

# Light Measurement Report

Print date: 3-4-2025

Measurement date and time: 3-4-2025 09:17:08 – Measurement no. VFR-250403-0546-MS

Measurement tracking No. and Link: [VT250403-000105](#)

Operator:



## Laboratory and Equipment

Laboratory Owner and Location  
Goniospectrometer System and Type  
Sensor Name, Calibr. Date and Serial No.  
Spectrometer Manufacturer and Model

Viso Systems, Copenhagen V, Denmark  
LabSpion – Type C, horizontal  
LabSensor Model2 – 11-1-2024 – 3130191315  
Ibsen Photonics, Denmark – Freedom VIS (Custom Viso)

## Measurement Conditions

Number of C-planes and Resolution  
 $\gamma$  (gamma)-Resolution  
Test Distance  
Input Power, Power and Displ. Factors  
Input RMS Voltage and Current  
Frequency of Input Power  
Warm-up Time and Variation

44 planes – 8,18°  
5°  
12,10 m  
76,4 W – PF 0,97 – DPF 0,97  
230 V – 0,342 A  
50 Hz  
Lamp stabilized in 15 min 1 sec – 2,0%

## Tested Light Source

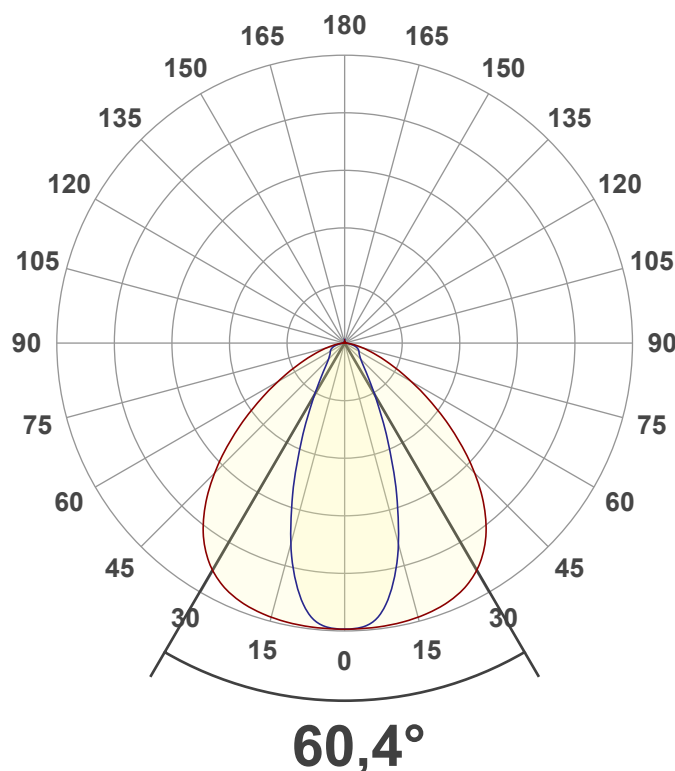
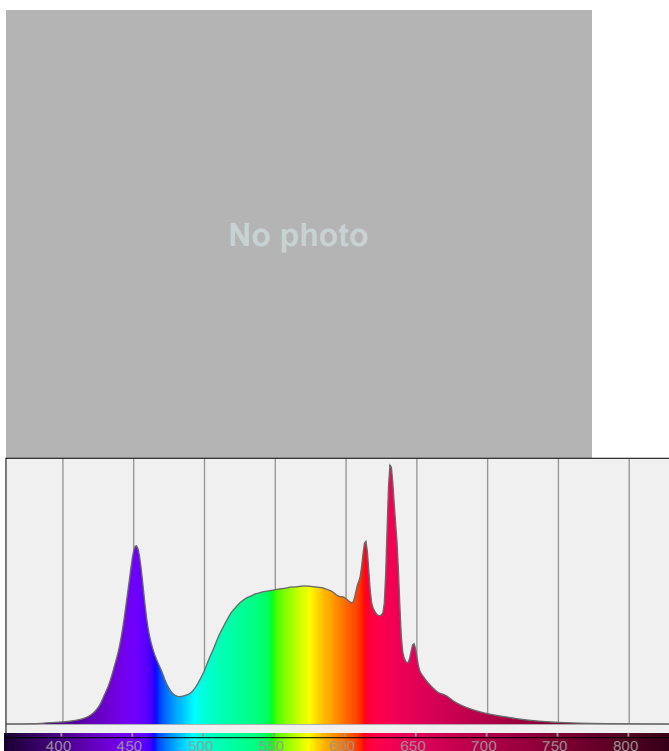
Product Name  
Item No. and Manufacturer  
Product Description (line 1)

810764-4000K  
810764-4000K – Dutchfulfillment  
LICHTLIJN MODULE | JUPITER | 43-80W | 30° | CCT-SWITCH

## Main Light Measurement Results

Output – Total Lumen (Up% / Down%)  
Efficiency  
Peak Intensity and Beam Angle  
Correlated Color Temperature, Target/Measured  
Color Rendering Index  
Color Rendering TM30-18  
Color Shift, CIE duv and MacAdam Steps  
Flicker

12049 lm – 1,06% / 98,94%  
158 lm/W  
9430 cd – 60,4°  
CCT = 4000 K / 4054 K  
CRI 83,9  
 $R_f$  83,6 –  $R_g$  99,0  
Duv 0,0028 – SDCM 2,4  
SVM 0,03 – PstLM 0,02



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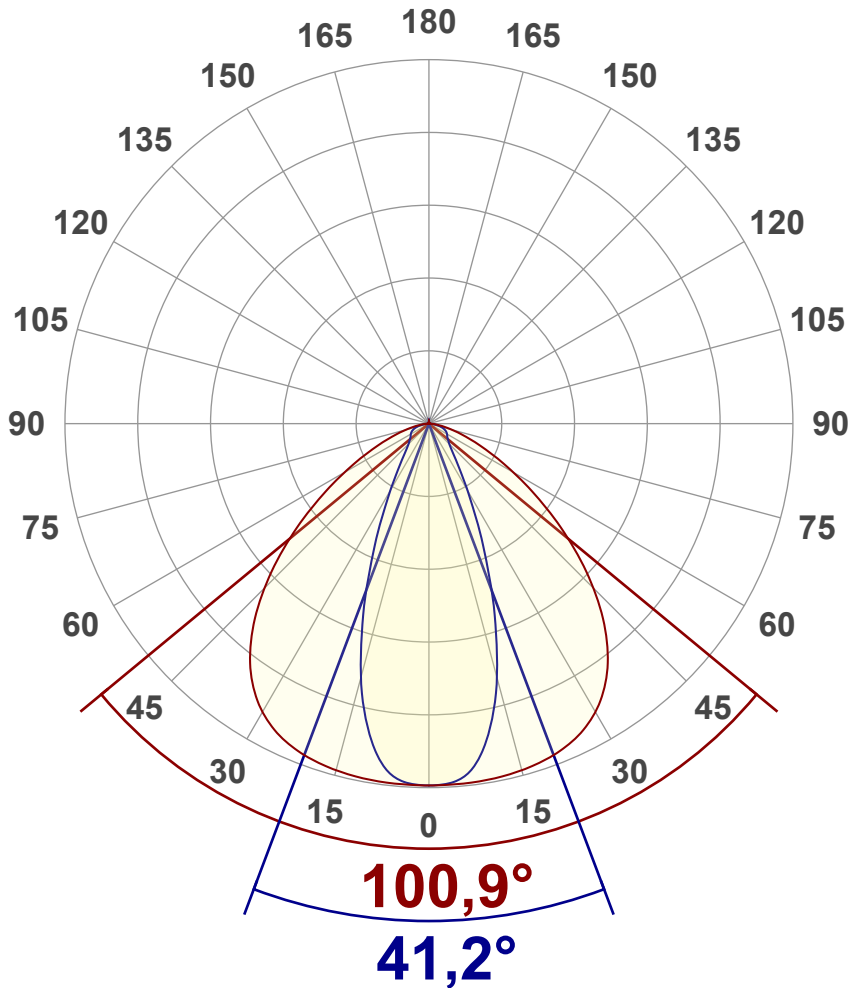
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## Luminous Intensity diagram

Unit: 0-100% of peak intensity



## Main Values

|                      |                |
|----------------------|----------------|
| Output (total Lumen) | 12049 lm       |
| Lumen Up% / Down%    | 1,06% / 98,94% |
| Peak Intensity       | 9430 cd        |
| Beam Angle (50%)     | 60,4°          |
| Beam Angle (90%)     | 41,2°          |
| Beam Angle (10%)     | 96,5°          |

## Cut-off Angle

|              |        |
|--------------|--------|
| Average 2,5% | 157,5° |
|--------------|--------|

## Field Angle

|             |      |
|-------------|------|
| Average 10% | 107° |
|-------------|------|

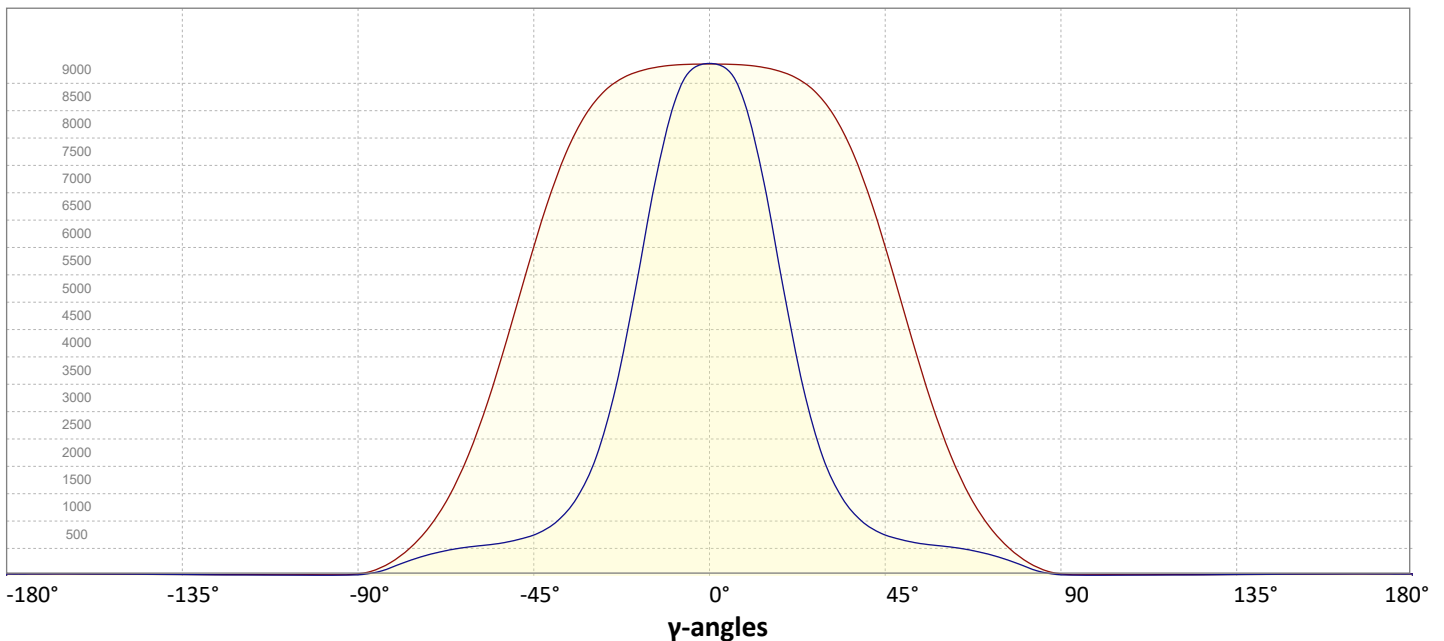
## Intensity Ratio

|              |       |
|--------------|-------|
| In 120° cone | 88,6% |
| In 90° cone  | 72,5% |

**C000-C180**

**C090-C270**

## Linear distribution diagram - Intensity (candela) vs $\gamma$ -angle



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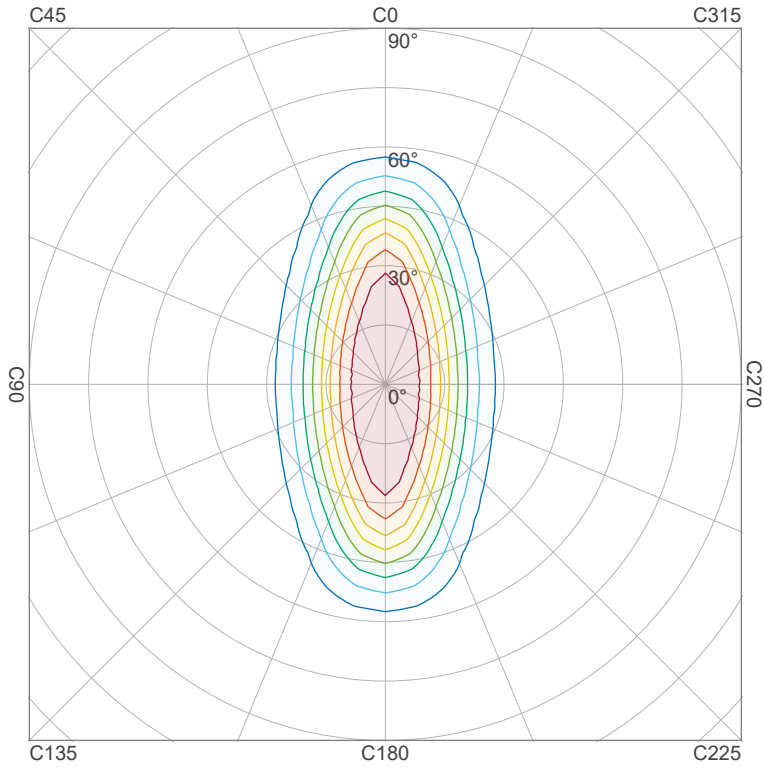
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## Iso-intensity Diagram (Iso-candela)

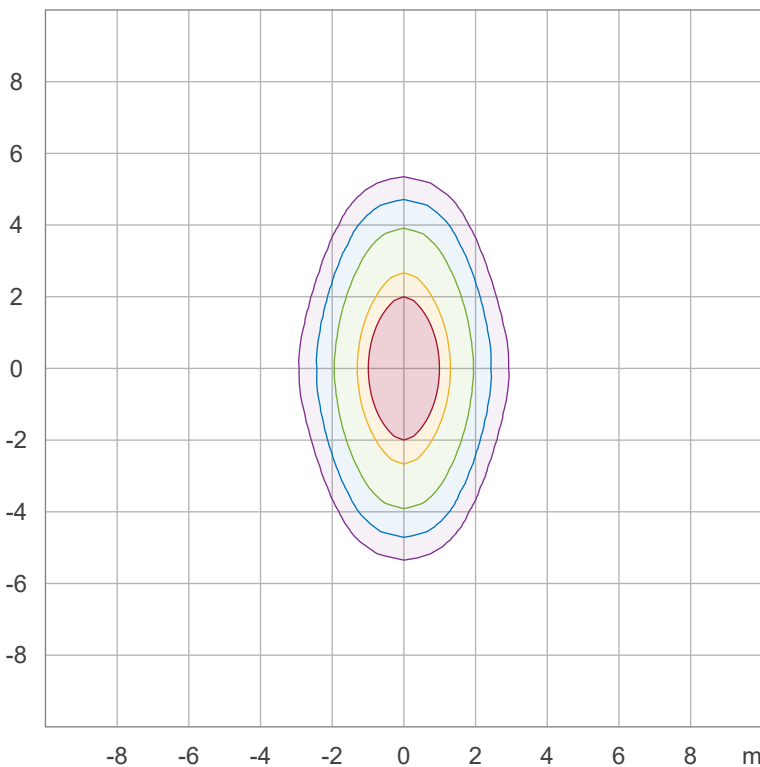


|      |           |
|------|-----------|
| 90 % | 8466,8 cd |
| 80 % | 7526,0 cd |
| 70 % | 6585,3 cd |
| 60 % | 5644,5 cd |
| 50 % | 4703,8 cd |
| 40 % | 3763,0 cd |
| 30 % | 2822,3 cd |
| 20 % | 1881,5 cd |
| 10 % | 940,8 cd  |

Peak intensity: 9407,6 cd

Number of c-planes: 44

## Iso-illuminance Diagram (Iso-lux)



|        |          |
|--------|----------|
| 50,0 % | 522,4 lx |
| 30,0 % | 313,4 lx |
| 10,0 % | 104,5 lx |
| 5,0 %  | 52,2 lx  |
| 3,0 %  | 31,3 lx  |

Peak illuminance: 1044,8 lx

Mounting height: 3,0 m

Number of c-planes: 44

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## Color details

Correlated Color Temperature, Target CCT = 4000 K  
 Correlated Color Temperature, Measured CCT = 4054 K  
 Color Rendering Index CRI 83,9  
 Color Rendering Index, R9 (red component) R9 = 37,1  
 Color Rendering TM30-18 R<sub>f</sub> 83,6 – R<sub>g</sub> 99,0  
 Color Quality Scale CQS = 83,6

MacAdam Steps SDCM = 2,4  
 Color coordinates CIE 1931 (x;y) = (0,381;0,377)  
 Color coordinate CIEs 1960 (u;v) = (0,225;0,334)  
 Color deviation from BBL Duv = 0,0028  
 Color coordinate CIEs 1976 (CIELUV) (u';v') = (0,225;0,502)

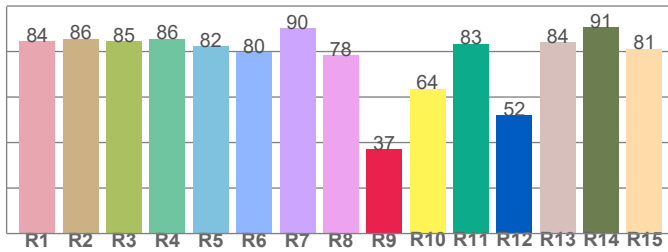
### CIE 1931



### CIE 1931 – zoomed on Planckian locus



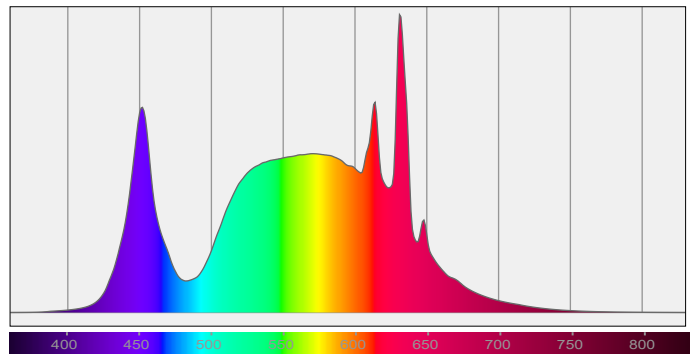
### Color Rendering Index per reference color (CIE 1995)



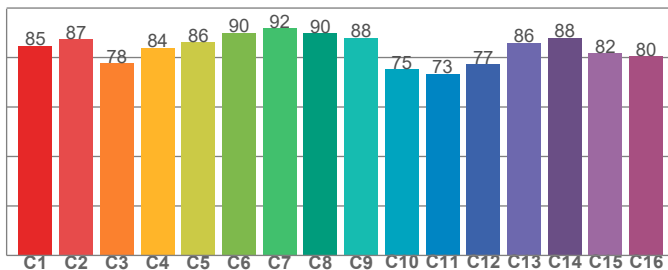
CRI R values, only R1-R8 are used to calculate final CRI value

| R1   | R2   | R3   | R4   | R5   | R6   | R7   | R8   | R9   | R10  | R11  | R12  | R13  | R14  | R15  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 84,5 | 85,7 | 84,6 | 85,6 | 82,3 | 79,6 | 90,3 | 78,3 | 37,1 | 63,7 | 83,5 | 52,0 | 84,0 | 90,5 | 81,2 |

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



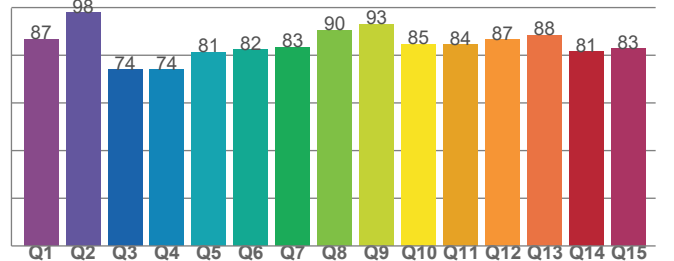
### TM30-18 Rf-values per hue bin



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  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 84,8 | 87,4 | 77,8 | 83,9 | 86,2 | 90,0 | 91,9 | 89,7 | 88,0 | 75,3 | 73,5 | 77,4 | 86,0 | 88,0 | 81,8 | 80,5 |

### Color Quality Scale by reference color



CQS Q values

| Q1   | Q2   | Q3   | Q4   | Q5   | Q6   | Q7   | Q8   | Q9   | Q10  | Q11  | Q12  | Q13  | Q14  | Q15  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 86,7 | 97,8 | 73,9 | 73,9 | 81,2 | 82,4 | 83,4 | 90,5 | 93,1 | 84,7 | 84,4 | 86,6 | 88,5 | 81,4 | 82,7 |

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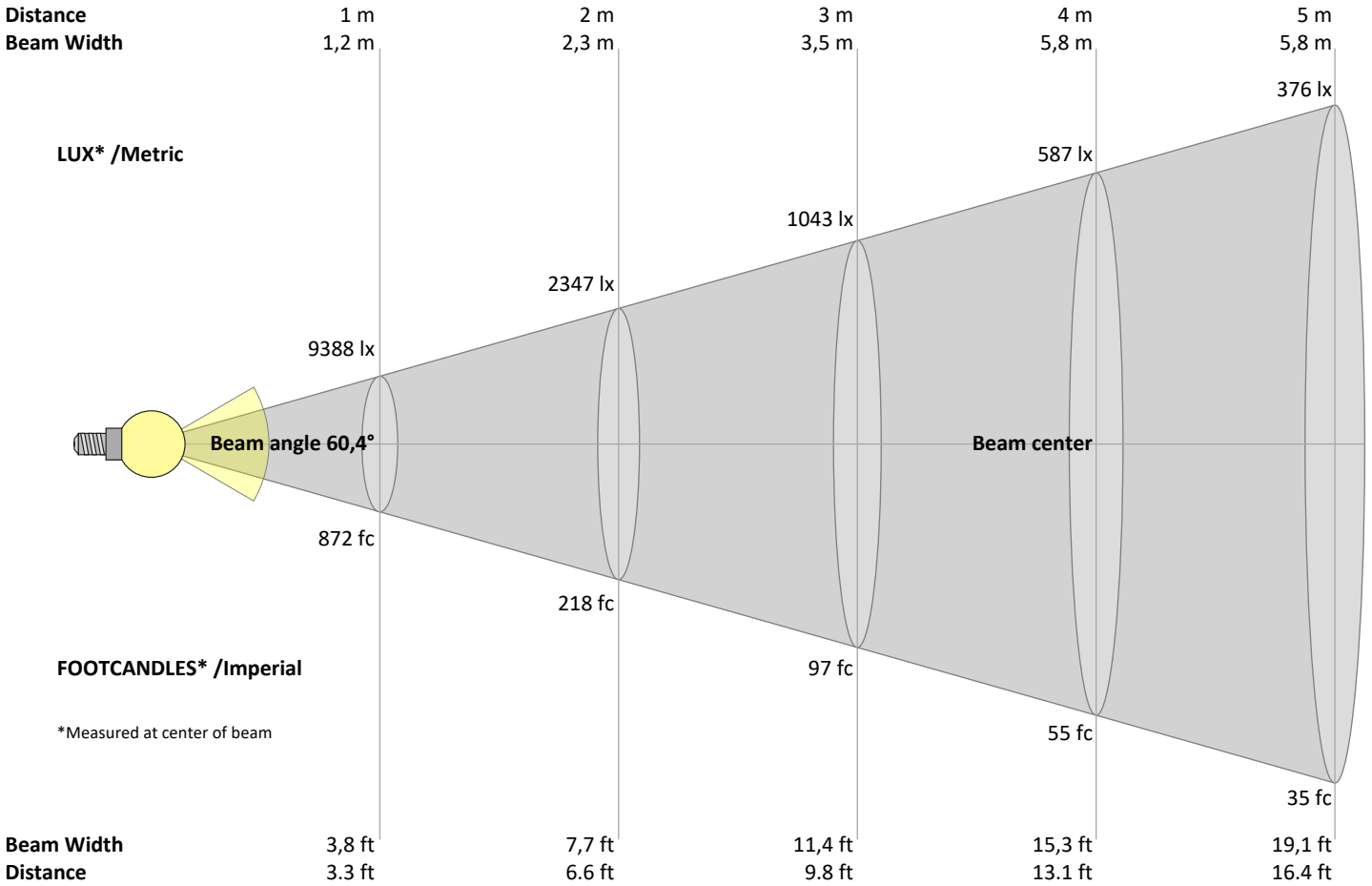
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## Beam Details



### 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  |
| 9388  | 2347  | 1043 | 587  | 376  | 261  | 192  | 147  | 116  | 94   | 78   | 65   | 56   | 48   | 42   | 37   | 32   | 29   | 26   | 23   | lux |
| 872,2 | 218,1 | 96,9 | 54,5 | 34,9 | 24,2 | 17,8 | 13,6 | 10,8 | 8,7  | 7,2  | 6,1  | 5,2  | 4,5  | 3,9  | 3,4  | 3    | 2,7  | 2,4  | 2,2  | 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        |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|----------|
| 9388 | 9346 | 9324 | 9269 | 9161 | 8954 | 8578 | 7970 | 7097 | 5997 | 4782 | 3591 | 2546 | 1708 | 1084 | 639 | 330 | 134 | 43  | 20  | cd       |
| 100% | 100% | 99%  | 99%  | 98%  | 95%  | 91%  | 85%  | 76%  | 64%  | 51%  | 38%  | 27%  | 18%  | 12%  | 7%  | 4%  | 1%  | 0%  | 0%  | 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        |
|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|
| 9388 | 9153 | 8345 | 6776 | 4861 | 3185 | 2022 | 1335 | 953 | 752 | 647 | 580 | 538 | 489 | 417 | 318 | 194 | 75  | 20  | 11  | cd       |
| 100% | 97%  | 89%  | 72%  | 52%  | 34%  | 22%  | 14%  | 10% | 8%  | 7%  | 6%  | 6%  | 5%  | 4%  | 3%  | 2%  | 1%  | 0%  | 0%  | 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        |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|----------|
| 9388 | 9346 | 9324 | 9269 | 9161 | 8954 | 8578 | 7970 | 7097 | 5997 | 4782 | 3591 | 2546 | 1708 | 1084 | 639 | 330 | 134 | 43  | 20  | cd       |
| 100% | 100% | 99%  | 99%  | 98%  | 95%  | 91%  | 85%  | 76%  | 64%  | 51%  | 38%  | 27%  | 18%  | 12%  | 7%  | 4%  | 1%  | 0%  | 0%  | 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        |
|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|
| 9388 | 9153 | 8345 | 6776 | 4861 | 3185 | 2022 | 1335 | 953 | 752 | 647 | 580 | 538 | 489 | 417 | 318 | 194 | 75  | 20  | 11  | cd       |
| 100% | 97%  | 89%  | 72%  | 52%  | 34%  | 22%  | 14%  | 10% | 8%  | 7%  | 6%  | 6%  | 5%  | 4%  | 3%  | 2%  | 1%  | 0%  | 0%  | of 0°val |

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## Light Planning – UGR table

Uncorrected, comprehensive UGR table according to 117-1995

| Reflectances                        |           | 70   | 70   | 50   | 50   | 30   | 70   | 70   | 50   | 50   | 30   |
|-------------------------------------|-----------|--|------|------|------|------|--|------|------|------|------|
|                                     | 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                           |           | Viewed Crosswise                                   |      |      |      |      | Viewed Endwise                                   |      |      |      |      |
| H = mounting height above eye level |           | (Viewing direction orthogonal to lamp length axis) |      |      |      |      | (Viewing direction parallel to lamp length axis) |      |      |      |      |
| X                                   | Y         |  |      |      |      |      |  |      |      |      |      |
| 2H                                  | 2H        | 27,9   | 28,8 | 28,1 | 29,1 | 29,3 | 18,0   | 19,0 | 18,2 | 19,3 | 19,5 |
|                                     | 3H        | 28,7   | 29,7 | 29,1 | 30,0 | 30,2 | 19,5   | 20,5 | 19,9 | 20,7 | 21,0 |
|                                     | 4H        | 29,0   | 30,0 | 29,4 | 30,2 | 30,5 | 20,2   | 21,1 | 20,6 | 21,4 | 21,7 |
|                                     | 6H        | 29,2   | 30,1 | 29,6 | 30,4 | 30,8 | 20,7   | 21,5 | 21,0 | 21,8 | 22,2 |
|                                     | 8H        | 29,3   | 30,1 | 29,6 | 30,4 | 30,8 | 20,8   | 21,6 | 21,1 | 21,9 | 22,4 |
|                                     | 12H       | 29,3   | 30,1 | 29,6 | 30,4 | 30,9 | 20,8   | 21,6 | 21,2 | 22,0 | 22,4 |
| 4H                                  | 2H        | 27,6   | 28,6 | 28,0 | 28,8 | 29,1 | 19,0   | 20,0 | 19,4 | 20,2 | 20,5 |
|                                     | 3H        | 28,6   | 29,4 | 29,0 | 29,8 | 30,2 | 20,6   | 21,3 | 20,9 | 21,7 | 22,2 |
|                                     | 4H        | 29,0   | 29,7 | 29,4 | 30,1 | 30,7 | 21,2   | 22,0 | 21,7 | 22,4 | 22,9 |
|                                     | 6H        | 29,2   | 30,0 | 29,8 | 30,3 | 30,7 | 21,8   | 22,5 | 22,3 | 22,8 | 23,2 |
|                                     | 8H        | 29,3   | 30,0 | 29,9 | 30,4 | 30,8 | 21,9   | 22,5 | 22,4 | 22,9 | 23,3 |
|                                     | 12H       | 29,4   | 29,9 | 29,9 | 30,3 | 30,8 | 21,9   | 22,5 | 22,4 | 22,9 | 23,4 |
| 8H                                  | 4H        | 28,9   | 29,5 | 29,4 | 29,9 | 30,3 | 21,6   | 22,2 | 22,1 | 22,6 | 23,0 |
|                                     | 6H        | 29,2   | 29,7 | 29,7 | 30,2 | 30,7 | 22,2   | 22,7 | 22,7 | 23,1 | 23,7 |
|                                     | 8H        | 29,4   | 29,8 | 29,9 | 30,3 | 31,0 | 22,4   | 22,8 | 22,9 | 23,4 | 24,0 |
|                                     | 12H       | 29,5   | 29,8 | 30,1 | 30,3 | 30,9 | 22,5   | 22,8 | 23,1 | 23,4 | 24,0 |
| 12H                                 | 4H        | 28,8   | 29,4 | 29,4 | 29,8 | 30,3 | 21,6   | 22,1 | 22,1 | 22,6 | 23,1 |
|                                     | 6H        | 29,2   | 29,6 | 29,8 | 30,2 | 30,8 | 22,3   | 22,7 | 22,8 | 23,2 | 23,9 |
|                                     | 8H        | 29,3   | 29,7 | 29,9 | 30,2 | 30,8 | 22,5   | 22,8 | 23,1 | 23,4 | 24,0 |

### Variations with the observer position for the luminaire spacings, S:

|          |            |            |
|----------|------------|------------|
| S = 1.0H | 0,8 / -0,7 | 0,5 / -0,4 |
| S = 1.5H | 2,0 / -1,8 | 0,8 / -0,6 |
| S = 2.0H | 3,4 / -2,8 | 1,0 / -0,8 |

## 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                   | 119  | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 106 | 106 | 106 | 101 | 101 | 101 | 99 |    |
| 1                   | 111  | 107 | 104 | 101 | 108 | 105 | 102 | 99  | 100 | 98  | 96  | 96  | 94  | 92  | 93  | 91  | 90 | 88 |
| 2                   | 103  | 96  | 91  | 86  | 100 | 94  | 89  | 85  | 91  | 87  | 83  | 88  | 84  | 81  | 85  | 82  | 79 | 77 |
| 3                   | 96   | 87  | 81  | 75  | 93  | 86  | 80  | 75  | 83  | 77  | 73  | 80  | 76  | 72  | 77  | 74  | 71 | 69 |
| 4                   | 89   | 79  | 72  | 67  | 87  | 78  | 71  | 66  | 76  | 70  | 65  | 73  | 68  | 64  | 71  | 67  | 63 | 61 |
| 5                   | 83   | 73  | 65  | 60  | 81  | 72  | 65  | 59  | 70  | 63  | 59  | 68  | 62  | 58  | 66  | 61  | 57 | 55 |
| 6                   | 78   | 67  | 59  | 54  | 76  | 66  | 59  | 54  | 64  | 58  | 53  | 63  | 57  | 53  | 61  | 56  | 52 | 50 |
| 7                   | 73   | 62  | 54  | 49  | 72  | 61  | 54  | 49  | 60  | 53  | 49  | 58  | 53  | 48  | 57  | 52  | 48 | 46 |
| 8                   | 69   | 58  | 50  | 45  | 68  | 57  | 50  | 45  | 56  | 49  | 45  | 54  | 49  | 44  | 53  | 48  | 44 | 43 |
| 9                   | 65   | 54  | 47  | 42  | 64  | 53  | 46  | 42  | 52  | 46  | 41  | 51  | 45  | 41  | 50  | 45  | 41 | 39 |
| 10                  | 62   | 50  | 43  | 39  | 61  | 50  | 43  | 39  | 49  | 43  | 38  | 48  | 42  | 38  | 47  | 42  | 38 | 37 |

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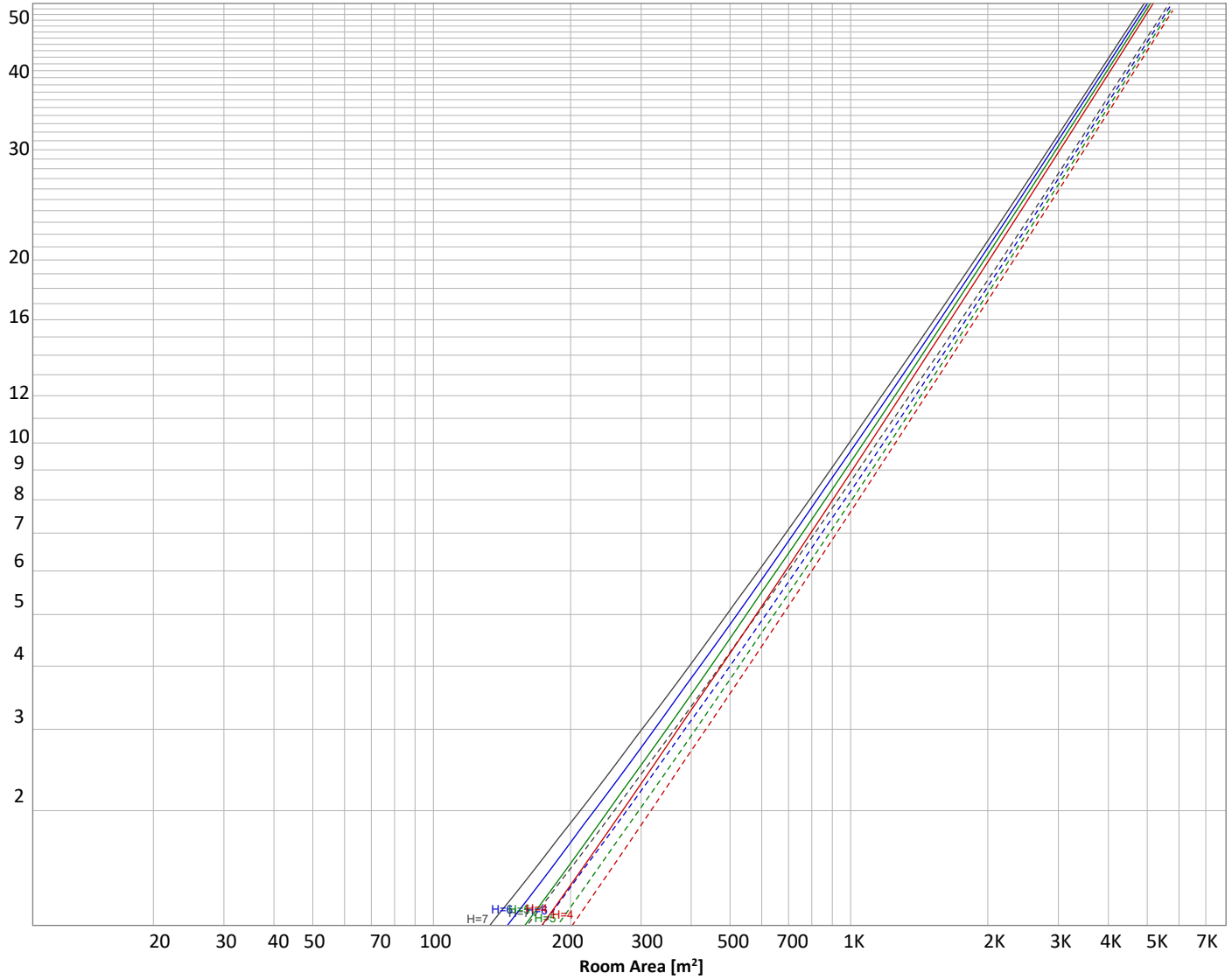
Operator:



## Luminaire budgetary diagram

Uncorrected, comprehensive UGR table according to 117-1995

LAMPS (number of lamps)



### Conditions

|   |                 |           |                     |                          |
|---|-----------------|-----------|---------------------|--------------------------|
| H = Room height                                   | Flux = 12049 lm |           |                     |                          |
| H <sub>down</sub> = Lamp distance from ceiling =  | 0.00 m          | Line type | Ceiling reflectance | ρ(%)<br>Wall reflectance |
| H <sub>work</sub> = Work area height from floor = | 0.00 m          | -----     | 70                  | 50                       |
| E <sub>work</sub> = Average lux on work area =    | 100 lx          | —————     | 50                  | 30                       |
|   |                 |           |                     | Floor reflectance        |
|   |                 |           |                     | 20                       |

### Zonal Lumen Summary

| 0°-10°   | 10°-20°   | 20°-30°   | 30°-40°   | 40°-50°   | 50°-60°   | 60°-70°   | 70°-80°   | 80°-90°   |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 875 lm   | 2231 lm   | 2552 lm   | 2184 lm   | 1662 lm   | 1168 lm   | 747 lm    | 393 lm    | 110 lm    |
| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
| 17,1 lm  | 15,9 lm   | 17,0 lm   | 18,0 lm   | 17,8 lm   | 16,5 lm   | 13,3 lm   | 8,69 lm   | 2,99 lm   |

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## Outdoor Light Planning

### Lumen per Zone

| Zone (γ) | Lumen           | % Total |
|----------|-----------------|---------|
| 0-10°    | {LUM00-10} lm   | #VALUE! |
| 10-20°   | {LUM10-20} lm   | #VALUE! |
| 20-30°   | {LUM20-30} lm   | #VALUE! |
| 30-40°   | {LUM30-40} lm   | #VALUE! |
| 40-50°   | {LUM40-50} lm   | #VALUE! |
| 50-60°   | {LUM50-60} lm   | #VALUE! |
| 60-70°   | {LUM60-70} lm   | #VALUE! |
| 70-80°   | {LUM70-80} lm   | #VALUE! |
| 80-90°   | {LUM80-90} lm   | #VALUE! |
| 90-100°  | {LUM90-100} lm  | #VALUE! |
| 100-110° | {LUM100-110} lm | #VALUE! |
| 110-120° | {LUM110-120} lm | #VALUE! |
| 120-130° | {LUM120-130} lm | #VALUE! |
| 130-140° | {LUM130-140} lm | #VALUE! |
| 140-150° | {LUM140-150} lm | #VALUE! |
| 150-160° | {LUM150-160} lm | #VALUE! |
| 160-170° | {LUM160-170} lm | #VALUE! |
| 170-180° | {LUM170-180} lm | #VALUE! |
| Total    | 0 lm            | #VALUE! |

### Intensity peaks

|                |            |
|----------------|------------|
| Max intensity  | {PEAK} cd  |
| Intensity, 90° | {INT90} cd |
| Intensity, 0°  | {INT0} cd  |

### Zonal Lumen summary

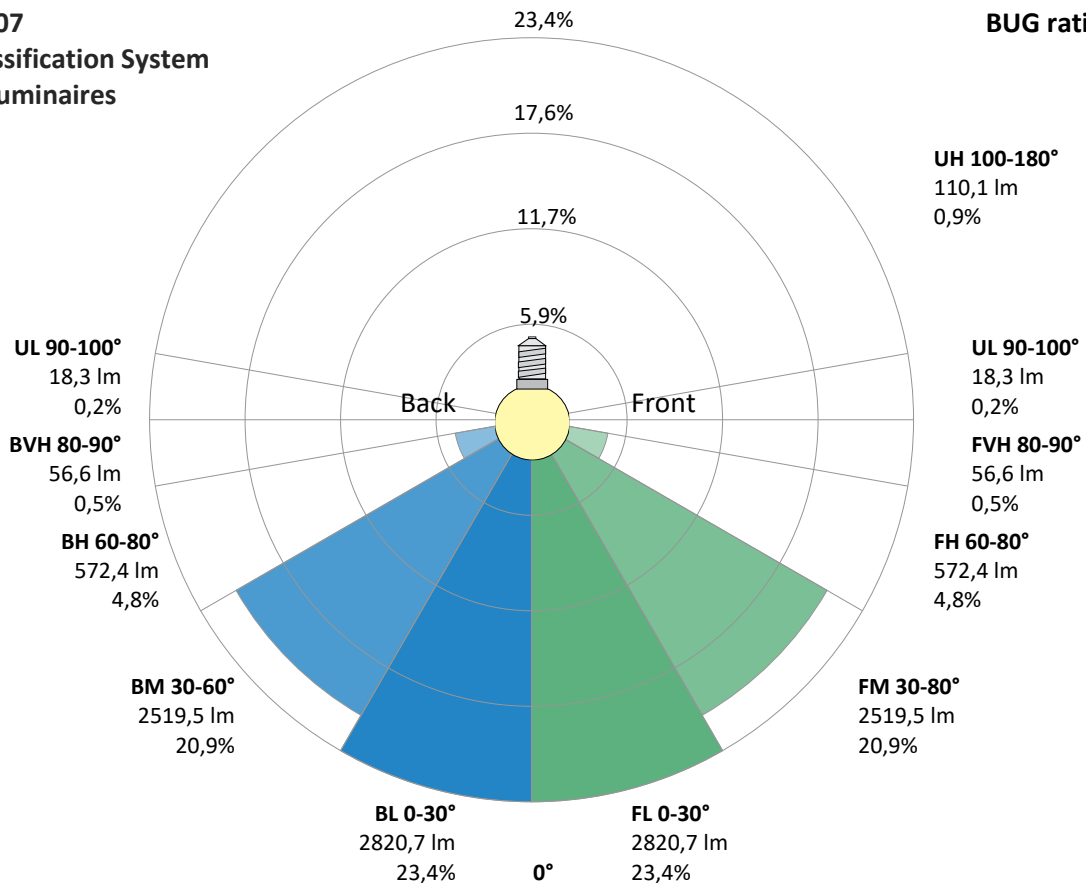
| Zone (γ) | Lumen          | % Total |
|----------|----------------|---------|
| 0-30°    | {LUM00-30} lm  | #VALUE! |
| 0-40°    | {LUM00-40} lm  | #VALUE! |
| 0-60°    | {LUM00-60} lm  | #VALUE! |
| 60-90°   | {LUM60-90} lm  | #VALUE! |
| 70-100°  | {LUM70-100} lm | #VALUE! |
| 90-120°  | {LUM90-120} lm | #VALUE! |
| 0-90°    | {LUM00-90} lm  | #VALUE! |
| 90-180°  | {LUM90-180} lm | #VALUE! |
| 0-180°   | {LUM00-180} lm | #VALUE! |

### BUG rating

|                      | Lumen     | % Total |
|----------------------|-----------|---------|
| <b>Forward light</b> |           |         |
| Low(0-30°)           | {BUG0} lm | #VALUE! |
| Medium(30-60°)       | {BUG1} lm | #VALUE! |
| High(60-80°)         | {BUG2} lm | #VALUE! |
| Very high(80-90°)    | {BUG3} lm | #VALUE! |
| <b>Back light</b>    |           |         |
| Low(0-30°)           | {BUG4} lm | #VALUE! |
| Medium(30-60°)       | {BUG5} lm | #VALUE! |
| High(60-80°)         | {BUG6} lm | #VALUE! |
| Very high(80-90°)    | {BUG7} lm | #VALUE! |
| <b>Uplight</b>       |           |         |
| Low(90-100°)         | {BUG8} lm | #VALUE! |
| High(100-180°)       | {BUG9} lm | #VALUE! |

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

BUG rating B4 U3 G1



# Light Measurement Report

Print date: 3-4-2025

Measurement date and time: 3-4-2025 09:17:08 – Measurement no. VFR-250403-0546-MS

Measurement tracking No. and Link: [VT250403-000105](#)

Operator:

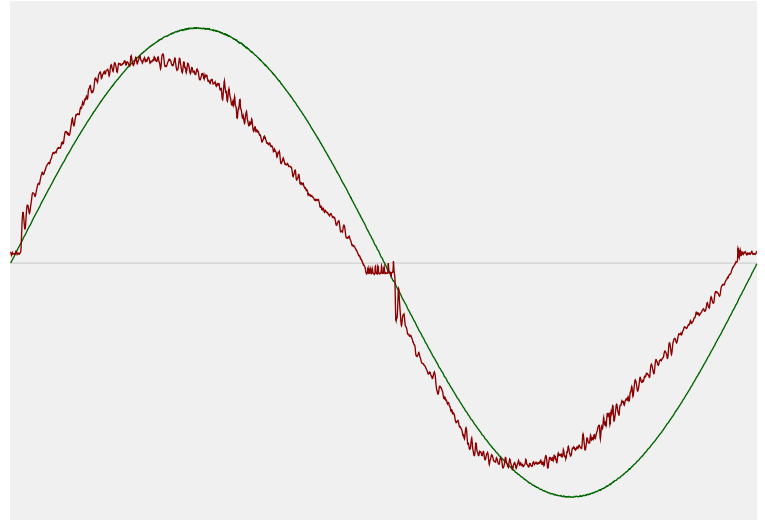


## Power Details

### Input Power

|   |          |
|---|----------|
| Power feed to light source                          | 76,4 W   |
| Frequency of input power                            | 50 Hz    |
| RMS Input voltage feed, $V_{RMS}$                   | 230 V    |
| RMS Input current feed, $I_{RMS}$                   | 0,342 A  |
| Volt-Ampere or apparent power = $V_{RMS} * I_{RMS}$ | 78,72 VA |
| Displacement factor of AC power feed                | 0,97     |
| Power factor of AC current feed                     | 0,97     |
| Total harmonic distortion of the current            | 10,03%   |
| Total harmonic distortion of the voltage            | 0,07%    |

### Input Power Curve



### Efficiency

Radiated power efficiency 45,8%



Lumen efficiency 158 lm/W



## Stabilization Details

### Warmup Conditions

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

### Color Temperature Change

|           |        |
|-----------|--------|
| CCT start | 4003 K |
| CCT shift | -3 K   |
| CCT end   | 4000 K |

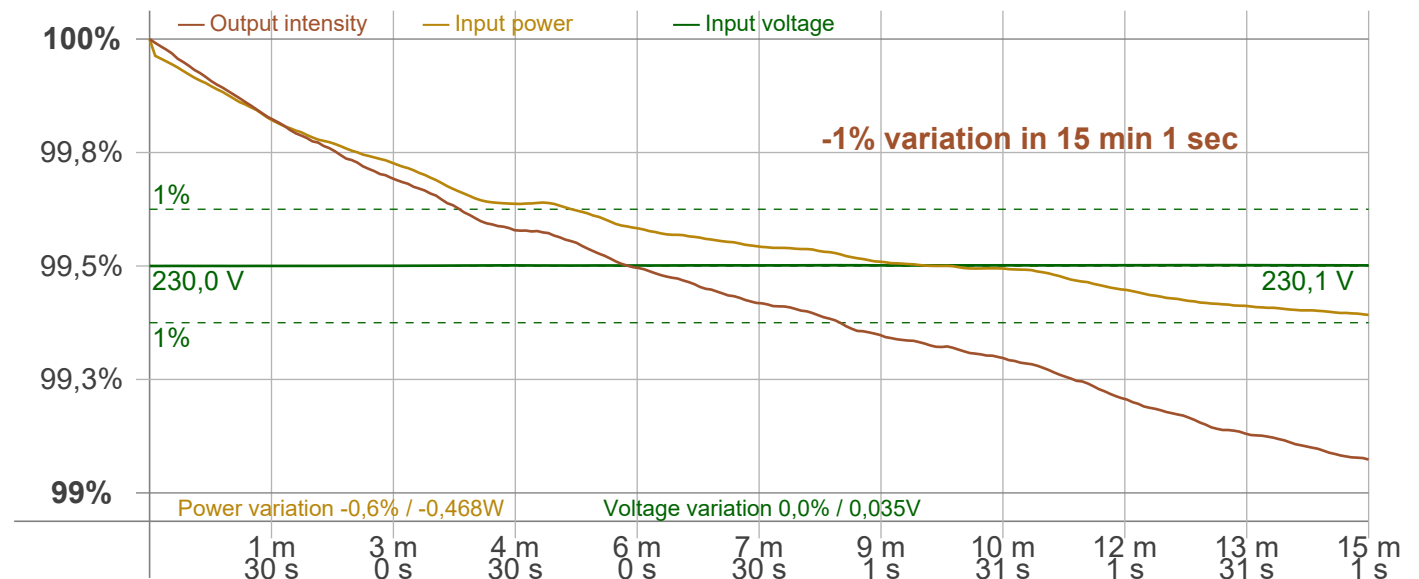
### Warmup Result

|                   |                                 |
|-------------------|---------------------------------|
| Total warmup time | Lamp stabilized in 15 min 1 sec |
| Warmup variation  | -1,0%                           |

### Output Change

|               |          |
|---------------|----------|
| Output start  | 12162 lm |
| Output change | -113 lm  |
| Output end    | 12049 lm |

### Stabilization Curve



# Light Measurement Report

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Measurement tracking No. and Link: [VT250403-000105](#)

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 100 Hz  
 Percent Flicker 0,85 %  
 Flicker index 0

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

JA8/10 40 Hz 0,03 %  
 JA8/10 90 Hz 0,03 %  
 JA8/10 200 Hz 0,84 %  
 JA8/10 400 Hz 0,84 %  
 JA8/10 1000 Hz 0,85 %

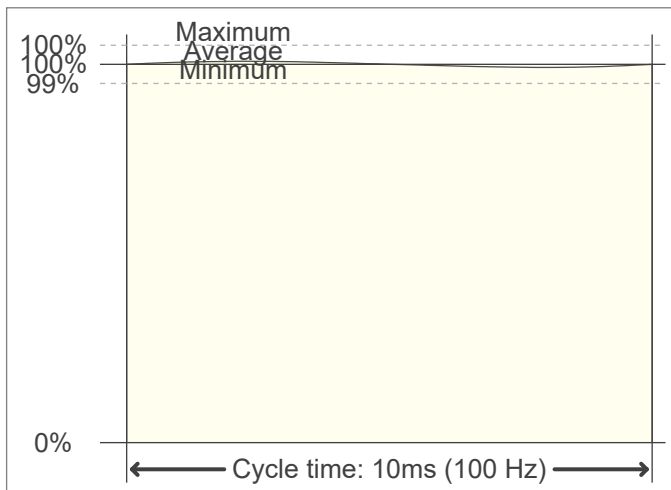
### TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC 61000-4-15)

PstLM value (F < 80 Hz) 0,02  
 SVM value (80 < F < 2000 Hz) 0,03

### 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

