Light efficiency:

76 Lumen/Watt

Light quality:

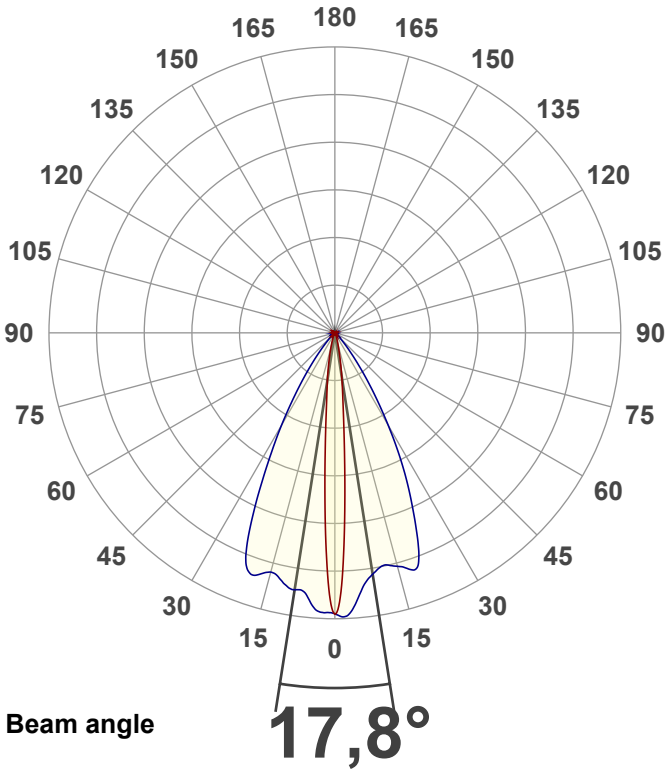
CRI: 92,4

Color temperature:

2740 K

Output: 334 lm
Peak: 1673 cd

Power: 4,4 W
PF: 1,0



Beam angle

17,8°

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

Product name:
F L-S O - 2-4 C -1 0 0-W-LATT-O90

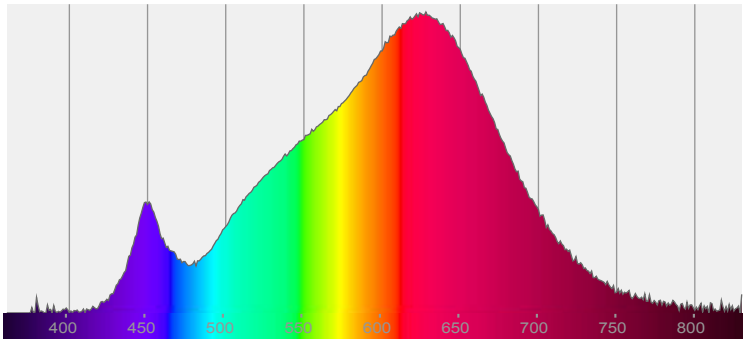
Item number:
F L / S O - 2 / 4 C / 1 0 0 / W/LATT/O90

Date and time:
03.04.2019 15:25:53

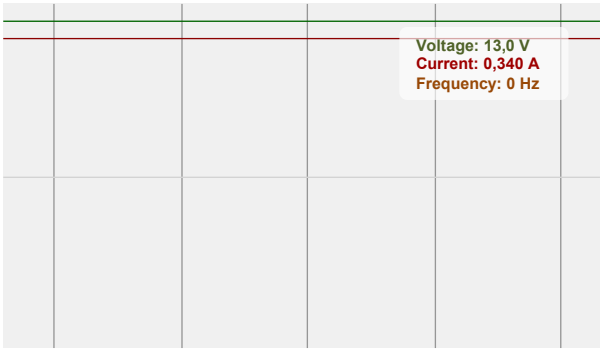
Description:

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

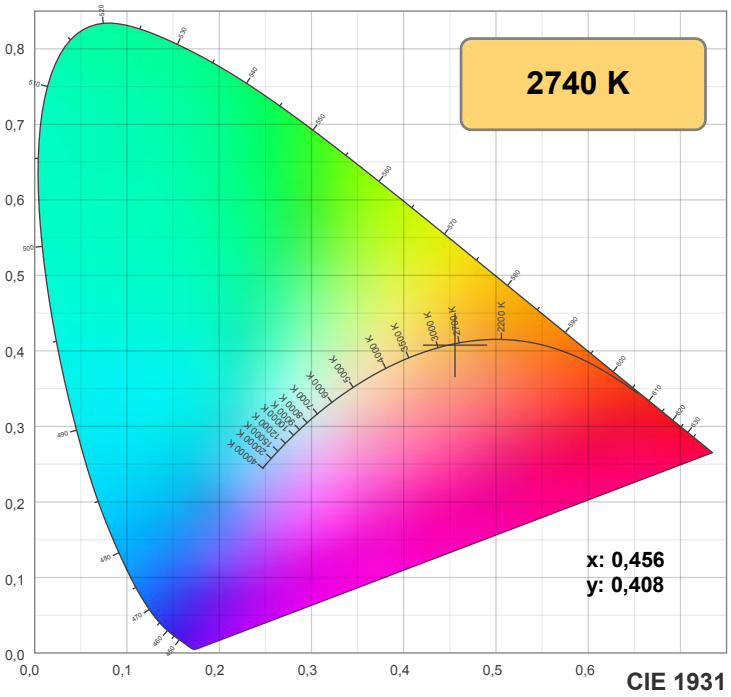
Spectra

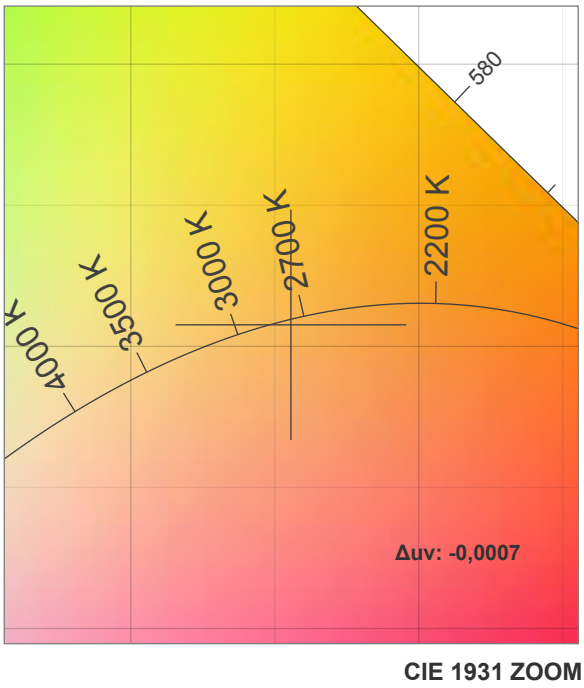


Power

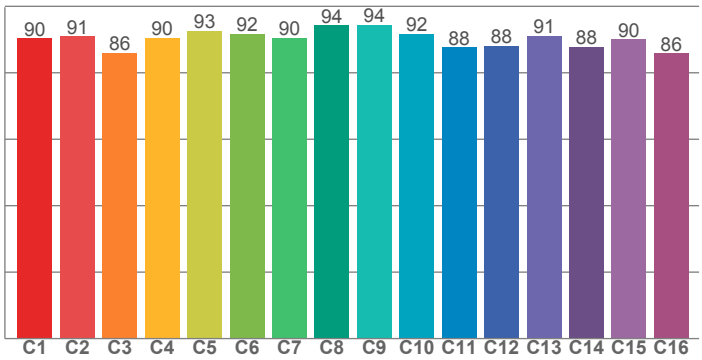


Color details

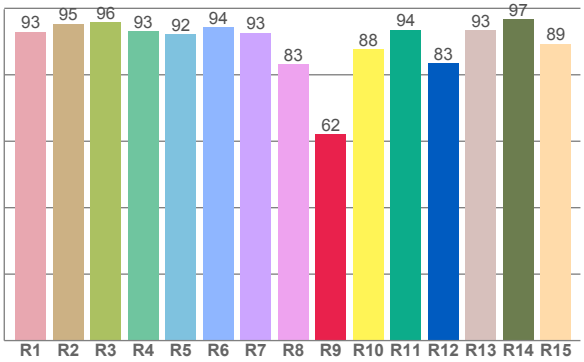




TM30: 90,2



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
92,9	95,3	95,8	93,0	92,2	94,2	92,7	83,2	62,2	87,8	93,5	83,5	93,5	96,7	89,4

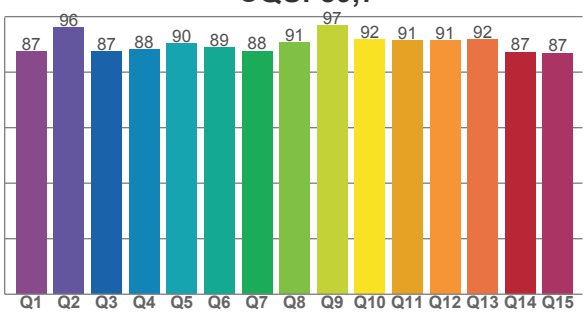
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
90,4	90,9	86,0	90,4	92,6	91,6	90,4	94,2	94,4	91,7	87,7	88,2	91,2	87,7	90,1	85,8

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
87,4	96,0	87,4	88,2	90,4	88,8	87,7	90,6	96,8	91,8	91,4	91,4	91,8	87,1	86,9

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	62,2	90,2	101,2	89,7	0,456	0,408	0,261	0,350	-0,0007

TM30 details

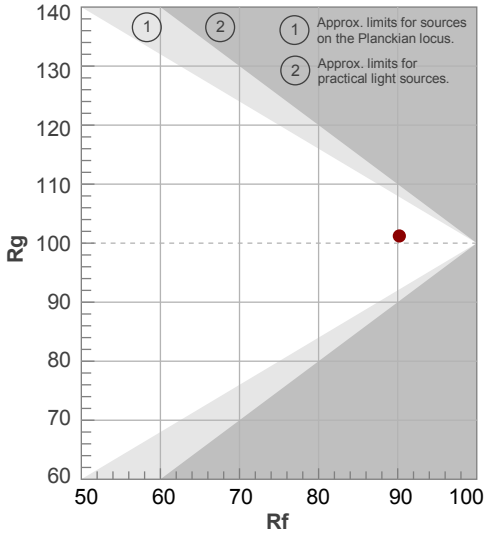
Rf 90,2

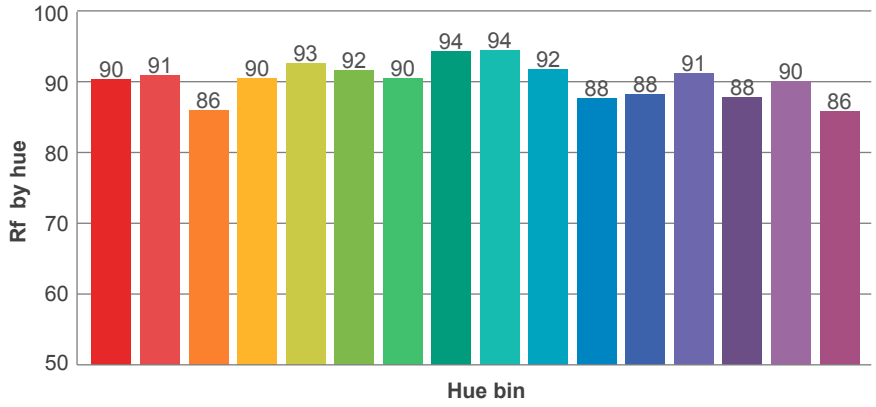
Fidelity index Rf

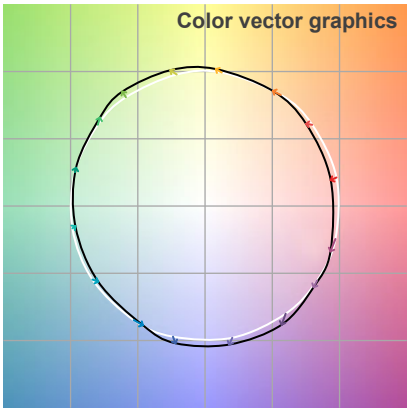
Rg 101,2

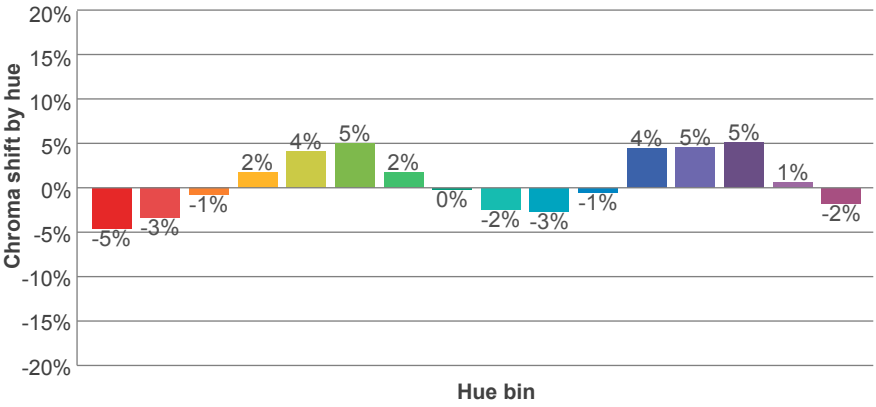
Gammut index Rg

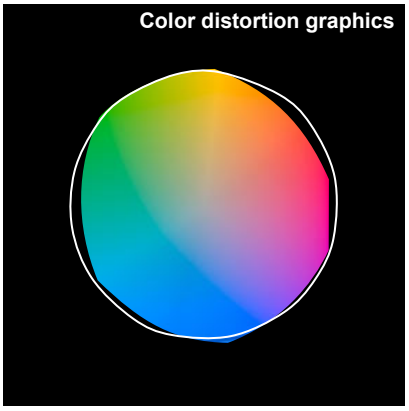
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	90	-5%	-1%
2	91	-3%	3%
3	86	-1%	7%
4	90	2%	5%
5	93	4%	4%
6	92	5%	0%
7	90	2%	-5%
8	94	0%	-3%
9	94	-2%	-1%
10	92	-3%	4%
11	88	-1%	8%
12	88	4%	3%
13	91	5%	-3%
14	88	5%	-7%
15	90	1%	-5%
16	86	-2%	-10%

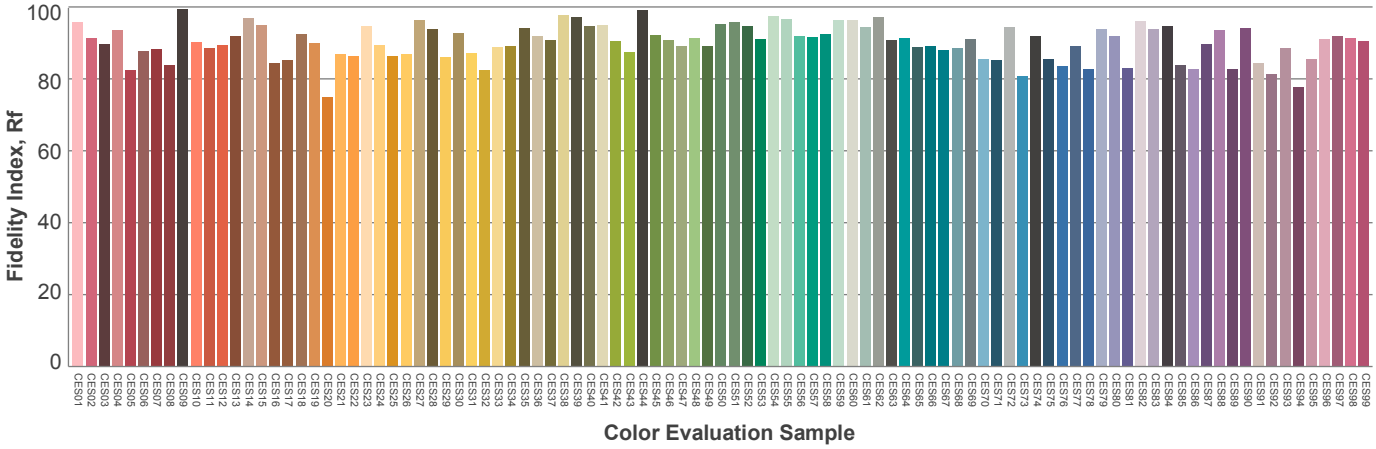






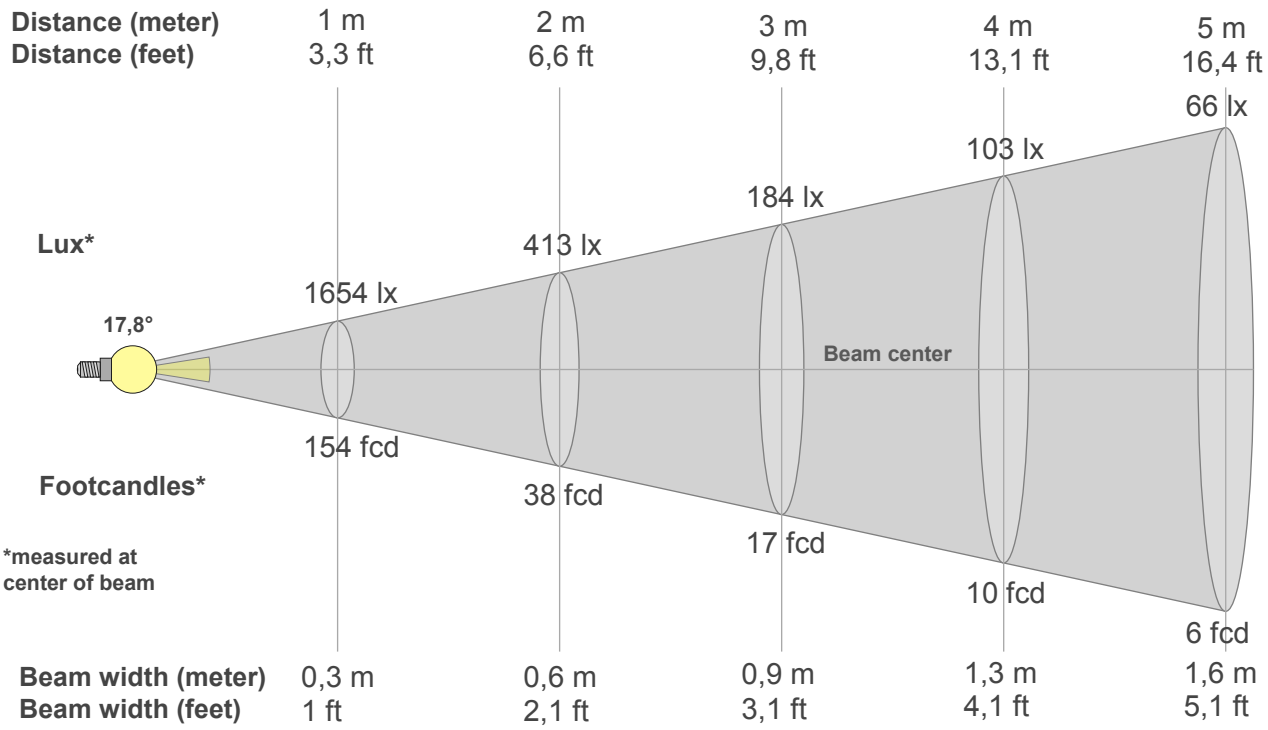






FLASHAAR

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
1654lx	413lx	184lx	103lx	66lx	46lx	34lx	26lx	20lx	17lx	14lx	11lx	10lx	8lx	7lx	6lx	6lx	5lx	5lx	4lx
153,6fc	38,4fcd	17,1fcd	9,6fcd	6,1fcd	4,3fcd	3,1fcd	2,4fcd	1,9fcd	1,5fcd	1,3fcd	1,1fcd	0,9fcd	0,8fcd	0,7fcd	0,6fcd	0,5fcd	0,5fcd	0,4fcd	0,4fcd

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°
1654	1582	1374	1100	841	633	484	384	314	258	210	170	138	110	88	72	60	50	42	35
100%	96%	83%	67%	51%	38%	29%	23%	19%	16%	13%	10%	8%	7%	5%	4%	4%	3%	3%	2%

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°
1654	1668	1672	1655	1617	1568	1520	1482	1455	1436	1419	1405	1398	1404	1414	1423	1433	1450	1467	1469
100%	101%	101%	100%	98%	95%	92%	90%	88%	87%	86%	85%	85%	85%	86%	86%	87%	88%	89%	89%

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°
1654	1571	1353	1090	840	640	494	395	329	279	234	196	163	135	110	89	73	60	49	40
100%	95%	82%	66%	51%	39%	30%	24%	20%	17%	14%	12%	10%	8%	7%	5%	4%	4%	3%	2%

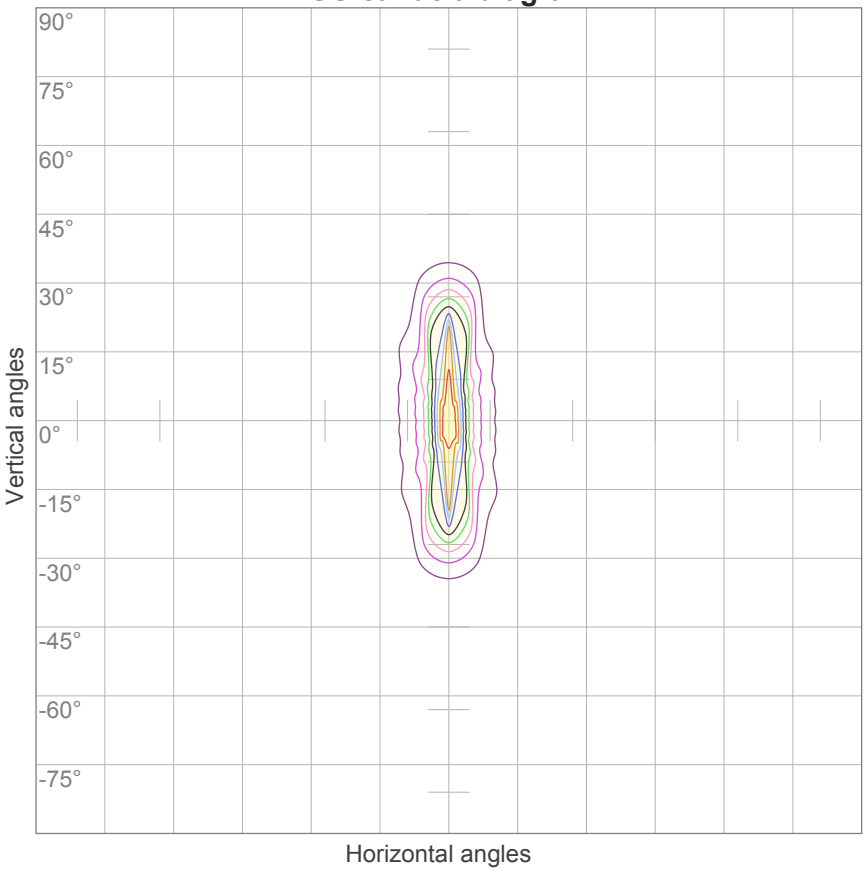
Intensities in 270° c-plane

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
1654	1648	1649	1646	1633	1601	1559	1533	1527	1531	1528	1513	1495	1476	1461	1459	1467	1483	1500	1505
100%	100%	100%	100%	99%	97%	94%	93%	92%	93%	92%	92%	90%	89%	88%	88%	89%	90%	91%	91%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
17,8°	38,6°	55,3°	97,8%	95,3%

ISO Diagrams

ISO candela diagram



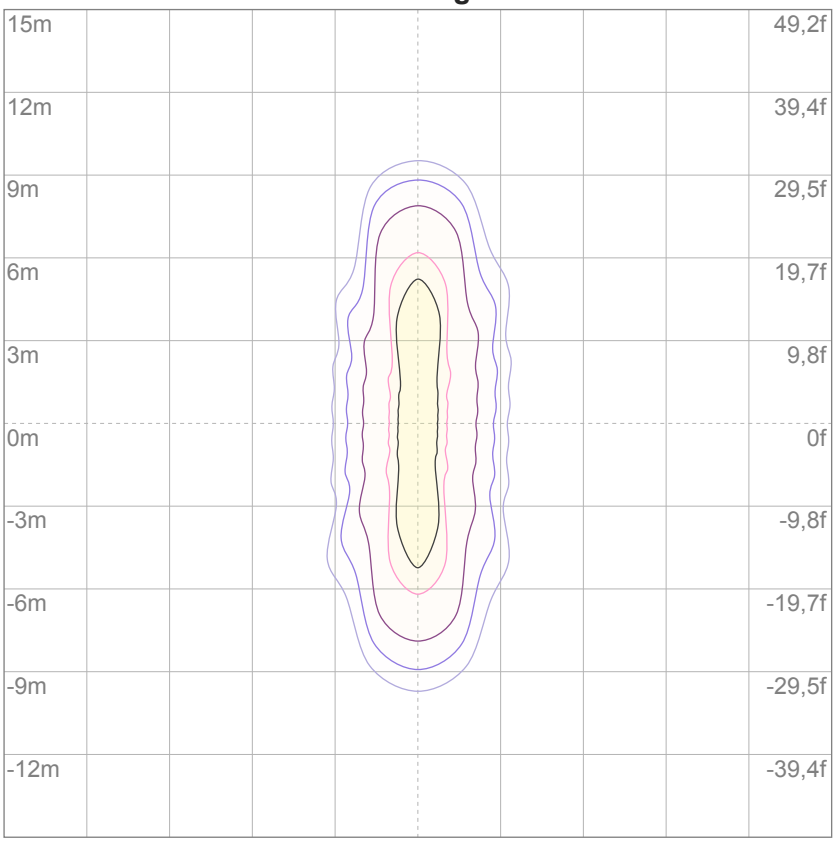
10%	165 cd
20%	331 cd
30%	496 cd
40%	662 cd
50%	827 cd
60%	992 cd
70%	1158 cd
80%	1323 cd
90%	1488 cd

Conditions:

Number of c-planes: 16

Candela at center: 1654 cd

ISO lux diagram



3%	0,496 lx
5%	0,827 lx
10%	1,65 lx
30%	4,96 lx
50%	8,27 lx

Conditions:

Number of c-planes: 16

Lux at center: 16,5 lx

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

UGR

Glare Evaluation According to UGR

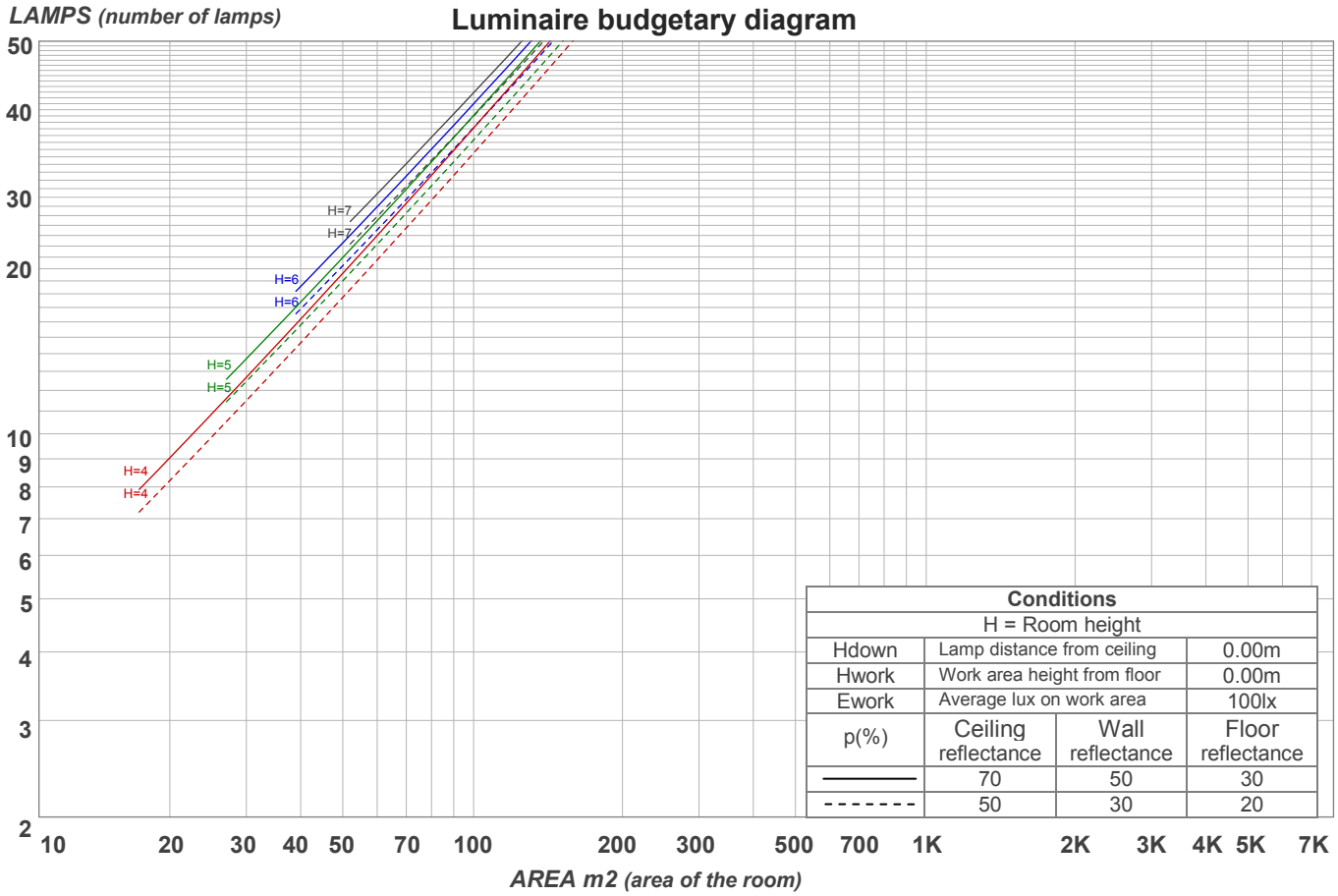
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X	Y	Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	3,1	3,8	3,4	4,0	4,2	15,1	15,8	15,3	16,0	16,2
	3H	4,8	5,4	5,0	5,6	5,9	15,0	15,7	15,3	15,9	16,2
	4H	5,6	6,2	5,9	6,5	6,7	15,1	15,7	15,4	15,9	16,2
	6H	6,6	7,1	6,9	7,4	7,7	15,5	16,1	15,8	16,3	16,6
	8H	6,9	7,5	7,3	7,8	8,1	17,2	17,7	17,5	18,0	18,3
	12H	7,4	7,9	7,7	8,2	8,5	18,8	19,3	19,2	19,6	19,9
4H	2H	3,9	4,5	4,2	4,7	5,0	14,9	15,5	15,2	15,8	16,0
	3H	5,7	6,2	6,0	6,5	6,8	14,9	15,4	15,2	15,7	16,0
	4H	6,7	7,1	7,1	7,5	7,8	15,0	15,4	15,3	15,7	16,1
	6H	7,8	8,1	8,2	8,5	8,9	15,5	15,9	15,9	16,3	16,6
	8H	8,2	8,6	8,6	8,9	9,3	17,6	17,9	18,0	18,3	18,7
	12H	8,8	9,1	9,2	9,5	9,9	19,5	19,8	20,0	20,2	20,6
8H	4H	7,1	7,4	7,5	7,8	8,2	14,9	15,2	15,3	15,6	16,0
	6H	8,4	8,6	8,8	9,1	9,5	15,5	15,8	16,0	16,2	16,6
	8H	9,0	9,2	9,5	9,6	10,1	17,7	17,9	18,1	18,3	18,8
	12H	9,7	9,9	10,2	10,3	10,8	19,7	19,8	20,1	20,3	20,8
12H	4H	7,3	7,5	7,7	7,9	8,4	14,9	15,2	15,3	15,6	16,0
	6H	8,6	8,8	9,1	9,3	9,7	15,5	15,7	16,0	16,2	16,6
	8H	9,3	9,5	9,8	9,9	10,4	17,6	17,8	18,1	18,3	18,8
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,1 / -0,1					+2,7 / -0,8				
S = 1,5H		+0,3 / -0,4					+4,7 / -1,0				
S = 2,0H		+0,4 / -0,5					+6,5 / -1,6				
Standard table		BK08					---				
Correction summand		-8,0					---				
Corrected glare indices referring to 334 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	114	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94
2	109	105	101	98	107	103	100	97	100	97	95	97	95	93	94	92	91	89
3	104	99	94	91	103	97	93	90	95	91	89	92	90	87	90	88	86	84
4	100	94	89	85	98	92	88	84	90	87	83	88	85	83	87	84	82	80
5	96	89	84	80	95	88	83	80	86	82	79	85	81	78	83	80	78	76
6	92	85	80	76	91	84	79	76	83	78	75	81	78	75	80	77	74	73
7	89	81	76	72	88	80	76	72	79	75	72	78	74	71	77	74	71	70
8	86	78	72	69	85	77	72	69	76	72	69	75	71	68	74	71	68	67
9	83	74	69	66	82	74	69	66	73	69	66	72	68	66	72	68	65	64
10	80	72	67	63	79	71	67	63	70	66	63	70	66	63	69	65	63	62

Luminaire budgetary diagram



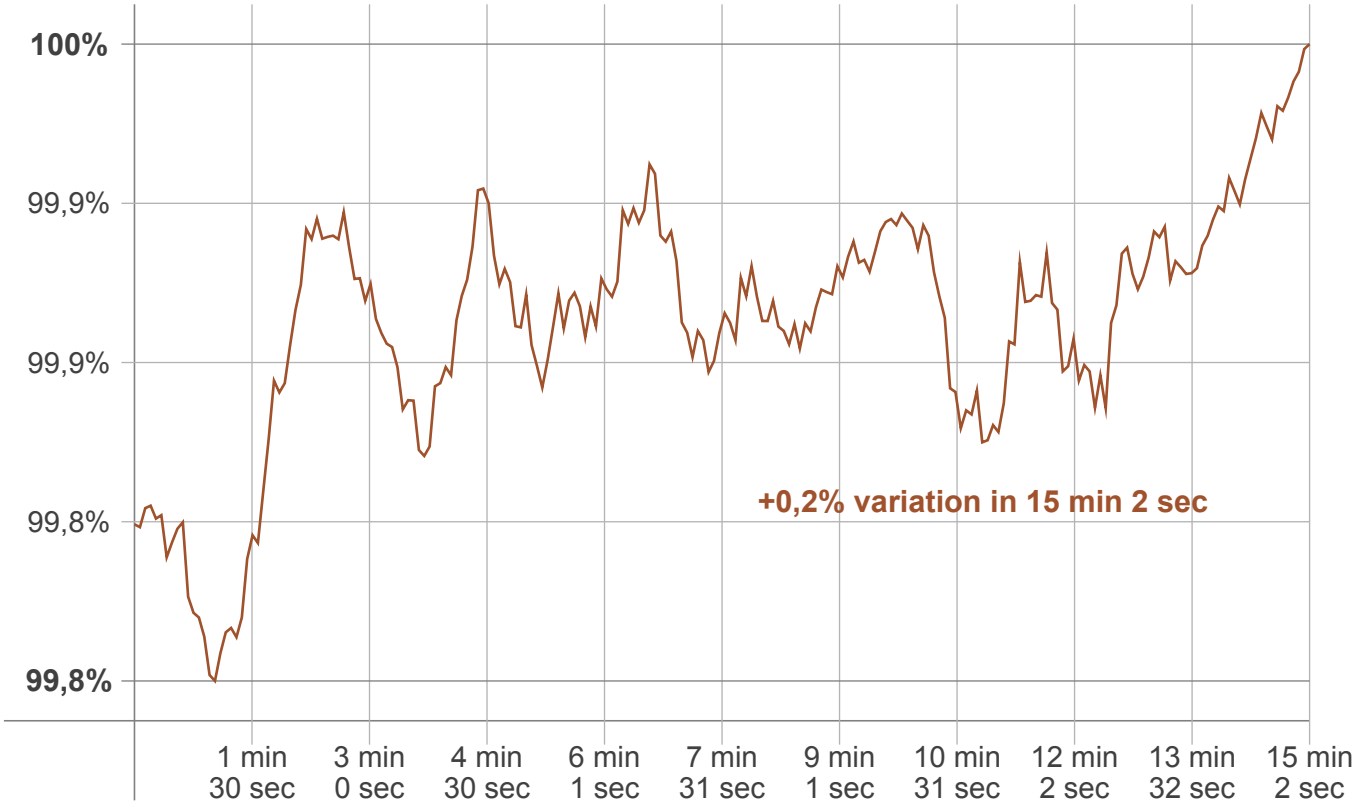
Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	108 lm	86,1 lm	35,3 lm	9,72 lm	4,64 lm	3,15 lm	2,29 lm	1,94 lm

90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,079 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	**+0,2%**

Warmup conditions

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

Color temperature change

CCT start	CCT change	CCT end
2740 K	**0 K**	**2740 K**

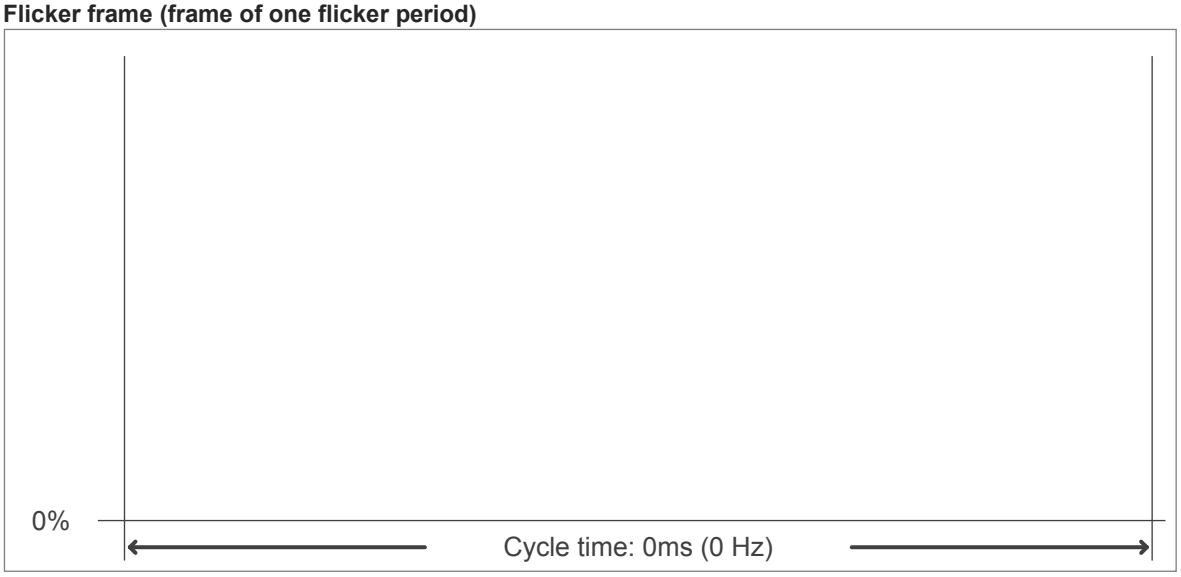
Output change

Output start	Output change	Output end
334 lm	**+ lm**	**334 lm**

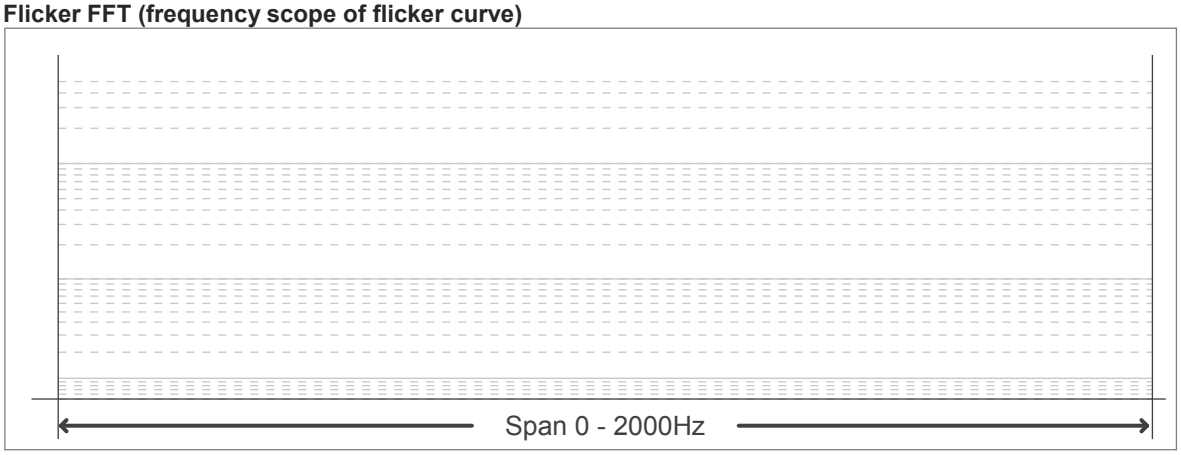
Flicker

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**