

### Light efficiency:

**145 Lumen/Watt**

### Light quality:

**CRI: 82,2**

### Color temperature:

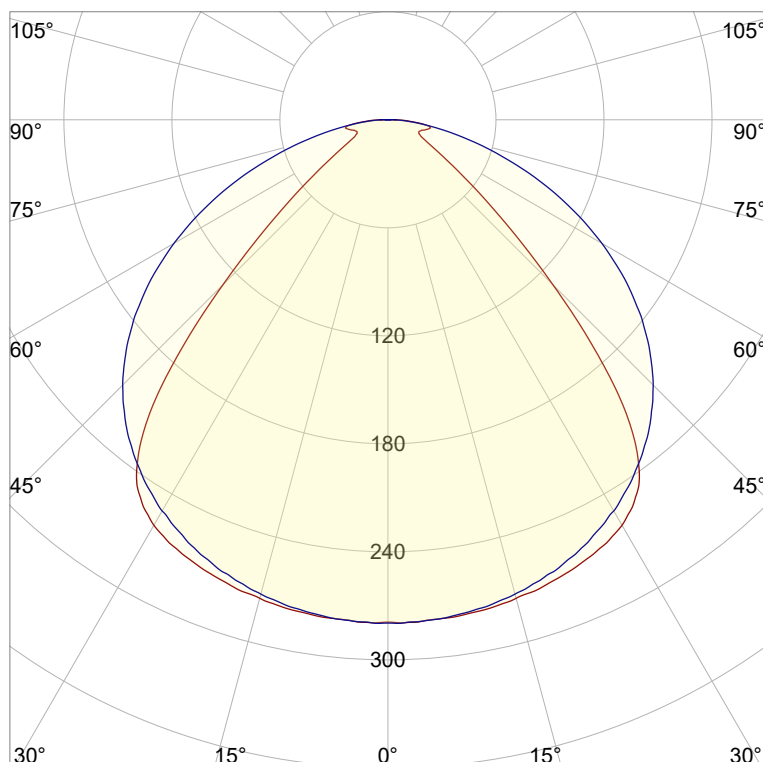
**2756 K**

**Output: 698 lm**

**Peak: 280 cd**

**Power: 4,8 W**

**PF: 1,0**



### Product name:

**Navigator-3\_510mm\_827\_Lens-90°-Frosted**

### Item number:

**NP/L1C/14C/G1/L1C/0510/827/L9F**

### Date and time:

**22.06.2022 09:29:44**

### 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**

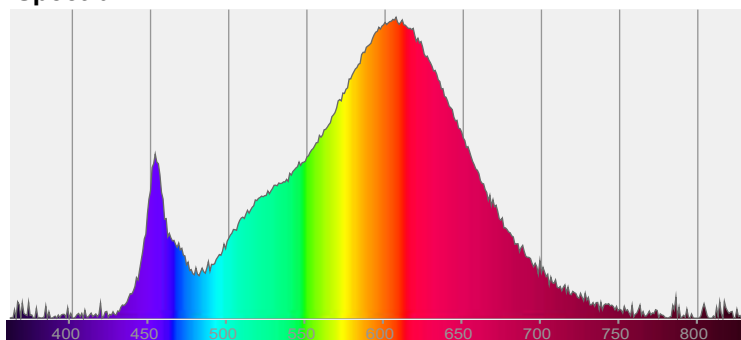


**CIE 1931**

**x: 0,454**

**y: 0,407**

### Spectra

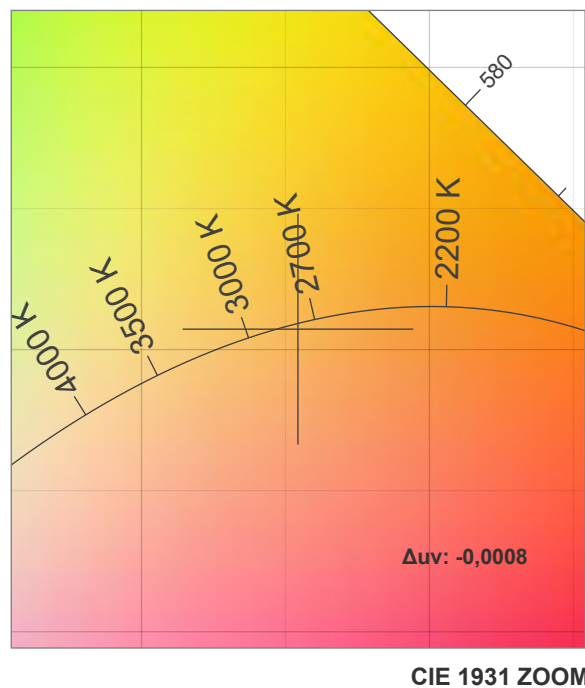
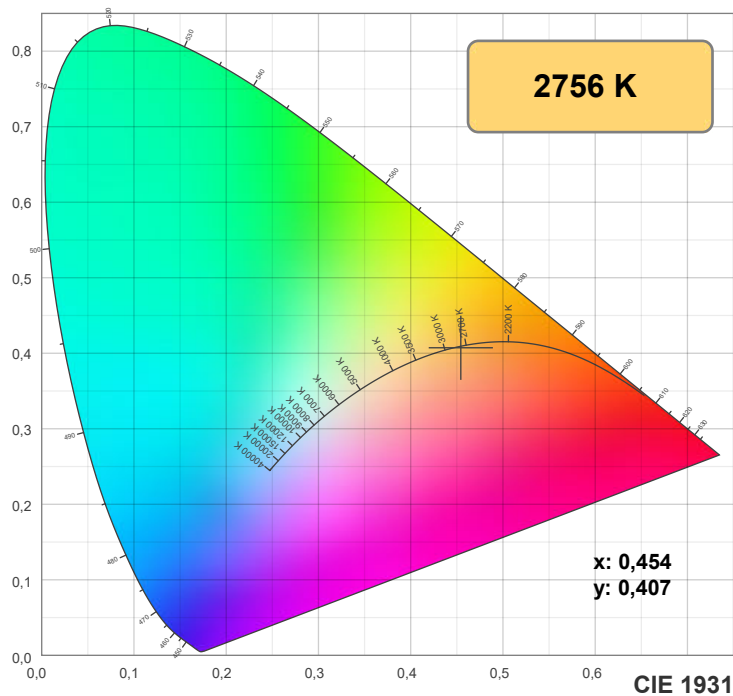


### Power

**Voltage: 48,0 V**

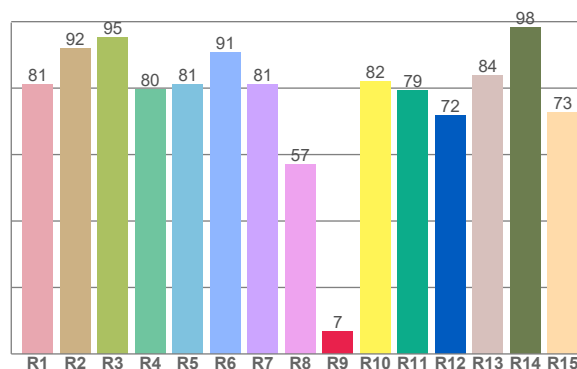
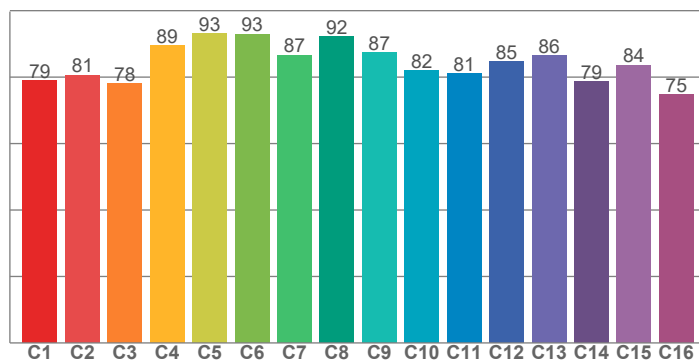
**Current: 0,100 A**

**Frequency: 0 Hz**



**TM30: 84,2**

**CRI: 82,2 (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
81,0	92,0	95,1	79,7	81,1	90,8	81,0	57,0	6,8	81,9	79,3	71,7	83,8	98,2	72,7

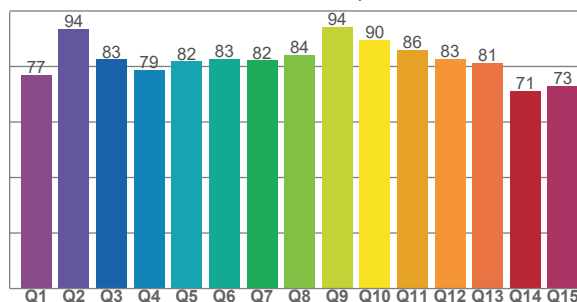
TM30 C values, 16 binned values out of total of 99 C values

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

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
77,0	93,6	82,5	78,6	81,8	82,8	82,2	84,3	94,2	89,7	85,8	82,6	81,4	71,1	72,9

**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
2756 K	82,2	6,8	84,2	95,4	81,5	0,454	0,407	0,260	0,350	-0,0008

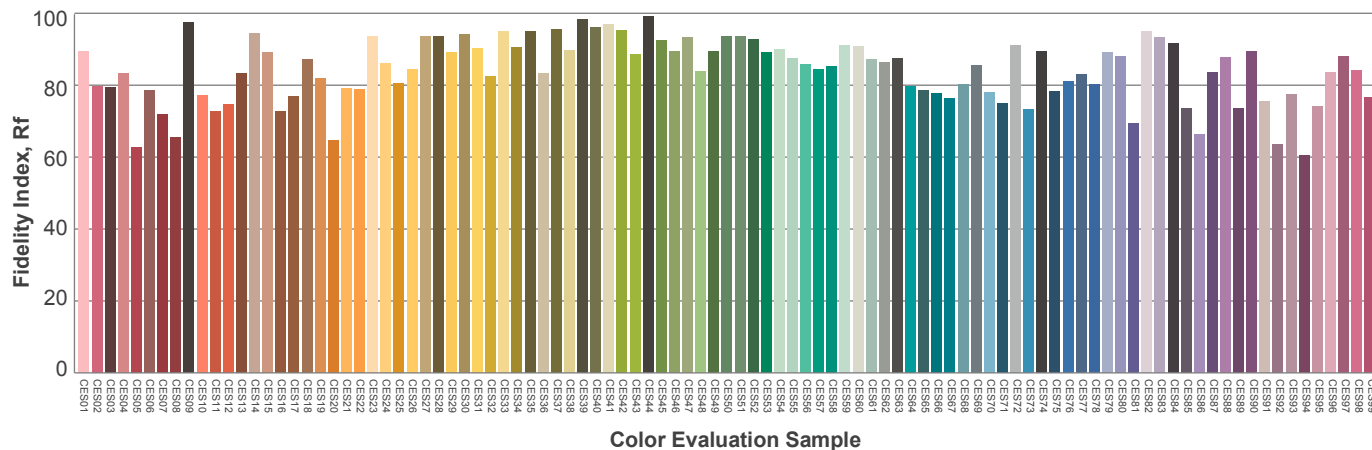
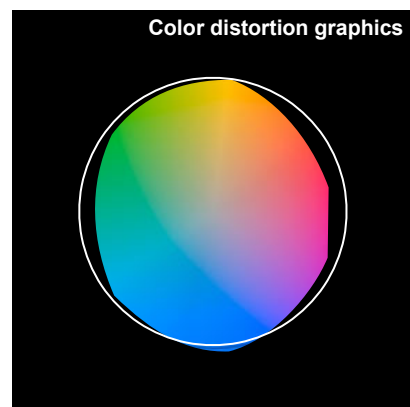
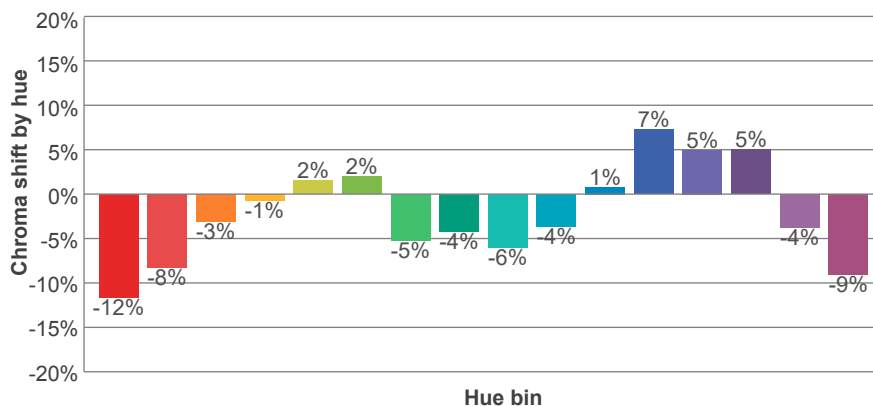
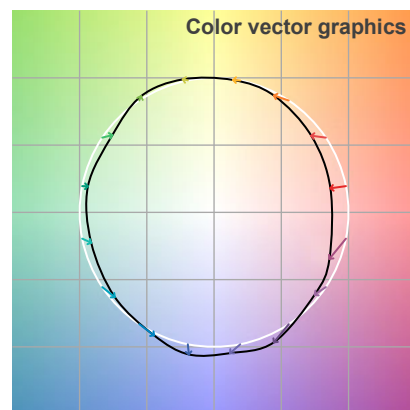
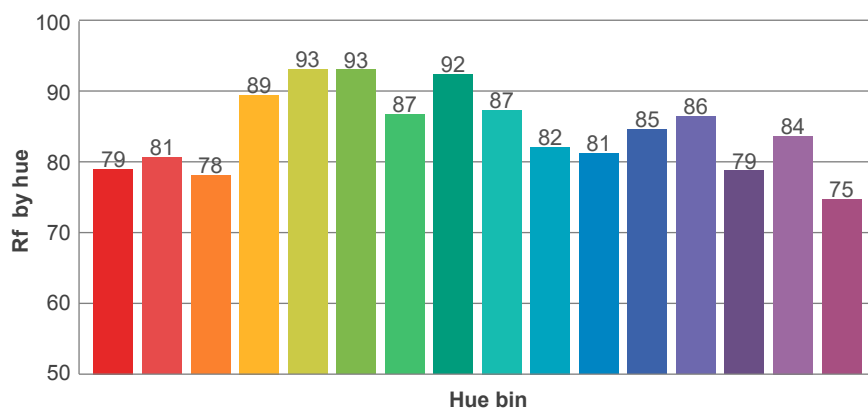
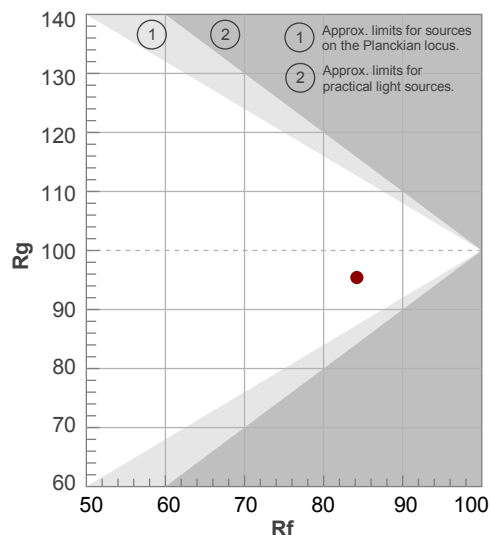
**Rf 84,2**

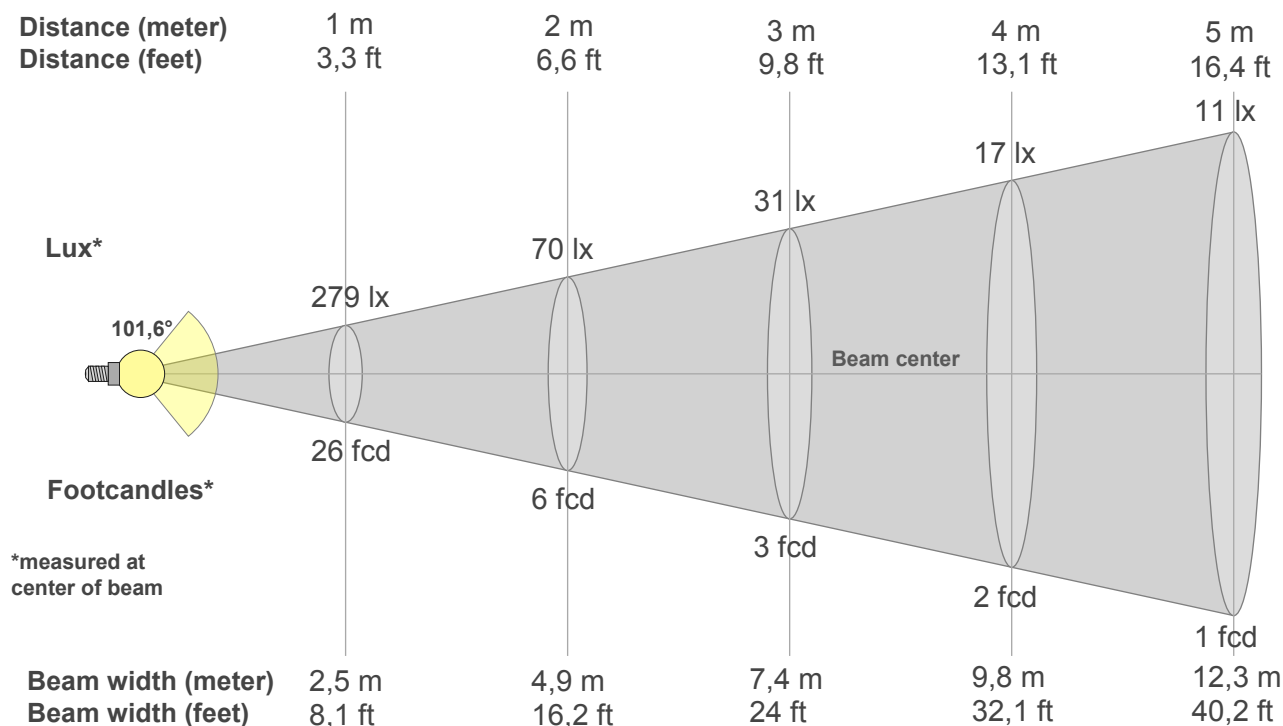
Fidelity index Rf

**Rg 95,4**

Gamut index Rg

Hue Bin	R <sub>f</sub>	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
279lx	70lx	31lx	17lx	11lx	8lx	6lx	4lx	3lx	3lx	2lx	2lx	2lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx
25,9fcd	6,5fcd	2,9fcd	1,6fcd	1fcd	0,7fcd	0,5fcd	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

## 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°
279	279	278	275	272	267	260	243	199	130	75	42	26	19	19	21	24	14	3	0
100%	100%	99%	99%	97%	96%	93%	87%	71%	46%	27%	15%	9%	7%	7%	8%	8%	5%	1%	0%

## 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°
279	279	277	273	267	260	251	239	225	208	188	164	137	108	79	52	29	13	2	0
100%	100%	99%	98%	96%	93%	90%	86%	81%	75%	67%	59%	49%	39%	28%	19%	10%	5%	1%	0%

## Intensities in 180° c-plane

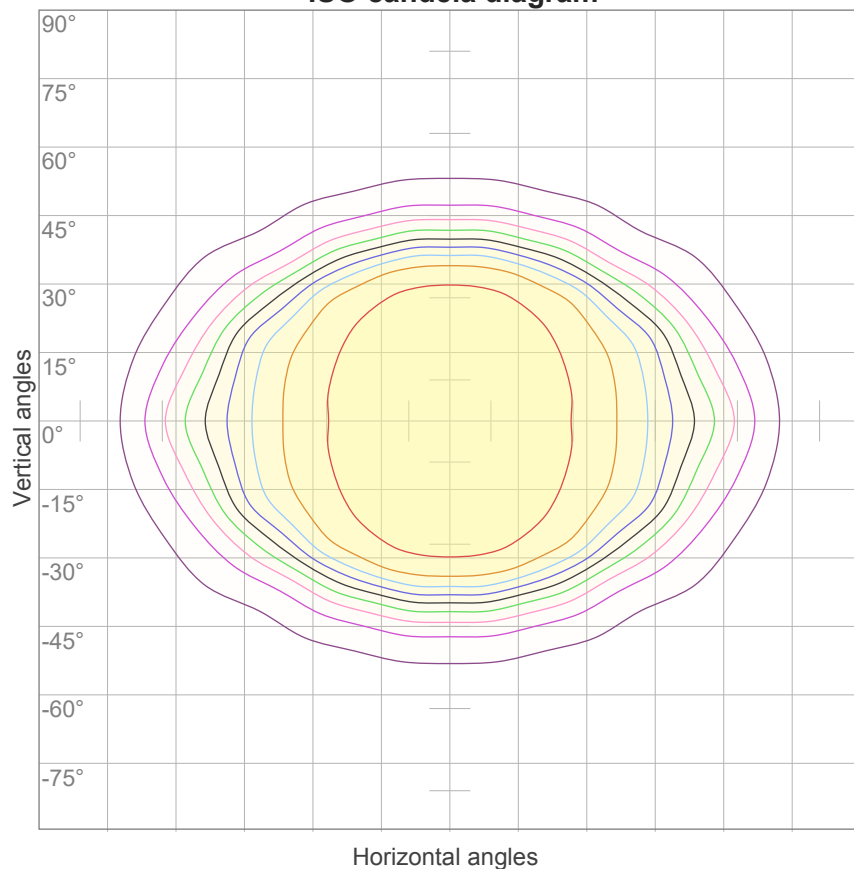
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
279	279	278	275	272	267	260	243	199	130	75	42	26	19	19	21	24	14	3	0
100%	100%	99%	99%	97%	96%	93%	87%	71%	46%	27%	15%	9%	7%	7%	8%	8%	5%	1%	0%

## 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°
279	279	277	273	267	260	251	239	225	208	188	164	137	108	79	52	29	13	2	0
100%	100%	99%	98%	96%	93%	90%	86%	81%	75%	67%	59%	49%	39%	28%	19%	10%	5%	1%	0%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
101,6°	135,5°	176,9°	86,3%	64,7%

### ISO candela diagram



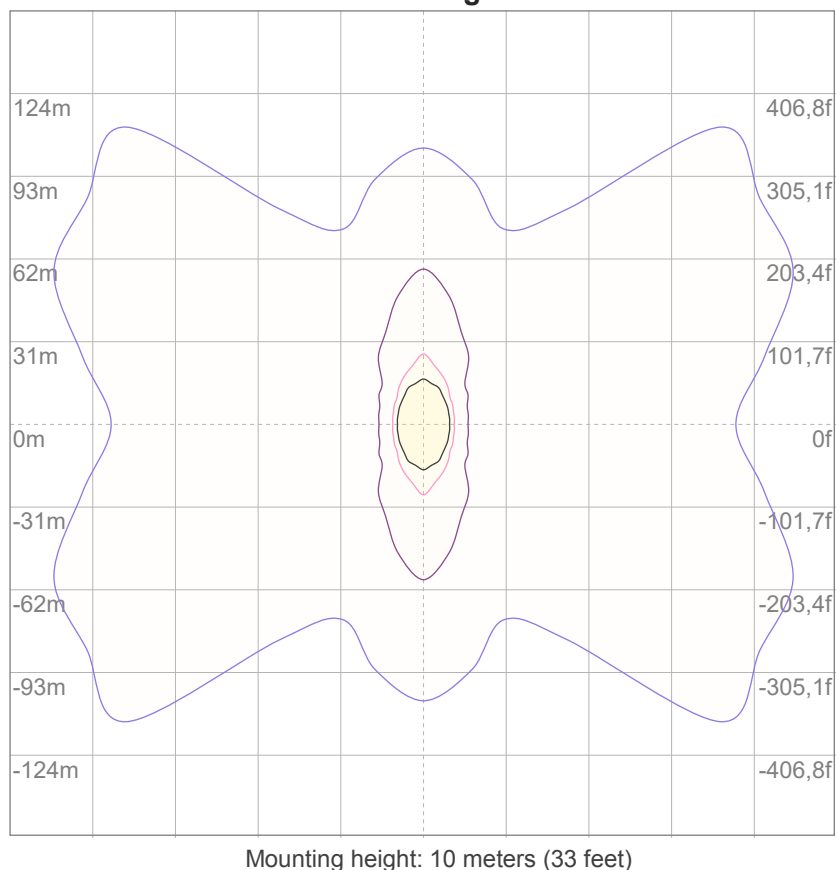
10%	28 cd
20%	56 cd
30%	84 cd
40%	112 cd
50%	140 cd
60%	168 cd
70%	195 cd
80%	223 cd
90%	251 cd

#### Conditions:

Number of c-planes: 16

Candela at center: 279 cd

### ISO lux diagram



3%	83,8m lx
5%	0,140 lx
10%	0,279 lx
30%	0,838 lx
50%	1,40 lx

#### Conditions:

Number of c-planes: 16

Lux at center: 2,79 lx

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

### Glare Evaluation According to UGR

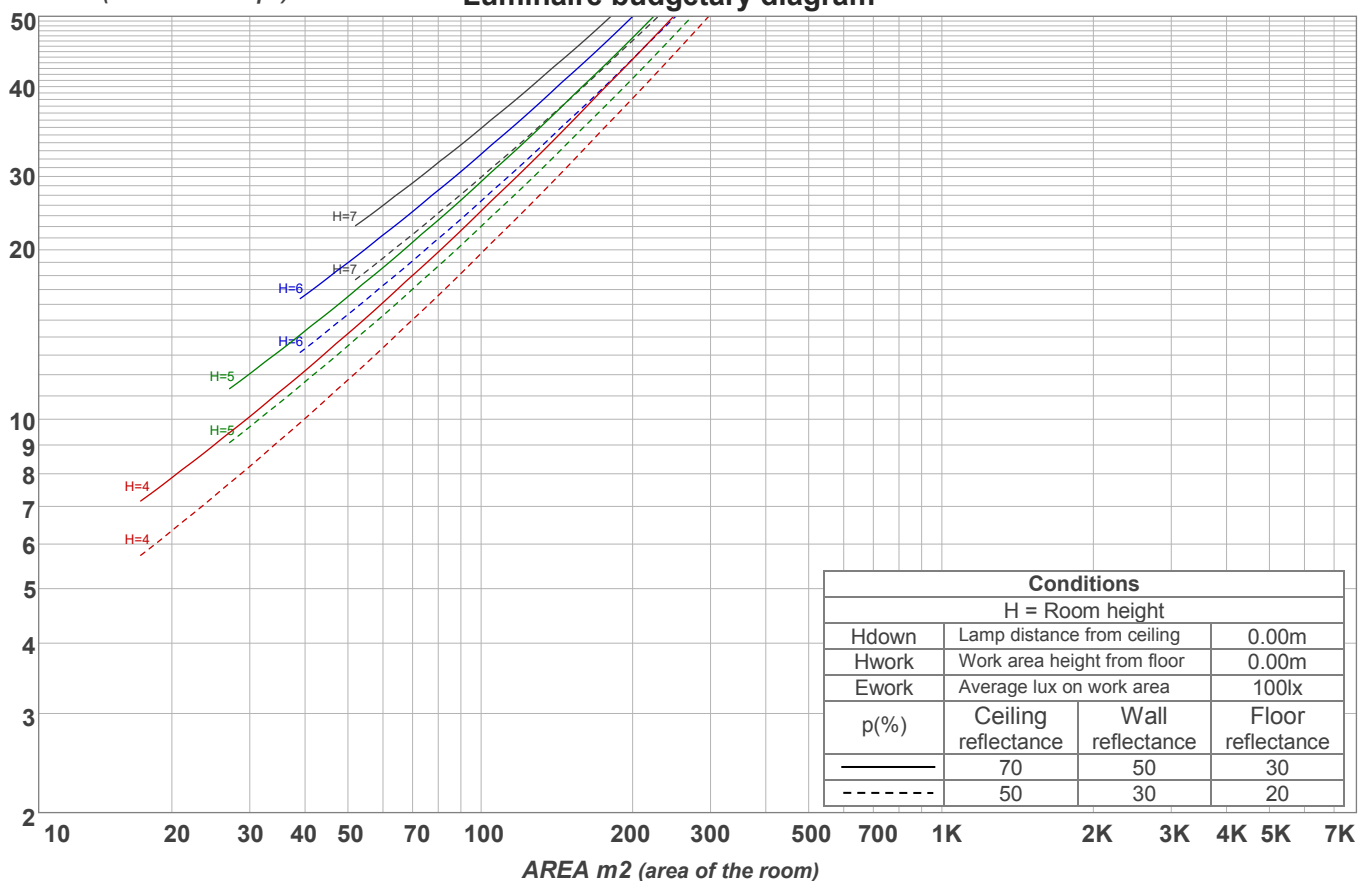
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X      Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	18,2	19,3	18,4	19,6	19,8	23,3	24,4	23,5	24,7	24,9
	3H	18,2	19,4	18,6	19,6	19,8	24,4	25,5	24,8	25,8	26,0
	4H	18,5	19,6	18,9	19,8	20,1	24,8	25,9	25,3	26,2	26,5
	6H	19,0	20,0	19,3	20,3	20,6	25,3	26,2	25,6	26,5	26,9
	8H	19,3	20,2	19,6	20,5	20,9	25,4	26,3	25,7	26,6	27,0
	12H	19,5	20,4	19,9	20,7	21,2	25,4	26,3	25,8	26,7	27,1
4H	2H	18,6	19,7	19,0	19,9	20,2	23,1	24,2	23,5	24,4	24,7
	3H	18,8	19,7	19,2	20,1	20,5	24,4	25,3	24,8	25,6	26,1
	4H	19,1	19,9	19,5	20,3	20,9	24,9	25,7	25,3	26,1	26,7
	6H	19,8	20,6	20,3	20,9	21,3	25,3	26,1	25,8	26,5	26,8
	8H	20,2	20,9	20,7	21,3	21,6	25,5	26,2	26,0	26,6	27,0
	12H	20,4	21,0	20,9	21,5	21,9	25,6	26,2	26,1	26,6	27,1
8H	4H	19,3	20,0	19,8	20,4	20,8	24,8	25,5	25,3	25,9	26,3
	6H	20,2	20,7	20,7	21,2	21,7	25,3	25,9	25,8	26,3	26,9
	8H	20,8	21,2	21,3	21,7	22,4	25,6	26,0	26,1	26,5	27,2
	12H	21,2	21,6	21,8	22,1	22,7	25,7	26,1	26,3	26,6	27,2
12H	4H	19,3	19,9	19,8	20,3	20,8	24,8	25,4	25,3	25,8	26,3
	6H	20,3	20,8	20,8	21,3	21,9	25,3	25,8	25,9	26,3	27,0
	8H	20,9	21,3	21,5	21,8	22,4	25,6	26,0	26,1	26,5	27,1
Variation of the observer position for the luminaire distance S											
S = 1.0H		0,5 / -0,8					0,1 / -0,2				
S = 1.5H		1,3 / -1,3					0,8 / -1,2				
S = 2.0H		2,3 / -1,5					1,7 / -2,3				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 698 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	106	106	106	101	101	101	99
1	110	105	101	98	107	103	99	96	99	96	93	94	92	90	91	89	87	85
2	101	93	87	82	98	91	86	81	88	83	79	84	81	77	81	78	75	73
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	65	63
4	86	75	67	60	83	73	66	60	71	64	59	68	63	58	66	61	57	55
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49
6	73	61	53	47	72	60	52	46	58	51	46	56	50	45	55	49	45	43
7	68	56	47	42	67	55	47	41	53	46	41	52	45	41	50	45	40	38
8	64	51	43	37	62	50	42	37	49	42	37	47	41	37	46	41	36	34
9	60	47	39	34	58	46	39	34	45	38	33	44	38	33	43	37	33	31
10	56	43	36	31	55	43	35	31	42	35	30	41	34	30	40	34	30	28

LAMPS (number of lamps)

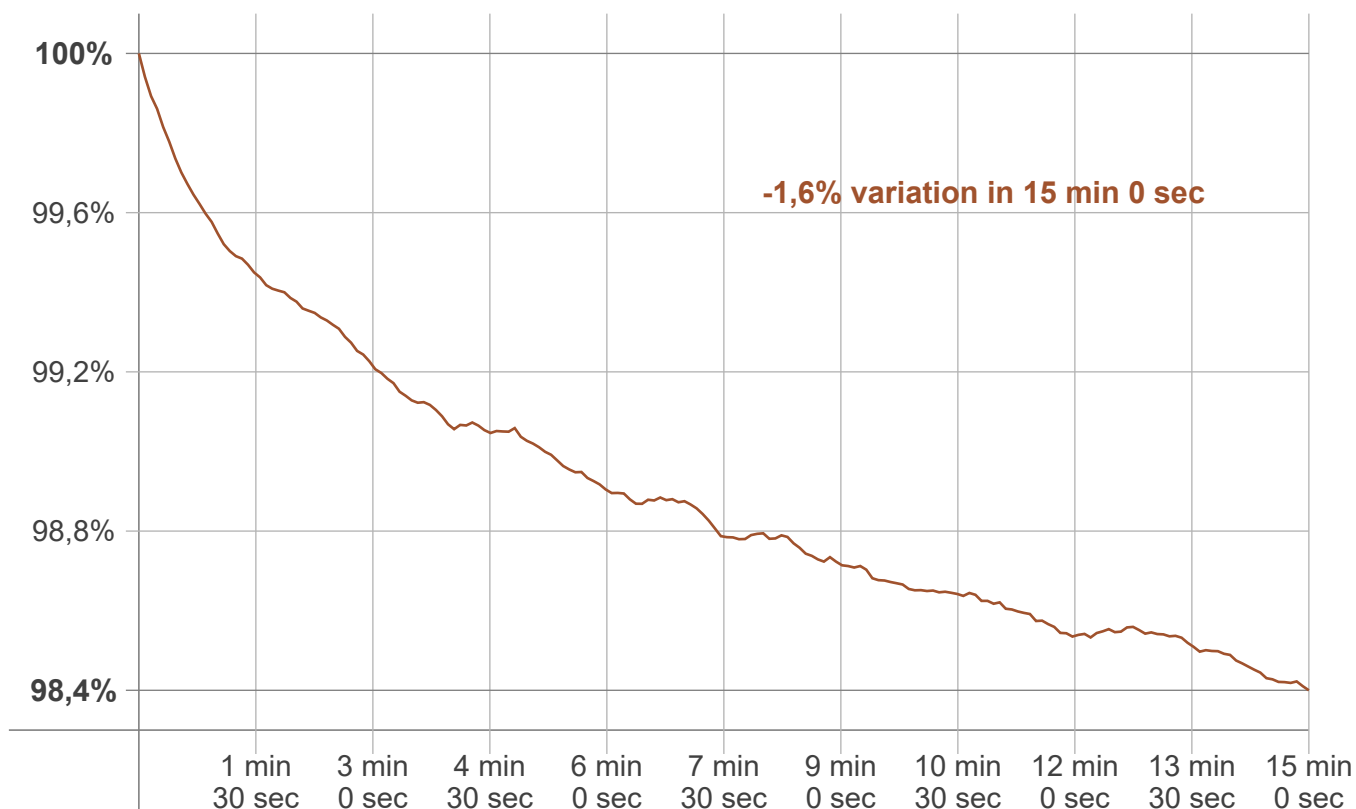
## Luminaire budgetary diagram



## Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
26,6 lm	77,5 lm	122 lm	152 lm	138 lm	86,8 lm	46,2 lm	27,0 lm	14,6 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
3,15 lm	1,13 lm	0,935 lm	0,845 lm	0,730 lm	0,592 lm	0,436 lm	0,267 lm	0,090 lm

## Warmup curve



## Warmup result

Warmup time:	Lamp stabilized in 15 min 0 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
2755 K	+1 K	2756 K

## Output change

Output start	Output change	Output end
708 lm	-10 lm	698 lm