Light efficiency:

72 Lumen/Watt

Light quality:

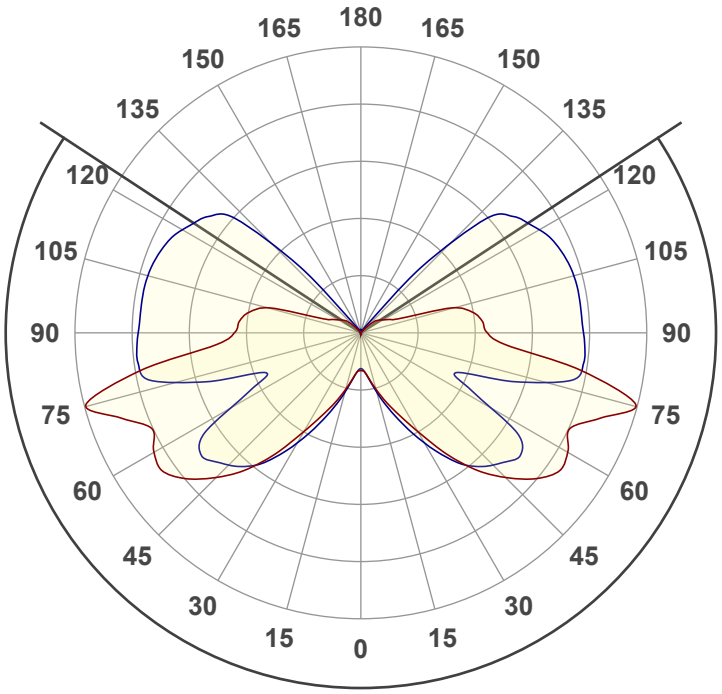
CRI: 80,6

Color temperature:

2600 K

**Output:** 1111 lm
**Peak:** 156 cd

**Power:** 15,5 W
**PF:** 0,96




Beam angle **246,6°**

CIE 1931
x: 0,468
y: 0,412

Tracking number: VT240913-001827

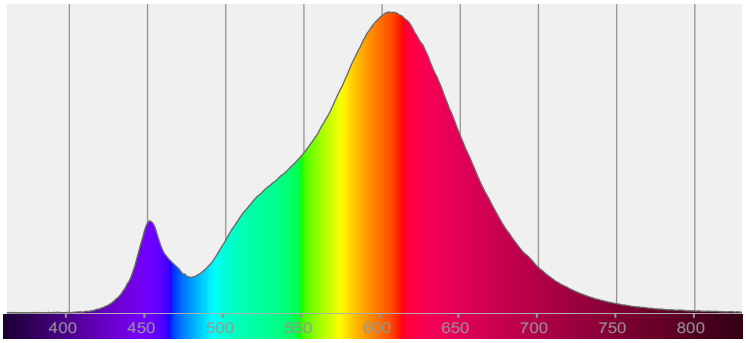
Product name:
**274709**

Item number:
**274709**

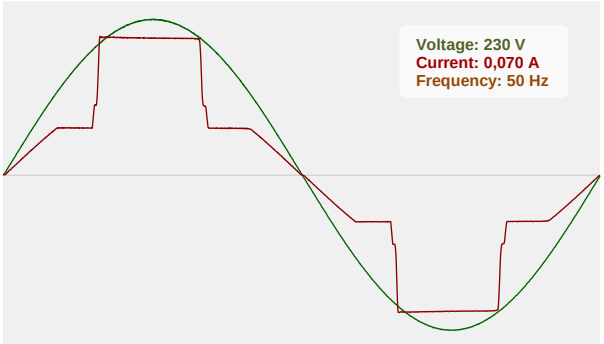
Date and time:
**13-9-2024 15:20:53**

Description:
**LEDUXA PLAFONDLAMP | SQUARE | 16W**

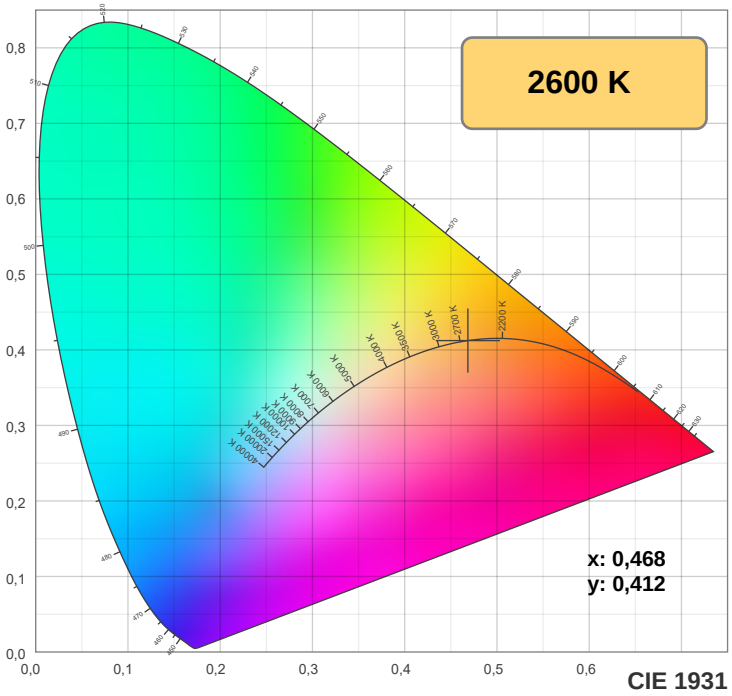
Spectra



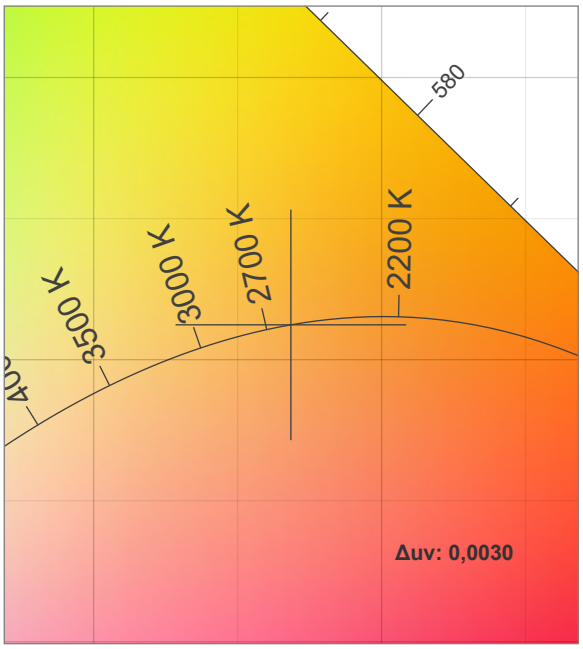

Power



# Color details

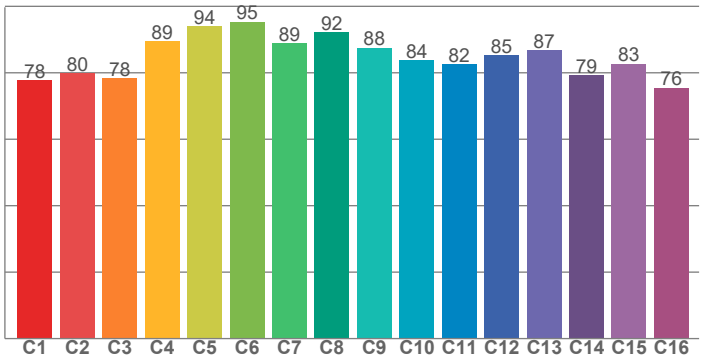



CIE 1931

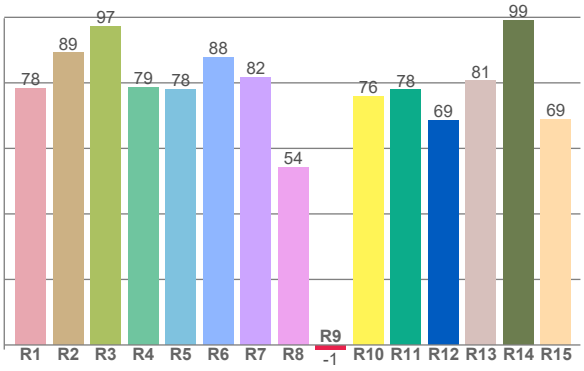



CIE 1931 ZOOM

## TM-30: 84,6




## CRI: 80,6 (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 78,3 | 89,2 | 97,3 | 78,7 | 77,9 | 87,7 | 81,7 | 54,3 | -1,4 | 76,0 | 77,9 | 68,6 | 80,6 | 99,1 | 68,8 |

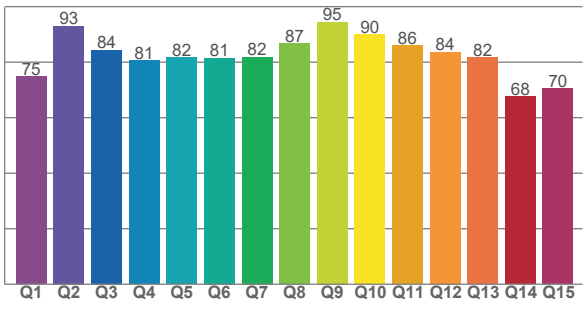
TM30 C values, 16 binned values out of total of 99 C values

| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 | C13 | C14 | C15 | C16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 77,7 | 79,9 | 78,4 | 89,5 | 94,1 | 95,4 | 88,8 | 92,3 | 87,6 | 83,8 | 82,5 | 85,3 | 86,8 | 79,3 | 82,7 | 75,5 |

CQS Q values

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 74,8 | 93,0 | 84,3 | 80,6 | 81,6 | 81,4 | 81,8 | 86,7 | 94,5 | 90,0 | 86,0 | 83,7 | 81,6 | 67,7 | 70,4 |

## CQS: 80,9




## 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 |
| 2600 K | 80,6 | -1,4 | 84,6 | 93,9 | 80,9 | 0,468 | 0,412 | 0,267 | 0,353 | 0,0030 |

# TM-30 details

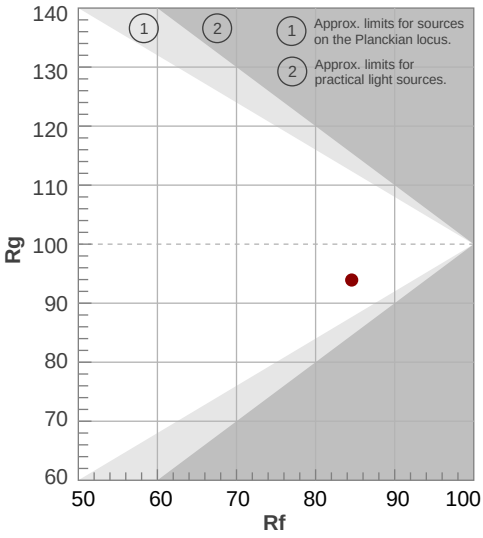
**Rf 84,6**

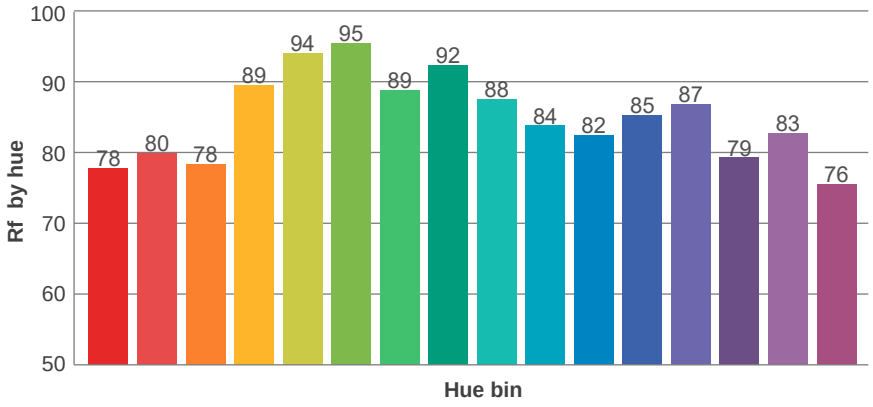
Fidelity index Rf

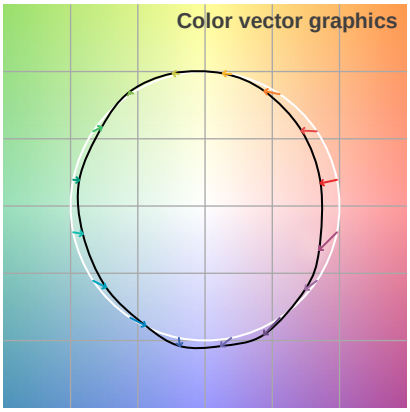
**Rg 93,9**

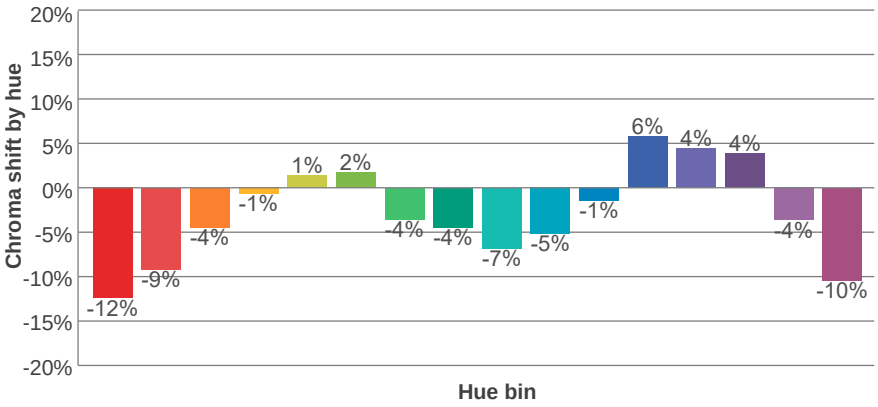
Gamut index Rg

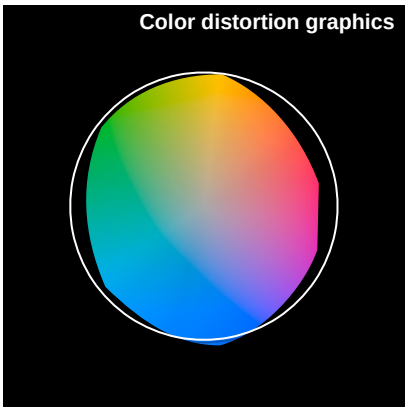
| Hue Bin | $R_f$ | Shifts (%) Chroma | Hue |
|---|---|---|---|
| 1 | 78 | -12% | 0% |
| 2 | 80 | -9% | 7% |
| 3 | 78 | -4% | 11% |
| 4 | 89 | -1% | 6% |
| 5 | 94 | 1% | 4% |
| 6 | 95 | 2% | 0% |
| 7 | 89 | -4% | -6% |
| 8 | 92 | -4% | -1% |
| 9 | 88 | -7% | 3% |
| 10 | 84 | -5% | 9% |
| 11 | 82 | -1% | 12% |
| 12 | 85 | 6% | 2% |
| 13 | 87 | 4% | -9% |
| 14 | 79 | 4% | -17% |
| 15 | 83 | -4% | -10% |
| 16 | 76 | -10% | -16% |

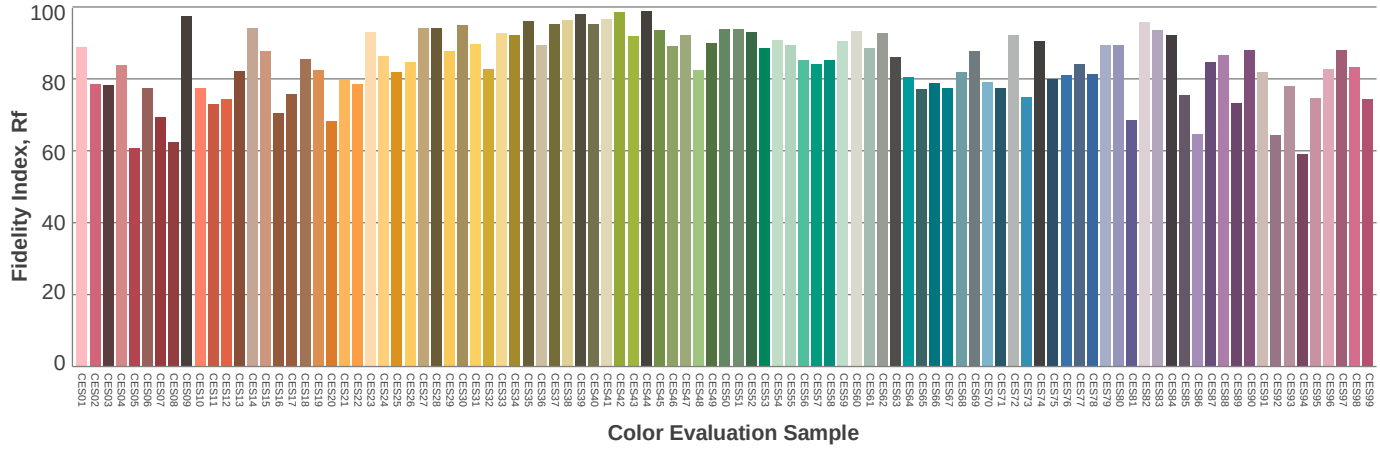


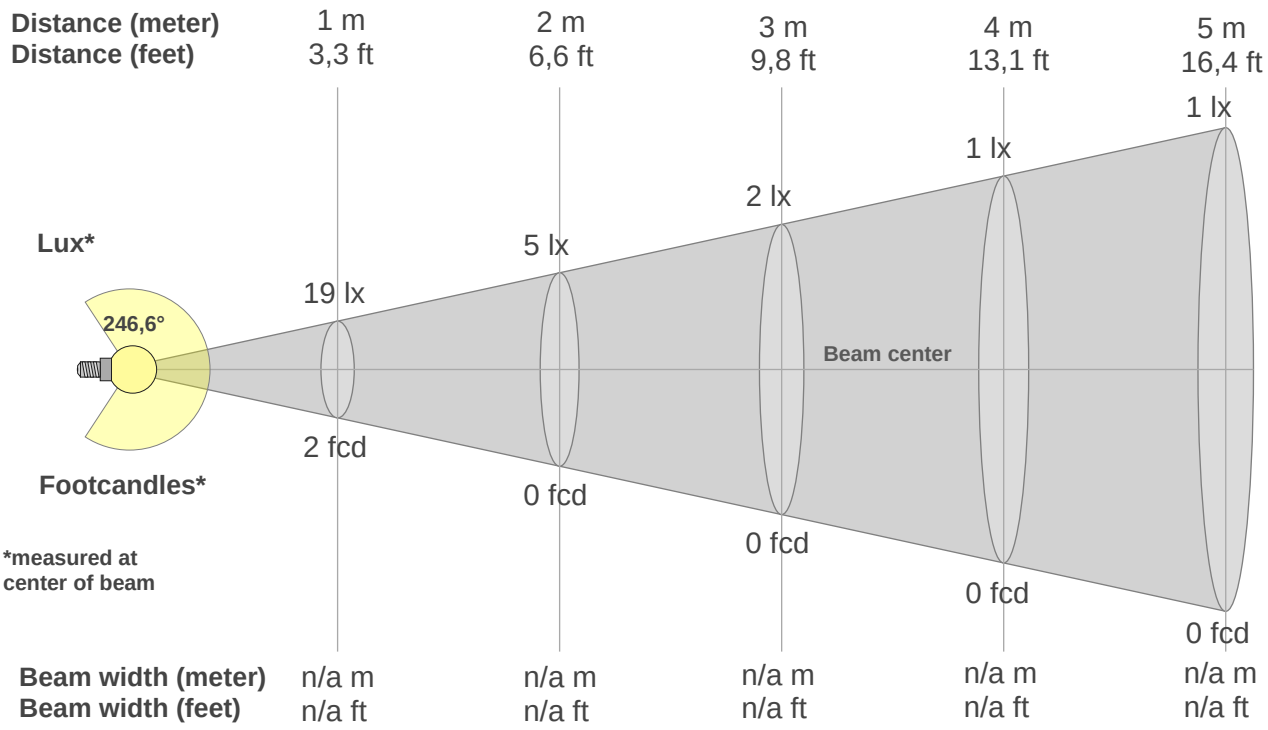



# Beam details




**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 |
| 19lx | 5lx | 2lx | 1lx | 1lx | 1lx | 0lx | 0lx | 0lx | 0lx | 0lx | 0lx | 0lx | 0lx | 0lx | 0lx | 0lx | 0lx | 0lx | 0lx |
| 1,8fcd | 0,4fcd | 0,2fcd | 0,1fcd | 0,1fcd | 0fcd | 0fcd | 0fcd | 0fcd | 0fcd | 0fcd | 0fcd | 0fcd | 0fcd | 0fcd | 0fcd | 0fcd | 0fcd | 0fcd | 0fcd |

**Intensities in 0° c-plane**

| 0° | 9° | 18° | 27° | 36° | 45° | 54° | 63° | 72° | 81° | 90° | 99° | 108° | 117° | 126° | 135° | 144° | 153° | 162° | 171° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | 24 | 36 | 53 | 81 | 108 | 126 | 124 | 140 | 113 | 67 | 62 | 35 | 16 | 11 | 5 | 0 | 0 | 0 | 0 |
| 100% | 123% | 185% | 274% | 419% | 560% | 653% | 641% | 723% | 583% | 348% | 318% | 181% | 81% | 58% | 24% | 1% | 0% | 1% | 0% |

**Intensities in 90° c-plane**

| 0° | 9° | 18° | 27° | 36° | 45° | 54° | 63° | 72° | 81° | 90° | 99° | 108° | 117° | 126° | 135° | 144° | 153° | 162° | 171° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | 24 | 38 | 59 | 84 | 99 | 104 | 65 | 83 | 118 | 118 | 117 | 116 | 112 | 103 | 67 | 4 | 0 | 0 | 0 |
| 100% | 125% | 198% | 306% | 433% | 511% | 537% | 337% | 430% | 610% | 610% | 606% | 601% | 579% | 533% | 348% | 19% | 1% | 1% | 1% |

**Intensities in 180° c-plane**

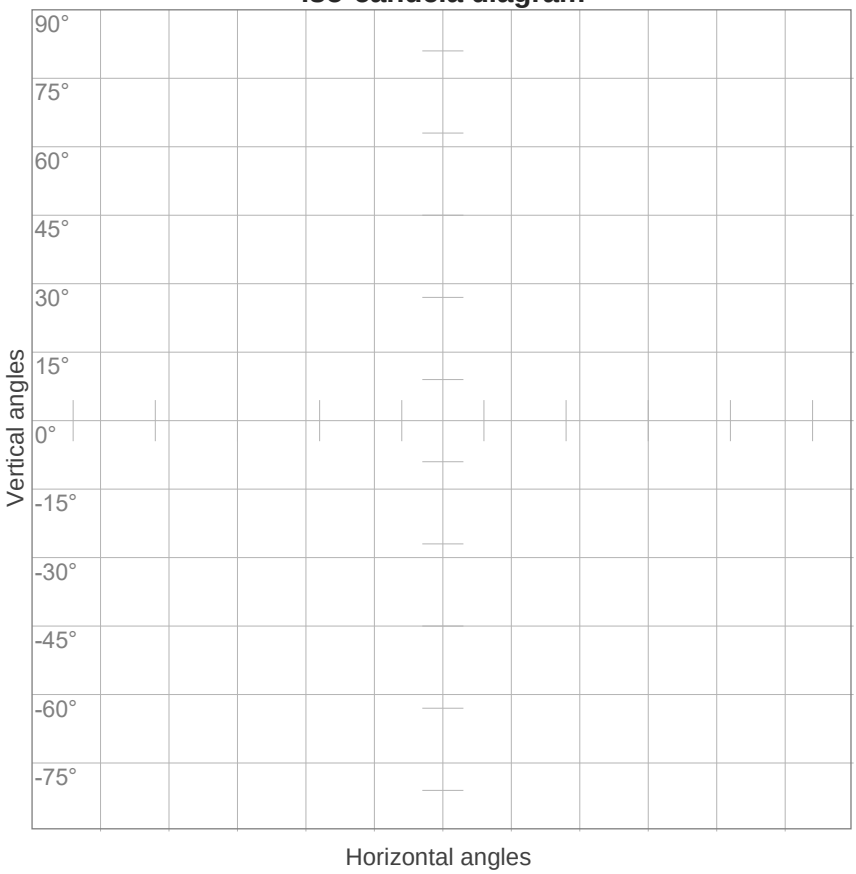
| 0° | 9° | 18° | 27° | 36° | 45° | 54° | 63° | 72° | 81° | 90° | 99° | 108° | 117° | 126° | 135° | 144° | 153° | 162° | 171° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | 24 | 36 | 53 | 81 | 108 | 126 | 124 | 140 | 113 | 67 | 62 | 35 | 16 | 11 | 5 | 0 | 0 | 0 | 0 |
| 100% | 123% | 185% | 274% | 419% | 560% | 653% | 641% | 723% | 583% | 348% | 318% | 181% | 81% | 58% | 24% | 1% | 0% | 1% | 0% |

**Intensities in 270° c-plane**

| 0° | 9° | 18° | 27° | 36° | 45° | 54° | 63° | 72° | 81° | 90° | 99° | 108° | 117° | 126° | 135° | 144° | 153° | 162° | 171° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | 24 | 38 | 59 | 84 | 99 | 104 | 65 | 83 | 118 | 118 | 117 | 116 | 112 | 103 | 67 | 4 | 0 | 0 | 0 |
| 100% | 125% | 198% | 306% | 433% | 511% | 537% | 337% | 430% | 610% | 610% | 606% | 601% | 579% | 533% | 348% | 19% | 1% | 1% | 1% |

| Beam angle 50% | Field angle 10% | Cutoff angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|---|---|---|---|---|
| 246,6° | 269,4° | 278° | 25,2% | 11,3% |

## iso-candela diagram



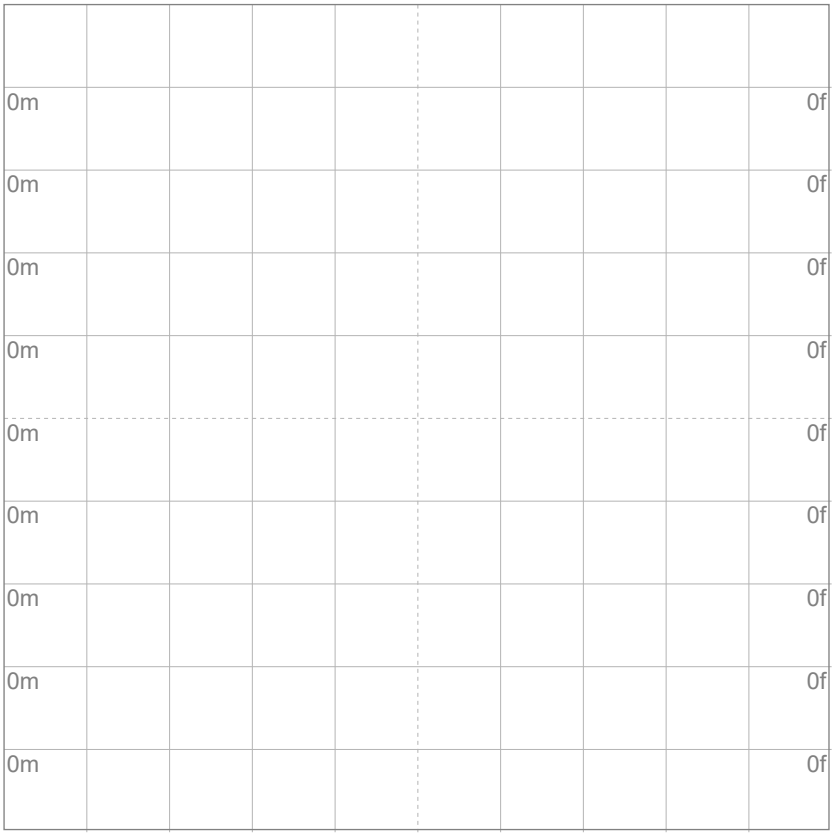

| | | |
|---|---|---|
| 10% | 2 cd |
| 20% | 4 cd |
| 30% | 6 cd |
| 40% | 8 cd |
| 50% | 10 cd |
| 60% | 12 cd |
| 70% | 14 cd |
| 80% | 15 cd |
| 90% | 17 cd |

Conditions:

Number of c-planes: 72

Candela at center: 19 cd

## iso-lux diagram




| | |
|---|---|
| 3% | 5,81m lx |
| 5% | 9,68m lx |
| 10% | 19,4m lx |
| 30% | 58,1m lx |
| 50% | 96,8m lx |

Conditions:

Number of c-planes: 72

Lux at center: 0,194 lx

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

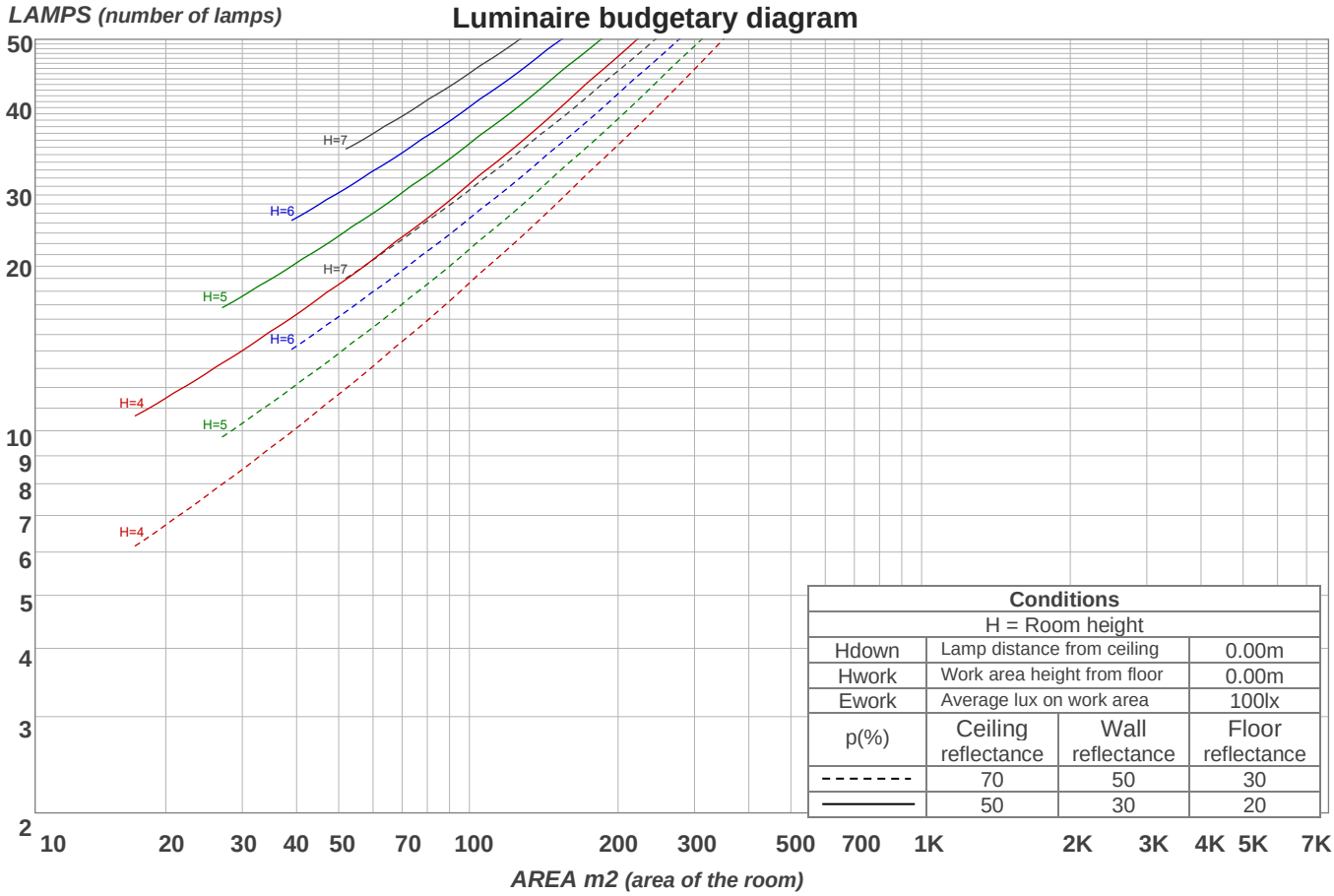
## Glare evaluation according to UGR

| 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 | 20,5 | 21,6 | 21,3 | 22,4 | 23,5 | 19,2 | 20,3 | 20,1 | 21,1 | 22,2 |
| | 3H | 23,1 | 24,1 | 24,0 | 25,0 | 26,0 | 20,5 | 21,6 | 21,4 | 22,4 | 23,5 |
| | 4H | 24,6 | 25,6 | 25,5 | 26,5 | 27,5 | 22,1 | 23,1 | 23,0 | 23,9 | 25,0 |
| | 6H | 25,9 | 26,8 | 26,7 | 27,7 | 28,7 | 24,0 | 24,9 | 24,8 | 25,8 | 26,8 |
| | 8H | 26,3 | 27,3 | 27,2 | 28,1 | 29,2 | 24,9 | 25,8 | 25,7 | 26,6 | 27,7 |
| | 12H | 26,6 | 27,6 | 27,5 | 28,4 | 29,5 | 25,7 | 26,7 | 26,5 | 27,4 | 28,5 |
| 4H | 2H | 21,3 | 22,2 | 22,1 | 23,1 | 24,1 | 20,3 | 21,2 | 21,1 | 22,1 | 23,1 |
| | 3H | 24,0 | 25,0 | 24,9 | 25,8 | 26,8 | 21,8 | 22,8 | 22,7 | 23,5 | 24,6 |
| | 4H | 25,6 | 26,8 | 26,5 | 27,3 | 28,4 | 23,5 | 24,7 | 24,4 | 25,2 | 26,4 |
| | 6H | 27,1 | 27,8 | 28,0 | 28,7 | 29,7 | 25,6 | 26,4 | 26,5 | 27,2 | 28,3 |
| | 8H | 27,7 | 28,3 | 28,6 | 29,2 | 30,3 | 26,5 | 27,2 | 27,4 | 28,1 | 29,2 |
| | 12H | 28,1 | 28,7 | 29,0 | 29,6 | 30,7 | 27,4 | 27,9 | 28,3 | 28,9 | 30,0 |
| 8H | 4H | 25,8 | 26,5 | 26,7 | 27,4 | 28,4 | 24,2 | 24,8 | 25,1 | 25,7 | 26,8 |
| | 6H | 27,6 | 28,1 | 28,5 | 29,1 | 30,2 | 26,6 | 27,2 | 27,6 | 28,1 | 29,2 |
| | 8H | 28,4 | 28,8 | 29,3 | 29,8 | 31,0 | 27,8 | 28,2 | 28,7 | 29,3 | 30,4 |
| | 12H | 29,1 | 29,5 | 30,0 | 30,5 | 31,6 | 28,8 | 29,3 | 29,8 | 30,2 | 31,3 |
| 12H | 4H | 25,9 | 26,5 | 26,8 | 27,5 | 28,5 | 24,3 | 24,9 | 25,2 | 25,8 | 26,9 |
| | 6H | 27,8 | 28,2 | 28,7 | 29,2 | 30,4 | 26,9 | 27,3 | 27,8 | 28,4 | 29,5 |
| | 8H | 28,7 | 29,1 | 29,6 | 30,1 | 31,2 | 28,2 | 28,6 | 29,1 | 29,6 | 30,7 |
| Variation of the observer position for the luminaire distance S | | | | | | | | | | | |
| S = 1.0H | | 0,0 / 0,0 | | | | | 0,1 / -0,1 | | | | |
| S = 1.5H | | 0,1 / -0,1 | | | | | 0,1 / -0,1 | | | | |
| S = 2.0H | | 0,3 / -0,3 | | | | | 0,3 / -0,3 | | | | |
| CIE 117-1995. Corrected glare indices referring to 1111 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 | 109 | 109 | 109 | 109 | 102 | 102 | 102 | 102 | 88 | 88 | 88 | 75 | 75 | 75 | 64 | 64 | 64 | 58 |
| 1 | 93 | 86 | 80 | 74 | 86 | 80 | 74 | 69 | 68 | 63 | 59 | 57 | 53 | 50 | 46 | 44 | 41 | 36 |
| 2 | 83 | 72 | 63 | 56 | 76 | 66 | 59 | 52 | 56 | 50 | 44 | 46 | 41 | 37 | 37 | 34 | 30 | 26 |
| 3 | 74 | 61 | 52 | 44 | 68 | 57 | 48 | 41 | 47 | 40 | 35 | 39 | 33 | 29 | 31 | 27 | 23 | 19 |
| 4 | 67 | 53 | 43 | 35 | 61 | 49 | 40 | 33 | 41 | 34 | 28 | 34 | 28 | 23 | 27 | 22 | 18 | 15 |
| 5 | 61 | 46 | 36 | 29 | 55 | 43 | 34 | 27 | 36 | 28 | 23 | 29 | 23 | 19 | 23 | 19 | 15 | 11 |
| 6 | 55 | 41 | 31 | 24 | 51 | 38 | 29 | 23 | 32 | 24 | 19 | 26 | 20 | 16 | 21 | 16 | 12 | 9 |
| 7 | 51 | 37 | 27 | 21 | 47 | 34 | 25 | 19 | 28 | 21 | 16 | 23 | 17 | 13 | 19 | 14 | 10 | 8 |
| 8 | 47 | 33 | 24 | 18 | 43 | 30 | 22 | 16 | 25 | 19 | 14 | 21 | 15 | 11 | 17 | 12 | 9 | 6 |
| 9 | 44 | 30 | 21 | 15 | 40 | 27 | 20 | 14 | 23 | 17 | 12 | 19 | 14 | 10 | 15 | 11 | 8 | 5 |
| 10 | 41 | 27 | 19 | 13 | 37 | 25 | 17 | 12 | 21 | 15 | 10 | 17 | 12 | 8 | 14 | 10 | 7 | 4 |

## Luminaire budgetary diagram




## Zonal Lumen Summary

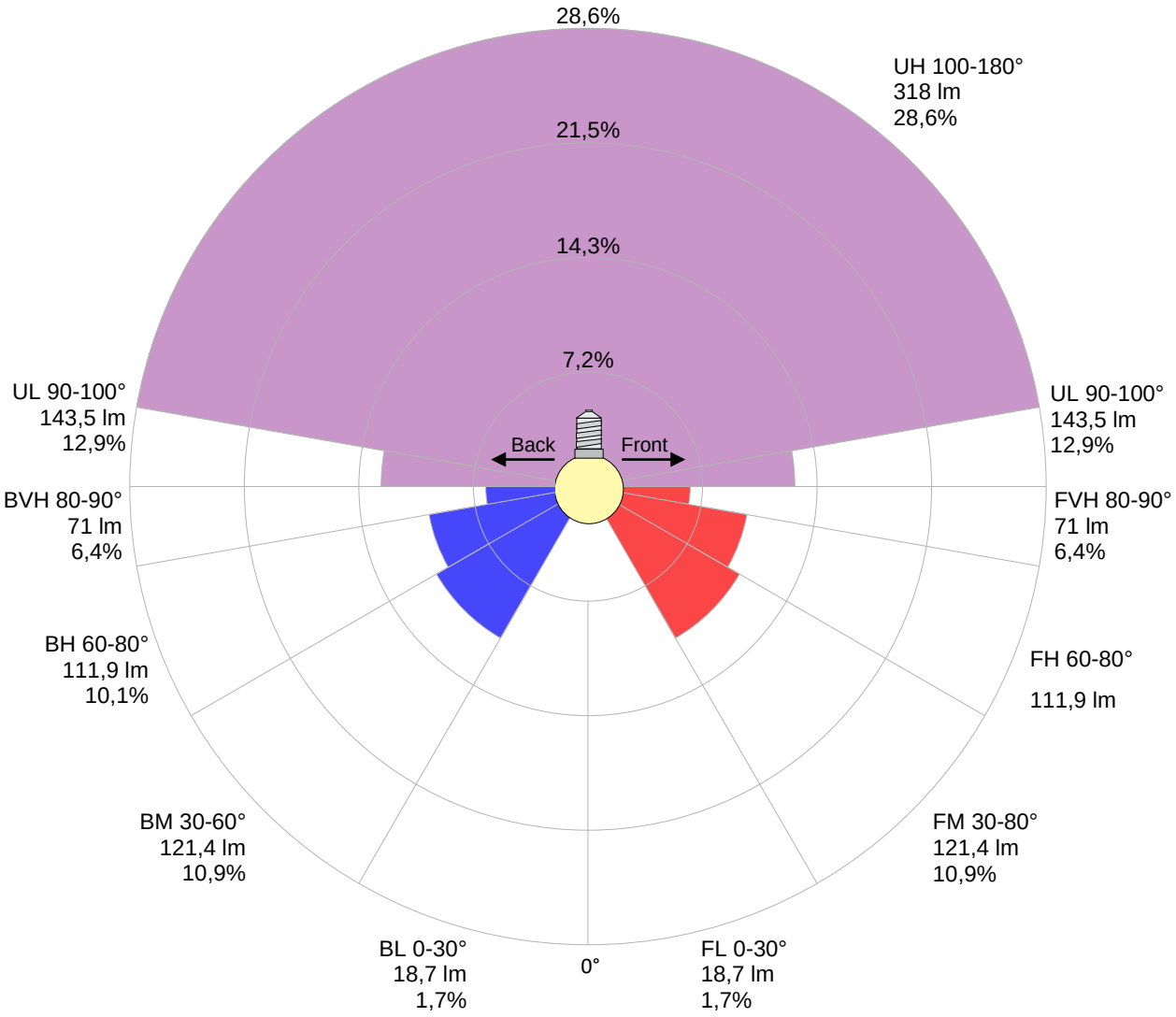
| 0°-10° | 10°-20° | 20°-30° | 30°-40° | 40°-50° | 50°-60° | 60°-70° | 70°-80° | 80°-90° |
|---|---|---|---|---|---|---|---|---|
| {LUM0-10} | 9,64 lm | 25,3 lm | 51,3 lm | 82,7 lm | 109 lm | 105 lm | 117 lm | 143 lm |

| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
|---|---|---|---|---|---|---|---|---|
| 146 lm | 133 lm | 101 lm | 64,5 lm | 20,4 lm | 0,693 lm | 0,053 lm | 0,030 lm | 0,009 lm |

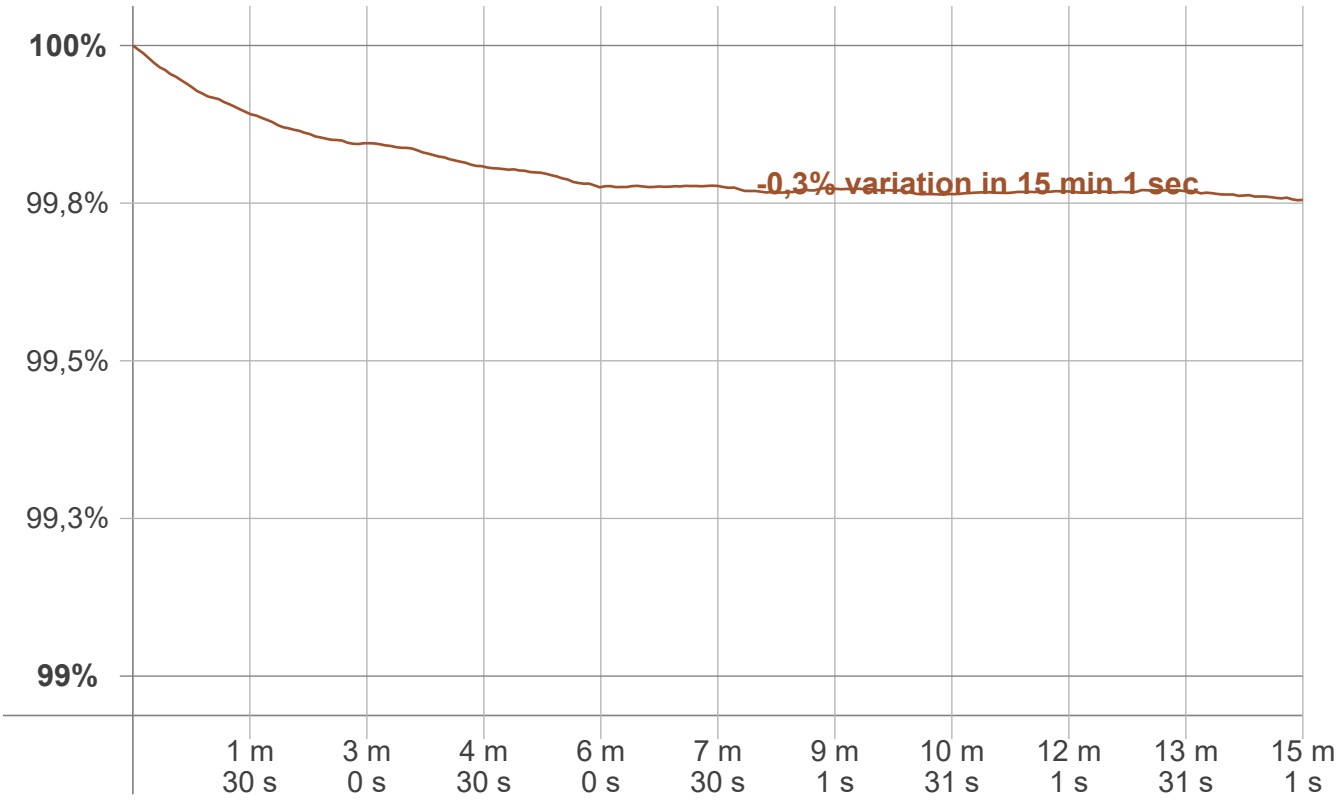
## LCS table

| BUG rating: | B1 U3 G1 | |
|---|---|---|
| **Forward light** | Lumens | Lumens % |
| Low(0-30): | 18,7 | 1,7% |
| Medium(30-60): | 121,4 | 10,9% |
| High(60-80): | 111,9 | 10,1% |
| Very high(80-90): | 71 | 6,4% |
| **Back light** | | |
| Low(0-30): | 18,7 | 1,7% |
| Medium(30-60): | 121,4 | 10,9% |
| High(60-80): | 111,9 | 10,1% |
| Very high(80-90): | 71 | 6,4% |
| **Uplight** | | |
| Low(90-100): | 143,5 | 12,9% |
| High(100-180): | 318 | 28,6% |

## LCS graph



### Warmup curve




### Warmup result

| | |
|---|---|
| **Warmup time:** | **Lamp stabilized in 15 min 1 sec** |
| **Warmup variation** | **-0,3%** |

### Warmup conditions

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

### Color temperature change

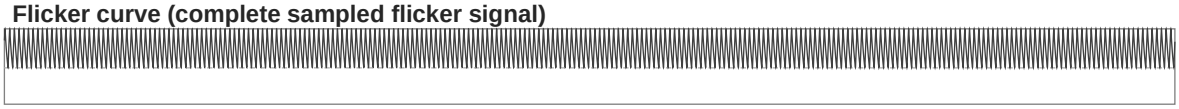
| CCT start | CCT change | CCT end |
|---|---|---|
| 2596 K | +4 K | 2600 K |

### Output change

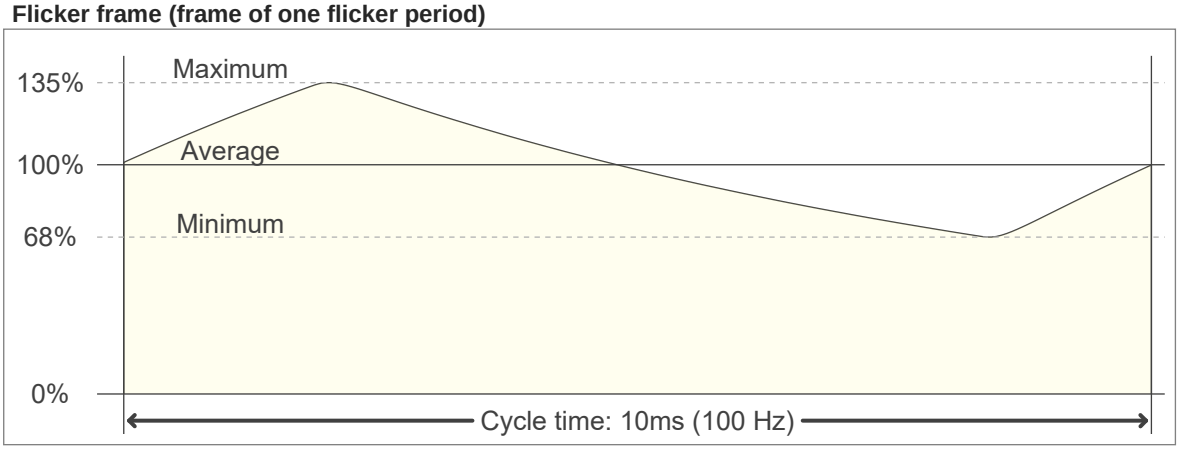
| Output start | Output change | Output end |
|---|---|---|
| 1114 lm | -3 lm | 1111 lm |

# Flicker

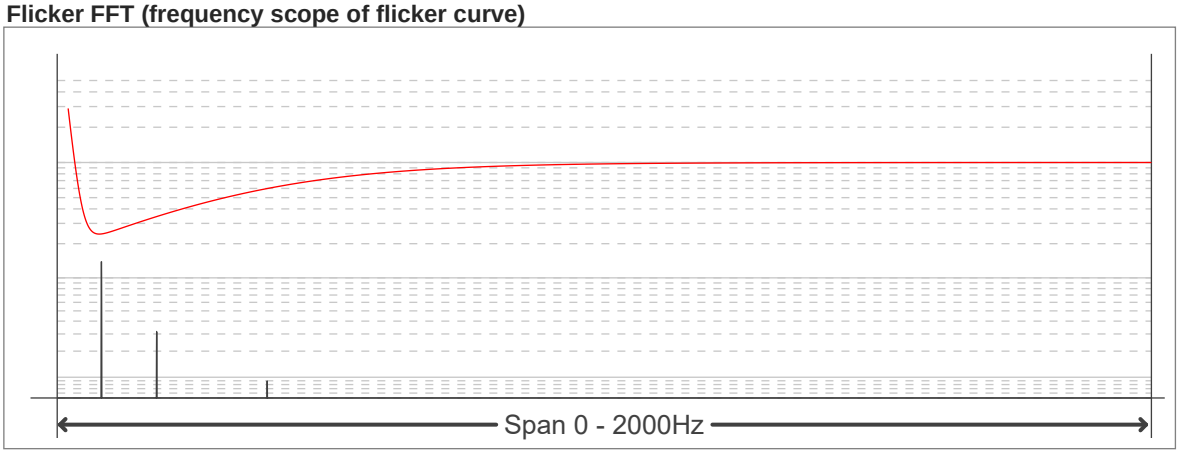
**Flicker curve (complete sampled flicker signal)**



**Flicker frame (frame of one flicker period)**




**Flicker FFT (frequency scope of flicker curve)**




**Flicker results:**

| Flicker frequency: | | 100 Hz | |
|---|---|---|---|
| Flicker index: | 0,09 | JA8/10 40Hz | 0,06 % |
| Flicker percentage: | 33,04 % | JA8/10 90Hz | 0,23 % |
| SVM: (Visual flicker) | 1,09 | JA8/10 200Hz | 28,41 % |
| PstLM | 0,02 | JA8/10 400Hz | 30,98 % |
| Mp | 0,02 | JA8/10 1000Hz | 32,59 % |

**Flicker conditions:**

| | |
|---|---|
| Sample rate: | 20000 samples/second |