

## Light efficiency:

n/a Lumen/Watt

## Light quality:

CRI: 92.0

## Color temperature:

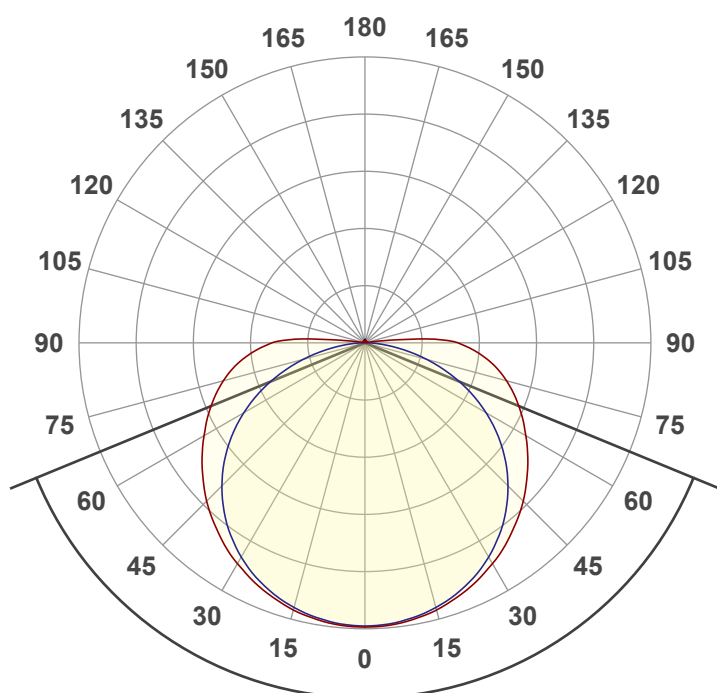
4017 K

Output: 314 lm

Peak: 82.7 cd

Power: 0.00 W

PF: n/a

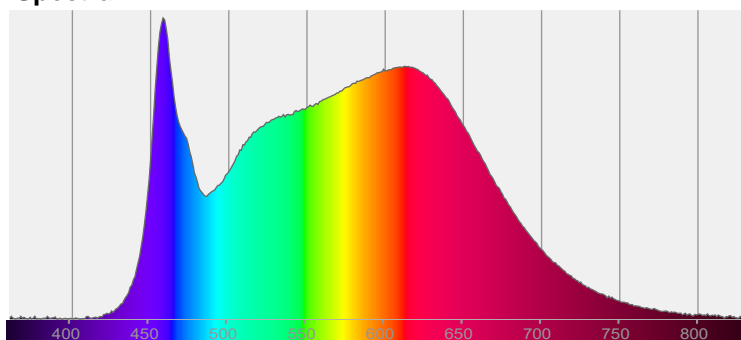


Beam angle **135.3°**

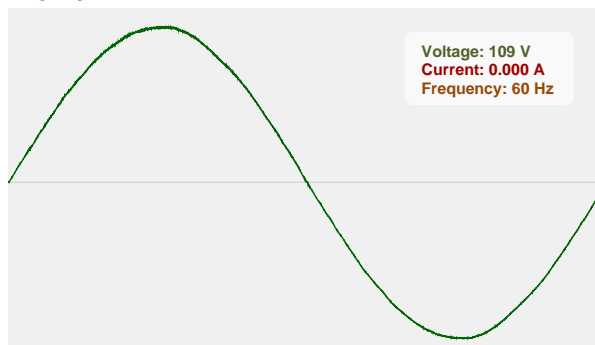


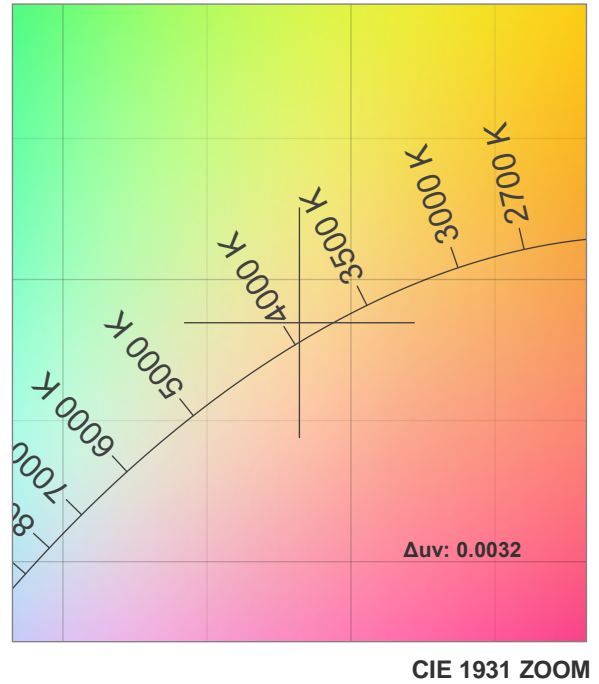
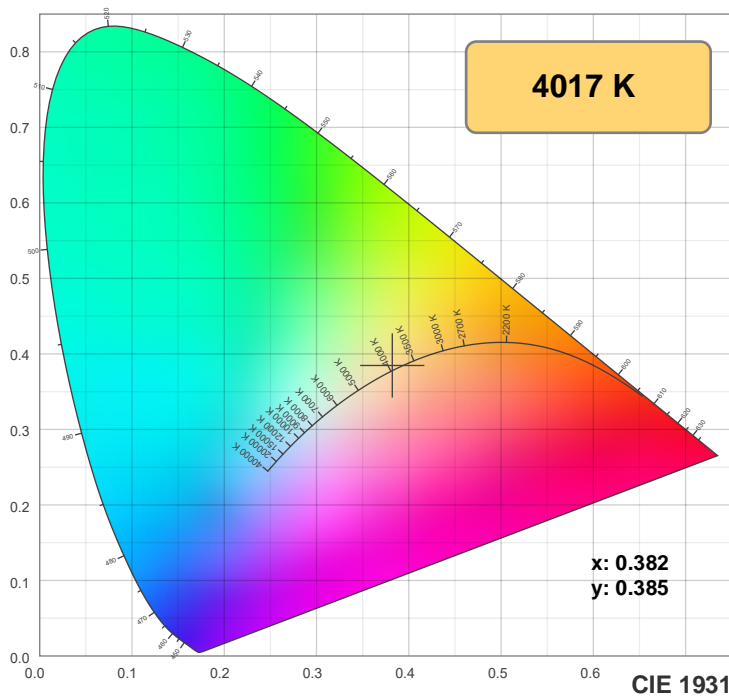
CIE 1931  
x: 0.382  
y: 0.385

## Spectra

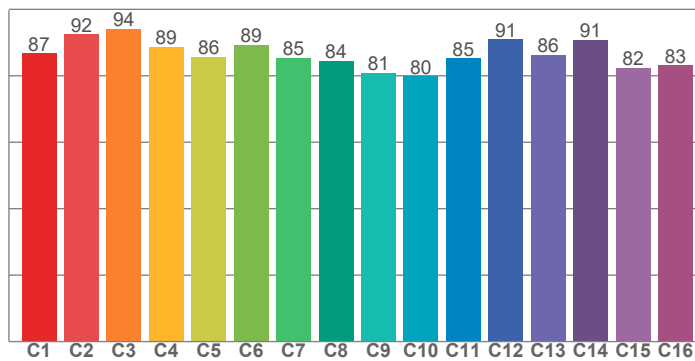


## Power

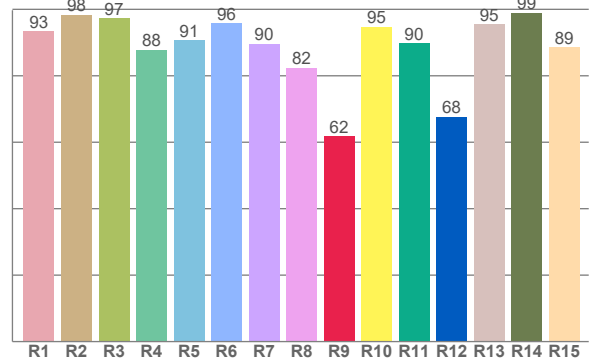




**TM-30: 86.4**



**CRI: 92.0 (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  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 93.4 | 98.3 | 97.3 | 87.9 | 90.8 | 95.9 | 89.6 | 82.5 | 61.8 | 94.7 | 89.8 | 67.6 | 95.4 | 99.0 | 88.5 |

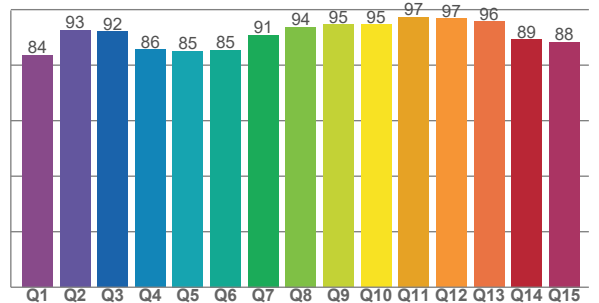
TM30 C values, 16 binned values out of total of 99 C values

| C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8   | C9   | C10  | C11  | C12  | C13  | C14  | C15  | C16  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 86.7 | 92.4 | 94.1 | 88.6 | 85.6 | 89.3 | 85.5 | 84.4 | 80.9 | 79.9 | 85.3 | 91.0 | 86.3 | 90.8 | 82.4 | 83.1 |

CQS Q values

| Q1   | Q2   | Q3   | Q4   | Q5   | Q6   | Q7   | Q8   | Q9   | Q10  | Q11  | Q12  | Q13  | Q14  | Q15  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 83.6 | 92.6 | 92.1 | 85.6 | 85.1 | 85.5 | 90.8 | 93.7 | 94.6 | 94.7 | 97.4 | 96.8 | 95.7 | 89.3 | 88.3 |

**CQS: 90.0**



### 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                             |
| 4017 K            | 92.0                  | 61.8          | 86.4           | 93.3        | 90.0                | 0.382                     | 0.385                     | 0.223            | 0.337            | 0.0032                          |

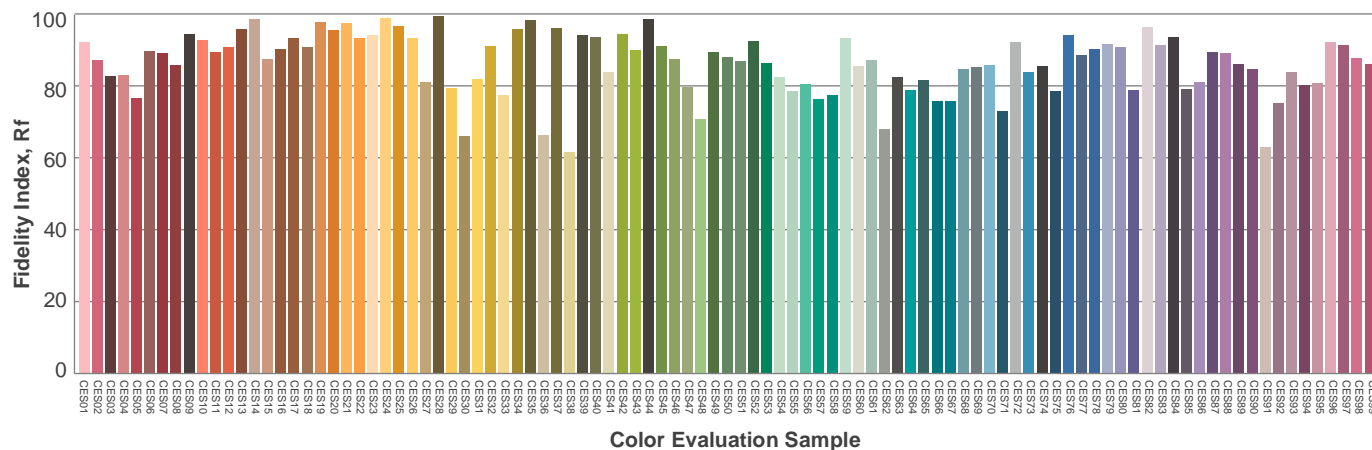
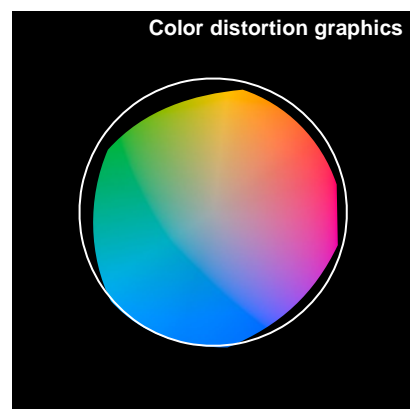
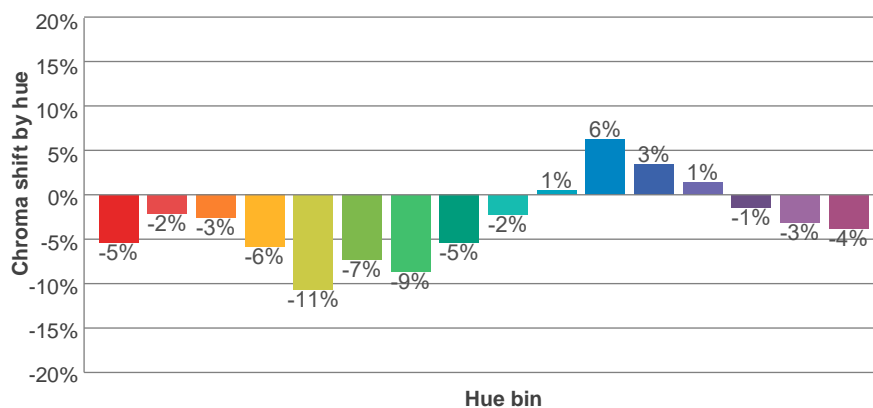
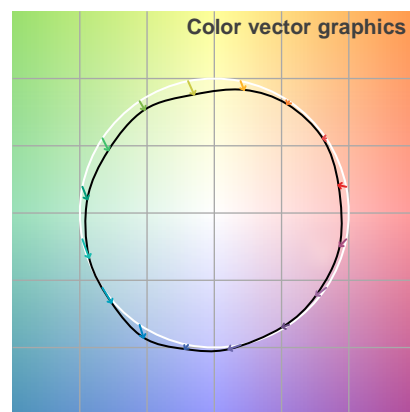
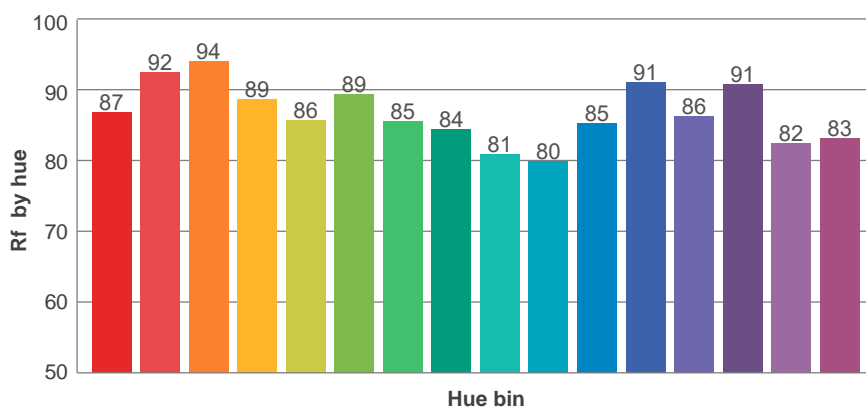
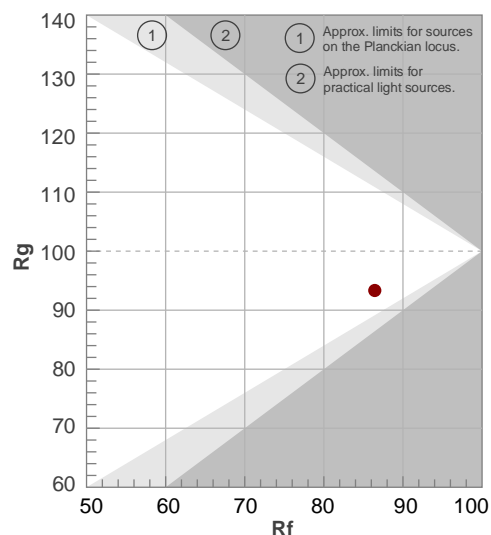
**Rf 86.4**

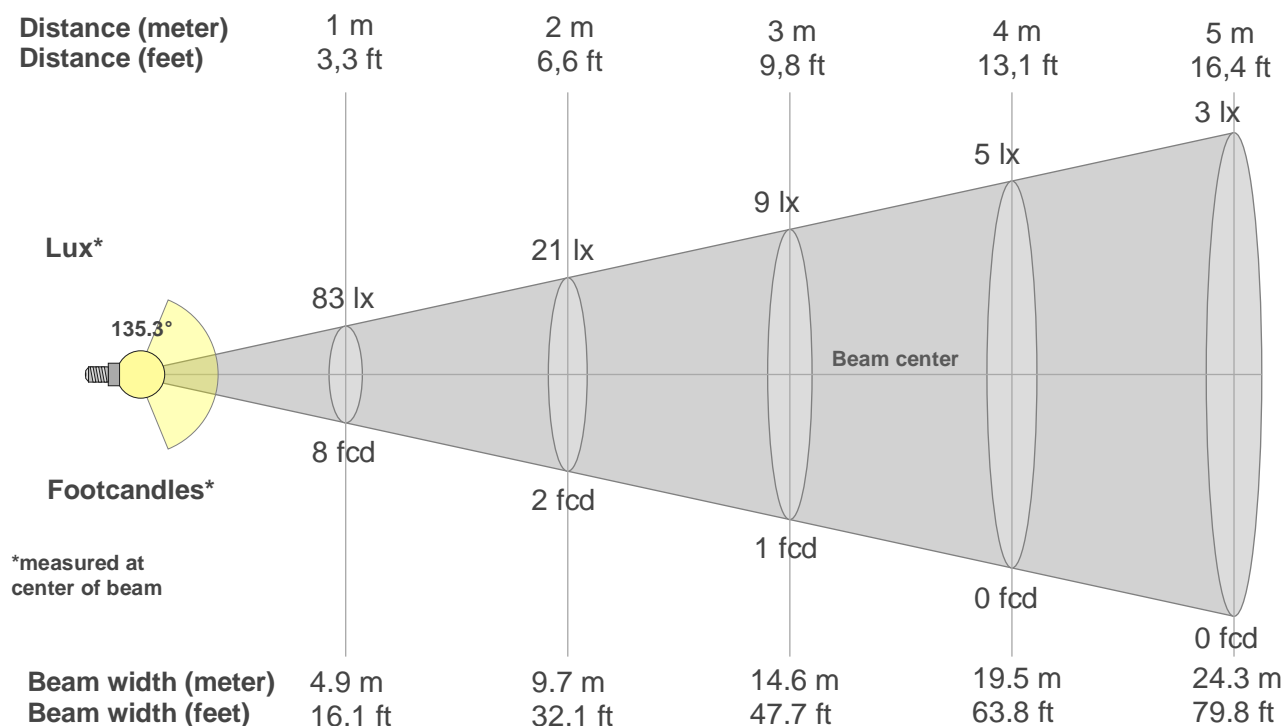
Fidelity index Rf

**Rg 93.3**

Gamut index Rg

| Hue Bin | R <sub>f</sub> | Shifts (%) |     |
|---------|----------------|------------|-----|
|         |                | Chroma     | Hue |
| 1       | 87             | -5%        | 2%  |
| 2       | 92             | -2%        | 1%  |
| 3       | 94             | -3%        | 0%  |
| 4       | 89             | -6%        | -4% |
| 5       | 86             | -11%       | -2% |
| 6       | 89             | -7%        | 0%  |
| 7       | 85             | -9%        | 5%  |
| 8       | 84             | -5%        | 8%  |
| 9       | 81             | -2%        | 14% |
| 10      | 80             | 1%         | 13% |
| 11      | 85             | 6%         | 8%  |
| 12      | 91             | 3%         | -2% |
| 13      | 86             | 1%         | -9% |
| 14      | 91             | -1%        | -5% |
| 15      | 82             | -3%        | -9% |
| 16      | 83             | -4%        | -6% |





### 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 |
| 83lx   | 21lx   | 9lx    | 5lx    | 3lx    | 2lx    | 2lx    | 1lx    | 1lx    | 1lx    | 1lx    | 1lx    | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    |
| 7.7fcd | 1.9fcd | 0.9fcd | 0.5fcd | 0.3fcd | 0.2fcd | 0.2fcd | 0.1fcd | 0.1fcd | 0.1fcd | 0.1fcd | 0.1fcd | 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° |
|------|------|------|------|------|------|------|------|------|------|------|-----|------|------|------|------|------|------|------|------|
| 82.5 | 81.8 | 79.4 | 75.6 | 70.8 | 65.1 | 58.6 | 51.9 | 45.0 | 37.3 | 26.8 | 1.4 | 0.4  | 0.4  | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.6  |
| 100% | 99%  | 96%  | 92%  | 86%  | 79%  | 71%  | 63%  | 55%  | 45%  | 32%  | 2%  | 1%   | 1%   | 1%   | 1%   | 1%   | 1%   | 1%   | 1%   |

### 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° |
|------|------|------|------|------|------|------|------|------|-----|-----|-----|------|------|------|------|------|------|------|------|
| 82.5 | 81.3 | 78.6 | 73.9 | 67.4 | 58.8 | 48.5 | 36.5 | 23.1 | 9.8 | 1.3 | 0.5 | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.6  | 0.5  | 0.6  |
| 100% | 98%  | 95%  | 90%  | 82%  | 71%  | 59%  | 44%  | 28%  | 12% | 2%  | 1%  | 1%   | 1%   | 1%   | 1%   | 1%   | 1%   | 1%   | 1%   |

### Intensities in 180° c-plane

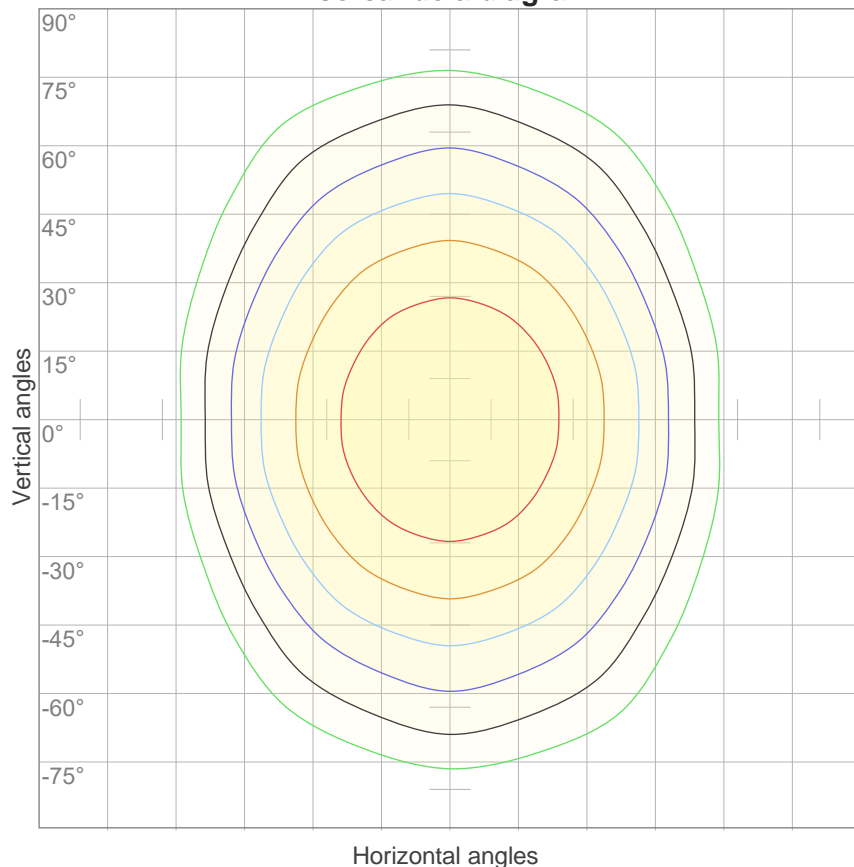
| 0°   | 9°   | 18°  | 27°  | 36°  | 45°  | 54°  | 63°  | 72°  | 81°  | 90°  | 99° | 108° | 117° | 126° | 135° | 144° | 153° | 162° | 171° |
|------|------|------|------|------|------|------|------|------|------|------|-----|------|------|------|------|------|------|------|------|
| 82.5 | 81.8 | 79.4 | 75.6 | 70.8 | 65.1 | 58.6 | 51.9 | 45.0 | 37.3 | 26.8 | 1.4 | 0.4  | 0.4  | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.6  |
| 100% | 99%  | 96%  | 92%  | 86%  | 79%  | 71%  | 63%  | 55%  | 45%  | 32%  | 2%  | 1%   | 1%   | 1%   | 1%   | 1%   | 1%   | 1%   | 1%   |

### 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° |
|------|------|------|------|------|------|------|------|------|-----|-----|-----|------|------|------|------|------|------|------|------|
| 82.5 | 81.3 | 78.6 | 73.9 | 67.4 | 58.8 | 48.5 | 36.5 | 23.1 | 9.8 | 1.3 | 0.5 | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.6  | 0.5  | 0.6  |
| 100% | 98%  | 95%  | 90%  | 82%  | 71%  | 59%  | 44%  | 28%  | 12% | 2%  | 1%  | 1%   | 1%   | 1%   | 1%   | 1%   | 1%   | 1%   | 1%   |

| Beam angle 50% | Field angle 10% | Cutoff angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|----------------|-----------------|-------------------|------------------------------|-----------------------------|
| 135.3°         | 183.8°          | 190.2°            | 65.0%                        | 42.3%                       |

**iso-candela diagram**



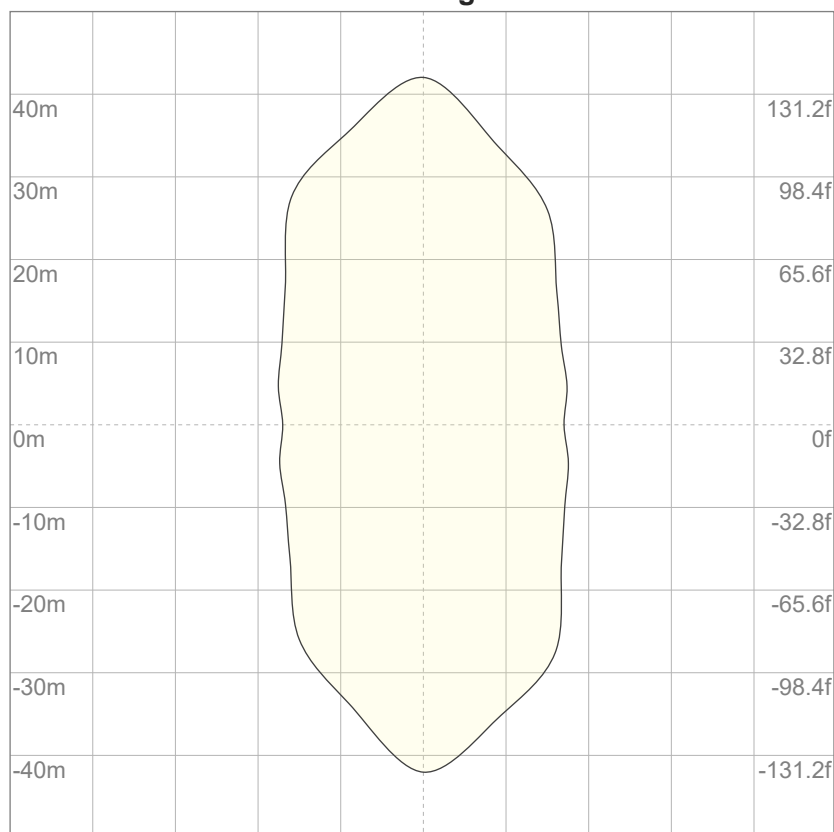
|     |       |
|-----|-------|
| 10% | 8 cd  |
| 20% | 17 cd |
| 30% | 25 cd |
| 40% | 33 cd |
| 50% | 41 cd |
| 60% | 50 cd |
| 70% | 58 cd |
| 80% | 66 cd |
| 90% | 74 cd |

Conditions:

Number of c-planes: 12

Candela at center: 83 cd

**iso-lux diagram**



|     |          |
|-----|----------|
| 3%  | 24.8m lx |
| 5%  | 41.3m lx |
| 10% | 82.5m lx |
| 30% | 0.248 lx |
| 50% | 0.413 lx |

Conditions:

Number of c-planes: 12

Lux at center: 0.825 lx

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

|   |   |     |     |     |     |   |     |     |     |     |
|---|---|-----|-----|-----|-----|---|-----|-----|-----|-----|
| 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<br>X      Y   | Viewing direction at right angles to<br>lamp axis |     |     |     |     | Viewing direction parallel to lamp axis |     |     |     |     |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a   | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| Variation of the observer position for the luminaire distance S               |   |     |     |     |     |   |     |     |     |     |
| n/a   | n/a   |     |     |     |     | n/a                                     |     |     |     |     |
| n/a   | n/a   |     |     |     |     | n/a                                     |     |     |     |     |
| n/a   | n/a   |     |     |     |     | n/a                                     |     |     |     |     |
| CIE 117-1995. Corrected glare indices referring to 314 lm total luminous flux |   |     |     |     |     |   |     |     |     |     |

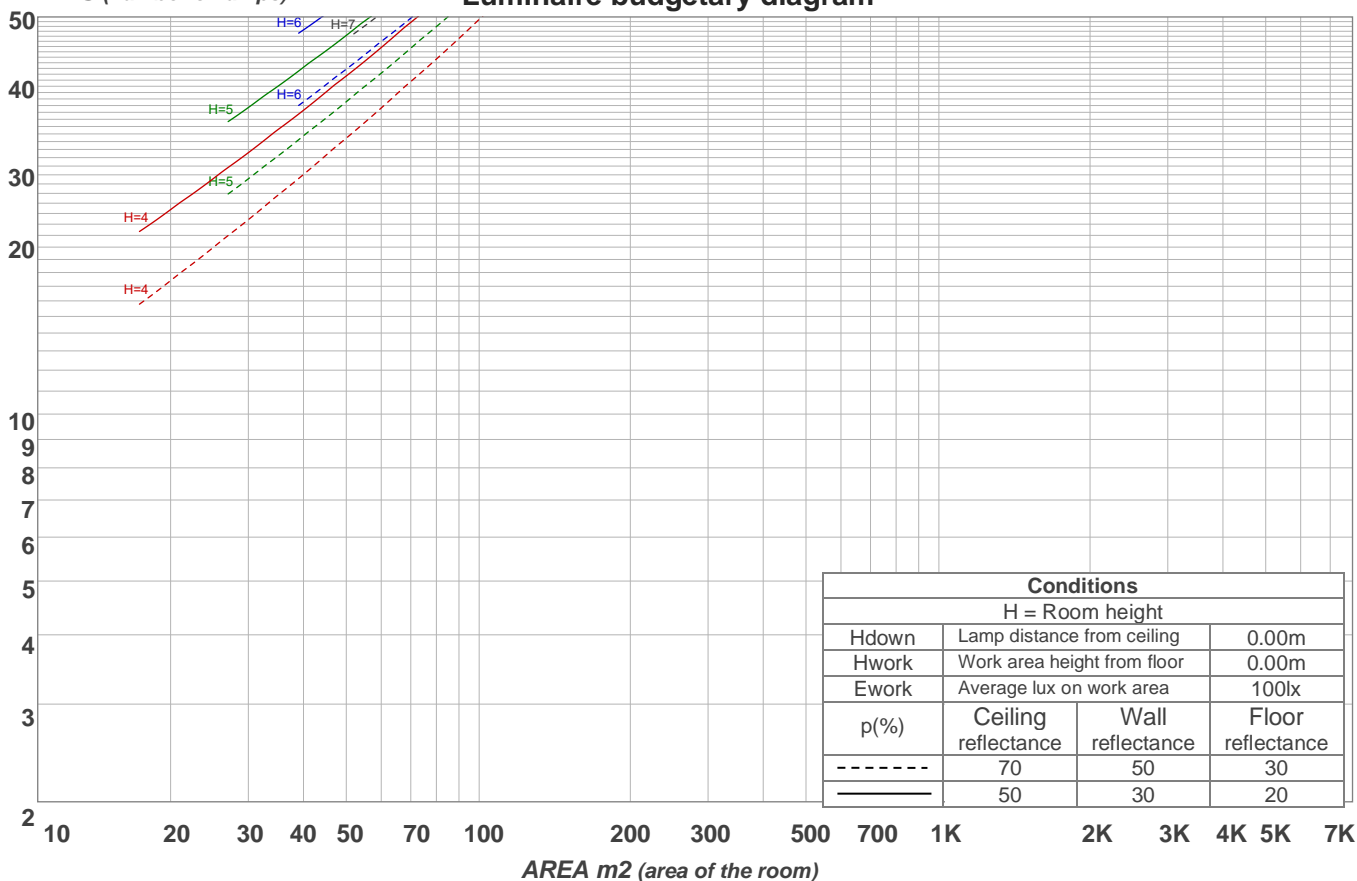
Viso Systems Aps – Copenhagen, Denmark – [www.visosystems.com](http://www.visosystems.com)

### 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                   | 105  | 99  | 93  | 88  | 102 | 96  | 91  | 87  | 91  | 87  | 83  | 87  | 83  | 80  | 82 | 80 | 77 | 75 |
| 2                   | 94   | 84  | 76  | 69  | 91  | 82  | 75  | 68  | 78  | 72  | 66  | 74  | 69  | 64  | 70 | 66 | 62 | 60 |
| 3                   | 85   | 73  | 64  | 56  | 82  | 71  | 63  | 56  | 68  | 60  | 54  | 64  | 58  | 53  | 61 | 56 | 51 | 49 |
| 4                   | 78   | 64  | 54  | 47  | 75  | 63  | 53  | 46  | 60  | 52  | 45  | 57  | 50  | 44  | 54 | 48 | 43 | 41 |
| 5                   | 71   | 57  | 47  | 40  | 69  | 56  | 46  | 40  | 53  | 45  | 39  | 51  | 44  | 38  | 48 | 42 | 37 | 35 |
| 6                   | 65   | 51  | 41  | 35  | 63  | 50  | 41  | 34  | 48  | 40  | 34  | 46  | 39  | 33  | 44 | 37 | 32 | 30 |
| 7                   | 61   | 46  | 37  | 30  | 59  | 45  | 36  | 30  | 43  | 35  | 30  | 41  | 34  | 29  | 40 | 33 | 29 | 26 |
| 8                   | 56   | 42  | 33  | 27  | 54  | 41  | 33  | 27  | 39  | 32  | 26  | 38  | 31  | 26  | 36 | 30 | 25 | 23 |
| 9                   | 53   | 38  | 30  | 24  | 51  | 38  | 29  | 24  | 36  | 29  | 23  | 35  | 28  | 23  | 34 | 27 | 23 | 21 |
| 10                  | 49   | 35  | 27  | 22  | 48  | 35  | 27  | 21  | 33  | 26  | 21  | 32  | 26  | 21  | 31 | 25 | 21 | 19 |

LAMPS (number of lamps)

Luminaire budgetary diagram



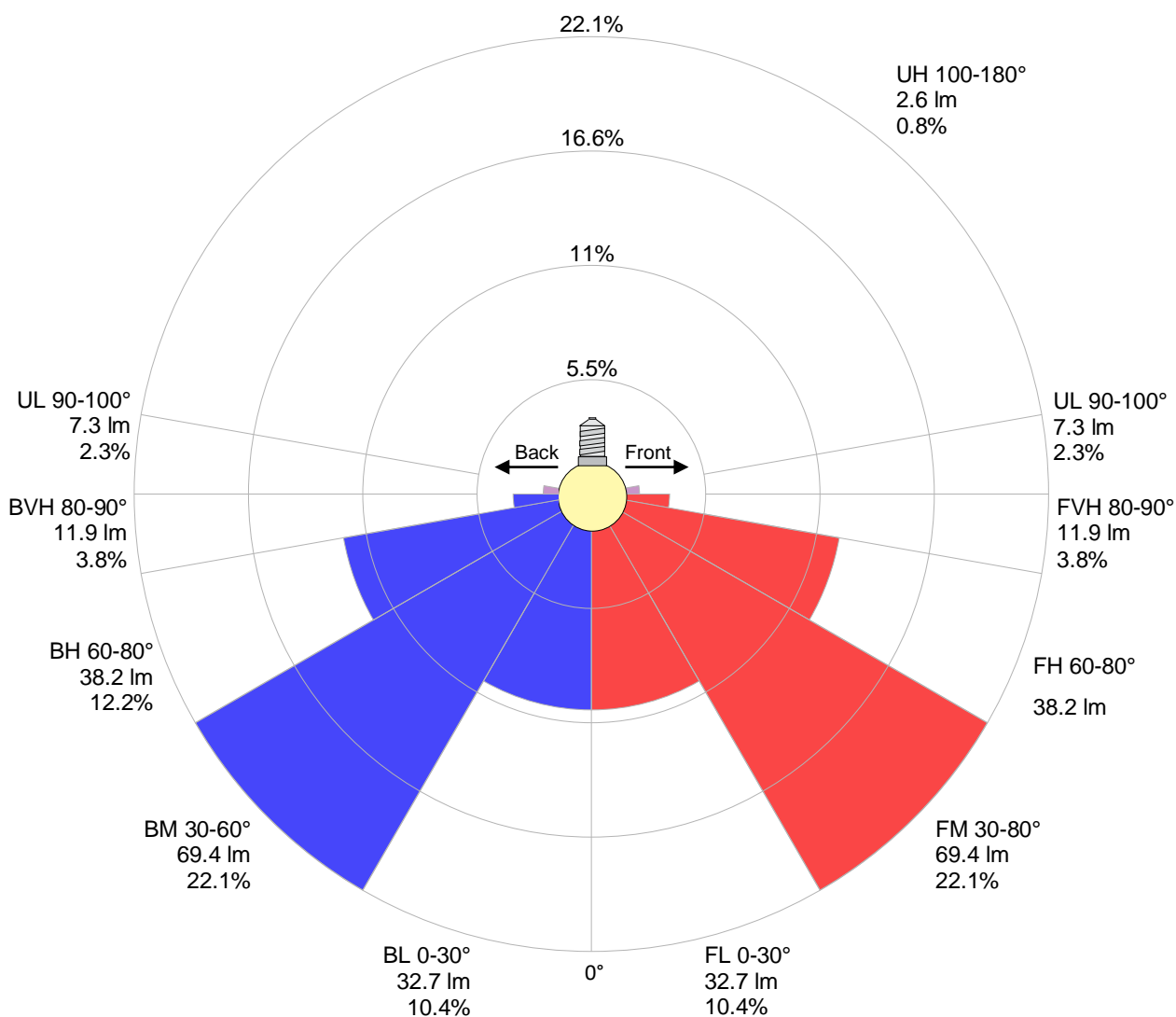
### Zonal Lumen Summary

| 0°-10°    | 10°-20°   | 20°-30°   | 30°-40°   | 40°-50°   | 50°-60°   | 60°-70°   | 70°-80°   | 80°-90°   |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| {LUM0-10} | 22.6 lm   | 35.0 lm   | 43.7 lm   | 47.9 lm   | 47.2 lm   | 42.2 lm   | 34.2 lm   | 23.8 lm   |
| 90°-100°  | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
| 7.27 lm   | 0.536 lm  | 0.466 lm  | 0.433 lm  | 0.386 lm  | 0.325 lm  | 0.250 lm  | 0.156 lm  | 0.055 lm  |

**LCS table**

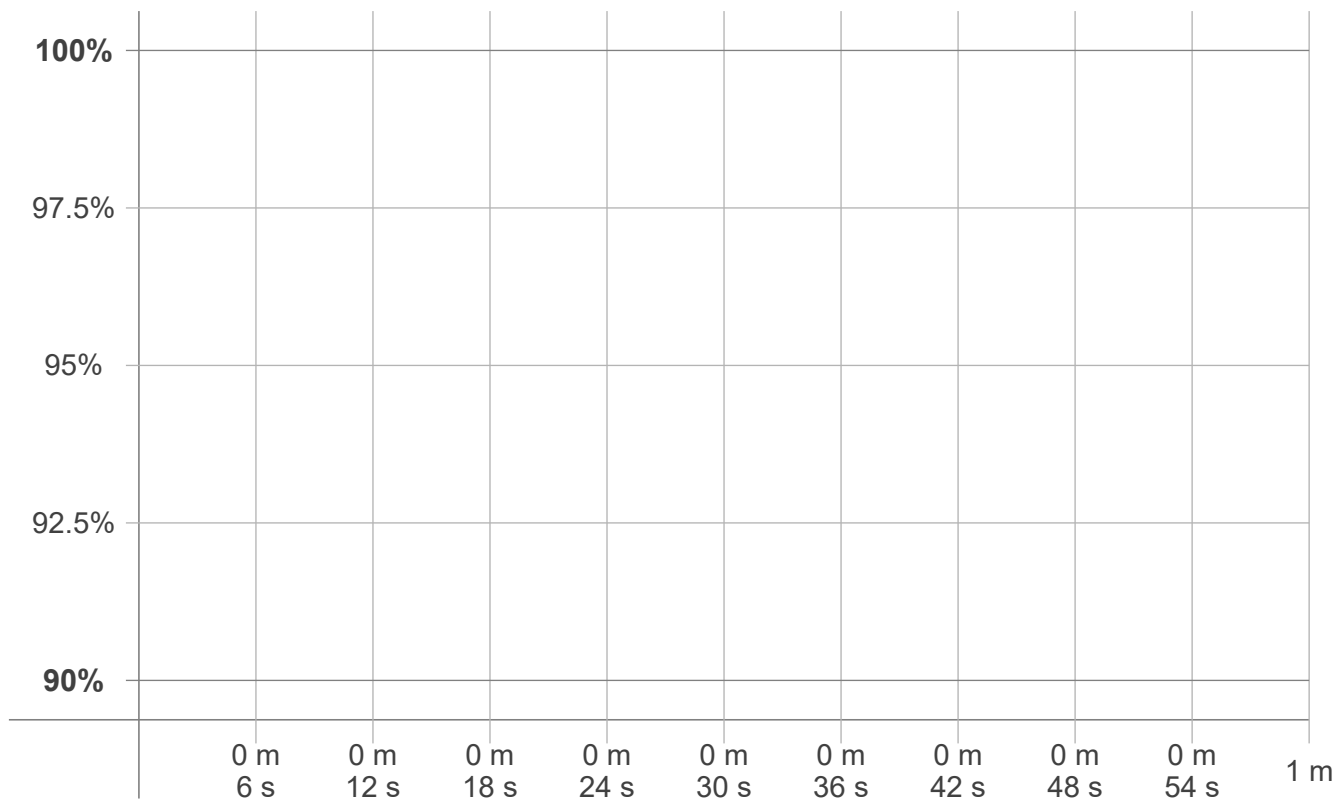
| BUG rating:       | B0 U1 G1 |          |
|-------------------|----------|----------|
| Forward light     | Lumens   | Lumens % |
| Low(0-30):        | 32.7     | 10.4%    |
| Medium(30-60):    | 69.4     | 22.1%    |
| High(60-80):      | 38.2     | 12.2%    |
| Very high(80-90): | 11.9     | 3.8%     |
| Back light        |          |          |
| Low(0-30):        | 32.7     | 10.4%    |
| Medium(30-60):    | 69.4     | 22.1%    |
| High(60-80):      | 38.2     | 12.2%    |
| Very high(80-90): | 11.9     | 3.8%     |
| Uplight           |          |          |
| Low(90-100):      | 7.3      | 2.3%     |
| High(100-180):    | 2.6      | 0.8%     |

**LCS graph**





**Warmup curve**



**Warmup result**

|                  |      |
|------------------|------|
| Warmup time:     | n/a  |
| Warmup variation | n/a% |

**Warmup conditions**

|                    |      |
|--------------------|------|
| Stable period:     | n/a  |
| Stable change max: | n/a% |
| Minimum time:      | n/a  |

**Color temperature change**

| CCT start | CCT change | CCT end |
|-----------|------------|---------|
| n/a K     | n/a K      | 4017 K  |

**Output change**

| Output start | Output change | Output end |
|--------------|---------------|------------|
| n/a lm       | n/a lm        | 314 lm     |

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



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



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



**Flicker results:**

| Flicker frequency:    |       | n/a Hz        |       |
|-----------------------|-------|---------------|-------|
| Flicker index:        | n/a   | JA8/10 40Hz   | n/a % |
| Flicker percentage:   | n/a % | JA8/10 90Hz   | n/a % |
| SVM: (Visual flicker) | n/a   | JA8/10 200Hz  | n/a % |
| PstLM                 | n/a   | JA8/10 400Hz  | n/a % |
| Mp                    | n/a   | JA8/10 1000Hz | n/a % |

**Flicker conditions:**

|              |                    |
|--------------|--------------------|
| Sample rate: | n/a samples/second |
|--------------|--------------------|