

Light efficiency:

129 Lumen/Watt

Output: 9803 lm

Light quality:

CRI: 83.1

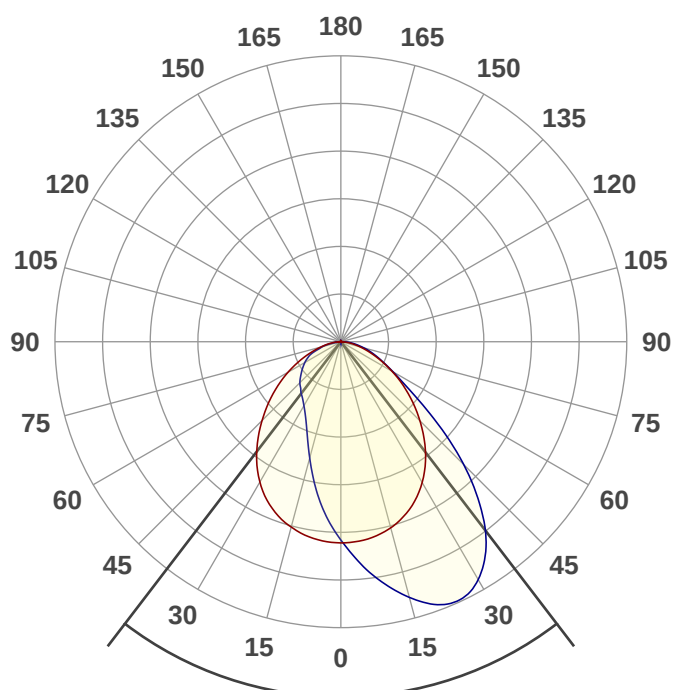
Peak: 5571 cd

Color temperature:

5183 K

Power: 76.3 W

PF: 0.99



Product name:

**WPSC2-50K80-H**

Date and time:

**10/31/2019 2:37:21 PM**

Beam angle

**74.9°**

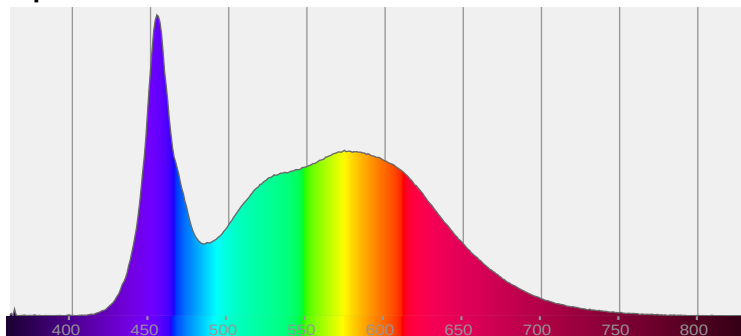


CIE 1931

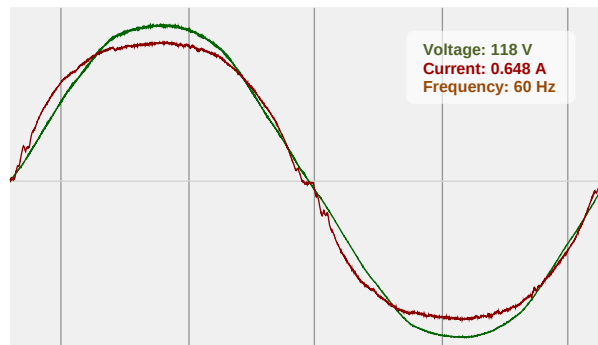
x: 0.340

y: 0.350

Spectra



Power



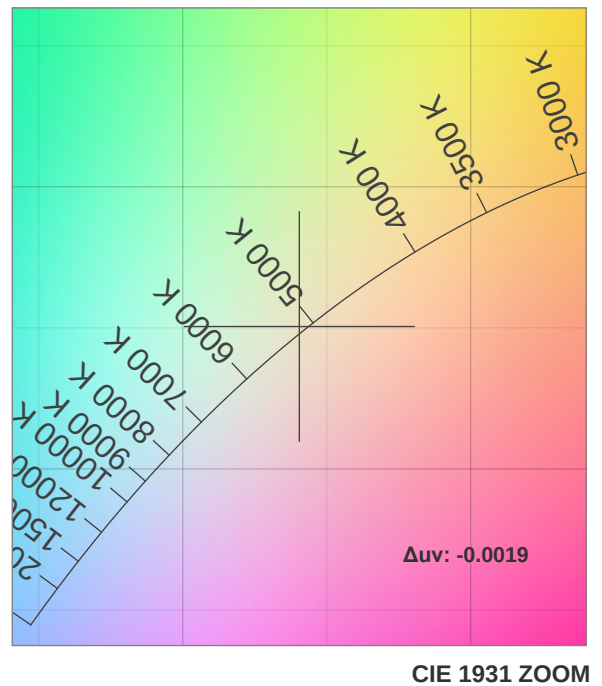
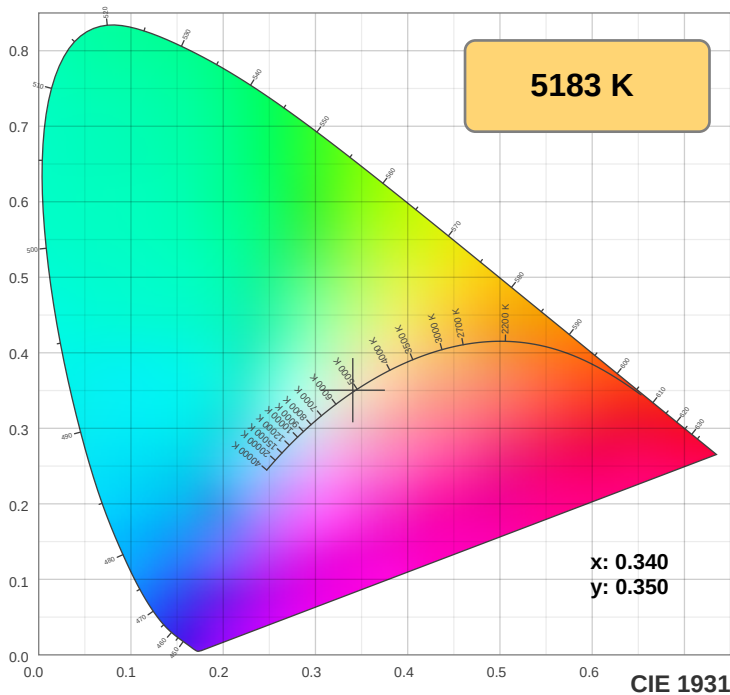
T 314.743.3067

F 314.972.6202

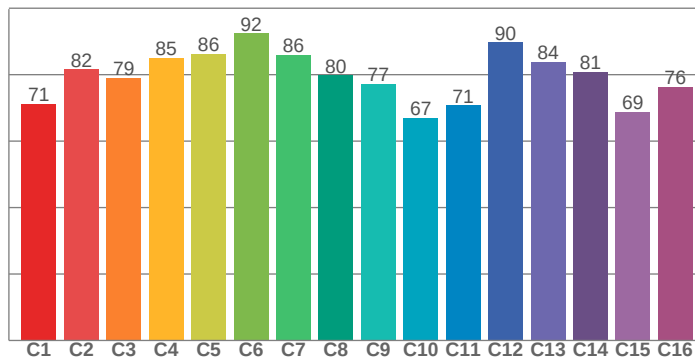
email: [commercial-sales@superbrightleds.com](mailto:commercial-sales@superbrightleds.com)

[www.superbrightleds.com/](http://www.superbrightleds.com/)

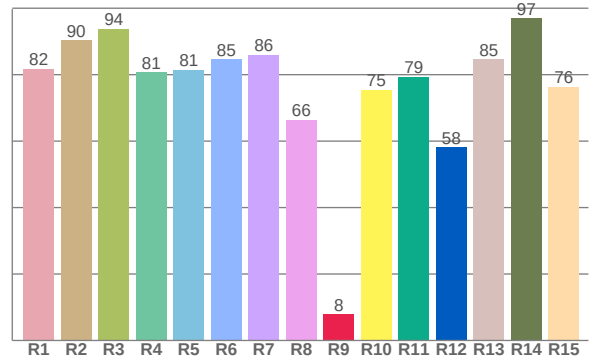
## Color Specifications



**TM30: 79.7**



**CRI: 83.1 (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  |
|------|------|------|------|------|------|------|------|-----|------|------|------|------|------|------|
| 81.8 | 90.3 | 93.8 | 80.8 | 81.5 | 84.6 | 86.0 | 66.4 | 7.8 | 75.4 | 79.4 | 58.2 | 84.6 | 97.0 | 76.4 |

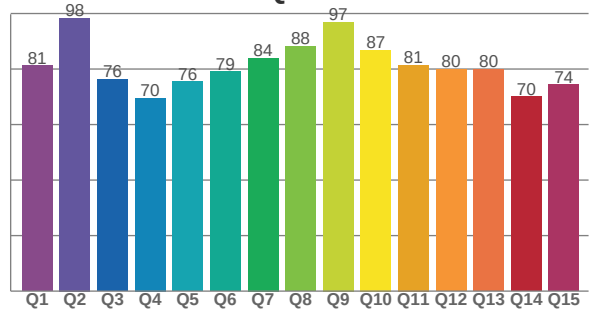
TM30 C values, 16 binned values out of total of 99 C values

| C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8   | C9   | C10  | C11  | C12  | C13  | C14  | C15  | C16  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 71.2 | 81.7 | 79.0 | 85.1 | 86.3 | 92.4 | 85.9 | 79.7 | 77.2 | 66.9 | 70.8 | 89.7 | 83.8 | 80.8 | 68.9 | 76.3 |

CQS Q values

| Q1   | Q2   | Q3   | Q4   | Q5   | Q6   | Q7   | Q8   | Q9   | Q10  | Q11  | Q12  | Q13  | Q14  | Q15  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 81.2 | 98.4 | 76.3 | 69.6 | 75.5 | 79.0 | 84.0 | 88.2 | 97.0 | 86.8 | 81.5 | 79.9 | 80.0 | 70.0 | 74.4 |

**CQS: 79.7**



## 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                             |
| 5183 K            | 83.1                  | 7.8           | 79.7           | 92.5        | 79.7                | 0.340                     | 0.350                     | 0.209            | 0.322            | -0.0019                         |



## TM30 Report

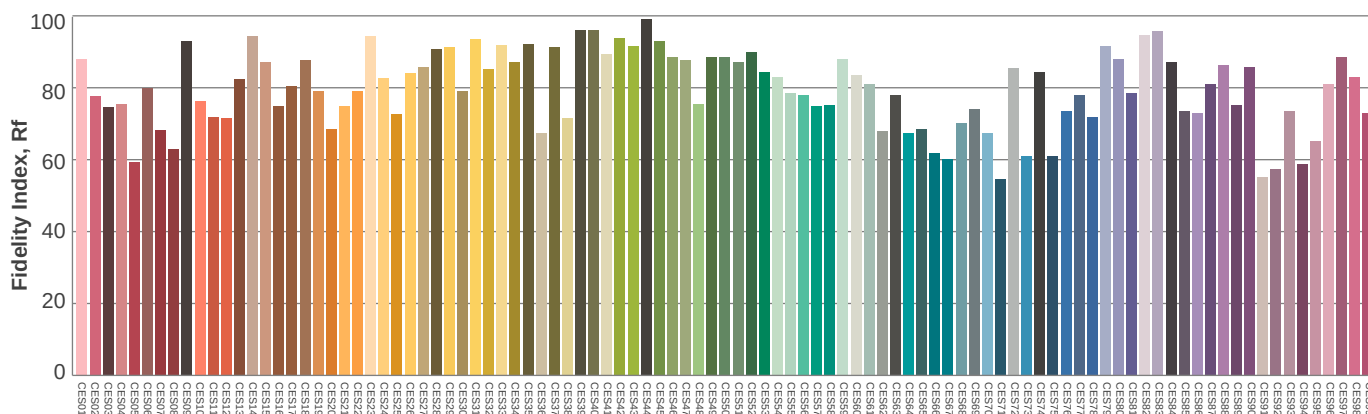
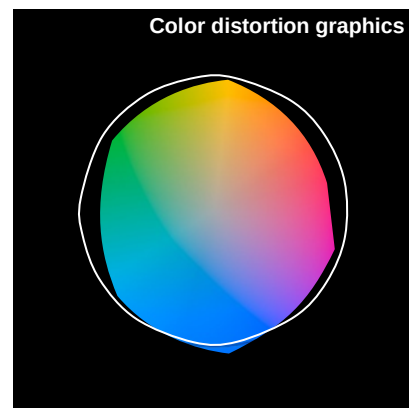
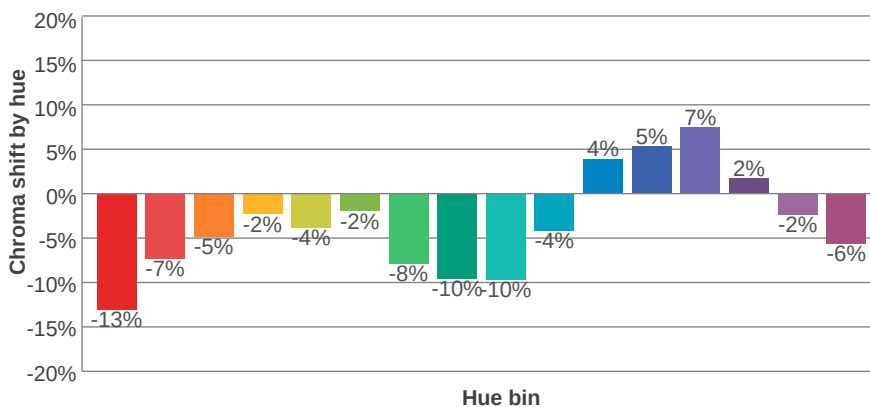
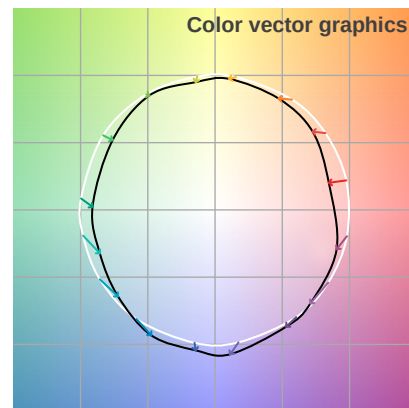
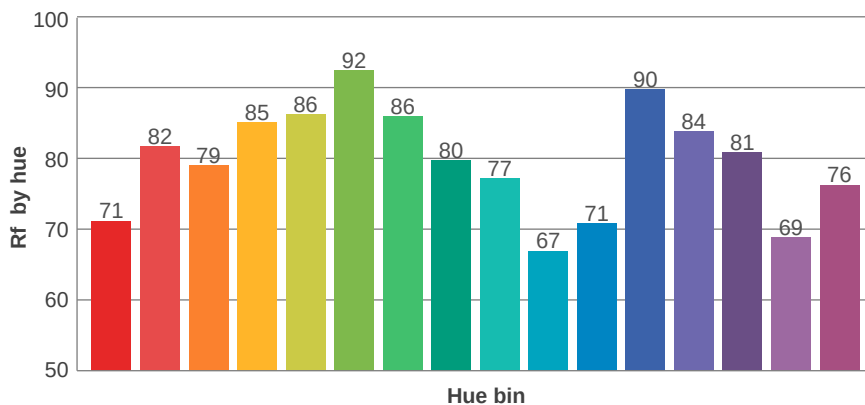
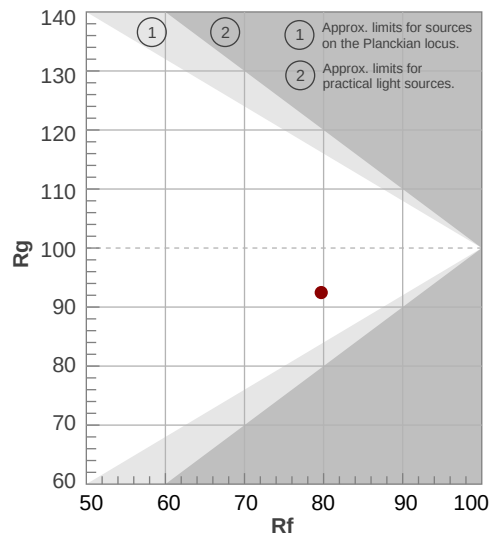
**Rf 79.7**

Fidelity index Rf

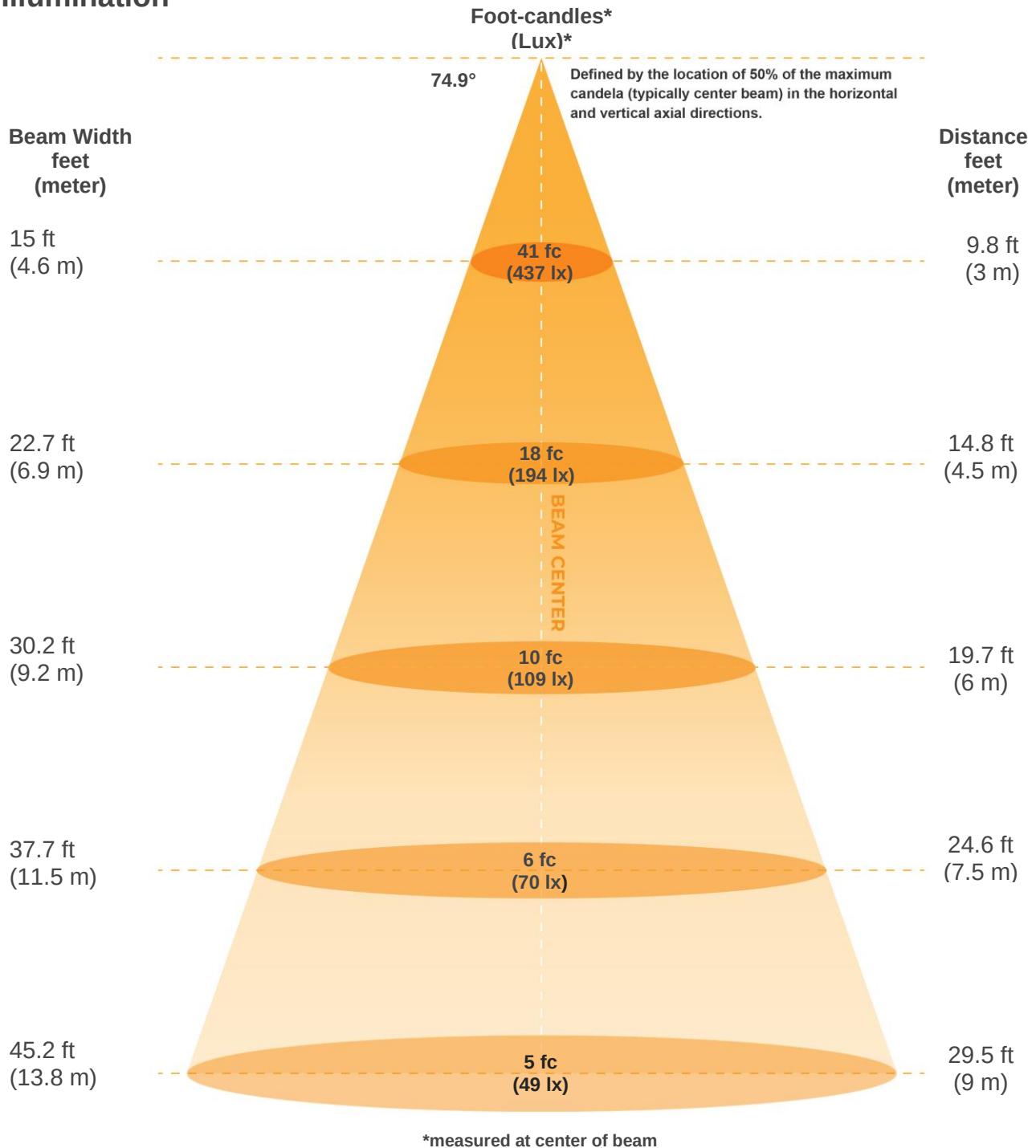
**Rg 92.5**

Gamut index Rg

| Hue Bin | R <sub>f</sub> | Graphic shifts (%) |      |
|---------|----------------|--------------------|------|
|         |                | Chroma             | Hue  |
| 1       | 71             | -13%               | 1%   |
| 2       | 82             | -7%                | 6%   |
| 3       | 79             | -5%                | 9%   |
| 4       | 85             | -2%                | 5%   |
| 5       | 86             | -4%                | 2%   |
| 6       | 92             | -2%                | -2%  |
| 7       | 86             | -8%                | -1%  |
| 8       | 80             | -10%               | 4%   |
| 9       | 77             | -10%               | 15%  |
| 10      | 67             | -4%                | 18%  |
| 11      | 71             | 4%                 | 16%  |
| 12      | 90             | 5%                 | 2%   |
| 13      | 84             | 7%                 | -8%  |
| 14      | 81             | 2%                 | -10% |
| 15      | 69             | -2%                | -20% |
| 16      | 76             | -6%                | -11% |



## Illumination



### Beam intensities from 1-20m

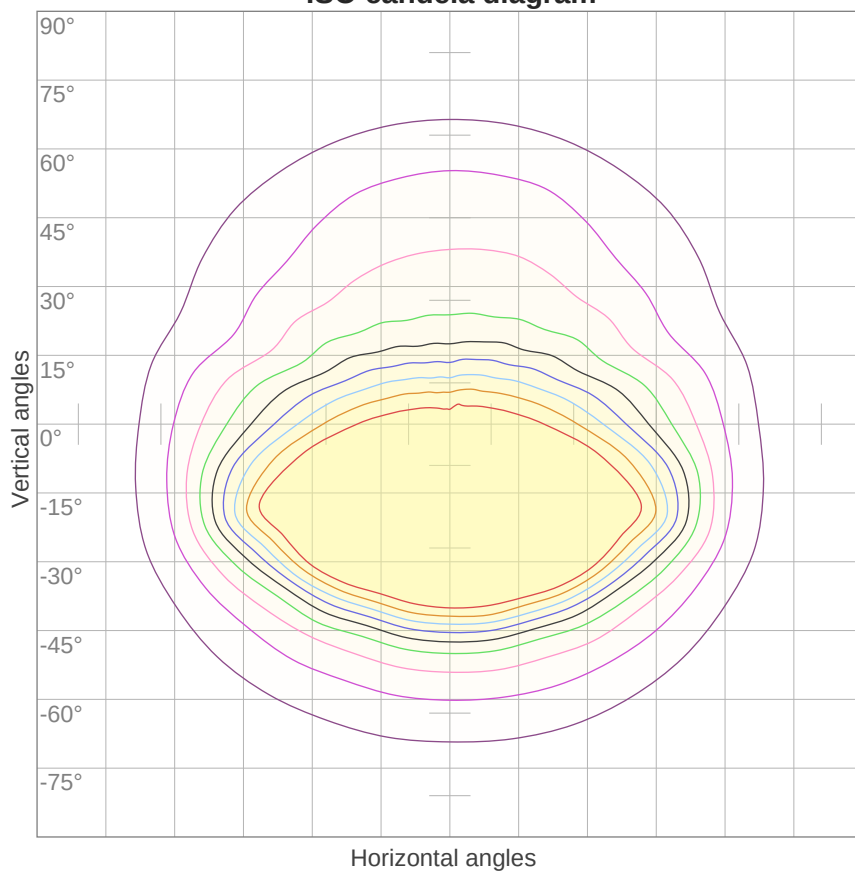
| 1m     | 2m      | 3m      | 4m      | 5m      | 6m      | 7m     | 8m     | 9m     | 10m    | 11m    | 12m    | 13m    | 14m    | 15m    | 16m    | 17m    | 18m    | 19m    | 20m    |
|--------|---------|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 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 |
| 3929lx | 982lx   | 437lx   | 246lx   | 157lx   | 109lx   | 80lx   | 61lx   | 49lx   | 39lx   | 32lx   | 27lx   | 23lx   | 20lx   | 17lx   | 15lx   | 14lx   | 12lx   | 11lx   | 10lx   |
| 365fcd | 91.2fcd | 40.6fcd | 22.8fcd | 14.6fcd | 10.1fcd | 7.4fcd | 5.7fcd | 4.5fcd | 3.6fcd | 3fcd   | 2.5fcd | 2.2fcd | 1.9fcd | 1.6fcd | 1.4fcd | 1.3fcd | 1.1fcd | 1fcd   | 0.9fcd |

| Beam angle 50% | Field angle 10% | Cutoff angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|----------------|-----------------|-------------------|------------------------------|-----------------------------|
| 74.9°          | 145.8°          | 169.6°            | 84.4%                        | 61.2%                       |



## ISO Diagrams

ISO candela diagram



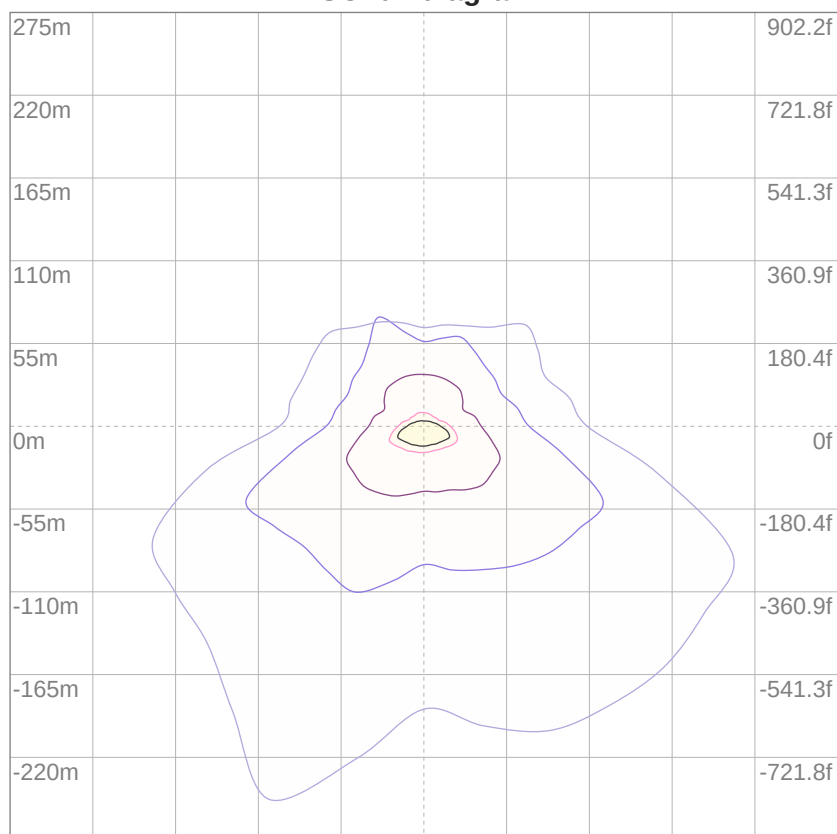
|     |         |
|-----|---------|
| 10% | 393 cd  |
| 20% | 786 cd  |
| 30% | 1179 cd |
| 40% | 1571 cd |
| 50% | 1964 cd |
| 60% | 2357 cd |
| 70% | 2750 cd |
| 80% | 3143 cd |
| 90% | 3536 cd |

### Conditions:

Number of c-planes: 16

Candela at center: 3929 cd

ISO lux diagram



|     |         |
|-----|---------|
| 3%  | 1.18 lx |
| 5%  | 1.96 lx |
| 10% | 3.93 lx |
| 30% | 11.8 lx |
| 50% | 19.6 lx |

### Conditions:

Number of c-planes: 16

Lux at center: 39.3 lx

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



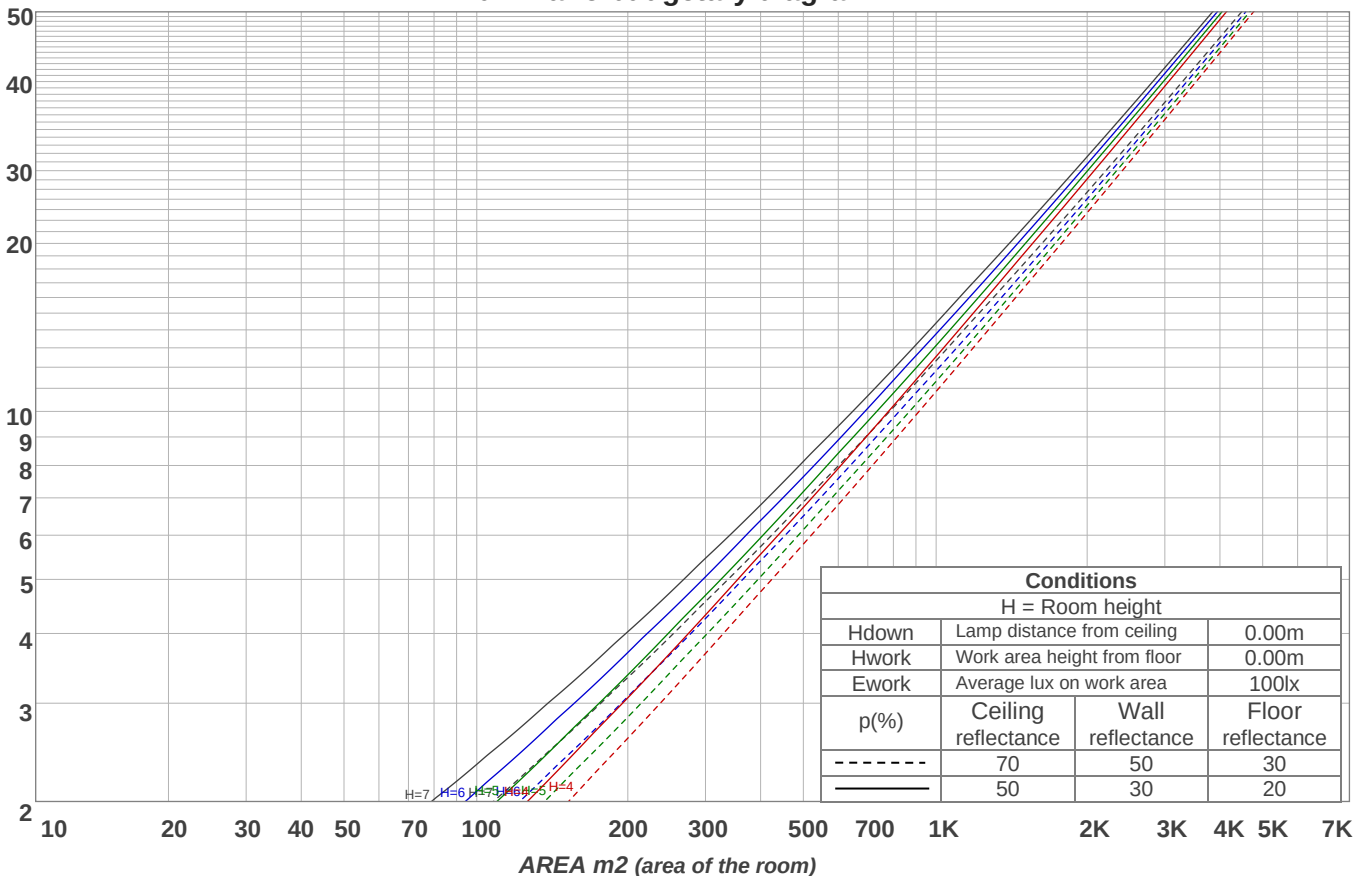
## Light Planning

### 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                   | 119                                                                                                      | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1                   | 110                                                                                                      | 105 | 101 | 98  | 107 | 103 | 99  | 96  | 99  | 96  | 93  | 95  | 92  | 90  | 91  | 89  | 87  | 85  |
| 2                   | 100                                                                                                      | 93  | 86  | 81  | 98  | 91  | 85  | 80  | 87  | 83  | 78  | 84  | 80  | 76  | 81  | 78  | 75  | 73  |
| 3                   | 92                                                                                                       | 82  | 75  | 69  | 90  | 81  | 74  | 68  | 78  | 72  | 67  | 75  | 70  | 66  | 72  | 68  | 64  | 62  |
| 4                   | 85                                                                                                       | 73  | 65  | 59  | 83  | 72  | 64  | 58  | 70  | 63  | 58  | 67  | 62  | 57  | 65  | 60  | 56  | 54  |
| 5                   | 78                                                                                                       | 66  | 58  | 51  | 76  | 65  | 57  | 51  | 63  | 56  | 50  | 61  | 55  | 50  | 59  | 54  | 49  | 47  |
| 6                   | 72                                                                                                       | 60  | 51  | 45  | 71  | 59  | 51  | 45  | 57  | 50  | 44  | 55  | 49  | 44  | 54  | 48  | 44  | 42  |
| 7                   | 67                                                                                                       | 54  | 46  | 40  | 66  | 54  | 46  | 40  | 52  | 45  | 40  | 51  | 44  | 39  | 49  | 43  | 39  | 37  |
| 8                   | 63                                                                                                       | 50  | 42  | 36  | 61  | 49  | 41  | 36  | 48  | 41  | 36  | 46  | 40  | 35  | 45  | 39  | 35  | 33  |
| 9                   | 59                                                                                                       | 46  | 38  | 32  | 57  | 45  | 38  | 32  | 44  | 37  | 32  | 43  | 37  | 32  | 42  | 36  | 32  | 30  |
| 10                  | 55                                                                                                       | 42  | 35  | 29  | 54  | 42  | 34  | 29  | 41  | 34  | 29  | 40  | 34  | 29  | 39  | 33  | 29  | 27  |

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°   |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 373 lm   | 1071 lm   | 1633 lm   | 1947 lm   | 1868 lm   | 1387 lm   | 879 lm    | 475 lm    | 142 lm    |
| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
| 6.15 lm  | 2.44 lm   | 2.98 lm   | 3.54 lm   | 3.75 lm   | 3.54 lm   | 3.00 lm   | 2.00 lm   | 0.702 lm  |

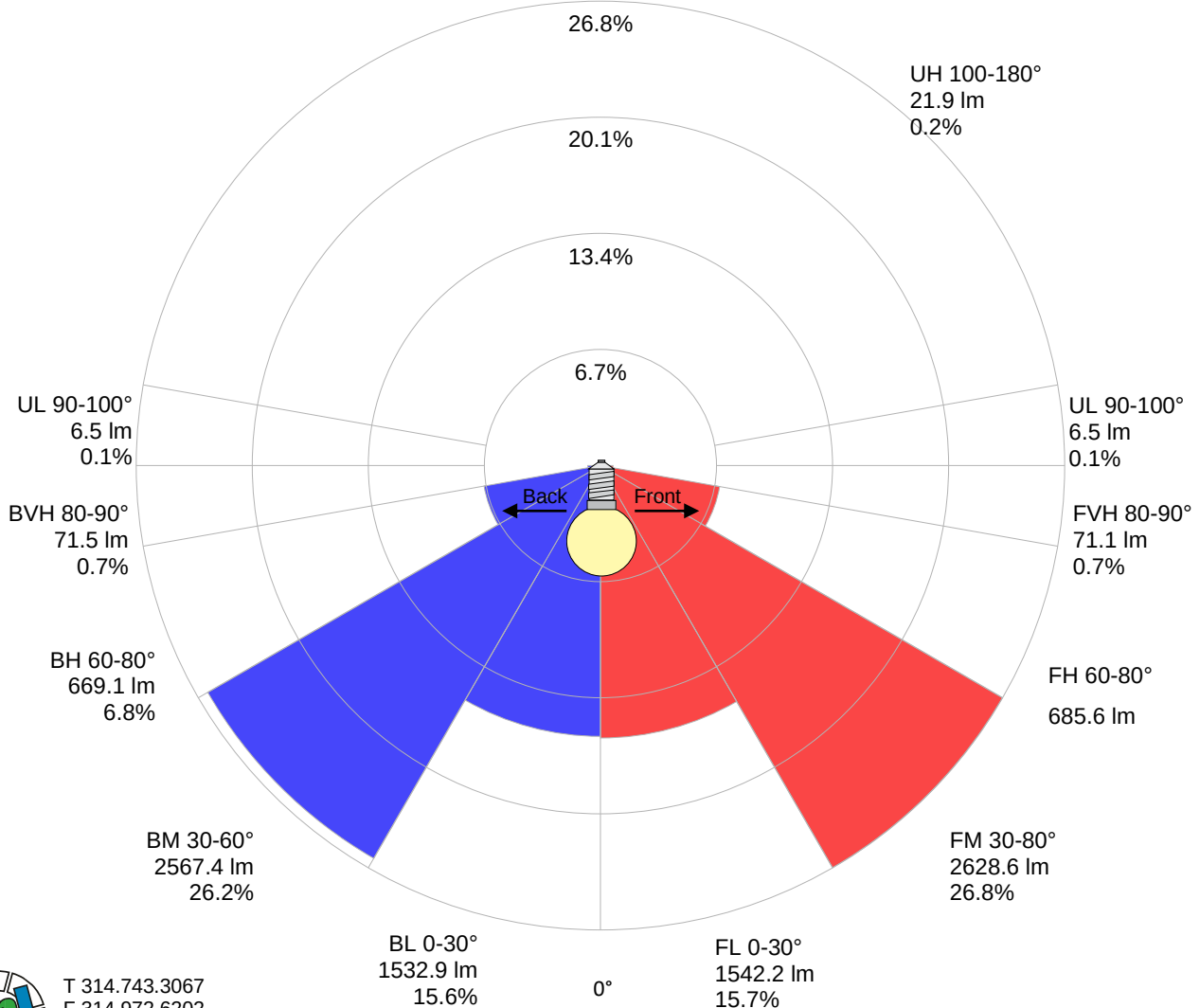


## Road Report

LCS table

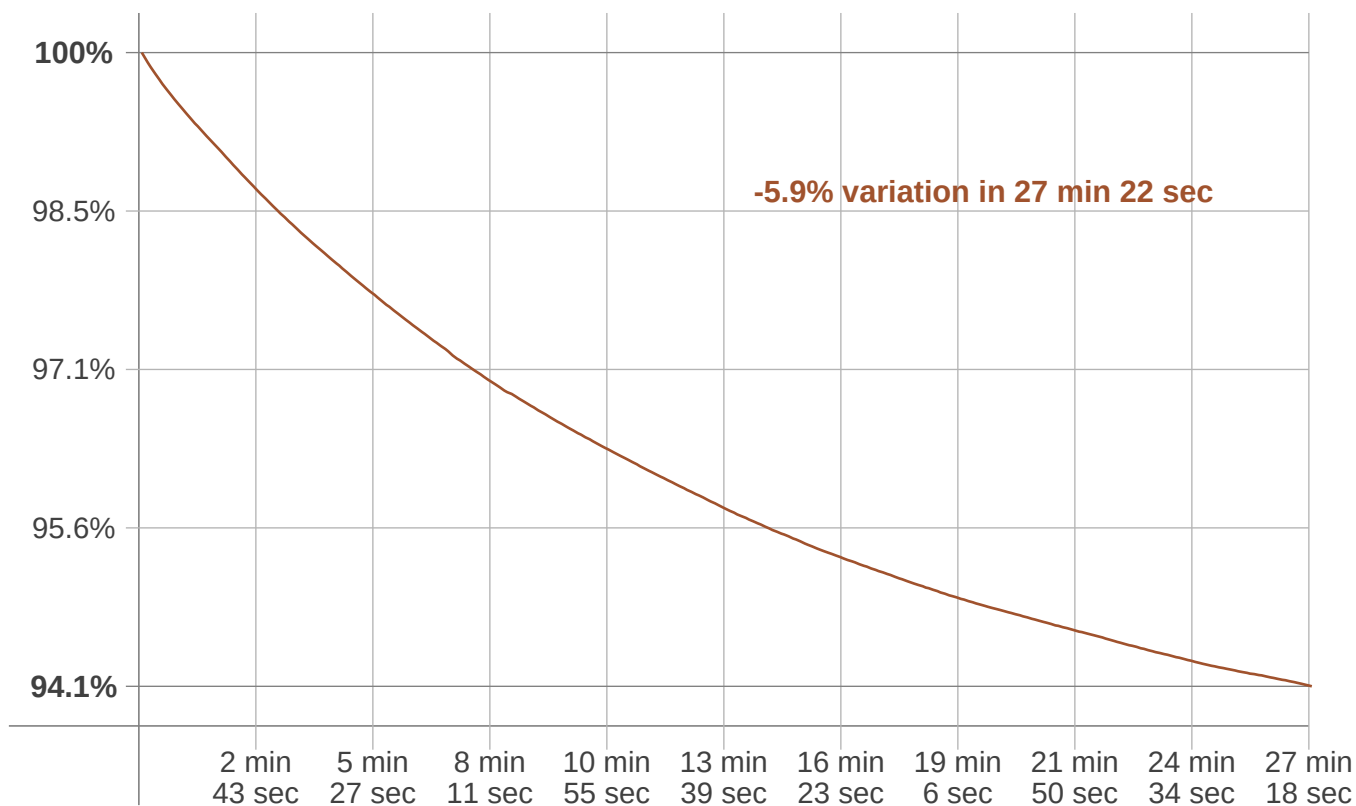
| BUG rating:       | B3 U2 G2 |          |
|-------------------|----------|----------|
| Forward light     | Lumens   | Lumens % |
| Low(0-30):        | 1542.2   | 15.7%    |
| Medium(30-60):    | 2628.6   | 26.8%    |
| High(60-80):      | 685.6    | 7%       |
| Very high(80-90): | 71.1     | 0.7%     |
| Back light        |          |          |
| Low(0-30):        | 1532.9   | 15.6%    |
| Medium(30-60):    | 2567.4   | 26.2%    |
| High(60-80):      | 669.1    | 6.8%     |
| Very high(80-90): | 71.5     | 0.7%     |
| Uplight           |          |          |
| Low(90-100):      | 6.5      | 0.1%     |
| High(100-180):    | 21.9     | 0.2%     |

LCS graph



## Stabilization

### Warmup curve



### Warmup result

|                  |               |
|------------------|---------------|
| Warmup time:     | 27 min 22 sec |
| Warmup variation | -5.9%         |

### Warmup conditions

|                    |        |
|--------------------|--------|
| Stable period:     | 15 min |
| Stable change max: | 2.0%   |
| Minimum time:      | 15 min |

### Color temperature change

| CCT start | CCT change | CCT end |
|-----------|------------|---------|
| 5088 K    | +95 K      | 5183 K  |

### Output change

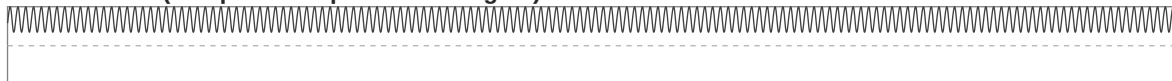
| Output start | Output change | Output end |
|--------------|---------------|------------|
| 10396 lm     | -593 lm       | 9803 lm    |



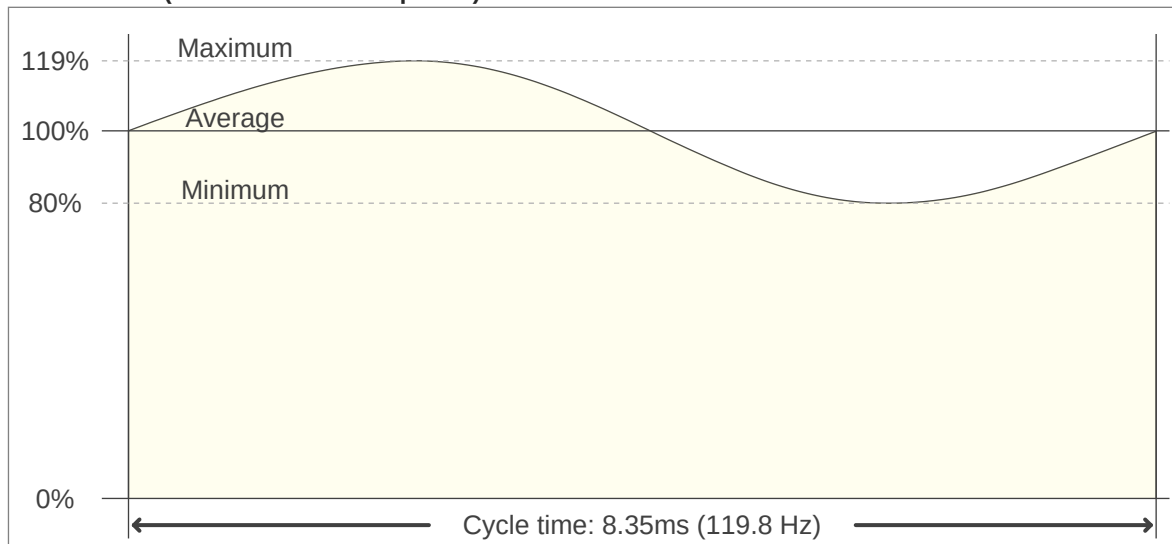


## Flicker

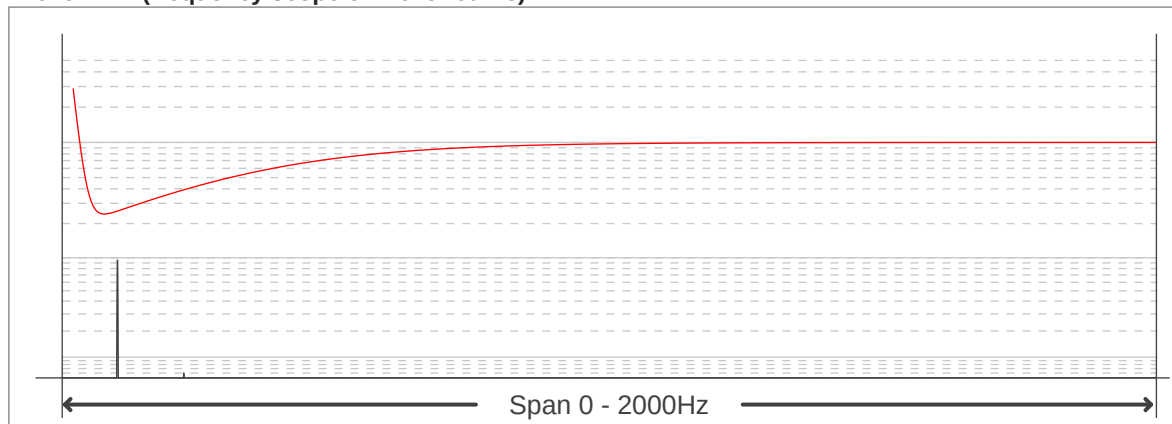
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



### Flicker results:

|                       |           |
|-----------------------|-----------|
| Flicker frequency:    | 119.76 Hz |
| Flicker index:        | 0.06      |
| Flicker percentage:   | 19.53 %   |
| SVM: (Visual flicker) | 0.7       |

### Flicker conditions:

|              |                      |
|--------------|----------------------|
| Sample rate: | 40000 samples/second |
|--------------|----------------------|

