

Light efficiency:



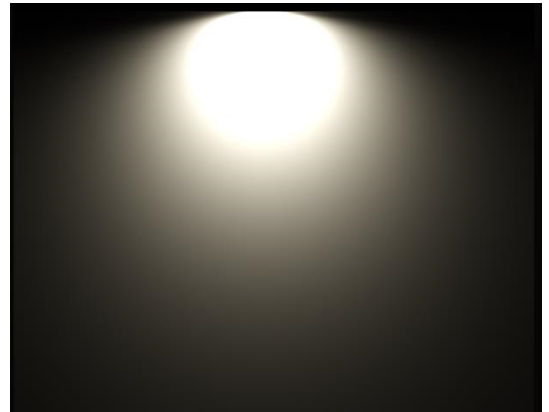
Light quality:



Color temperature:



Output: 112 lm  
Peak: 39,5 cd  
Power: 5,8 W  
PF: 0,99



Product name:

**brilliance 230V diffus**

Item number:

**30406.857.99.52**

Date and time:

**17.07.2017 16:58:54**

Description:

**Toleranzen:**

**Lumen +/-4%**

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

**Colour Temp +/-35 Grad K**

**CRI +/-0,7**

**Angular Resolution 1 Grad step**

**Last Calibration 30.06.2017**

**Pruefer:**

**Mourad Benzineb**

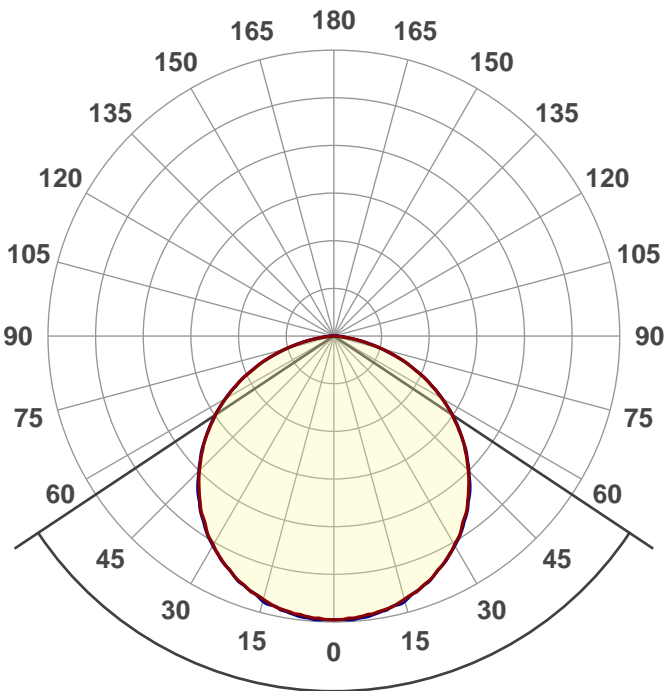
**Master of Engineering**

**Pruefort:**

**Lichtlabor**

**Gaustrasse13-15**

**55411 Bingen am Rhein**



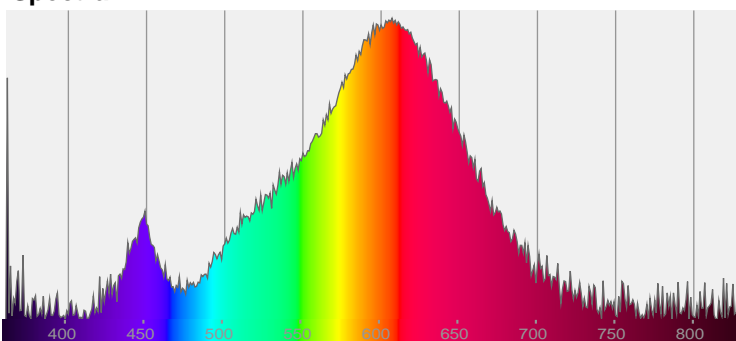
Beam angle

**112,7°**

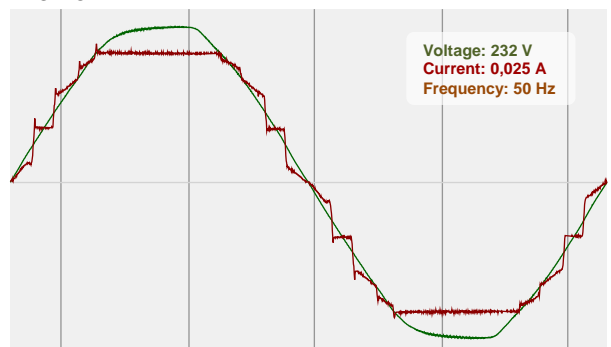


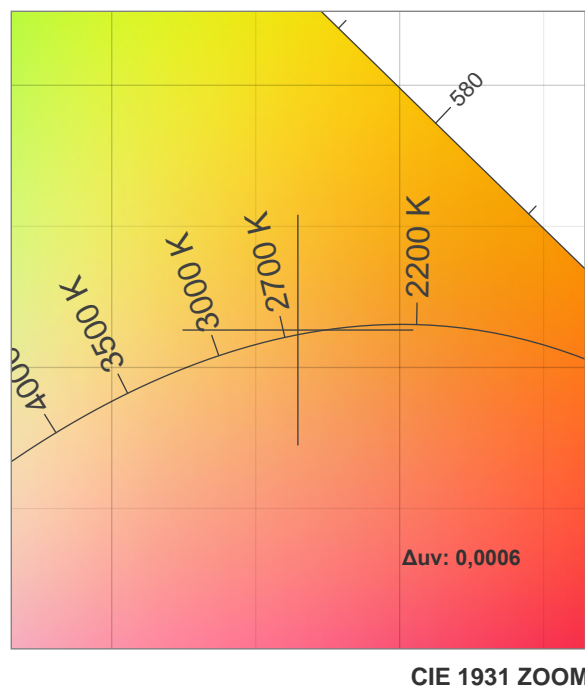
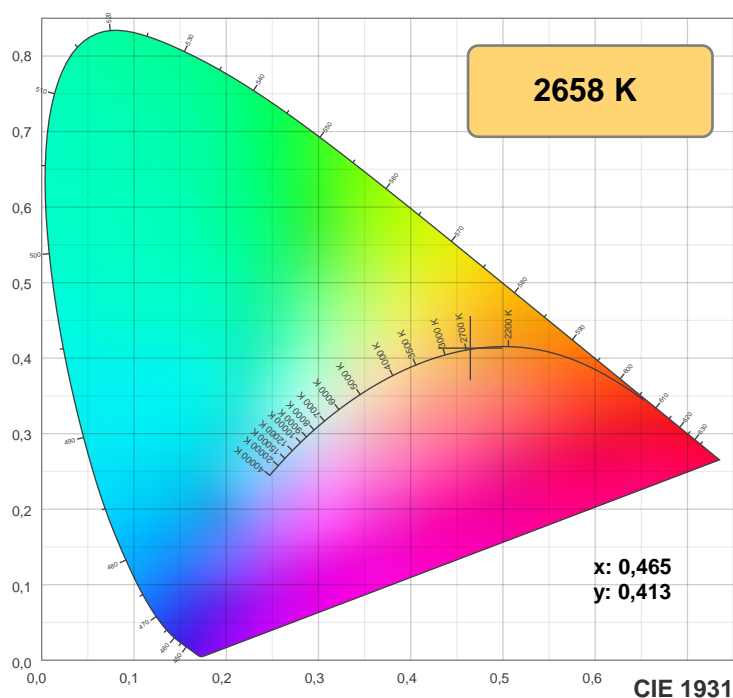
CIE 1931  
x: 0,465  
y: 0,413

Spectra



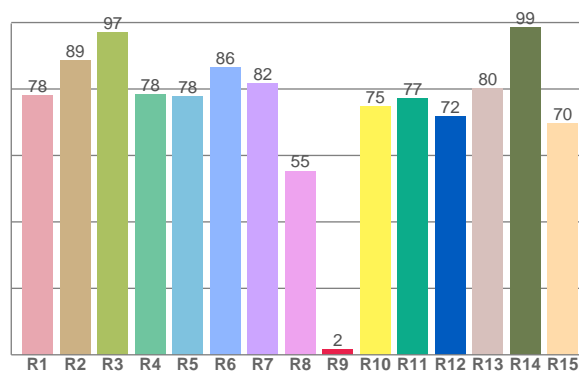
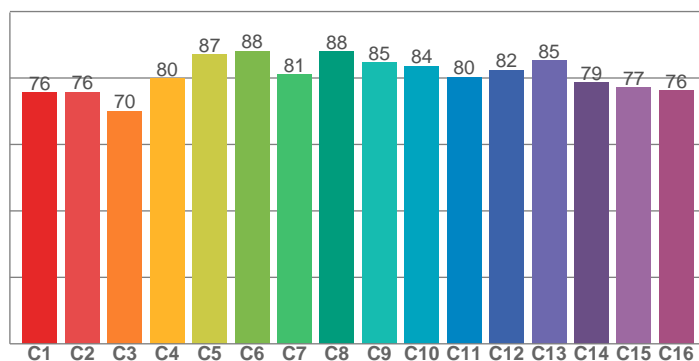
Power





TM30: 80,5

CRI: 80,4 (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
78,0	88,6	97,1	78,5	77,7	86,5	81,6	55,4	1,6	74,8	77,2	71,7	80,1	98,7	69,8

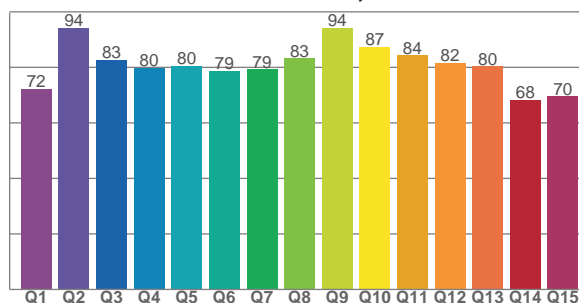
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
75,6	75,7	70,1	79,8	87,1	88,1	81,0	88,1	84,6	83,6	80,3	82,5	85,3	78,7	77,1	76,3

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
72,3	94,2	82,7	79,8	80,4	78,8	79,2	83,2	94,2	87,4	84,3	81,6	80,4	68,4	69,5

CQS: 79,6



## 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
2658 K	80,4	1,6	80,5	97,1	79,6	0,465	0,413	0,264	0,353	0,0006

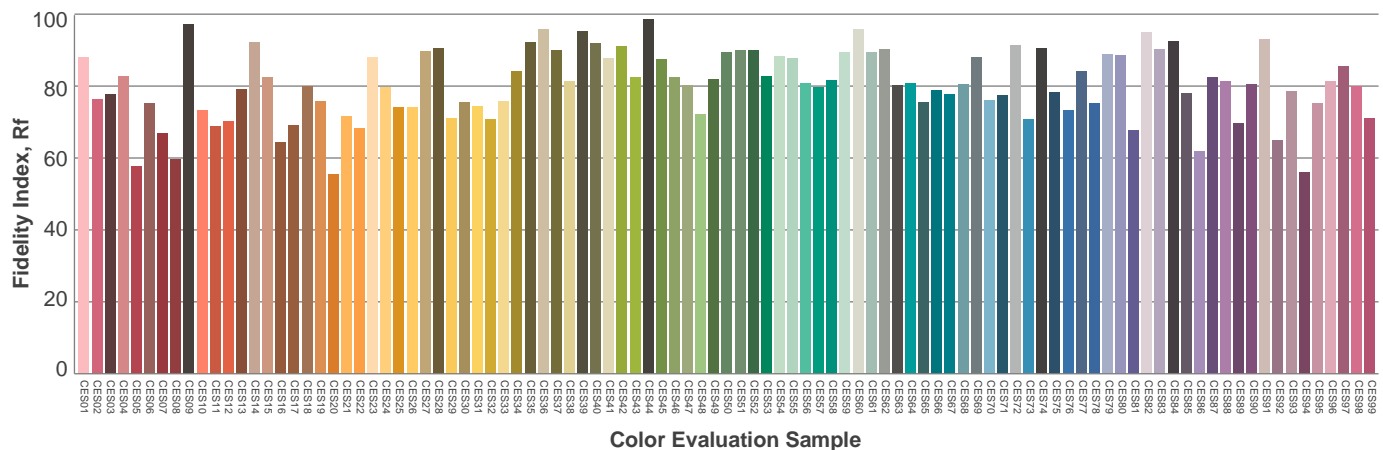
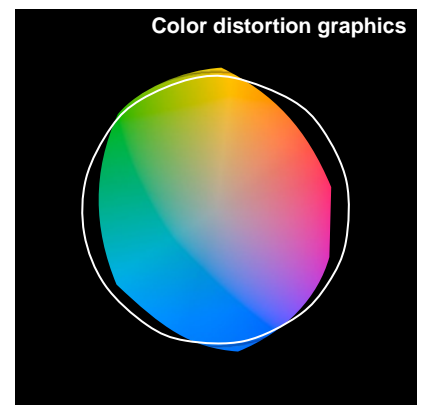
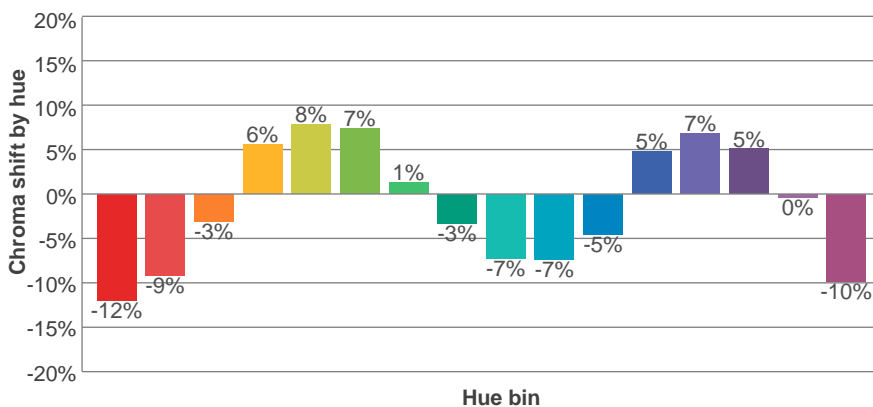
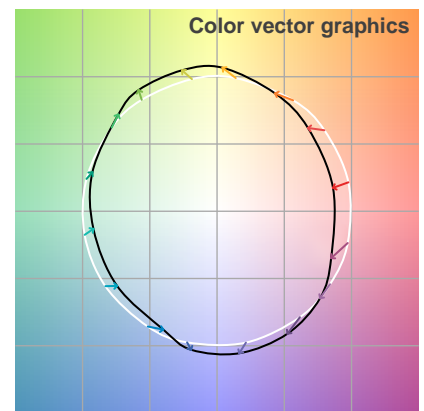
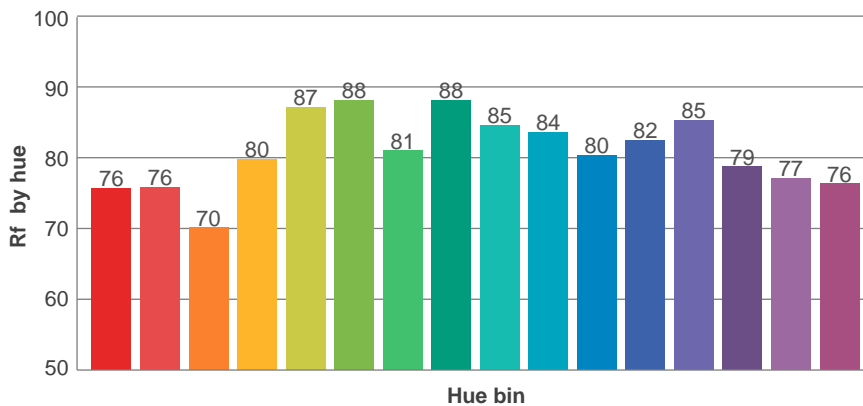
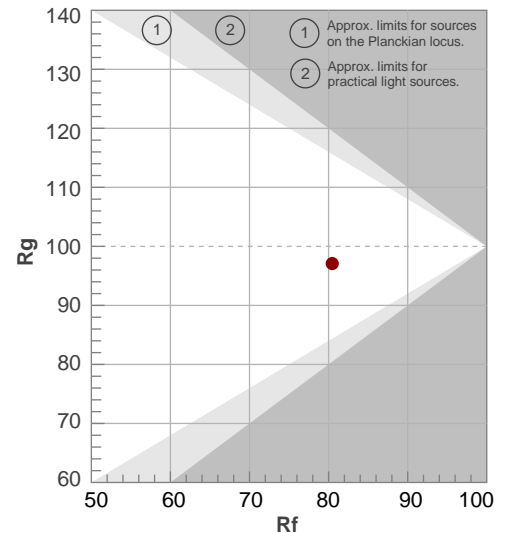
**Rf 80,5**

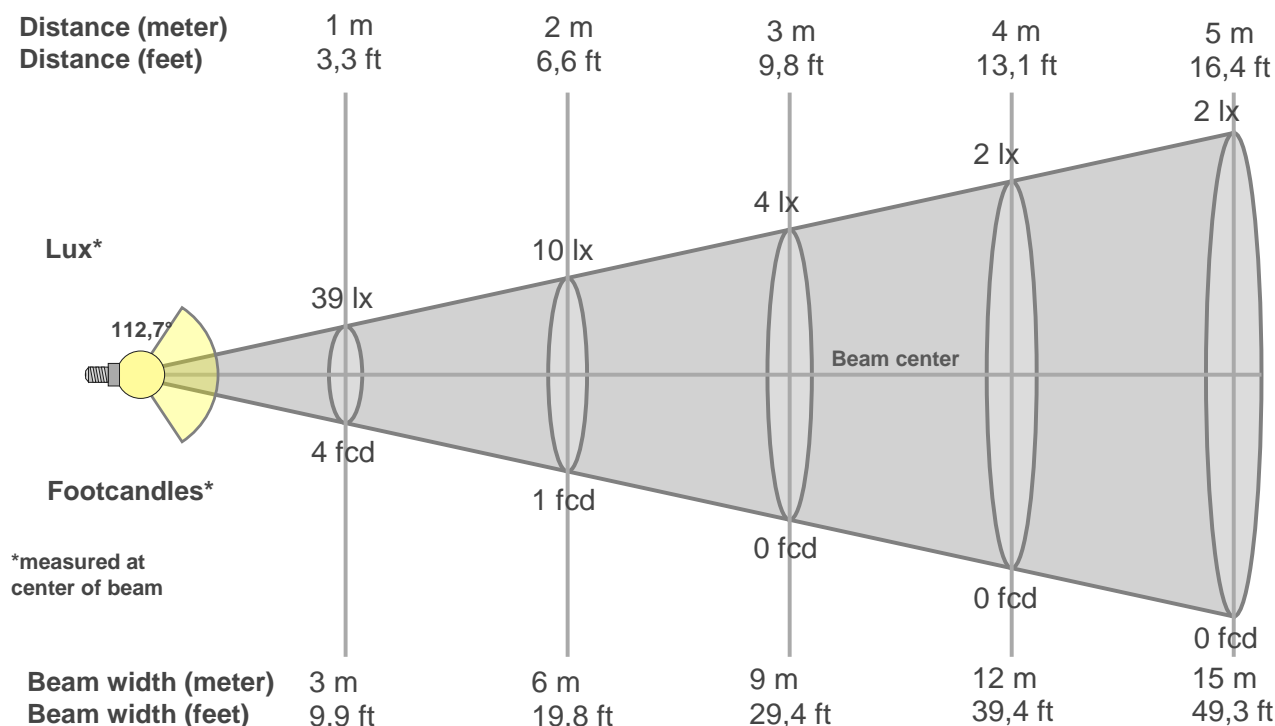
Fidelity index Rf

**Rg 97,1**

Gamut index Rg

Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	76	-12%	-2%
2	76	-9%	8%
3	70	-3%	14%
4	80	6%	11%
5	87	8%	6%
6	88	7%	-2%
7	81	1%	-11%
8	88	-3%	-6%
9	85	-7%	-3%
10	84	-7%	5%
11	80	-5%	11%
12	82	5%	4%
13	85	7%	-6%
14	79	5%	-14%
15	77	0%	-13%
16	76	-10%	-13%





#### 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
39lx	10lx	4lx	2lx	2lx	1lx	1lx	1lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx
3,7fcd	0,9fcd	0,4fcd	0,2fcd	0,1fcd	0,1fcd	0,1fcd	0,1fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	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°
39,4	39,2	38,8	37,9	36,8	35,4	33,5	31,4	29,1	26,5	23,7	20,5	17,4	14,0	10,6	7,0	3,6	1,1	0,2	0,0
100%	100%	98%	96%	93%	90%	85%	80%	74%	67%	60%	52%	44%	36%	27%	18%	9%	3%	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°
39,4	39,4	38,9	38,2	36,8	35,4	33,7	31,6	29,3	26,5	23,7	20,7	17,4	14,1	10,5	6,9	3,6	1,0	0,3	0,0
100%	100%	99%	97%	93%	90%	85%	80%	74%	67%	60%	52%	44%	36%	27%	18%	9%	2%	1%	0%

#### Intensities in 180° c-plane

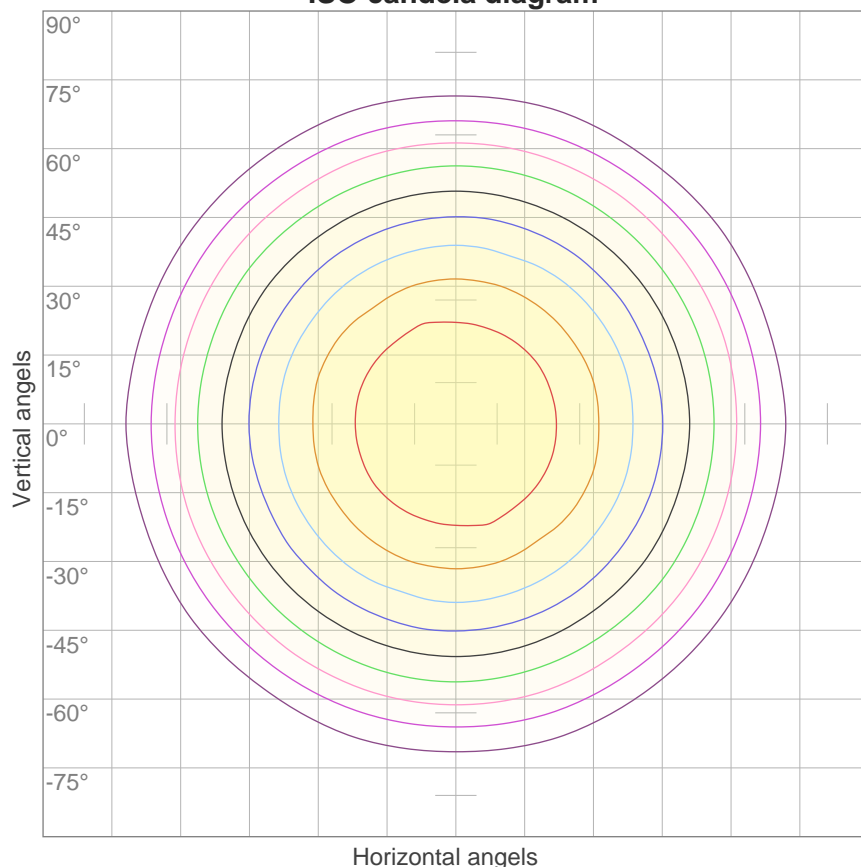
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
39,4	39,2	38,8	37,9	36,8	35,4	33,5	31,4	29,1	26,5	23,7	20,5	17,4	14,0	10,6	7,0	3,6	1,1	0,2	0,0
100%	100%	98%	96%	93%	90%	85%	80%	74%	67%	60%	52%	44%	36%	27%	18%	9%	3%	1%	0%

#### 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°
39,4	39,4	38,9	38,2	36,8	35,4	33,7	31,6	29,3	26,5	23,7	20,7	17,4	14,1	10,5	6,9	3,6	1,0	0,3	0,0
100%	100%	99%	97%	93%	90%	85%	80%	74%	67%	60%	52%	44%	36%	27%	18%	9%	2%	1%	0%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
112,7°	159°	170,1°	79,8%	54,3%

ISO candela diagram



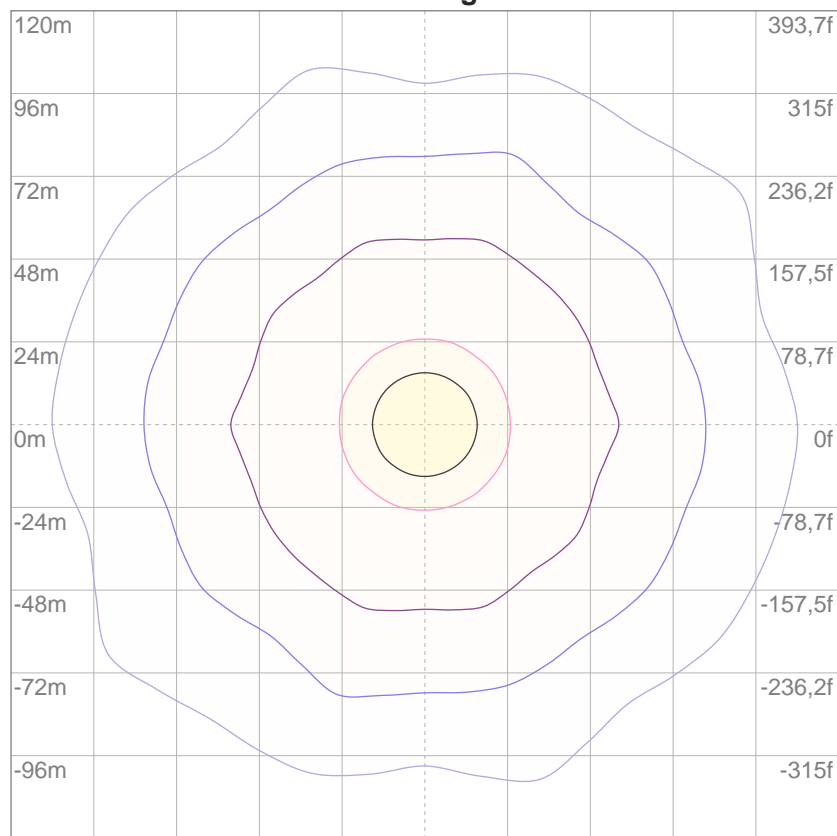
10%	4 cd
20%	8 cd
30%	12 cd
40%	16 cd
50%	20 cd
60%	24 cd
70%	28 cd
80%	32 cd
90%	35 cd

Conditions:

Number of c-planes: 20

Candela at center: 39 cd

ISO lux diagram



3%	11,8m lx
5%	19,7m lx
10%	39,4m lx
30%	0,118 lx
50%	0,197 lx

Conditions:

Number of c-planes: 20

Lux at center: 0,394 lx

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

### Glare Evaluation According to UGR

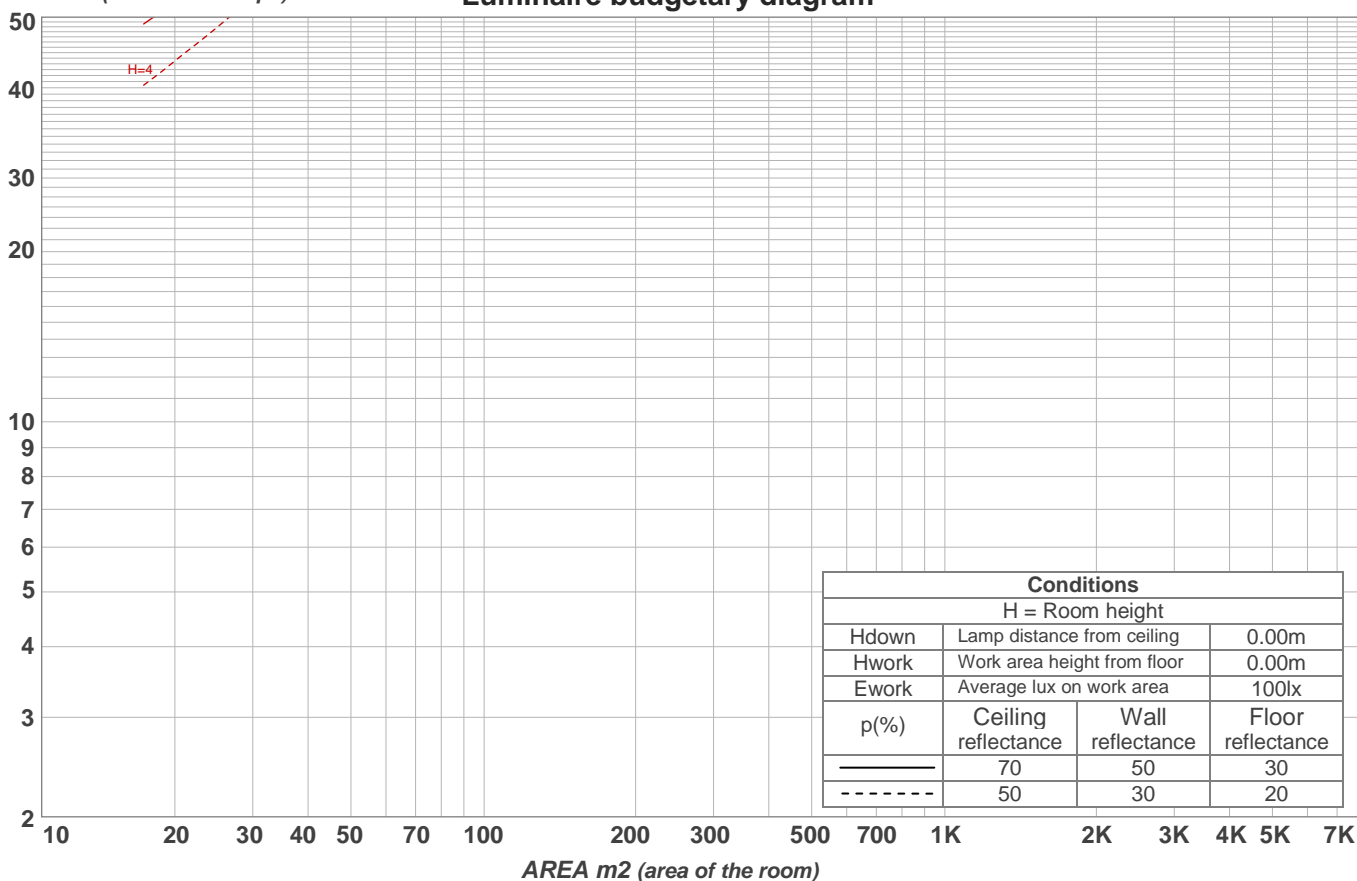
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X      Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	20,7	22,1	21,0	22,3	22,5	20,7	22,1	21,0	22,3	22,5
	3H	22,3	23,5	22,6	23,7	24,0	22,3	23,5	22,6	23,7	24,0
	4H	22,8	23,9	23,2	24,2	24,5	22,8	23,9	23,2	24,2	24,5
	6H	23,1	24,2	23,5	24,5	24,8	23,1	24,2	23,5	24,5	24,8
	8H	23,2	24,2	23,6	24,5	24,8	23,2	24,2	23,6	24,5	24,8
	12H	23,2	24,2	23,6	24,5	24,8	23,2	24,2	23,6	24,5	24,8
4H	2H	21,4	22,5	21,8	22,8	23,1	21,4	22,5	21,8	22,8	23,1
	3H	23,1	24,1	23,5	24,4	24,7	23,1	24,1	23,5	24,4	24,7
	4H	23,8	24,6	24,2	25,0	25,3	23,8	24,6	24,2	25,0	25,3
	6H	24,2	24,9	24,6	25,3	25,7	24,2	24,9	24,6	25,3	25,7
	8H	24,3	25,0	24,7	25,4	25,8	24,3	25,0	24,7	25,4	25,8
	12H	24,4	25,0	24,8	25,4	25,8	24,4	25,0	24,8	25,4	25,8
8H	4H	24,0	24,7	24,5	25,1	25,5	24,0	24,7	24,5	25,1	25,5
	6H	24,6	25,1	25,0	25,5	26,0	24,6	25,1	25,0	25,5	26,0
	8H	24,7	25,2	25,2	25,6	26,1	24,7	25,2	25,2	25,6	26,1
	12H	24,8	25,2	25,3	25,7	26,2	24,8	25,2	25,3	25,7	26,2
12H	4H	24,1	24,7	24,5	25,1	25,5	24,1	24,7	24,5	25,1	25,5
	6H	24,6	25,1	25,1	25,5	26,0	24,6	25,1	25,1	25,5	26,0
	8H	24,8	25,2	25,3	25,6	26,1	24,8	25,2	25,3	25,6	26,1
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,1 / -0,1					+0,1 / -0,1				
S = 1,5H		+0,2 / -0,4					+0,2 / -0,4				
S = 2,0H		+0,5 / -0,8					+0,5 / -0,8				
Standard table		BK05					BK05				
Correction summand		7,3					7,3				
Corrected glare indices referring to 112 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	102	102	102	100
1	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	99	91	84	78	96	89	83	78	85	80	76	82	78	74	79	76	72	70
3	90	80	72	65	88	78	71	65	75	69	63	72	67	62	70	65	61	59
4	83	71	62	55	80	69	61	55	67	60	54	64	58	53	62	57	53	50
5	76	63	54	47	74	62	54	47	60	52	47	58	51	46	56	50	46	44
6	70	57	48	41	68	56	47	41	54	46	41	52	46	40	51	45	40	38
7	65	51	43	37	63	51	42	36	49	42	36	48	41	36	46	40	36	34
8	60	47	38	33	59	46	38	32	45	38	32	44	37	32	42	36	32	30
9	56	43	35	29	55	42	35	29	41	34	29	40	34	29	39	33	29	27
10	53	40	32	27	52	39	32	26	38	31	26	37	31	26	36	30	26	24

LAMPS (number of lamps)

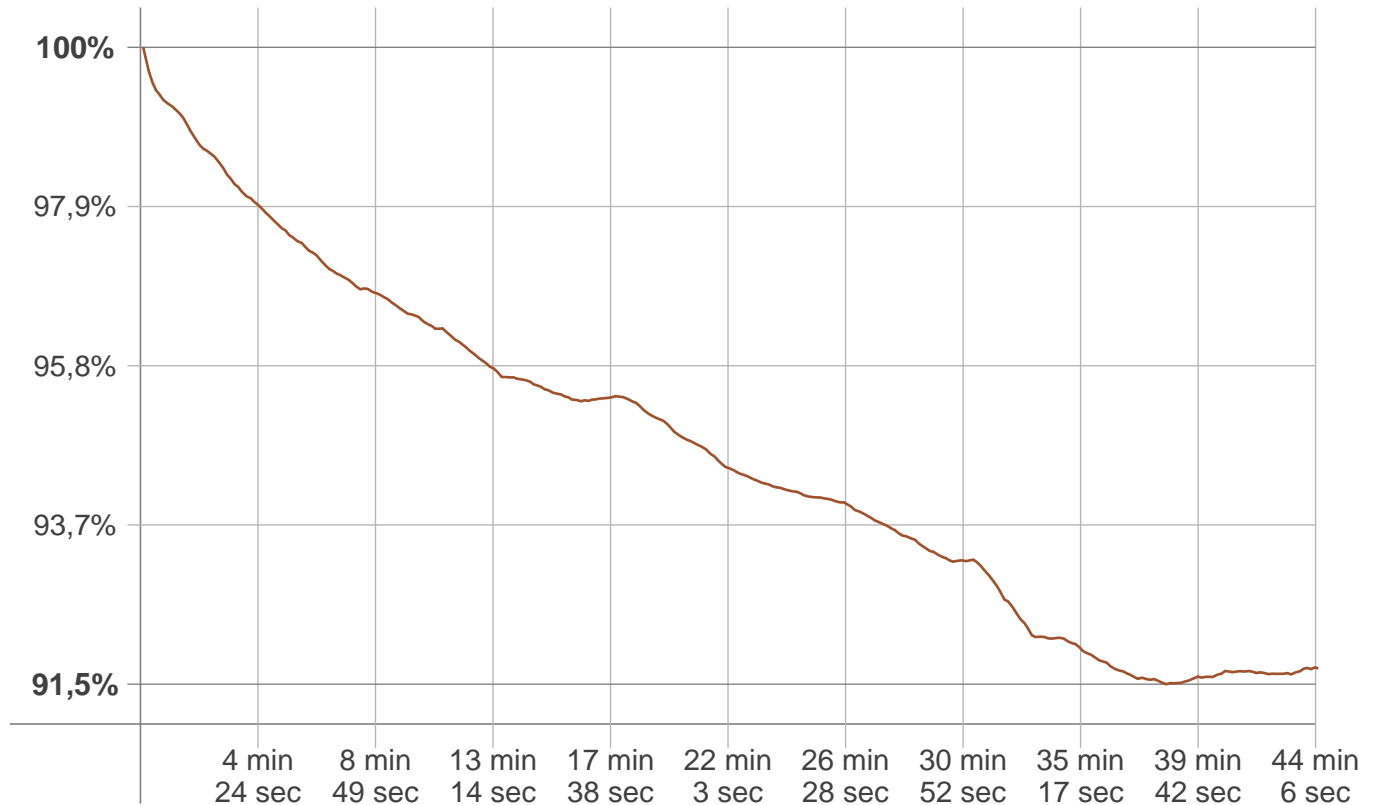
## Luminaire budgetary diagram



## Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	10,7 lm	16,3 lm	19,7 lm	20,4 lm	18,4 lm	13,8 lm	7,35 lm	1,47 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,011 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:	44 min 15 sec
Warmup variation	-8,6%

### Warmup conditions

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

### Color temperature change

CCT start	CCT change	CCT end
2639 K	+19 K	2658 K

### Output change

Output start	Output change	Output end
121 lm	-9 lm	112 lm