

Light efficiency:

131 Lumen/Watt

Output: 5082 lm

Light quality:

CRI: 72.8

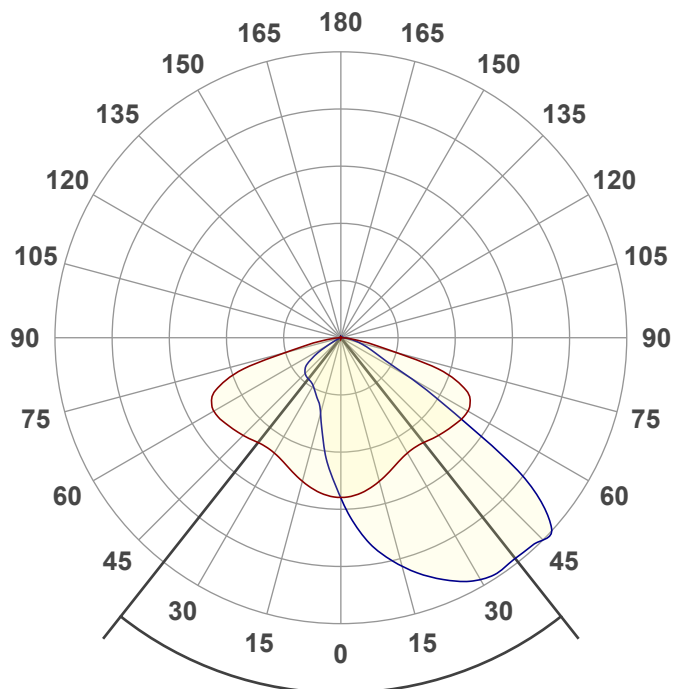
Peak: 2678 cd

Color temperature:

4918 K

Power: 38.7 W

PF: 0.99



Product name:

WPFC-R1-50K40-LD

Date and time:

10/4/2021 2:22:00 PM

Beam angle

76.6°

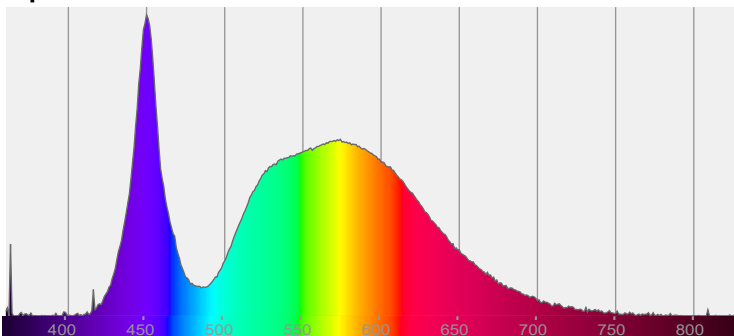


CIE 1931

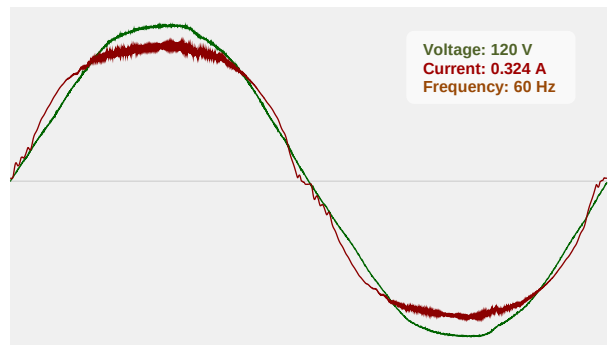
x: 0.348

y: 0.358

Spectra



Power



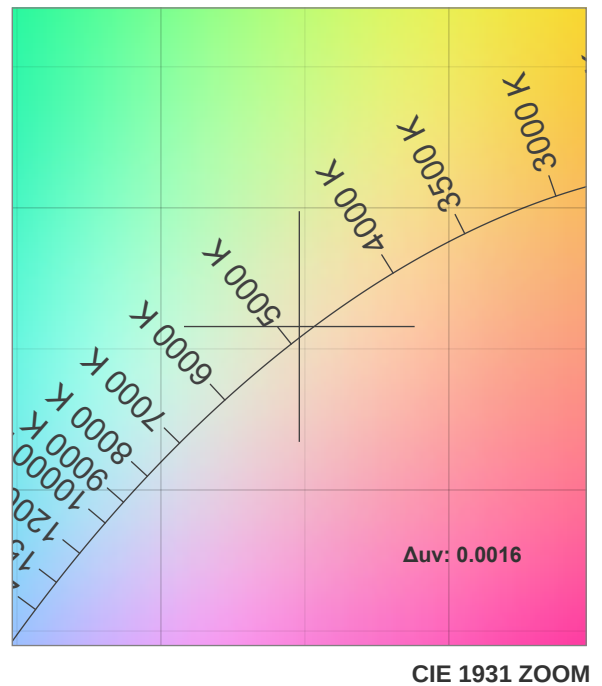
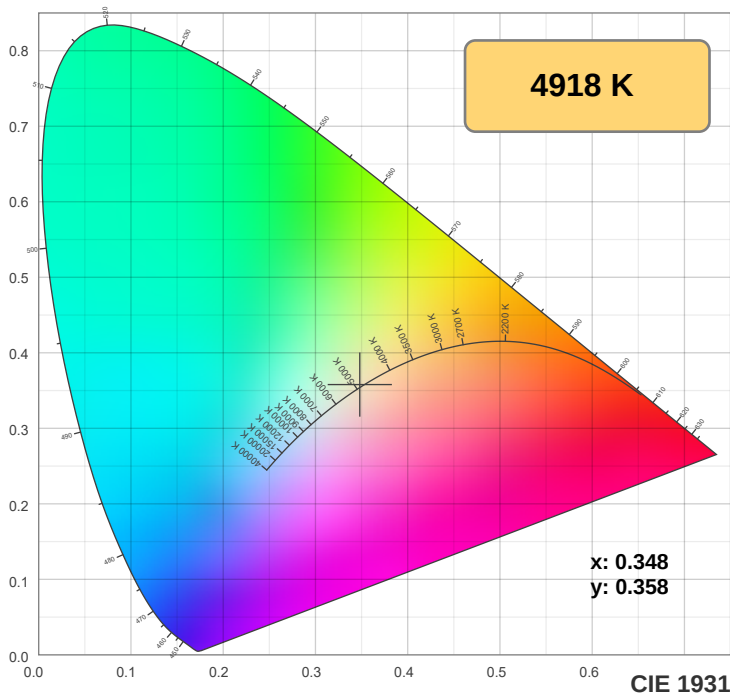
T 314.743.3067

F 314.972.6202

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

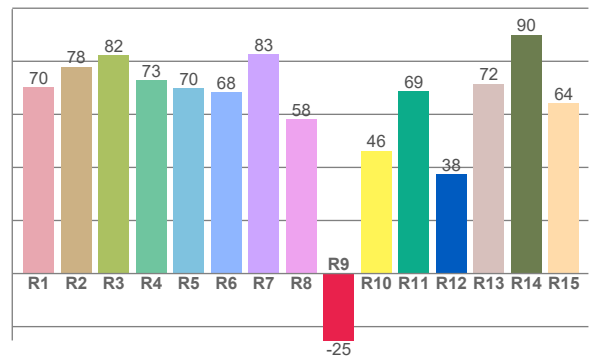
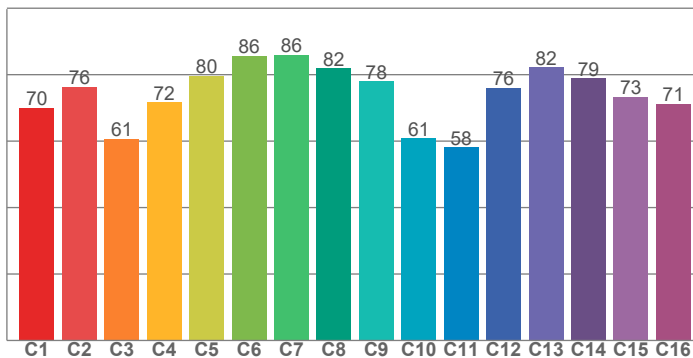
[www.superbrightleds.com/](http://www.superbrightleds.com/)

### Color Specifications



TM30: 73.6

CRI: 72.8 (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  |
|------|------|------|------|------|------|------|------|-------|------|------|------|------|------|------|
| 70.3 | 77.9 | 82.3 | 72.9 | 69.9 | 68.4 | 82.6 | 58.0 | -25.2 | 46.2 | 68.7 | 37.5 | 71.6 | 90.0 | 64.3 |

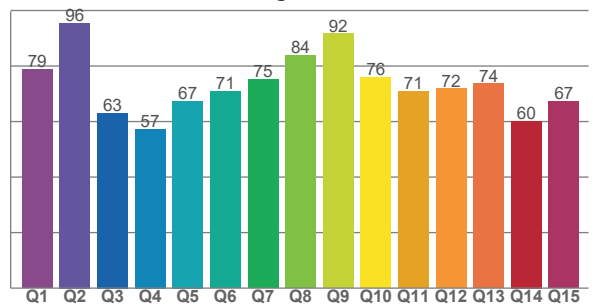
TM30 C values, 16 binned values out of total of 99 C values

| C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8   | C9   | C10  | C11  | C12  | C13  | C14  | C15  | C16  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 70.0 | 76.2 | 60.7 | 71.6 | 79.7 | 85.6 | 86.0 | 81.9 | 78.0 | 60.9 | 58.1 | 76.1 | 82.2 | 78.9 | 73.3 | 71.3 |

CQS Q values

| Q1   | Q2   | Q3   | Q4   | Q5   | Q6   | Q7   | Q8   | Q9   | Q10  | Q11  | Q12  | Q13  | Q14  | Q15  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 78.9 | 95.5 | 63.1 | 57.3 | 67.4 | 70.9 | 75.3 | 83.9 | 91.7 | 75.9 | 70.9 | 71.9 | 73.7 | 60.2 | 67.3 |

CQS: 71.6



### 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                             |
| 4918 K            | 72.8                  | -25.2         | 73.6           | 94.8        | 71.6                | 0.348                     | 0.358                     | 0.211            | 0.325            | 0.0016                          |



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

### TM30 Report

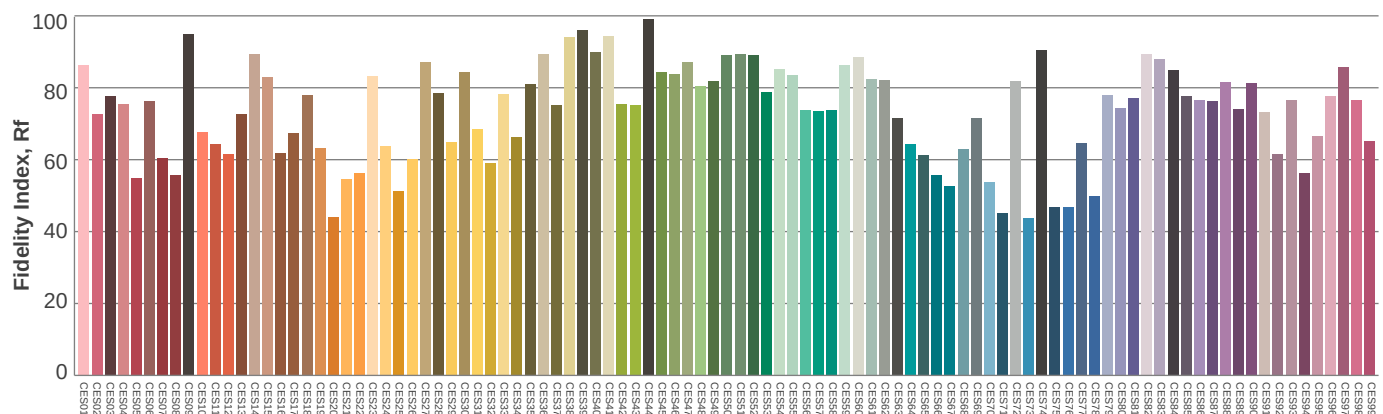
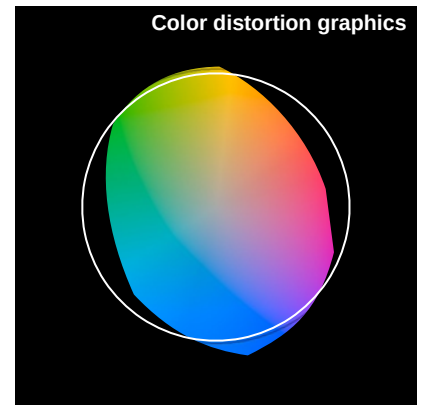
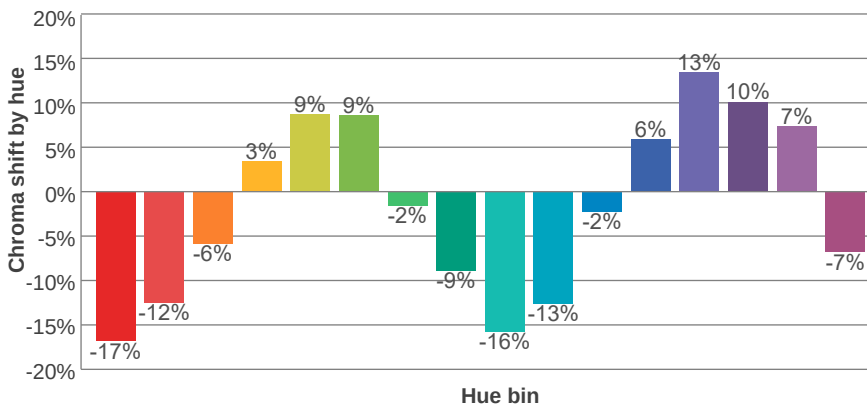
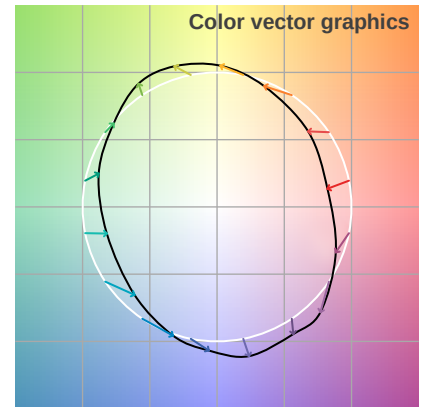
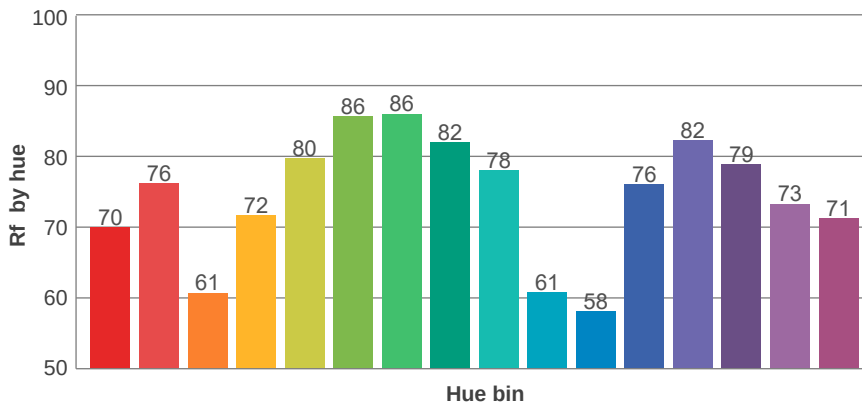
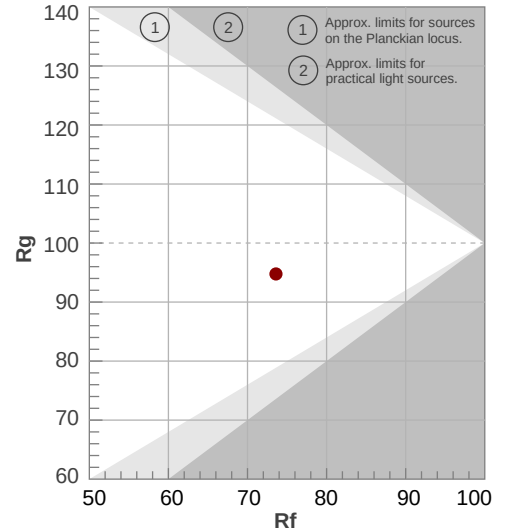
**Rf 73.6**

Fidelity index Rf

**Rg 94.8**

Gammut index Rg

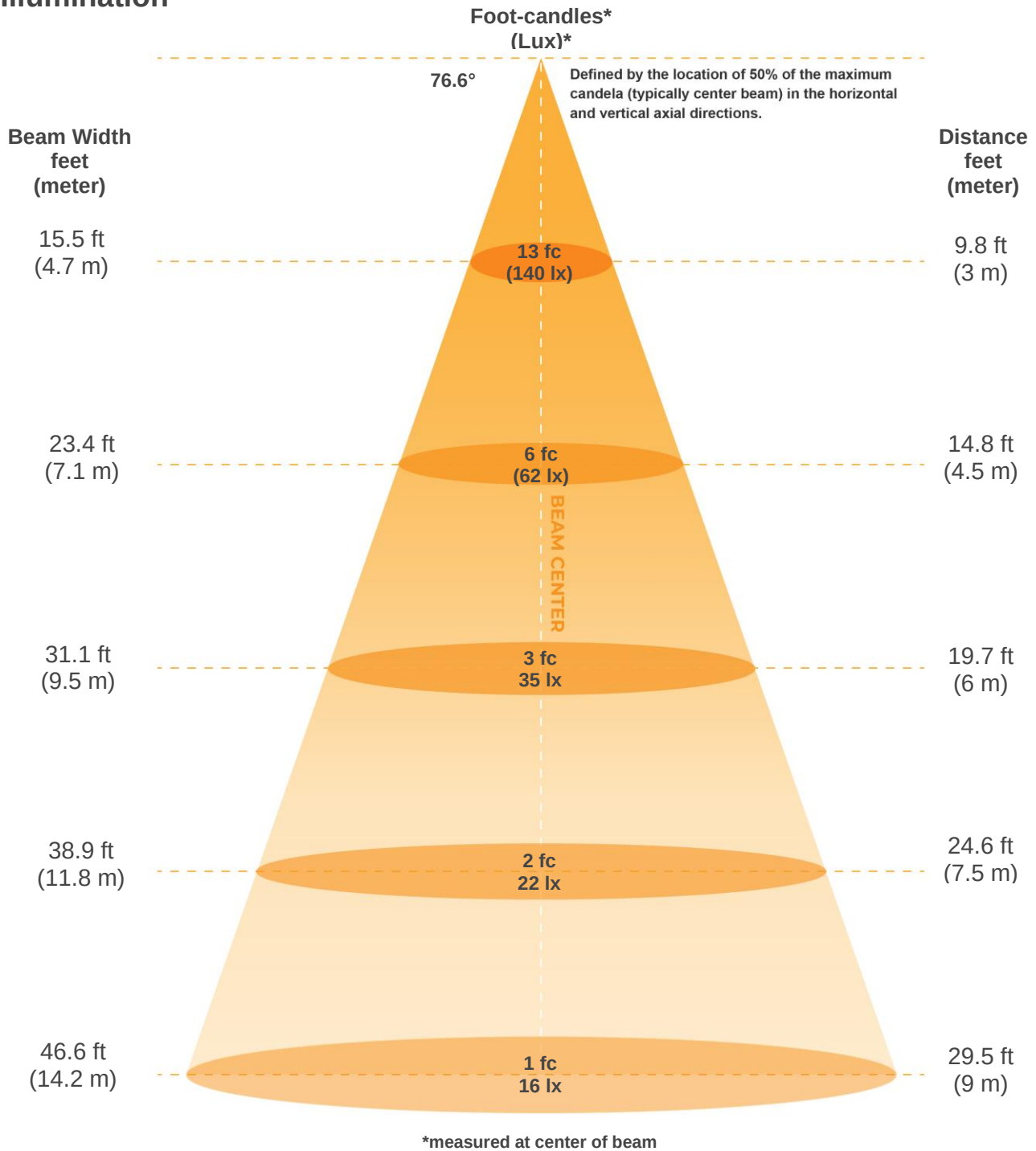
| Hue Bin | R <sub>f</sub> | Graphic shifts (%) |      |
|---------|----------------|--------------------|------|
|         |                | Chroma             | Hue  |
| 1       | 70             | -17%               | -3%  |
| 2       | 76             | -12%               | 9%   |
| 3       | 61             | -6%                | 21%  |
| 4       | 72             | 3%                 | 18%  |
| 5       | 80             | 9%                 | 11%  |
| 6       | 86             | 9%                 | -2%  |
| 7       | 86             | -2%                | -9%  |
| 8       | 82             | -9%                | -7%  |
| 9       | 78             | -16%               | 3%   |
| 10      | 61             | -13%               | 20%  |
| 11      | 58             | -2%                | 26%  |
| 12      | 76             | 6%                 | 15%  |
| 13      | 82             | 13%                | 2%   |
| 14      | 79             | 10%                | -5%  |
| 15      | 73             | 7%                 | -22% |
| 16      | 71             | -7%                | -16% |



Color Evaluation Sample



## Illumination



### Beam intensities from 1-20m

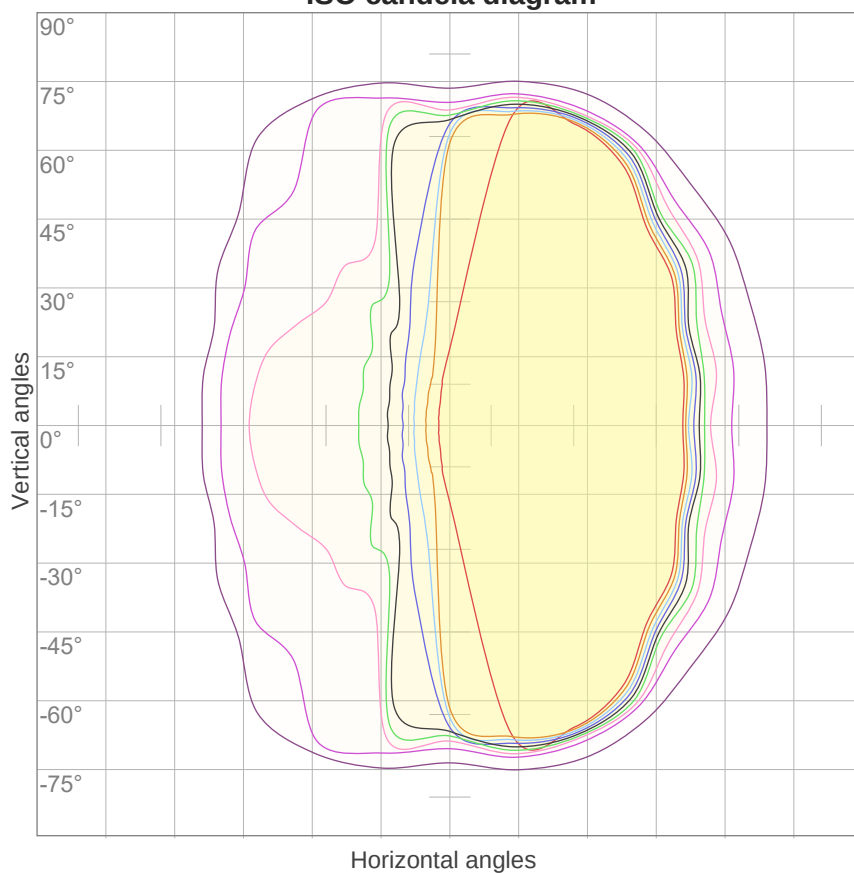
| 1m     | 2m      | 3m    | 4m     | 5m     | 6m     | 7m     | 8m     | 9m     | 10m    | 11m    | 12m    | 13m    | 14m    | 15m    | 16m    | 17m    | 18m    | 19m    | 20m    |
|--------|---------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 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 |
| 1259lx | 315lx   | 140lx | 79lx   | 50lx   | 35lx   | 26lx   | 20lx   | 16lx   | 13lx   | 10lx   | 9lx    | 7lx    | 6lx    | 6lx    | 5lx    | 4lx    | 4lx    | 3lx    | 3lx    |
| 117fcd | 29.2fcd | 13fcd | 7.3fcd | 4.7fcd | 3.2fcd | 2.4fcd | 1.8fcd | 1.4fcd | 1.2fcd | 1fcd   | 0.8fcd | 0.7fcd | 0.6fcd | 0.5fcd | 0.5fcd | 0.4fcd | 0.4fcd | 0.3fcd | 0.3fcd |

| Beam angle 50% | Field angle 10% | Cutoff angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|----------------|-----------------|-------------------|------------------------------|-----------------------------|
| 76.6°          | 146.3°          | 162.9°            | 72.5%                        | 43.3%                       |



## ISO Diagrams

ISO candela diagram



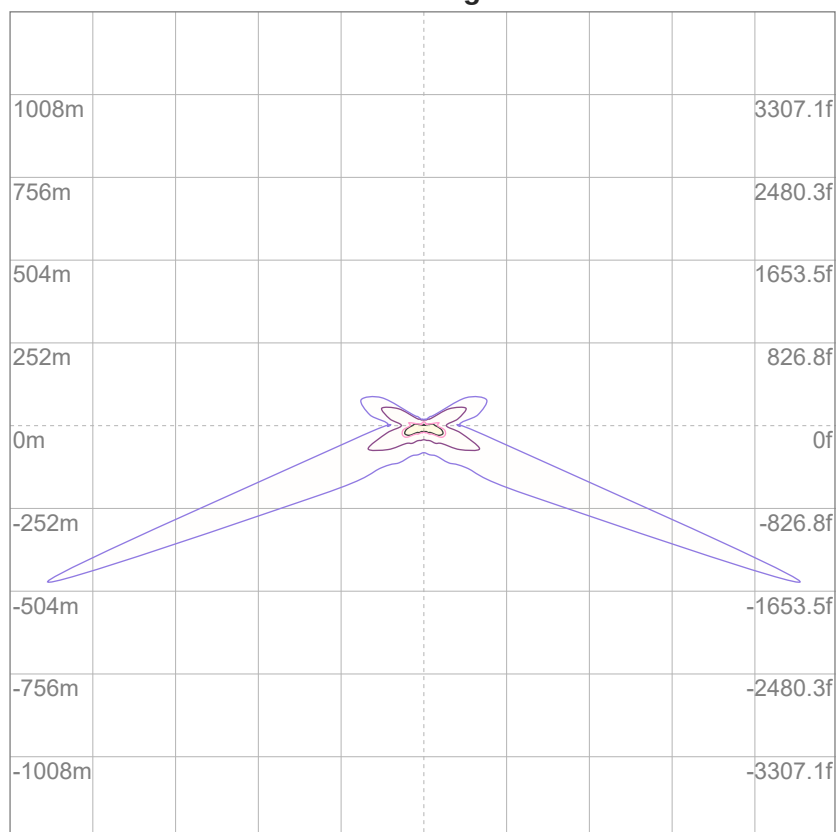
|     |         |
|-----|---------|
| 10% | 126 cd  |
| 20% | 252 cd  |
| 30% | 378 cd  |
| 40% | 504 cd  |
| 50% | 629 cd  |
| 60% | 755 cd  |
| 70% | 881 cd  |
| 80% | 1007 cd |
| 90% | 1133 cd |

Conditions:

Number of c-planes: 16

Candela at center: 1259 cd

ISO lux diagram



|     |          |
|-----|----------|
| 3%  | 0.378 lx |
| 5%  | 0.629 lx |
| 10% | 1.26 lx  |
| 30% | 3.78 lx  |
| 50% | 6.29 lx  |

Conditions:

Number of c-planes: 16

Lux at center: 12.6 lx

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



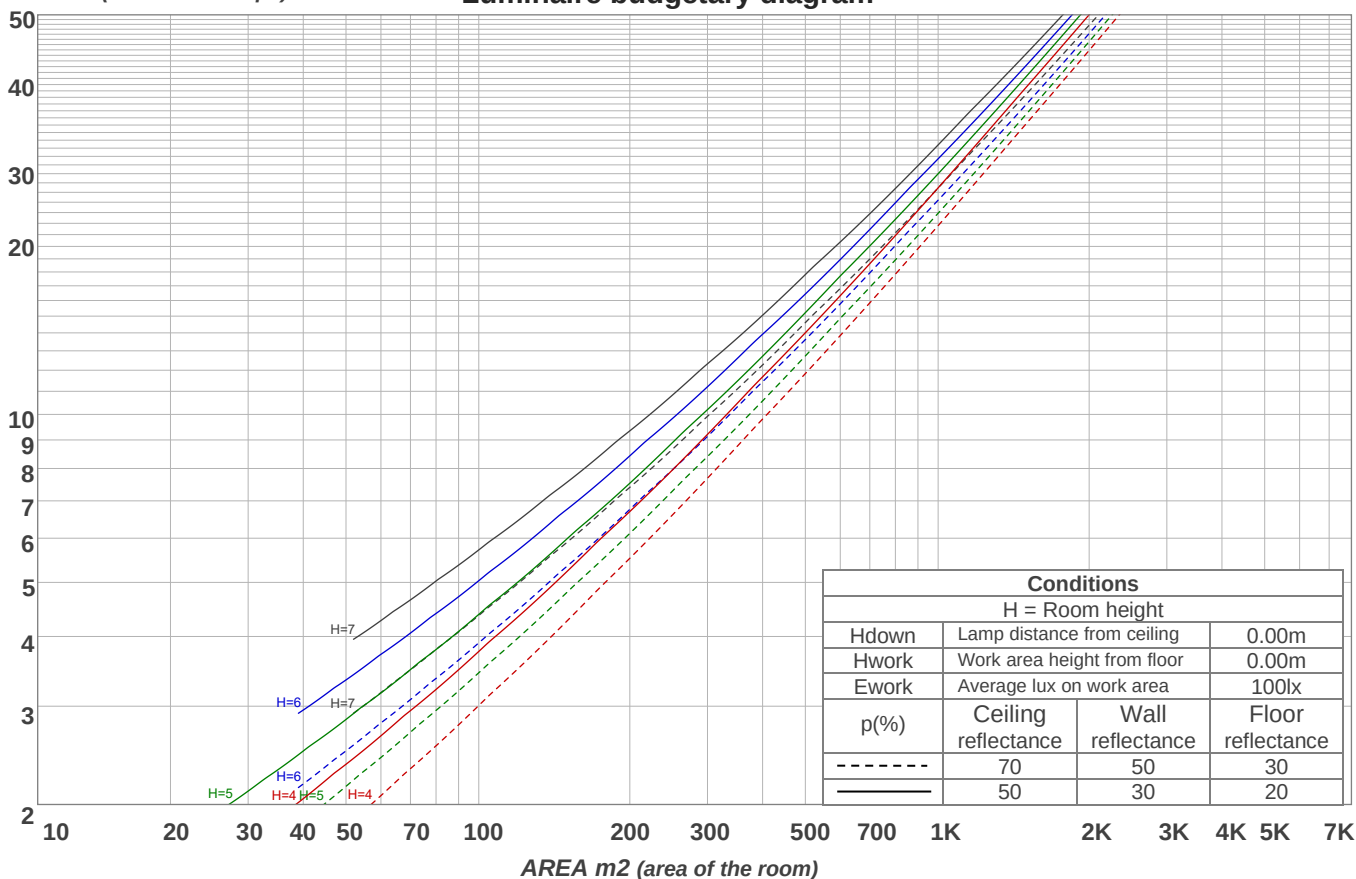
## Light Planning

### 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                   | 108                                                                                                      | 102 | 98  | 93  | 105 | 100 | 96  | 92  | 96  | 92  | 89  | 92  | 89  | 86  | 88  | 86  | 83  | 81  |
| 2                   | 97                                                                                                       | 88  | 80  | 74  | 94  | 86  | 79  | 73  | 82  | 76  | 71  | 78  | 74  | 69  | 75  | 71  | 68  | 65  |
| 3                   | 87                                                                                                       | 76  | 67  | 60  | 84  | 74  | 66  | 59  | 71  | 64  | 58  | 68  | 62  | 57  | 65  | 60  | 56  | 53  |
| 4                   | 79                                                                                                       | 66  | 56  | 49  | 77  | 65  | 56  | 49  | 62  | 54  | 48  | 59  | 53  | 47  | 57  | 51  | 47  | 44  |
| 5                   | 72                                                                                                       | 58  | 49  | 41  | 70  | 57  | 48  | 41  | 55  | 47  | 41  | 53  | 46  | 40  | 51  | 45  | 40  | 37  |
| 6                   | 66                                                                                                       | 52  | 42  | 35  | 64  | 51  | 42  | 35  | 49  | 41  | 35  | 47  | 40  | 34  | 45  | 39  | 34  | 32  |
| 7                   | 61                                                                                                       | 47  | 37  | 31  | 59  | 46  | 37  | 31  | 44  | 36  | 30  | 43  | 35  | 30  | 41  | 35  | 30  | 28  |
| 8                   | 57                                                                                                       | 42  | 33  | 27  | 55  | 41  | 33  | 27  | 40  | 32  | 27  | 39  | 32  | 26  | 37  | 31  | 26  | 24  |
| 9                   | 53                                                                                                       | 38  | 30  | 24  | 51  | 38  | 30  | 24  | 37  | 29  | 24  | 35  | 29  | 24  | 34  | 28  | 23  | 21  |
| 10                  | 49                                                                                                       | 35  | 27  | 21  | 48  | 35  | 27  | 21  | 34  | 26  | 21  | 33  | 26  | 21  | 32  | 26  | 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°   |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 120 lm   | 347 lm    | 557 lm    | 742 lm    | 913 lm    | 1003 lm   | 802 lm    | 495 lm    | 85.3 lm   |
| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
| 2.81 lm  | 2.38 lm   | 2.60 lm   | 2.63 lm   | 2.52 lm   | 2.24 lm   | 1.73 lm   | 1.07 lm   | 0.369 lm  |

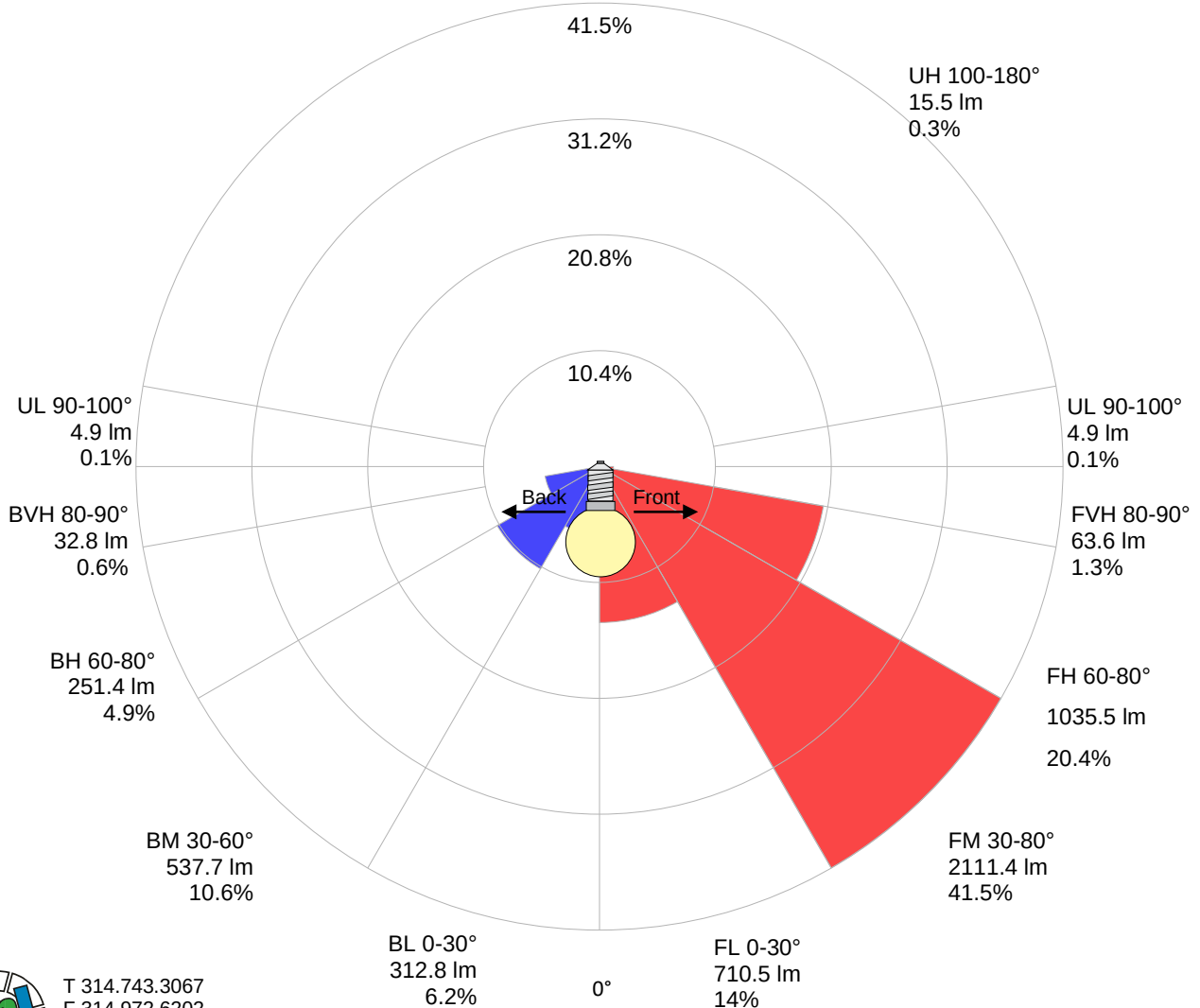


## Road Report

LCS table

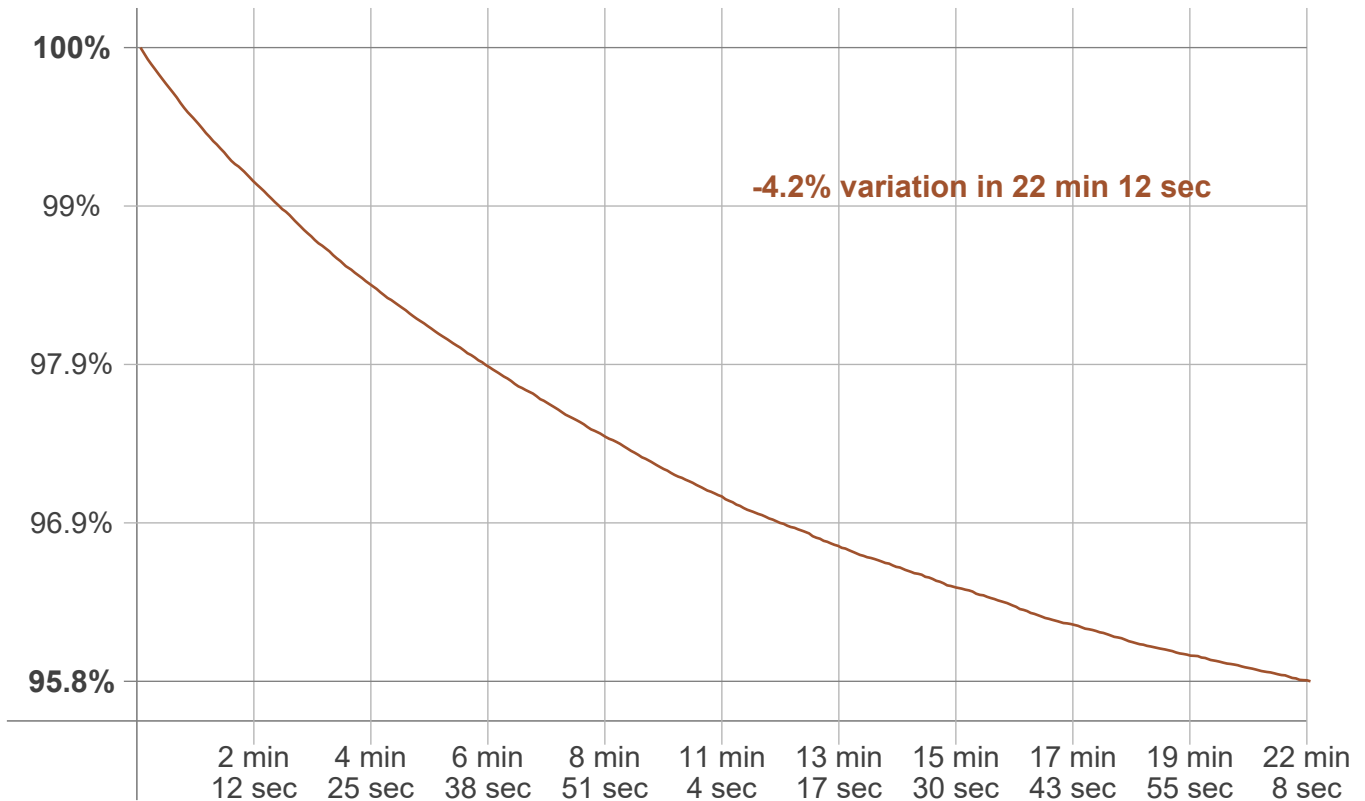
| BUG rating:       | B1 U2 G1 |          |
|-------------------|----------|----------|
| Forward light     | Lumens   | Lumens % |
| Low(0-30):        | 710.5    | 14%      |
| Medium(30-60):    | 2111.4   | 41.5%    |
| High(60-80):      | 1035.5   | 20.4%    |
| Very high(80-90): | 63.6     | 1.3%     |
| Back light        |          |          |
| Low(0-30):        | 312.8    | 6.2%     |
| Medium(30-60):    | 537.7    | 10.6%    |
| High(60-80):      | 251.4    | 4.9%     |
| Very high(80-90): | 32.8     | 0.6%     |
| Uplight           |          |          |
| Low(90-100):      | 4.9      | 0.1%     |
| High(100-180):    | 15.5     | 0.3%     |

LCS graph



## Stabilization

Warmup curve



Warmup result

|                  |                                  |
|------------------|----------------------------------|
| Warmup time:     | Lamp stabilized in 22 min 12 sec |
| Warmup variation | -4.2%                            |

Warmup conditions

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

Color temperature change

| CCT start | CCT change | CCT end |
|-----------|------------|---------|
| 4891 K    | +27 K      | 4918 K  |

Output change

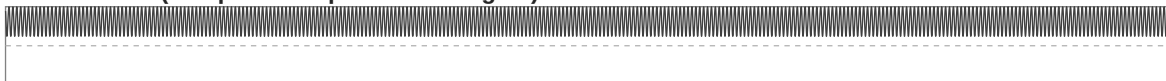
| Output start | Output change | Output end |
|--------------|---------------|------------|
| 5297 lm      | -214 lm       | 5082 lm    |



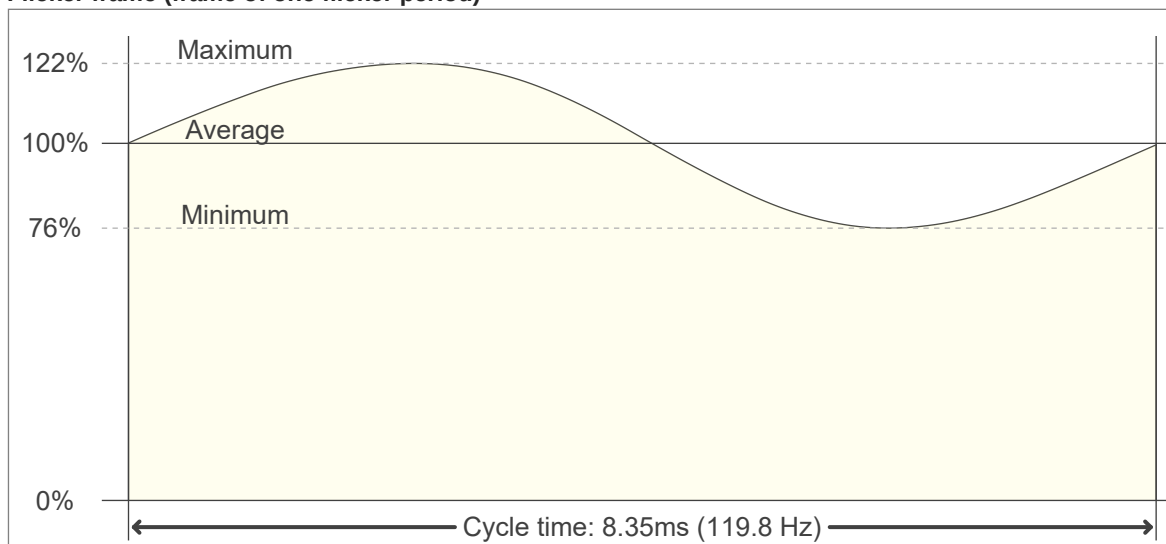


## Flicker Specifications

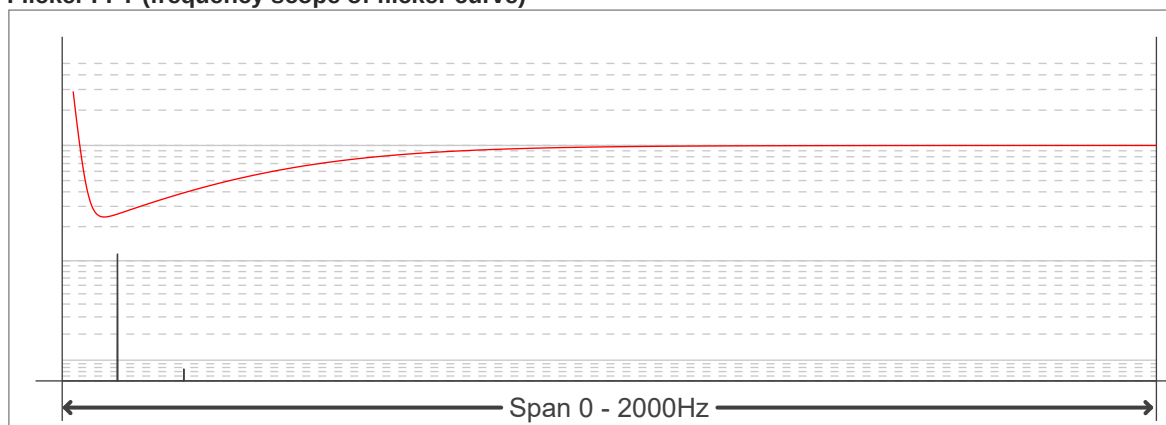
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



### Flicker results:

|                       |           |
|-----------------------|-----------|
| Flicker frequency:    | 119.76 Hz |
| Flicker index:        | 0.07      |
| Flicker percentage:   | 23.39 %   |
| SVM: (Visual flicker) | 0.83      |

### Flicker conditions:

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

