

#### Light efficiency:

**94 Lumen/Watt**

#### Light quality:

**CRI: 95,6**

#### Color temperature:

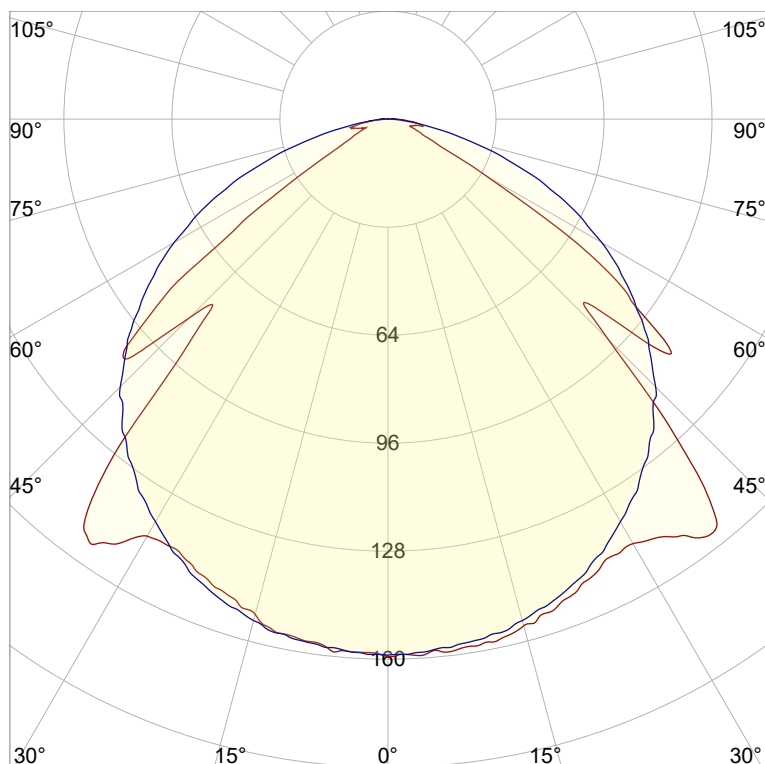
**2752 K**

**Output: 427 lm**

**Peak: 159 cd**

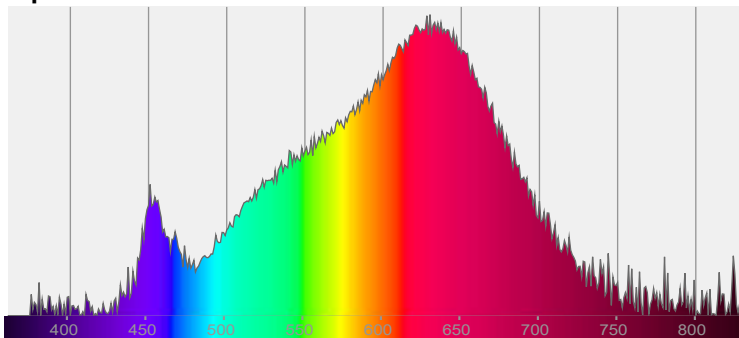
**Power: 4,6 W**

**PF: 1,0**



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

#### Spectra



#### Power

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

#### Product name:

**Horizon-0508-927-CST**

#### Item number:

**FLNNP/L/01A0508/927/CST**

#### Date and time:

**18.06.2020 11:07:17**

#### Description:

**Rank: G08DW**

**Toleranzen:**

**Lumen +/-4%**

**Candela +/-2,5%**

**Colour Temp +/-35 K**

**CRI +/-0,7**

**Angular Resolution 1 Grad Step**

**Last Calibration 20.05.2020**

**Pruefer:**

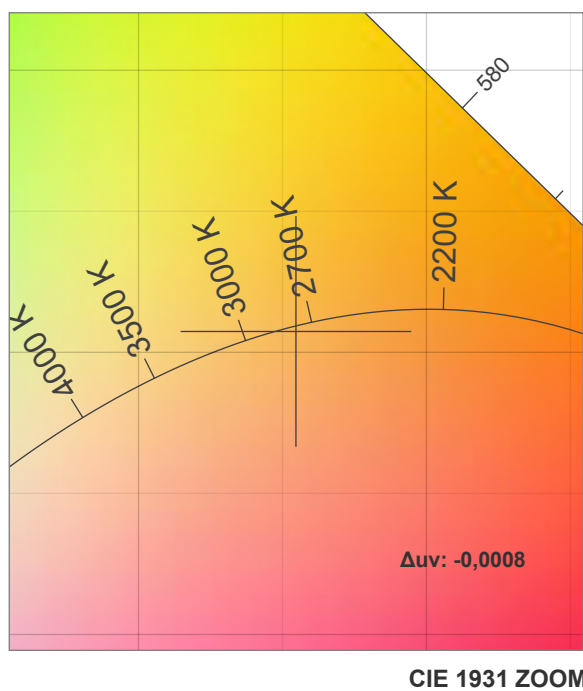
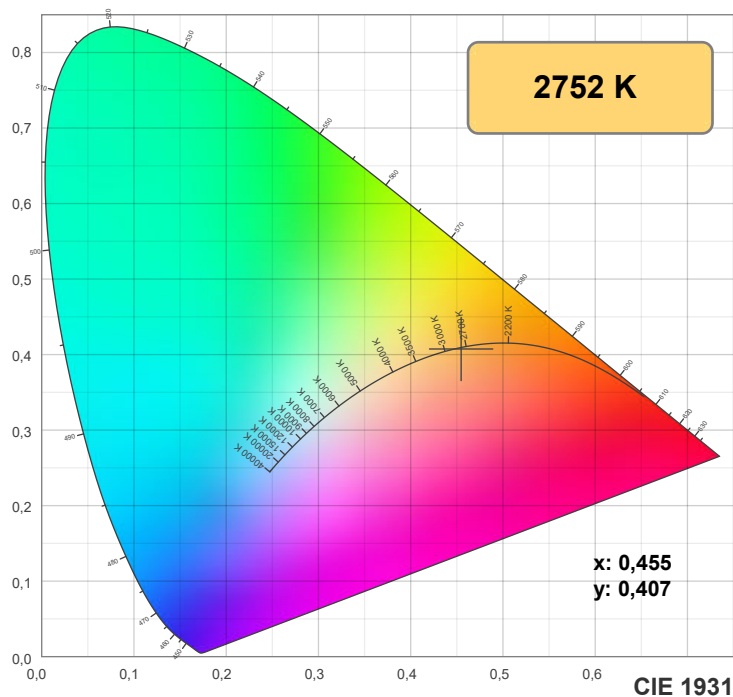
**Peter Ulrich**

**Pruefort:**

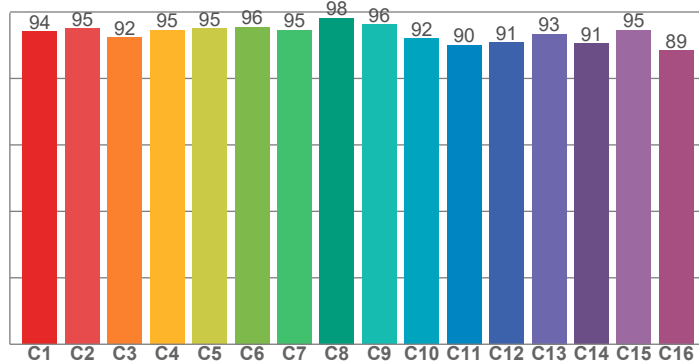
**Lichtlabor**

**Gaustrasse13**

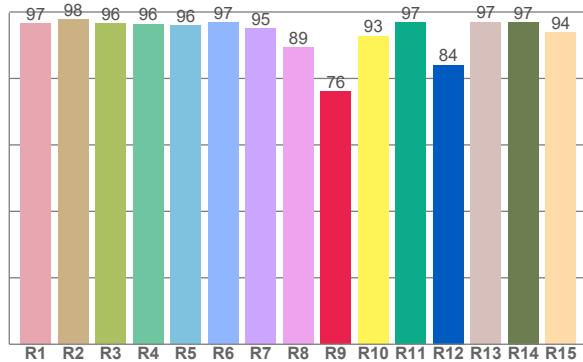
**55411 Bingen am Rhein**



TM30: 93,4



CRI: 95,6 (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
96,6	97,7	96,5	96,5	96,0	96,8	95,1	89,5	76,1	92,8	96,9	84,1	97,1	97,0	94,0

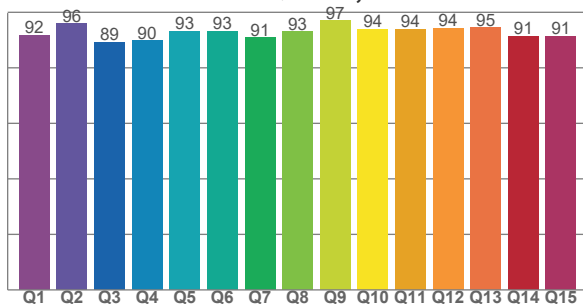
TM30 C values, 16 binned values out of total of 99 C values

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

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
91,7	95,9	89,2	89,8	93,2	93,2	90,9	93,0	97,0	94,0	94,0	94,2	94,5	91,4	91,3

CQS: 92,5



## 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	$\Delta uv$
2752 K	95,6	76,1	93,4	100,7	92,5	0,455	0,407	0,261	0,350	-0,0008

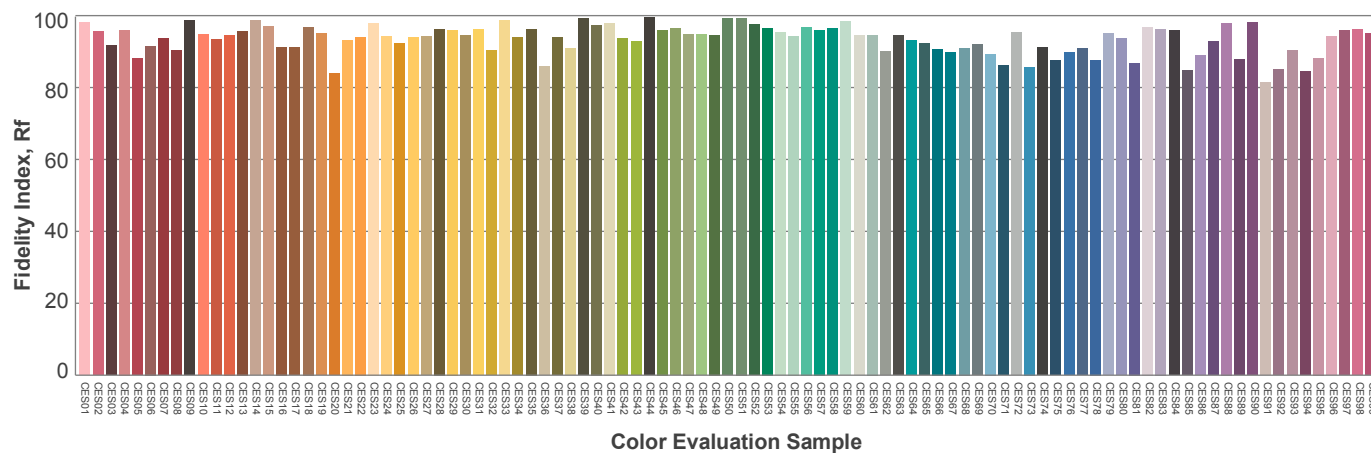
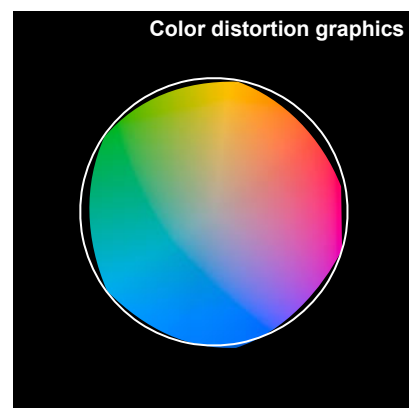
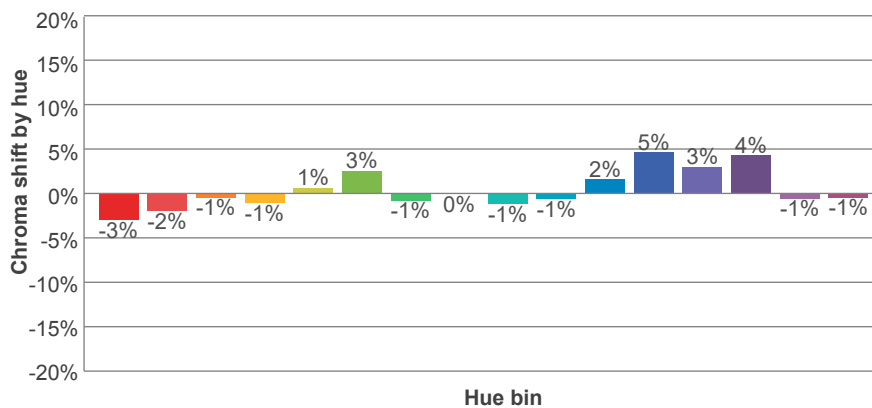
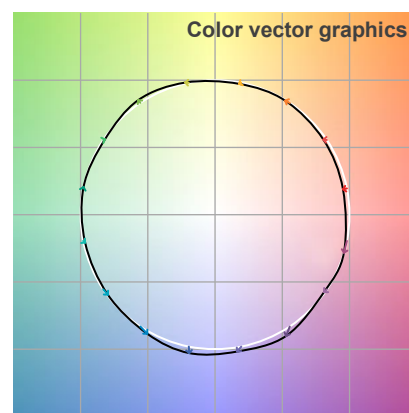
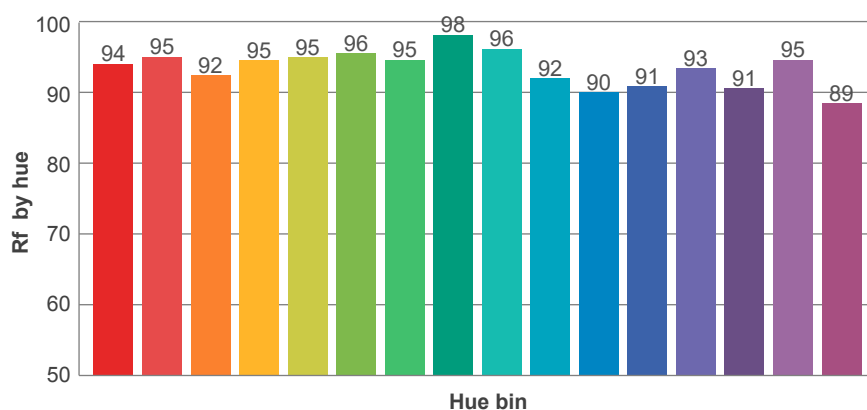
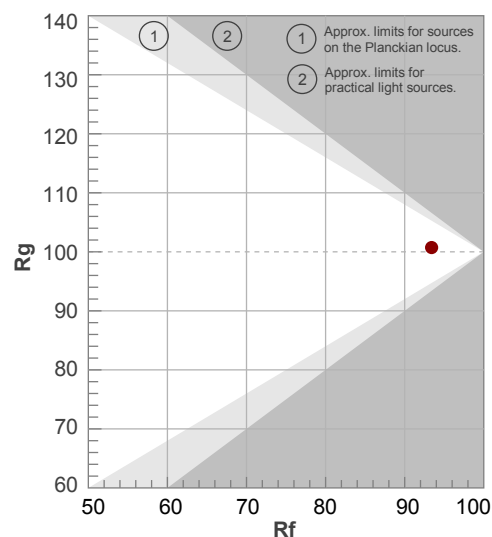
**Rf 93,4**

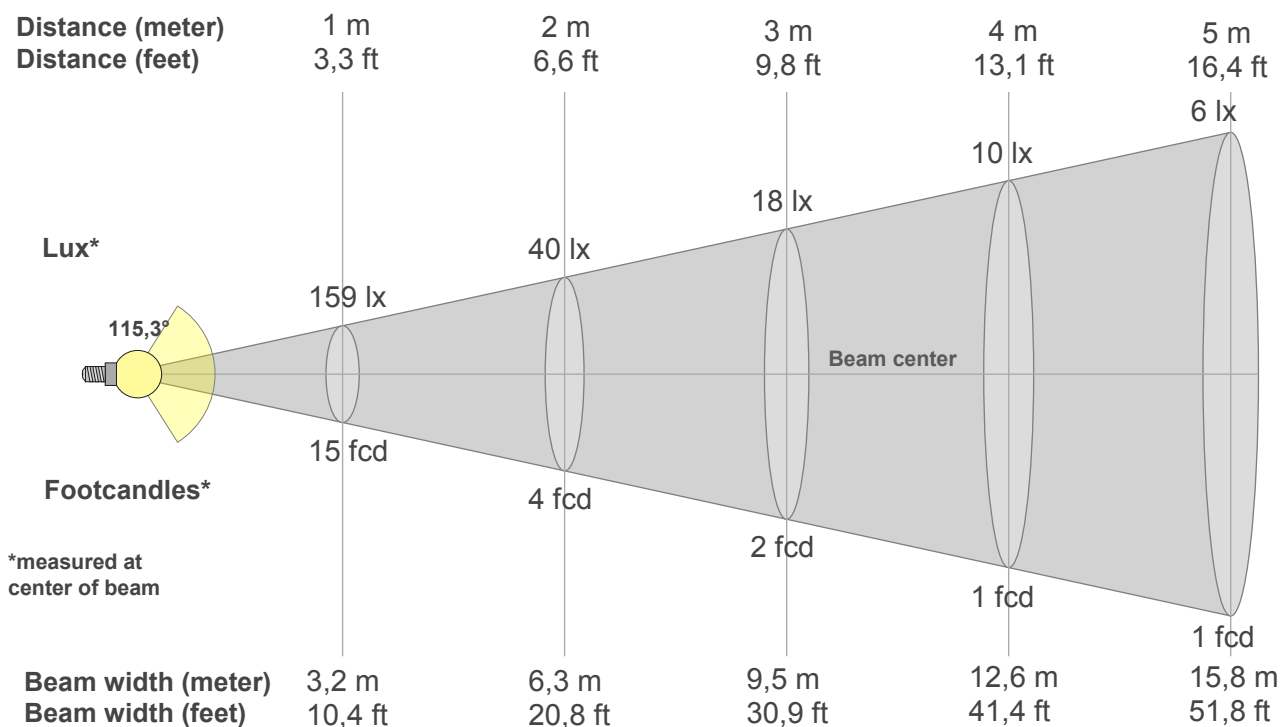
Fidelity index Rf

**Rg 100,7**

Gammut index Rg

Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	94	-3%	0%
2	95	-2%	2%
3	92	-1%	4%
4	95	-1%	2%
5	95	1%	3%
6	96	3%	0%
7	95	-1%	-1%
8	98	0%	-1%
9	96	-1%	2%
10	92	-1%	5%
11	90	2%	7%
12	91	5%	1%
13	93	3%	-4%
14	91	4%	-6%
15	95	-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
159lx	40lx	18lx	10lx	6lx	4lx	3lx	2lx	2lx	2lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx	0lx	0lx	0lx
14,7fcd	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°
159	158	158	155	152	147	145	151	149	93	107	81	33	12	8	8	10	6	1	0
100%	100%	100%	98%	96%	93%	92%	95%	94%	58%	68%	51%	21%	8%	5%	5%	6%	4%	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°
159	158	156	154	150	144	138	130	122	112	100	87	73	58	41	25	12	4	1	0
100%	99%	99%	97%	95%	91%	87%	82%	77%	71%	63%	55%	46%	37%	26%	16%	7%	3%	0%	0%

## Intensities in 180° c-plane

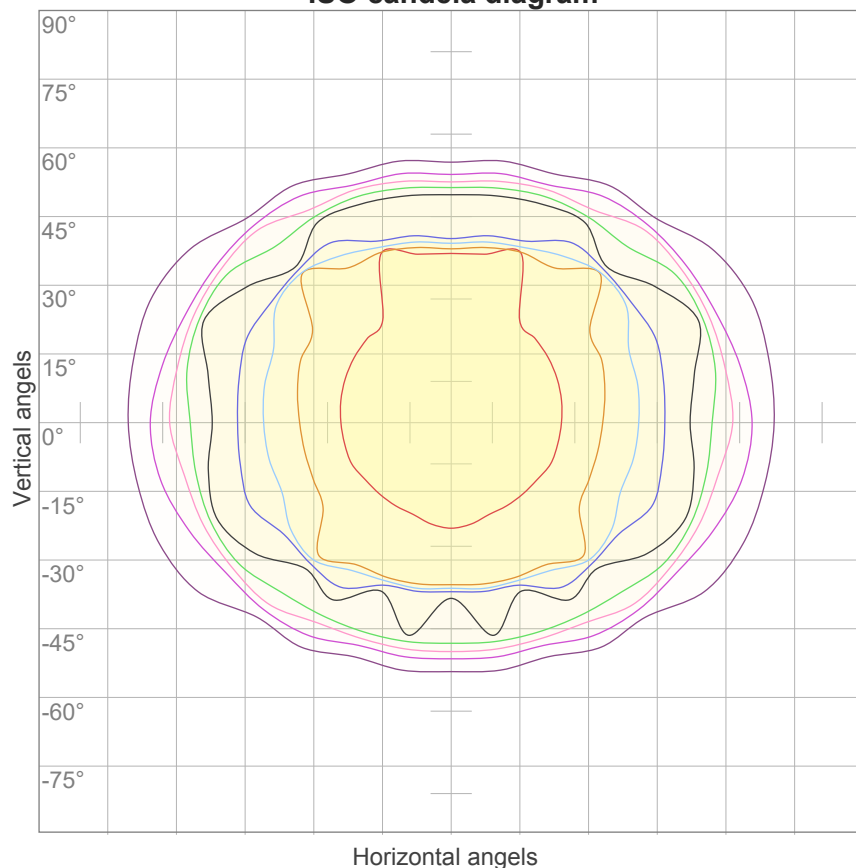
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
159	158	156	152	148	143	143	153	114	83	95	51	18	10	8	11	9	4	1	0
100%	100%	98%	96%	93%	90%	90%	97%	72%	53%	60%	32%	11%	6%	5%	7%	5%	2%	1%	0%

## 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°
159	158	156	154	150	144	138	130	122	112	100	87	73	58	41	25	12	4	1	0
100%	99%	99%	97%	95%	91%	87%	82%	77%	71%	63%	55%	46%	37%	26%	16%	7%	3%	0%	0%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
115,3°	140°	172,7°	86,7%	60,0%

### ISO candela diagram



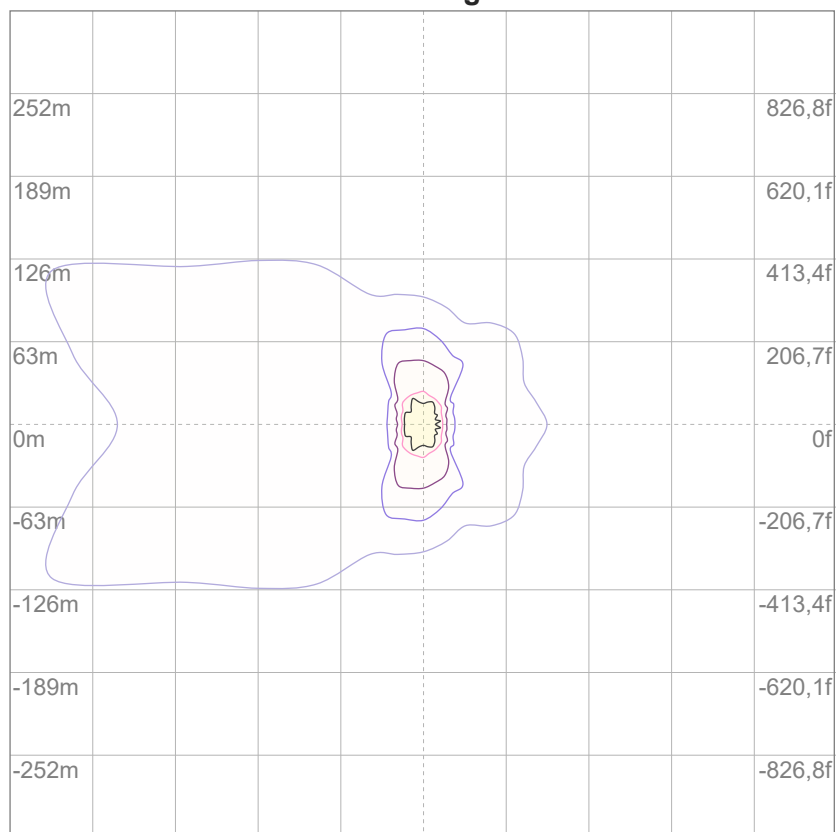
10%	16 cd
20%	32 cd
30%	48 cd
40%	63 cd
50%	79 cd
60%	95 cd
70%	111 cd
80%	127 cd
90%	143 cd

#### Conditions:

Number of c-planes: 16

Candela at center: 159 cd

### ISO lux diagram



3%	47,6m lx
5%	79,3m lx
10%	0,159 lx
30%	0,476 lx
50%	0,793 lx

#### Conditions:

Number of c-planes: 16

Lux at center: 1,59 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				
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Variation of the observer position for the luminaire distance S										
n/a	n/a					n/a				
n/a	n/a					n/a				
n/a	n/a					n/a				
Standard table	n/a					n/a				
Correction summand	n/a					n/a				
Corrected glare indices referring to 427 lm total luminous flux										

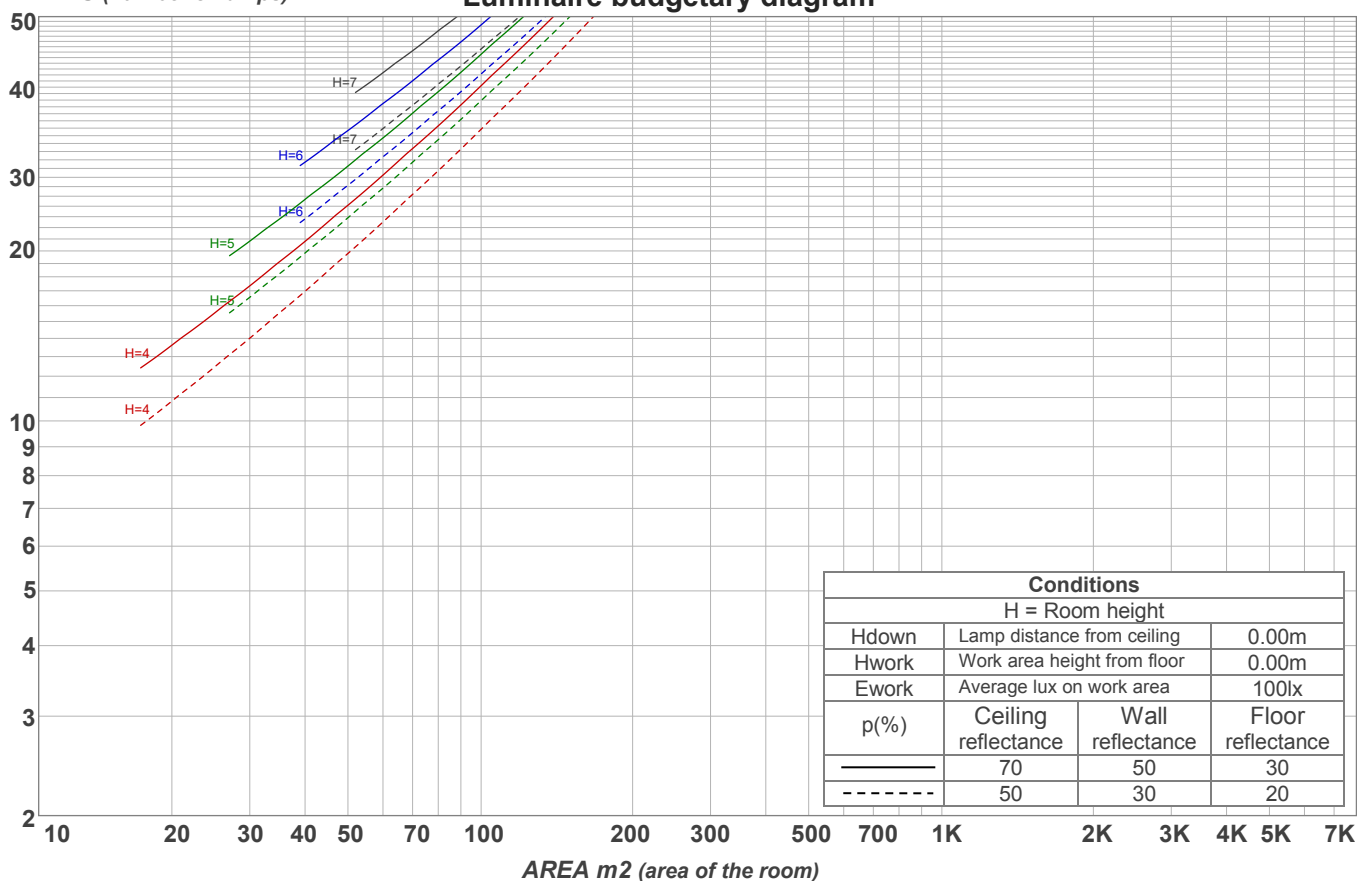
UGR data could not be calculated due to missing/wrong symmetry. Goto Edit->Photometric->Corrections and select Correct asymmetry.

## 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	102	102	102	100
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	93	87	82	98	91	86	81	88	83	79	85	81	77	82	78	75	73
3	92	82	75	69	90	81	74	68	78	72	67	75	70	66	73	68	65	63
4	85	73	65	59	83	72	64	58	70	63	58	67	62	57	65	60	56	54
5	78	66	57	51	76	65	57	51	63	56	50	61	54	50	59	53	49	47
6	72	59	51	45	70	58	50	44	57	49	44	55	48	44	53	48	43	41
7	67	54	45	39	65	53	45	39	51	44	39	50	44	39	49	43	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	35	45	39	34	33
9	58	45	37	32	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	42	34	29	53	41	34	29	40	33	28	39	33	28	38	32	28	26

LAMPS (number of lamps)

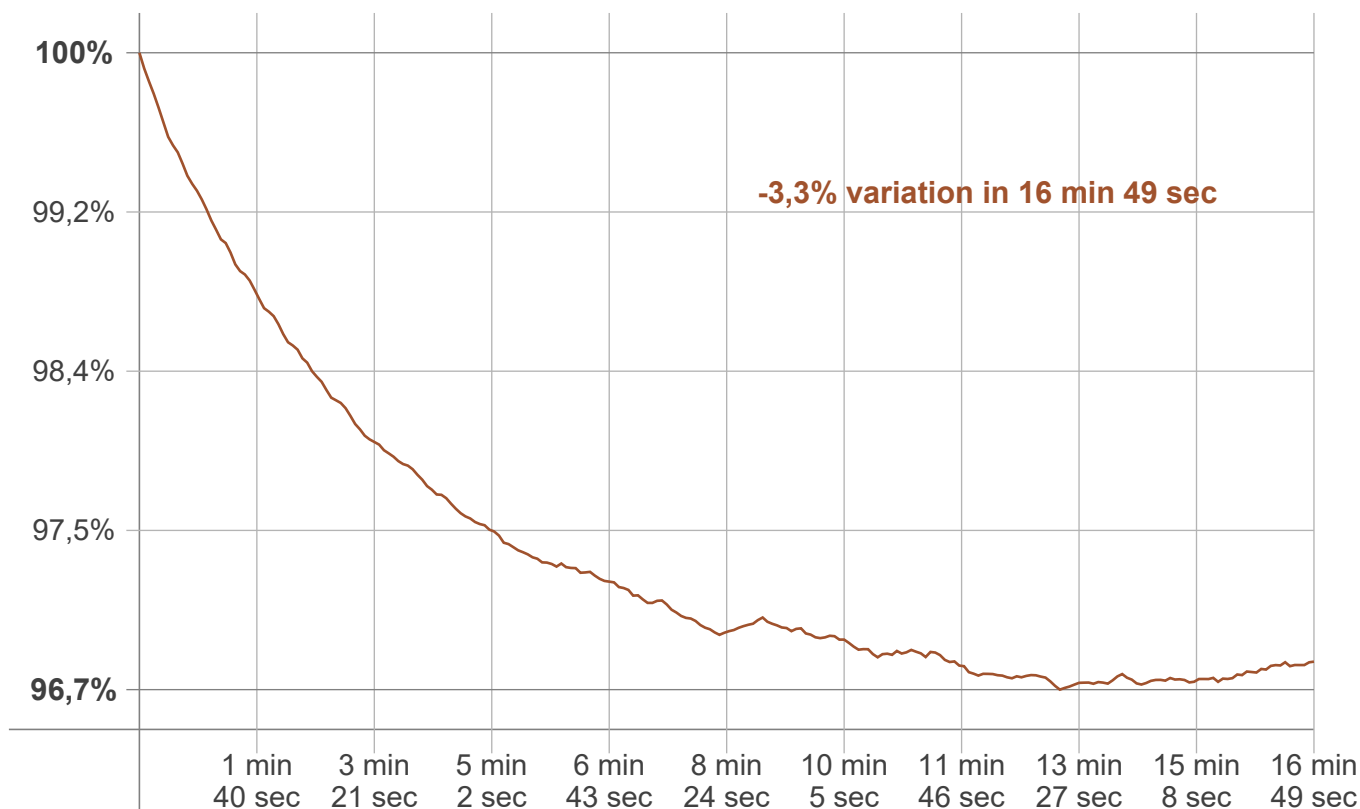
Luminaire budgetary diagram



## Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
15,0 lm	43,5 lm	67,0 lm	85,8 lm	86,7 lm	71,9 lm	37,1 lm	14,3 lm	5,28 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,005 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm

## Warmup curve



## Warmup result

Warmup time:	Lamp stabilized in 16 min 49 sec
Warmup variation	-3,3%

## Warmup conditions

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

## Color temperature change

CCT start	CCT change	CCT end
2753 K	-1 K	2752 K

## Output change

Output start	Output change	Output end
439 lm	-13 lm	427 lm