

Light efficiency:

172 Lumen/Watt

Light quality:

CRI: 82,4

Color temperature:

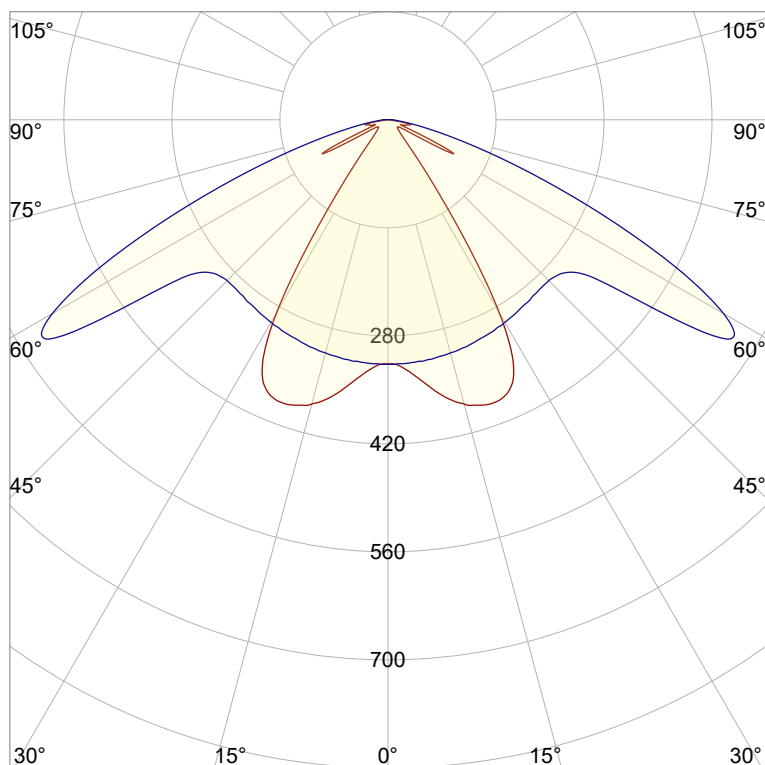
2767 K

Output: 742 lm

Peak: 529 cd

Power: 4,3 W

PF: 1,0



Product name:

Navigator-3_510mm_827_Lens-60°-Transparent

Item number:

NP/L1C/14C/G1/L1C/0510/827/L6T

Date and time:

22.06.2022 08:48:08

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

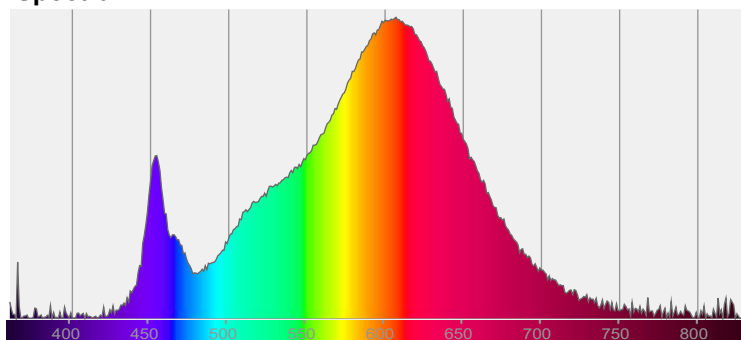


CIE 1931

x: 0,453

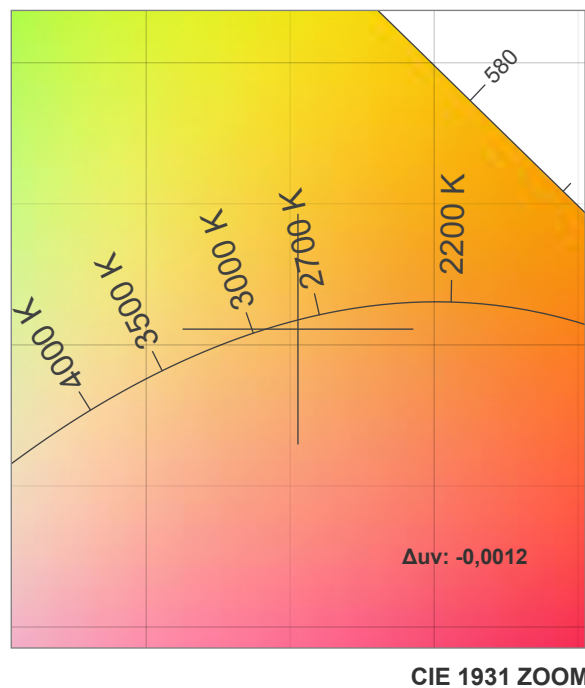
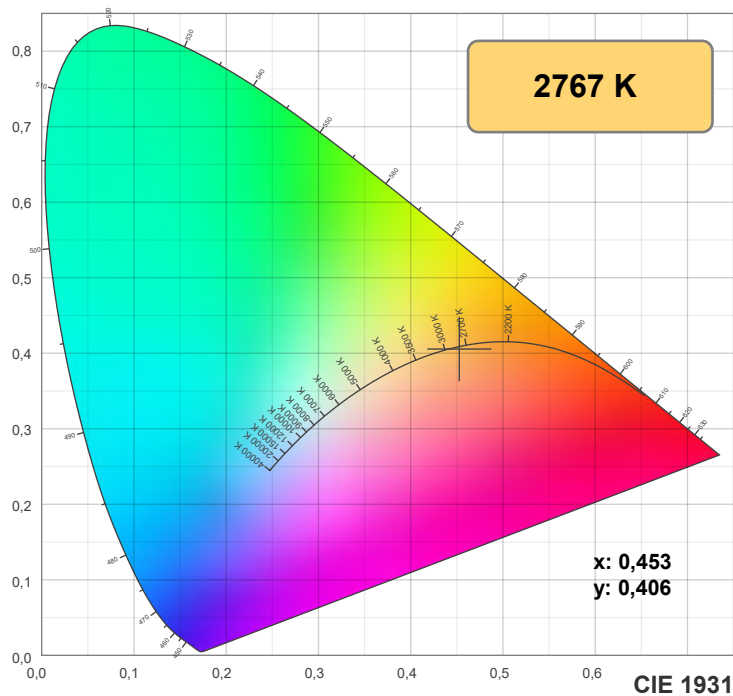
y: 0,406

Spectra



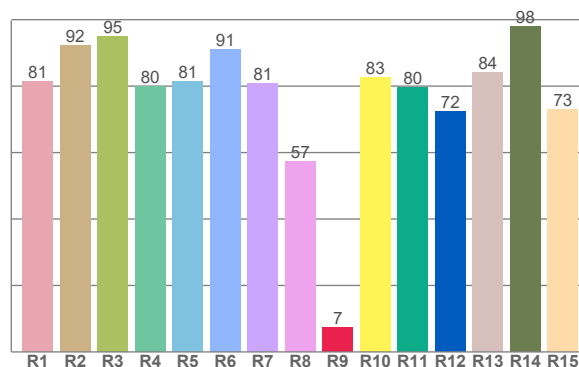
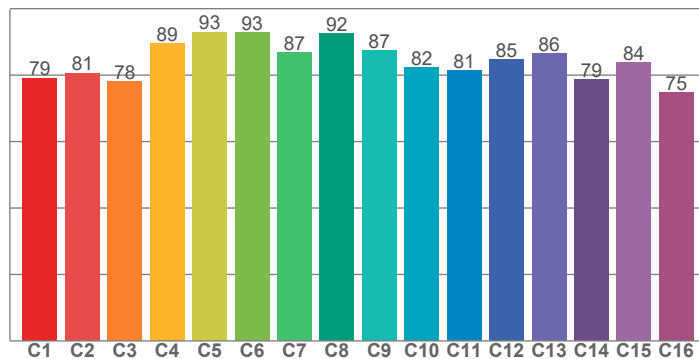
Power

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



TM30: 84,2

CRI: 82,4 (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
81,4	92,3	94,9	79,9	81,4	91,2	80,9	57,2	7,5	82,5	79,6	72,4	84,1	98,1	73,1

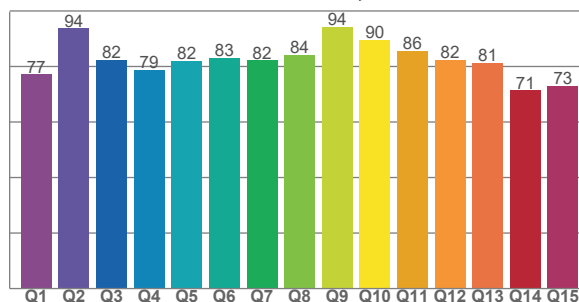
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
79,1	80,6	78,0	89,4	93,0	92,8	86,7	92,4	87,5	82,2	81,3	84,6	86,4	78,8	83,7	74,7

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
77,1	93,7	82,5	78,6	82,0	83,1	82,2	84,1	94,2	89,6	85,7	82,4	81,3	71,3	73,1

CQS: 81,5



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
2767 K	82,4	7,5	84,2	95,6	81,5	0,453	0,406	0,260	0,350	-0,0012

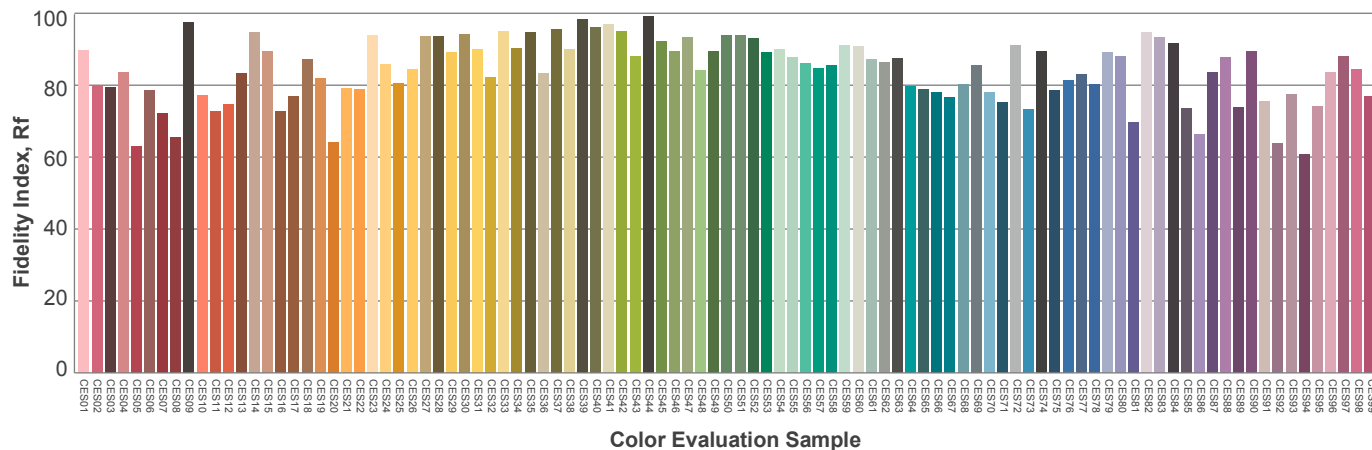
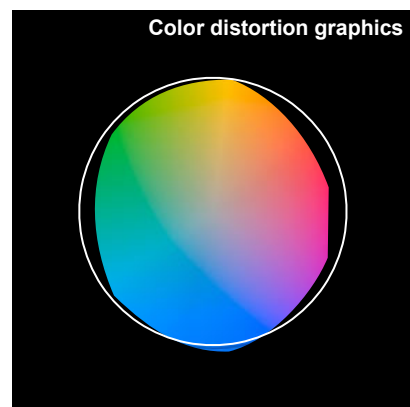
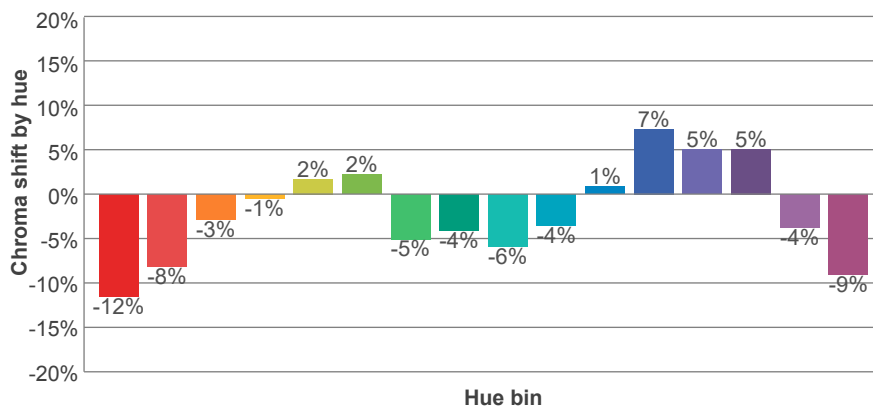
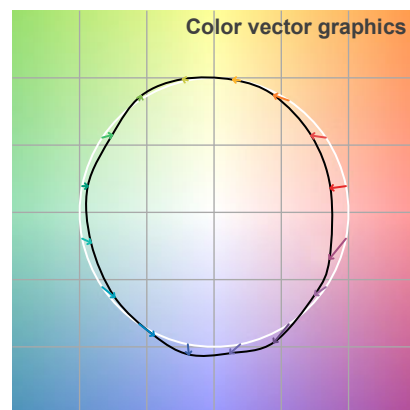
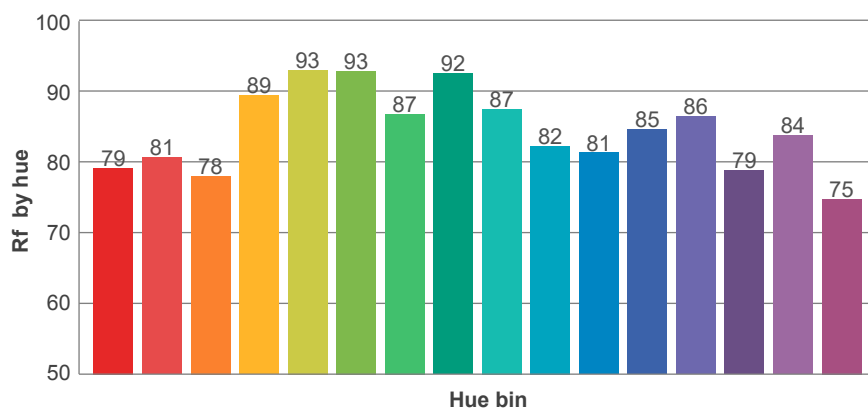
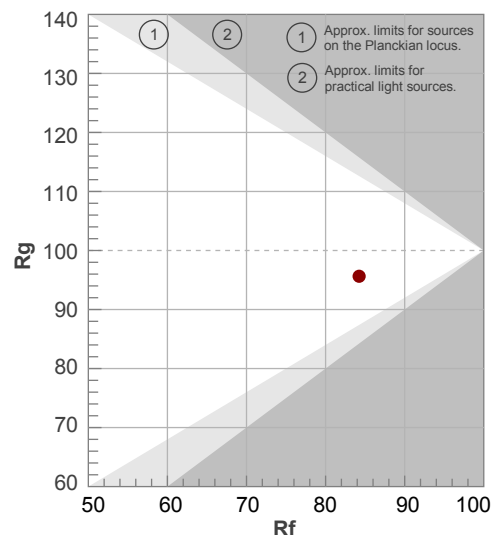
Rf 84,2

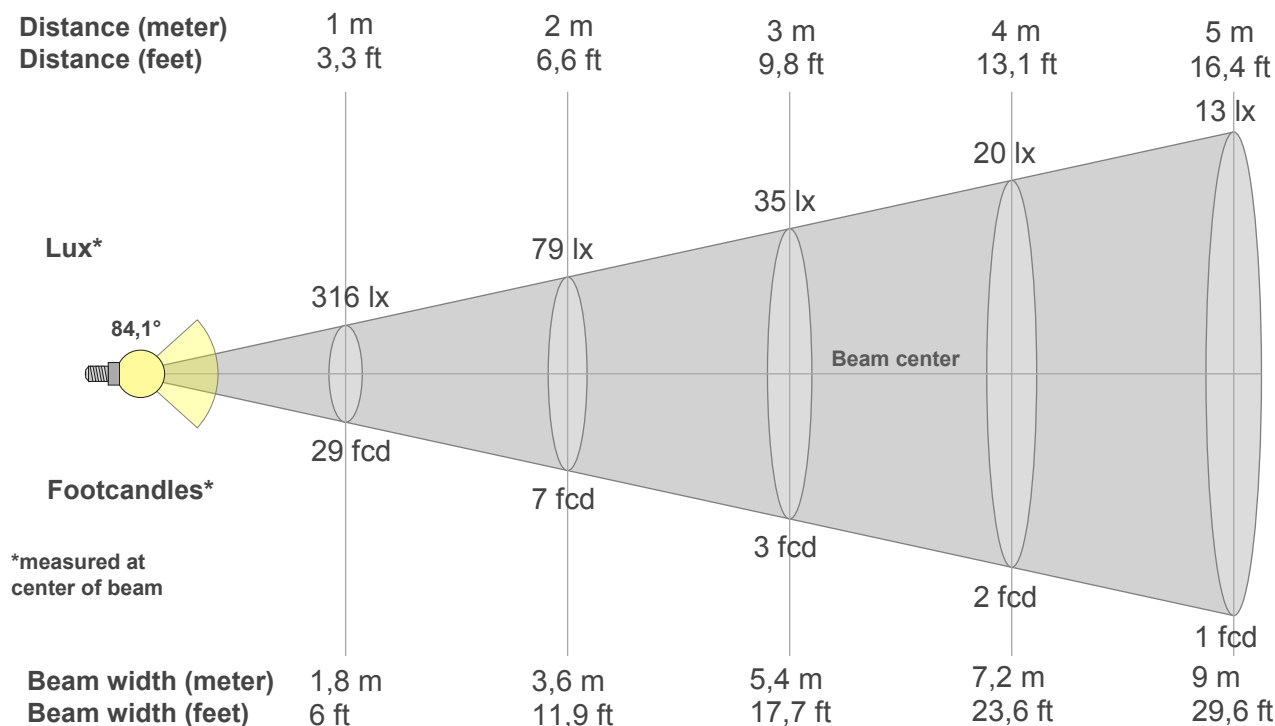
Fidelity index Rf

Rg 95,6

Gamut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	79	-12%	1%
2	81	-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	84	-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
316lx	79lx	35lx	20lx	13lx	9lx	6lx	5lx	4lx	3lx	3lx	2lx	2lx	2lx	1lx	1lx	1lx	1lx	1lx	1lx
29,4fcd	7,3fcd	3,3fcd	1,8fcd	1,2fcd	0,8fcd	0,6fcd	0,5fcd	0,4fcd	0,3fcd	0,2fcd	0,2fcd	0,2fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd

Intensities in 0° c-plane

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
316	328	357	381	391	379	287	108	34	20	16	16	36	55	19	25	20	5	2	2
100%	104%	113%	121%	124%	120%	91%	34%	11%	6%	5%	5%	12%	18%	6%	8%	6%	2%	1%	1%

Intensities in 90° c-plane

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
316	316	315	313	310	307	303	299	296	295	308	442	502	343	185	83	33	11	2	2
100%	100%	100%	99%	98%	97%	96%	95%	93%	93%	97%	140%	159%	108%	58%	26%	10%	3%	1%	0%

Intensities in 180° c-plane

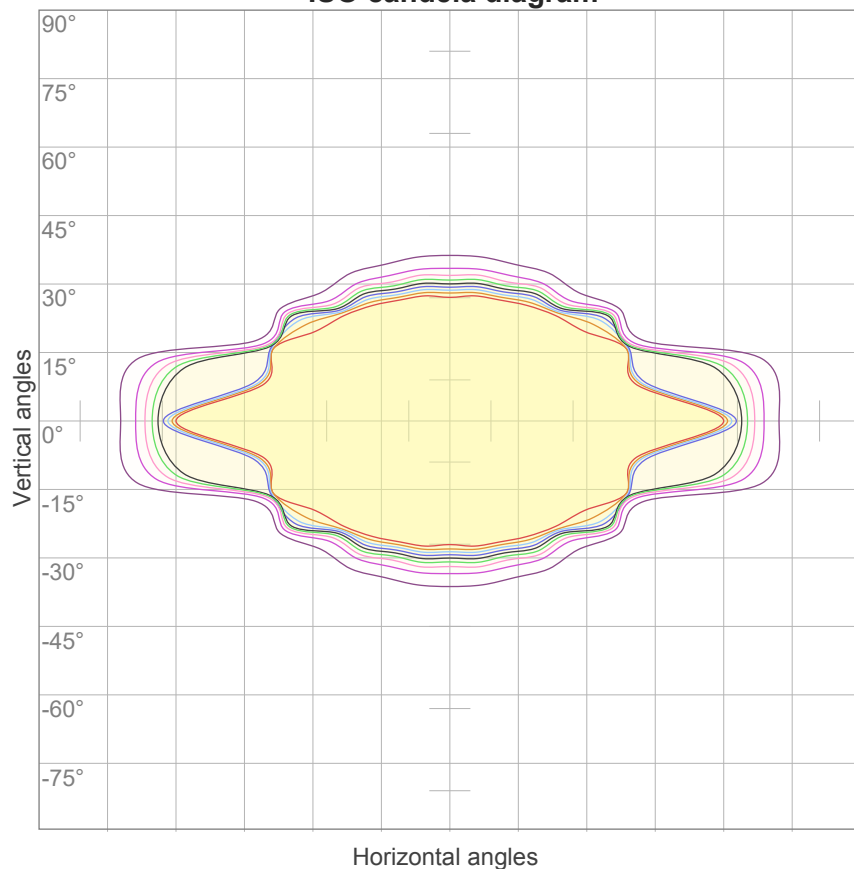
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
316	328	357	381	391	379	287	108	34	20	16	16	36	55	19	25	20	5	2	2
100%	104%	113%	121%	124%	120%	91%	34%	11%	6%	5%	5%	12%	18%	6%	8%	6%	2%	1%	1%

Intensities in 270° c-plane

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
316	316	315	313	310	307	303	299	296	295	308	442	502	343	185	83	33	11	2	2
100%	100%	100%	99%	98%	97%	96%	95%	93%	93%	97%	140%	159%	108%	58%	26%	10%	3%	1%	0%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
84,1°	130,1°	166,1°	84,8%	71,7%

ISO candela diagram



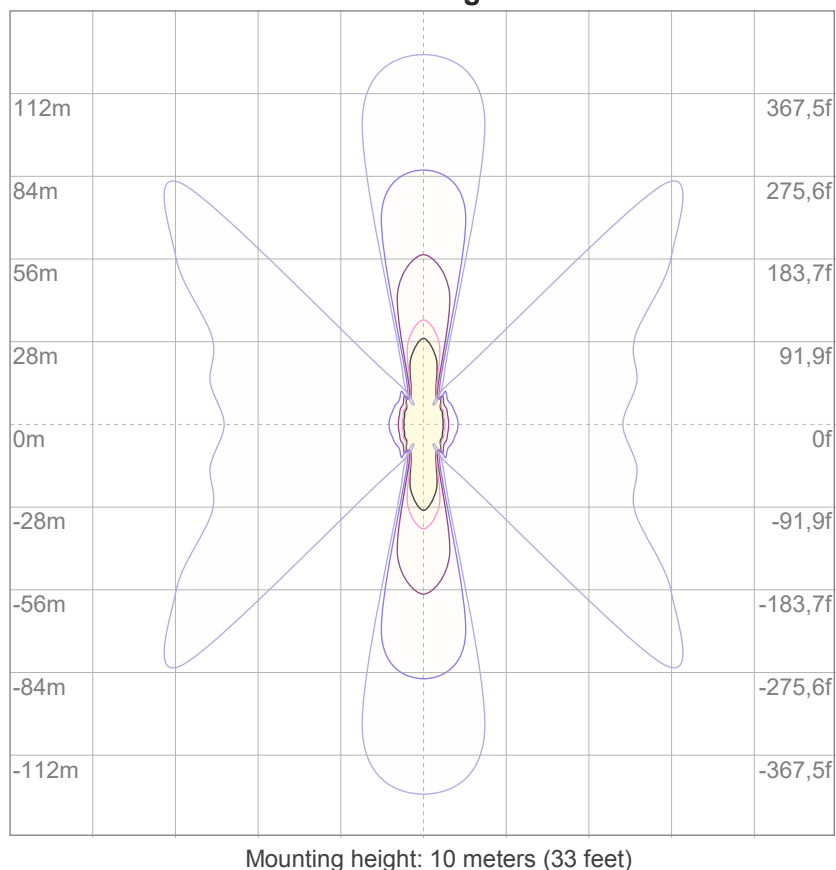
10%	32 cd
20%	63 cd
30%	95 cd
40%	126 cd
50%	158 cd
60%	190 cd
70%	221 cd
80%	253 cd
90%	285 cd

Conditions:

Number of c-planes: 16

Candela at center: 316 cd

ISO lux diagram



3%	94,9m lx
5%	0,158 lx
10%	0,316 lx
30%	0,949 lx
50%	1,58 lx

Conditions:

Number of c-planes: 16

Lux at center: 3,16 lx

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

Glare Evaluation According to UGR

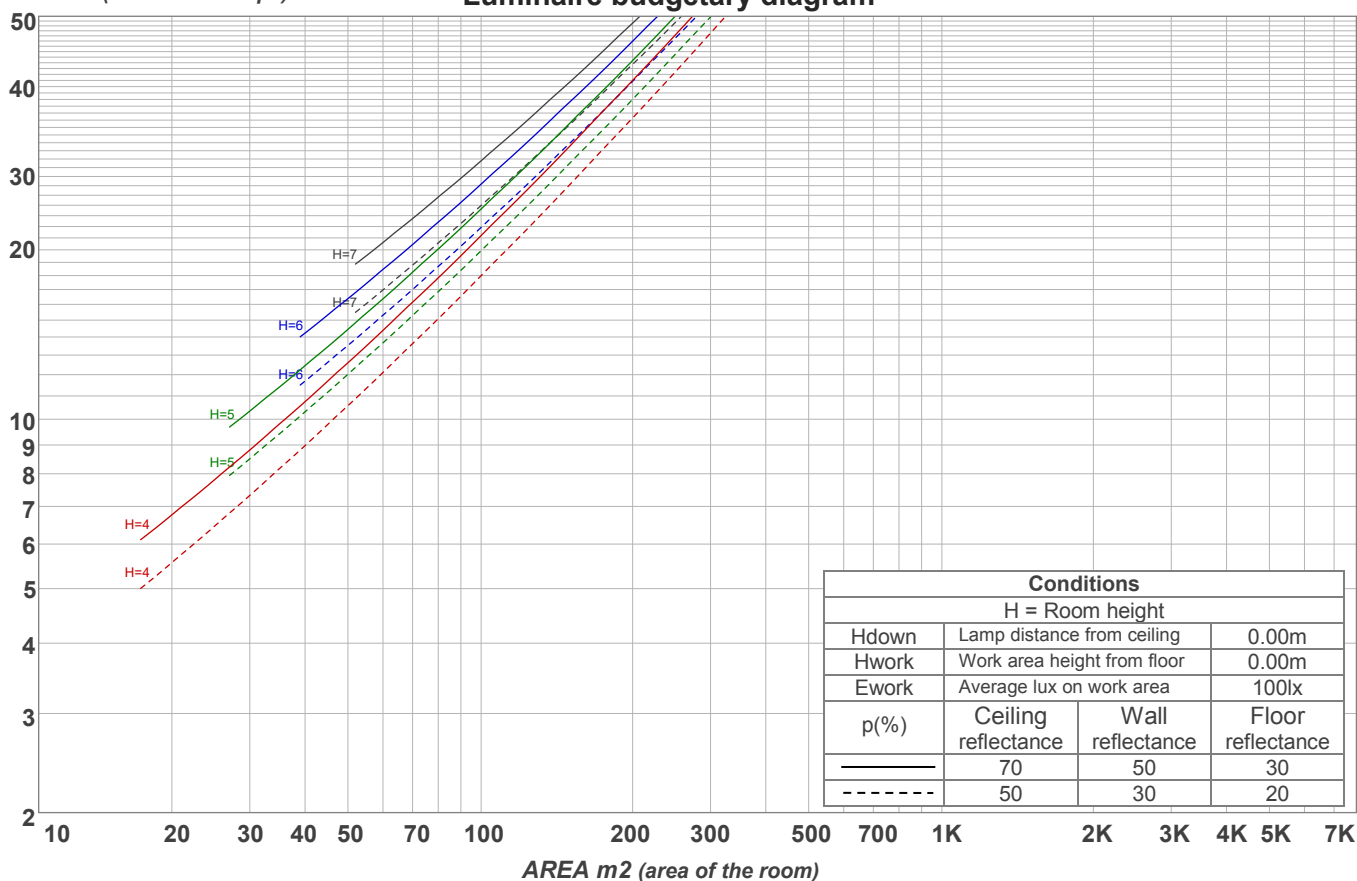
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	14,9	16,0	15,1	16,2	16,5	26,6	27,6	26,8	27,9	28,1
	3H	16,5	17,6	16,9	17,8	18,0	28,2	29,3	28,6	29,5	29,7
	4H	16,9	18,0	17,4	18,3	18,5	28,5	29,5	28,9	29,8	30,0
	6H	17,8	18,7	18,1	19,0	19,4	28,7	29,6	29,0	29,8	30,2
	8H	17,9	18,8	18,2	19,1	19,5	28,7	29,5	29,0	29,9	30,3
	12H	17,9	18,7	18,2	19,0	19,5	28,6	29,5	29,0	29,8	30,3
4H	2H	15,2	16,2	15,6	16,5	16,7	26,3	27,3	26,7	27,6	27,8
	3H	17,0	17,9	17,4	18,2	18,7	28,0	28,9	28,4	29,2	29,6
	4H	17,6	18,4	18,1	18,8	19,4	28,2	29,0	28,7	29,5	30,0
	6H	18,7	19,5	19,2	19,8	20,2	28,4	29,2	28,9	29,5	29,9
	8H	18,8	19,5	19,3	19,9	20,2	28,4	29,1	28,9	29,5	29,9
	12H	18,8	19,4	19,3	19,8	20,3	28,4	29,0	28,9	29,4	29,9
8H	4H	17,8	18,5	18,3	18,9	19,2	28,1	28,8	28,6	29,2	29,6
	6H	19,1	19,6	19,6	20,1	20,6	28,3	28,8	28,8	29,3	29,8
	8H	19,3	19,8	19,8	20,3	20,9	28,4	28,8	28,9	29,3	30,0
	12H	19,3	19,7	19,9	20,2	20,8	28,4	28,8	29,0	29,3	29,9
12H	4H	17,8	18,4	18,3	18,8	19,3	28,1	28,7	28,6	29,1	29,6
	6H	19,2	19,7	19,7	20,2	20,8	28,3	28,8	28,8	29,3	29,9
	8H	19,4	19,8	20,0	20,3	20,9	28,3	28,7	28,9	29,2	29,8
Variation of the observer position for the luminaire distance S											
S = 1.0H		0,6 / -1,2					1,6 / -2,3				
S = 1.5H		2,4 / -1,6					3,3 / -5,4				
S = 2.0H		2,4 / -1,7					5,0 / -7,6				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 742 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	101	101	101	99
1	110	106	102	99	107	104	100	97	99	97	94	95	93	91	92	90	88	86
2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77	75
3	94	85	78	72	92	83	77	72	80	75	70	78	73	69	75	71	68	66
4	87	77	69	63	85	75	68	63	73	67	62	71	65	61	68	64	60	58
5	81	70	62	56	79	69	61	56	66	60	55	65	59	54	63	58	54	52
6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	52	48	46
7	71	58	51	45	69	58	50	45	56	49	45	55	49	44	53	48	44	42
8	66	54	46	41	65	53	46	41	52	45	40	51	45	40	49	44	40	38
9	62	50	42	37	61	49	42	37	48	42	37	47	41	37	46	41	37	35
10	59	46	39	34	57	46	39	34	45	38	34	44	38	34	43	38	34	32

LAMPS (number of lamps)

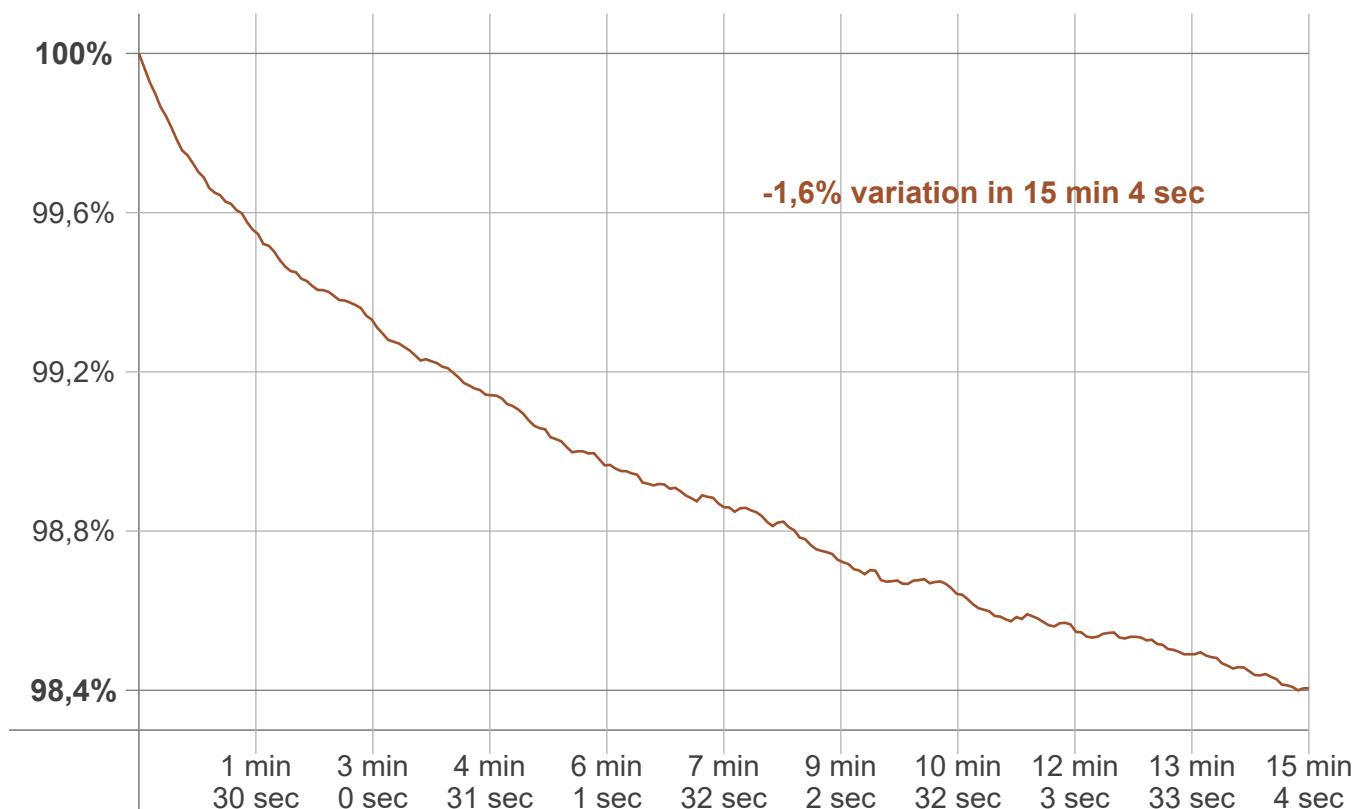
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
31,3 lm	101 lm	170 lm	168 lm	99,2 lm	60,7 lm	66,5 lm	29,2 lm	9,87 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
2,67 lm	1,17 lm	1,02 lm	0,922 lm	0,591 lm	0,364 lm	0,268 lm	0,164 lm	0,055 lm

Warmup curve



Warmup result

Warmup time:	Lamp stabilized in 15 min 4 sec
Warmup variation	-1,6%

Warmup conditions

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

Color temperature change

CCT start	CCT change	CCT end
2767 K	+0 K	2767 K

Output change

Output start	Output change	Output end
753 lm	-10 lm	742 lm