

Light efficiency:

154 Lumen/Watt

Light quality:

CRI: 82,0

Color temperature:

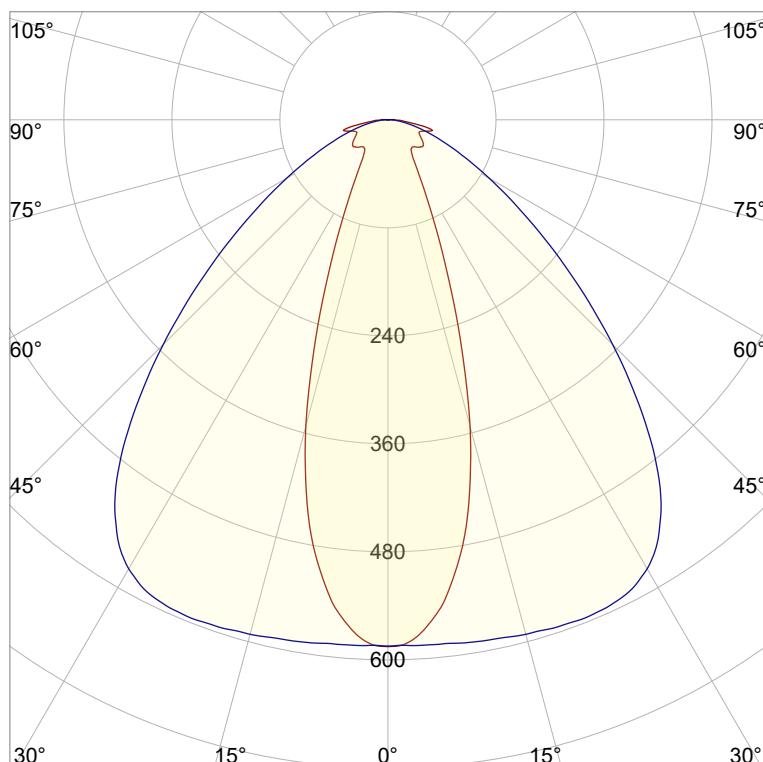
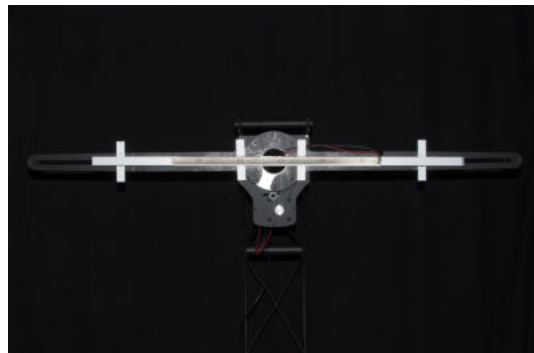
2756 K

Output: 664 lm

Peak: 595 cd

Power: 4,3 W

PF: 1,0



Product name:

Navigator-3_510mm_827_Lens-30°-Frosted

Item number:

NP/L1C/14C/G1/L1C/0510/827/L3F

Date and time:

21.06.2022 14:31:07

Description:

Rank: D60-AC-8GB

Tolerances:

Lumen +/-4%

Candela +/-2,5%

Colour Temp +/-35 Kelvin

CRI +/-0,7

Angular Resolution: 1 Degree Step

Last Calibration 20-09-2021

Tester: Peter Ulrich

Test Site: Lichtlabor

Gaustrasse 13

55411 Bingen am Rhein

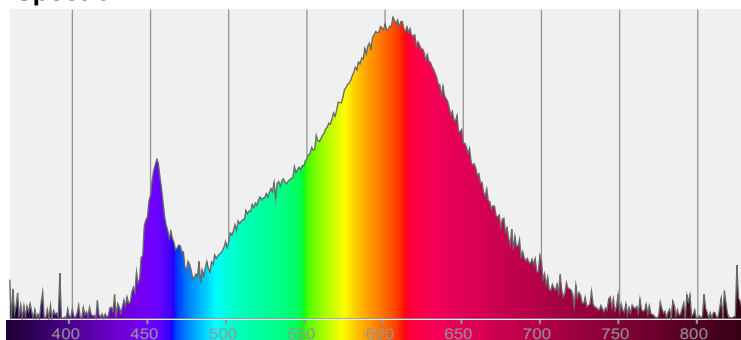


CIE 1931

x: 0,454

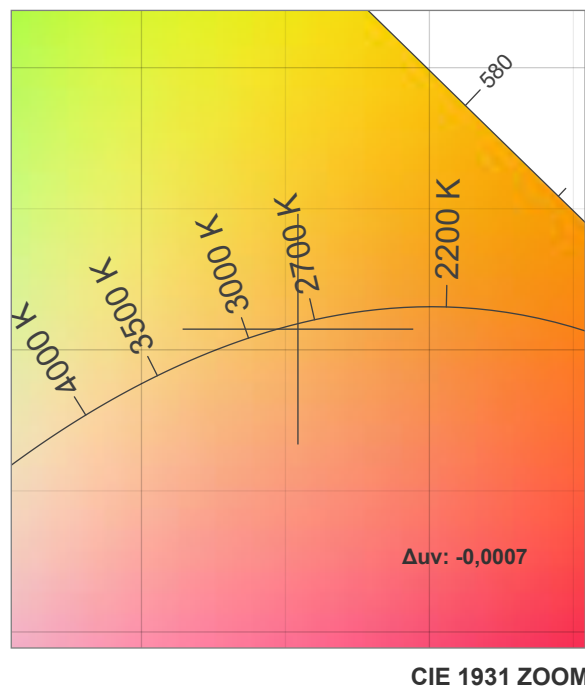
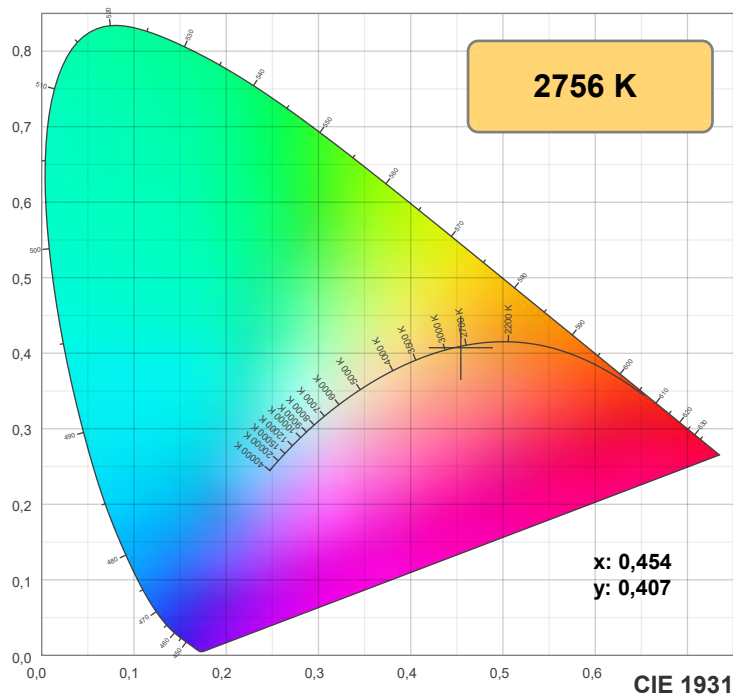
y: 0,407

Spectra



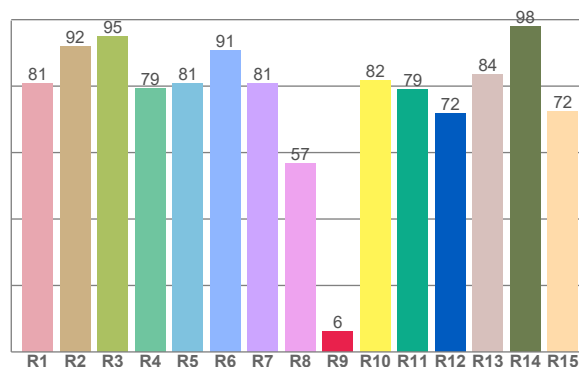
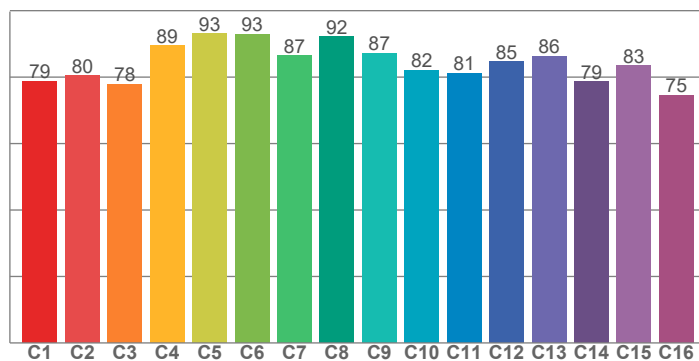
Power

Voltage: 48,0 V
Current: 0,090 A
Frequency: 0 Hz



TM30: 84,1

CRI: 82,0 (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
80,8	91,9	95,0	79,4	80,8	90,7	80,8	56,6	6,0	81,8	79,0	71,8	83,5	98,1	72,4

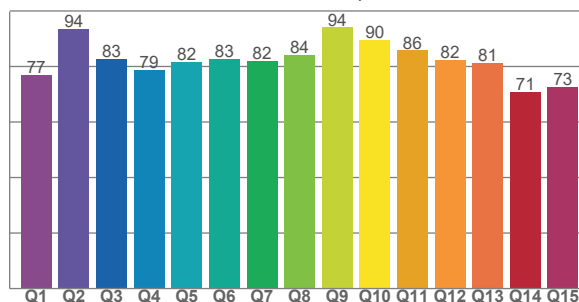
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
78,8	80,4	77,9	89,4	93,1	93,0	86,6	92,2	87,2	82,1	81,3	84,6	86,4	78,6	83,5	74,6

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
76,8	93,6	82,6	76,6	81,7	82,7	82,0	84,2	94,1	89,7	85,8	82,4	81,2	70,9	72,7

CQS: 81,3



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
2756 K	82,0	6,0	84,1	95,3	81,3	0,454	0,407	0,260	0,350	-0,0007

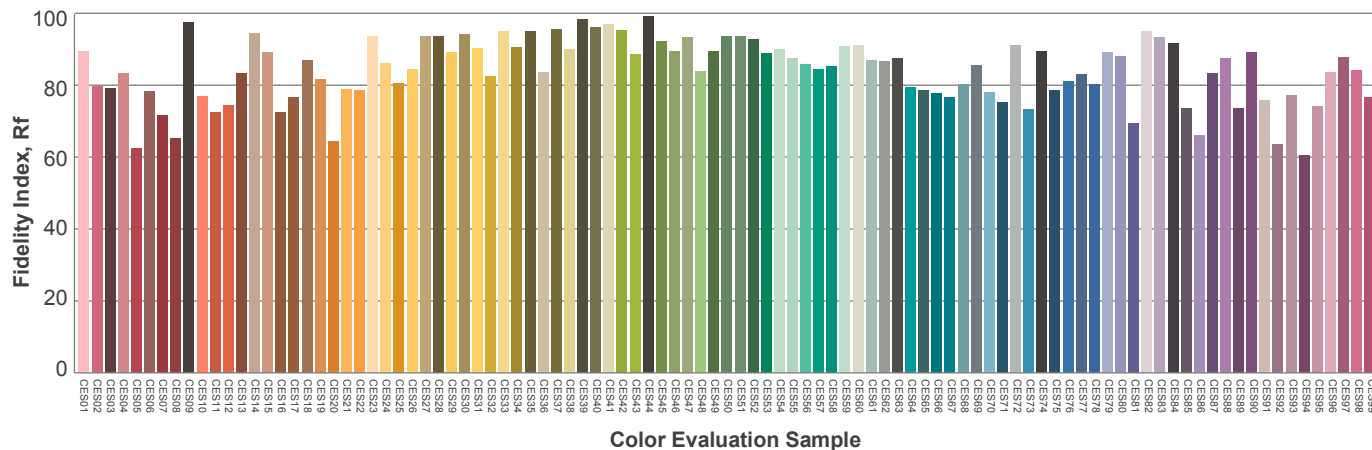
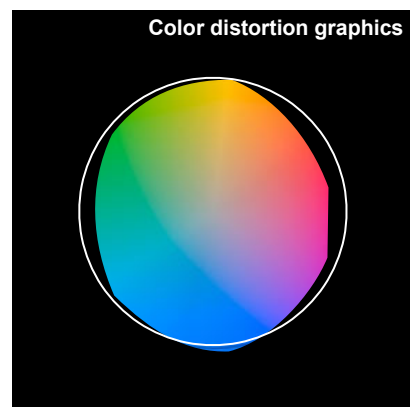
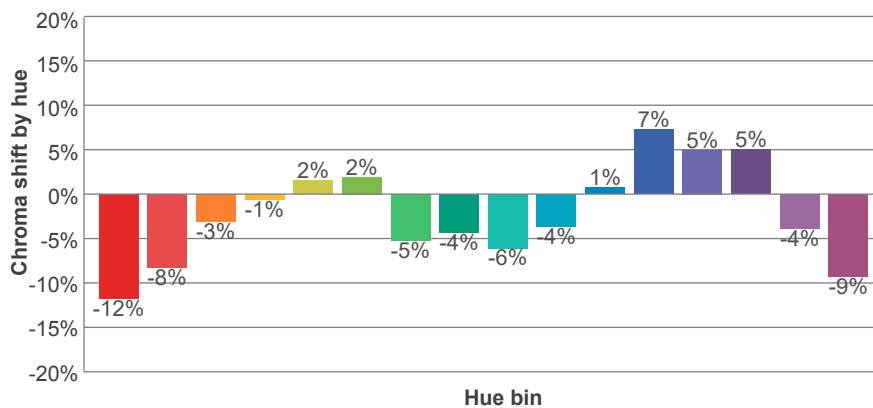
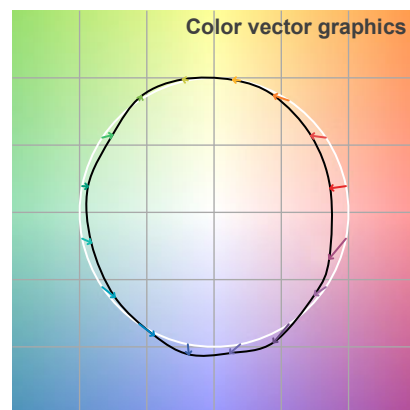
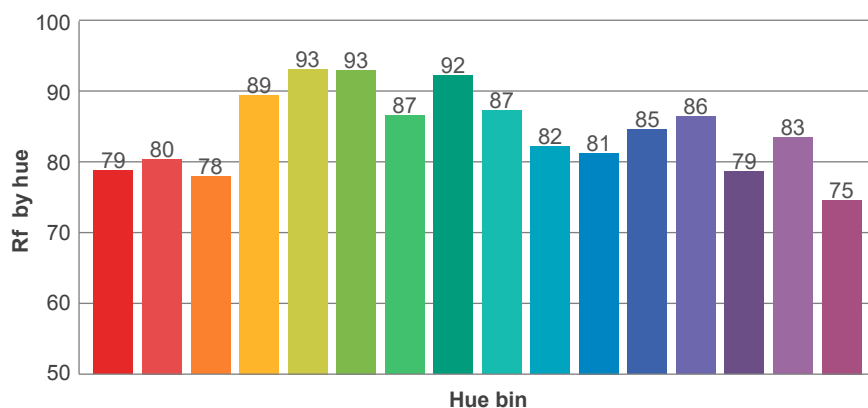
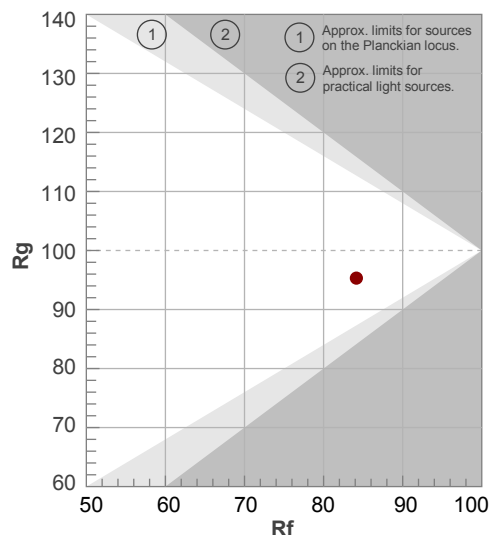
Rf 84,1

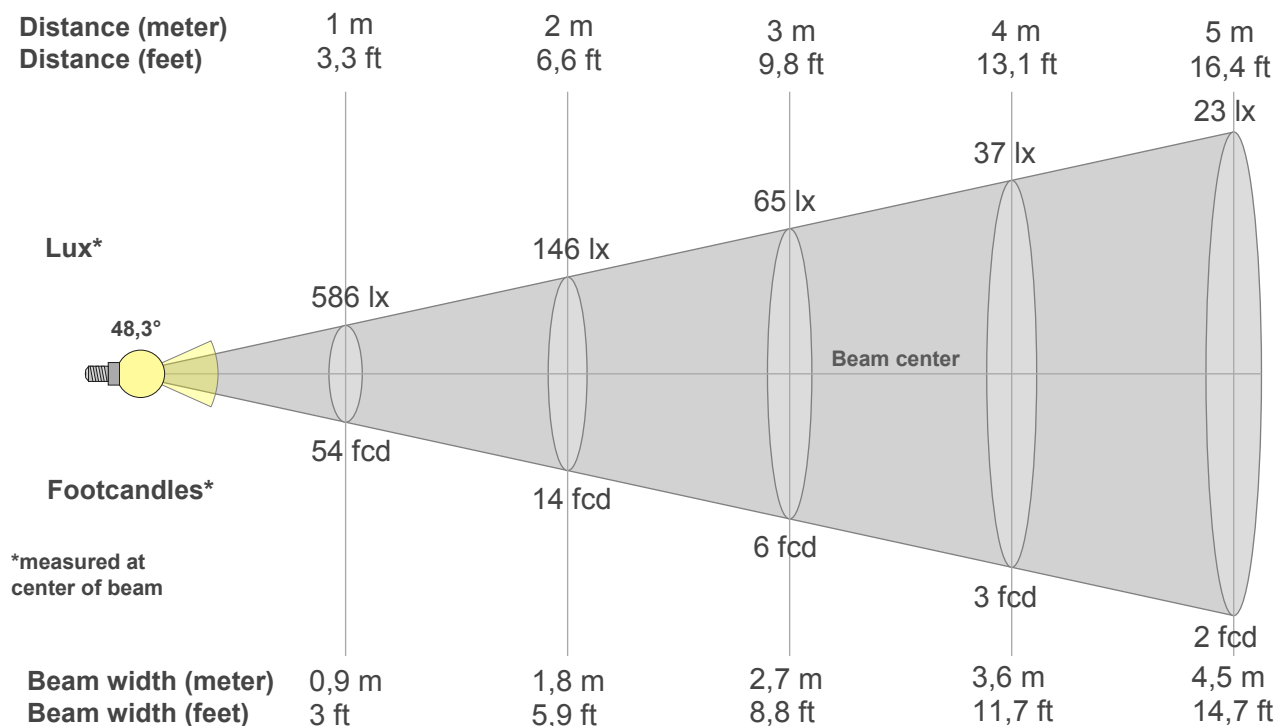
Fidelity index Rf

Rg 95,3

Gamut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	79	-12%	1%
2	80	-8%	7%
3	78	-3%	11%
4	89	-1%	5%
5	93	2%	4%
6	93	2%	-3%
7	87	-5%	-6%
8	92	-4%	-1%
9	87	-6%	4%
10	82	-4%	11%
11	81	1%	14%
12	85	7%	2%
13	86	5%	-9%
14	79	5%	-17%
15	83	-4%	-9%
16	75	-9%	-17%





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
586lx	146lx	65lx	37lx	23lx	16lx	12lx	9lx	7lx	6lx	5lx	4lx	3lx	3lx	3lx	2lx	2lx	2lx	2lx	1lx
54,4fcd	13,6fcd	6fcd	3,4fcd	2,2fcd	1,5fcd	1,1fcd	0,9fcd	0,7fcd	0,5fcd	0,4fcd	0,4fcd	0,3fcd	0,3fcd	0,2fcd	0,2fcd	0,2fcd	0,2fcd	0,2fcd	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°
586	582	568	547	516	479	433	380	322	263	210	165	130	102	82	67	56	49	45	42
100%	99%	97%	93%	88%	82%	74%	65%	55%	45%	36%	28%	22%	17%	14%	11%	10%	8%	8%	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°
586	584	585	585	587	588	589	591	592	594	594	595	594	591	585	576	562	540	515	484
100%	100%	100%	100%	100%	100%	101%	101%	101%	101%	101%	102%	101%	101%	100%	98%	96%	92%	88%	83%

Intensities in 180° c-plane

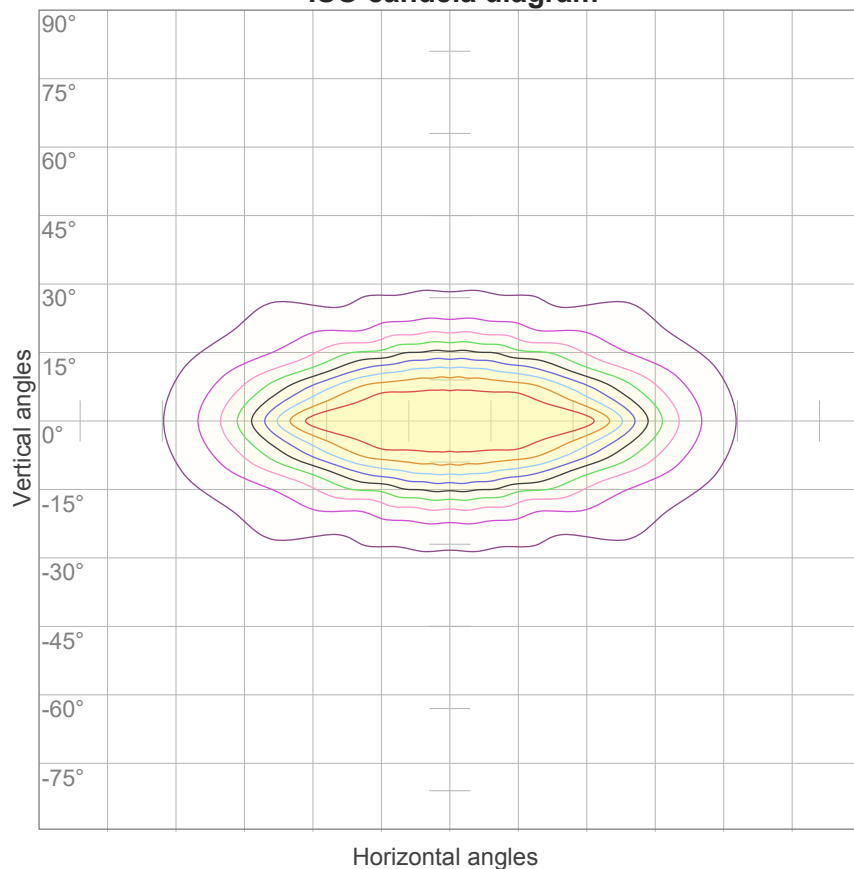
0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
586	582	568	547	516	479	433	380	322	263	210	165	130	102	82	67	56	49	45	42
100%	99%	97%	93%	88%	82%	74%	65%	55%	45%	36%	28%	22%	17%	14%	11%	10%	8%	8%	7%

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°
586	584	585	585	587	588	589	591	592	594	594	595	594	591	585	576	562	540	515	484
100%	100%	100%	100%	100%	100%	101%	101%	101%	101%	101%	102%	101%	101%	100%	98%	96%	92%	88%	83%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
48,3°	81,9°	172,7°	83,2%	68,7%

ISO candela diagram



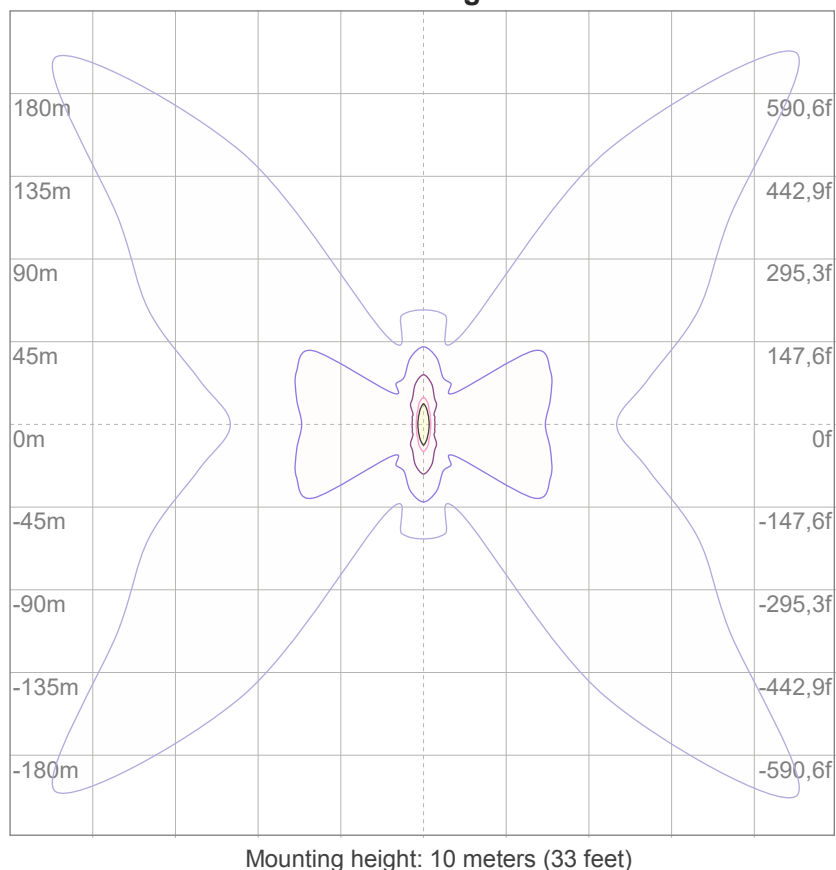
10%	59 cd
20%	117 cd
30%	176 cd
40%	234 cd
50%	293 cd
60%	352 cd
70%	410 cd
80%	469 cd
90%	527 cd

Conditions:

Number of c-planes: 16

Candela at center: 586 cd

ISO lux diagram



3%	0,176 lx
5%	0,293 lx
10%	0,586 lx
30%	1,76 lx
50%	2,93 lx

Conditions:

Number of c-planes: 16

Lux at center: 5,86 lx

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

Glare Evaluation According to UGR

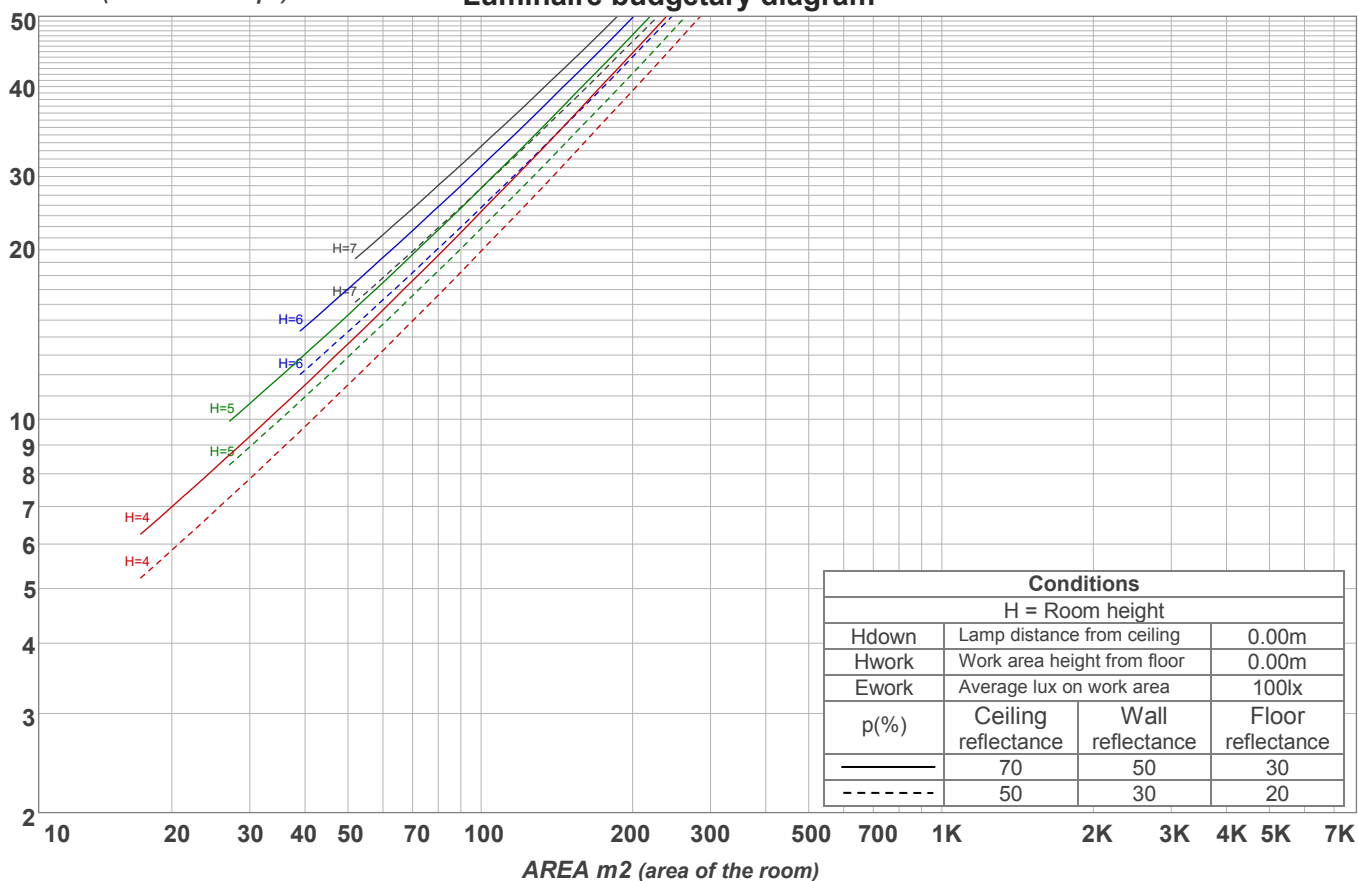
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	14,1	15,1	14,3	15,4	15,6	22,2	23,2	22,4	23,4	23,7
	3H	16,2	17,3	16,6	17,6	17,8	22,9	24,0	23,3	24,3	24,5
	4H	18,0	19,0	18,4	19,3	19,5	23,3	24,3	23,7	24,6	24,8
	6H	19,7	20,6	20,0	20,9	21,3	23,6	24,5	23,9	24,8	25,2
	8H	20,1	21,0	20,4	21,3	21,7	23,7	24,6	24,0	24,9	25,3
	12H	20,3	21,1	20,6	21,4	21,9	23,7	24,6	24,1	24,9	25,4
4H	2H	14,9	15,9	15,3	16,2	16,4	22,0	23,0	22,4	23,2	23,5
	3H	17,3	18,2	17,7	18,5	18,9	23,0	23,8	23,3	24,1	24,6
	4H	19,1	19,9	19,6	20,3	20,9	23,3	24,1	23,8	24,5	25,0
	6H	21,0	21,8	21,5	22,2	22,5	23,7	24,4	24,2	24,8	25,2
	8H	21,5	22,2	22,0	22,6	22,9	23,8	24,5	24,3	24,9	25,3
	12H	21,7	22,3	22,2	22,7	23,2	23,9	24,5	24,4	24,9	25,4
8H	4H	19,6	20,3	20,1	20,6	21,0	23,4	24,1	23,9	24,4	24,8
	6H	21,7	22,3	22,2	22,7	23,3	23,8	24,4	24,3	24,8	25,4
	8H	22,4	22,8	22,9	23,3	24,0	24,1	24,5	24,6	25,0	25,7
	12H	22,7	23,1	23,3	23,6	24,2	24,3	24,7	24,9	25,2	25,8
12H	4H	19,6	20,2	20,1	20,6	21,1	23,4	23,9	23,9	24,4	24,8
	6H	21,9	22,3	22,4	22,9	23,5	23,9	24,4	24,4	24,9	25,5
	8H	22,5	22,9	23,1	23,4	24,0	24,2	24,6	24,8	25,1	25,7
Variation of the observer position for the luminaire distance S											
S = 1.0H		0,1 / 0,0					1,0 / -0,9				
S = 1.5H		0,1 / -0,1					2,3 / -1,8				
S = 2.0H		0,2 / -0,1					3,5 / -2,5				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 664 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	118	118	118	118	115	115	115	115	110	110	110	105	105	105	100	100	100	98
1	109	105	101	98	107	103	99	96	98	95	93	94	92	90	90	88	86	84
2	101	94	88	84	99	92	87	82	88	84	80	85	81	78	82	79	76	74
3	94	85	78	73	92	84	77	72	80	75	70	77	73	69	75	71	68	66
4	88	78	70	64	86	76	69	64	74	68	63	71	66	62	69	64	61	59
5	82	71	64	58	80	70	63	57	68	61	57	66	60	56	64	59	55	53
6	77	66	58	53	75	65	57	52	63	56	52	61	55	51	59	54	50	49
7	73	61	53	48	71	60	53	48	58	52	47	57	51	47	55	50	46	45
8	68	57	49	44	67	56	49	44	55	48	44	53	48	43	52	47	43	41
9	65	53	46	41	63	52	46	41	51	45	41	50	44	40	49	44	40	38
10	61	50	43	38	60	49	43	38	48	42	38	47	42	38	46	41	37	36

LAMPS (number of lamps)

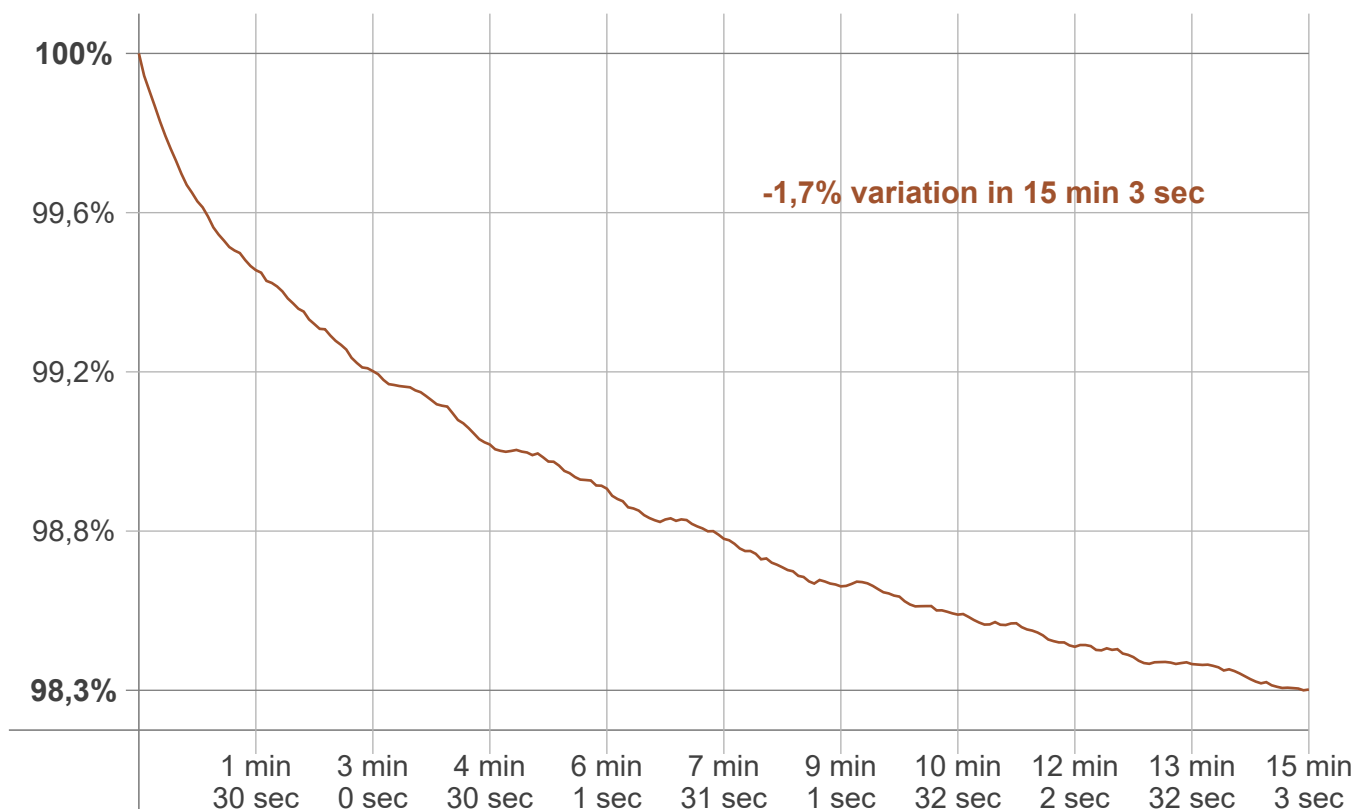
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
51,7 lm	126 lm	130 lm	107 lm	77,9 lm	59,6 lm	42,7 lm	34,2 lm	18,7 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
6,55 lm	1,33 lm	1,23 lm	1,12 lm	0,963 lm	0,781 lm	0,575 lm	0,352 lm	2,95 lm

Warmup curve



Warmup result

Warmup time:	Lamp stabilized in 15 min 3 sec
Warmup variation	-1,7%

Warmup conditions

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

Color temperature change

CCT start	CCT change	CCT end
2754 K	+2 K	2756 K

Output change

Output start	Output change	Output end
674 lm	-10 lm	664 lm