
5	104	99	96	93	103	99	95	93	97	94	92	96	93	91	94	92	91	90
6	102	97	94	91	101	97	93	91	95	93	91	94	92	90	93	91	89	89
7	101	95	92	90	100	95	92	89	94	91	89	93	90	89	92	90	88	87
8	99	94	90	88	98	93	90	88	92	90	88	92	89	87	91	89	87	86
9	98	92	89	87	97	92	89	87	91	89	87	91	88	86	90	88	86	85
10	96	91	88	86	96	91	88	86	90	87	86	90	87	85	89	87	85	85

Luminaire budgetary diagram



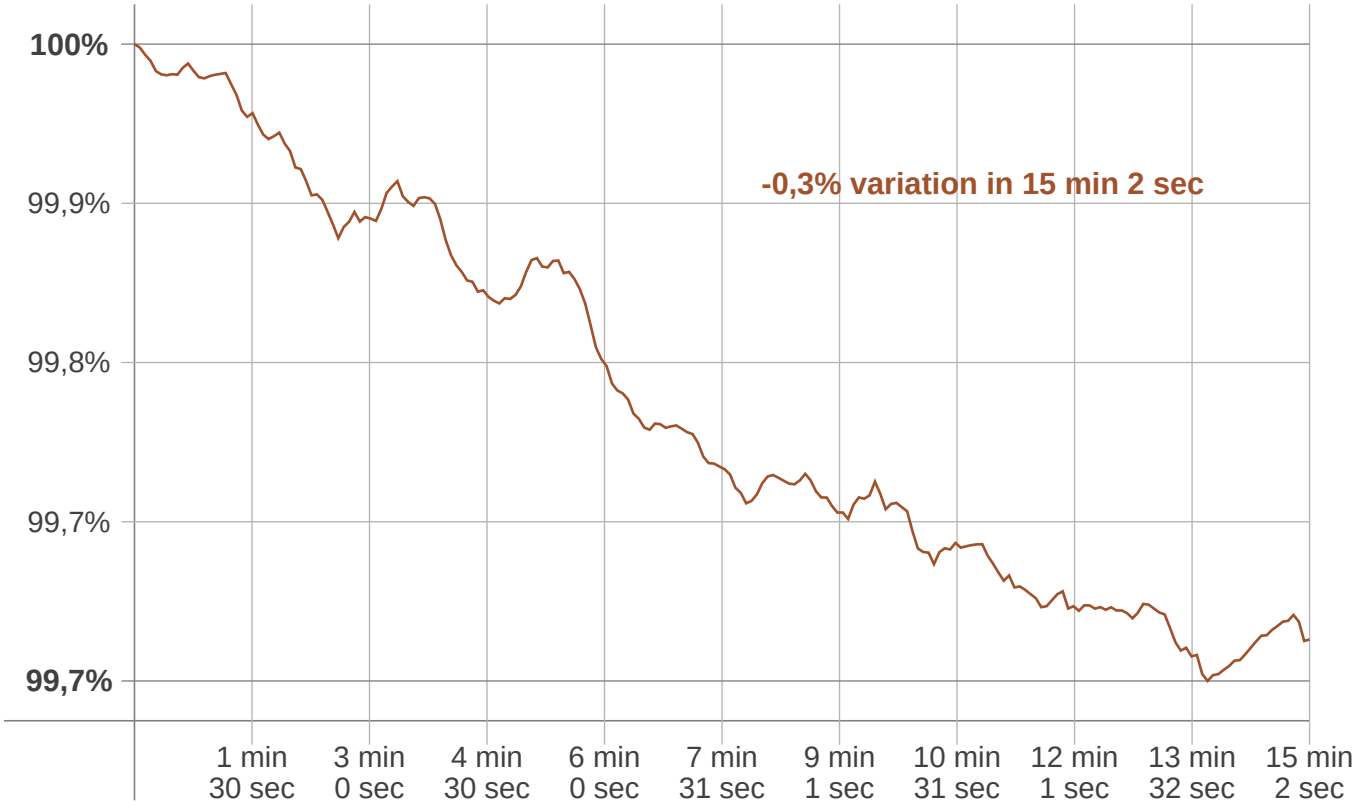
Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	69,5 lm	17,1 lm	6,65 lm	4,69 lm	3,99 lm	3,50 lm	2,96 lm	2,38 lm

90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,140 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

Stabilization

Warmup curve



Warmup result

Warmup time:	**15 min 2 sec**
Warmup variation	**-0,3%**

Warmup conditions

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

Color temperature change

CCT start	CCT change	CCT end
2741 K	-1 K	2740 K

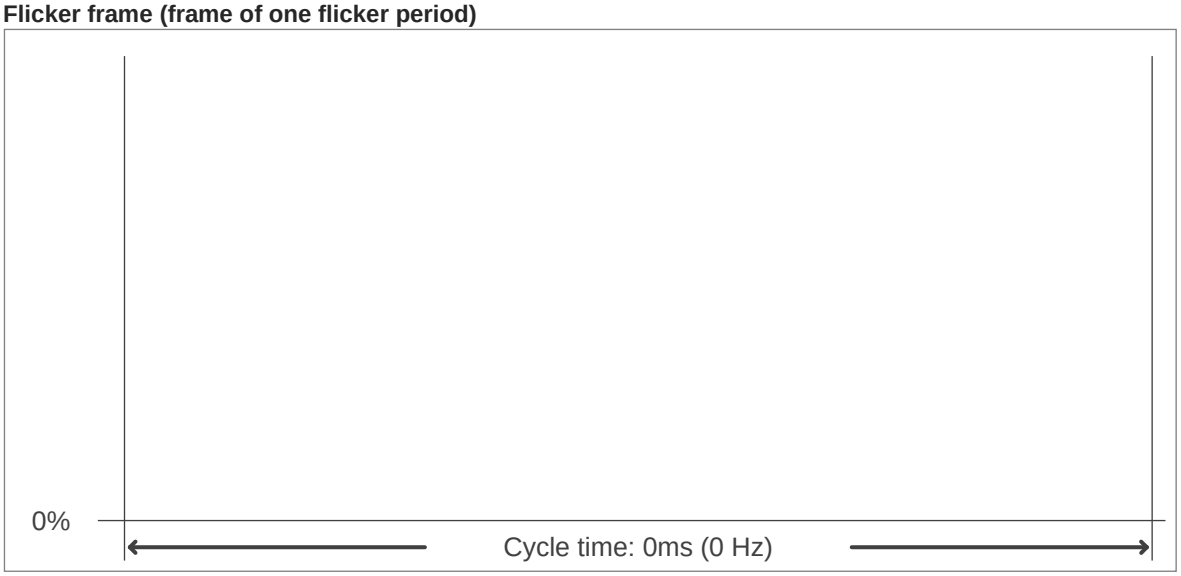
Output change

Output start	Output change	Output end
347 lm	-1 lm	346 lm

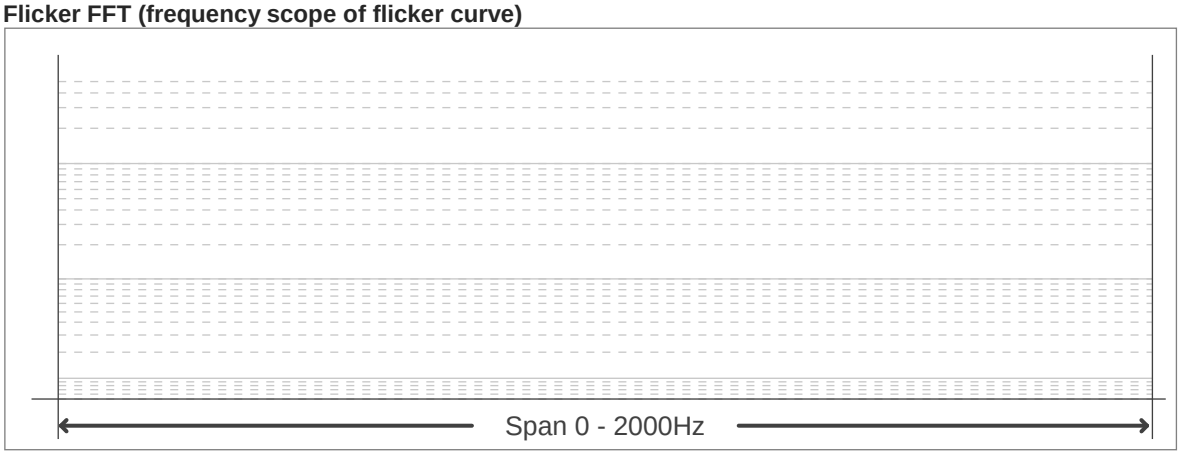
Flicker

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**