

Light efficiency:

132 Lumen/Watt

Light quality:

CRI: 82,3

Color temperature:

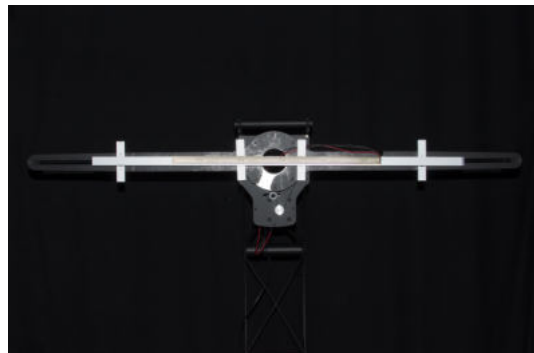
2758 K

Output: 631 lm

Peak: 236 cd

Power: 4,8 W

PF: 1,0



Product name:

Navigator-3_510mm_827_Cover-Flat-Frosted

Item number:

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

Date and time:

22.06.2022 12:20:27

Description:

Rank: D60-AC-8GB

Tolerances:

Lumen +/-4%

Candela +/-2,5%

Colour Temp +/-35 Kelvin

CRI +/-0,7

Angular Resolution: 1 Degree Step

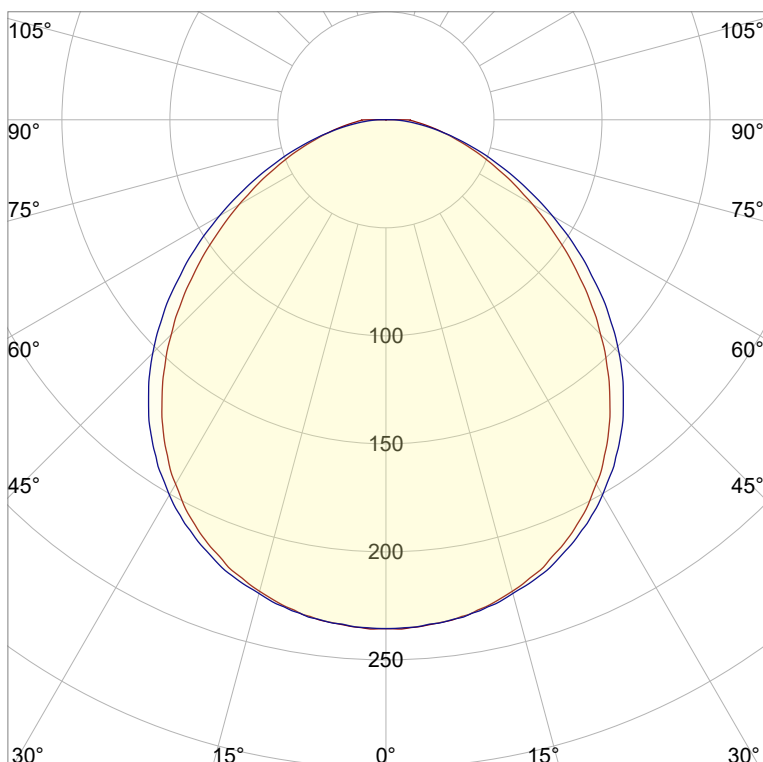
Last Calibration 20-09-2021

Tester: Peter Ulrich

Test Site: Lichtlabor

Gaustrasse 13

55411 Bingen am Rhein

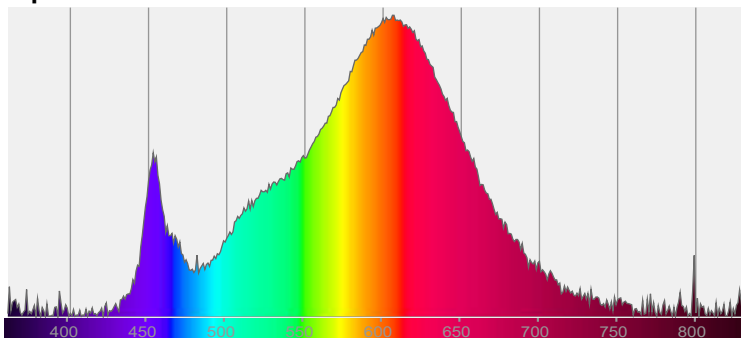


CIE 1931

x: 0,453

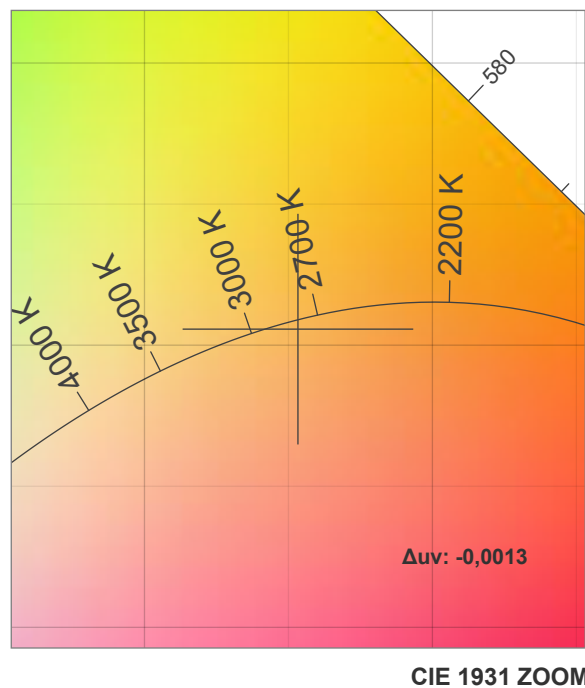
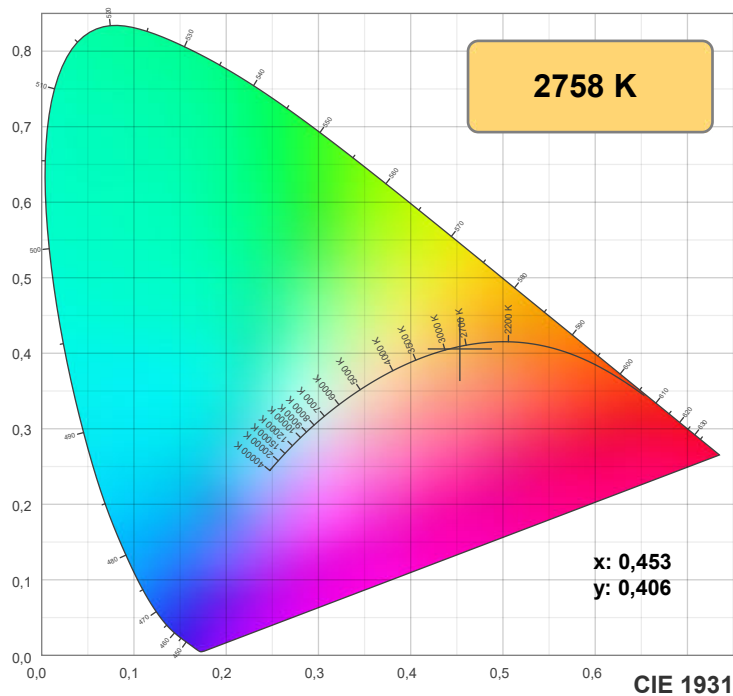
y: 0,406

Spectra



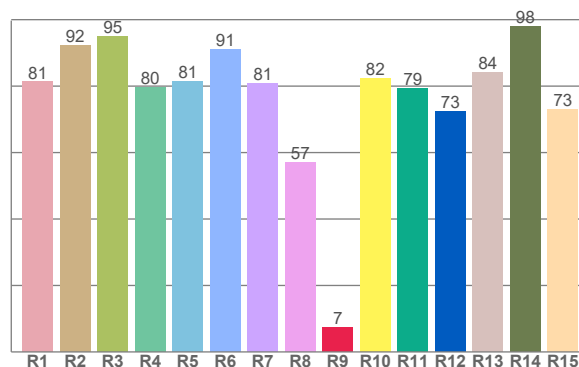
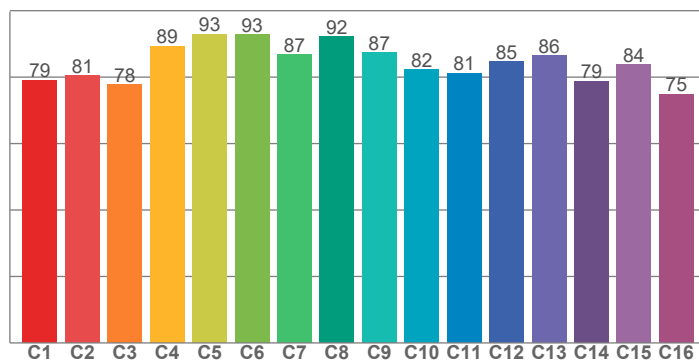
Power

Voltage: 48,0 V
Current: 0,100 A
Frequency: 0 Hz



TM30: 84,2

CRI: 82,3 (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
81,3	92,2	94,9	79,7	81,3	91,1	80,8	57,1	7,4	82,4	79,3	72,5	84,0	98,1	73,0

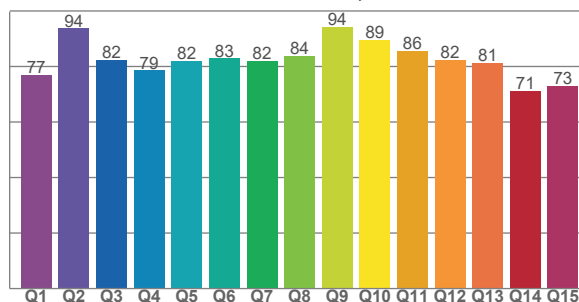
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
79,1	80,6	77,8	89,3	93,0	92,7	86,7	92,3	87,5	82,2	81,3	84,6	86,4	78,8	83,7	74,9

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
77,0	93,7	82,4	78,5	81,9	82,9	82,0	83,9	94,1	89,5	85,5	82,2	81,2	71,3	73,0

CQS: 81,4



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
2758 K	82,3	7,4	84,2	95,7	81,4	0,453	0,406	0,260	0,350	-0,0013

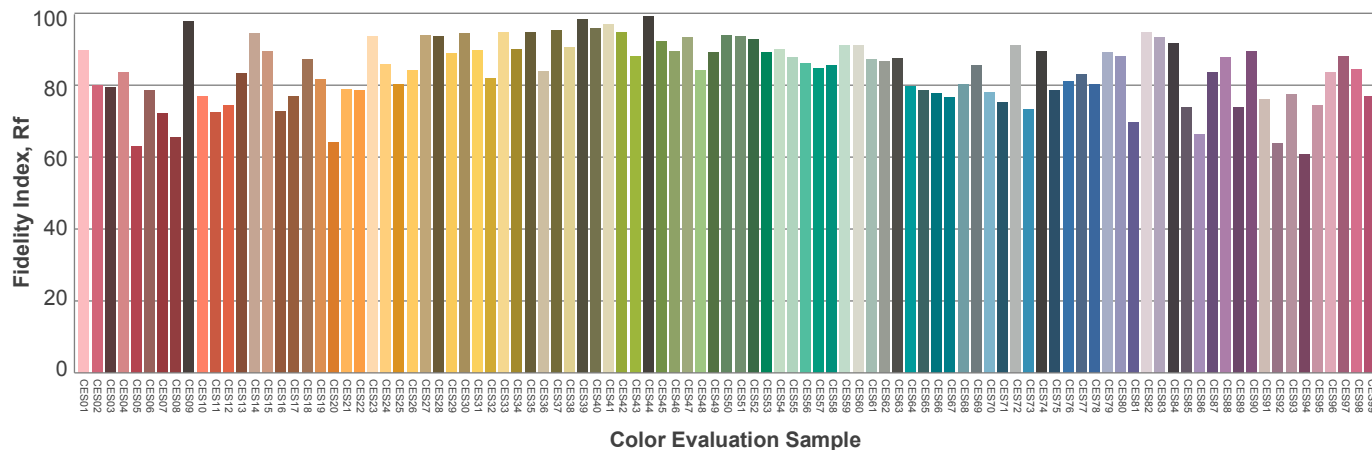
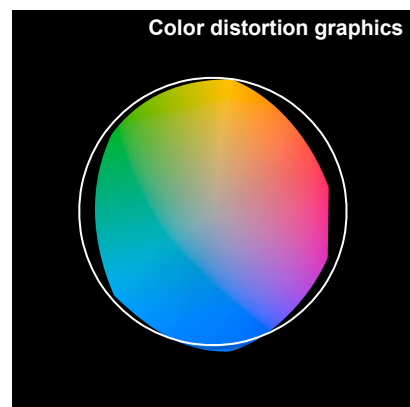
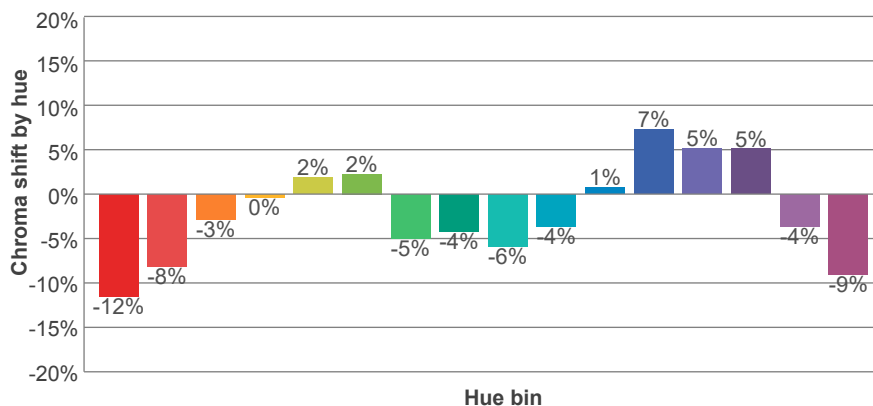
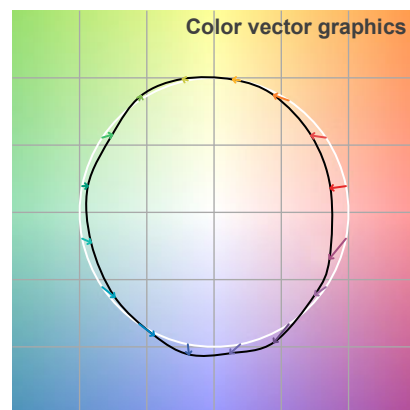
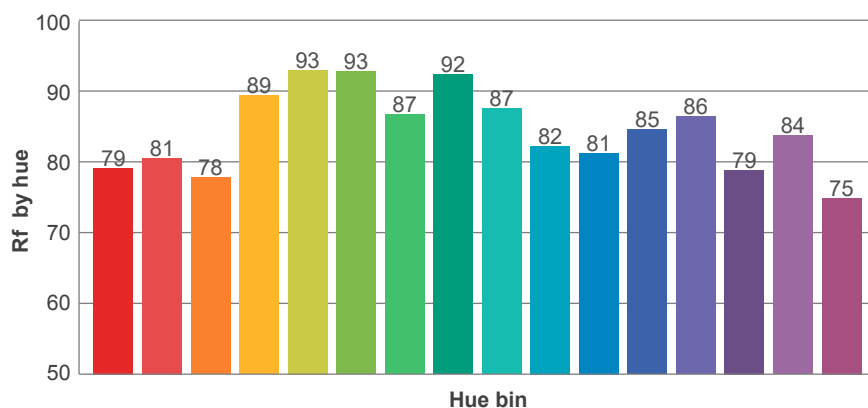
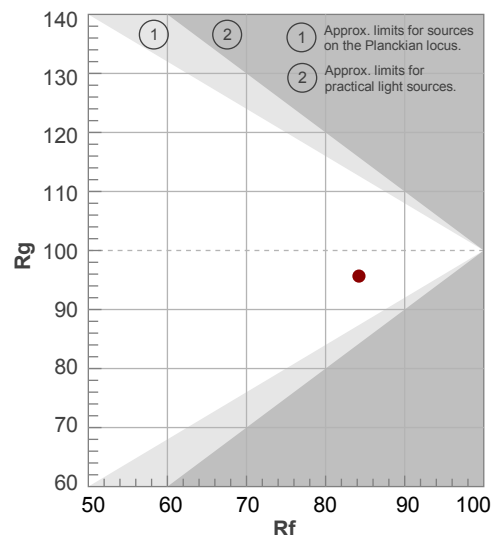
Rf 84,2

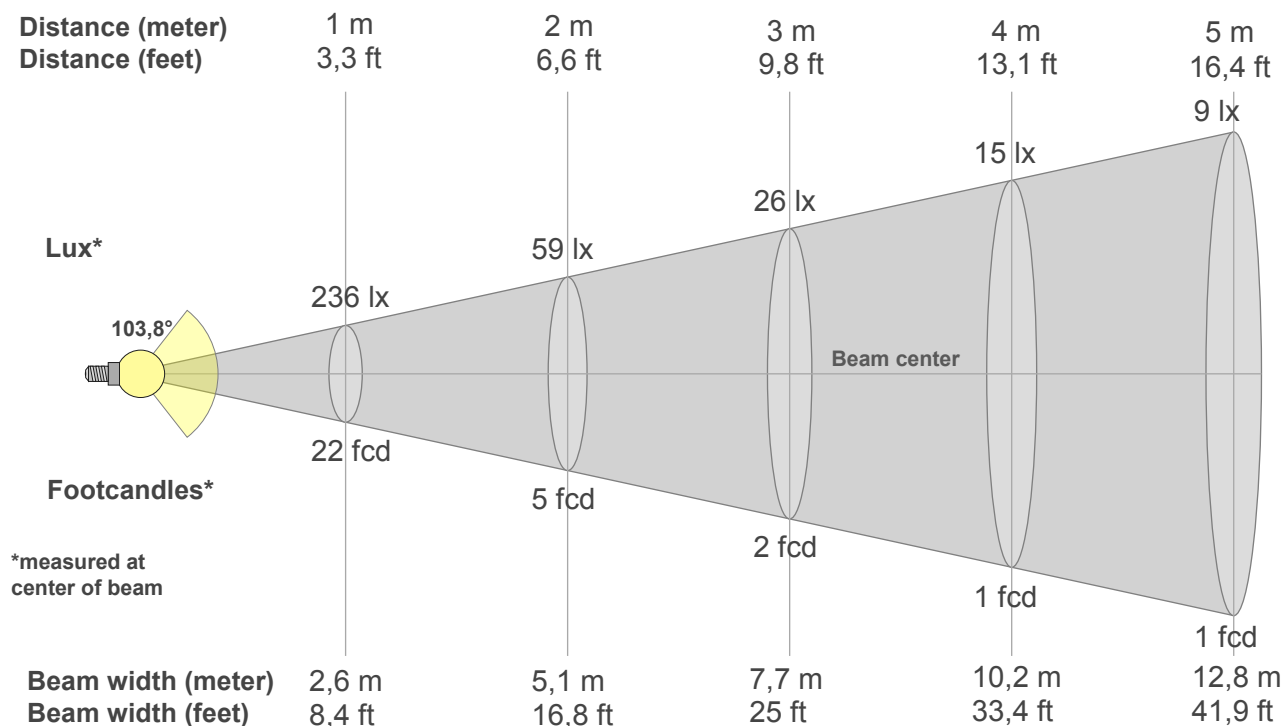
Fidelity index Rf

Rg 95,7

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	0%	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
236lx	59lx	26lx	15lx	9lx	7lx	5lx	4lx	3lx	2lx	2lx	2lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx
21,9fcd	5,5fcd	2,4fcd	1,4fcd	0,9fcd	0,6fcd	0,4fcd	0,3fcd	0,3fcd	0,2fcd	0,2fcd	0,2fcd	0,1fcd	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°
236	235	232	226	218	208	195	179	161	140	120	98	78	61	46	32	22	15	5	5
100%	100%	98%	96%	93%	88%	83%	76%	68%	60%	51%	42%	33%	26%	19%	14%	10%	6%	2%	2%

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°
236	234	232	227	221	212	200	187	171	153	132	111	89	69	50	34	21	10	1	1
100%	99%	98%	96%	94%	90%	85%	79%	73%	65%	56%	47%	38%	29%	21%	14%	9%	4%	1%	0%

Intensities in 180° c-plane

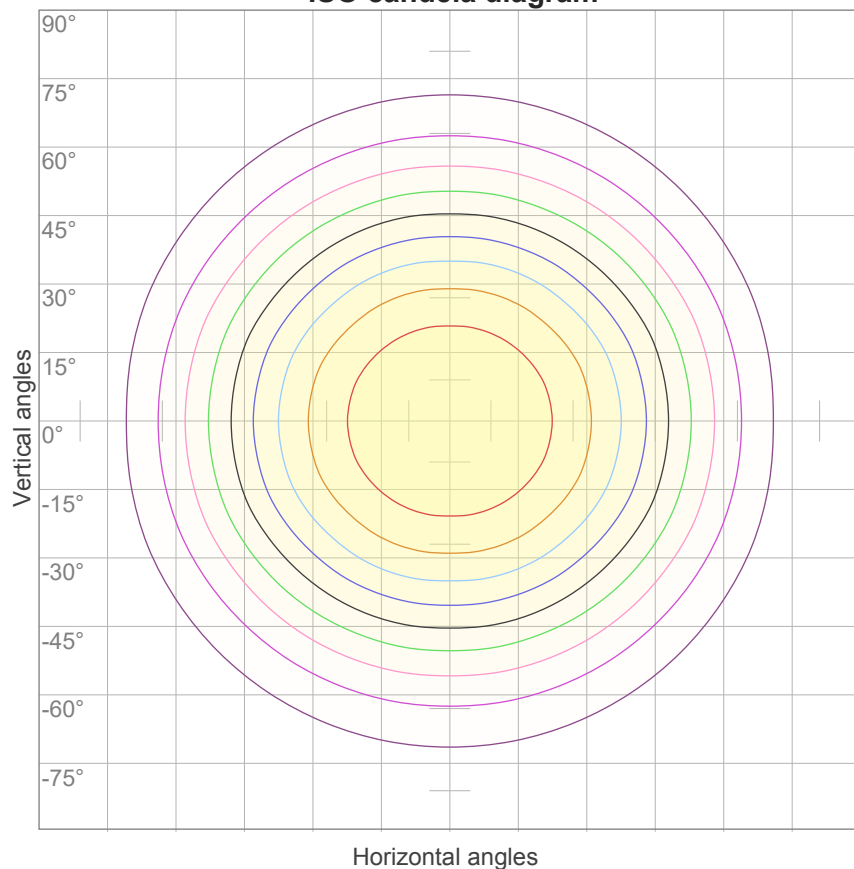
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
236	235	232	226	218	208	195	179	161	140	120	98	78	61	46	32	22	15	5	5
100%	100%	98%	96%	93%	88%	83%	76%	68%	60%	51%	42%	33%	26%	19%	14%	10%	6%	2%	2%

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°
236	234	232	227	221	212	200	187	171	153	132	111	89	69	50	34	21	10	1	1
100%	99%	98%	96%	94%	90%	85%	79%	73%	65%	56%	47%	38%	29%	21%	14%	9%	4%	1%	0%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
103,8°	158,8°	178,7°	79,9%	56,3%

ISO candela diagram



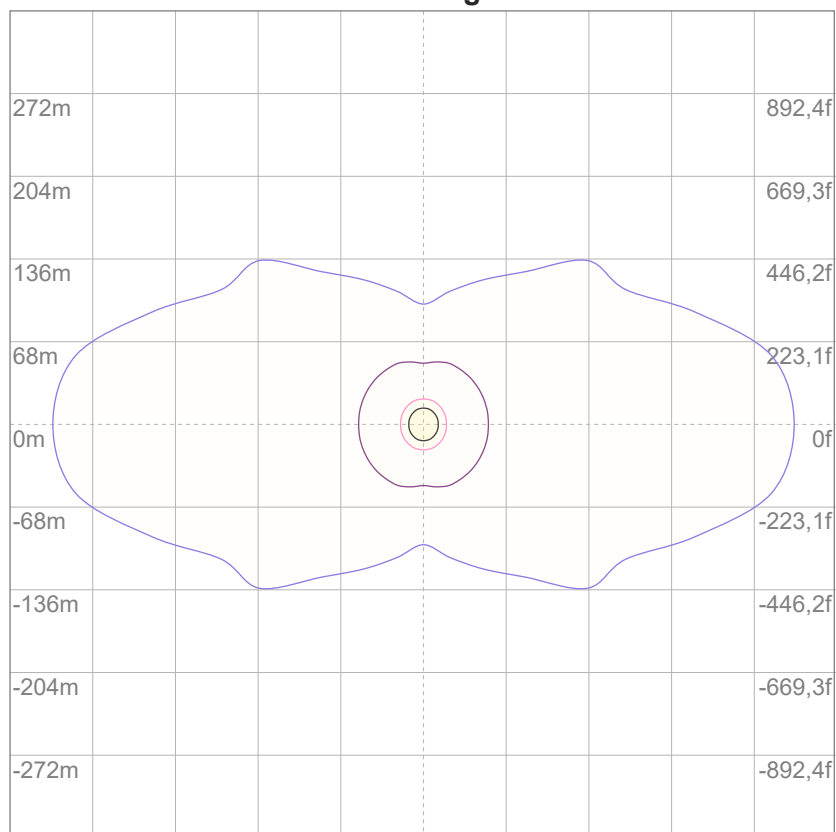
10%	24 cd
20%	47 cd
30%	71 cd
40%	94 cd
50%	118 cd
60%	141 cd
70%	165 cd
80%	188 cd
90%	212 cd

Conditions:

Number of c-planes: 16

Candela at center: 236 cd

ISO lux diagram



3%	70,7m lx
5%	0,118 lx
10%	0,236 lx
30%	0,707 lx
50%	1,18 lx

Conditions:

Number of c-planes: 16

Lux at center: 2,36 lx

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

Glare Evaluation According to UGR

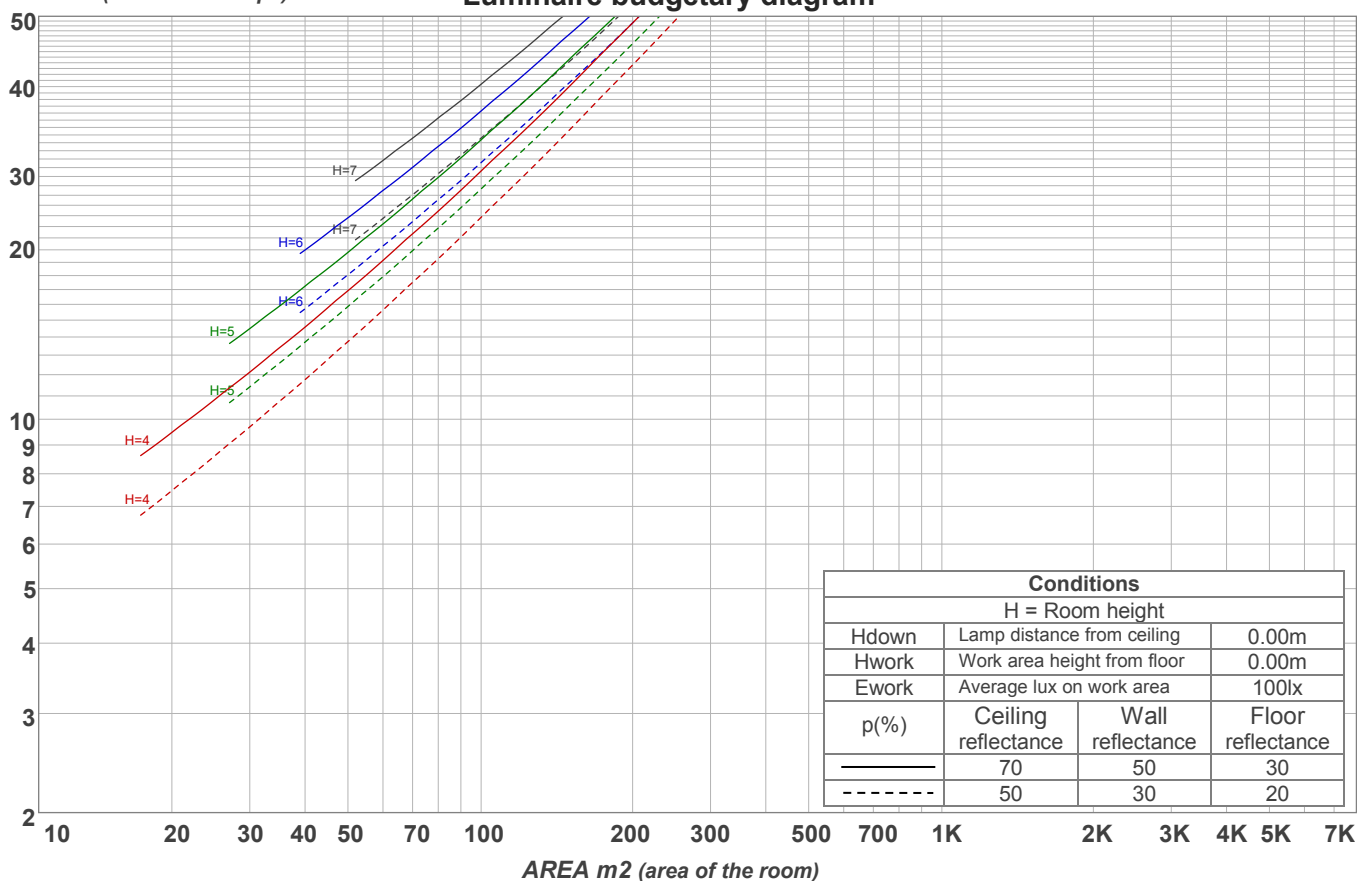
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	20,9	22,1	21,1	22,4	22,6	22,0	23,1	22,2	23,4	23,7
	3H	21,8	23,1	22,3	23,4	23,6	23,1	24,3	23,5	24,6	24,8
	4H	22,3	23,4	22,7	23,7	24,0	23,6	24,8	24,0	25,1	25,3
	6H	22,6	23,7	22,9	23,9	24,3	24,0	25,1	24,4	25,3	25,7
	8H	22,7	23,7	23,1	24,0	24,5	24,2	25,2	24,5	25,5	25,9
	12H	22,8	23,8	23,2	24,1	24,6	24,2	25,2	24,6	25,5	26,0
4H	2H	21,4	22,6	21,8	22,9	23,1	22,3	23,4	22,7	23,7	24,0
	3H	22,7	23,7	23,1	24,0	24,4	23,8	24,7	24,1	25,1	25,5
	4H	23,1	24,0	23,6	24,4	25,0	24,3	25,2	24,7	25,6	26,1
	6H	23,5	24,4	24,0	24,8	25,1	24,8	25,6	25,3	26,0	26,4
	8H	23,7	24,5	24,2	24,9	25,2	25,0	25,7	25,5	26,1	26,5
	12H	23,8	24,5	24,3	24,9	25,4	25,1	25,7	25,6	26,2	26,6
8H	4H	23,4	24,2	23,9	24,5	24,9	24,4	25,2	24,9	25,6	26,0
	6H	24,0	24,5	24,5	25,0	25,6	25,1	25,7	25,6	26,1	26,7
	8H	24,2	24,7	24,7	25,3	25,9	25,4	25,9	25,9	26,4	27,0
	12H	24,5	24,9	25,0	25,4	26,0	25,6	26,0	26,2	26,5	27,1
12H	4H	23,4	24,0	23,9	24,5	24,9	24,4	25,1	24,9	25,5	26,0
	6H	24,0	24,6	24,6	25,1	25,7	25,1	25,6	25,6	26,2	26,8
	8H	24,3	24,8	24,9	25,3	25,9	25,4	25,9	26,0	26,4	27,0
Variation of the observer position for the luminaire distance S											
S = 1.0H		0,1 / -0,2					0,1 / -0,1				
S = 1.5H		0,3 / -0,5					0,2 / -0,3				
S = 2.0H		0,7 / -0,9					0,7 / -0,8				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 631 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	101	98	94	97	94	91	93	90	88	89	87	85	83
2	99	91	84	79	96	89	83	78	85	80	76	82	77	74	78	75	72	70
3	91	80	72	66	88	79	71	65	75	69	64	72	67	63	70	65	61	59
4	83	71	63	56	81	70	62	56	67	60	55	65	59	54	62	57	53	51
5	77	64	55	49	74	63	55	48	61	53	48	58	52	47	56	51	46	44
6	71	58	49	43	69	57	48	42	55	47	42	53	46	41	51	45	41	39
7	66	52	44	38	64	52	43	38	50	43	37	48	42	37	47	41	37	35
8	61	48	40	34	60	47	39	34	46	39	33	44	38	33	43	37	33	31
9	57	44	36	31	56	43	36	30	42	35	30	41	35	30	40	34	30	28
10	54	41	33	28	52	40	33	28	39	32	27	38	32	27	37	31	27	25

LAMPS (number of lamps)

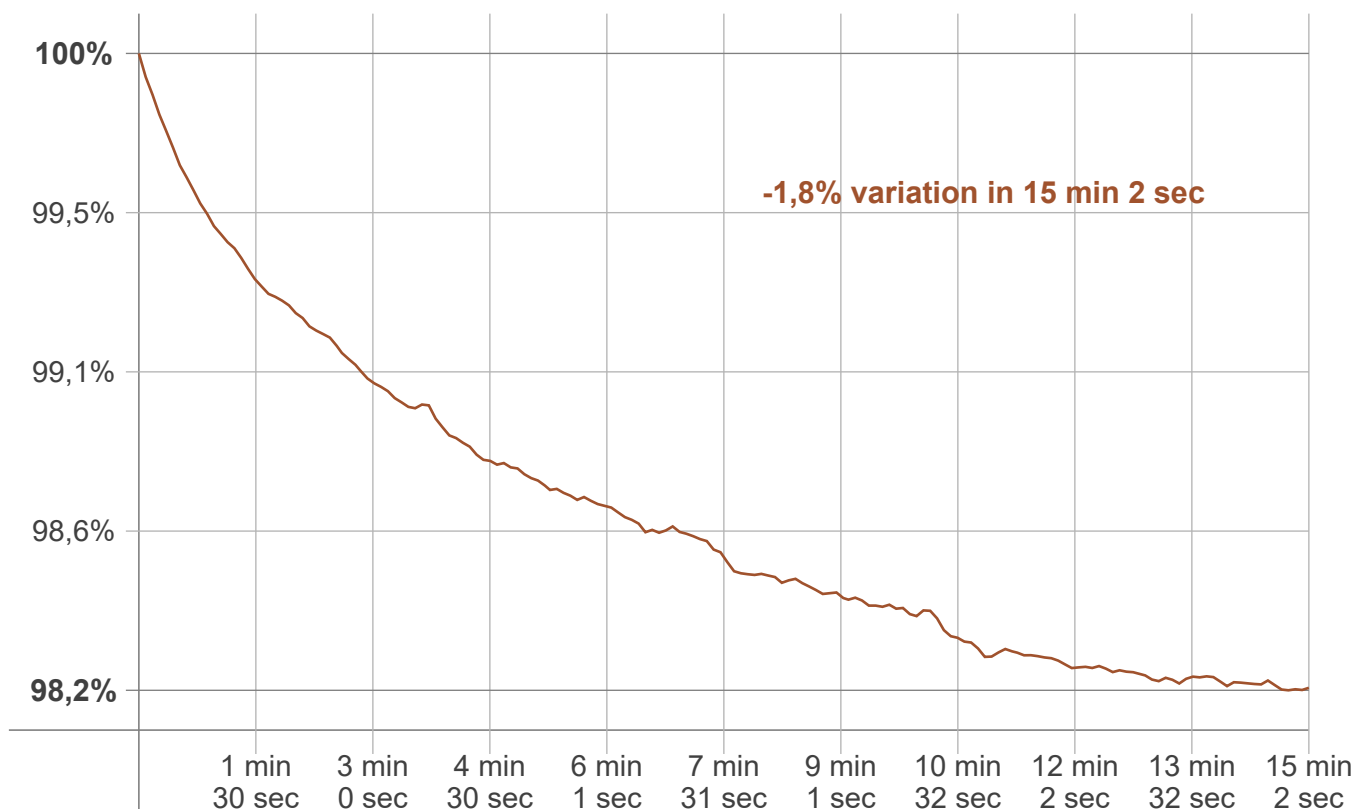
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
22,3 lm	64,0 lm	96,7 lm	115 lm	113 lm	93,6 lm	64,6 lm	36,3 lm	15,2 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
3,57 lm	2,30 lm	1,64 lm	1,36 lm	0,898 lm	0,507 lm	0,374 lm	0,229 lm	0,077 lm

Warmup curve



Warmup result

Warmup time:	Lamp stabilized in 15 min 2 sec
Warmup variation	-1,8%

Warmup conditions

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

Color temperature change

CCT start	CCT change	CCT end
2756 K	+2 K	2758 K

Output change

Output start	Output change	Output end
641 lm	-10 lm	631 lm