

Light efficiency:

122 Lumens/Watt

Output: 3582 lm

Light quality:

CRI: 84.8

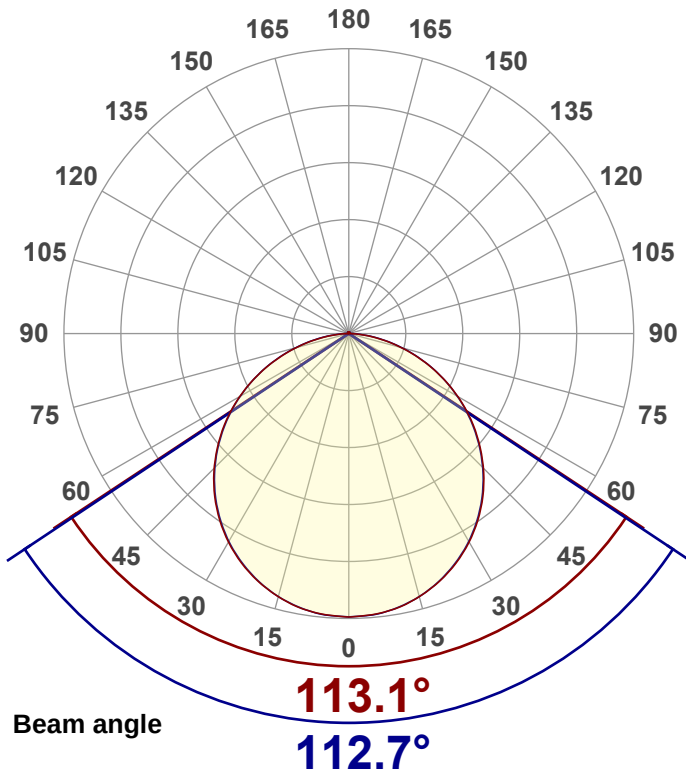
Peak: 1233 cd

Color temperature:

4115 K

Power: 29.4 W

PF: 1.0

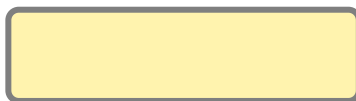


Product name:

LPD-24-SW3C-SP3B (30W)

Date and time:

3/7/2024 11:24:17 AM

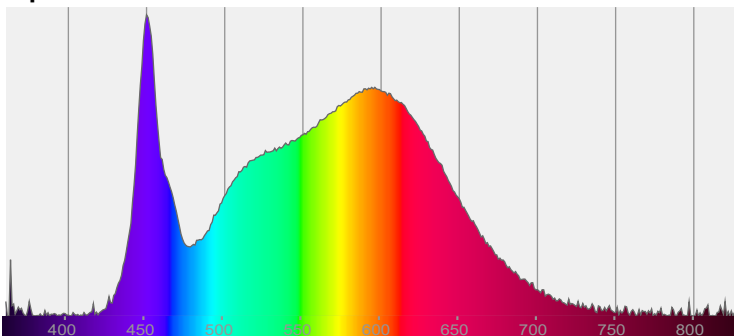


CIE 1931

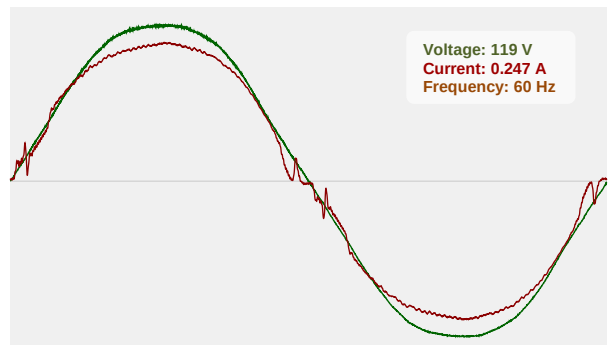
x: 0.376

y: 0.375

Spectra



Power



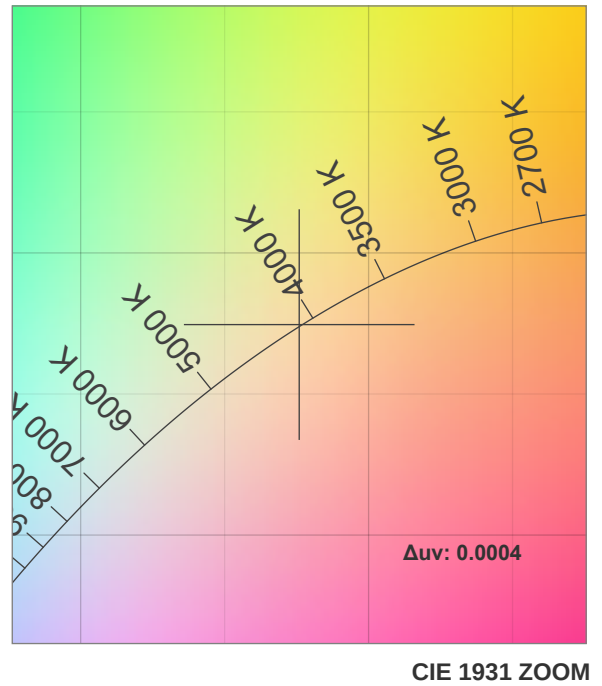
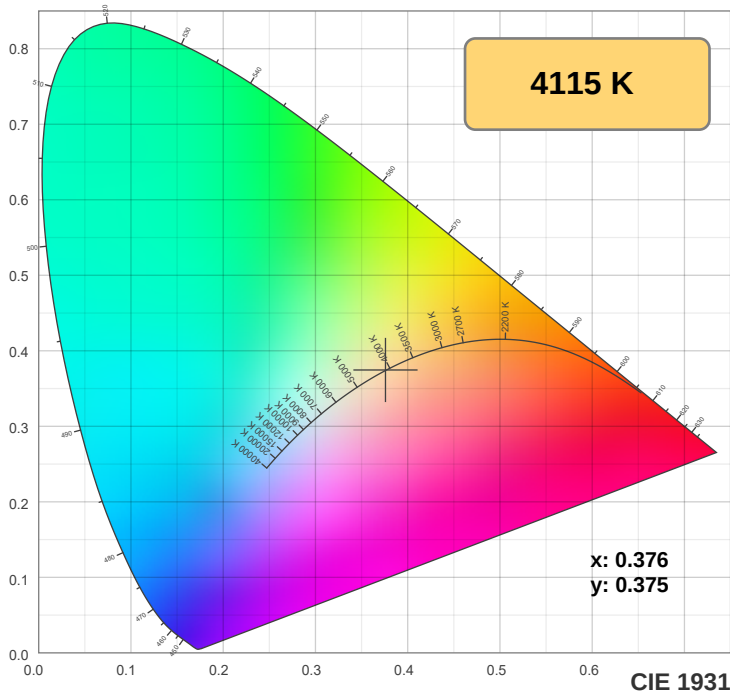
T 314.743.3067

F 314.972.6202

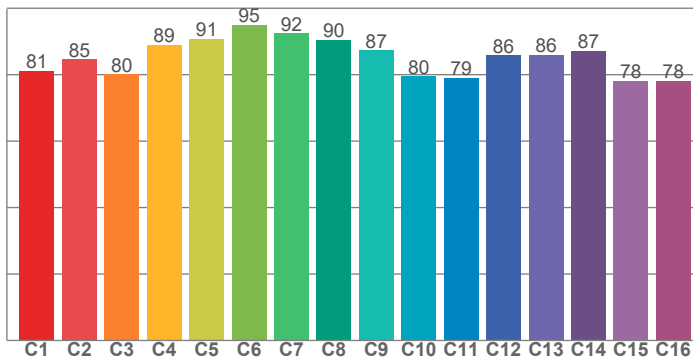
email: [commercial-sales@superbrightleds.com](mailto:commercial-sales@superbrightleds.com)

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

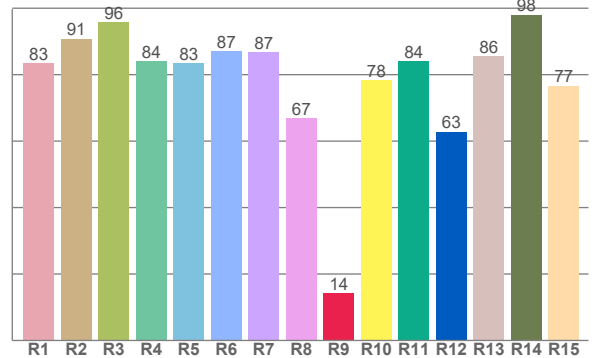
### Color Specifications



TM30: 85.0



CRI: 84.8 (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  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 83.4 | 90.8 | 95.8 | 84.1 | 83.5 | 87.0 | 86.7 | 66.9 | 14.3 | 78.3 | 84.0 | 62.8 | 85.5 | 98.1 | 76.6 |

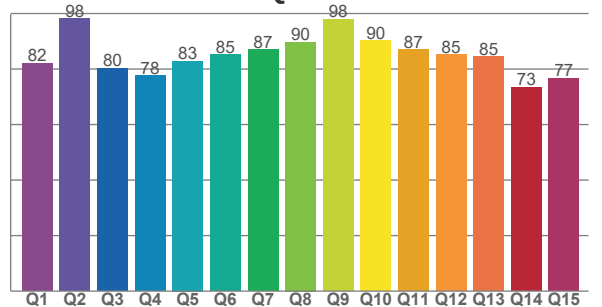
TM30 C values, 16 binned values out of total of 99 C values

| C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8   | C9   | C10  | C11  | C12  | C13  | C14  | C15  | C16  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 81.1 | 84.6 | 80.1 | 89.1 | 90.8 | 95.0 | 92.4 | 90.4 | 87.3 | 79.5 | 79.0 | 85.8 | 85.9 | 87.2 | 78.2 | 78.1 |

CQS Q values

| Q1   | Q2   | Q3   | Q4   | Q5   | Q6   | Q7   | Q8   | Q9   | Q10  | Q11  | Q12  | Q13  | Q14  | Q15  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 82.1 | 98.2 | 80.3 | 77.6 | 82.9 | 85.1 | 86.9 | 89.8 | 97.9 | 90.2 | 86.9 | 85.3 | 84.5 | 73.5 | 76.7 |

CQS: 83.7



### 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                             |
| 4115 K            | 84.8                  | 14.3          | 85.0           | 95.7        | 83.7                | 0.376                     | 0.375                     | 0.223            | 0.333            | 0.0004                          |



# TM30 Report

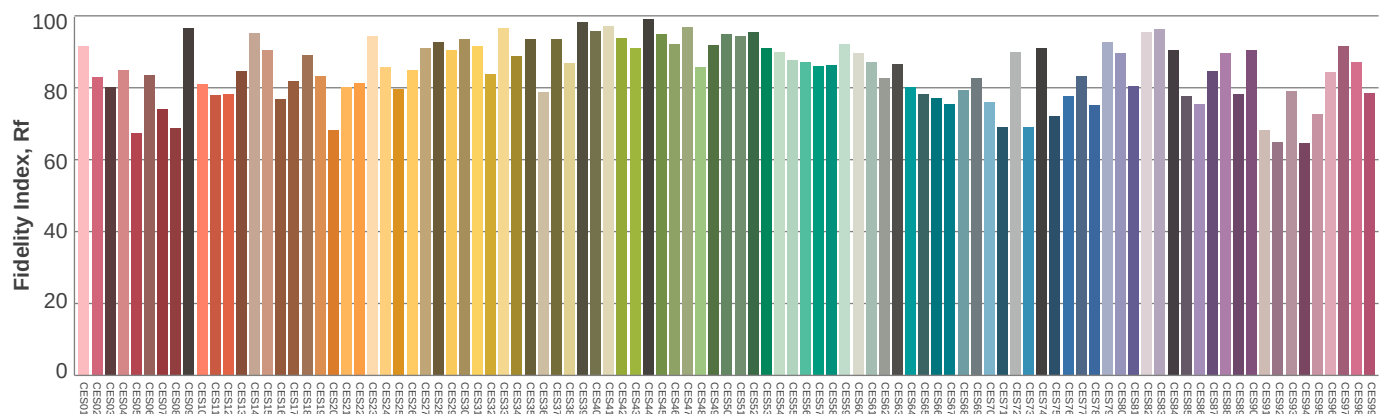
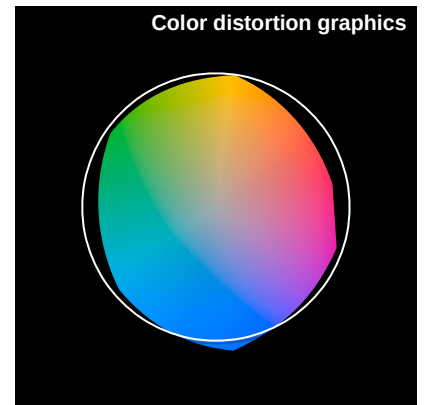
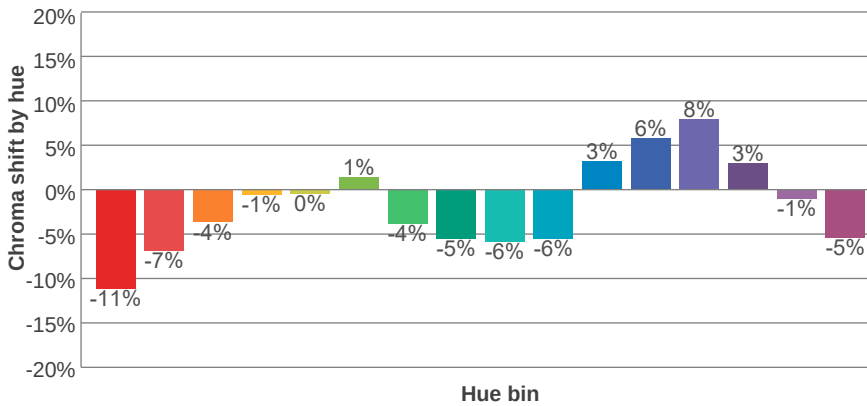
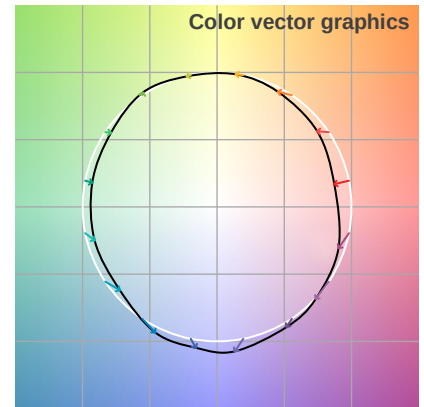
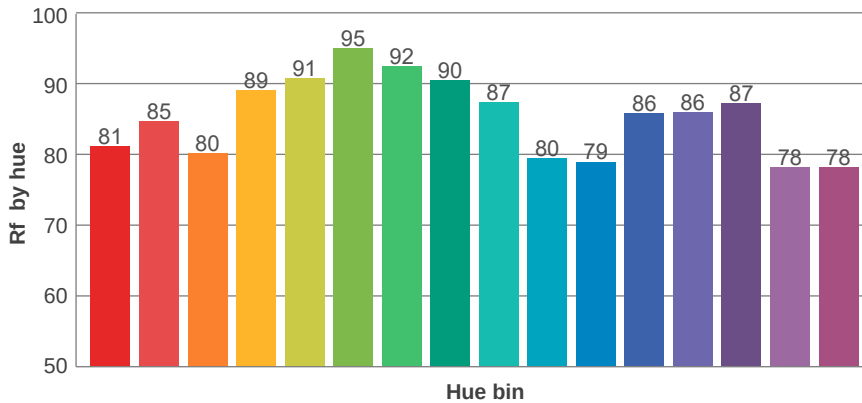
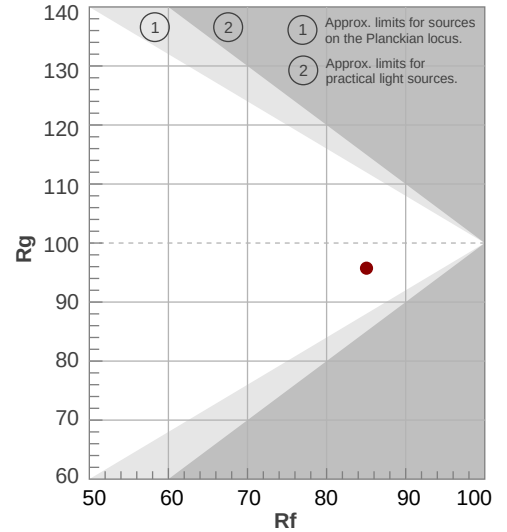
**Rf 85.0**

Fidelity index Rf

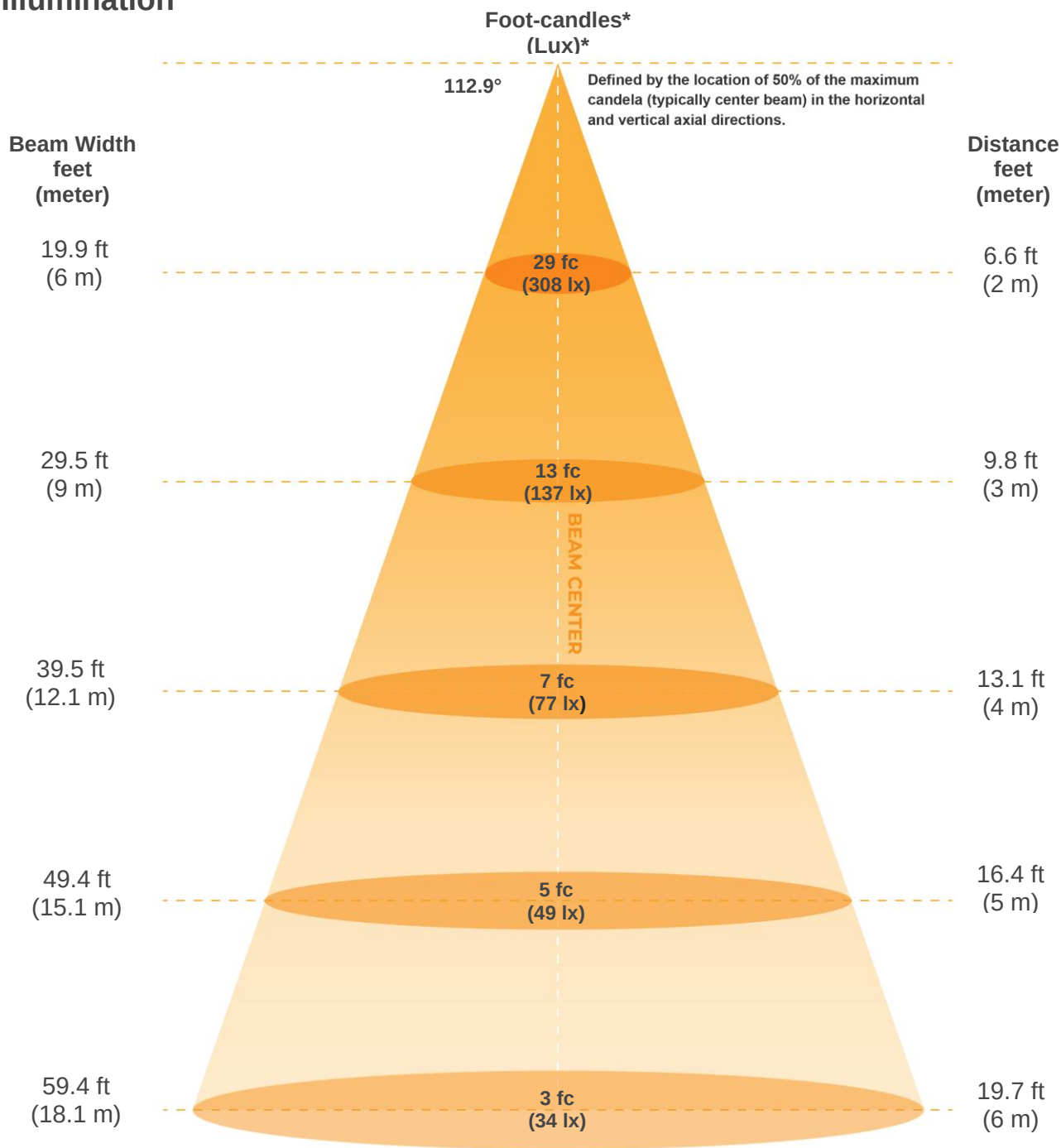
**Rg 95.7**

Gammut index Rg

| Hue Bin | R <sub>f</sub> | Graphic shifts (%) |      |
|---------|----------------|--------------------|------|
|         |                | Chroma             | Hue  |
| 1       | 81             | -11%               | 0%   |
| 2       | 85             | -7%                | 5%   |
| 3       | 80             | -4%                | 10%  |
| 4       | 89             | -1%                | 6%   |
| 5       | 91             | 0%                 | 3%   |
| 6       | 95             | 1%                 | -1%  |
| 7       | 92             | -4%                | -2%  |
| 8       | 90             | -5%                | 0%   |
| 9       | 87             | -6%                | 7%   |
| 10      | 80             | -6%                | 11%  |
| 11      | 79             | 3%                 | 14%  |
| 12      | 86             | 6%                 | 5%   |
| 13      | 86             | 8%                 | -8%  |
| 14      | 87             | 3%                 | -7%  |
| 15      | 78             | -1%                | -16% |
| 16      | 78             | -5%                | -12% |



### Illumination



\*measured at center of beam

### Beam intensities from 1-20m

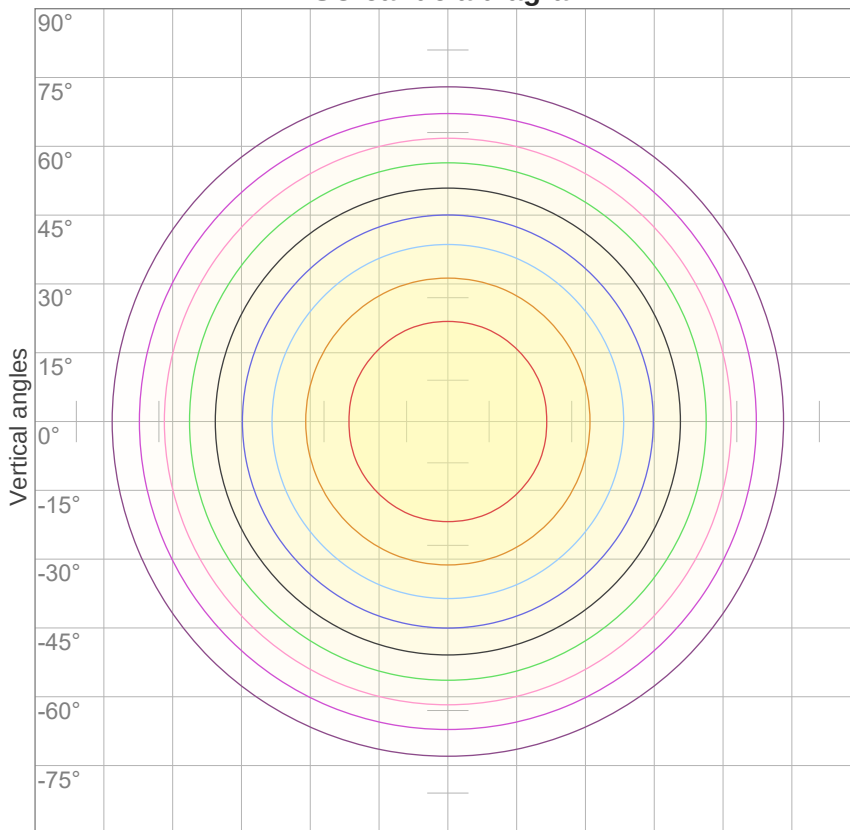
| 1m      | 2m      | 3m      | 4m     | 5m     | 6m     | 7m     | 8m     | 9m     | 10m    | 11m    | 12m    | 13m    | 14m    | 15m    | 16m    | 17m    | 18m    | 19m    | 20m    |
|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 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 |
| 1233lx  | 308lx   | 137lx   | 77lx   | 49lx   | 34lx   | 25lx   | 19lx   | 15lx   | 12lx   | 10lx   | 9lx    | 7lx    | 6lx    | 5lx    | 5lx    | 4lx    | 4lx    | 3lx    | 3lx    |
| 114.5fc | 28.6fcd | 12.7fcd | 7.2fcd | 4.6fcd | 3.2fcd | 2.3fcd | 1.8fcd | 1.4fcd | 1.1fcd | 0.9fcd | 0.8fcd | 0.7fcd | 0.6fcd | 0.5fcd | 0.4fcd | 0.4fcd | 0.4fcd | 0.3fcd | 0.3fcd |

| Beam angle X | Beam Angle Y | Field angle X | Field Angle Y | Cutoff angle 2,5% | Intensity ratio in 120° | Intensity ratio in 90° |
|--------------|--------------|---------------|---------------|-------------------|-------------------------|------------------------|
| 113.1°       | 112.7°       | 162.2°        | 162.7°        | 175.7°            | 77.8%                   | 52.8%                  |



## ISO Diagrams

ISO candela diagram



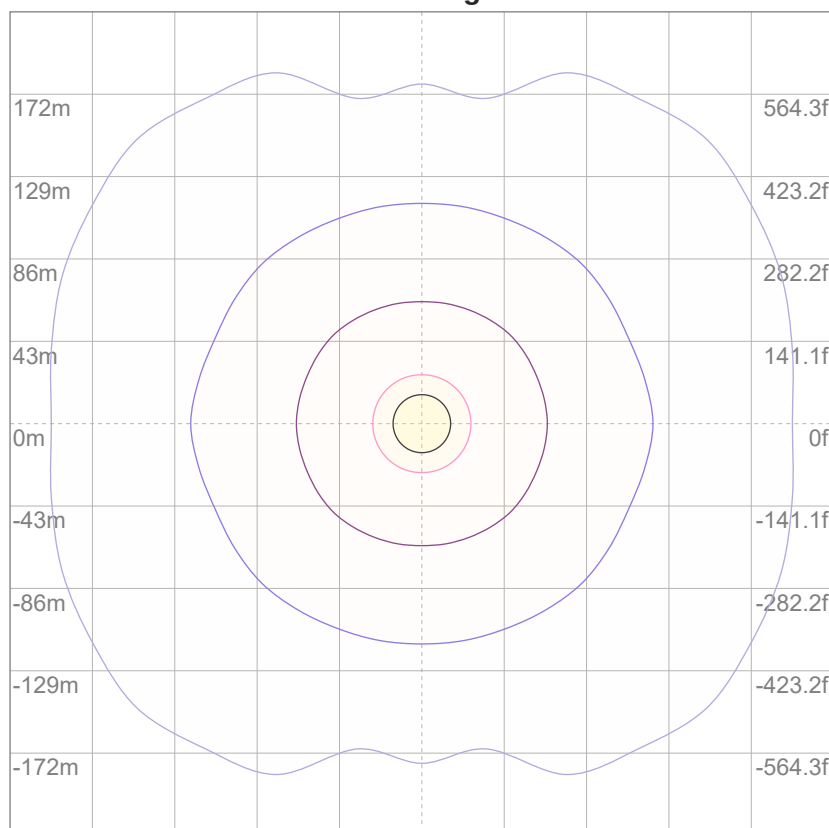
|     |         |
|-----|---------|
| 10% | 123 cd  |
| 20% | 247 cd  |
| 30% | 370 cd  |
| 40% | 493 cd  |
| 50% | 616 cd  |
| 60% | 740 cd  |
| 70% | 863 cd  |
| 80% | 986 cd  |
| 90% | 1109 cd |

Conditions:

Number of c-planes: 16

Candela at center: 1233 cd

ISO lux diagram



|     |          |
|-----|----------|
| 3%  | 0.370 lx |
| 5%  | 0.616 lx |
| 10% | 1.23 lx  |
| 30% | 3.70 lx  |
| 50% | 6.16 lx  |

Conditions:

Number of c-planes: 16

Lux at center: 12.3 lx

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



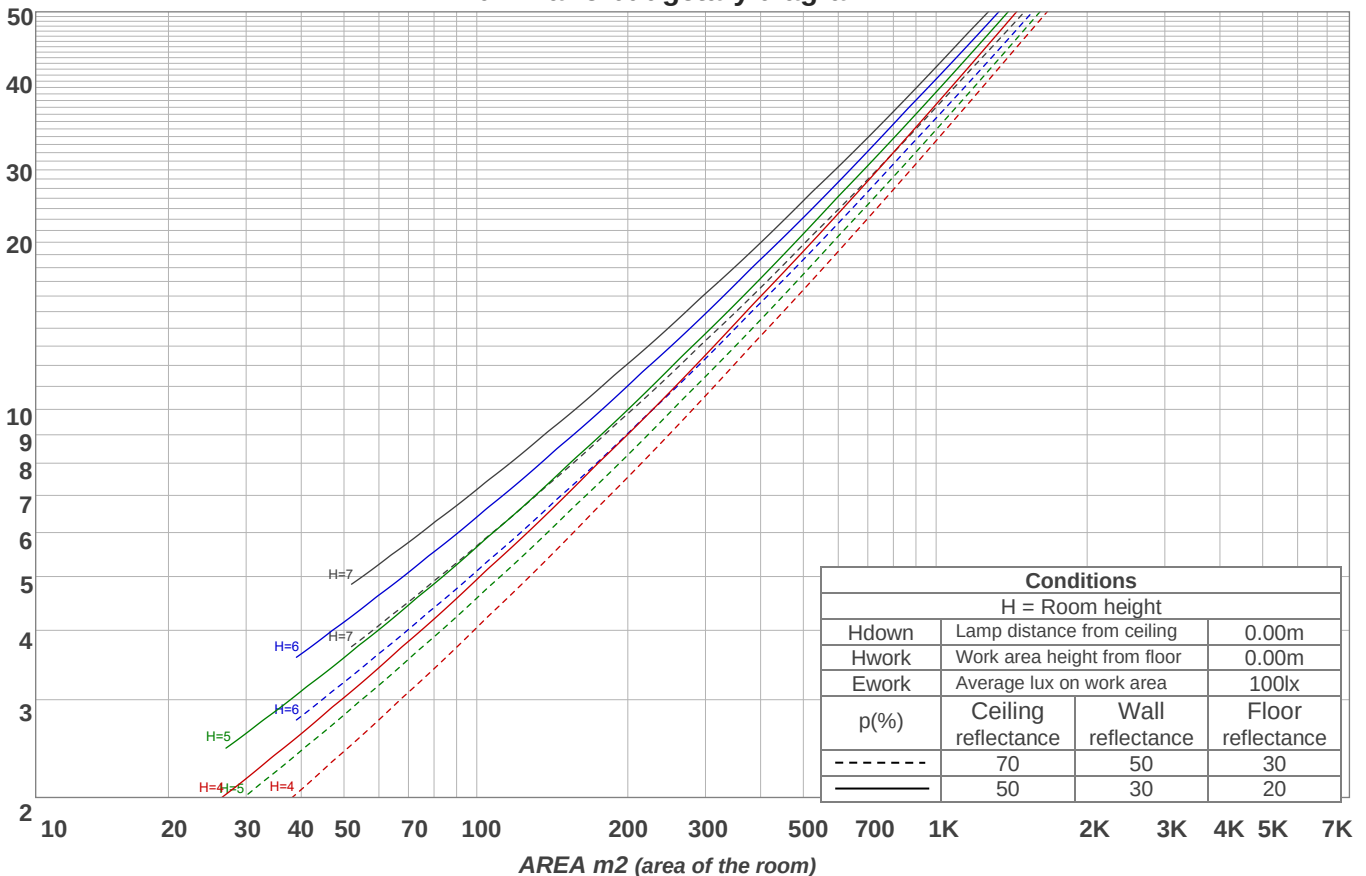
### Light Planning

#### 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 | 101 | 101 | 101 | 99 |
| 1                   | 108                                                                                                      | 104 | 99  | 95  | 106 | 101 | 97  | 94  | 97  | 94  | 91  | 93  | 90  | 88  | 89  | 87  | 85  | 83 |
| 2                   | 98                                                                                                       | 90  | 83  | 77  | 96  | 88  | 82  | 76  | 84  | 79  | 74  | 81  | 77  | 73  | 78  | 74  | 71  | 69 |
| 3                   | 90                                                                                                       | 79  | 71  | 64  | 87  | 77  | 70  | 64  | 74  | 68  | 62  | 71  | 66  | 61  | 69  | 64  | 60  | 58 |
| 4                   | 82                                                                                                       | 70  | 61  | 54  | 80  | 69  | 60  | 54  | 66  | 59  | 53  | 63  | 57  | 52  | 61  | 56  | 51  | 49 |
| 5                   | 75                                                                                                       | 62  | 53  | 47  | 73  | 61  | 53  | 46  | 59  | 52  | 46  | 57  | 50  | 45  | 55  | 49  | 45  | 42 |
| 6                   | 70                                                                                                       | 56  | 47  | 41  | 68  | 55  | 47  | 40  | 53  | 46  | 40  | 51  | 45  | 40  | 50  | 44  | 39  | 37 |
| 7                   | 64                                                                                                       | 51  | 42  | 36  | 63  | 50  | 42  | 36  | 48  | 41  | 35  | 47  | 40  | 35  | 45  | 39  | 35  | 33 |
| 8                   | 60                                                                                                       | 46  | 38  | 32  | 58  | 46  | 38  | 32  | 44  | 37  | 32  | 43  | 36  | 31  | 42  | 36  | 31  | 29 |
| 9                   | 56                                                                                                       | 43  | 34  | 29  | 55  | 42  | 34  | 29  | 41  | 33  | 28  | 40  | 33  | 28  | 38  | 32  | 28  | 26 |
| 10                  | 53                                                                                                       | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 38  | 31  | 26  | 37  | 30  | 26  | 36  | 30  | 25  | 24 |

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°   |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 117 lm   | 334 lm    | 508 lm    | 614 lm    | 638 lm    | 576 lm    | 440 lm    | 253 lm    | 73.4 lm   |
| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
| 5.00 lm  | 4.54 lm   | 4.50 lm   | 4.25 lm   | 3.98 lm   | 3.38 lm   | 2.60 lm   | 1.66 lm   | 0.566 lm  |

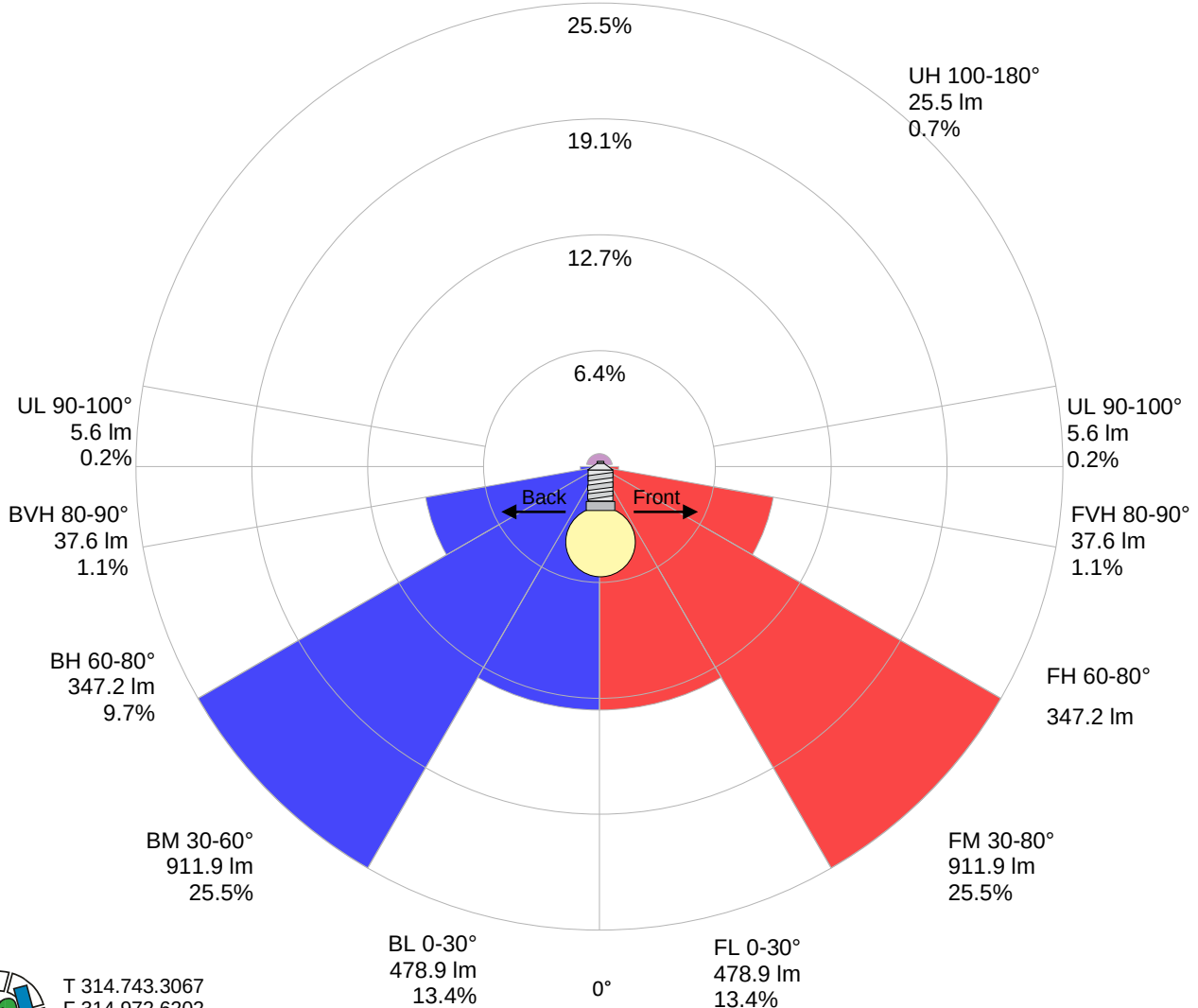


## Road Report

LCS table

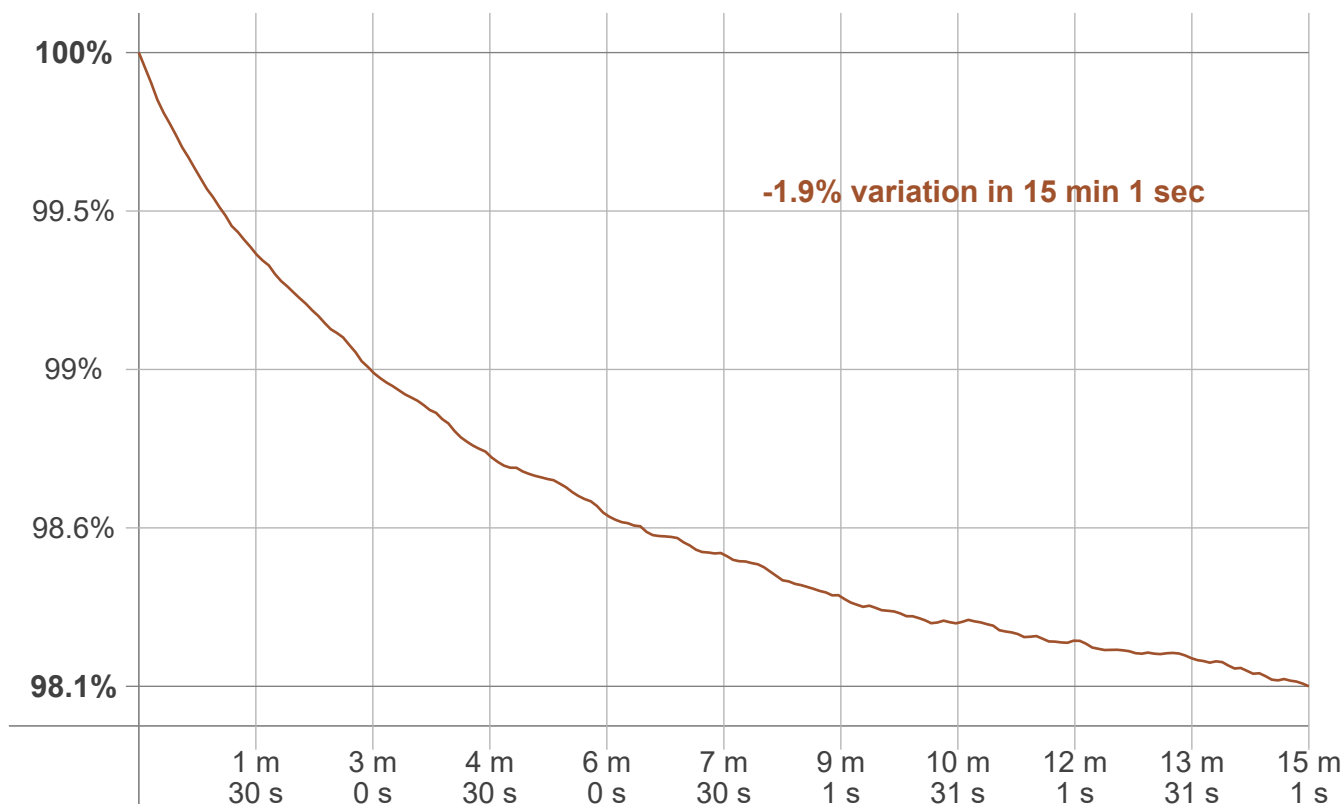
| BUG rating:       | B1 U2 G1 |          |
|-------------------|----------|----------|
| Forward light     | Lumens   | Lumens % |
| Low(0-30):        | 478.9    | 13.4%    |
| Medium(30-60):    | 911.9    | 25.5%    |
| High(60-80):      | 347.2    | 9.7%     |
| Very high(80-90): | 37.6     | 1.1%     |
| Back light        |          |          |
| Low(0-30):        | 478.9    | 13.4%    |
| Medium(30-60):    | 911.9    | 25.5%    |
| High(60-80):      | 347.2    | 9.7%     |
| Very high(80-90): | 37.6     | 1.1%     |
| Uplight           |          |          |
| Low(90-100):      | 5.6      | 0.2%     |
| High(100-180):    | 25.5     | 0.7%     |

LCS graph



## Stabilization

Warmup curve



Warmup result

|                  |                                 |
|------------------|---------------------------------|
| Warmup time:     | Lamp stabilized in 15 min 1 sec |
| Warmup variation | -1.9%                           |

Warmup conditions

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

Color temperature change

| CCT start | CCT change | CCT end |
|-----------|------------|---------|
| 4098 K    | +17 K      | 4115 K  |

Output change

| Output start | Output change | Output end |
|--------------|---------------|------------|
| 3649 lm      | -66 lm        | 3582 lm    |



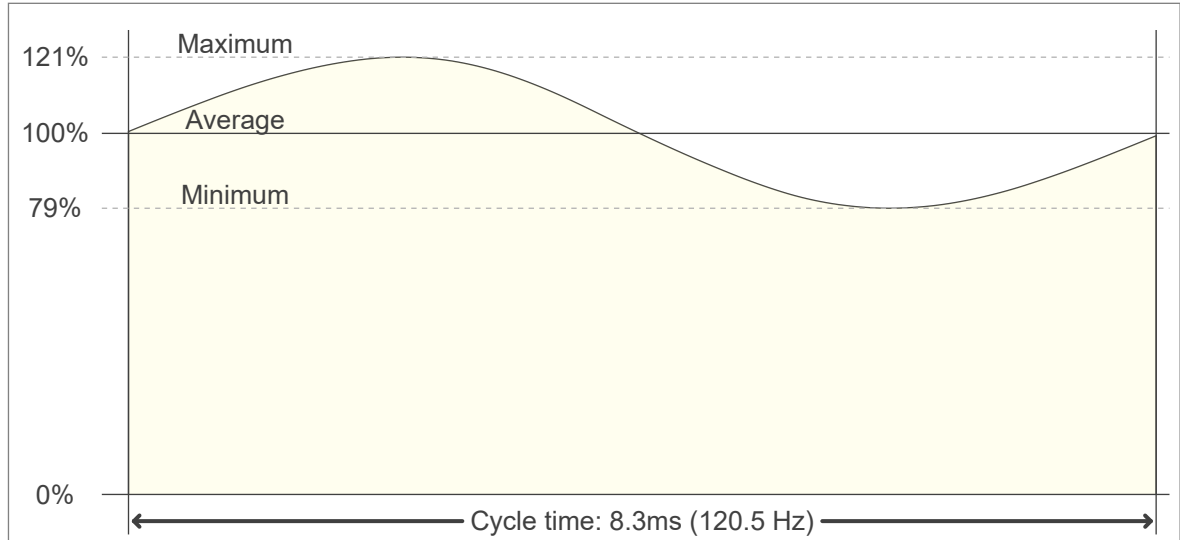


## Flicker Specifications

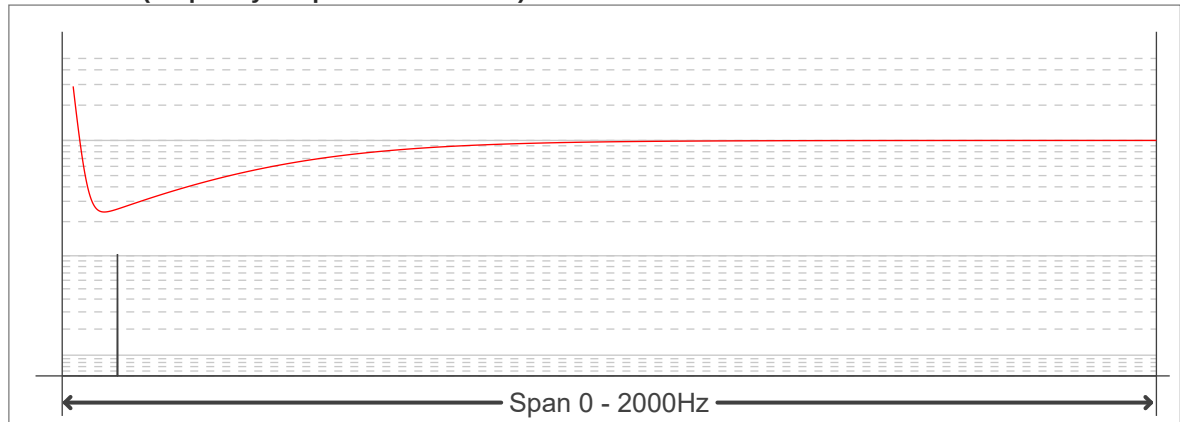
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



### Flicker results:

|                       |           |
|-----------------------|-----------|
| Flicker frequency:    | 120.48 Hz |
| Flicker index:        | 0.07      |
| Flicker percentage:   | 21.02 %   |
| SVM: (Visual flicker) | 0.75      |

### Flicker conditions:

|              |                      |
|--------------|----------------------|
| Sample rate: | 20000 samples/second |
|--------------|----------------------|

