

Light efficiency:

Infinity Lumen/Watt

Output: 38066 lm

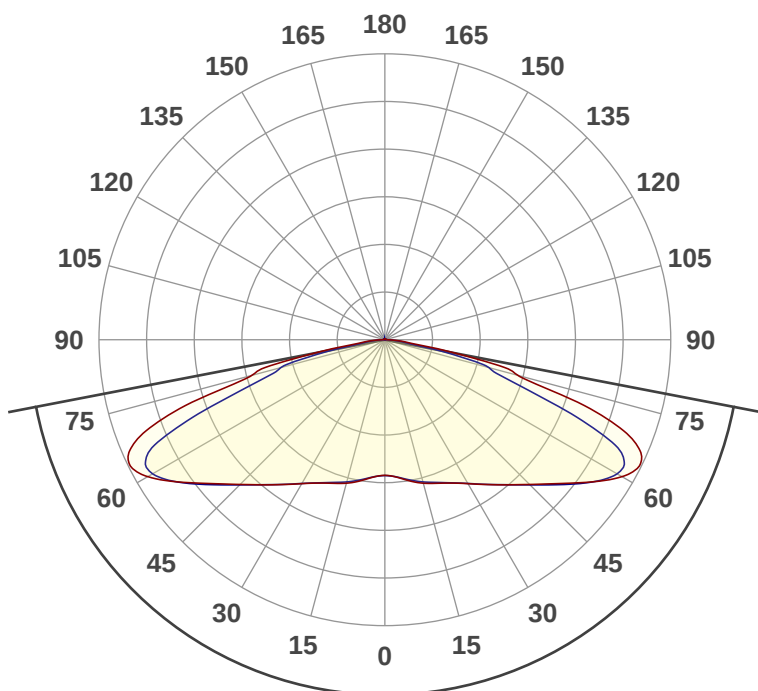
Light quality:

CRI: 81.8

Peak: 11770 cd

Color temperature:

5224 K



Product name:

ALD-50K30W-C-BRC3 Type V-M

Date and time:

4/17/2019 2:47:57 PM

Beam angle

158.2°

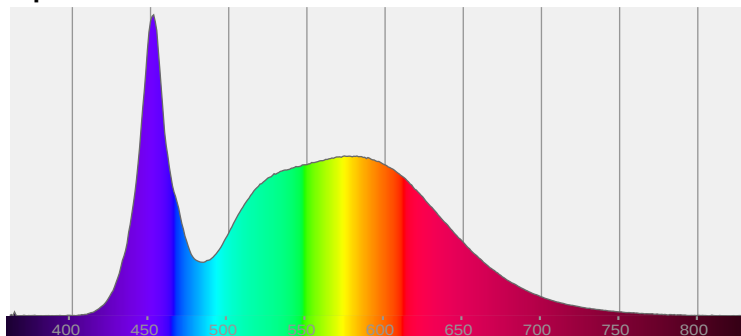


CIE 1931

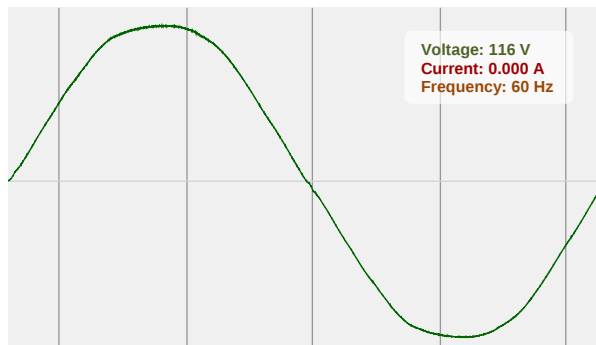
x: 0.339

y: 0.346

Spectra



Power



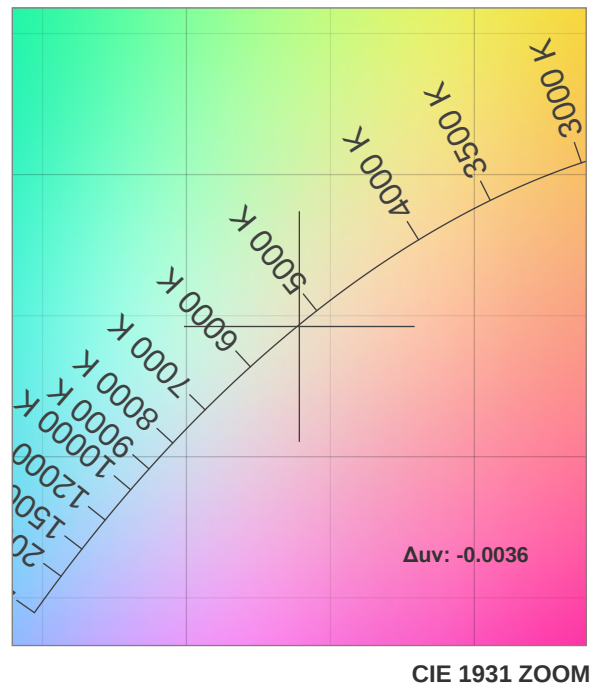
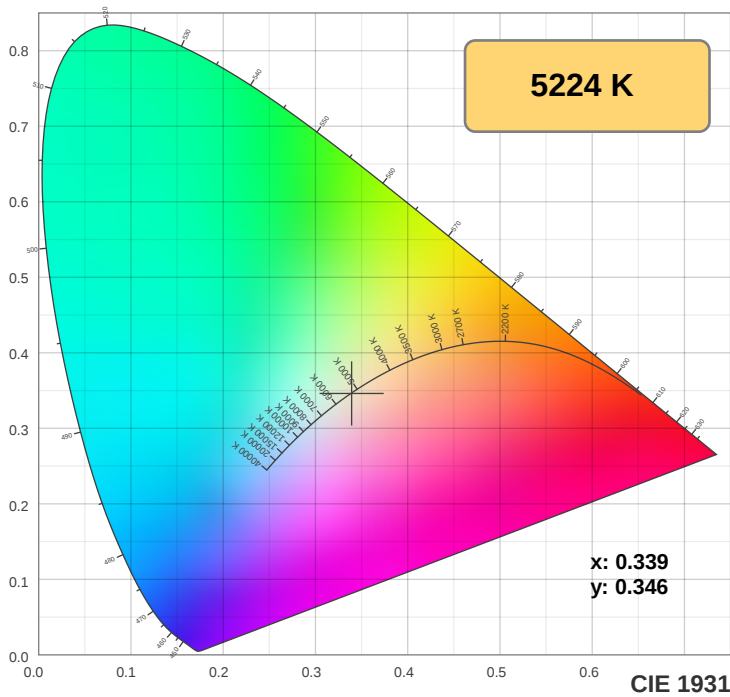
T 314.743.3067

F 314.972.6202

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

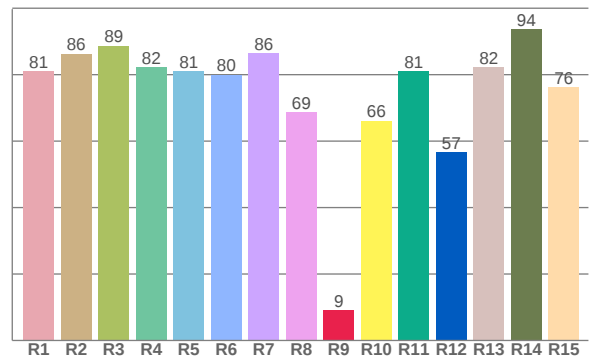
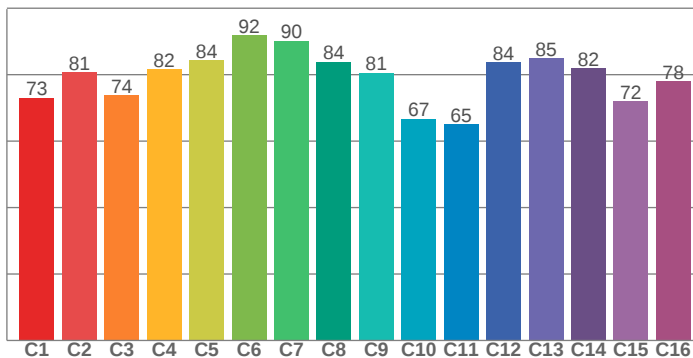
[www.superbrightleds.com/](http://www.superbrightleds.com/)

## Color Specifications



**TM30: 79.2**

**CRI: 81.8 (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  |
|------|------|------|------|------|------|------|------|-----|------|------|------|------|------|------|
| 81.0 | 86.4 | 88.7 | 82.3 | 81.0 | 80.0 | 86.5 | 68.6 | 9.1 | 66.2 | 81.0 | 56.7 | 82.3 | 93.7 | 76.3 |

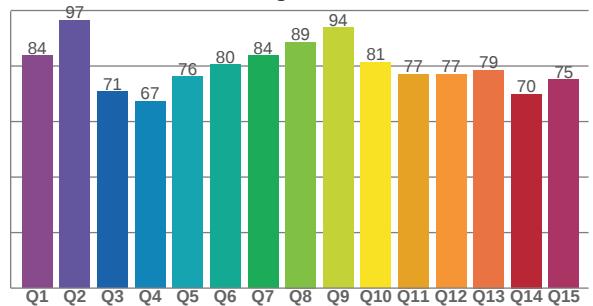
TM30 C values, 16 binned values out of total of 99 C values

| C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8   | C9   | C10  | C11  | C12  | C13  | C14  | C15  | C16  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 73.0 | 80.7 | 73.7 | 81.6 | 84.3 | 91.8 | 90.1 | 83.8 | 80.6 | 66.7 | 65.1 | 83.7 | 84.9 | 81.9 | 72.0 | 78.0 |

CQS Q values

| Q1   | Q2   | Q3   | Q4   | Q5   | Q6   | Q7   | Q8   | Q9   | Q10  | Q11  | Q12  | Q13  | Q14  | Q15  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 83.7 | 96.5 | 70.7 | 67.3 | 76.2 | 80.4 | 83.8 | 88.7 | 93.9 | 81.4 | 77.1 | 77.0 | 78.6 | 69.9 | 75.1 |

**CQS: 78.5**



## 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                             |
| 5224 K            | 81.8                  | 9.1           | 79.2           | 95.5        | 78.5                | 0.339                     | 0.346                     | 0.210            | 0.321            | -0.0036                         |



## TM30 Report

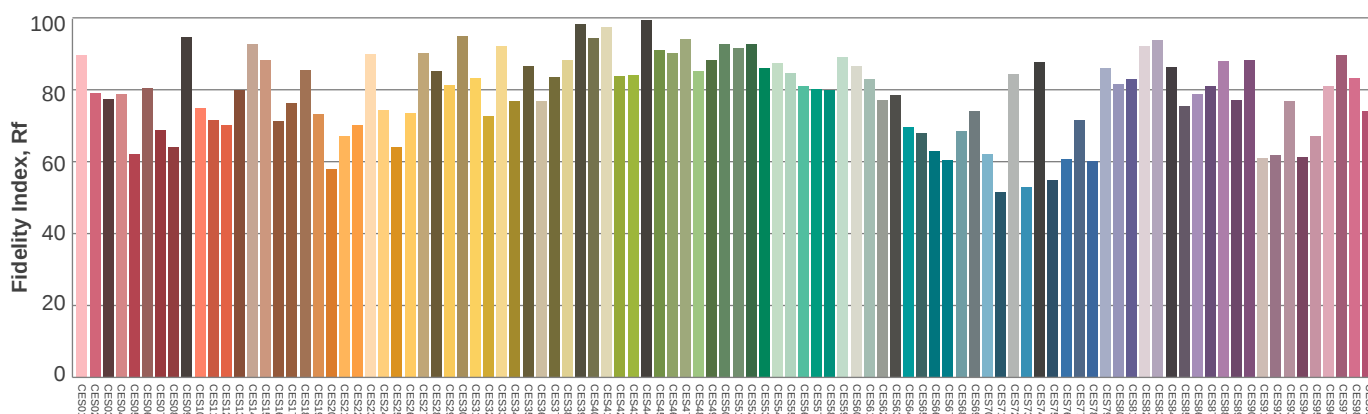
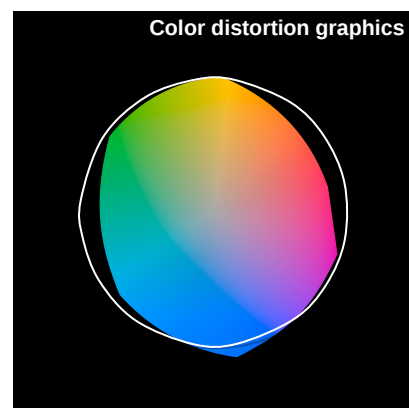
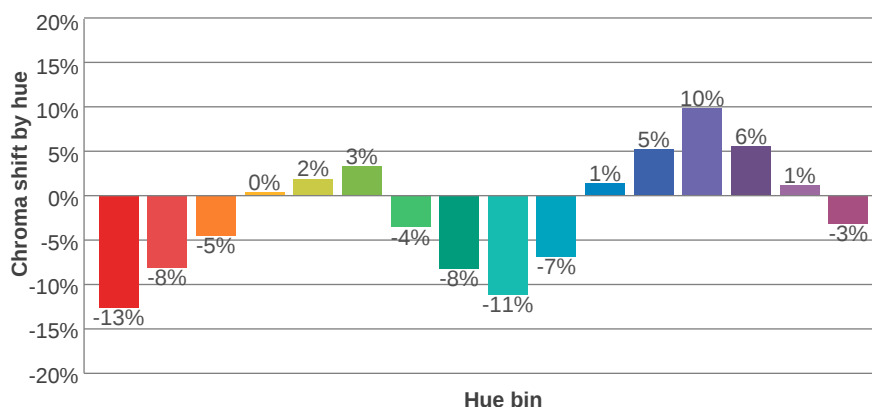
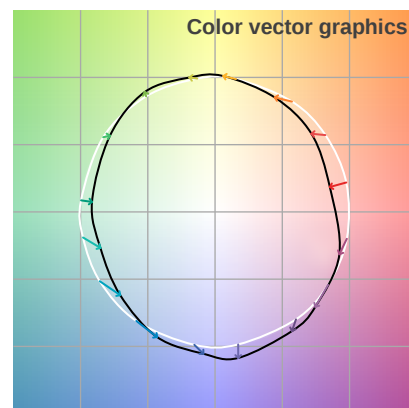
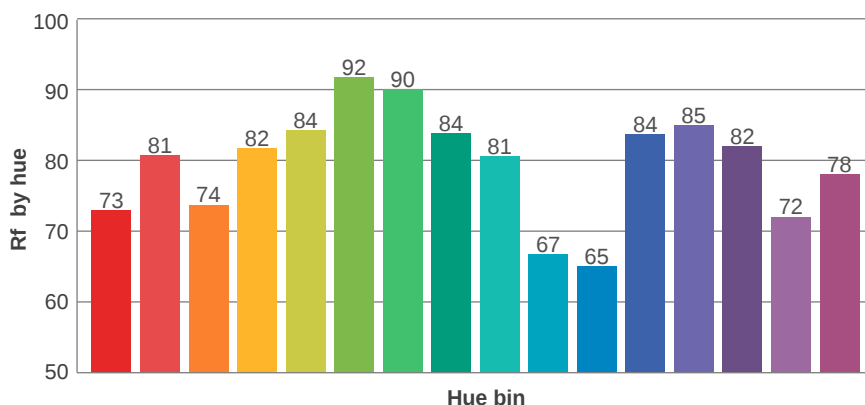
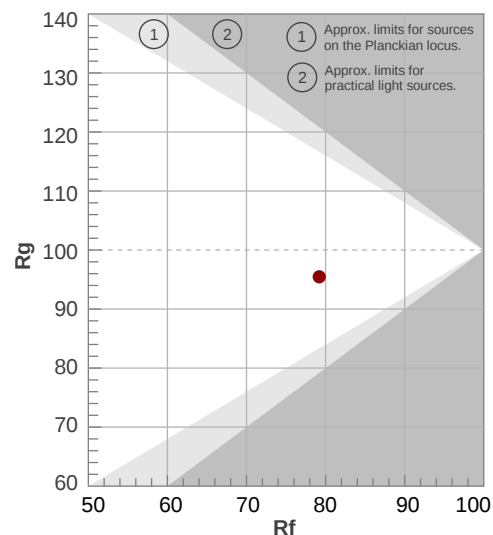
**Rf 79.2**

Fidelity index Rf

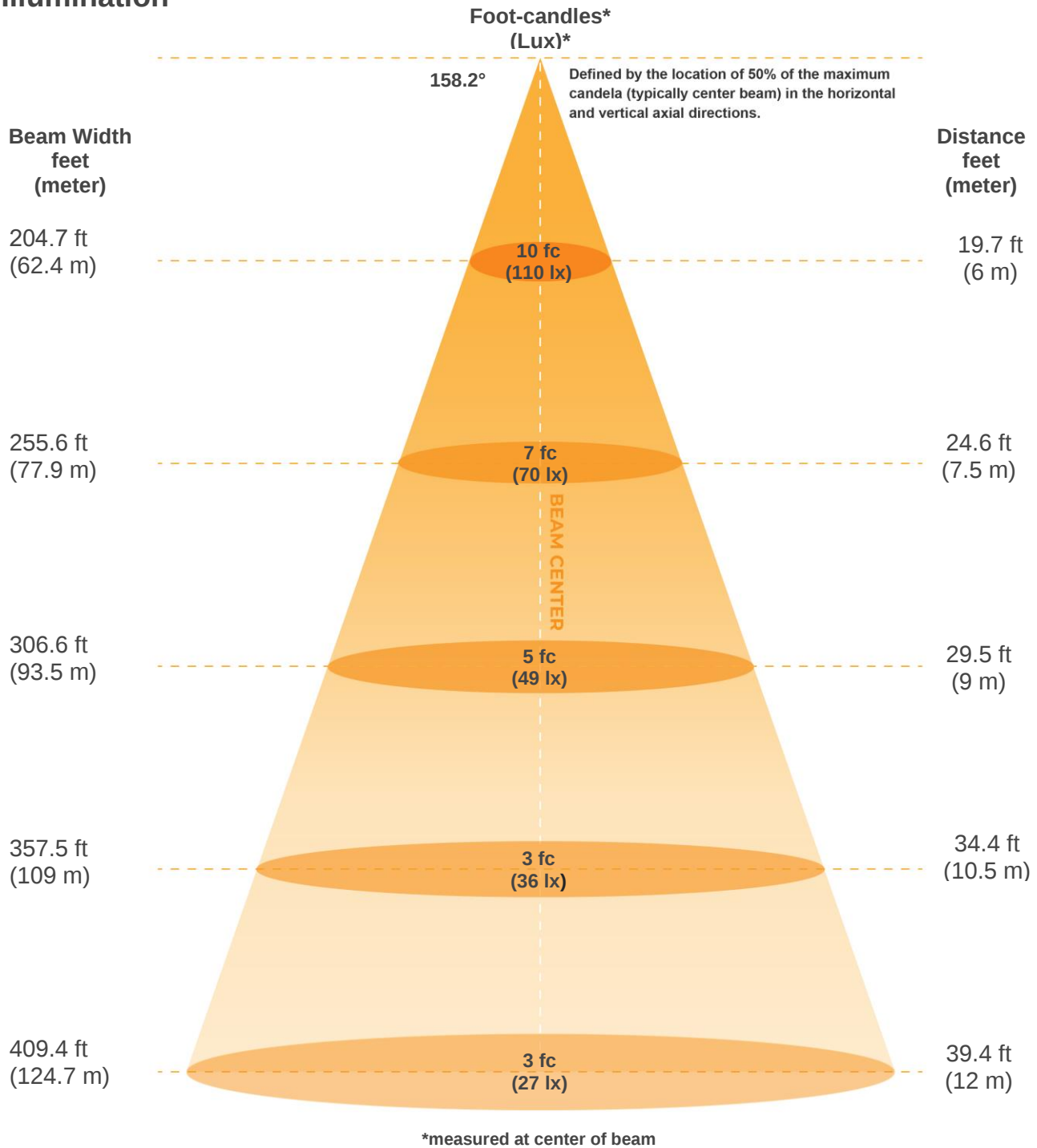
**Rg 95.5**

Gamut index Rg

| Hue Bin | R <sub>f</sub> | Graphic shifts (%) |      |
|---------|----------------|--------------------|------|
|         |                | Chroma             | Hue  |
| 1       | 73             | -13%               | -1%  |
| 2       | 81             | -8%                | 7%   |
| 3       | 74             | -5%                | 12%  |
| 4       | 82             | 0%                 | 10%  |
| 5       | 84             | 2%                 | 6%   |
| 6       | 92             | 3%                 | -1%  |
| 7       | 90             | -4%                | -4%  |
| 8       | 84             | -8%                | 0%   |
| 9       | 81             | -11%               | 10%  |
| 10      | 67             | -7%                | 17%  |
| 11      | 65             | 1%                 | 19%  |
| 12      | 84             | 5%                 | 8%   |
| 13      | 85             | 10%                | -2%  |
| 14      | 82             | 6%                 | -7%  |
| 15      | 72             | 1%                 | -19% |
| 16      | 78             | -3%                | -12% |



## Illumination



### Beam intensities from 1-20m

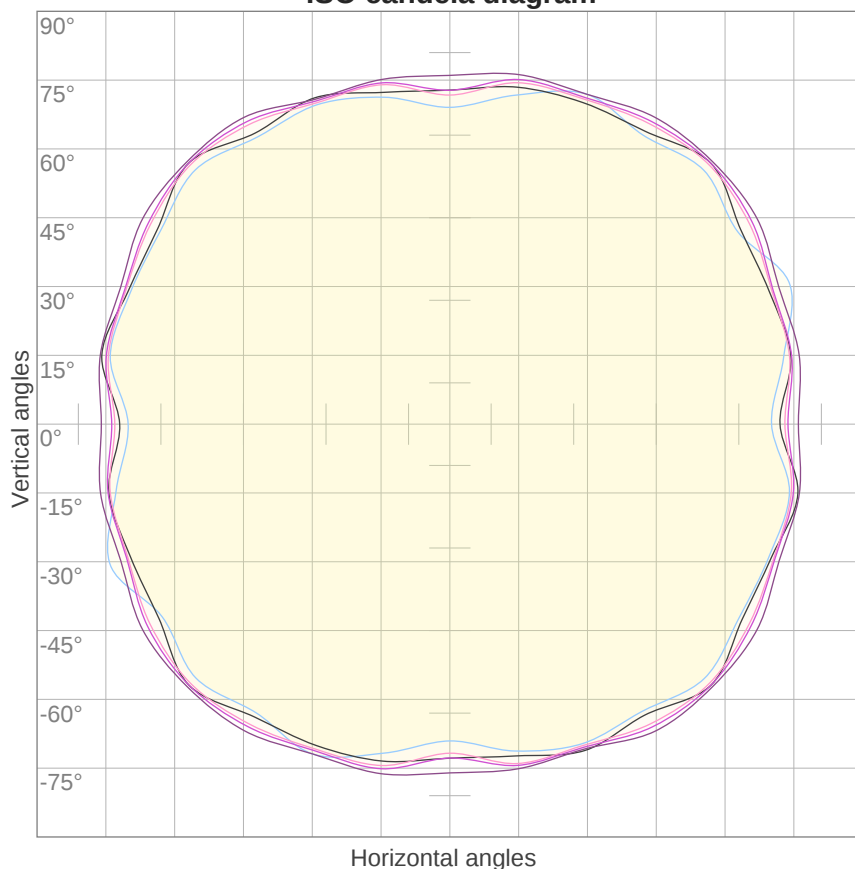
| 1m       | 2m      | 3m      | 4m      | 5m      | 6m      | 7m     | 8m     | 9m     | 10m    | 11m    | 12m    | 13m    | 14m    | 15m    | 16m    | 17m    | 18m    | 19m    | 20m    |
|----------|---------|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 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 |
| 3942lx   | 986lx   | 438lx   | 246lx   | 158lx   | 110lx   | 80lx   | 62lx   | 49lx   | 39lx   | 33lx   | 27lx   | 23lx   | 20lx   | 18lx   | 15lx   | 14lx   | 12lx   | 11lx   | 10lx   |
| 366.2fcd | 91.6fcd | 40.7fcd | 22.9fcd | 14.6fcd | 10.2fcd | 7.5fcd | 5.7fcd | 4.5fcd | 3.7fcd | 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 |
|----------------|-----------------|-------------------|------------------------------|-----------------------------|
| 158.2°         | 170.5°          | 177°              | 50.6%                        | 24.5%                       |



## ISO Diagrams

ISO candela diagram



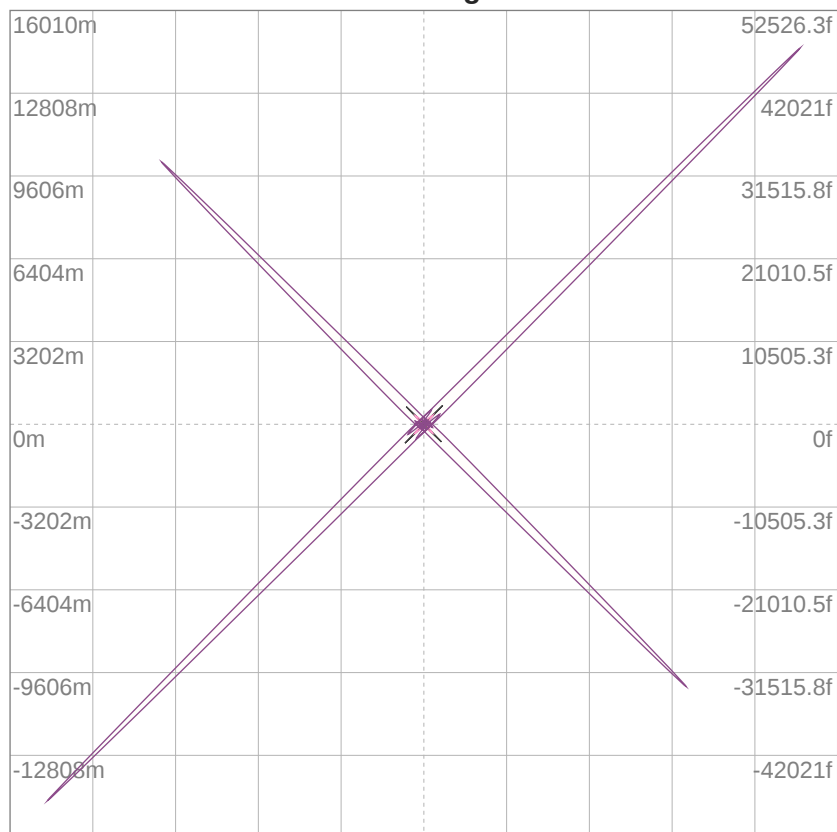
|     |         |
|-----|---------|
| 10% | 394 cd  |
| 20% | 788 cd  |
| 30% | 1183 cd |
| 40% | 1577 cd |
| 50% | 1971 cd |
| 60% | 2365 cd |
| 70% | 2759 cd |
| 80% | 3154 cd |
| 90% | 3548 cd |

### Conditions:

Number of c-planes: 16

Candela at center: 3942 cd

ISO lux diagram



|     |         |
|-----|---------|
| 3%  | 1.18 lx |
| 5%  | 1.97 lx |
| 10% | 3.94 lx |
| 30% | 11.8 lx |
| 50% | 19.7 lx |

### Conditions:

Number of c-planes: 16

Lux at center: 39.4 lx

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



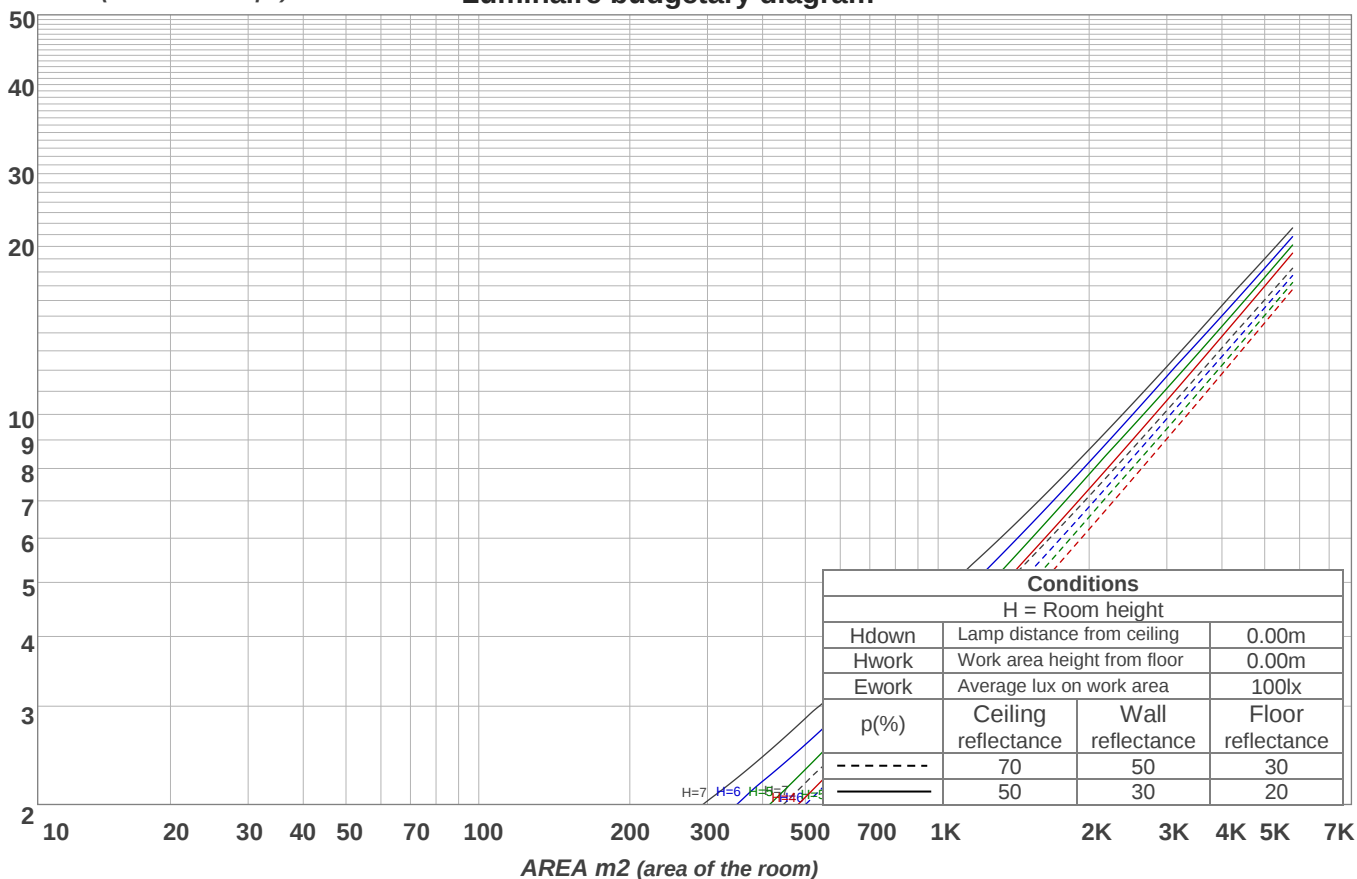
## Light Planning

### 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                   | 103                                                                                                      | 97  | 90  | 85  | 100 | 94  | 88  | 83  | 90  | 85  | 80  | 85  | 81  | 78  | 81  | 78  | 75  | 73  |
| 2                   | 90                                                                                                       | 79  | 69  | 61  | 87  | 77  | 68  | 61  | 73  | 65  | 59  | 69  | 63  | 57  | 66  | 61  | 56  | 53  |
| 3                   | 80                                                                                                       | 66  | 55  | 46  | 77  | 64  | 54  | 46  | 61  | 52  | 45  | 58  | 50  | 44  | 55  | 48  | 43  | 40  |
| 4                   | 71                                                                                                       | 56  | 45  | 36  | 69  | 54  | 44  | 36  | 52  | 42  | 35  | 49  | 41  | 34  | 46  | 40  | 34  | 31  |
| 5                   | 64                                                                                                       | 48  | 37  | 29  | 62  | 47  | 37  | 29  | 45  | 35  | 28  | 42  | 34  | 28  | 40  | 33  | 27  | 25  |
| 6                   | 59                                                                                                       | 43  | 32  | 24  | 56  | 41  | 31  | 24  | 39  | 30  | 23  | 37  | 29  | 23  | 36  | 28  | 23  | 20  |
| 7                   | 54                                                                                                       | 38  | 27  | 20  | 52  | 37  | 27  | 20  | 35  | 26  | 20  | 33  | 25  | 19  | 32  | 25  | 19  | 17  |
| 8                   | 50                                                                                                       | 34  | 24  | 17  | 48  | 33  | 24  | 17  | 32  | 23  | 17  | 30  | 22  | 17  | 29  | 22  | 16  | 14  |
| 9                   | 46                                                                                                       | 31  | 21  | 15  | 45  | 30  | 21  | 15  | 29  | 20  | 15  | 28  | 20  | 15  | 26  | 19  | 14  | 12  |
| 10                  | 43                                                                                                       | 28  | 19  | 13  | 42  | 28  | 19  | 13  | 26  | 18  | 13  | 25  | 18  | 13  | 24  | 18  | 13  | 11  |

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°   |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 387 lm   | 1230 lm   | 2170 lm   | 3319 lm   | 4926 lm   | 7228 lm   | 9132 lm   | 7409 lm   | 2103 lm   |
| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
| 49.4 lm  | 19.7 lm   | 20.8 lm   | 19.8 lm   | 17.8 lm   | 14.4 lm   | 10.4 lm   | 6.29 lm   | 2.12 lm   |

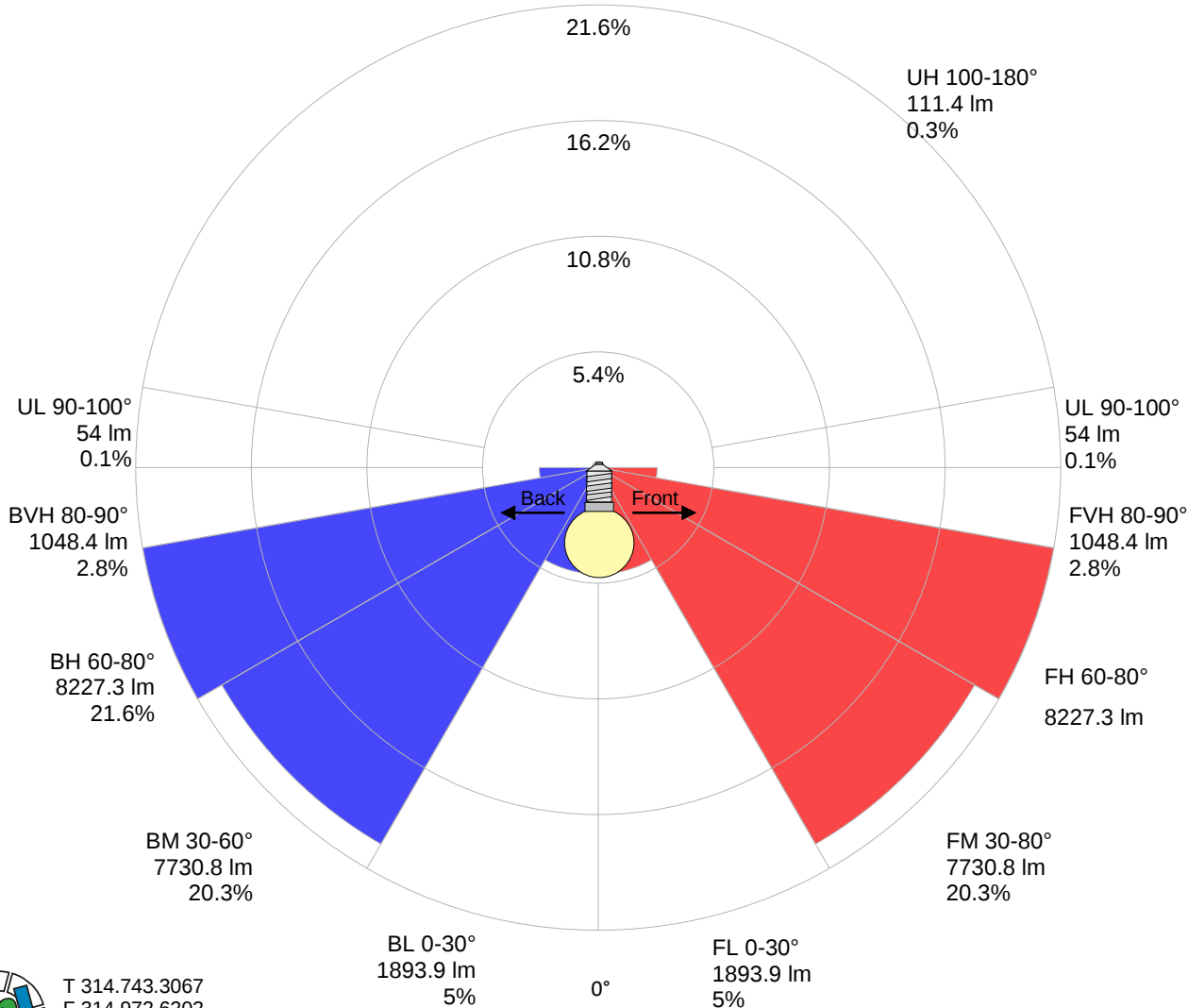


## Road Report

LCS table

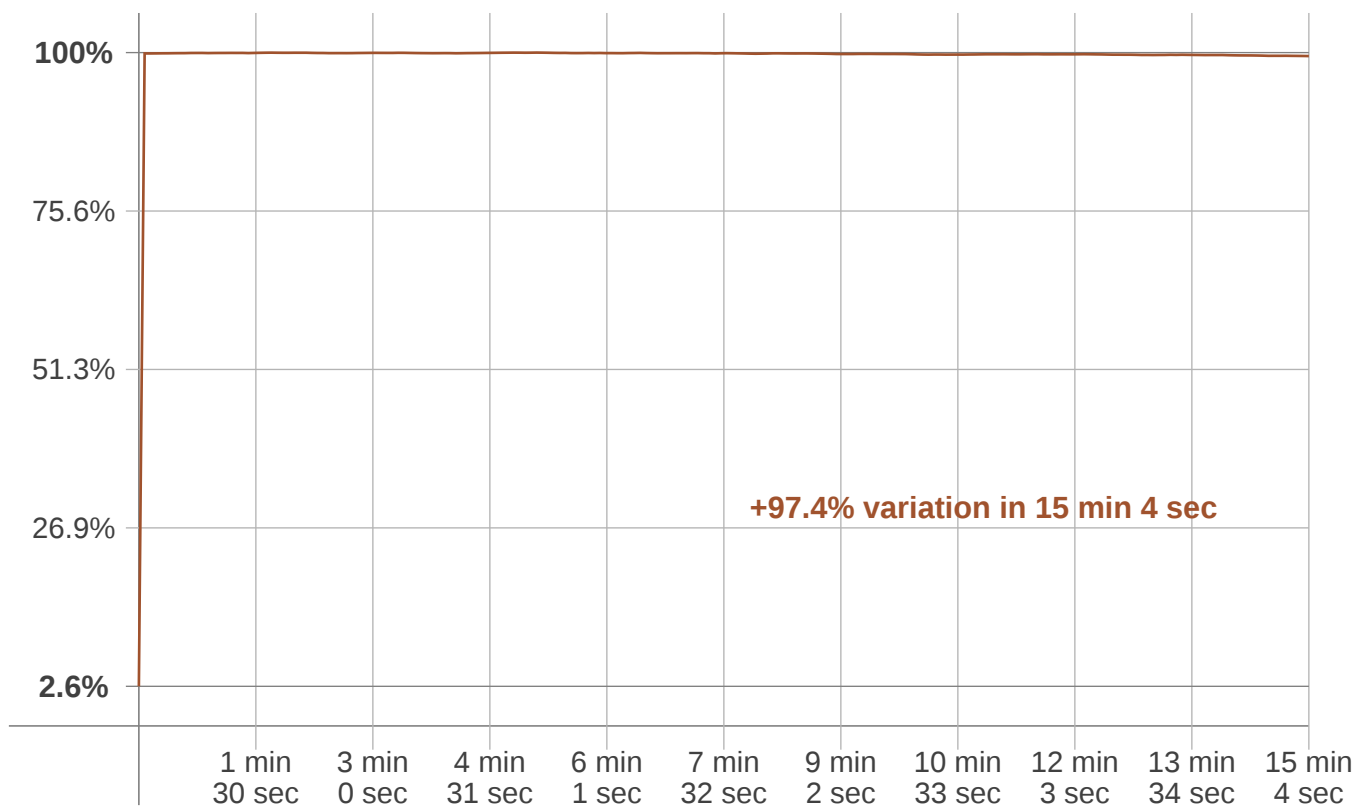
| BUG rating:       | B5 U3 G5 |          |
|-------------------|----------|----------|
| Forward light     | Lumens   | Lumens % |
| Low(0-30):        | 1893.9   | 5%       |
| Medium(30-60):    | 7730.8   | 20.3%    |
| High(60-80):      | 8227.3   | 21.6%    |
| Very high(80-90): | 1048.4   | 2.8%     |
| Back light        |          |          |
| Low(0-30):        | 1893.9   | 5%       |
| Medium(30-60):    | 7730.8   | 20.3%    |
| High(60-80):      | 8227.3   | 21.6%    |
| Very high(80-90): | 1048.4   | 2.8%     |
| Uplight           |          |          |
| Low(90-100):      | 54       | 0.1%     |
| High(100-180):    | 111.4    | 0.3%     |

LCS graph



## Stabilization

### Warmup curve



### Warmup result

|                  |              |
|------------------|--------------|
| Warmup time:     | 15 min 4 sec |
| Warmup variation | +97.4%       |

### Warmup conditions

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

### Color temperature change

|           |            |         |
|-----------|------------|---------|
| CCT start | CCT change | CCT end |
| 3509 K    | +1715 K    | 5224 K  |

### Output change

|              |               |            |
|--------------|---------------|------------|
| Output start | Output change | Output end |
| 30660 lm     | +7407 lm      | 38066 lm   |

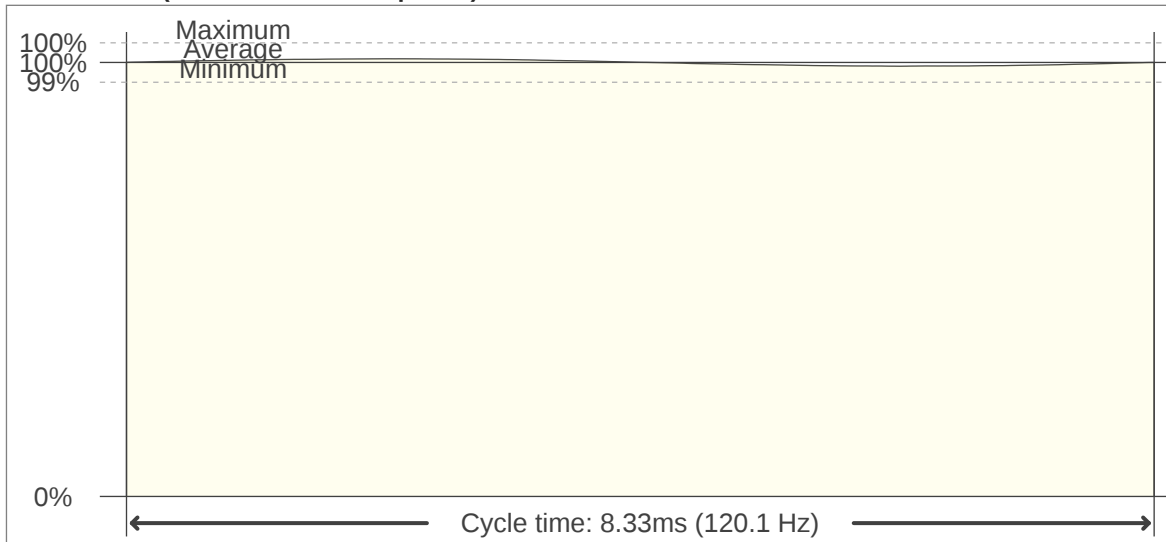


## Flicker

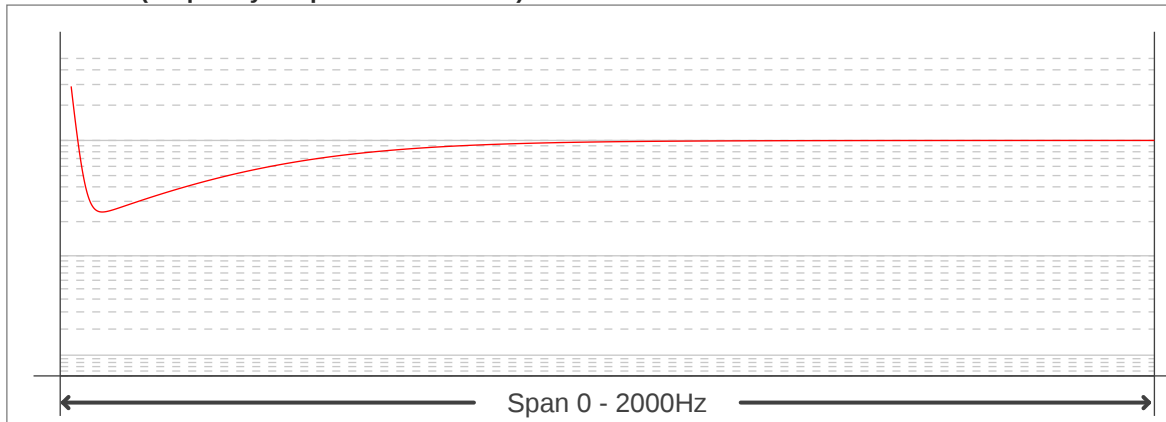
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



### Flicker results:

|                       |           |
|-----------------------|-----------|
| Flicker frequency:    | 120.12 Hz |
| Flicker index:        | 0         |
| Flicker percentage:   | 0.92 %    |
| SVM: (Visual flicker) | 0.03      |

### Flicker conditions:

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

