

Light efficiency:



Output: 6511 lm

Light quality:



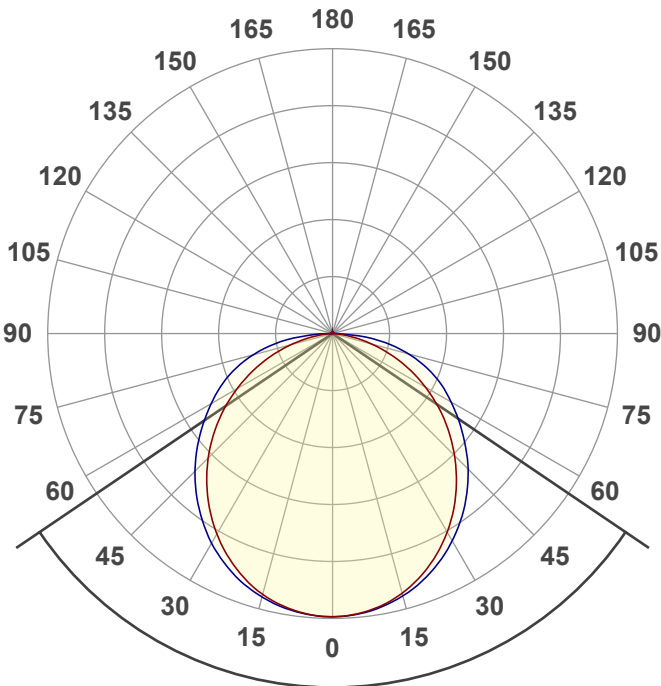
Peak: 2229 cd

Color temperature:



Power: 43.8 W

PF: 0.99



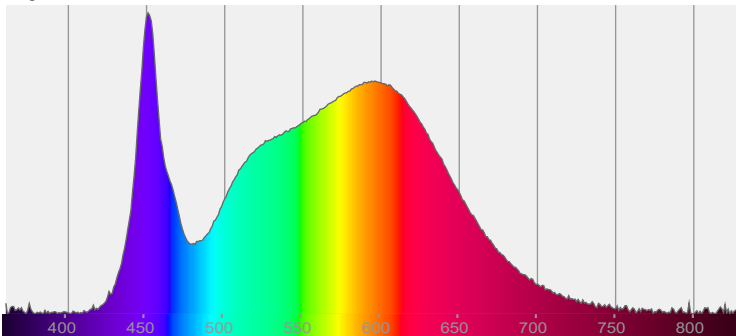
Product name:
TLFDK-SW3C45-24 40K 45W
Date and time:
3/21/2024 1:41:48 PM

Beam angle **111.8°**

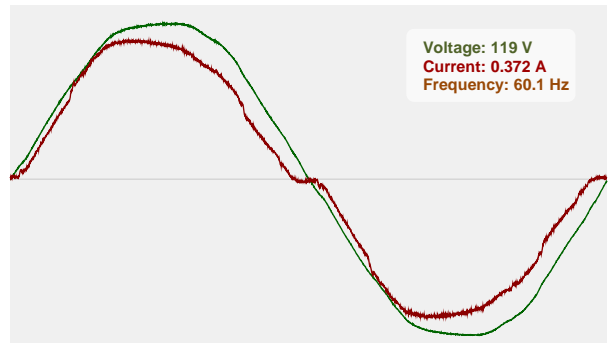


CIE 1931
x: 0.375
y: 0.374

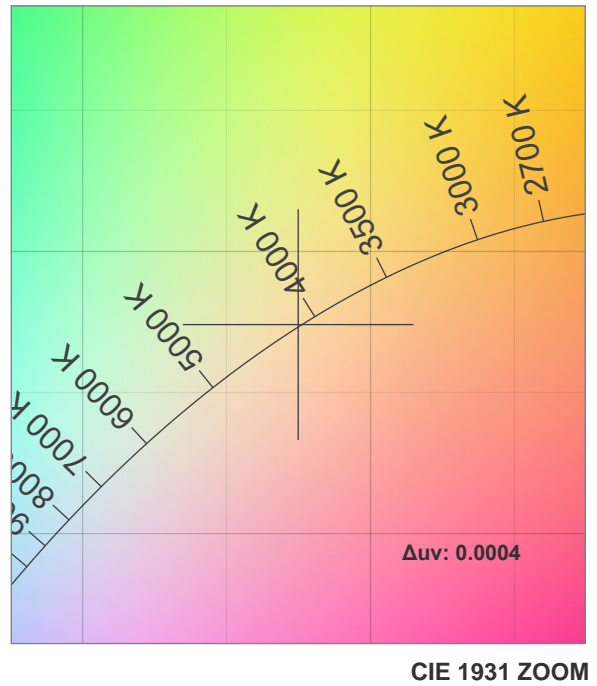
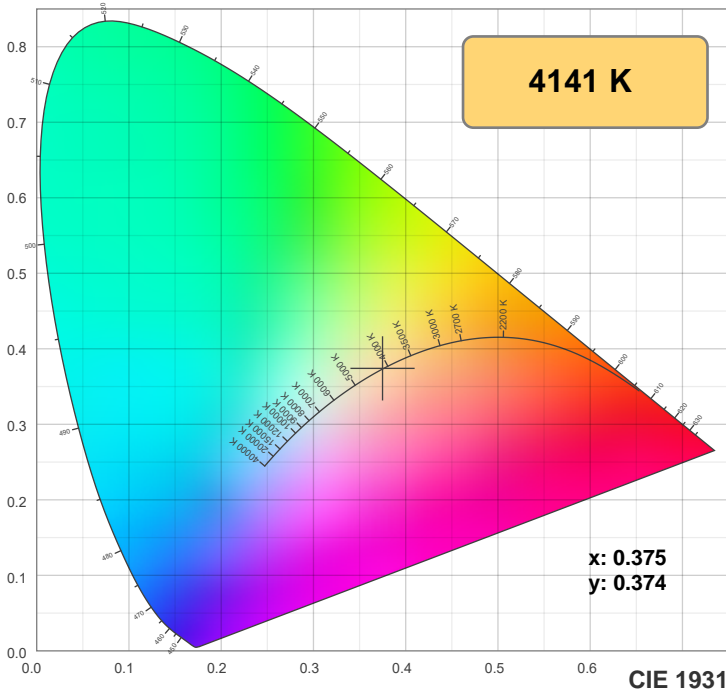
Spectra



Power

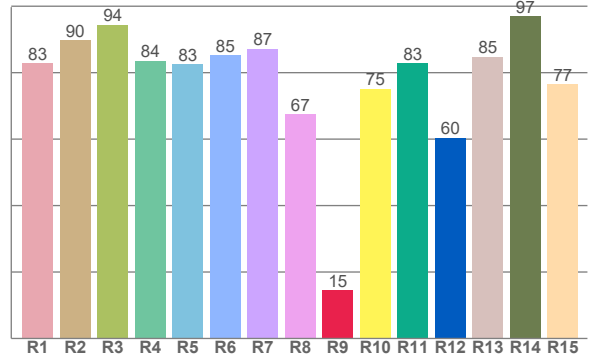
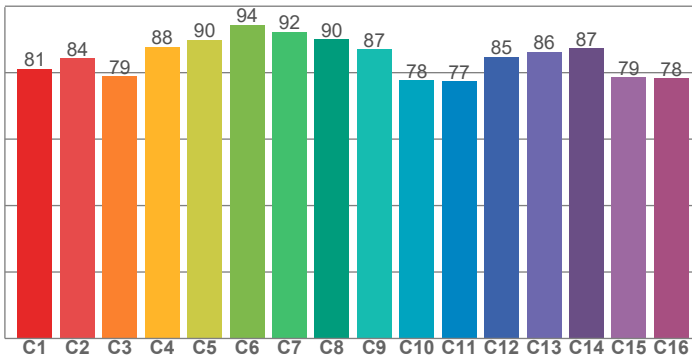


Color Specifications



TM30: 84.4

CRI: 84.2 (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 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 82.9 | 89.8 | 94.4 | 83.6 | 82.6 | 85.3 | 87.2 | 67.5 | 14.6 | 75.2 | 82.9 | 60.4 | 84.8 | 97.0 | 76.6 |

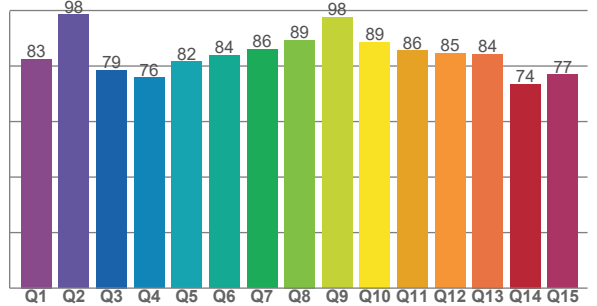
TM30 C values, 16 binned values out of total of 99 C values

| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 | C13 | C14 | C15 | C16 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 81.1 | 84.3 | 78.9 | 87.8 | 89.9 | 94.4 | 92.2 | 90.1 | 87.0 | 77.7 | 77.4 | 84.7 | 86.3 | 87.3 | 78.6 | 78.3 |

CQS Q values

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 82.5 | 98.5 | 78.6 | 75.7 | 81.5 | 83.9 | 86.0 | 89.4 | 97.6 | 88.7 | 85.6 | 84.6 | 84.3 | 73.5 | 76.9 |

CQS: 83.0



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 |
| 4141 K | 84.2 | 14.6 | 84.4 | 95.9 | 83.0 | 0.375 | 0.374 | 0.223 | 0.333 | 0.0004 |

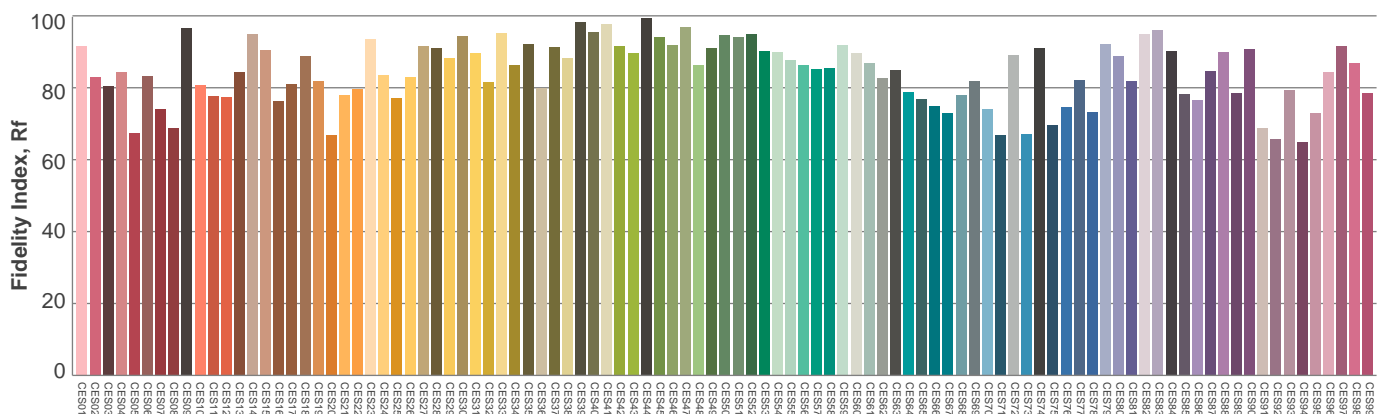
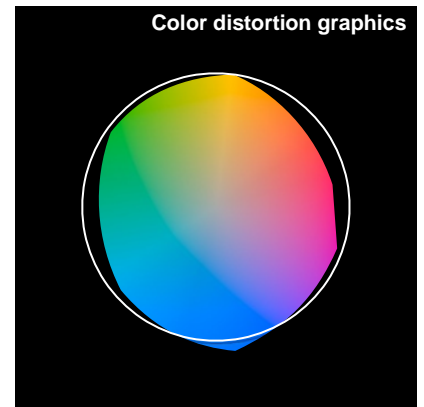
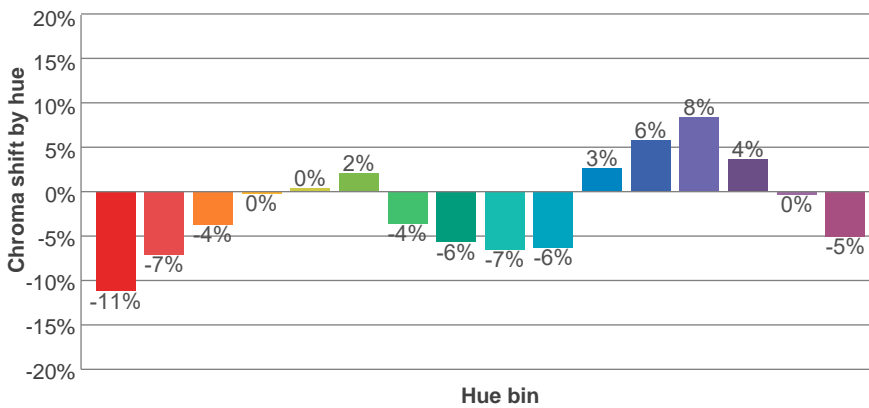
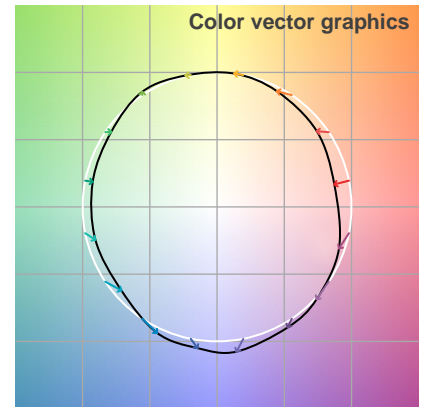
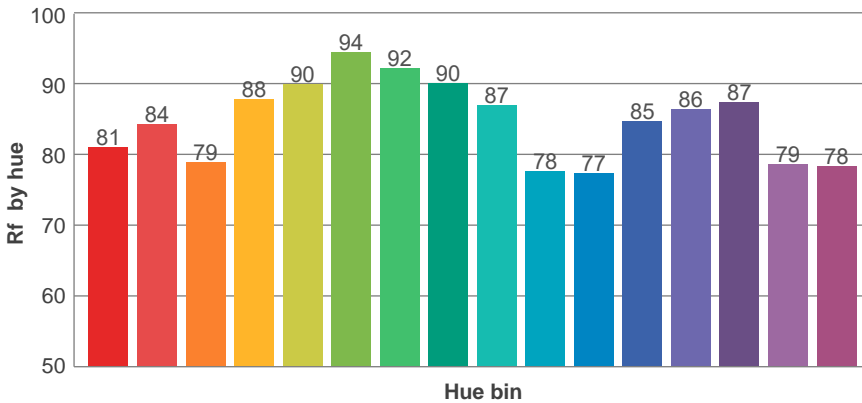
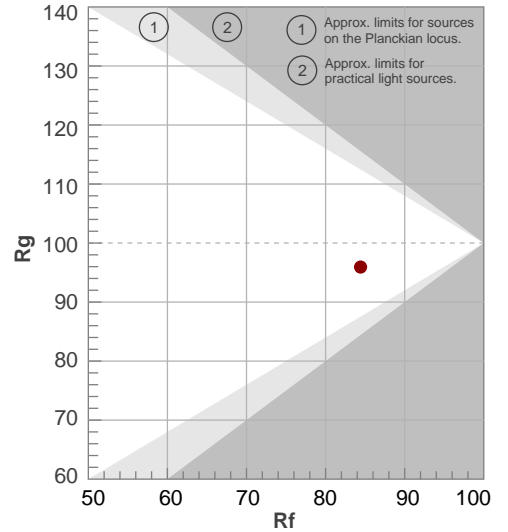


TM30 Report

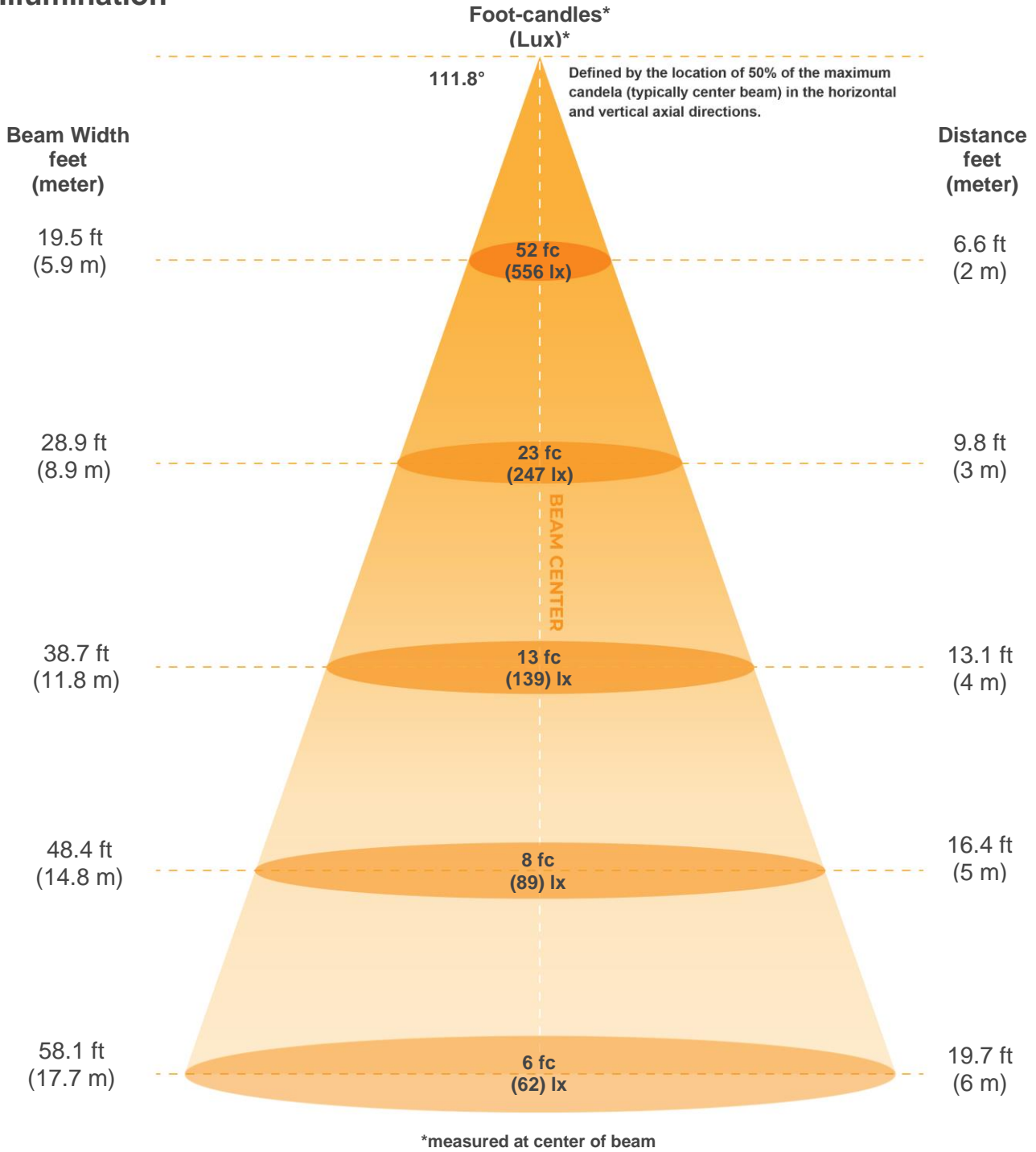
Rf 84.4
Fidelity index Rf

Rg 95.9
Gammut index Rg

| Hue Bin | R _f | Graphic shifts (%) | |
|---------|----------------|--------------------|------|
| | | Chroma | Hue |
| 1 | 81 | -11% | -1% |
| 2 | 84 | -7% | 6% |
| 3 | 79 | -4% | 11% |
| 4 | 88 | 0% | 7% |
| 5 | 90 | 0% | 4% |
| 6 | 94 | 2% | -1% |
| 7 | 92 | -4% | -3% |
| 8 | 90 | -6% | 0% |
| 9 | 87 | -7% | 6% |
| 10 | 78 | -6% | 12% |
| 11 | 77 | 3% | 15% |
| 12 | 85 | 6% | 6% |
| 13 | 86 | 8% | -7% |
| 14 | 87 | 4% | -6% |
| 15 | 79 | 0% | -16% |
| 16 | 78 | -5% | -13% |



Illumination



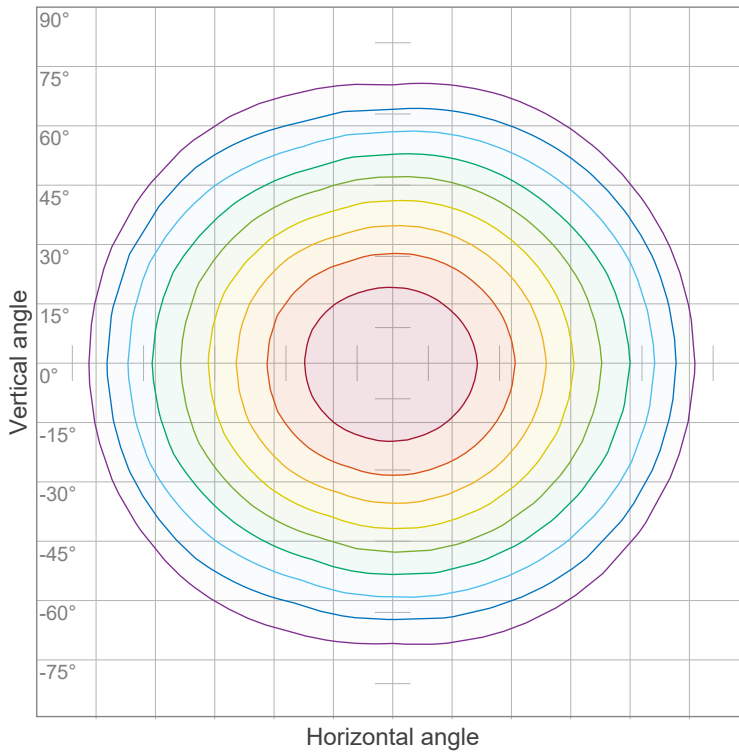
Beam intensities from 1-20m

| m | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|-----|-------|------|-----|------|------|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ft | 3.3 | 6.6 | 9.8 | 13.1 | 16.4 | 19.7 | 23 | 26.2 | 29.5 | 32.8 | 36.1 | 39.4 | 42.7 | 45.9 | 49.2 | 52.5 | 55.8 | 59.1 | 62.3 | 65.6 |
| lux | 2225 | 556 | 247 | 139 | 89 | 62 | 45 | 35 | 27 | 22 | 18 | 15 | 13 | 11 | 10 | 9 | 8 | 7 | 6 | 6 |
| fc | 206.7 | 51.7 | 23 | 12.9 | 8.3 | 5.7 | 4.2 | 3.2 | 2.6 | 2.1 | 1.7 | 1.4 | 1.2 | 1.1 | 0.9 | 0.8 | 0.7 | 0.6 | 0.6 | 0.5 |

| Beam angle 50% | Field angle 10% | Cutoff Angle 2.5% | Intensity Ratio in 120° cone | Intensity Ratio in 90° cone |
|----------------|-----------------|-------------------|------------------------------|-----------------------------|
| 111.8° | 165.9° | 176.9° | 75.7% | 51.6% |



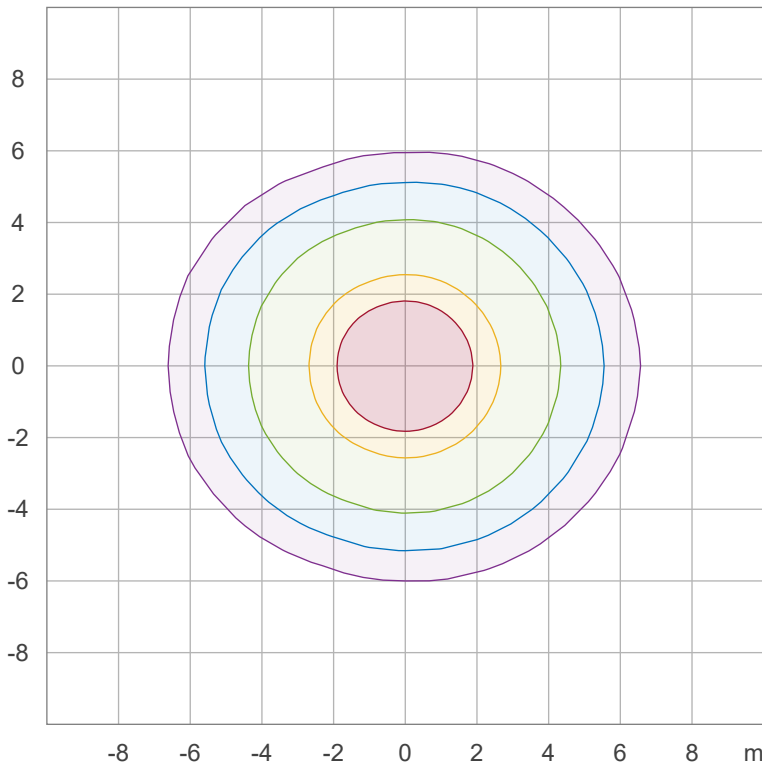
Iso-intensity Diagram (Iso-candela)



| | |
|------|-----------|
| 90 % | 2005.8 cd |
| 80 % | 1782.9 cd |
| 70 % | 1560.1 cd |
| 60 % | 1337.2 cd |
| 50 % | 1114.3 cd |
| 40 % | 891.5 cd |
| 30 % | 668.6 cd |
| 20 % | 445.7 cd |
| 10 % | 222.9 cd |

Peak intensity: 2228.7 cd
 Number of c-planes: 16

Iso-illuminance Diagram (Iso-lux)



| | |
|--------|----------|
| 50.0 % | 123.8 lx |
| 30.0 % | 74.3 lx |
| 10.0 % | 24.8 lx |
| 5.0 % | 12.4 lx |
| 3.0 % | 7.4 lx |

Peak illuminance: 247.5 lx
 Mounting height: 3.0 m
 Number of c-planes: 16



Light Planning – UGR table

Uncorrected, comprehensive UGR table according to 117-1995

| Reflectances | | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 | | | |
|---|-----|--|-----|-----|-----|-----|-----|--|-----|-----|-----|-----|-----|-----|
| ρ Ceiling | | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 | | | |
| ρ Walls | | 50 | 30 | 50 | 30 | 30 | 50 | 30 | 50 | 30 | 30 | | | |
| ρ Floor | | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | | |
| Room size H = mounting height above eye level | | Viewed Crosswise (Viewing direction orthogonal to lamp length axis) | | | | | | Viewed Endwise (Viewing direction parallel to lamp length axis) | | | | | | |
| X | Y | | | | | | | | | | | | | |
| 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 | 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 |

Variations with the observer position for the luminaire spacings, S:

| | | |
|-----|-----|-----|
| n/a | n/a | n/a |
| n/a | n/a | n/a |
| n/a | n/a | n/a |

UGR data could not be calculated due to missing dimensions. Goto Edit->Photometric->Dimensions and set the fixture/lamp dimensions.

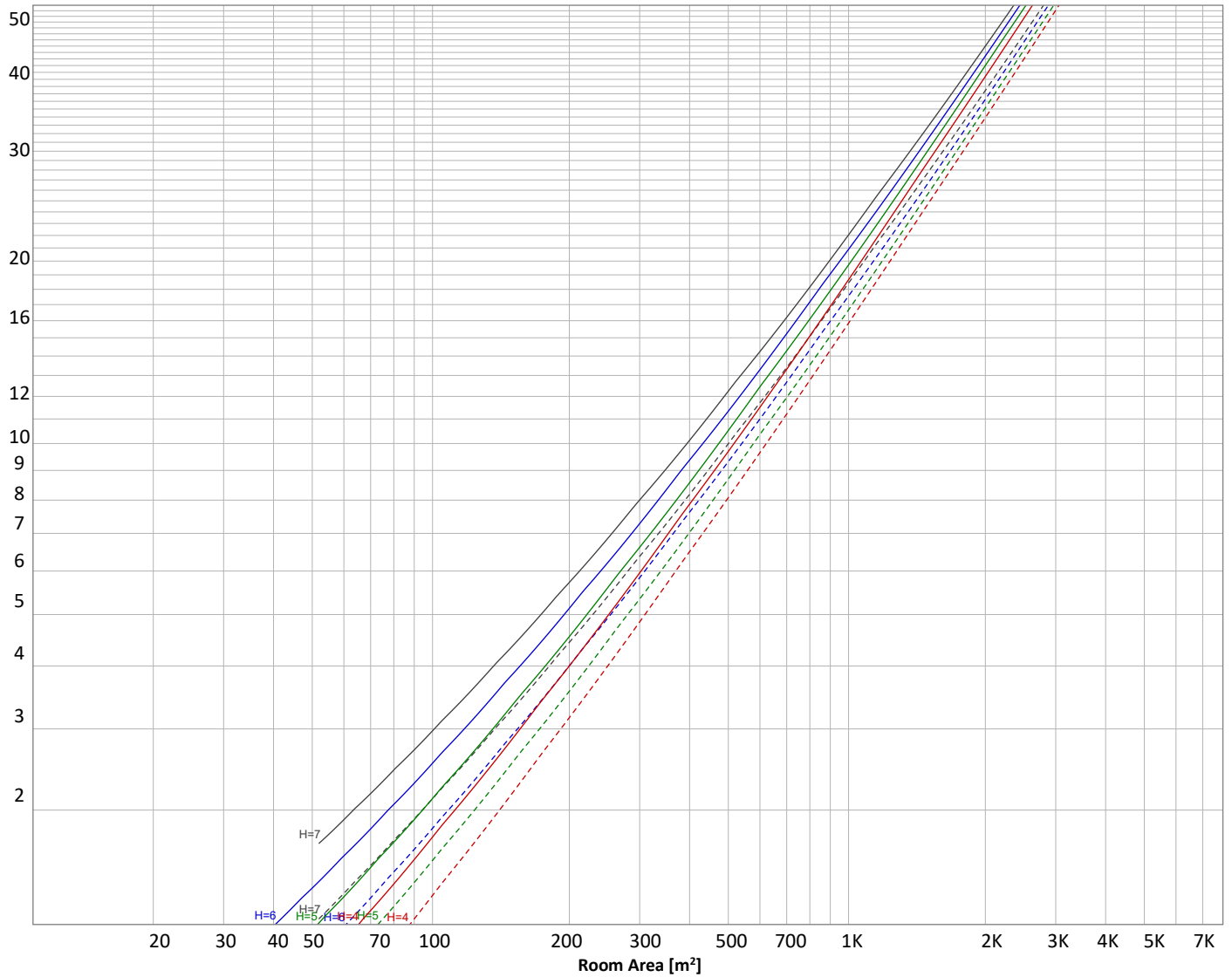
Coefficients of Utilization

| 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 Lumen 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 | 108 103 98 | 94 105 100 | 96 93 96 | 93 90 92 | 89 87 88 | 86 84 82 |
| 2 | 98 89 82 | 76 95 87 | 81 75 84 | 78 73 80 | 75 71 77 | 73 70 67 |
| 3 | 89 78 70 | 63 86 76 | 69 62 73 | 67 61 70 | 65 60 68 | 63 59 57 |
| 4 | 81 69 60 | 53 79 68 | 59 53 65 | 58 52 63 | 56 51 60 | 55 50 48 |
| 5 | 75 62 52 | 46 73 60 | 52 45 58 | 51 45 56 | 49 44 54 | 48 44 41 |
| 6 | 69 55 46 | 40 67 54 | 46 40 53 | 45 39 51 | 44 39 49 | 43 38 36 |
| 7 | 64 50 41 | 35 62 49 | 41 35 48 | 40 35 46 | 39 34 45 | 39 34 32 |
| 8 | 60 46 37 | 31 58 45 | 37 31 44 | 36 31 42 | 36 31 41 | 35 30 29 |
| 9 | 56 42 34 | 28 54 41 | 34 28 40 | 33 28 39 | 32 28 38 | 32 28 26 |
| 10 | 52 39 31 | 26 51 38 | 31 25 37 | 30 25 36 | 30 25 35 | 29 25 23 |



Luminaire budgetary diagram

Uncorrected, comprehensive UGR table according to 117-1995
LAMPS (number of lamps)



Conditions

| | | | | | |
|---|----------------|-----------|---------------------|------------------|-------------------|
| H = Room height | Flux = 6511 lm | | | | |
| H _{down} = Lamp distance from ceiling = | 0.00 m | Line type | Ceiling reflectance | Wall reflectance | Floor reflectance |
| H _{work} = Work area height from floor = | 0.00 m | ----- | 70 | 50 | 30 |
| E _{work} = Average lux on work area = | 100 lx | ————— | 50 | 30 | 20 |

Zonal Lumen Summary

| | | | | | | | | |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 0°-10° | 10°-20° | 20°-30° | 30°-40° | 40°-50° | 50°-60° | 60°-70° | 70°-80° | 80°-90° |
| 211 lm | 601 lm | 904 lm | 1081 lm | 1116 lm | 1016 lm | 814 lm | 531 lm | 184 lm |
| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
| 9.83 lm | 7.51 lm | 7.59 lm | 7.51 lm | 6.81 lm | 5.95 lm | 4.63 lm | 2.95 lm | 0.989 lm |

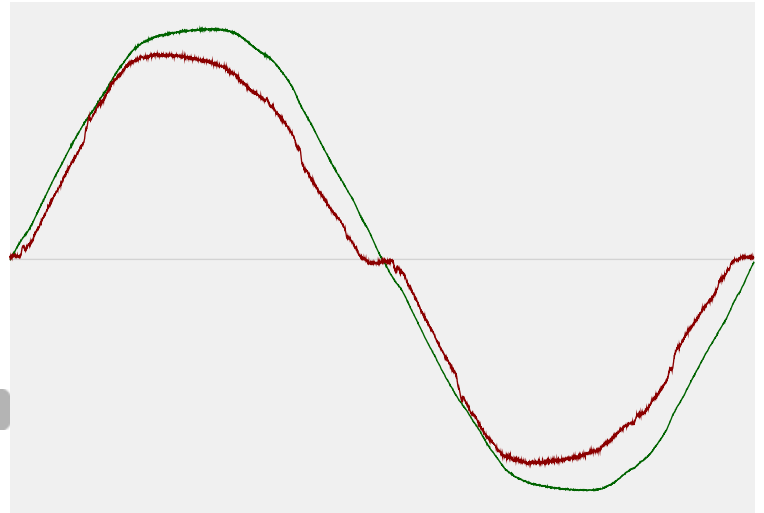


Power Details

Input Power

| | |
|---|----------|
| Power feed to light source | 43.8 W |
| Frequency of input power | 60.1 Hz |
| RMS Input voltage feed, V_{RMS} | 119 V |
| RMS Input current feed, I_{RMS} | 0.372 A |
| Volt-Ampere or apparent power = $V_{RMS} * I_{RMS}$ | 44.21 VA |
| Displacement factor of AC power feed | 1.0 |
| Power factor of AC current feed | 0.99 |
| Total harmonic distortion of the current | 10.59% |
| Total harmonic distortion of the voltage | 2.42% |

Input Power Curve



Efficiency

Radiated power efficiency 45.5%



Lumen efficiency 149 lm/W



Stabilization Details

Warmup Conditions

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

Color Temperature Change

| | |
|-----------|--------|
| CCT start | 4120 K |
| CCT shift | +21 K |
| CCT end | 4141 K |

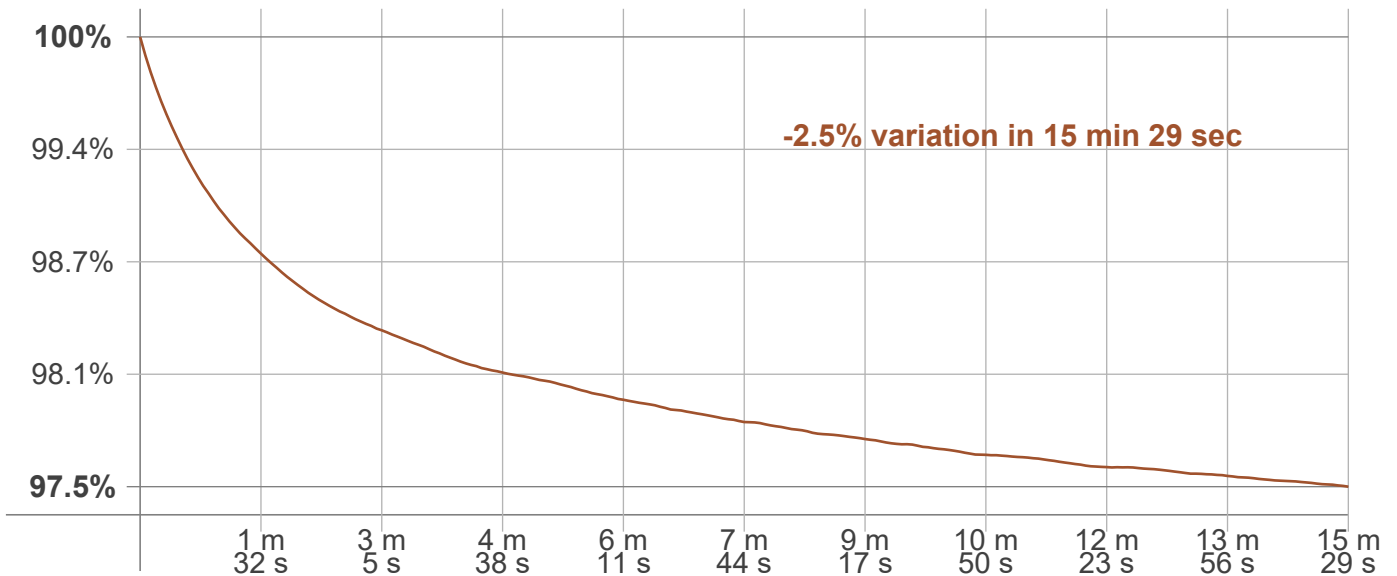
Warmup Result

| | |
|-------------------|----------------------------------|
| Total warmup time | Lamp stabilized in 15 min 29 sec |
| Warmup variation | -2.5% |

Output Change

| | |
|---------------|---------|
| Output start | 6663 lm |
| Output change | -152 lm |
| Output end | 6511 lm |

Stabilization Curve



Flicker /TLA details



T 314.743.3067
 F 314.972.6202
 email: commercial-sales@superbrightleds.com
www.superbrightleds.com/

Flicker Meter Type: Viso Systems LabFlicker
 Frequency of input power: 60.1 Hz
 Flicker/TLA sample rate: 20000 samples/s

Measurement time: PstLM 180 sec
 All other indices: 1.2 sec

Flicker indices according to Illuminating Engineering Society (IES)

Flicker frequency: 119.76 Hz
 Percent Flicker: 19.33 %
 Flicker index: 0.06

Flicker indices per California Energy Commission (CEC) 2016b

JA8/10 40 Hz: 0.17 %
 JA8/10 90 Hz: 0.52 %
 JA8/10 200 Hz: 19.01 %
 JA8/10 400 Hz: 19.38 %
 JA8/10 1000 Hz: 19.33 %

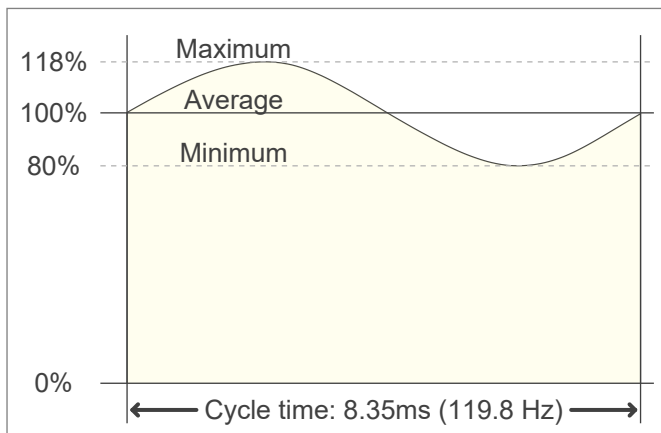
TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC 61000-4-15)

PstLM value (F < 80 Hz): 0.04
 SVM value (80 < F < 2000 Hz): 0.68

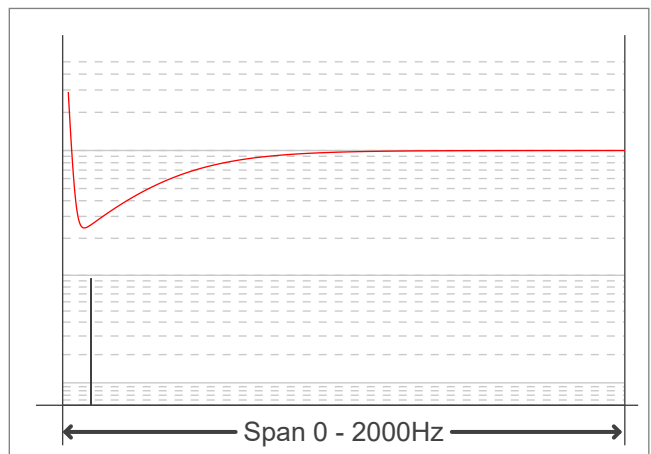
Flicker indices according to Lighting Research Center (2015)

Perception metric, Assist Mp: 0.04

Flicker frame (frame of one flicker period in time domain)



Flicker FFT (flicker curve in frequency domain)



IEEE 1789 Frequency/modulation plot

