

Light efficiency:

135 Lumen/Watt

Light quality:

CRI: 81,8

Color temperature:

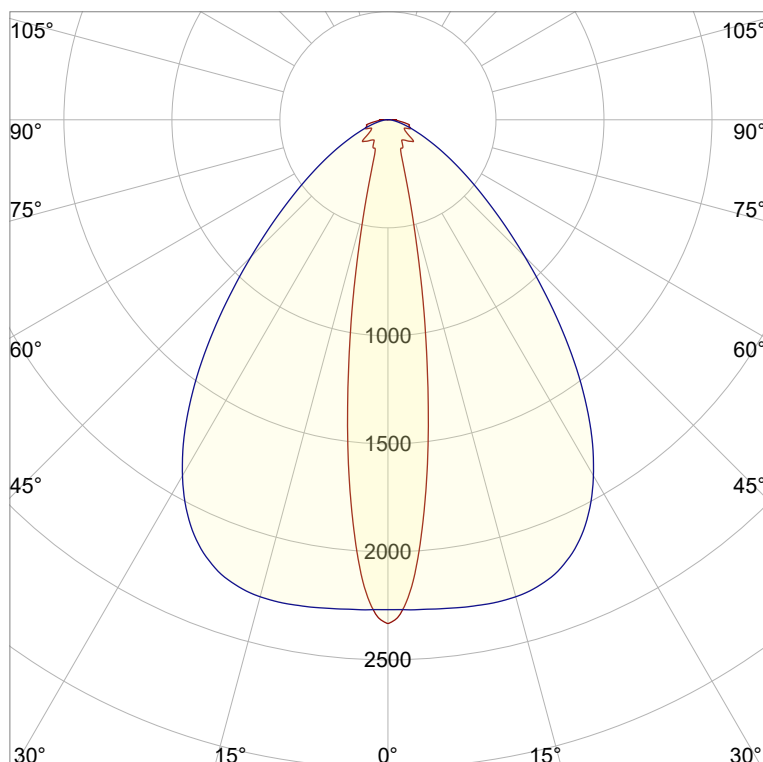
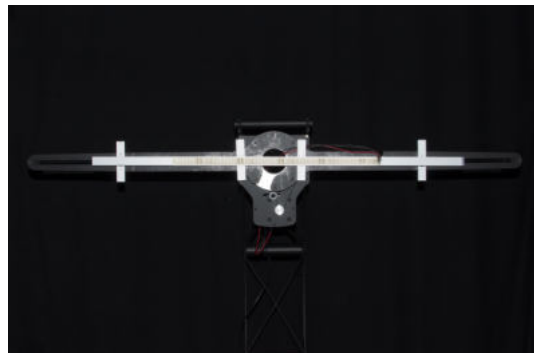
2756 K

Output: 1560 lm

Peak: 2335 cd

Power: 11,5 W

PF: 1,0



Product name:

Nova-6_510mm_827_Lens-15°-Frosted

Item number:

NP/L1C/06F/G1/L1C/0510/827/L1F

Date and time:

19.07.2022 11:04:44

Description:

Rank: D60-AC-8GB

Tolerances:

Lumen +/-4%

Candela +/-2,5%

Colour Temp +/-35 Kelvin

CRI +/-0,7

Angular Resolution: 1 Degree Step

Last Calibration 20-09-2021

Tester: Peter Ulrich

Test Site: Lichtlabor

Gaustrasse 13

55411 Bingen am Rhein

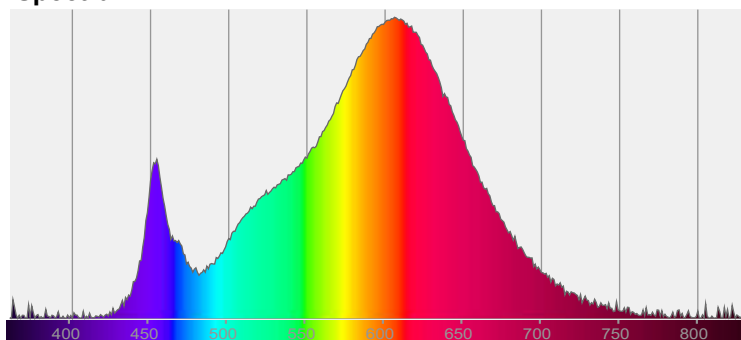


CIE 1931

x: 0,453

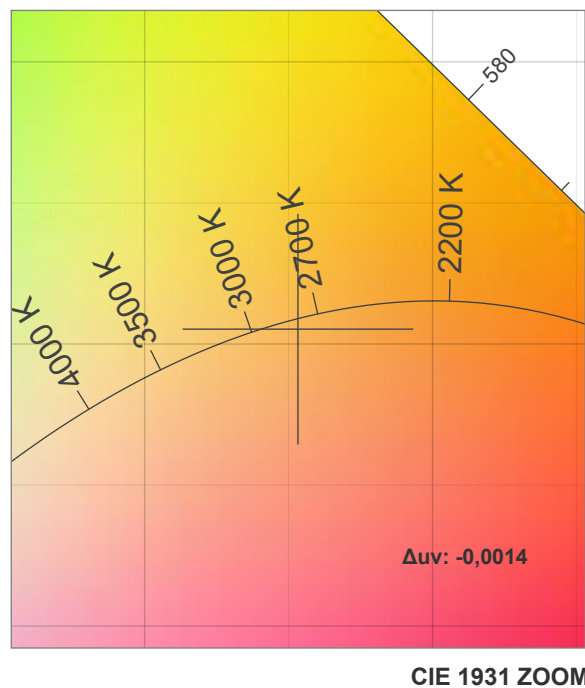
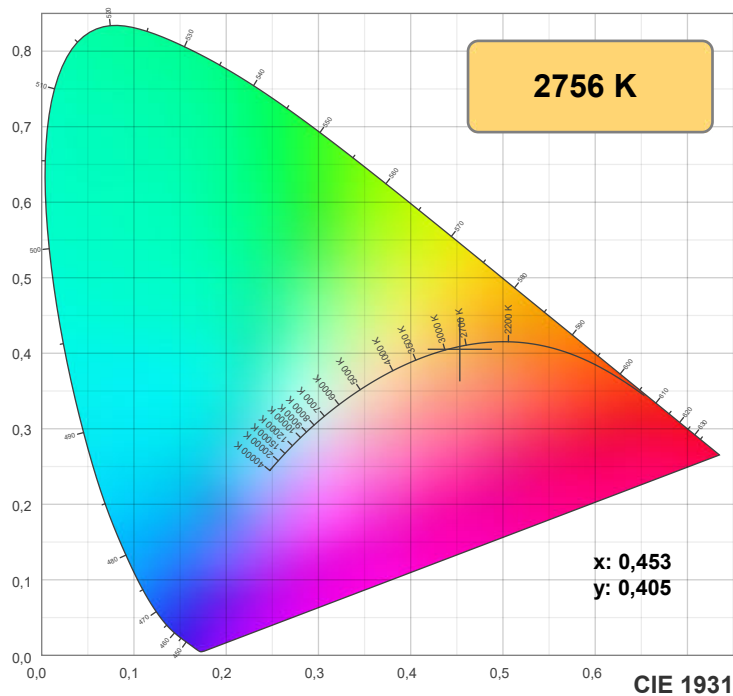
y: 0,405

Spectra



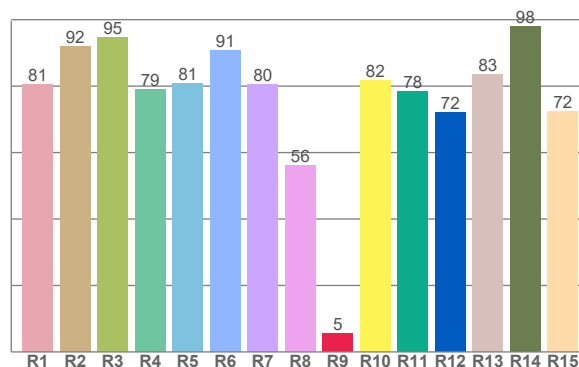
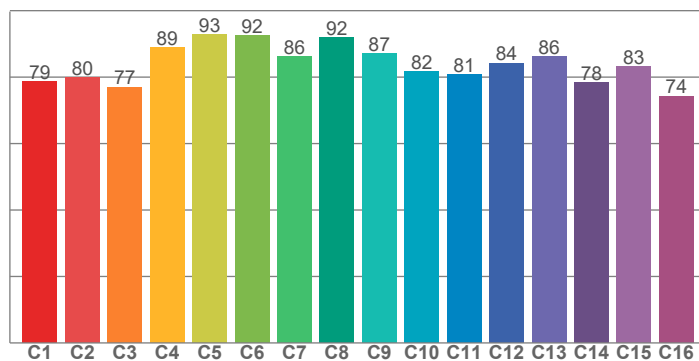
Power

Voltage: 48,0 V
Current: 0,240 A
Frequency: 0 Hz



TM30: 83,8

CRI: 81,8 (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 |
|------|------|------|------|------|------|------|------|-----|------|------|------|------|------|------|
| 80,6 | 91,9 | 94,7 | 79,0 | 80,7 | 90,7 | 80,4 | 56,2 | 5,5 | 81,8 | 78,4 | 72,0 | 83,5 | 98,0 | 72,4 |

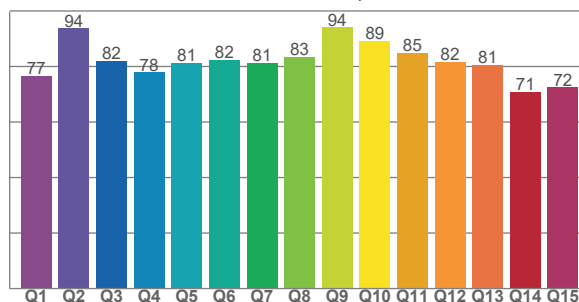
TM30 C values, 16 binned values out of total of 99 C values

| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 | C13 | C14 | C15 | C16 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 78,6 | 79,9 | 77,0 | 88,9 | 92,8 | 92,4 | 86,3 | 91,9 | 87,1 | 81,8 | 80,7 | 84,2 | 86,2 | 78,4 | 83,2 | 74,3 |

CQS Q values

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 76,6 | 93,7 | 81,9 | 77,9 | 81,3 | 82,3 | 81,4 | 83,4 | 94,0 | 89,1 | 85,0 | 81,5 | 80,6 | 70,7 | 72,5 |

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 deviation from black body |
|-------------------|-----------------------|---------------|----------------|-------------|---------------------|---------------------------|---------------------------|------------------|------------------|---------------------------------|
| CCT | CRI | CRI R9 | TM30 Rf | TM30 Rg | CQS | x | y | u | v | Δuv |
| 2756 K | 81,8 | 5,5 | 83,8 | 95,6 | 80,9 | 0,453 | 0,405 | 0,261 | 0,350 | -0,0014 |

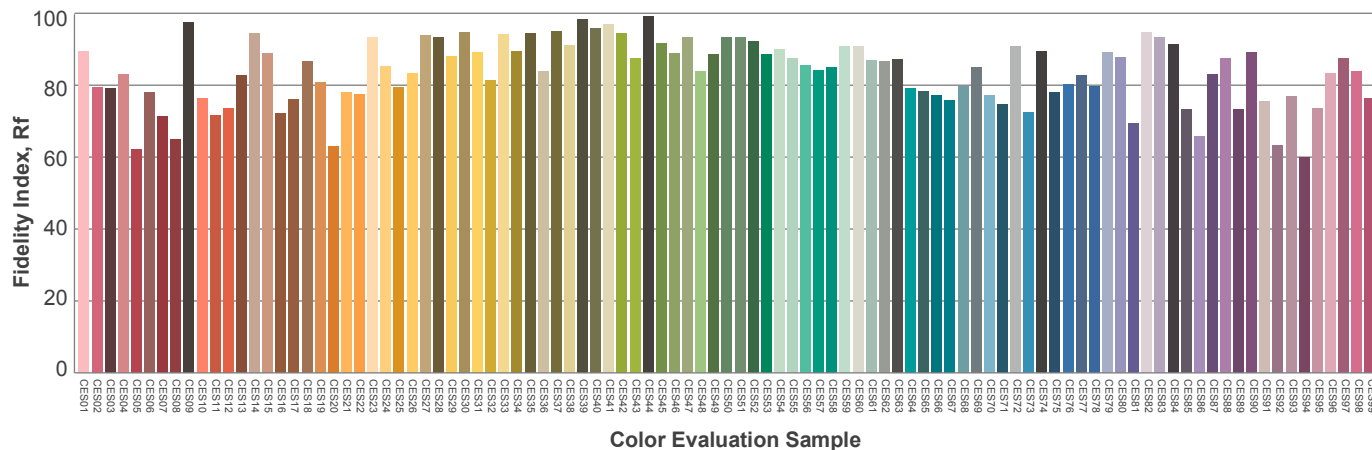
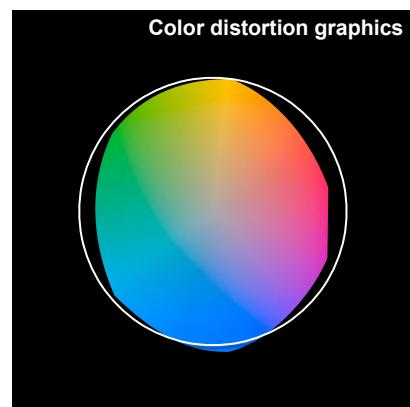
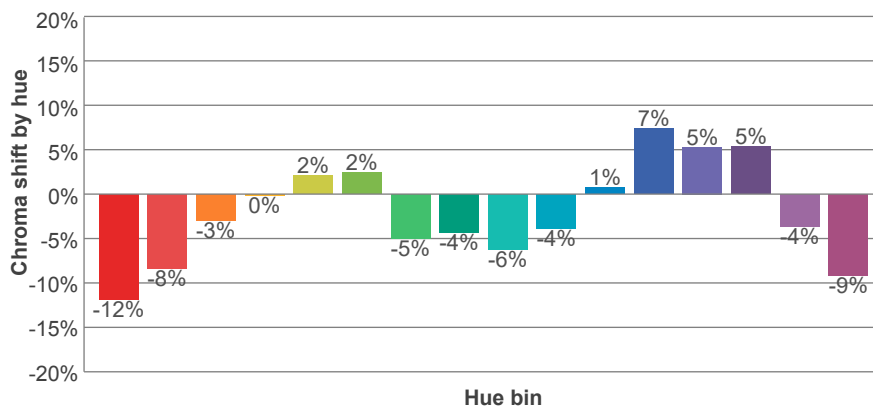
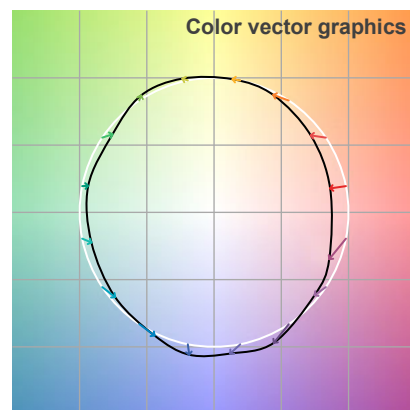
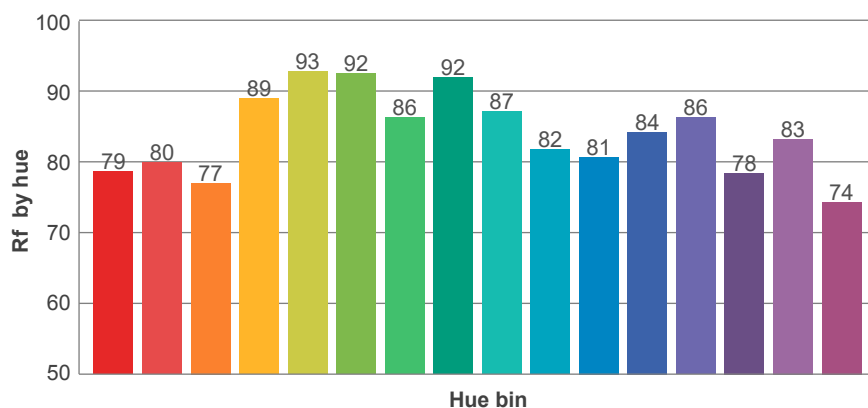
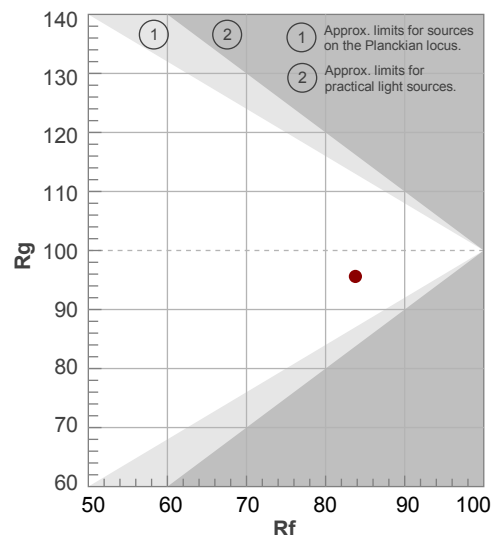
Rf 83,8

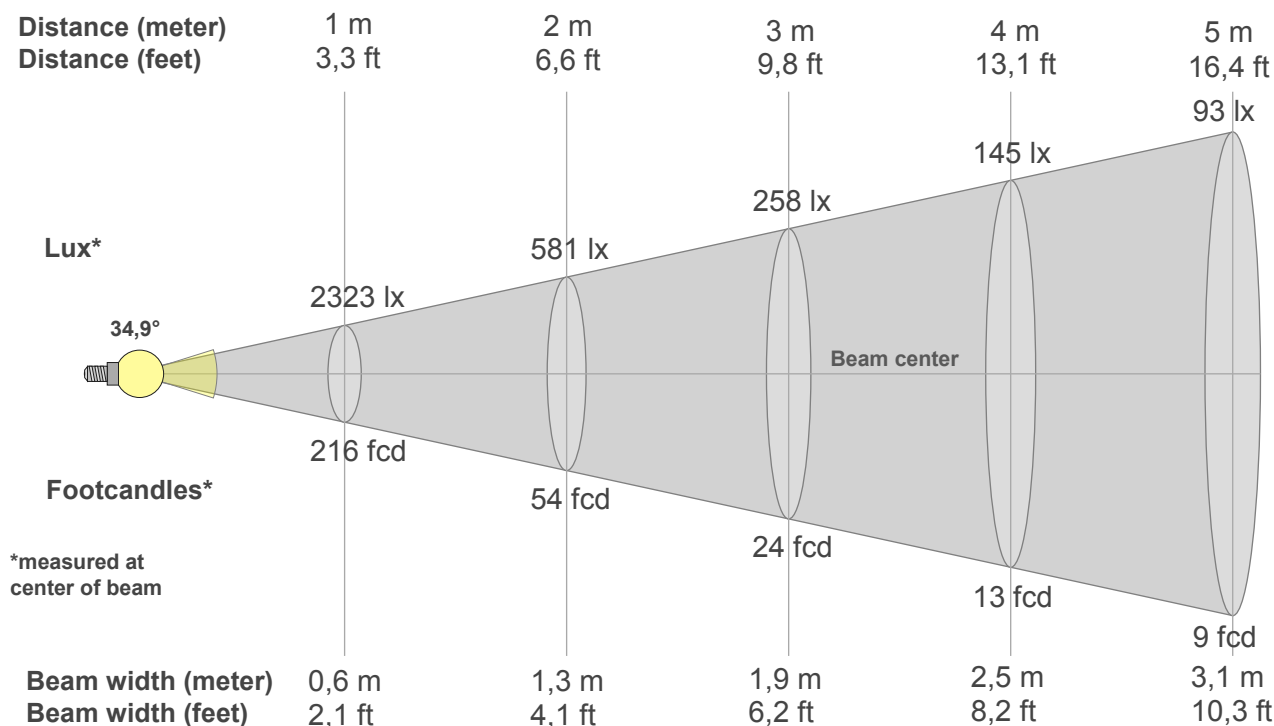
Fidelity index Rf

Rg 95,6

Gamut index Rg

| Hue Bin | R _f | Graphic shifts (%) | |
|---------|----------------|--------------------|------|
| | | Chroma | Hue |
| 1 | 79 | -12% | 1% |
| 2 | 80 | -8% | 8% |
| 3 | 77 | -3% | 12% |
| 4 | 89 | 0% | 6% |
| 5 | 93 | 2% | 4% |
| 6 | 92 | 2% | -3% |
| 7 | 86 | -5% | -6% |
| 8 | 92 | -4% | -1% |
| 9 | 87 | -6% | 4% |
| 10 | 82 | -4% | 11% |
| 11 | 81 | 1% | 14% |
| 12 | 84 | 7% | 3% |
| 13 | 86 | 5% | -9% |
| 14 | 78 | 5% | -17% |
| 15 | 83 | -4% | -10% |
| 16 | 74 | -9% | -17% |





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 |
| 2323lx | 581lx | 258lx | 145lx | 93lx | 65lx | 47lx | 36lx | 29lx | 23lx | 19lx | 16lx | 14lx | 12lx | 10lx | 9lx | 8lx | 7lx | 6lx | 6lx |
| 215,8fcd | 54fcd | 24fcd | 13,5fcd | 8,6fcd | 6fcd | 4,4fcd | 3,4fcd | 2,7fcd | 2,2fcd | 1,8fcd | 1,5fcd | 1,3fcd | 1,1fcd | 1fcd | 0,8fcd | 0,7fcd | 0,7fcd | 0,6fcd | 0,5fcd |

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° |
|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2323 | 2246 | 2018 | 1697 | 1341 | 1000 | 708 | 487 | 339 | 245 | 190 | 159 | 146 | 146 | 146 | 136 | 123 | 114 | 115 | 119 |
| 100% | 97% | 87% | 73% | 58% | 43% | 30% | 21% | 15% | 11% | 8% | 7% | 6% | 6% | 6% | 6% | 5% | 5% | 5% | 5% |

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° |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 2323 | 2269 | 2272 | 2276 | 2281 | 2285 | 2288 | 2287 | 2282 | 2266 | 2243 | 2204 | 2152 | 2085 | 2001 | 1902 | 1789 | 1663 | 1526 | 1383 |
| 100% | 98% | 98% | 98% | 98% | 98% | 99% | 98% | 98% | 98% | 97% | 95% | 93% | 90% | 86% | 82% | 77% | 72% | 66% | 60% |

Intensities in 180° c-plane

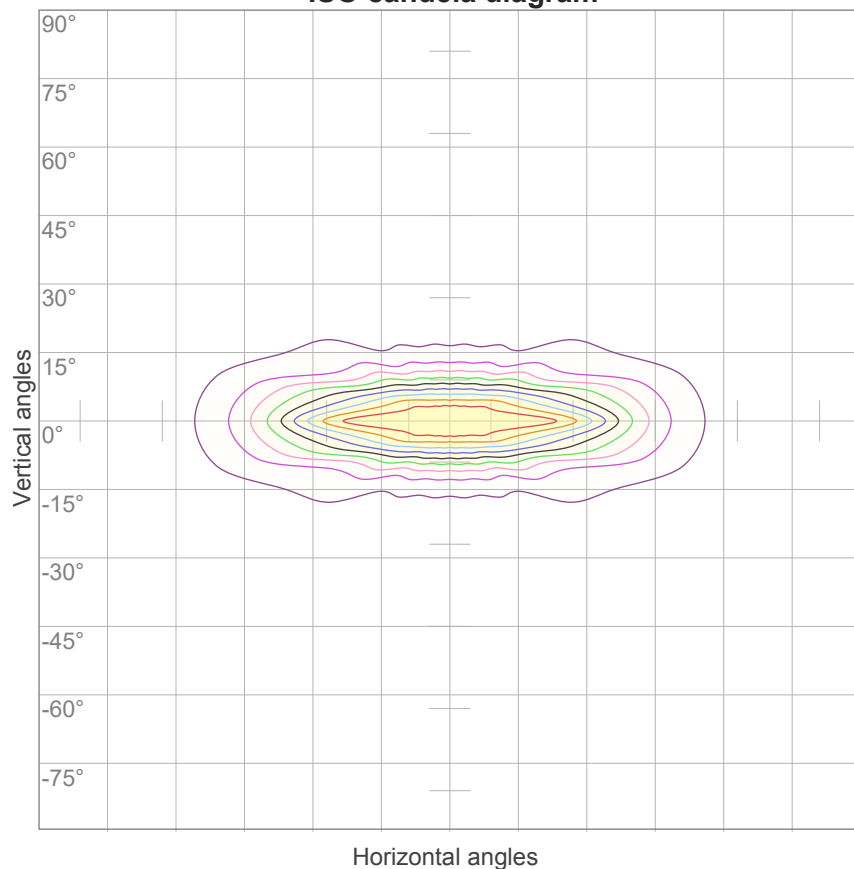
| 0° | 2° | 4° | 6° | 8° | 10° | 12° | 14° | 16° | 18° | 20° | 22° | 24° | 26° | 28° | 30° | 32° | 34° | 36° | 38° |
|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2323 | 2246 | 2018 | 1697 | 1341 | 1000 | 708 | 487 | 339 | 245 | 190 | 159 | 146 | 146 | 146 | 136 | 123 | 114 | 115 | 119 |
| 100% | 97% | 87% | 73% | 58% | 43% | 30% | 21% | 15% | 11% | 8% | 7% | 6% | 6% | 6% | 6% | 5% | 5% | 5% | 5% |

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° |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 2323 | 2269 | 2272 | 2276 | 2281 | 2285 | 2288 | 2287 | 2282 | 2266 | 2243 | 2204 | 2152 | 2085 | 2001 | 1902 | 1789 | 1663 | 1526 | 1383 |
| 100% | 98% | 98% | 98% | 98% | 98% | 99% | 98% | 98% | 98% | 97% | 95% | 93% | 90% | 86% | 82% | 77% | 72% | 66% | 60% |

| Beam angle 50% | Field angle 10% | Cutoff angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|----------------|-----------------|-------------------|------------------------------|-----------------------------|
| 34,9° | 60° | 162,6° | 83,3% | 68,6% |

ISO candela diagram



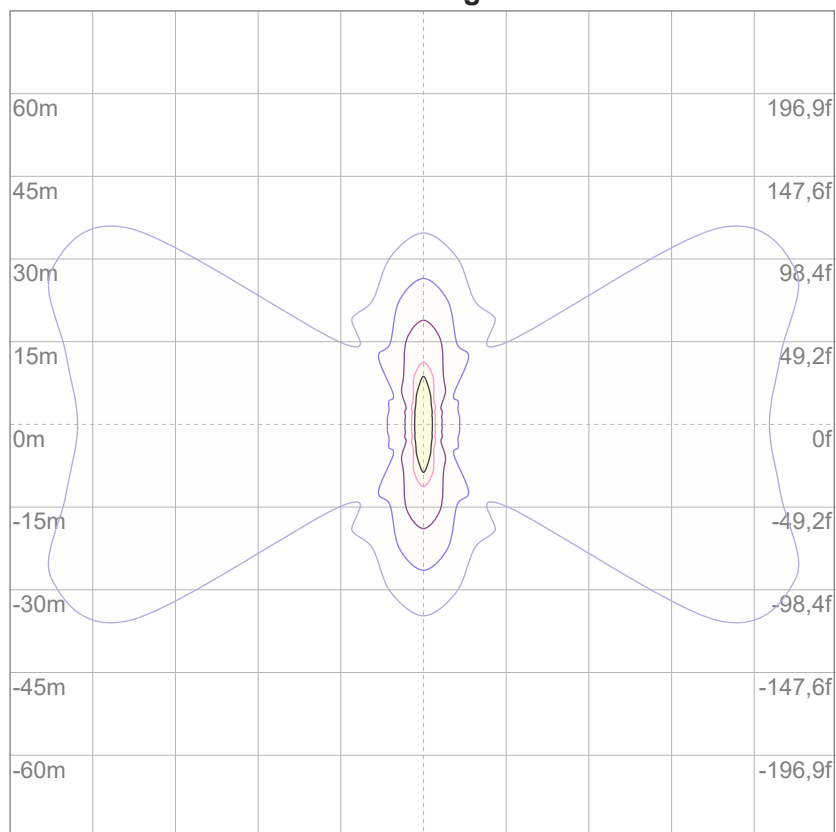
| | |
|-----|---------|
| 10% | 232 cd |
| 20% | 465 cd |
| 30% | 697 cd |
| 40% | 929 cd |
| 50% | 1161 cd |
| 60% | 1394 cd |
| 70% | 1626 cd |
| 80% | 1858 cd |
| 90% | 2091 cd |

Conditions:

Number of c-planes: 16

Candela at center: 2323 cd

ISO lux diagram



| | |
|-----|----------|
| 3% | 0,697 lx |
| 5% | 1,16 lx |
| 10% | 2,32 lx |
| 30% | 6,97 lx |
| 50% | 11,6 lx |

Conditions:

Number of c-planes: 16

Lux at center: 23,2 lx

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

Glare Evaluation According to UGR

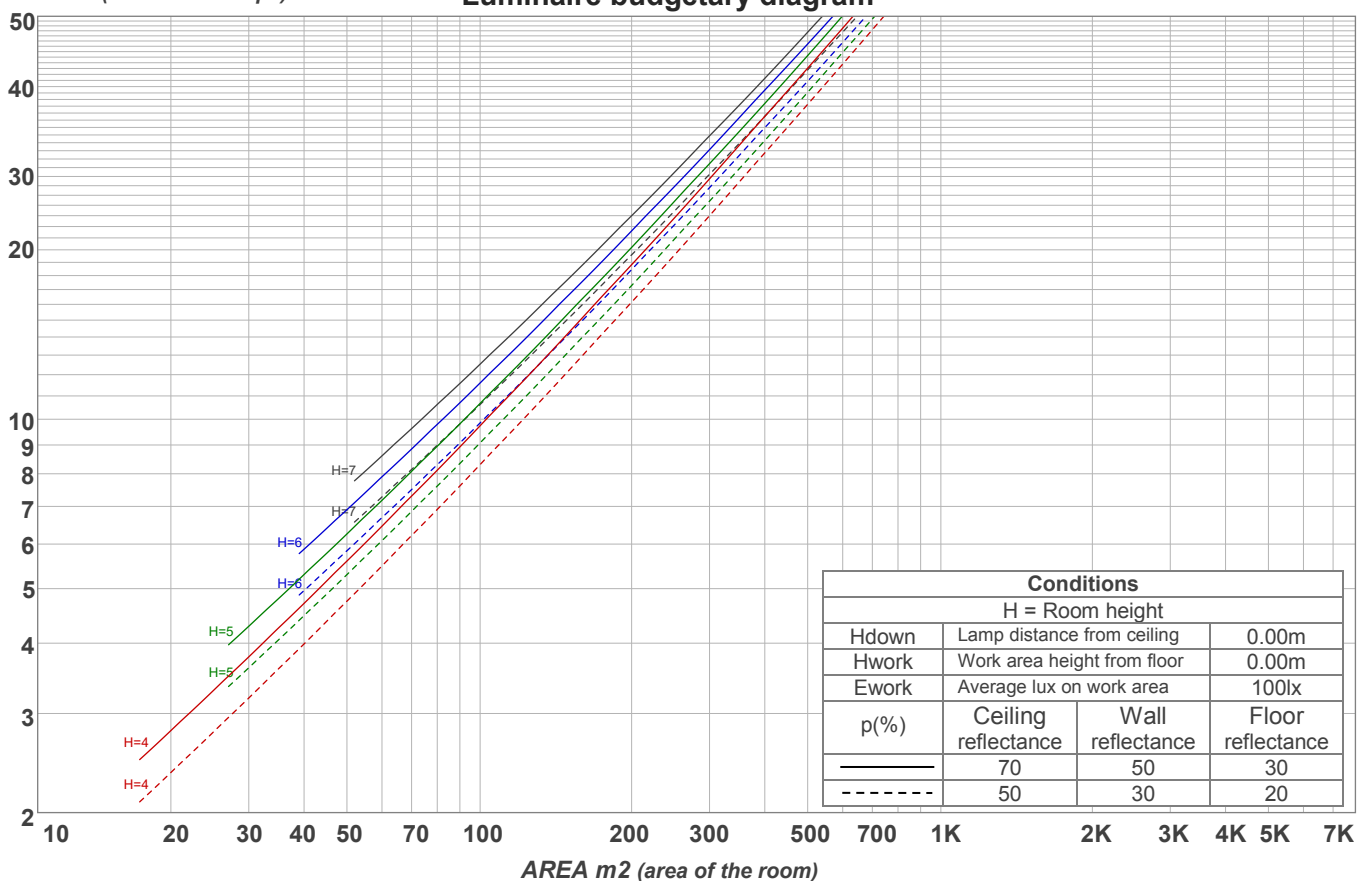
| | | | | | | | | | | | |
|--|-----|---|------|------|------|------|---|------|------|------|------|
| p Ceiling | | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 |
| p Walls | | 50 | 30 | 50 | 30 | 30 | 50 | 30 | 50 | 30 | 30 |
| p Floor | | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Room size X Y | | Viewing direction at right angles to lamp axis | | | | | Viewing direction parallel to lamp axis | | | | |
| 2H | 2H | 16,8 | 17,7 | 17,0 | 18,0 | 18,2 | 24,9 | 25,8 | 25,0 | 26,1 | 26,3 |
| | 3H | 19,3 | 20,3 | 19,7 | 20,5 | 20,7 | 25,4 | 26,4 | 25,8 | 26,6 | 26,8 |
| | 4H | 20,7 | 21,7 | 21,1 | 21,9 | 22,2 | 25,6 | 26,6 | 26,0 | 26,8 | 27,1 |
| | 6H | 21,9 | 22,8 | 22,2 | 23,1 | 23,4 | 25,8 | 26,7 | 26,1 | 26,9 | 27,3 |
| | 8H | 22,2 | 23,1 | 22,6 | 23,4 | 23,8 | 25,8 | 26,7 | 26,2 | 27,0 | 27,4 |
| | 12H | 22,4 | 23,2 | 22,8 | 23,6 | 24,0 | 25,8 | 26,7 | 26,2 | 27,0 | 27,4 |
| 4H | 2H | 17,4 | 18,4 | 17,8 | 18,7 | 18,9 | 24,6 | 25,6 | 25,0 | 25,9 | 26,1 |
| | 3H | 20,3 | 21,1 | 20,6 | 21,4 | 21,9 | 25,4 | 26,2 | 25,7 | 26,5 | 27,0 |
| | 4H | 21,8 | 22,5 | 22,2 | 22,9 | 23,5 | 25,6 | 26,3 | 26,0 | 26,7 | 27,3 |
| | 6H | 23,2 | 23,9 | 23,7 | 24,3 | 24,6 | 25,8 | 26,6 | 26,3 | 26,9 | 27,3 |
| | 8H | 23,6 | 24,3 | 24,1 | 24,6 | 25,0 | 25,9 | 26,6 | 26,4 | 26,9 | 27,3 |
| | 12H | 23,8 | 24,4 | 24,3 | 24,8 | 25,3 | 26,0 | 26,5 | 26,5 | 26,9 | 27,4 |
| 8H | 4H | 22,1 | 22,8 | 22,6 | 23,2 | 23,6 | 25,6 | 26,3 | 26,1 | 26,7 | 27,0 |
| | 6H | 23,8 | 24,3 | 24,3 | 24,8 | 25,3 | 26,0 | 26,5 | 26,5 | 26,9 | 27,5 |
| | 8H | 24,4 | 24,8 | 24,9 | 25,3 | 26,0 | 26,1 | 26,6 | 26,7 | 27,1 | 27,7 |
| | 12H | 24,8 | 25,1 | 25,3 | 25,6 | 26,2 | 26,3 | 26,7 | 26,9 | 27,2 | 27,8 |
| 12H | 4H | 22,2 | 22,7 | 22,7 | 23,1 | 23,6 | 25,6 | 26,2 | 26,1 | 26,6 | 27,1 |
| | 6H | 23,9 | 24,4 | 24,4 | 24,9 | 25,5 | 26,0 | 26,5 | 26,6 | 27,0 | 27,6 |
| | 8H | 24,6 | 24,9 | 25,1 | 25,4 | 26,0 | 26,2 | 26,6 | 26,8 | 27,1 | 27,7 |
| Variation of the observer position for the luminaire distance S | | | | | | | | | | | |
| S = 1.0H | | 0,0 / 0,0 | | | | | 1,4 / -1,4 | | | | |
| S = 1.5H | | 0,2 / -0,2 | | | | | 3,0 / -2,2 | | | | |
| S = 2.0H | | 0,3 / -0,2 | | | | | 4,5 / -2,9 | | | | |
| Standard table | | n/a | | | | | n/a | | | | |
| Correction summand | | n/a | | | | | n/a | | | | |
| Corrected glare indices referring to 1560 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 | 118 | 118 | 118 | 118 | 115 | 115 | 115 | 115 | 109 | 109 | 109 | 104 | 104 | 104 | 99 | 99 | 99 | 97 |
| 1 | 110 | 105 | 102 | 98 | 107 | 103 | 100 | 96 | 98 | 95 | 93 | 94 | 92 | 89 | 90 | 88 | 86 | 84 |
| 2 | 102 | 95 | 89 | 84 | 99 | 93 | 88 | 83 | 89 | 84 | 81 | 85 | 82 | 78 | 82 | 79 | 76 | 74 |
| 3 | 95 | 86 | 79 | 74 | 92 | 84 | 78 | 73 | 81 | 76 | 71 | 78 | 74 | 70 | 75 | 71 | 68 | 66 |
| 4 | 89 | 79 | 71 | 66 | 86 | 77 | 70 | 65 | 74 | 69 | 64 | 72 | 67 | 63 | 70 | 65 | 62 | 60 |
| 5 | 83 | 72 | 65 | 59 | 81 | 71 | 64 | 59 | 69 | 63 | 58 | 67 | 61 | 57 | 65 | 60 | 56 | 55 |
| 6 | 78 | 67 | 60 | 54 | 76 | 66 | 59 | 54 | 64 | 58 | 53 | 62 | 57 | 53 | 60 | 56 | 52 | 50 |
| 7 | 74 | 62 | 55 | 50 | 72 | 62 | 55 | 50 | 60 | 54 | 49 | 58 | 53 | 49 | 57 | 52 | 48 | 46 |
| 8 | 70 | 58 | 51 | 46 | 68 | 58 | 51 | 46 | 56 | 50 | 46 | 55 | 49 | 45 | 53 | 49 | 45 | 43 |
| 9 | 66 | 55 | 48 | 43 | 65 | 54 | 48 | 43 | 53 | 47 | 43 | 52 | 46 | 42 | 51 | 46 | 42 | 40 |
| 10 | 63 | 52 | 45 | 41 | 62 | 51 | 45 | 40 | 50 | 44 | 40 | 49 | 44 | 40 | 48 | 43 | 40 | 38 |

LAMPS (number of lamps)

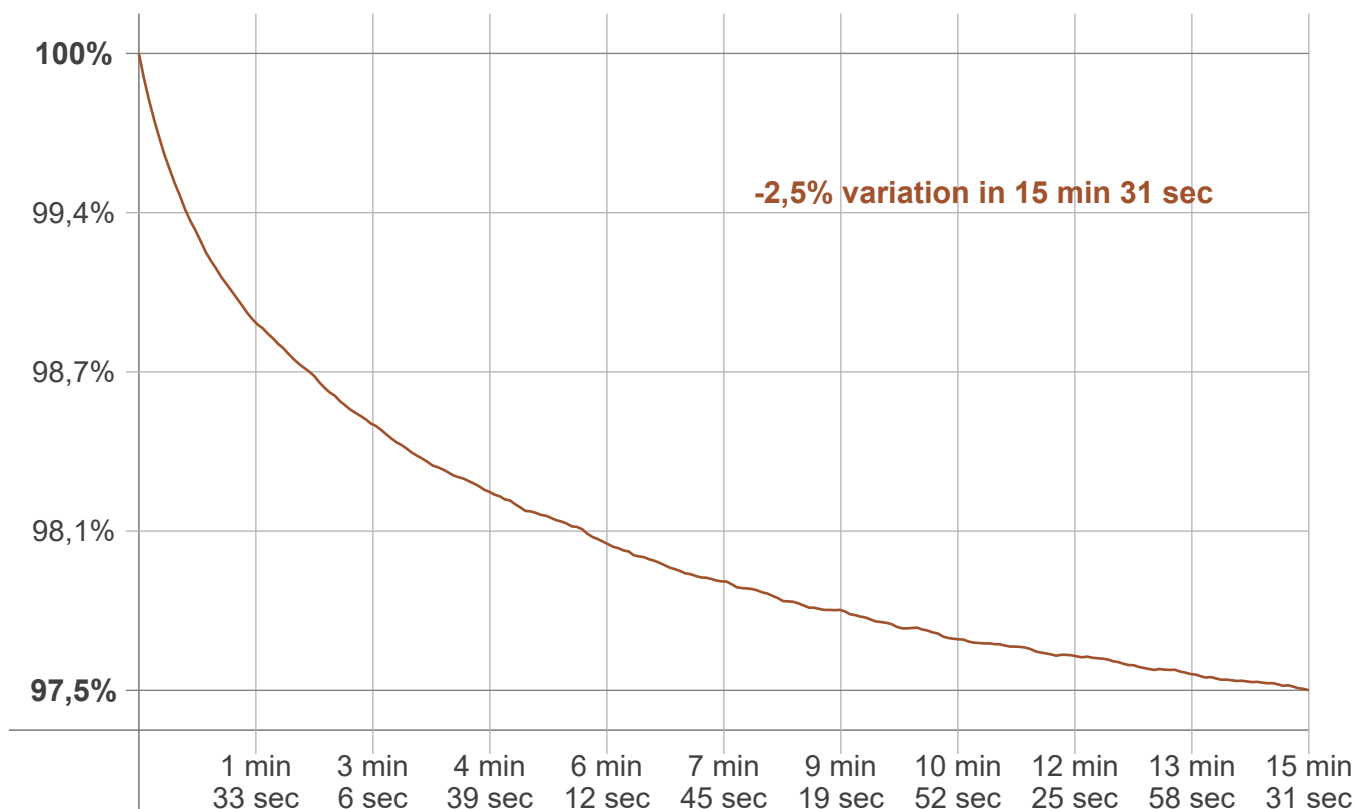
Luminaire budgetary diagram



Zonal Lumen Summary

| 0°-10° | 10°-20° | 20°-30° | 30°-40° | 40°-50° | 50°-60° | 60°-70° | 70°-80° | 80°-90° |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 171 lm | 310 lm | 262 lm | 230 lm | 187 lm | 138 lm | 94,0 lm | 74,2 lm | 42,4 lm |
| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
| 11,9 lm | 8,99 lm | 4,01 lm | 3,63 lm | 1,85 lm | 0,876 lm | 0,646 lm | 0,395 lm | 18,3 lm |

Warmup curve



Warmup result

| | |
|------------------|----------------------------------|
| Warmup time: | Lamp stabilized in 15 min 31 sec |
| Warmup variation | -2,5% |

Warmup conditions

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

Color temperature change

| CCT start | CCT change | CCT end |
|-----------|------------|---------|
| 2750 K | +6 K | 2756 K |

Output change

| Output start | Output change | Output end |
|--------------|---------------|------------|
| 1595 lm | -35 lm | 1560 lm |