# Light Measurement Report

Print date: 14-11-2024
Measurement date and time: 12-11-2024 15:56:22 – Measurement no. VFR-241112-2018-MS
Measurement tracking No. and Link: VT241112-007833
Operator:

## Laboratory and Equipment

| | |
|---|---|
| Laboratory Owner and Location | Viso Systems, Copenhagen V, Denmark |
| Goniospectrometer System and Type | LabSpion – Type C, horizontal |
| Sensor Name, Calibr. Date and Serial No. | LabSensor Model2 – 11-1-2024 – 3130191315 |
| Spectrometer Manufacturer and Model | Ibsen Photonics, Denmark – Freedom VIS (Custom Viso) |

## Measurement Conditions

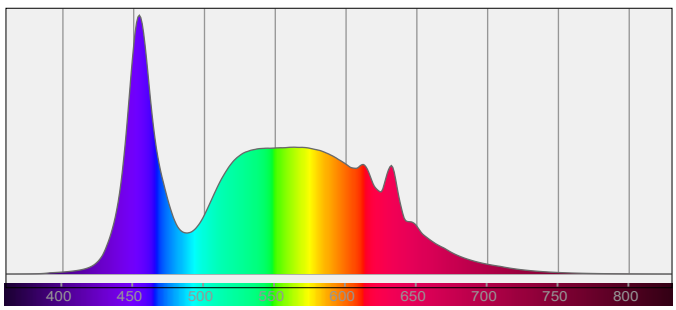
| | |
|---|---|
| Number of C-planes and Resolution | 12 planes – 30° |
| γ (gamma)-Resolution | 5° |
| Test Distance | 12,13 m |
| Input Power, Power and Displ. Factors | 68,4 W – PF 0,97 – DPF 0,98 |
| Input RMS Voltage and Current | 230 V – 0,306 A |
| Frequency of Input Power | 50 Hz |
| Warm-up Time and Variation | Lamp stabilized in 15 min 1 sec – 2,0% |

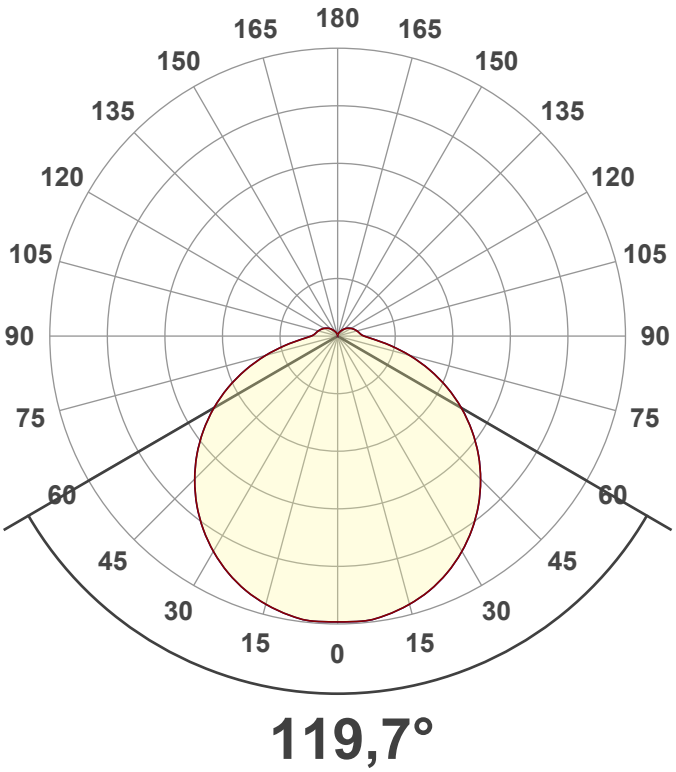
## Tested Light Source

| | |
|---|---|
| Product Name | 276307-5700K |
| Item No. and Manufacturer | 276307-5700K – Dutchfulfillment |
| Product Description (line 1) | LICHTLIJN JUPITER \| LED MODULE \| 33W/42W/58W/66W \| 120° |

## Main Light Measurement Results

| | |
|---|---|
| Output – Total Lumen (Up% / Down%) | 10906 lm – 9,08% / 90,92% |
| Efficiency | 159 lm/W |
| Peak Intensity and Beam Angle | 3107 cd – 119,7° |
| Correlated Color Temperature, Target/Measured | CCT = 5700 K / 5758 K |
| Color Rendering Index | CRI 81,5 |
| Color Rendering TM30-18 | $R_f$ 80,5 – $R_g$ 94,5 |
| Color Shift, CIE duv and MacAdam Steps | Duv 0,0008 – SDCM 3,5 |
| Flicker | SVM 0 – PstLM 0,01 |



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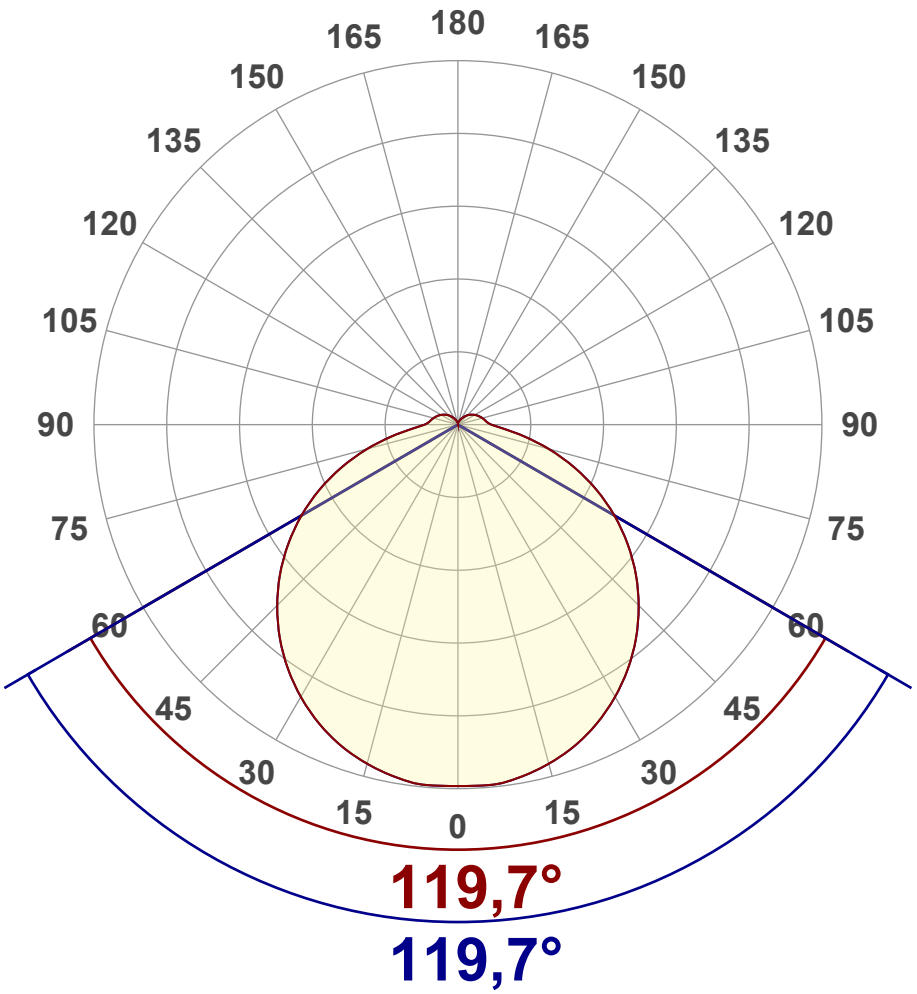
**Luminous Intensity diagram** Unit: 0-100% of peak intensity




## Main Values

| | |
|---|---|
| Output (total Lumen) | 10906 lm |
| Lumen Up% / Down% | 9,08% / 90,92% |
| Peak Intensity | 3107 cd |
| Beam Angle (50%) | 119,7° |
| Beam Angle (90%) | 119,7° |
| Beam Angle (10%) | 119,7° |

## Cut-off Angle

| | |
|---|---|
| Average 2,5% | 287,9° |

## Field Angle

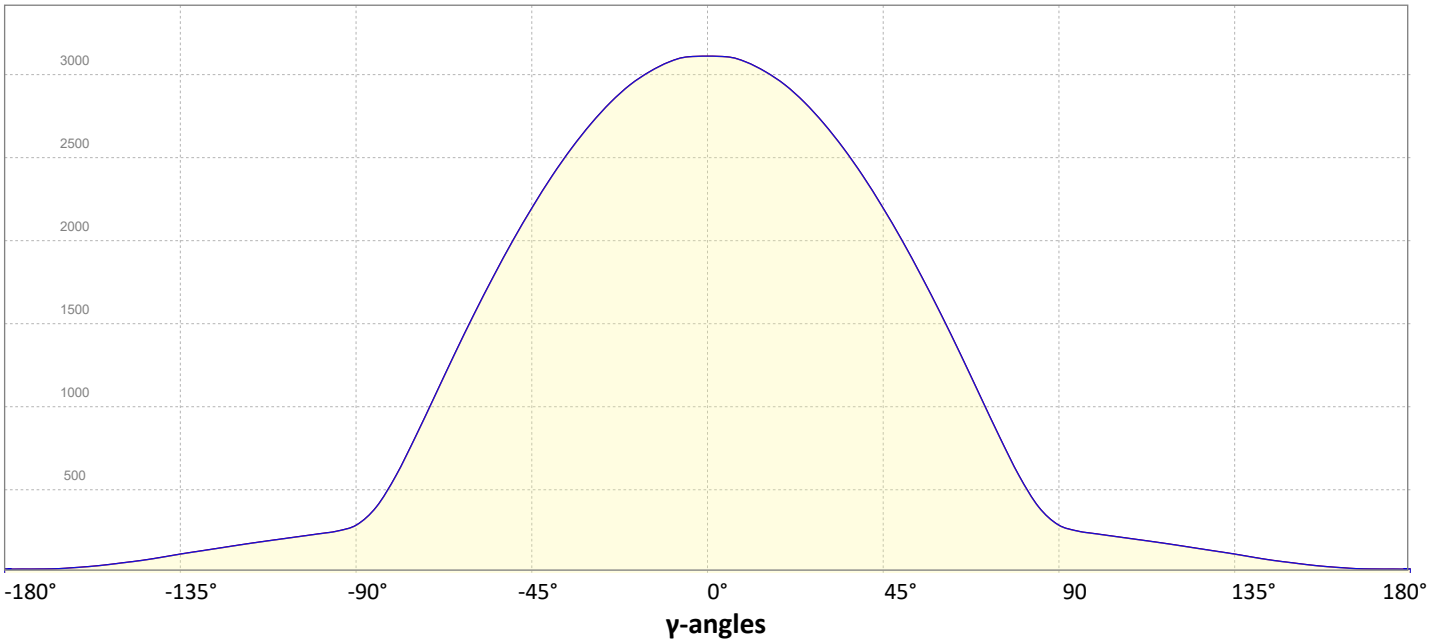
| | |
|---|---|
| Average 10% | 177,6° |

## Intensity Ratio

| | |
|---|---|
| In 120° cone | 67,1% |
| In 90° cone | 44,8% |

**C000-C180**
**C090-C270**

**Linear distribution diagram** - Intensity (candela) vs γ-angle



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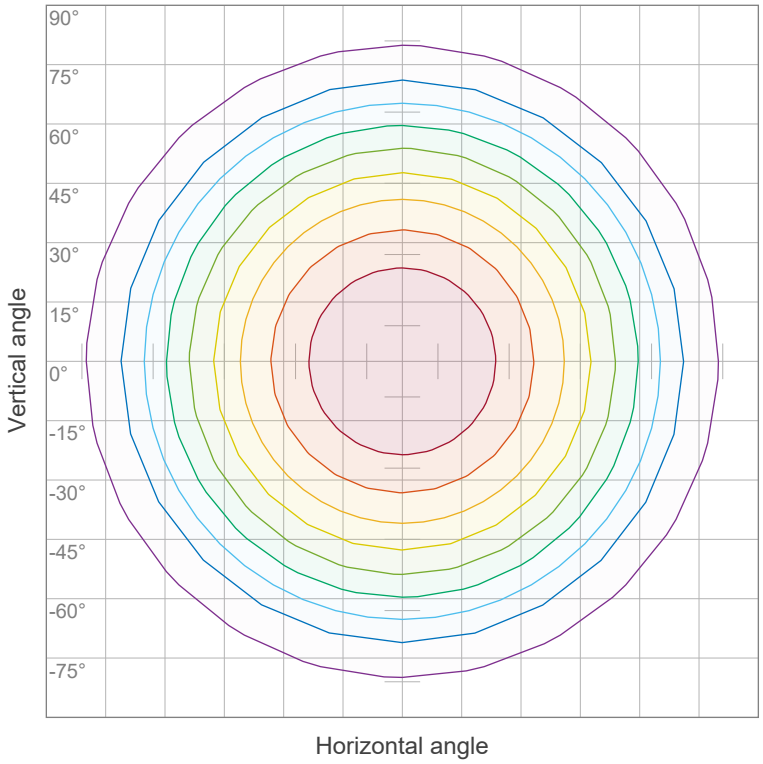
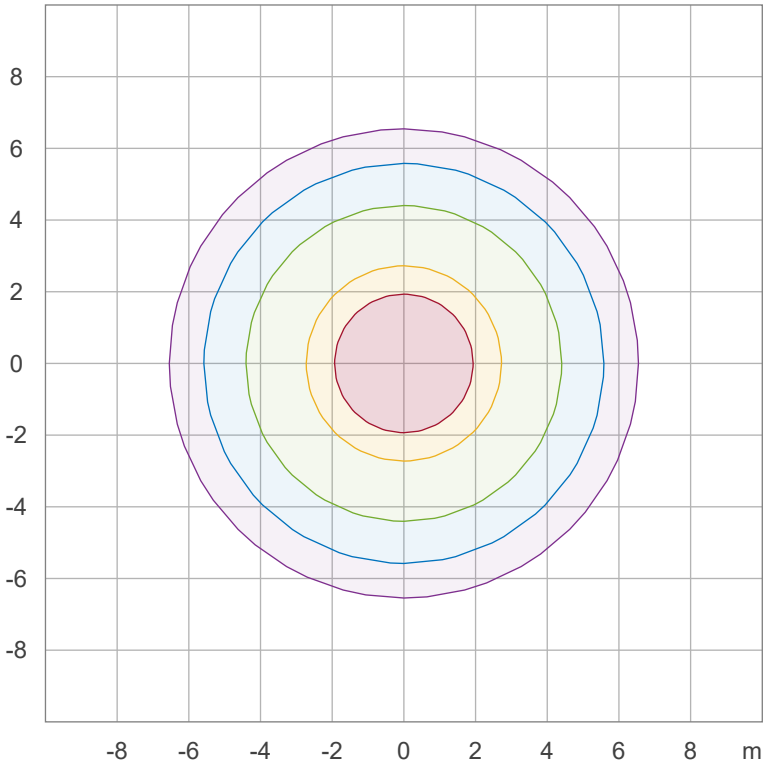
## Iso-intensity Diagram (Iso-candela)




| | | |
|---|---|---|
| 90 % | 2796,5 cd |
| 80 % | 2485,7 cd |
| 70 % | 2175,0 cd |
| 60 % | 1864,3 cd |
| 50 % | 1553,6 cd |
| 40 % | 1242,9 cd |
| 30 % | 932,2 cd |
| 20 % | 621,4 cd |
| 10 % | 310,7 cd |

Peak intensity: 3107,2 cd
Number of c-planes: 12

## Iso-illuminance Diagram (Iso-lux)




| | |
|---|---|
| 50,0 % | 172,6 lx |
| 30,0 % | 103,6 lx |
| 10,0 % | 34,5 lx |
| 5,0 % | 17,3 lx |
| 3,0 % | 10,4 lx |

Peak illuminance: 345,2 lx
Mounting height: 3,0 m
Number of c-planes: 12

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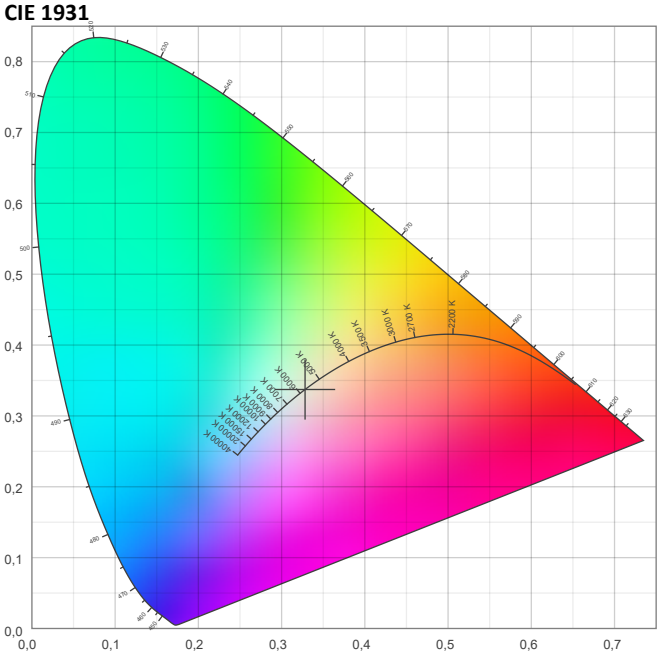
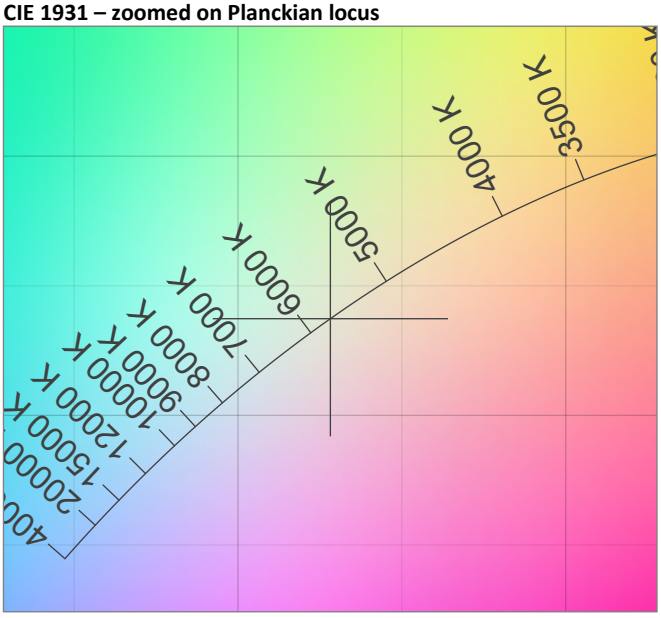
## Color details

| | |
|---|---|
| Correlated Color Temperature, Target | CCT = 5700 K |
| Correlated Color Temperature, Measured | CCT = 5758 K |
| Color Rendering Index | CRI 81,5 |
| Color Rendering Index, R9 (red component) | R9 = 10,8 |
| Color Rendering TM30-18 | $R_f$ 80,5 – $R_g$ 94,5 |
| Color Quality Scale | CQS = 77,9 |
| MacAdam Steps | SDCM = 3,5 |
| Color coordinates CIE 1931 | (x;y) = (0,328;0,337) |
| Color coordinate CIEs 1960 | (u;v) = (0,205;0,317) |
| Color deviation from BBL | Duv = 0,0008 |
| Color coordinate CIEs 1976 (CIELUV) | (u';v') = (0,205;0,475) |

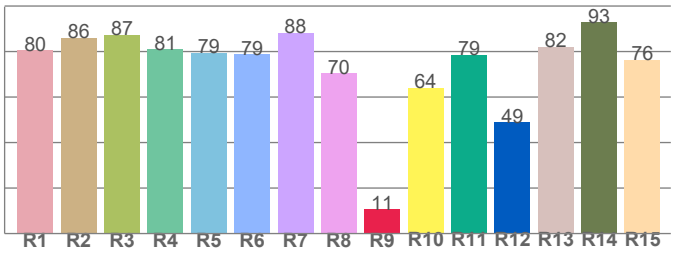
**CIE 1931**



**CIE 1931 – zoomed on Planckian locus**



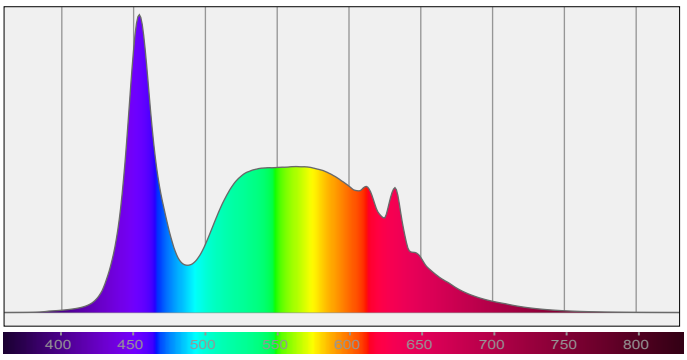

**Color Rendering Index per reference color (CIE 1995)**



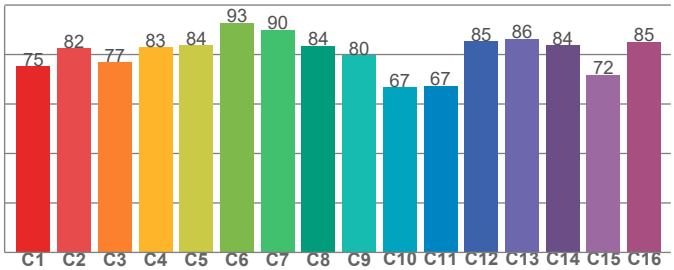

CRI R values, only R1-R8 are used to calculate final CRI value

| R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80,5 | 86,0 | 87,4 | 81,0 | 79,4 | 78,8 | 88,2 | 70,4 | 10,8 | 64,1 | 78,6 | 48,8 | 82,1 | 92,9 | 76,4 |

**Spectral power distribution (SPD) / W/nm – 0-100%**



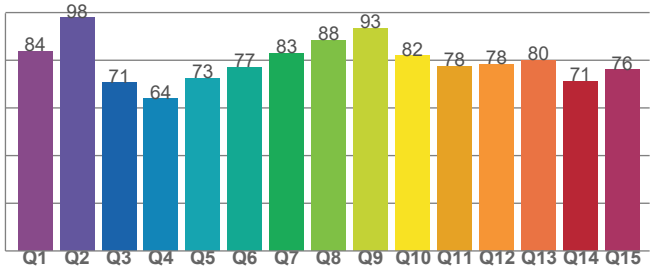

**TM30-18 Rf-values per hue bin**




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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 75,1 | 82,5 | 77,0 | 82,8 | 83,7 | 92,9 | 90,0 | 83,5 | 79,8 | 66,8 | 67,4 | 85,4 | 86,4 | 83,8 | 71,9 | 85,1 |

**Color Quality Scale by reference color**




CQS Q values

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 83,7 | 97,8 | 70,5 | 63,8 | 72,5 | 77,2 | 83,1 | 88,4 | 93,4 | 81,9 | 77,6 | 78,4 | 80,1 | 71,2 | 76,0 |

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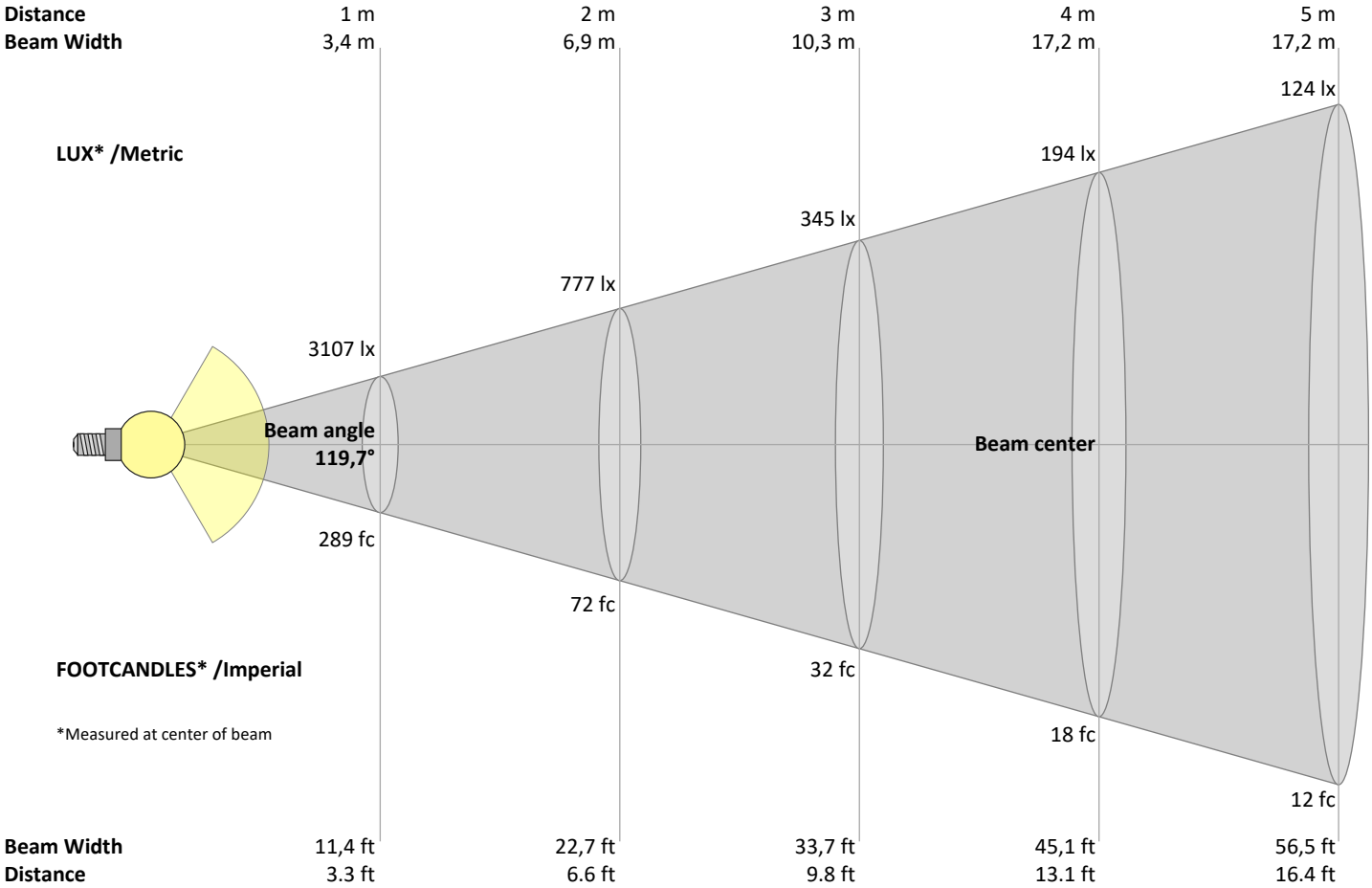
## Beam Details




**Beam intensities from 1 – 20 m**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3,3 | 6,6 | 9,8 | 13,1 | 16,4 | 19,7 | 23 | 26,2 | 29,5 | 32,8 | 36,1 | 39,4 | 42,7 | 45,9 | 49,2 | 52,5 | 55,8 | 59,1 | 62,3 | 65,6 | ft |
| 3107 | 777 | 345 | 194 | 124 | 86 | 63 | 49 | 38 | 31 | 26 | 22 | 18 | 16 | 14 | 12 | 11 | 10 | 9 | 8 | lux |
| 288,7 | 72,2 | 32,1 | 18 | 11,5 | 8 | 5,9 | 4,5 | 3,6 | 2,9 | 2,4 | 2 | 1,7 | 1,5 | 1,3 | 1,1 | 1 | 0,9 | 0,8 | 0,7 | fc |

**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° | γ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3107 | 3106 | 3074 | 3014 | 2935 | 2828 | 2699 | 2550 | 2382 | 2195 | 1994 | 1776 | 1546 | 1305 | 1056 | 808 | 576 | 392 | 287 | 250 | cd |
| 100% | 100% | 99% | 97% | 94% | 91% | 87% | 82% | 77% | 71% | 64% | 57% | 50% | 42% | 34% | 26% | 19% | 13% | 9% | 8% | of 0°val |

**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° | γ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3107 | 3106 | 3074 | 3014 | 2935 | 2828 | 2699 | 2550 | 2382 | 2195 | 1994 | 1776 | 1546 | 1305 | 1056 | 808 | 576 | 392 | 287 | 250 | cd |
| 100% | 100% | 99% | 97% | 94% | 91% | 87% | 82% | 77% | 71% | 64% | 57% | 50% | 42% | 34% | 26% | 19% | 13% | 9% | 8% | of 0°val |

**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° | γ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3107 | 3106 | 3074 | 3014 | 2935 | 2828 | 2699 | 2550 | 2382 | 2195 | 1994 | 1776 | 1546 | 1305 | 1056 | 808 | 576 | 392 | 287 | 250 | cd |
| 100% | 100% | 99% | 97% | 94% | 91% | 87% | 82% | 77% | 71% | 64% | 57% | 50% | 42% | 34% | 26% | 19% | 13% | 9% | 8% | of 0°val |

**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° | γ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3107 | 3106 | 3074 | 3014 | 2935 | 2828 | 2699 | 2550 | 2382 | 2195 | 1994 | 1776 | 1546 | 1305 | 1056 | 808 | 576 | 392 | 287 | 250 | cd |
| 100% | 100% | 99% | 97% | 94% | 91% | 87% | 82% | 77% | 71% | 64% | 57% | 50% | 42% | 34% | 26% | 19% | 13% | 9% | 8% | of 0°val |

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Operator:

## Light Planning – UGR table

*Uncorrected, comprehensive UGR table according to 117-1995*

| **Reflectances** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ρ Ceiling | | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 |
| ρ Walls | | 50 | 30 | 50 | 30 | 30 | 50 | 30 | 50 | 30 | 30 |
| ρ Floor | | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| **Room size** H = mounting height above eye level | | **Viewed Crosswise** (Viewing direction orthogonal to lamp length axis) | | | | | **Viewed Endwise** (Viewing direction parallel to lamp length axis) | | | | |
| **X** | **Y** | | | | | | | | | | |
| 2H | 2H | 23,7 | 24,9 | 24,1 | 25,3 | 25,7 | 23,3 | 24,5 | 23,7 | 24,9 | 25,3 |
| | 3H | 25,4 | 26,6 | 25,9 | 27,0 | 27,4 | 24,8 | 26,0 | 25,4 | 26,5 | 26,9 |
| | 4H | 26,2 | 27,4 | 26,8 | 27,8 | 28,2 | 25,5 | 26,7 | 26,1 | 27,1 | 27,5 |
| | 6H | 27,0 | 28,0 | 27,5 | 28,5 | 29,0 | 26,1 | 27,1 | 26,6 | 27,6 | 28,1 |
| | 8H | 27,3 | 28,3 | 27,8 | 28,8 | 29,3 | 26,4 | 27,4 | 26,8 | 27,8 | 28,4 |
| | 12H | 27,7 | 28,7 | 28,2 | 29,1 | 29,7 | 26,5 | 27,5 | 27,0 | 28,0 | 28,6 |
| 4H | 2H | 24,3 | 25,4 | 24,8 | 25,8 | 26,3 | 23,9 | 25,1 | 24,5 | 25,5 | 26,0 |
| | 3H | 26,3 | 27,3 | 26,8 | 27,7 | 28,3 | 25,8 | 26,8 | 26,3 | 27,2 | 27,8 |
| | 4H | 27,1 | 28,1 | 27,7 | 28,6 | 29,3 | 26,5 | 27,5 | 27,1 | 28,0 | 28,7 |
| | 6H | 28,0 | 28,8 | 28,6 | 29,3 | 29,9 | 27,2 | 28,1 | 27,8 | 28,6 | 29,1 |
| | 8H | 28,4 | 29,2 | 29,0 | 29,7 | 30,2 | 27,5 | 28,3 | 28,1 | 28,8 | 29,3 |
| | 12H | 28,8 | 29,5 | 29,4 | 30,0 | 30,7 | 27,8 | 28,4 | 28,4 | 29,0 | 29,6 |
| 8H | 4H | 27,4 | 28,2 | 28,0 | 28,7 | 29,2 | 26,9 | 27,6 | 27,5 | 28,2 | 28,7 |
| | 6H | 28,5 | 29,0 | 29,1 | 29,7 | 30,3 | 27,8 | 28,3 | 28,4 | 29,0 | 29,6 |
| | 8H | 29,0 | 29,5 | 29,6 | 30,2 | 30,9 | 28,2 | 28,7 | 28,8 | 29,3 | 30,1 |
| | 12H | 29,5 | 30,0 | 30,2 | 30,6 | 31,4 | 28,5 | 29,0 | 29,2 | 29,6 | 30,4 |
| 12H | 4H | 27,4 | 28,1 | 28,0 | 28,6 | 29,3 | 26,9 | 27,6 | 27,5 | 28,1 | 28,8 |
| | 6H | 28,5 | 29,1 | 29,2 | 29,7 | 30,5 | 27,9 | 28,4 | 28,5 | 29,1 | 29,8 |
| | 8H | 29,1 | 29,6 | 29,8 | 30,2 | 30,9 | 28,3 | 28,8 | 29,0 | 29,4 | 30,2 |

| **Variations with the observer position for the luminaire spacings, S:** | | |
|---|---|---|
| S = 1.0H | 0,1 / -0,1 | 0,1 / -0,1 |
| S = 1.5H | 0,1 / -0,1 | 0,1 / -0,2 |
| S = 2.0H | 0,3 / -0,3 | 0,3 / -0,4 |

## 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 Lumen delivered to the task surface | | | | | | | | | | | | | | |
| 0 | 117 | 117 | 117 | 117 | 113 | 113 | 113 | 113 | 106 | 106 | 106 | 100 | 100 | 100 | 94 | 94 | 94 | 91 |
| 1 | 105 | 100 | 95 | 91 | 102 | 97 | 93 | 89 | 91 | 88 | 84 | 86 | 83 | 80 | 80 | 78 | 76 | 73 |
| 2 | 95 | 87 | 79 | 73 | 92 | 84 | 77 | 72 | 79 | 73 | 69 | 74 | 70 | 66 | 70 | 66 | 63 | 60 |
| 3 | 87 | 76 | 67 | 60 | 83 | 73 | 65 | 59 | 69 | 62 | 57 | 65 | 59 | 55 | 61 | 57 | 53 | 50 |
| 4 | 79 | 67 | 58 | 51 | 76 | 65 | 56 | 50 | 61 | 54 | 48 | 58 | 51 | 46 | 54 | 49 | 45 | 42 |
| 5 | 73 | 59 | 50 | 43 | 70 | 58 | 49 | 43 | 54 | 47 | 41 | 52 | 45 | 40 | 49 | 43 | 39 | 36 |
| 6 | 67 | 53 | 44 | 38 | 64 | 52 | 43 | 37 | 49 | 42 | 36 | 47 | 40 | 35 | 44 | 38 | 34 | 32 |
| 7 | 62 | 48 | 39 | 33 | 60 | 47 | 39 | 33 | 45 | 37 | 32 | 42 | 36 | 31 | 40 | 34 | 30 | 28 |
| 8 | 58 | 44 | 35 | 29 | 55 | 43 | 35 | 29 | 41 | 33 | 28 | 39 | 32 | 28 | 37 | 31 | 27 | 25 |
| 9 | 54 | 40 | 32 | 26 | 52 | 39 | 31 | 26 | 37 | 30 | 25 | 36 | 29 | 25 | 34 | 28 | 24 | 22 |
| 10 | 50 | 37 | 29 | 24 | 49 | 36 | 29 | 23 | 35 | 28 | 23 | 33 | 27 | 22 | 32 | 26 | 22 | 20 |

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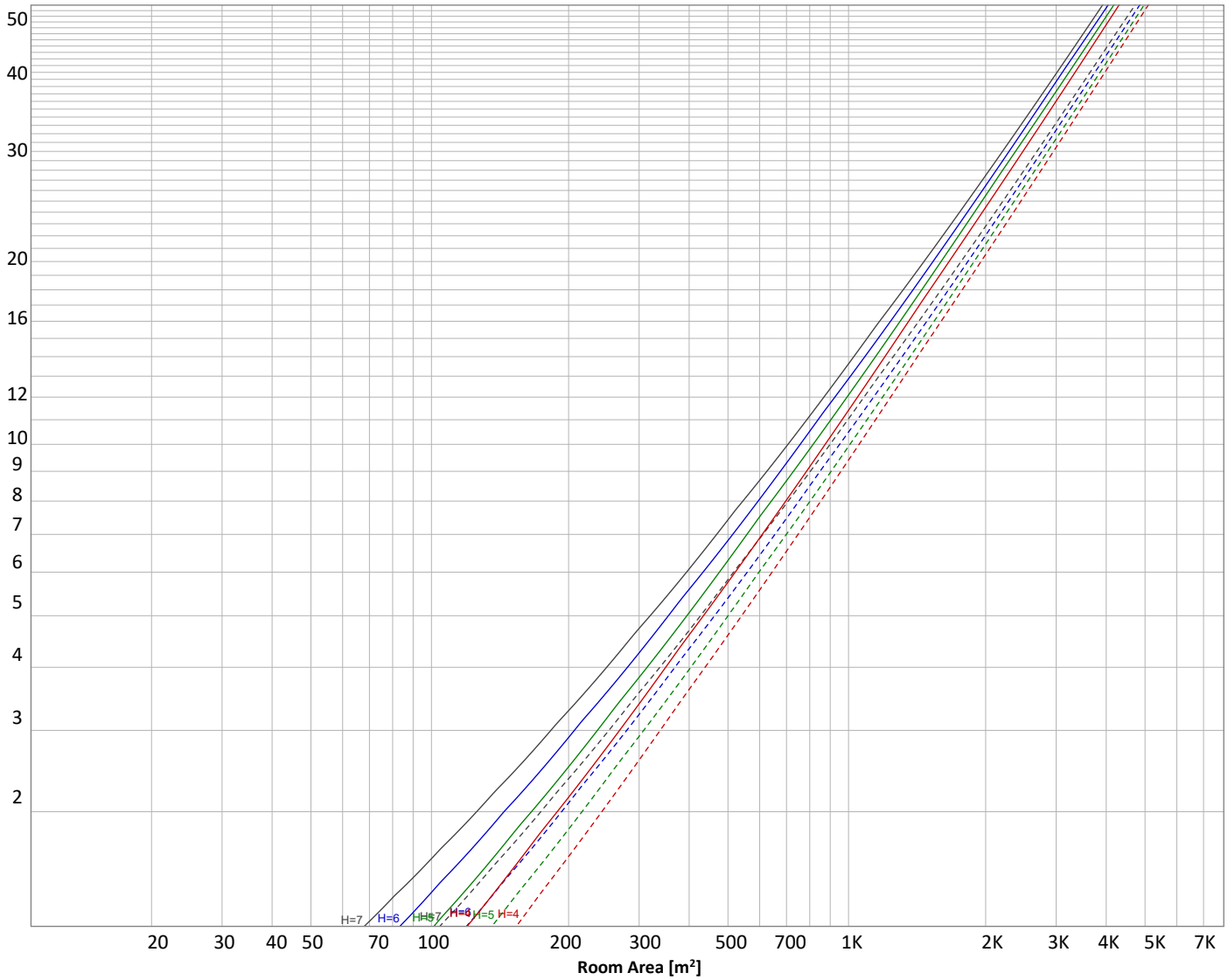
## Luminaire budgetary diagram

*Uncorrected, comprehensive UGR table according to 117-1995*

**LAMPS (number of lamps)**




**Conditions**

| | | | | | |
|---|---|---|---|---|---|
| H = Room height | Flux = 10906 lm | | ρ(%) | | |
| $H_{down}$ = Lamp distance from ceiling = | 0.00 m | Line type | Ceiling reflectance | Wall reflectance | Floor reflectance |
| $H_{work}$ = Work area height from floor = | 0.00 m | ---------- | 70 | 50 | 30 |
| $E_{work}$ = Average lux on work area = | 100 lx | ———— | 50 | 30 | 20 |

## Zonal Lumen Summary

| 0°-10° | 10°-20° | 20°-30° | 30°-40° | 40°-50° | 50°-60° | 60°-70° | 70°-80° | 80°-90° |
|---|---|---|---|---|---|---|---|---|
| 295 lm | 851 lm | 1303 lm | 1594 lm | 1692 lm | 1586 lm | 1290 lm | 856 lm | 447 lm |

| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
|---|---|---|---|---|---|---|---|---|
| 278 lm | 229 lm | 183 lm | 134 lm | 87,2 lm | 47,5 lm | 21,6 lm | 7,86 lm | 2,12 lm |

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## Outdoor Light Planning

### Lumen per Zone

| Zone (γ) | Lumen | % Total |
|---|---|---|
| 0-10° | 295 lm | 2,7% |
| 10-20° | 851 lm | 7,8% |
| 20-30° | 1303 lm | 11,9% |
| 30-40° | 1594 lm | 14,6% |
| 40-50° | 1692 lm | 15,5% |
| 50-60° | 1586 lm | 14,5% |
| 60-70° | 1290 lm | 11,8% |
| 70-80° | 856 lm | 7,9% |
| 80-90° | 447 lm | 4,1% |
| 90-100° | 278 lm | 2,6% |
| 100-110° | 229 lm | 2,1% |
| 110-120° | 183 lm | 1,7% |
| 120-130° | 134 lm | 1,2% |
| 130-140° | 87 lm | 0,8% |
| 140-150° | 48 lm | 0,4% |
| 150-160° | 22 lm | 0,2% |
| 160-170° | 8 lm | 0,1% |
| 170-180° | 2 lm | 0,0% |
| Total | 10906 lm | 100,0% |

### Intensity peaks

| | |
|---|---|
| Max intensity | 3107 cd |
| Intensity, 90° | 287 cd |
| Intensity, 0° | 3107 cd |

### Zonal Lumen summary

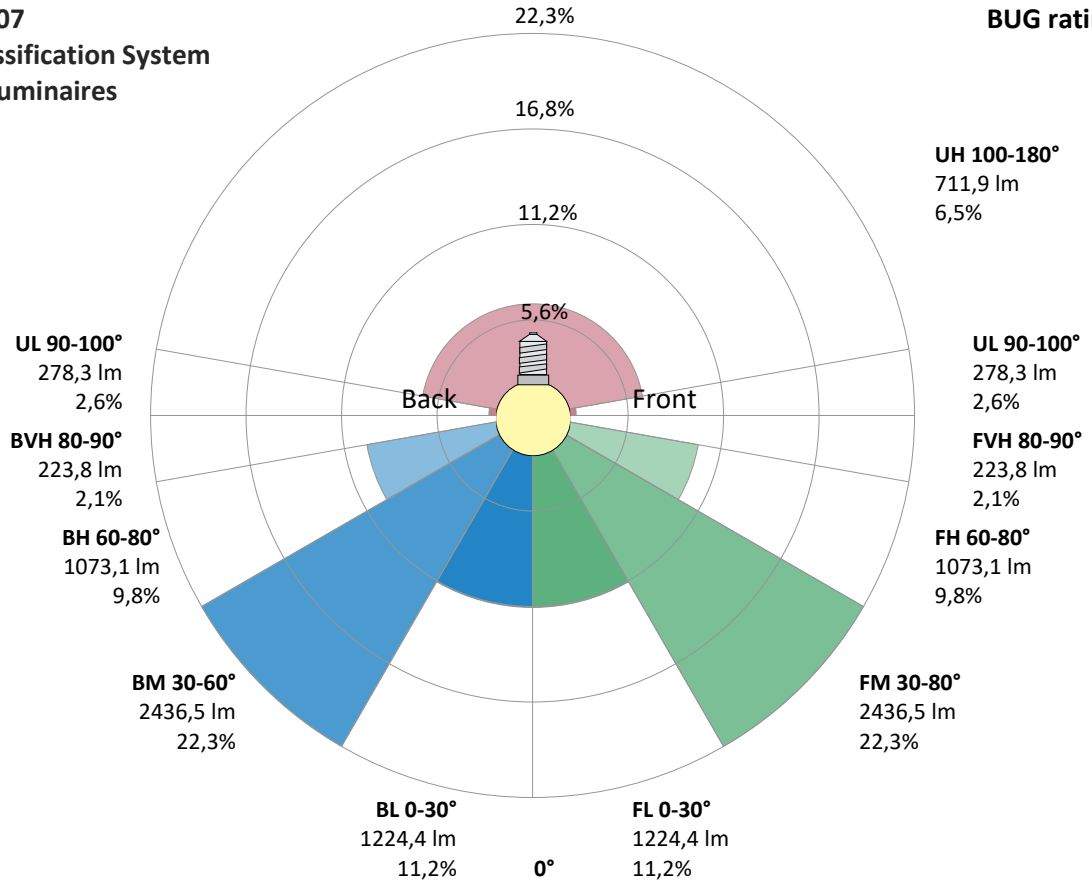
| Zone (γ) | Lumen | % Total |
|---|---|---|
| 0-30° | 2449 lm | 22,5% |
| 0-40° | 4043 lm | 37,1% |
| 0-60° | 7322 lm | 67,1% |
| 60-90° | 2593 lm | 23,8% |
| 70-100° | 1582 lm | 14,5% |
| 90-120° | 691 lm | 6,3% |
| 0-90° | 9915 lm | 90,9% |
| 90-180° | 991 lm | 9,1% |
| 0-180° | 10906 lm | 100,0% |

### BUG rating

| | Lumen | % Total |
|---|---|---|
| **Forward light** | | |
| Low(0-30°) | 1224 lm | 11,2% |
| Medium(30-60°) | 2437 lm | 22,3% |
| High(60-80°) | 1073 lm | 9,8% |
| Very high(80-90°) | 224 lm | 2,1% |
| **Back light** | | |
| Low(0-30°) | 1224 lm | 11,2% |
| Medium(30-60°) | 2437 lm | 22,3% |
| High(60-80°) | 1073 lm | 9,8% |
| Very high(80-90°) | 224 lm | 2,1% |
| **Uplight** | | |
| Low(90-100°) | 278 lm | 2,6% |
| High(100-180°) | 712 lm | 6,5% |

**IESNA TM-15-07**
**Luminaire Classification System**
**For Outdoor Luminaires**

**BUG rating B3 U4 G2**



# Light Measurement Report

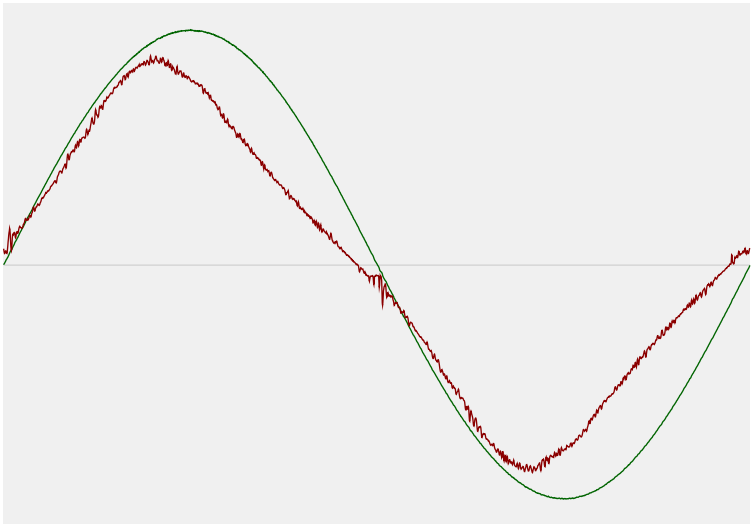
Print date: 14-11-2024
Measurement date and time: 12-11-2024 15:56:22 – Measurement no. VFR-241112-2018-MS
Measurement tracking No. and Link: VT241112-007833
Operator:

## Power Details

### Input Power

| | |
|---|---|
| Power feed to light source | 68,4 W |
| Frequency of input power | 50 Hz |
| RMS Input voltage feed, $V_{RMS}$ | 230 V |
| RMS Input current feed, $I_{RMS}$ | 0,306 A |
| Volt-Ampere or apparent power = $V_{RMS}$*$I_{RMS}$ | 70,29 VA |
| Displacement factor of AC power feed | 0,98 |
| Power factor of AC current feed | 0,97 |
| Total harmonic distortion of the current | 14,01% |
| Total harmonic distortion of the voltage | 0,08% |

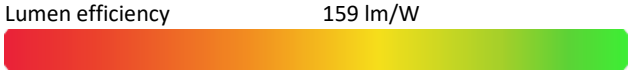
### Input Power Curve



### Efficiency

Radiated power efficiency 49,2%

Lumen efficiency 159 lm/W



## Stabilization Details

### Warmup Conditions

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

### Color Temperature Change

| | |
|---|---|
| CCT start | 5679 K |
| CCT shift | +21 K |
| CCT end | 5700 K |

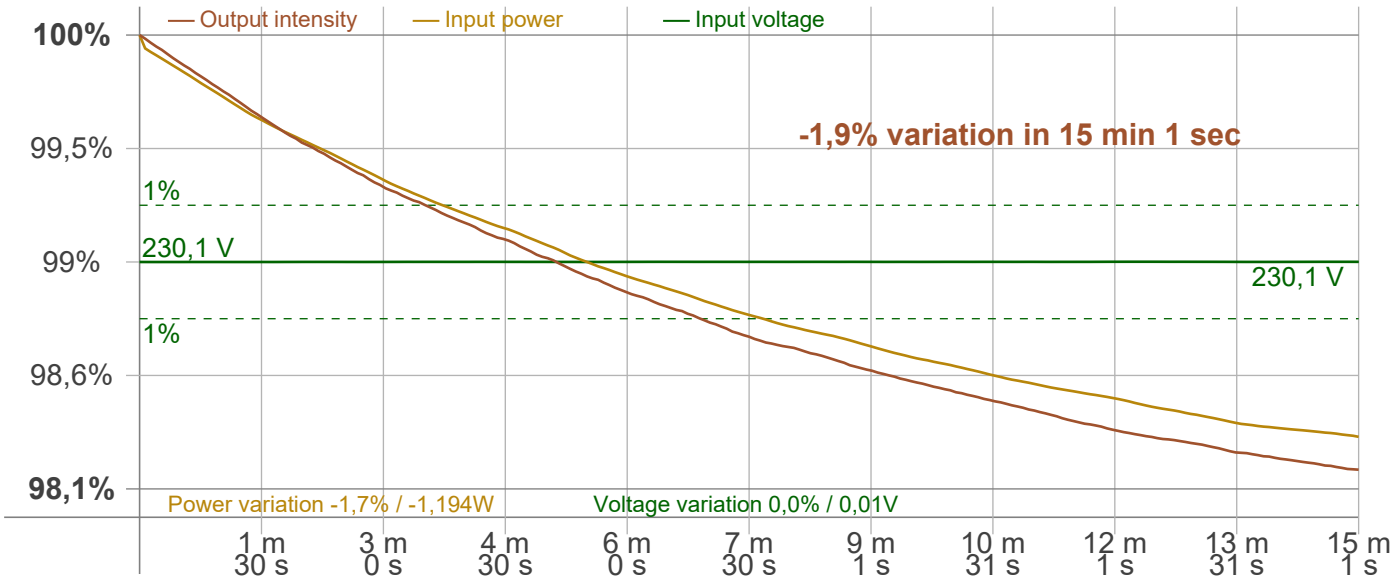
### Warmup Result

| | |
|---|---|
| Total warmup time | Lamp stabilized in 15 min 1 sec |
| Warmup variation | -1,9% |

### Output Change

| | |
|---|---|
| Output start | 11115 lm |
| Output change | -209 lm |
| Output end | 10906 lm |

### Stabilization Curve



# Light Measurement Report

Print date: 14-11-2024
Measurement date and time: 12-11-2024 15:56:22 – Measurement no. VFR-241112-2018-MS
Measurement tracking No. and Link: VT241112-007833
Operator:

## Flicker /TLA details

| | |
|---|---|
| Flicker Meter Type | Viso Systems LabFlicker |
| Frequency of input power | 50 Hz |
| Flicker/TLA sample rate | 20000 samples/s |

**Measurement time**

| | |
|---|---|
| PstLM | 180 sec |
| All other indices | 1,2 sec |

**Flicker indices according to Illuminating Engineering Society (IES)**

| | |
|---|---|
| Flicker frequency | 93,02 Hz |
| Percent Flicker | 0,1 % |
| Flicker index | 0 |

**Flicker indices according to California Energy Commission (CEC) 2016b**

| | |
|---|---|
| JA8/10 40 Hz | 0,02 % |
| JA8/10 90 Hz | 0,03 % |
| JA8/10 200 Hz | 0,06 % |
| JA8/10 400 Hz | 0,06 % |
| JA8/10 1000 Hz | 0,07 % |

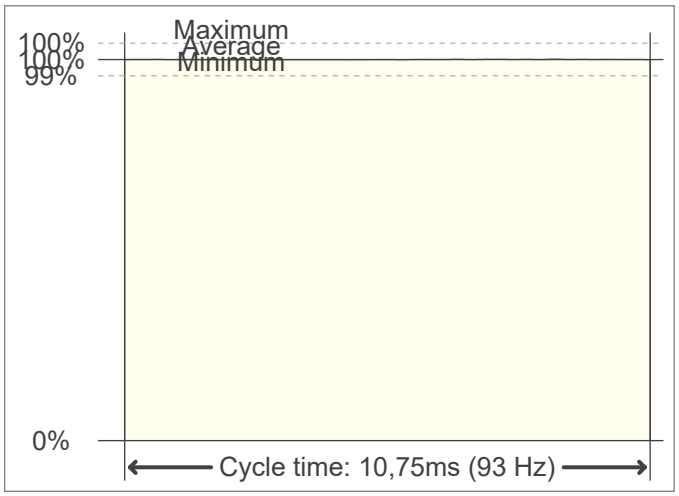
**TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC 61000-4-15)**

| | |
|---|---|
| PstLM value (F < 80 Hz) | 0,01 |
| SVM value (80 < F < 2000 Hz) | 0 |

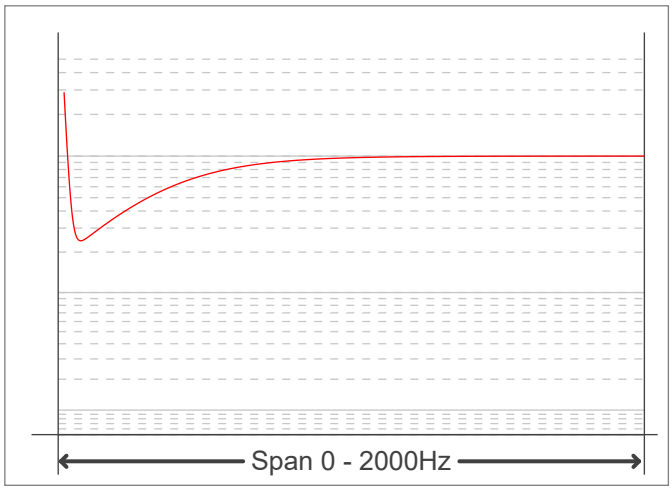
**Flicker indices according to Lighting Research Center (2015)**

| | |
|---|---|
| Perception metric, Assist Mp | 0,01 |

**Flicker frame (frame of one flicker period in time domain)**




**Flicker FFT (flicker curve in frequency domain)**




**IEEE 1789 Frequency/modulation plot**