



Light efficiency:

91 Lumen/Watt

Light quality:

CRI: 95,9

Color temperature:

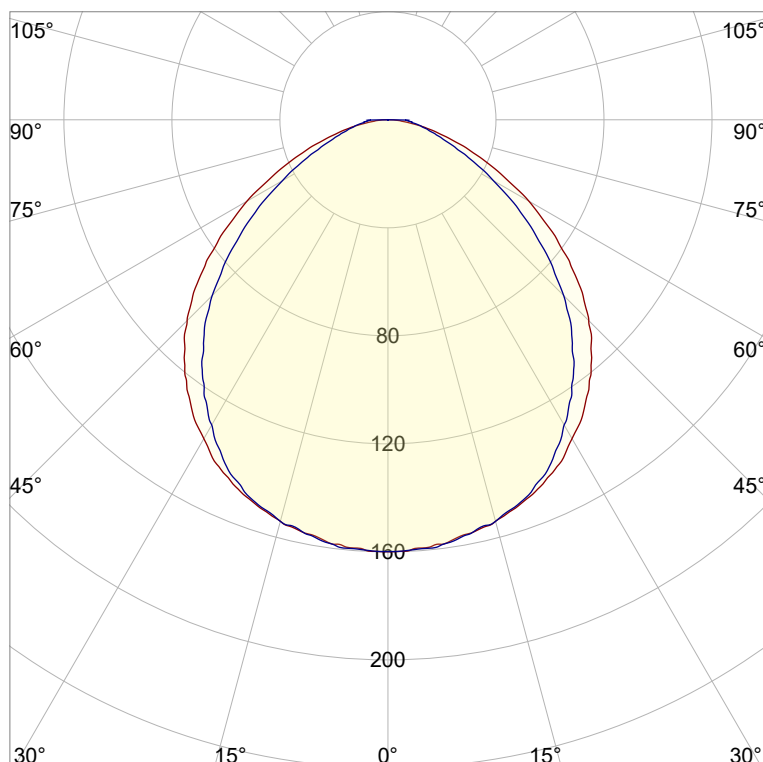
2745 K

Output: 416 lm

Peak: 160 cd

Power: 4,6 W

PF: 1,0



CIE 1931
x: 0,455
y: 0,407

Product name:

Horizon_510mm_927_Cover-Square-Frosted

Item number:

NNP/L/01A/0510//927/CSF

Date and time:

18.06.2020 10:29:29

Description:

Rank: G08DW

Toleranzen:

Lumen +/-4%

Candela +/-2,5%

Colour Temp +/-35 K

CRI +/-0,7

Angular Resolution 1 Grad Step

Last Calibration 07.10.2025

Pruefer:

Peter Ulrich

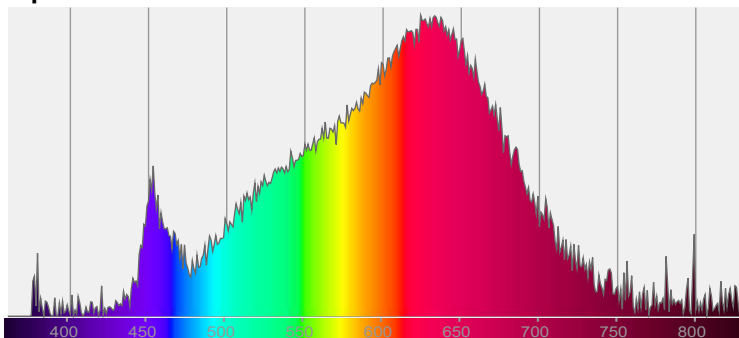
Pruefort:

Lichtlabor

Gaustrasse13

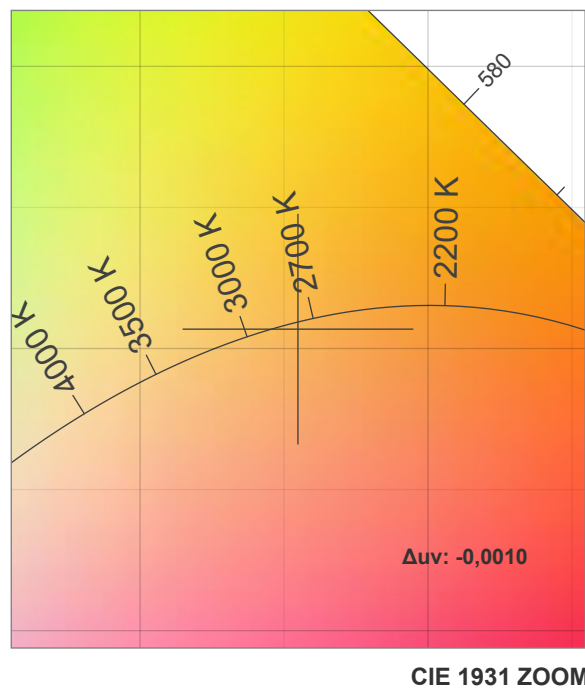
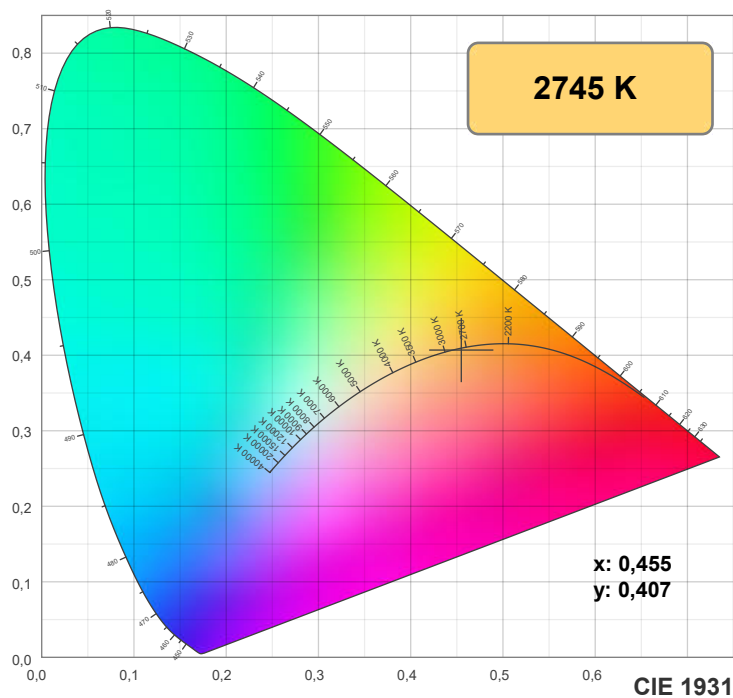
55411 Bingen am Rhein

Spectra

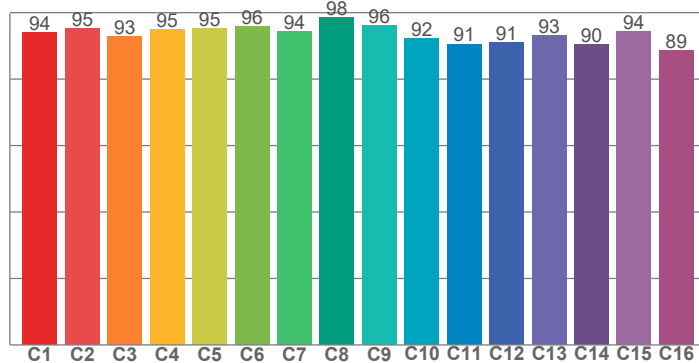


Power

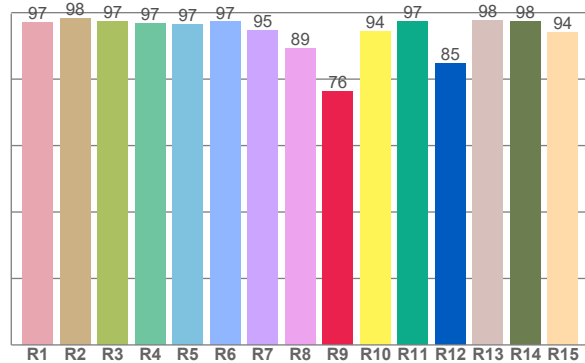
Voltage: 24,0 V
Current: 0,190 A
Frequency: 0 Hz



TM30: 93,6



CRI: 95,9 (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
97,0	98,2	97,4	96,8	96,5	97,2	94,8	89,3	76,3	94,4	97,4	84,7	97,6	97,5	94,1

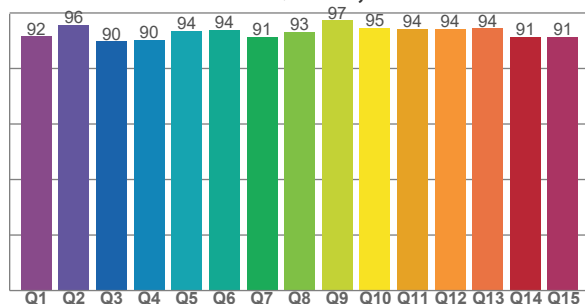
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
94,1	95,2	92,9	94,9	95,2	95,9	94,4	98,5	96,1	92,2	90,6	91,0	93,2	90,5	94,4	88,6

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
91,6	95,7	89,8	90,2	93,6	94,0	91,4	93,1	97,3	94,5	94,4	94,3	94,5	91,5	91,4

CQS: 92,7



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 deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
2745 K	95,9	76,3	93,6	100,6	92,7	0,455	0,407	0,261	0,350	-0,0010

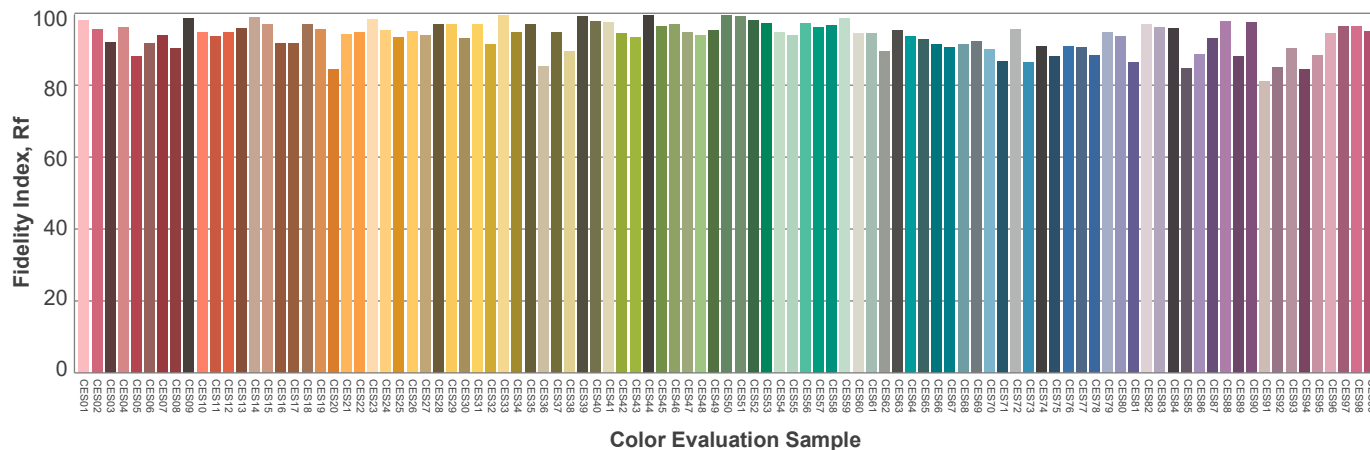
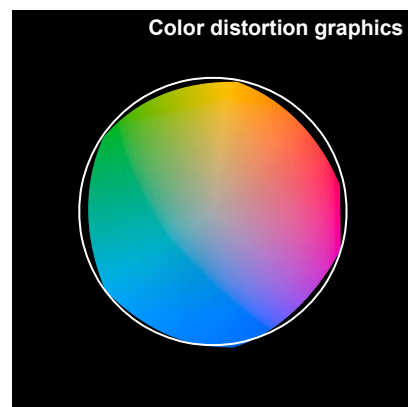
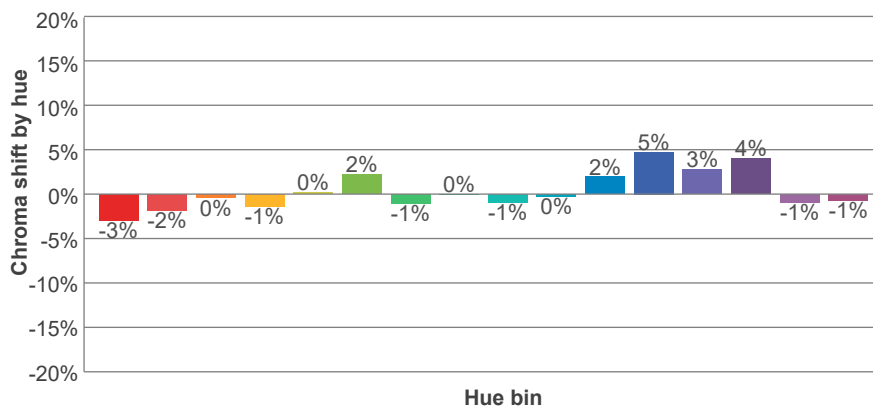
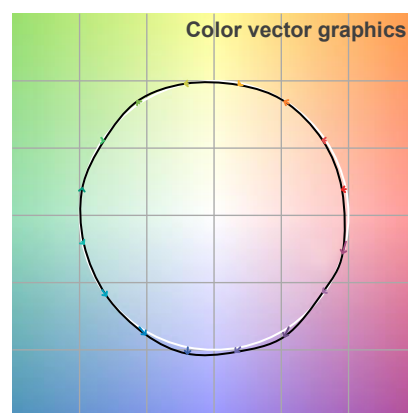
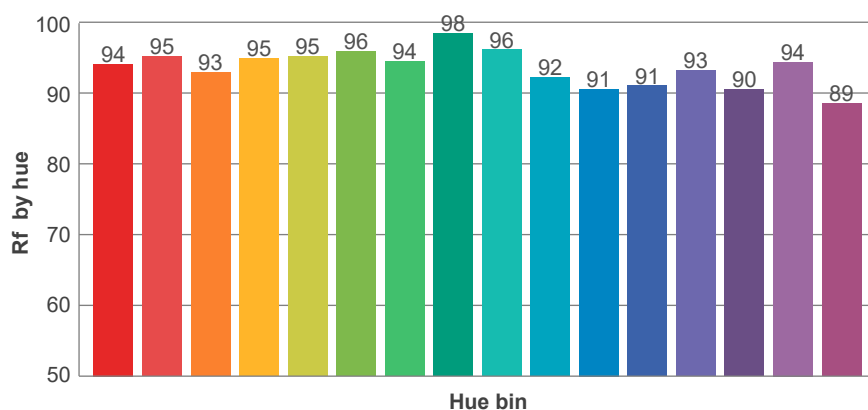
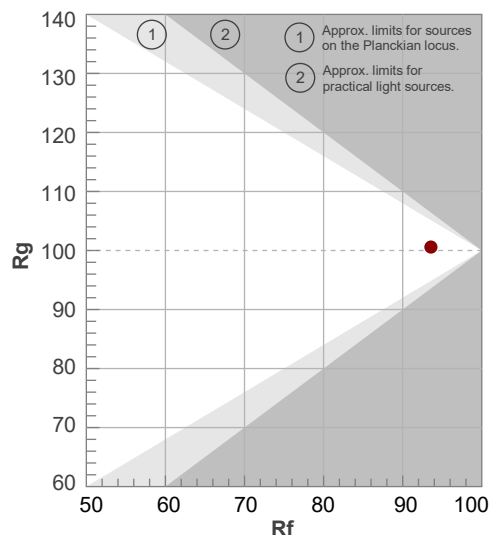
Rf 93,6

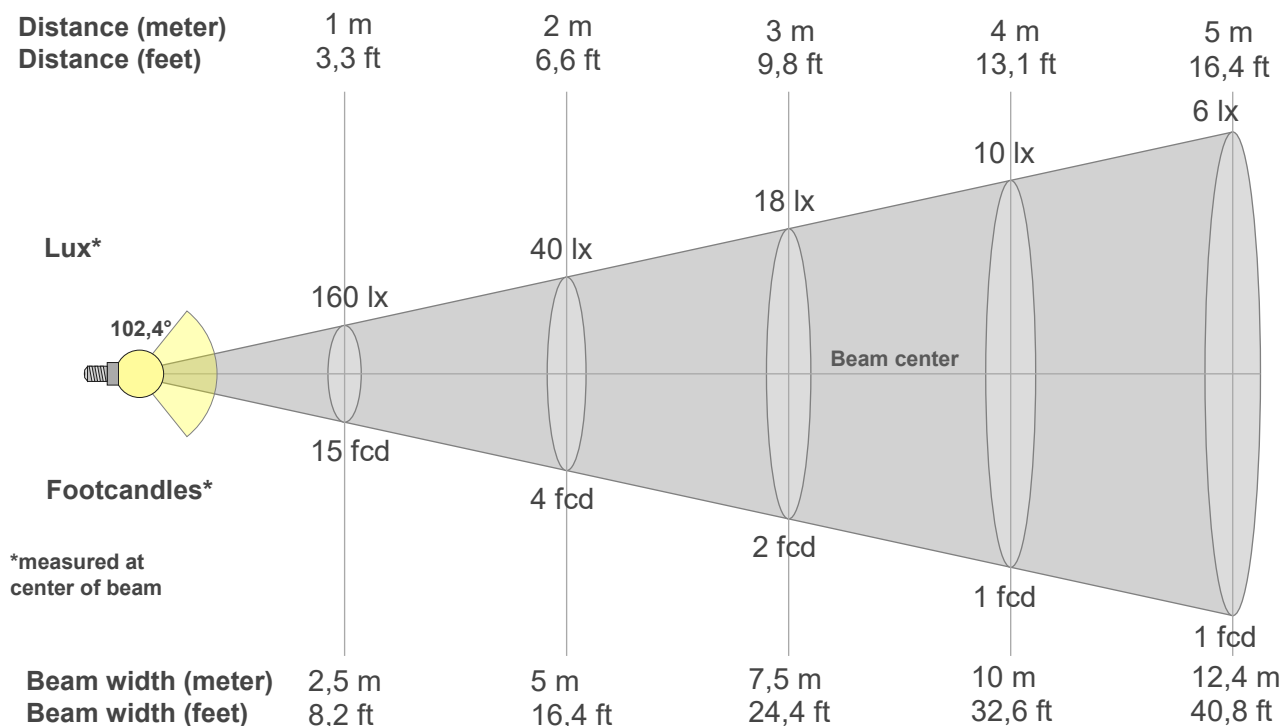
Fidelity index Rf

Rg 100,6

Gammut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	94	-3%	0%
2	95	-2%	2%
3	93	0%	3%
4	95	-1%	1%
5	95	0%	2%
6	96	2%	0%
7	94	-1%	-1%
8	98	0%	-1%
9	96	-1%	2%
10	92	0%	5%
11	91	2%	7%
12	91	5%	1%
13	93	3%	-4%
14	90	4%	-6%
15	94	-1%	-3%
16	89	-1%	-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
160lx	40lx	18lx	10lx	6lx	4lx	3lx	2lx	2lx	2lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx	0lx	0lx	0lx
14,8fcd	3,7fcd	1,6fcd	0,9fcd	0,6fcd	0,4fcd	0,3fcd	0,2fcd	0,2fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0fcd	0fcd	0fcd

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°
160	159	156	154	150	144	136	128	117	105	91	76	60	45	31	20	11	5	1	1
100%	100%	98%	96%	94%	90%	85%	80%	73%	66%	57%	47%	38%	28%	20%	12%	7%	3%	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°
160	159	157	154	149	142	131	119	106	92	76	60	45	33	23	16	12	9	4	4
100%	100%	98%	96%	93%	89%	82%	74%	66%	58%	48%	38%	28%	20%	14%	10%	7%	5%	3%	2%

Intensities in 180° c-plane

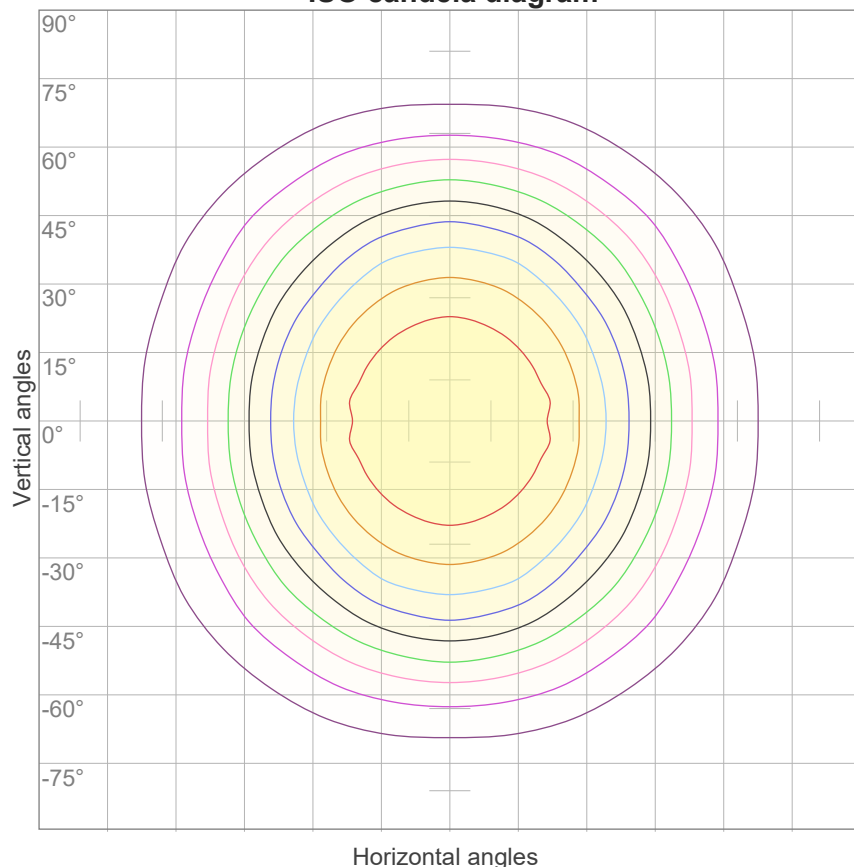
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
160	159	156	154	150	144	136	128	117	105	91	76	60	45	31	20	11	5	1	1
100%	100%	98%	96%	94%	90%	85%	80%	73%	66%	57%	47%	38%	28%	20%	12%	7%	3%	1%	1%

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°
160	159	157	154	149	142	131	119	106	92	76	60	45	33	23	16	12	9	4	4
100%	100%	98%	96%	93%	89%	82%	74%	66%	58%	48%	38%	28%	20%	14%	10%	7%	5%	3%	2%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
102,4°	154,4°	181,8°	81,4%	57,9%

ISO candela diagram



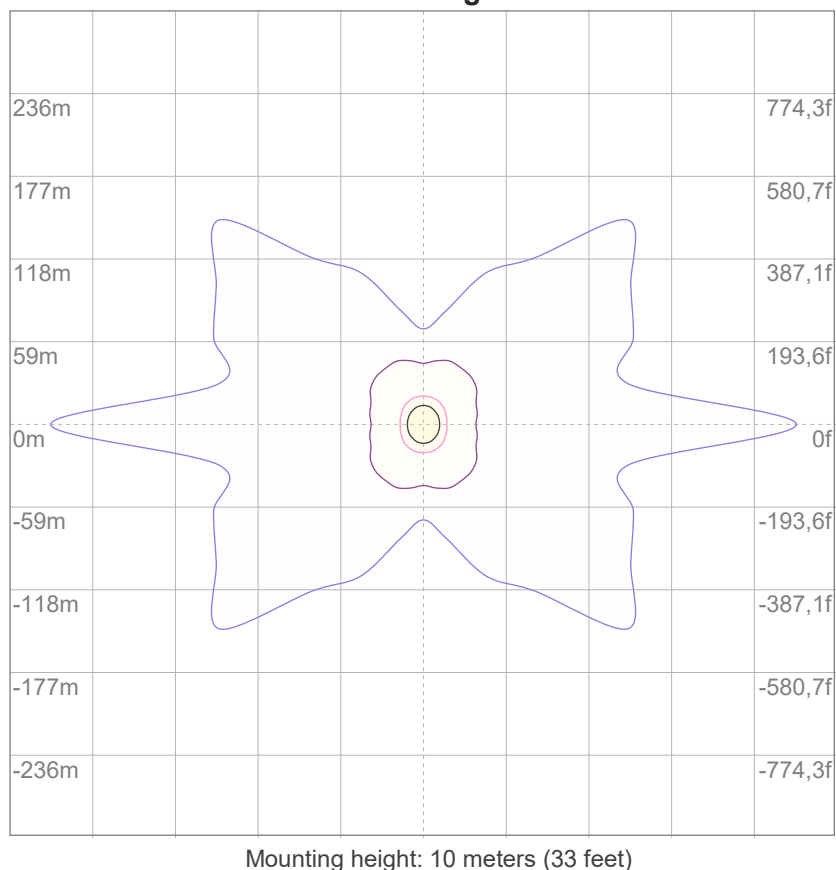
10%	16 cd
20%	32 cd
30%	48 cd
40%	64 cd
50%	80 cd
60%	96 cd
70%	112 cd
80%	128 cd
90%	144 cd

Conditions:

Number of c-planes: 16

Candela at center: 160 cd

ISO lux diagram



3%	47,9m lx
5%	79,9m lx
10%	0,160 lx
30%	0,479 lx
50%	0,799 lx

Conditions:

Number of c-planes: 16

Lux at center: 1,60 lx

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

Glare Evaluation According to UGR

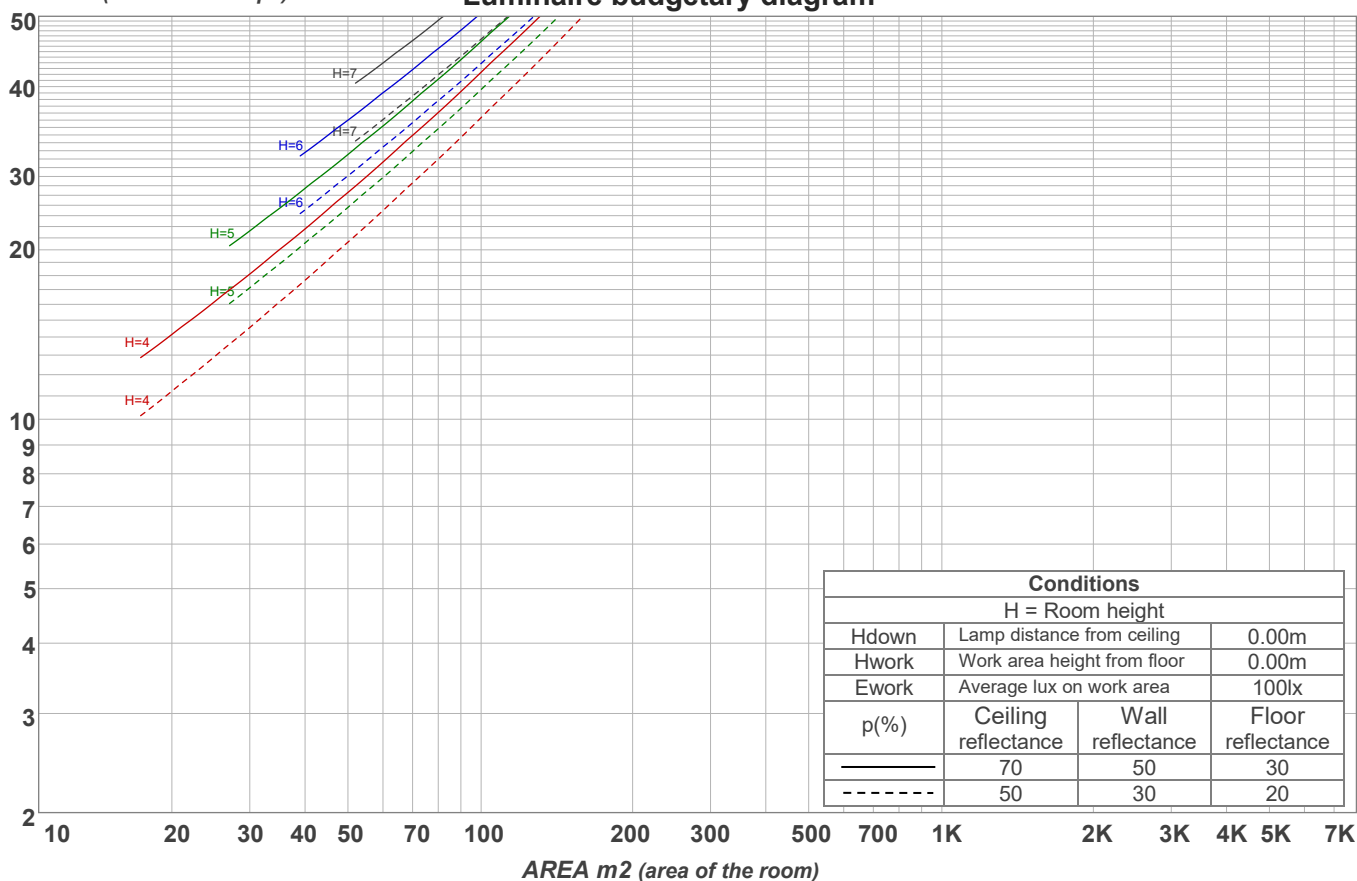
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	21,6	22,8	21,8	23,1	23,3	21,5	22,6	21,7	22,9	23,2
	3H	22,4	23,6	22,8	23,9	24,1	22,2	23,5	22,7	23,7	23,9
	4H	22,7	23,8	23,1	24,1	24,4	22,6	23,8	23,0	24,0	24,3
	6H	22,9	23,9	23,2	24,2	24,5	23,0	24,0	23,3	24,3	24,7
	8H	22,9	23,9	23,2	24,2	24,6	23,2	24,2	23,5	24,5	24,9
	12H	22,9	23,8	23,2	24,2	24,6	23,4	24,3	23,8	24,7	25,1
4H	2H	21,9	23,1	22,4	23,4	23,6	21,8	23,0	22,2	23,3	23,5
	3H	23,1	24,0	23,4	24,3	24,8	22,9	23,8	23,3	24,2	24,6
	4H	23,4	24,2	23,8	24,7	25,2	23,3	24,2	23,7	24,6	25,1
	6H	23,6	24,4	24,1	24,8	25,2	23,7	24,6	24,2	24,9	25,3
	8H	23,6	24,4	24,1	24,8	25,1	24,0	24,7	24,5	25,1	25,5
	12H	23,6	24,3	24,1	24,7	25,2	24,2	24,9	24,7	25,3	25,8
8H	4H	23,5	24,3	24,0	24,6	25,0	23,4	24,2	24,0	24,6	25,0
	6H	23,9	24,4	24,4	24,9	25,5	24,0	24,6	24,5	25,1	25,6
	8H	24,0	24,5	24,5	25,0	25,7	24,4	24,9	24,9	25,4	26,0
	12H	24,1	24,5	24,6	25,0	25,6	24,7	25,2	25,3	25,7	26,3
12H	4H	23,5	24,1	24,0	24,6	25,0	23,4	24,1	23,9	24,5	25,0
	6H	23,9	24,4	24,4	25,0	25,6	24,1	24,6	24,6	25,1	25,8
	8H	24,1	24,5	24,6	25,0	25,6	24,4	24,9	25,0	25,4	26,0
Variation of the observer position for the luminaire distance S											
S = 1.0H		0,1 / -0,2					0,1 / -0,2				
S = 1.5H		0,4 / -0,6					0,3 / -0,5				
S = 2.0H		1,0 / -1,2					0,9 / -1,1				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 416 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	110	110	110	105	105	105	100	100	100	98
1	109	104	100	96	106	102	98	95	97	94	91	93	91	88	89	87	85	83
2	100	92	85	80	97	90	84	79	86	81	76	82	78	74	79	76	73	70
3	91	81	73	67	89	79	72	66	76	70	65	73	68	64	70	66	62	60
4	84	72	64	57	81	71	63	57	68	61	56	66	60	55	63	58	54	52
5	77	65	56	50	75	64	55	49	61	54	49	59	53	48	57	52	47	45
6	71	59	50	44	69	58	49	43	56	48	43	54	47	42	52	46	42	40
7	66	53	45	39	65	52	44	39	51	43	38	49	43	38	48	42	37	35
8	62	49	40	35	60	48	40	35	46	39	34	45	39	34	44	38	34	32
9	58	45	37	31	56	44	36	31	43	36	31	42	35	31	40	35	30	29
10	54	41	34	28	53	41	33	28	40	33	28	39	32	28	38	32	28	26

LAMPS (number of lamps)

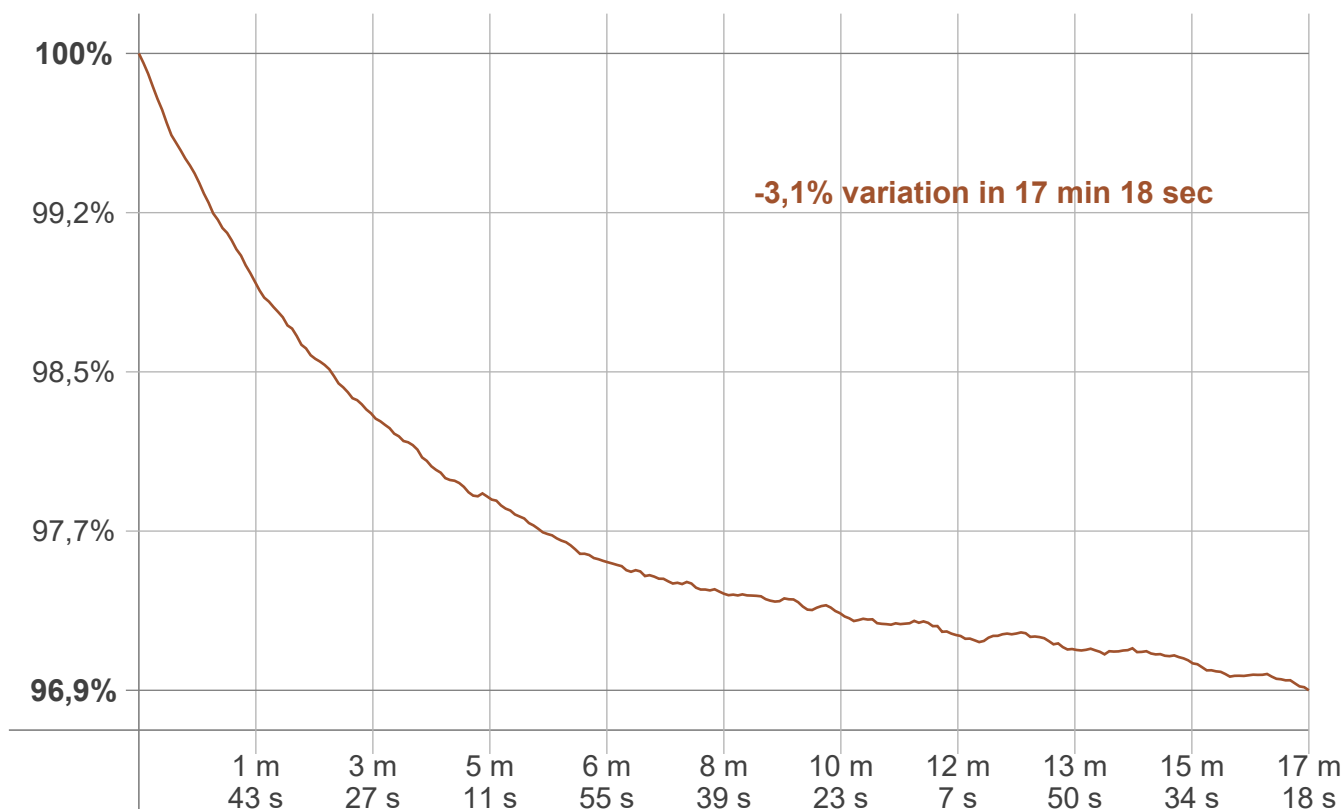
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
15,1 lm	43,4 lm	65,8 lm	77,3 lm	75,6 lm	61,0 lm	39,6 lm	21,0 lm	9,03 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
3,10 lm	1,32 lm	1,10 lm	0,996 lm	0,578 lm	0,296 lm	0,218 lm	0,134 lm	0,045 lm

Warmup curve



Warmup result

Warmup time:	Lamp stabilized in 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
2751 K	-6 K	2745 K

Output change

Output start	Output change	Output end
429 lm	-14 lm	416 lm