**Light efficiency:**

**113 Lumen/Watt**

**Light quality:**

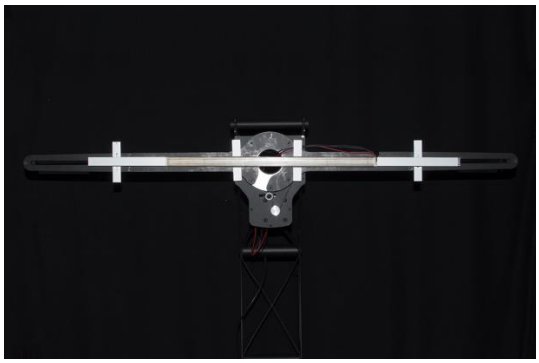
**CRI: 82,1**

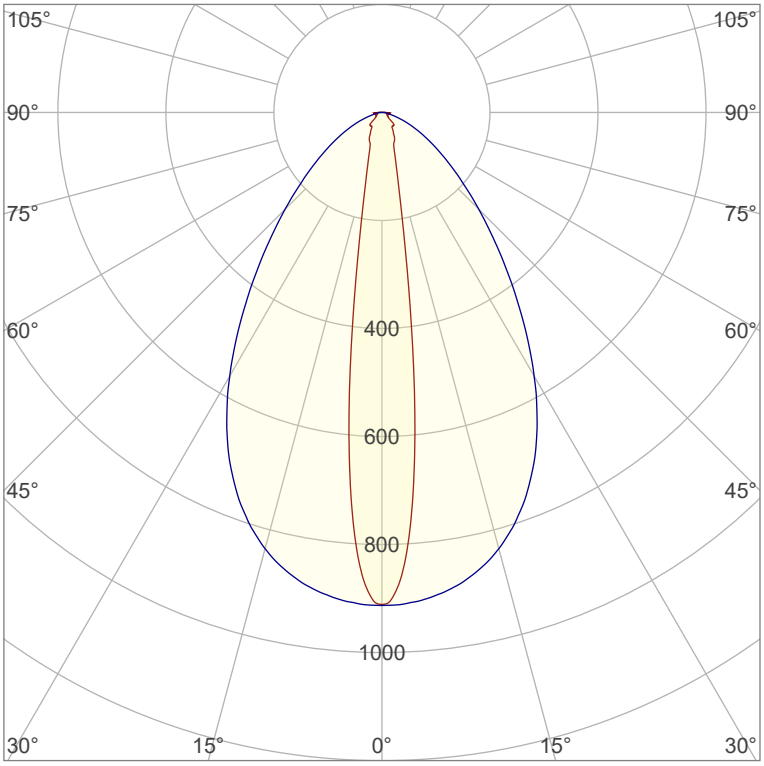
**Color temperature:**

**2700 K**

**Output: 487 lm**
**Peak: 913 cd**

**Power: 4,3 W**
**PF: 1,0**






**Product name:**
**Navigator-3_510mm_827_Inlay-Lens-15°**

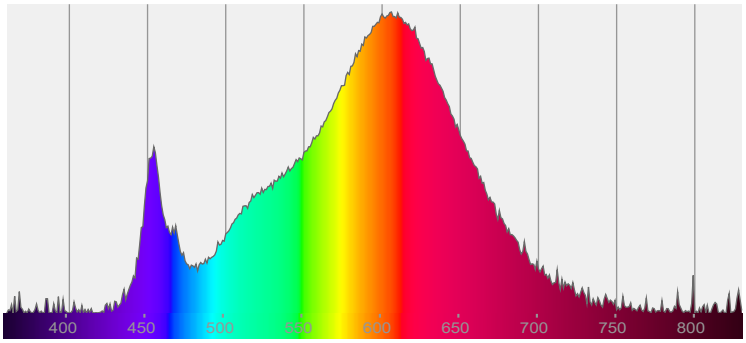
**Item number:**
**NP/L1C/14C/0510/827/IL1F**

**Date and time:**
**25.07.2025 09:40:05**

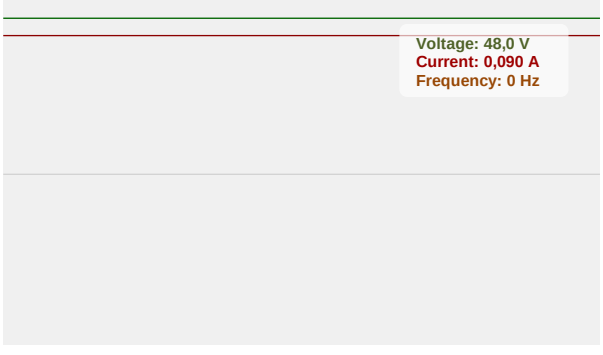
**Description:**
**Tolerances:**
**Lumen +/-4%**
**Candela +/-2,5%**
**Colour Temp +/-35 Kelvin**
**CRI +/-0,7**
**Angular Resolution: 1 Degree Step**
**Last Calibration 13.10.2023**
**Tester: Peter Ulrich**
**Test Site: Lichtlabor**
**Gaustrasse 13**
**55411 Bingen am Rhein**

**CIE 1931**
**x: 0,460**
**y: 0,411**

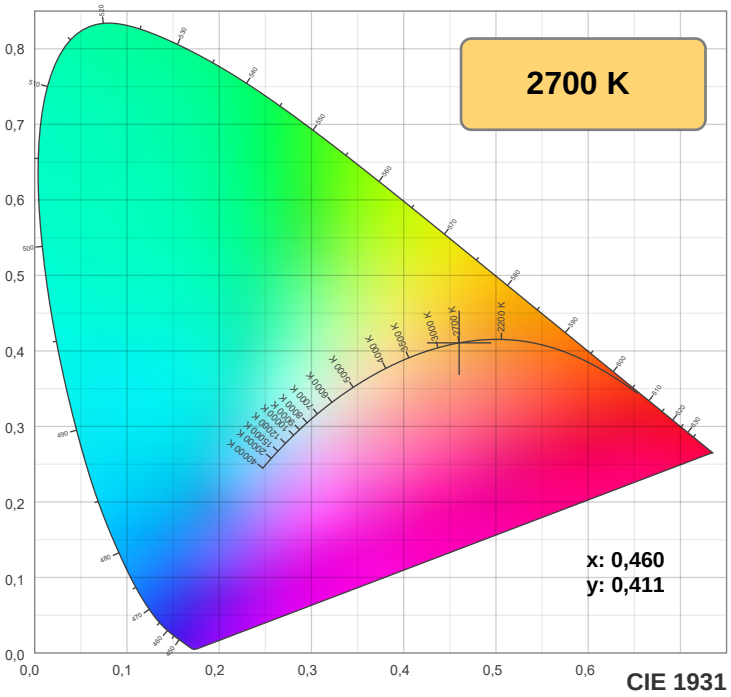
**Spectra**



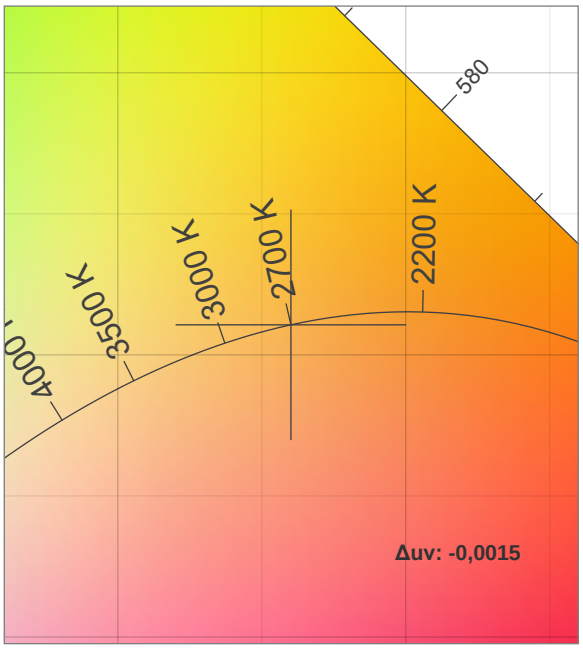

**Power**



# Color details

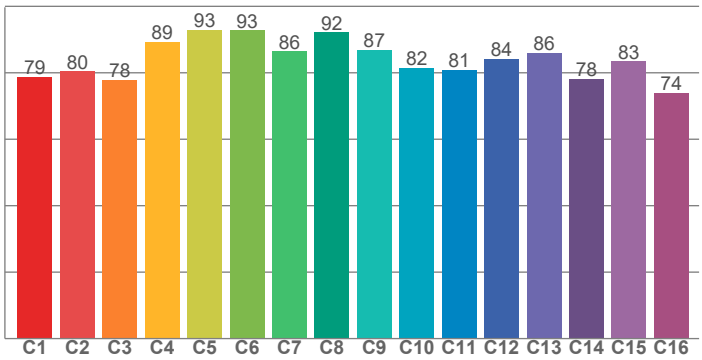



CIE 1931

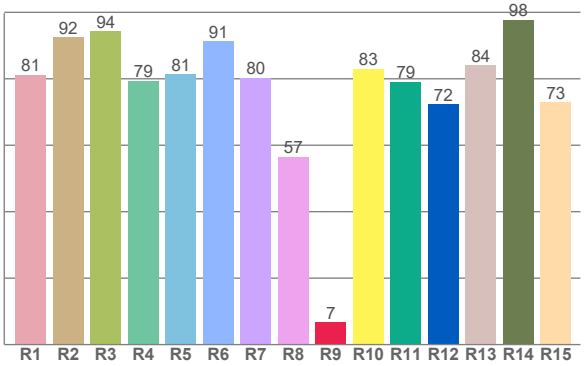



CIE 1931 ZOOM

## TM30: 83,9




## CRI: 82,1 (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 | 92,5 | 94,4 | 79,4 | 81,4 | 91,4 | 80,4 | 56,6 | 6,7 | 83,0 | 79,1 | 72,3 | 84,1 | 97,8 | 72,9 |

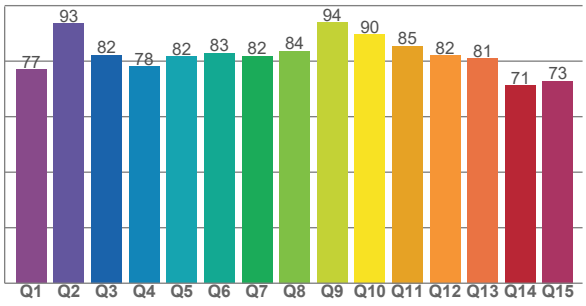
**TM30 C values, 16 binned values out of total of 99 C values**

| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 | C13 | C14 | C15 | C16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 78,8 | 80,4 | 77,8 | 89,3 | 92,8 | 92,8 | 86,5 | 92,2 | 86,9 | 81,5 | 80,8 | 84,3 | 86,0 | 78,2 | 83,5 | 74,0 |

**CQS Q values**

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 76,9 | 93,5 | 82,2 | 78,1 | 81,6 | 82,9 | 81,9 | 83,6 | 93,9 | 89,5 | 85,4 | 81,9 | 80,9 | 71,1 | 72,9 |

## CQS: 81,2




## 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 diviation from black body |
|---|---|---|---|---|---|---|---|---|---|---|
| CCT | CRI | CRI R9 | TM30 Rf | TM30 Rg | CQS | x | y | u | v | Δuv |
| 2700 K | 82,1 | 6,7 | 83,9 | 95,5 | 81,2 | 0,460 | 0,411 | 0,263 | 0,352 | -0,0015 |

# TM30 details

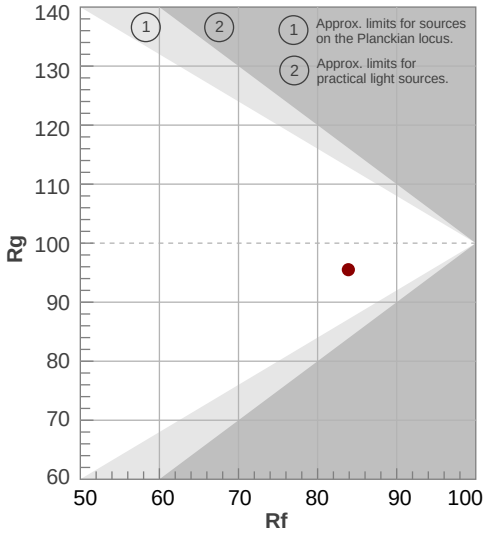
**Rf 83,9**

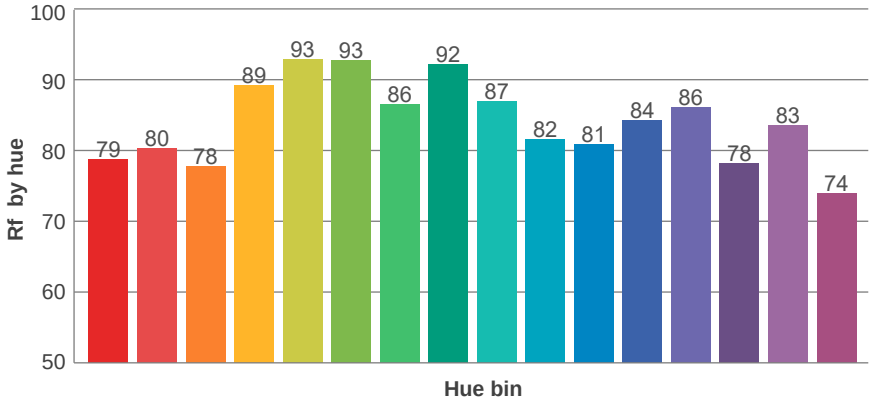
Fidelity index Rf

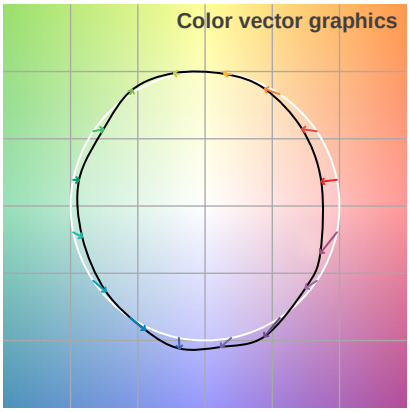
**Rg 95,5**

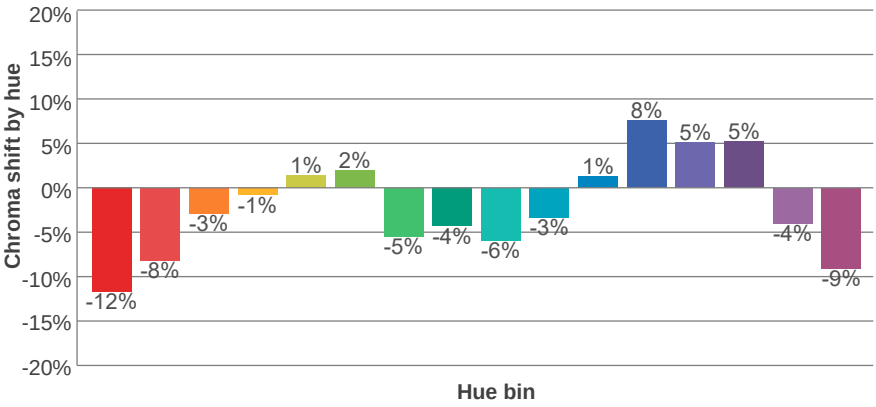
Gammut index Rg

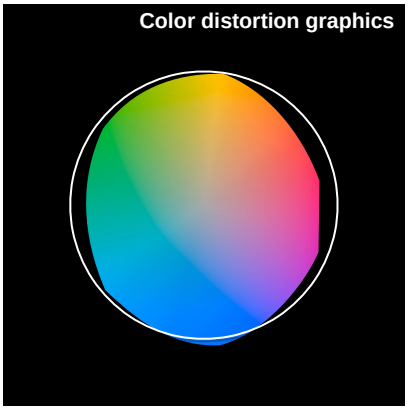
| | | Graphic shifts (%) | |
|---|---|---|---|
| Hue Bin | $R_f$ | Chroma | Hue |
| 1 | 79 | -12% | 1% |
| 2 | 80 | -8% | 7% |
| 3 | 78 | -3% | 11% |
| 4 | 89 | -1% | 5% |
| 5 | 93 | 1% | 3% |
| 6 | 93 | 2% | -3% |
| 7 | 86 | -5% | -6% |
| 8 | 92 | -4% | -1% |
| 9 | 87 | -6% | 5% |
| 10 | 82 | -3% | 12% |
| 11 | 81 | 1% | 14% |
| 12 | 84 | 8% | 2% |
| 13 | 86 | 5% | -9% |
| 14 | 78 | 5% | -17% |
| 15 | 83 | -4% | -9% |
| 16 | 74 | -9% | -18% |

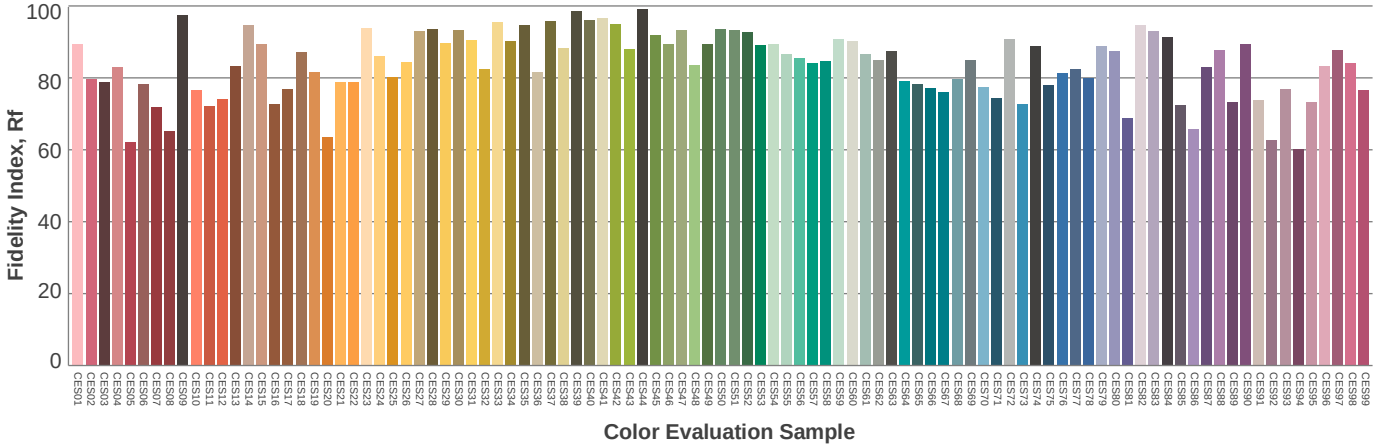


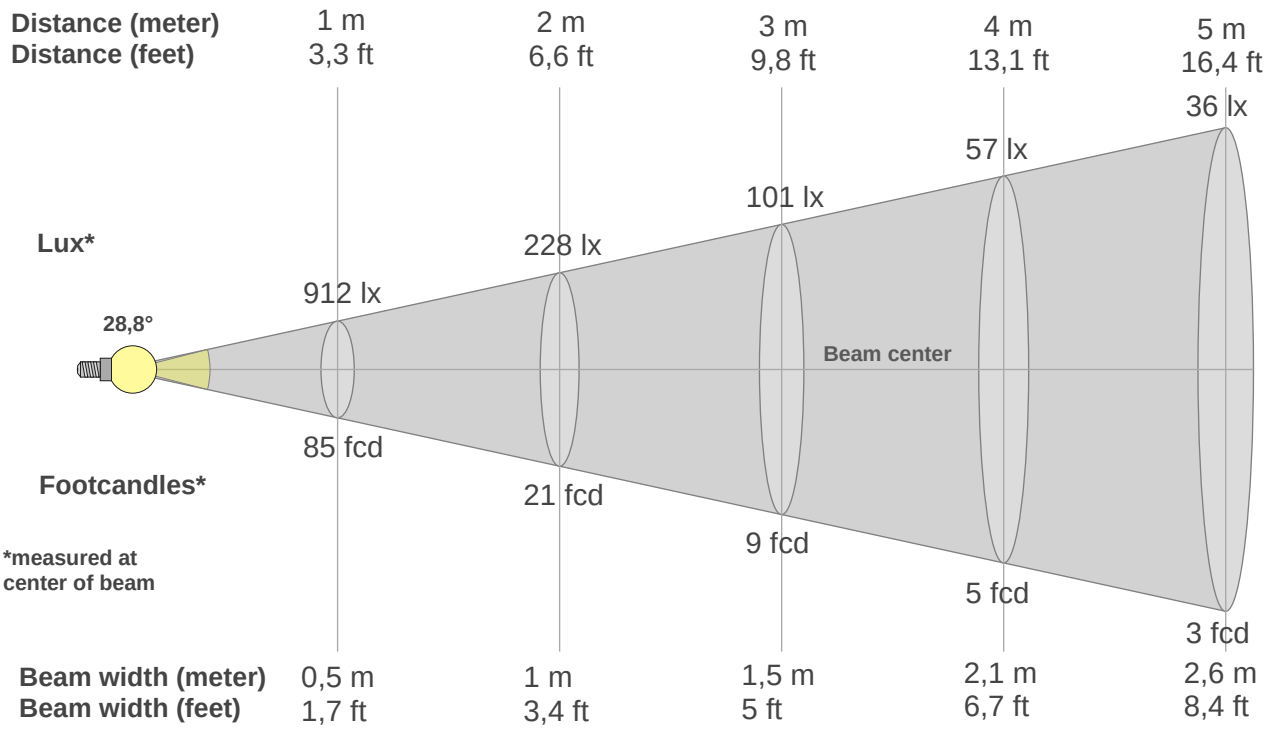



# Beam details




**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 |
| 912lx | 228lx | 101lx | 57lx | 36lx | 25lx | 19lx | 14lx | 11lx | 9lx | 8lx | 6lx | 5lx | 5lx | 4lx | 4lx | 3lx | 3lx | 3lx | 2lx |
| 84,8fcd | 21,2fcd | 9,4fcd | 5,3fcd | 3,4fcd | 2,4fcd | 1,7fcd | 1,3fcd | 1fcd | 0,8fcd | 0,7fcd | 0,6fcd | 0,5fcd | 0,4fcd | 0,4fcd | 0,3fcd | 0,3fcd | 0,3fcd | 0,2fcd | 0,2fcd |

**Intensities in 0° c-plane**

| 0° | 2° | 4° | 6° | 8° | 10° | 12° | 14° | 16° | 18° | 20° | 22° | 24° | 26° | 28° | 30° | 32° | 34° | 36° | 38° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 912 | 875 | 761 | 584 | 387 | 241 | 160 | 117 | 91 | 74 | 64 | 60 | 57 | 53 | 47 | 42 | 38 | 34 | 32 | 32 |
| 100% | 96% | 83% | 64% | 42% | 26% | 18% | 13% | 10% | 8% | 7% | 7% | 6% | 6% | 5% | 5% | 4% | 4% | 4% | 3% |

**Intensities in 90° c-plane**

| 0° | 2° | 4° | 6° | 8° | 10° | 12° | 14° | 16° | 18° | 20° | 22° | 24° | 26° | 28° | 30° | 32° | 34° | 36° | 38° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 912 | 912 | 908 | 901 | 892 | 881 | 865 | 847 | 824 | 798 | 768 | 734 | 697 | 655 | 610 | 564 | 516 | 469 | 423 | 380 |
| 100% | 100% | 100% | 99% | 98% | 97% | 95% | 93% | 90% | 87% | 84% | 80% | 76% | 72% | 67% | 62% | 57% | 51% | 46% | 42% |

**Intensities in 180° c-plane**

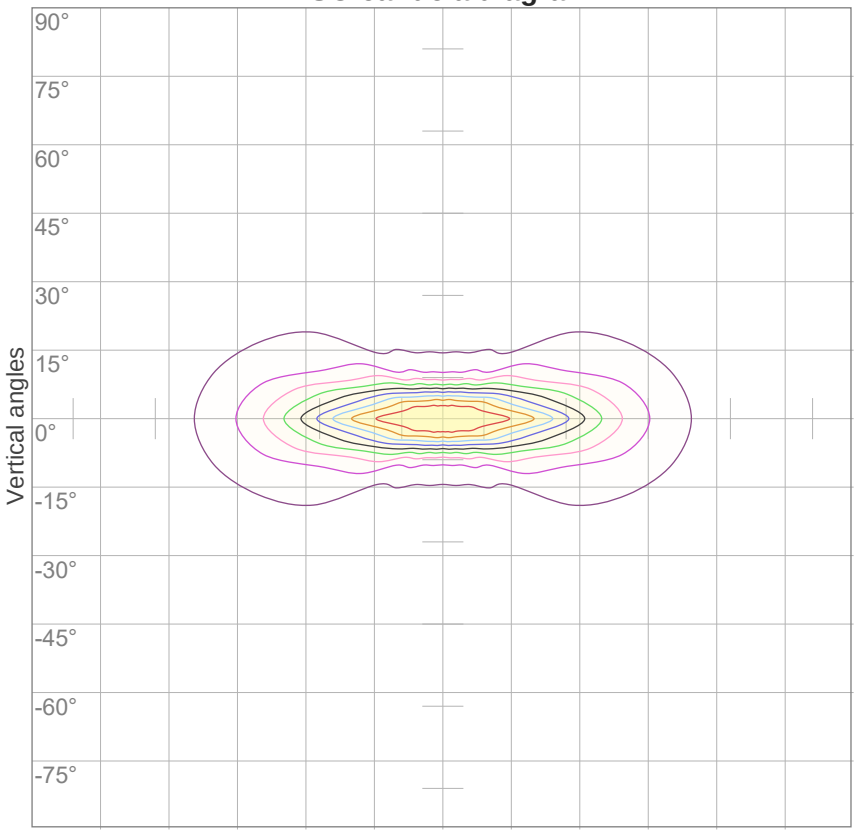
| 0° | 2° | 4° | 6° | 8° | 10° | 12° | 14° | 16° | 18° | 20° | 22° | 24° | 26° | 28° | 30° | 32° | 34° | 36° | 38° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 912 | 875 | 761 | 584 | 387 | 241 | 160 | 117 | 91 | 74 | 64 | 60 | 57 | 53 | 47 | 42 | 38 | 34 | 32 | 32 |
| 100% | 96% | 83% | 64% | 42% | 26% | 18% | 13% | 10% | 8% | 7% | 7% | 6% | 6% | 5% | 5% | 4% | 4% | 4% | 3% |

**Intensities in 270° c-plane**

| 0° | 2° | 4° | 6° | 8° | 10° | 12° | 14° | 16° | 18° | 20° | 22° | 24° | 26° | 28° | 30° | 32° | 34° | 36° | 38° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 912 | 912 | 908 | 901 | 892 | 881 | 865 | 847 | 824 | 798 | 768 | 734 | 697 | 655 | 610 | 564 | 516 | 469 | 423 | 380 |
| 100% | 100% | 100% | 99% | 98% | 97% | 95% | 93% | 90% | 87% | 84% | 80% | 76% | 72% | 67% | 62% | 57% | 51% | 46% | 42% |

| Beam angle 50% | Field angle 10% | Cutoff angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|---|---|---|---|---|
| **28,8°** | **55,7°** | **111,9°** | **87,9%** | **73,4%** |

## ISO candela diagram



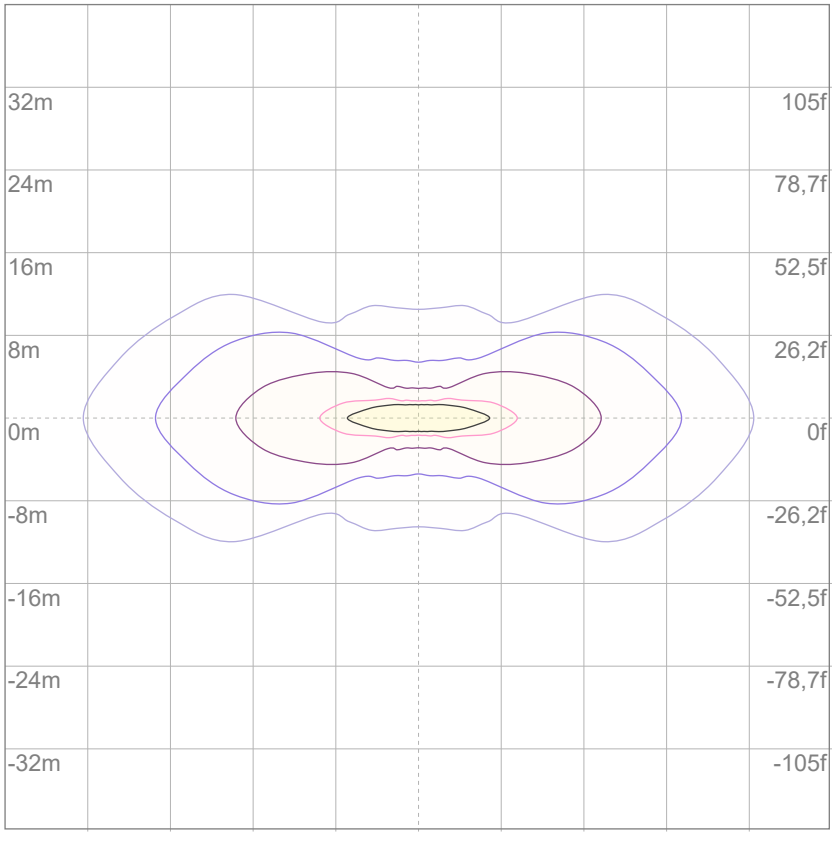

| | |
|---|---|
| 10% | 91 cd |
| 20% | 182 cd |
| 30% | 274 cd |
| 40% | 365 cd |
| 50% | 456 cd |
| 60% | 547 cd |
| 70% | 639 cd |
| 80% | 730 cd |
| 90% | 821 cd |

Conditions:

Number of c-planes: 16

Candela at center: 912 cd

## ISO lux diagram




Mounting height: 10 meters (33 feet)

| | |
|---|---|
| 3% | 0,274 lx |
| 5% | 0,456 lx |
| 10% | 0,912 lx |
| 30% | 2,74 lx |
| 50% | 4,56 lx |

Conditions:

Number of c-planes: 16

Lux at center: 9,12 lx

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

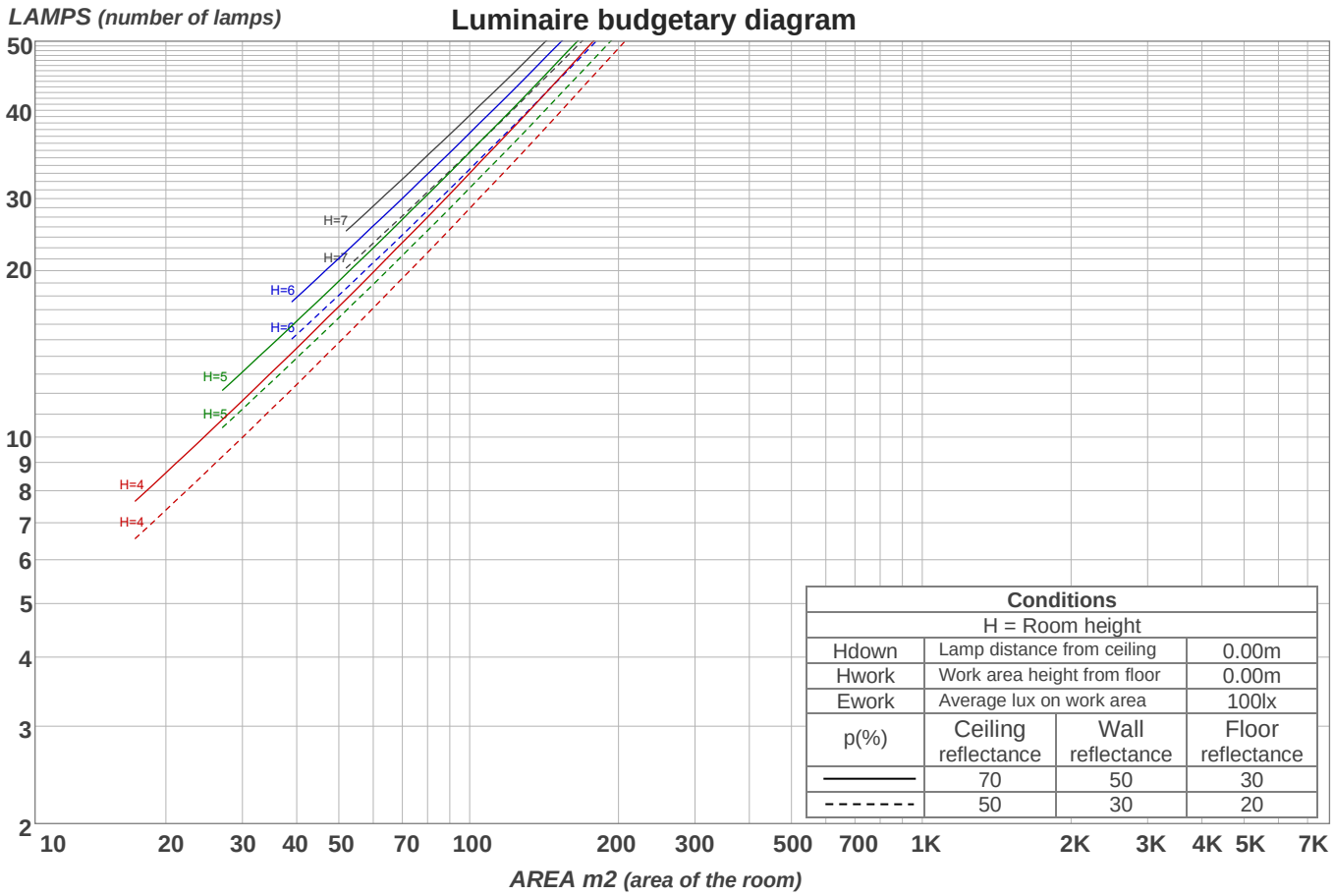
## Glare Evaluation According to UGR

| 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 | 9,2 | 10,1 | 9,3 | 10,3 | 10,5 | 21,6 | 22,5 | 21,7 | 22,7 | 22,9 |
| | 3H | 10,2 | 11,2 | 10,6 | 11,4 | 11,6 | 22,2 | 23,2 | 22,6 | 23,4 | 23,6 |
| | 4H | 11,2 | 12,2 | 11,6 | 12,4 | 12,7 | 22,4 | 23,3 | 22,8 | 23,6 | 23,8 |
| | 6H | 12,6 | 13,4 | 12,9 | 13,7 | 14,1 | 22,6 | 23,4 | 22,9 | 23,6 | 24,0 |
| | 8H | 13,3 | 14,1 | 13,6 | 14,4 | 14,8 | 22,6 | 23,3 | 22,9 | 23,6 | 24,0 |
| | 12H | 13,9 | 14,7 | 14,3 | 15,0 | 15,5 | 22,5 | 23,3 | 22,9 | 23,6 | 24,1 |
| 4H | 2H | 11,0 | 11,9 | 11,4 | 12,2 | 12,4 | 21,3 | 22,2 | 21,7 | 22,5 | 22,7 |
| | 3H | 12,2 | 12,9 | 12,5 | 13,3 | 13,7 | 22,2 | 22,9 | 22,5 | 23,3 | 23,7 |
| | 4H | 13,1 | 13,8 | 13,5 | 14,2 | 14,7 | 22,4 | 23,1 | 22,8 | 23,5 | 24,0 |
| | 6H | 14,4 | 15,1 | 14,9 | 15,4 | 15,8 | 22,5 | 23,2 | 23,0 | 23,5 | 23,9 |
| | 8H | 15,1 | 15,7 | 15,6 | 16,1 | 16,4 | 22,5 | 23,2 | 23,0 | 23,5 | 23,9 |
| | 12H | 15,8 | 16,3 | 16,2 | 16,7 | 17,2 | 22,5 | 23,0 | 23,0 | 23,5 | 23,9 |
| 8H | 4H | 13,7 | 14,4 | 14,3 | 14,7 | 15,1 | 22,3 | 22,9 | 22,8 | 23,3 | 23,6 |
| | 6H | 15,3 | 15,7 | 15,8 | 16,2 | 16,7 | 22,5 | 23,0 | 23,0 | 23,4 | 23,9 |
| | 8H | 16,2 | 16,6 | 16,7 | 17,1 | 17,7 | 22,6 | 23,0 | 23,1 | 23,5 | 24,1 |
| | 12H | 17,0 | 17,4 | 17,6 | 17,9 | 18,5 | 22,6 | 22,9 | 23,2 | 23,4 | 24,1 |
| 12H | 4H | 13,8 | 14,4 | 14,3 | 14,8 | 15,3 | 22,2 | 22,8 | 22,7 | 23,2 | 23,6 |
| | 6H | 15,5 | 15,9 | 16,0 | 16,4 | 17,1 | 22,5 | 22,9 | 23,0 | 23,4 | 24,1 |
| | 8H | 16,4 | 16,8 | 17,0 | 17,3 | 17,9 | 22,6 | 22,9 | 23,2 | 23,4 | 24,0 |
| Variation of the observer position for the luminaire distance S | | | | | | | | | | | |
| S = 1.0H | | 0,2 / -0,2 | | | | | 1,1 / -1,1 | | | | |
| S = 1.5H | | 0,3 / -0,3 | | | | | 2,6 / -2,5 | | | | |
| S = 2.0H | | 0,7 / -0,5 | | | | | 3,9 / -3,9 | | | | |
| Standard table | | n/a | | | | | n/a | | | | |
| Correction summand | | n/a | | | | | n/a | | | | |
| Corrected glare indices referring to 487 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 | 101 | 101 | 101 | 98 |
| 1 | 111 | 107 | 104 | 100 | 108 | 105 | 101 | 99 | 100 | 98 | 95 | 96 | 94 | 92 | 92 | 91 | 89 | 87 |
| 2 | 103 | 97 | 92 | 87 | 101 | 95 | 90 | 86 | 91 | 87 | 84 | 88 | 85 | 82 | 85 | 82 | 80 | 78 |
| 3 | 97 | 88 | 82 | 77 | 94 | 87 | 81 | 76 | 84 | 79 | 75 | 81 | 77 | 73 | 78 | 75 | 72 | 70 |
| 4 | 91 | 81 | 74 | 69 | 88 | 80 | 73 | 68 | 77 | 72 | 67 | 75 | 70 | 66 | 73 | 69 | 65 | 64 |
| 5 | 85 | 75 | 68 | 63 | 83 | 74 | 67 | 62 | 72 | 66 | 61 | 70 | 65 | 61 | 68 | 63 | 60 | 58 |
| 6 | 80 | 70 | 62 | 57 | 78 | 69 | 62 | 57 | 67 | 61 | 56 | 65 | 60 | 56 | 64 | 59 | 55 | 54 |
| 7 | 76 | 65 | 58 | 53 | 74 | 64 | 57 | 53 | 63 | 57 | 52 | 61 | 56 | 52 | 60 | 55 | 51 | 50 |
| 8 | 72 | 61 | 54 | 49 | 70 | 60 | 54 | 49 | 59 | 53 | 49 | 58 | 52 | 48 | 56 | 52 | 48 | 46 |
| 9 | 68 | 57 | 51 | 46 | 67 | 57 | 50 | 46 | 56 | 50 | 46 | 54 | 49 | 45 | 53 | 49 | 45 | 44 |
| 10 | 65 | 54 | 48 | 43 | 64 | 54 | 47 | 43 | 53 | 47 | 43 | 52 | 46 | 43 | 51 | 46 | 43 | 41 |

## Luminaire budgetary diagram

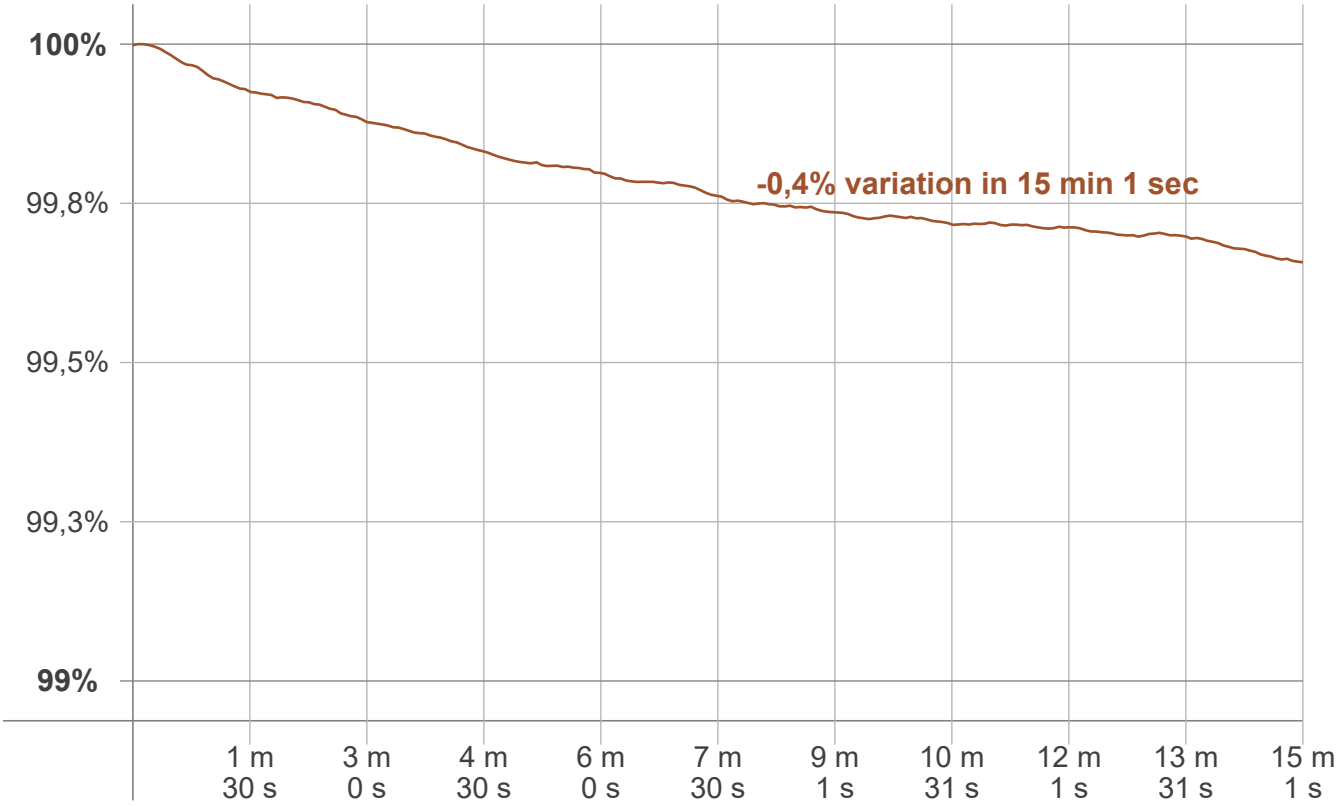



## Zonal Lumen Summary

| 0°-10° | 10°-20° | 20°-30° | 30°-40° | 40°-50° | 50°-60° | 60°-70° | 70°-80° | 80°-90° |
|---|---|---|---|---|---|---|---|---|
| 62,6 lm | 98,7 lm | 88,3 lm | 76,5 lm | 59,2 lm | 42,9 lm | 25,7 lm | 15,8 lm | 9,24 lm |

| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
|---|---|---|---|---|---|---|---|---|
| 1,81 lm | 1,59 lm | 0,422 lm | 0,381 lm | 0,306 lm | 0,233 lm | 0,171 lm | 0,105 lm | 3,03 lm |

## Warmup curve




## Warmup result

| | |
|---|---|
| **Warmup time:** | **Lamp stabilized in 15 min 1 sec** |
| **Warmup variation** | **-0,4%** |

## Warmup conditions

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

## Color temperature change

| CCT start | CCT change | CCT end |
|---|---|---|
| 2700 K | 0 K | 2700 K |

## Output change

| Output start | Output change | Output end |
|---|---|---|
| 489 lm | -2 lm | 487 lm |