

Light efficiency:



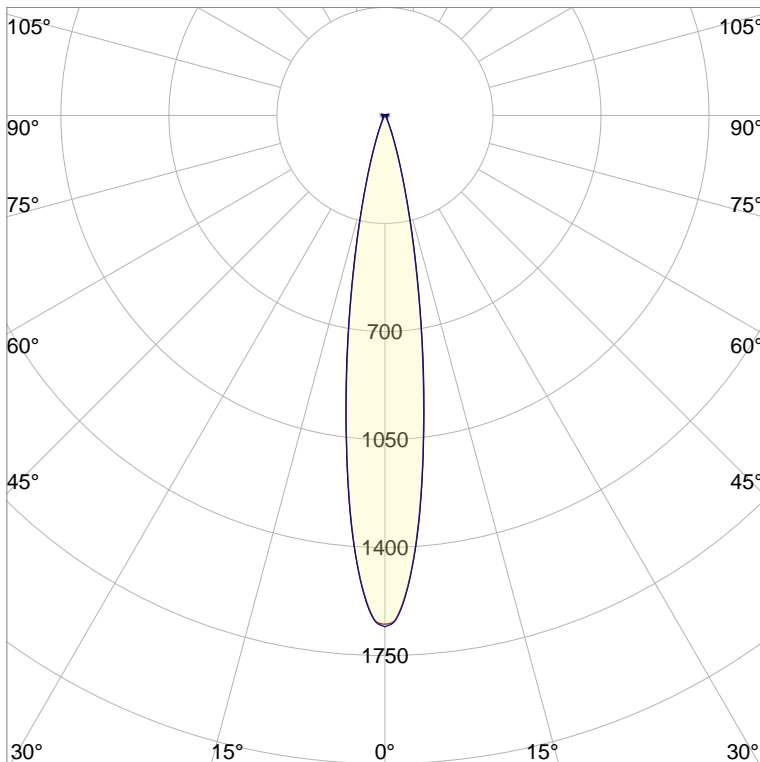
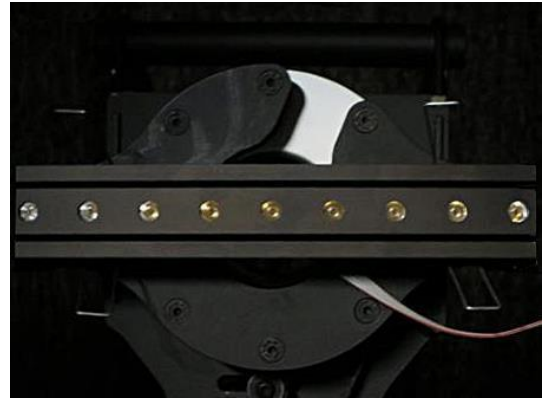
Light quality:



Color temperature:



Output: 207 lm
Peak: 1665 cd
Power: 7,0 W
PF: 0,82



CIE 1931
x: 0,463
y: 0,412

Product name:

FLNP-F4C-C-258-W-927-10771-ALA

Item number:

FLNP-F4C-C-258-W-927-10771-ALA

Date and time:

13.02.2019 16:57:18

Description:

Toleranzen:

Lumen +/-4%

Candela +/-2,5%

Colour Temp +/-35 Grad K

CRI +/-0,7

Angular Resolution 1 Grad step

Last Calibration 06-06-2018

Pruefer:

Mourad Benzineb

Master of Engineering

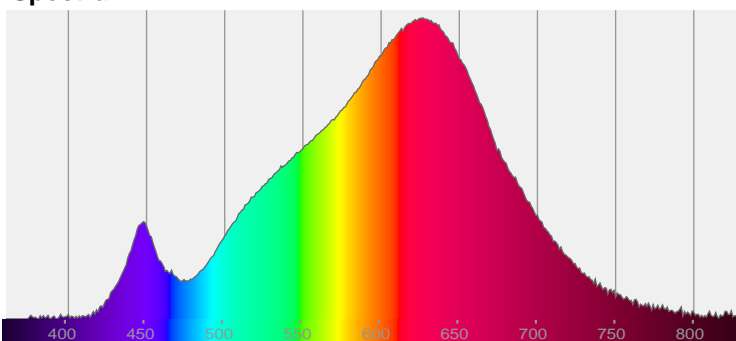
Pruefort:

Lichtlabor

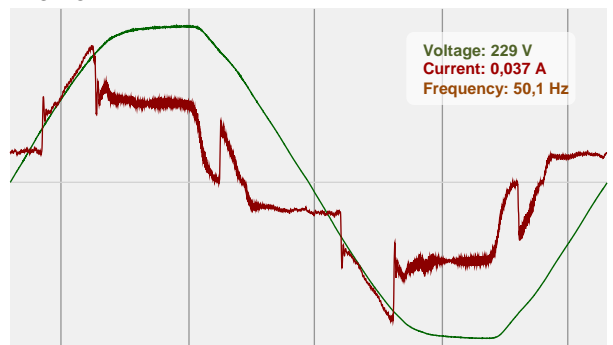
Gaustasse13-15

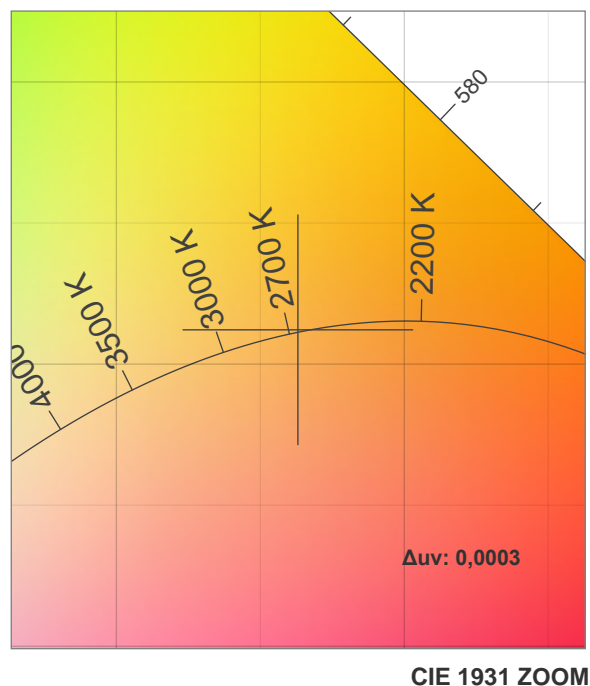
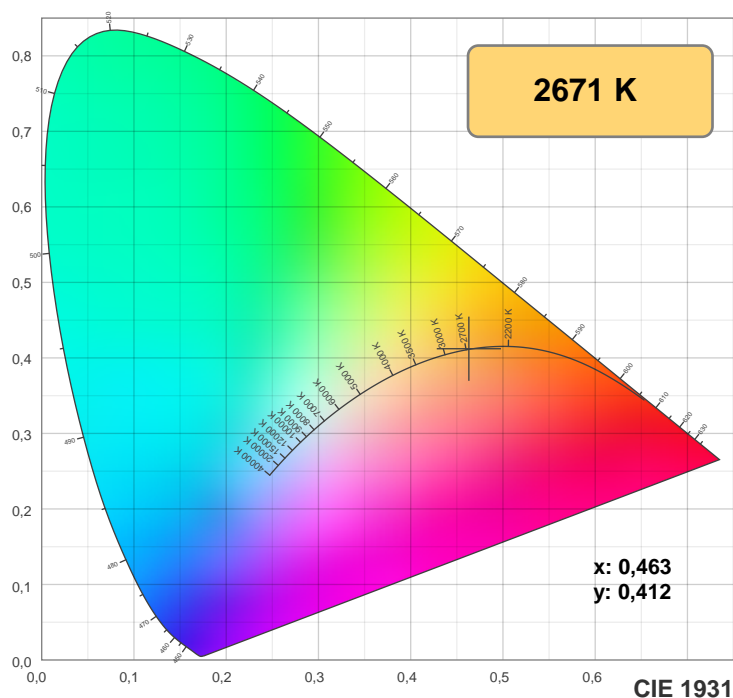
55411 Bingen am Rhein

Spectra

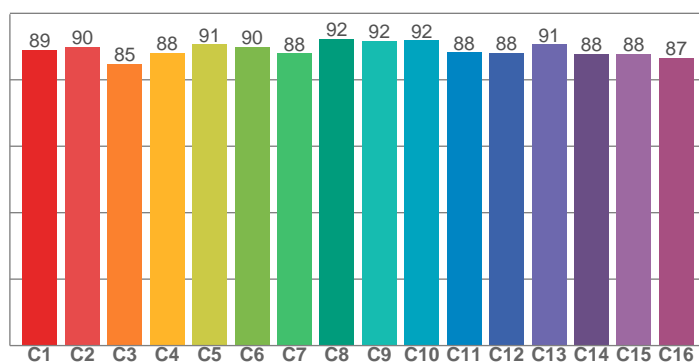


Power

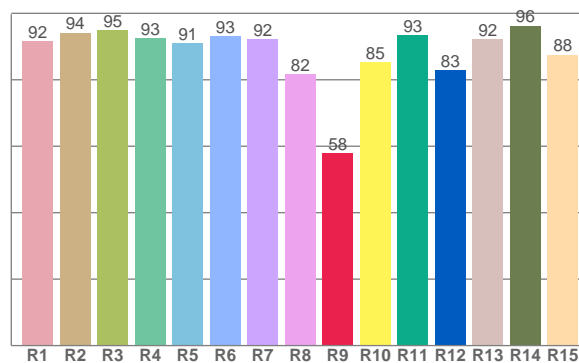




TM30: 89,1



CRI: 91,4 (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 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 91,7 | 94,1 | 95,0 | 92,5 | 91,0 | 93,0 | 92,3 | 81,6 | 57,9 | 85,3 | 93,3 | 82,8 | 92,1 | 96,2 | 87,5 |

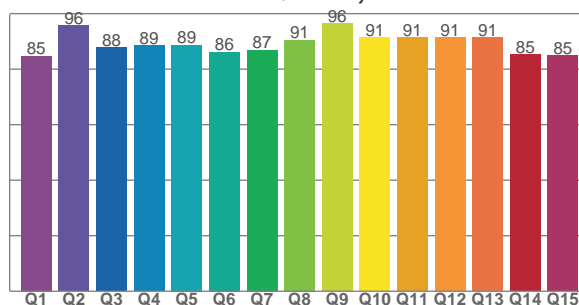
TM30 C values, 16 binned values out of total of 99 C values

| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 | C13 | C14 | C15 | C16 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 89,1 | 89,9 | 84,7 | 88,0 | 90,7 | 89,9 | 87,9 | 92,3 | 91,7 | 91,9 | 88,3 | 88,0 | 90,7 | 87,8 | 87,7 | 86,6 |

CQS Q values

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| 84,7 | 95,7 | 87,8 | 88,5 | 88,6 | 86,3 | 86,9 | 90,6 | 96,4 | 91,3 | 91,4 | 91,4 | 85,3 | 84,9 | |

CQS: 88,7



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 |
| 2671 K | 91,4 | 57,9 | 89,1 | 101,4 | 88,7 | 0,463 | 0,412 | 0,264 | 0,352 | 0,0003 |

TM30 details

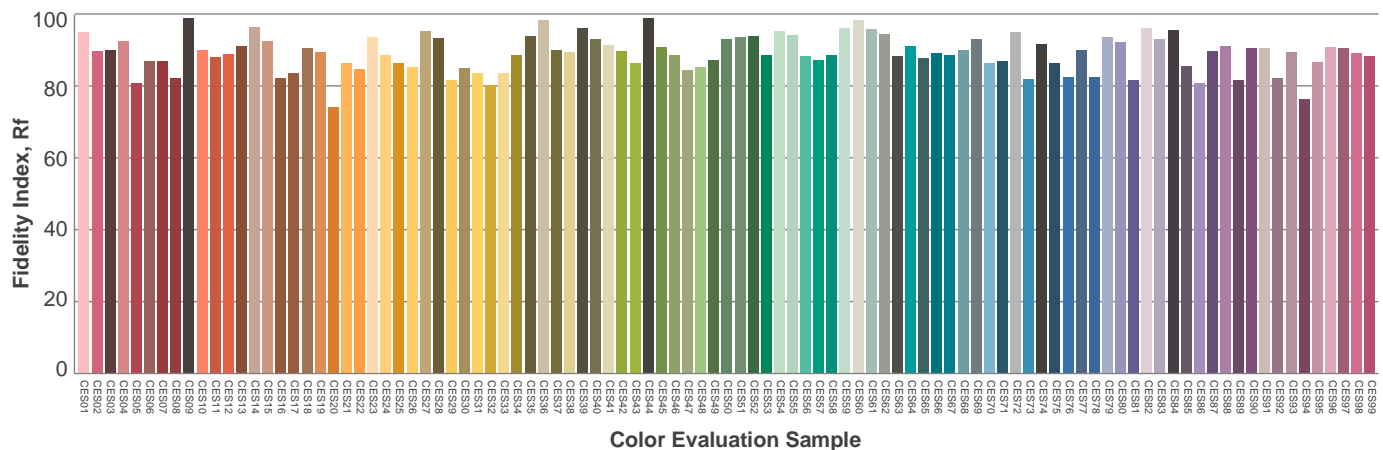
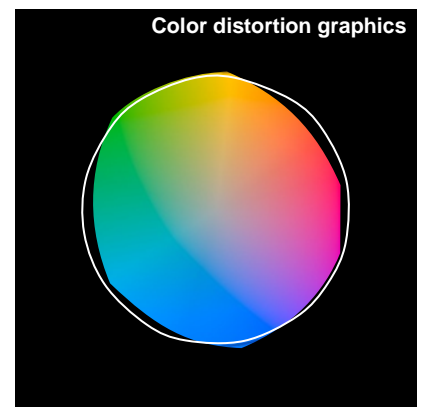
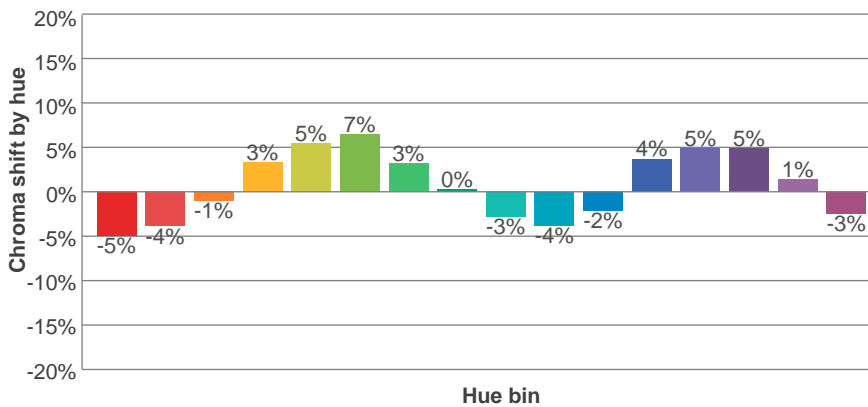
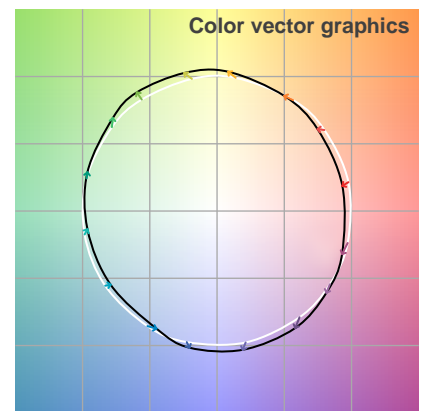
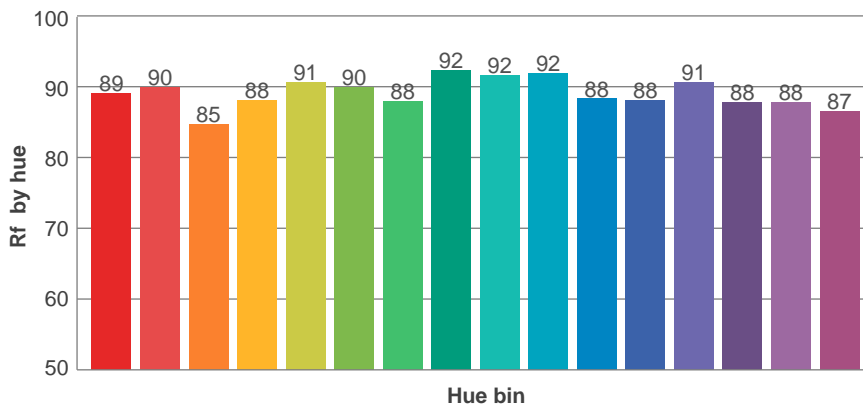
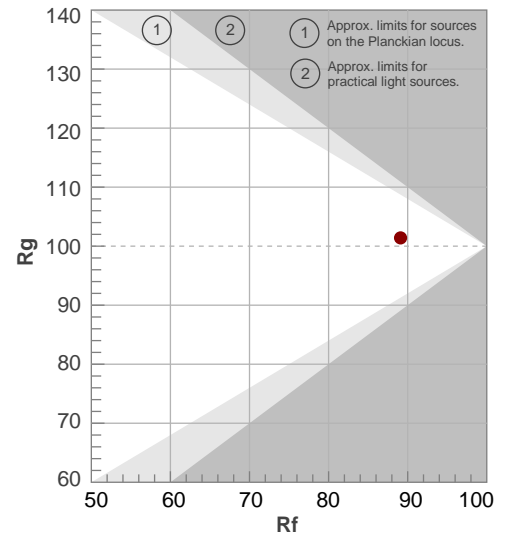
Rf 89,1

Fidelity index Rf

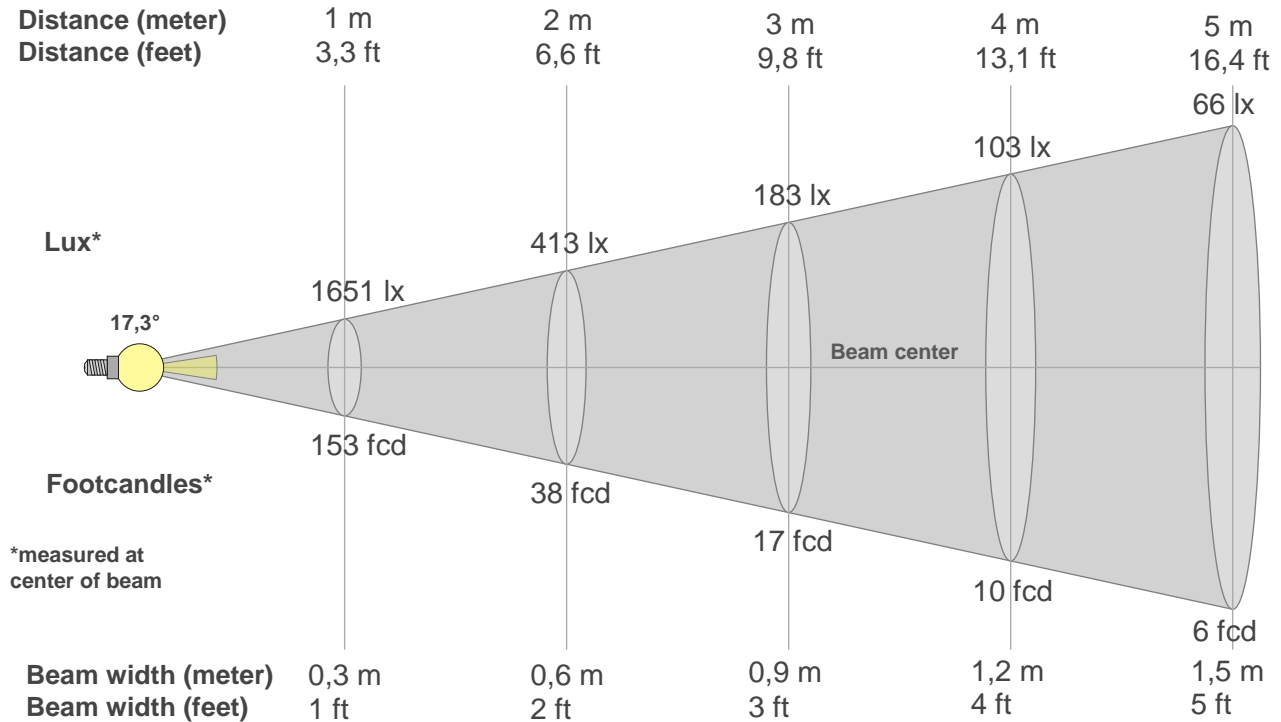
Rg 101,4

Gammut index Rg

| (TM30_BN_VALUES_START) | | | |
|------------------------|----------------|--------------------|-----|
| Hue Bin | R _f | Graphic shifts (%) | |
| | | Chroma | Hue |
| 1 | | % | % |
| 2 | | % | % |
| 3 | | % | % |
| 4 | | % | % |
| 5 | | % | % |
| 6 | | % | % |
| 7 | | % | % |
| 8 | | % | % |
| 9 | | % | % |
| 10 | | % | % |
| 11 | | % | % |
| 12 | | % | % |
| 13 | | % | % |
| 14 | | % | % |
| 15 | | % | % |
| 16 | | % | % |



Beam details



Beam intensities from 1-20m

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| m | m | m | m | m | m | m | m | m | m | m | m | m | m | m | m | m | m | m | m |
| ft | ft | ft | ft | ft | ft | ft | ft | ft | ft | ft | ft | ft | ft | ft | ft | ft | ft | ft | ft |
| lx | lx | lx | lx | lx | lx | lx | lx | lx | lx | lx | lx | lx | lx | lx | lx | lx | lx | lx | lx |
| fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd | fcd |

(BEAM_INT_TABLE_END)

Intensities in 0° c-plane

| 0° | 1° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° | 13° | 14° | 15° | 16° | 17° | 18° | 19° |
|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1651 | 1636 | 1585 | 1506 | 1407 | 1291 | 1162 | 1031 | 906 | 784 | 667 | 562 | 469 | 386 | 312 | 250 | 201 | 160 | 126 | 99 |
| 100% | 99% | 96% | 91% | 85% | 78% | 70% | 62% | 55% | 47% | 40% | 34% | 28% | 23% | 19% | 15% | 12% | 10% | 8% | 6% |

Intensities in 90° c-plane

| 0° | 1° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° | 13° | 14° | 15° | 16° | 17° | 18° | 19° |
|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1651 | 1641 | 1590 | 1509 | 1407 | 1289 | 1159 | 1027 | 899 | 777 | 663 | 557 | 463 | 381 | 311 | 251 | 201 | 160 | 127 | 100 |
| 100% | 99% | 96% | 91% | 85% | 78% | 70% | 62% | 54% | 47% | 40% | 34% | 28% | 23% | 19% | 15% | 12% | 10% | 8% | 6% |

Intensities in 180° c-plane

(INT_TABLE_180_START)

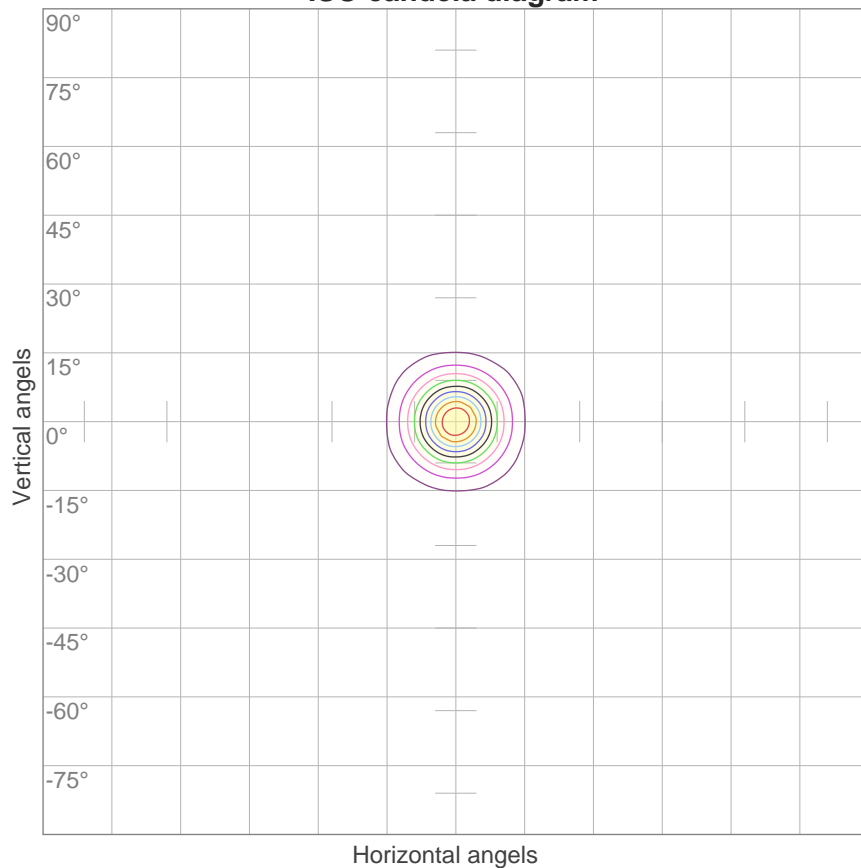
| ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |
| % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |

Intensities in 270° c-plane

| 0° | 1° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° | 13° | 14° | 15° | 16° | 17° | 18° | 19° |
|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1651 | 1641 | 1590 | 1509 | 1407 | 1289 | 1159 | 1027 | 899 | 777 | 663 | 557 | 463 | 381 | 311 | 251 | 201 | 160 | 127 | 100 |
| 100% | 99% | 96% | 91% | 85% | 78% | 70% | 62% | 54% | 47% | 40% | 34% | 28% | 23% | 19% | 15% | 12% | 10% | 8% | 6% |

| Beam angle 50% | Field angle 10% | Cutoff angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|----------------|-----------------|-------------------|------------------------------|-----------------------------|
| 17,3° | 34,3° | 46,8° | 97,6% | 96,2% |

ISO candela diagram



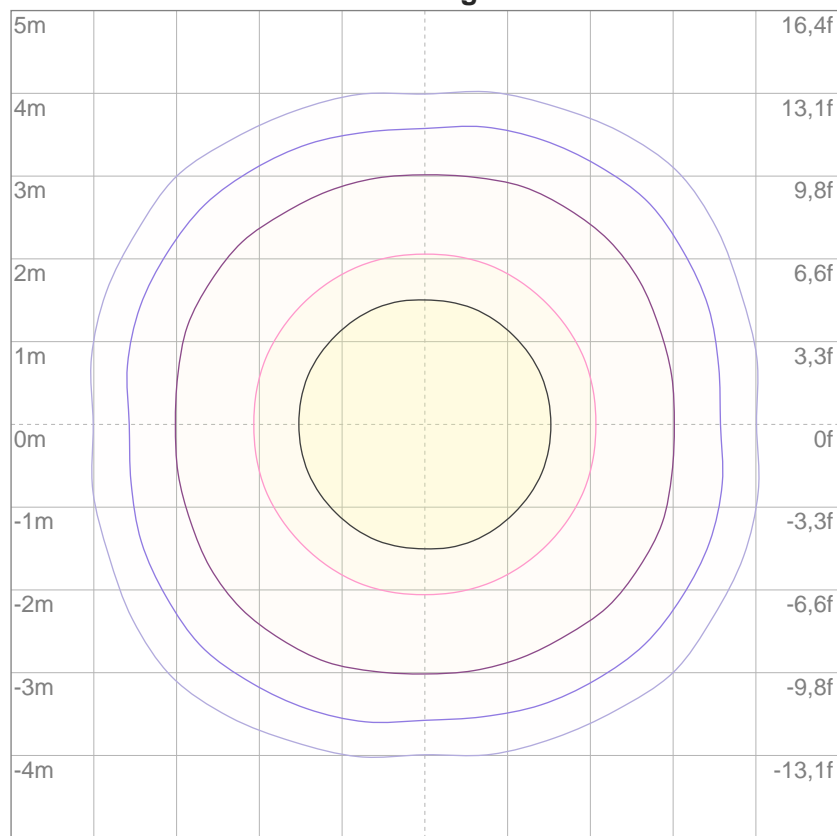
| | |
|-----|---------|
| 10% | 165 cd |
| 20% | 330 cd |
| 30% | 495 cd |
| 40% | 661 cd |
| 50% | 826 cd |
| 60% | 991 cd |
| 70% | 1156 cd |
| 80% | 1321 cd |
| 90% | 1486 cd |

Conditions:

Number of c-planes: 16

Candela at center: 1651 cd

ISO lux diagram



| | |
|-----|----------|
| 3% | 0,495 lx |
| 5% | 0,826 lx |
| 10% | 1,65 lx |
| 30% | 4,95 lx |
| 50% | 8,26 lx |

Conditions:

Number of c-planes: 16

Lux at center: 16,5 lx

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

Glare Evaluation According to UGR

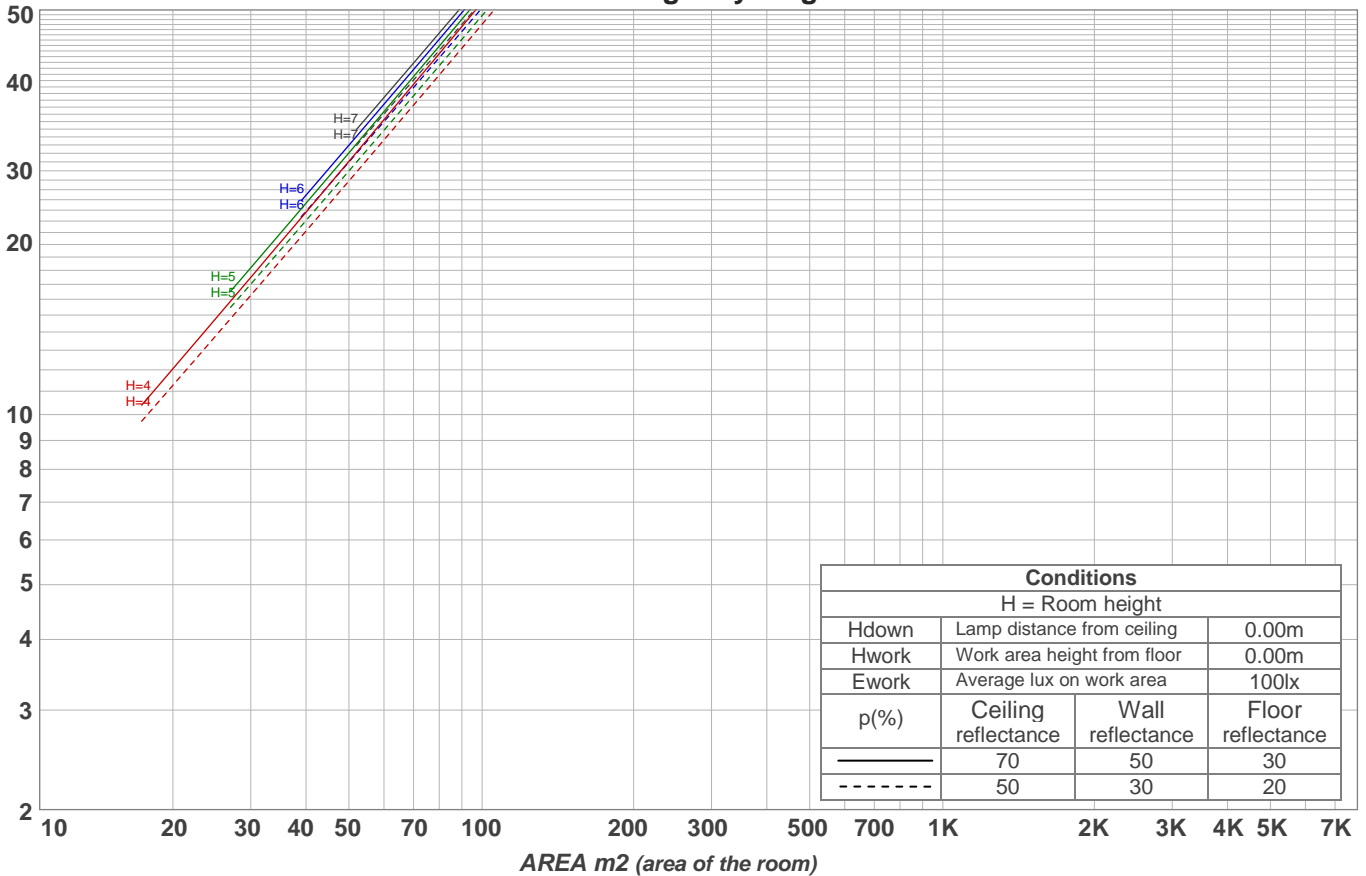
| | | | | | | | | | | | |
|---|-----|---|------|------|------|------|---|------|------|------|------|
| p Ceiling | | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 |
| p Walls | | 50 | 30 | 50 | 30 | 30 | 50 | 30 | 50 | 30 | 30 |
| p Floor | | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Room size X Y | | Viewing direction at right angles to lamp axis | | | | | Viewing direction parallel to lamp axis | | | | |
| 2H | 2H | 1,8 | 2,5 | 2,0 | 2,6 | 2,8 | 1,6 | 2,3 | 1,9 | 2,5 | 2,7 |
| | 3H | 4,2 | 4,8 | 4,5 | 5,1 | 5,3 | 3,7 | 4,3 | 4,0 | 4,5 | 4,8 |
| | 4H | 5,7 | 6,3 | 6,0 | 6,6 | 6,8 | 4,9 | 5,5 | 5,2 | 5,8 | 6,0 |
| | 6H | 7,0 | 7,5 | 7,3 | 7,8 | 8,1 | 6,5 | 7,0 | 6,8 | 7,3 | 7,6 |
| | 8H | 7,7 | 8,2 | 8,1 | 8,5 | 8,8 | 7,2 | 7,7 | 7,6 | 8,0 | 8,3 |
| | 12H | 8,4 | 8,9 | 8,7 | 9,2 | 9,5 | 8,0 | 8,5 | 8,3 | 8,8 | 9,1 |
| 4H | 2H | 2,5 | 3,1 | 2,8 | 3,3 | 3,6 | 2,4 | 2,9 | 2,7 | 3,2 | 3,5 |
| | 3H | 5,1 | 5,6 | 5,5 | 5,9 | 6,2 | 4,8 | 5,2 | 5,1 | 5,5 | 5,9 |
| | 4H | 6,7 | 7,2 | 7,1 | 7,5 | 7,8 | 6,2 | 6,6 | 6,5 | 6,9 | 7,3 |
| | 6H | 8,3 | 8,6 | 8,7 | 9,0 | 9,4 | 7,9 | 8,3 | 8,3 | 8,7 | 9,0 |
| | 8H | 9,2 | 9,5 | 9,6 | 9,9 | 10,3 | 8,8 | 9,1 | 9,2 | 9,5 | 9,9 |
| | 12H | 10,0 | 10,3 | 10,4 | 10,7 | 11,1 | 9,7 | 9,9 | 10,1 | 10,3 | 10,8 |
| 8H | 4H | 7,3 | 7,6 | 7,7 | 8,0 | 8,4 | 6,8 | 7,1 | 7,2 | 7,5 | 7,9 |
| | 6H | 9,1 | 9,4 | 9,6 | 9,8 | 10,2 | 8,8 | 9,1 | 9,3 | 9,5 | 9,9 |
| | 8H | 10,2 | 10,4 | 10,7 | 10,8 | 11,3 | 9,9 | 10,1 | 10,3 | 10,5 | 11,0 |
| | 12H | 11,2 | 11,4 | 11,7 | 11,9 | 12,4 | 11,0 | 11,2 | 11,5 | 11,6 | 12,1 |
| 12H | 4H | 7,4 | 7,7 | 7,8 | 8,1 | 8,5 | 7,0 | 7,2 | 7,4 | 7,6 | 8,1 |
| | 6H | 9,3 | 9,5 | 9,8 | 10,0 | 10,4 | 9,1 | 9,3 | 9,5 | 9,7 | 10,2 |
| | 8H | 10,5 | 10,7 | 11,0 | 11,1 | 11,6 | 10,2 | 10,4 | 10,7 | 10,8 | 11,3 |
| Variation of the observer position for the luminaire distance S | | | | | | | | | | | |
| S = 1,0H | | +0,1 / -0,1 | | | | | +0,1 / -0,1 | | | | |
| S = 1,5H | | +0,1 / -0,2 | | | | | +0,3 / -0,3 | | | | |
| S = 2,0H | | +0,3 / -0,6 | | | | | +0,4 / -0,4 | | | | |
| Standard table | | BK12 | | | | | BK11 | | | | |
| Correction summand | | -5,6 | | | | | -6,6 | | | | |
| Corrected glare indices referring to 207 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 | 115 | 113 | 111 | 109 | 112 | 111 | 109 | 107 | 106 | 105 | 104 | 103 | 102 | 101 | 99 | 99 | 98 | 96 |
| 2 | 111 | 108 | 105 | 102 | 109 | 106 | 103 | 101 | 103 | 101 | 99 | 100 | 98 | 97 | 97 | 96 | 95 | 93 |
| 3 | 108 | 104 | 100 | 97 | 106 | 102 | 99 | 97 | 100 | 97 | 95 | 97 | 95 | 94 | 95 | 94 | 92 | 91 |
| 4 | 105 | 100 | 96 | 93 | 104 | 99 | 96 | 93 | 97 | 94 | 92 | 95 | 93 | 91 | 93 | 91 | 90 | 89 |
| 5 | 102 | 97 | 93 | 90 | 101 | 96 | 93 | 90 | 95 | 91 | 89 | 93 | 90 | 88 | 92 | 89 | 88 | 87 |
| 6 | 100 | 94 | 90 | 88 | 99 | 94 | 90 | 87 | 92 | 89 | 87 | 91 | 88 | 86 | 90 | 88 | 86 | 85 |
| 7 | 98 | 92 | 88 | 85 | 97 | 91 | 88 | 85 | 90 | 87 | 85 | 89 | 86 | 84 | 88 | 86 | 84 | 83 |
| 8 | 96 | 90 | 86 | 83 | 95 | 89 | 86 | 83 | 88 | 85 | 83 | 87 | 85 | 83 | 87 | 84 | 82 | 81 |
| 9 | 94 | 88 | 84 | 82 | 93 | 87 | 84 | 81 | 87 | 83 | 81 | 86 | 83 | 81 | 85 | 83 | 81 | 80 |
| 10 | 92 | 86 | 82 | 80 | 91 | 86 | 82 | 80 | 85 | 82 | 80 | 84 | 81 | 79 | 84 | 81 | 79 | 78 |

LAMPS (number of lamps)

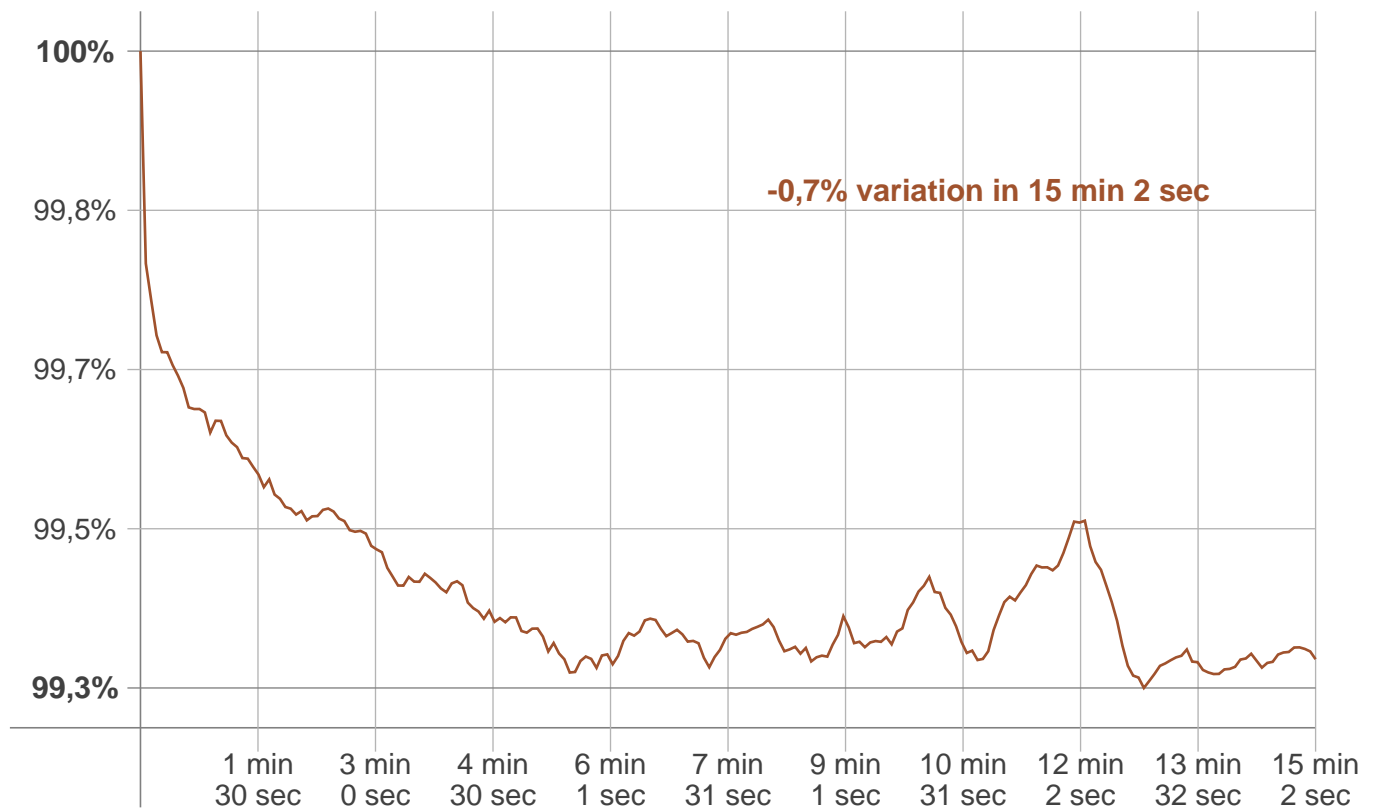
Luminaire budgetary diagram



Zonal Lumen Summary

| 0°-10° | 10°-20° | 20°-30° | 30°-40° | 40°-50° | 50°-60° | 60°-70° | 70°-80° | 80°-90° |
|-------------|--------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 102 lm | {LUM10-20} | {LUM20-30} | {LUM30-40} | {LUM40-50} | {LUM50-60} | {LUM60-70} | {LUM70-80} | {LUM80-90} |
| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
| {LUM90-100} | {LUM100-110} | 0,219 lm | {LUM120-130} | {LUM130-140} | {LUM140-150} | {LUM150-160} | {LUM160-170} | {LUM170-180} |

Warmup curve



Warmup result

| | |
|------------------|--------------|
| Warmup time: | 15 min 2 sec |
| Warmup variation | -0,7% |

Warmup conditions

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

Color temperature change

| CCT start | CCT change | CCT end |
|-----------|-----------------|---------|
| 2673 K | {WU_CHNG_CCT} K | 2671 K |

Output change

| Output start | Output change | Output end |
|--------------|---------------|------------|
| 207 lm | lm | 207 lm |