

# PHOTOMETRIC TEST REPORT

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INCLINE SINGLE SOLID BRASS

astro

## INCLINE SINGLE SOLID BRASS

astro

### LIGHT EFFICIENCY:

59 Lumen/Watt

OUTPUT: 486 lm

### LIGHT QUALITY:

CRI: 83.4

PEAK: 277 cd

### COLOR TEMPERATURE:

3004 K

POWER: 8.2 W

PF: 0.54



Tracking number: [n/a](#)

Product name:

Incline Single Solid Brass

Item number:

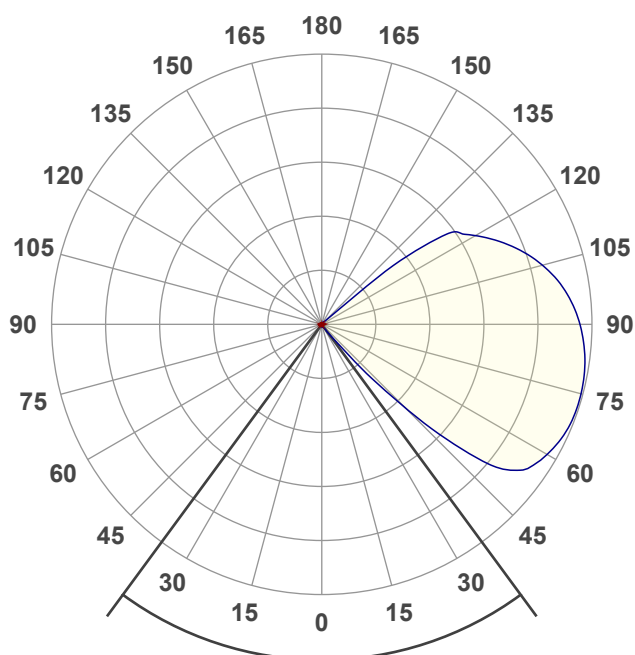
1419005

Date and time:

22/01/2020 11:59:25

Description:

IP65 LED Wall Light

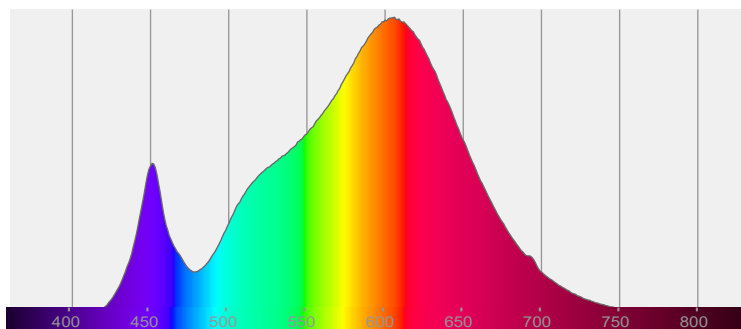


72.7°

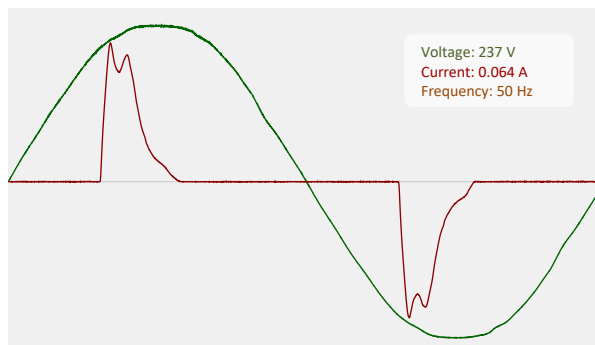


CIE 1931  
x: 0.438  
y: 0.406

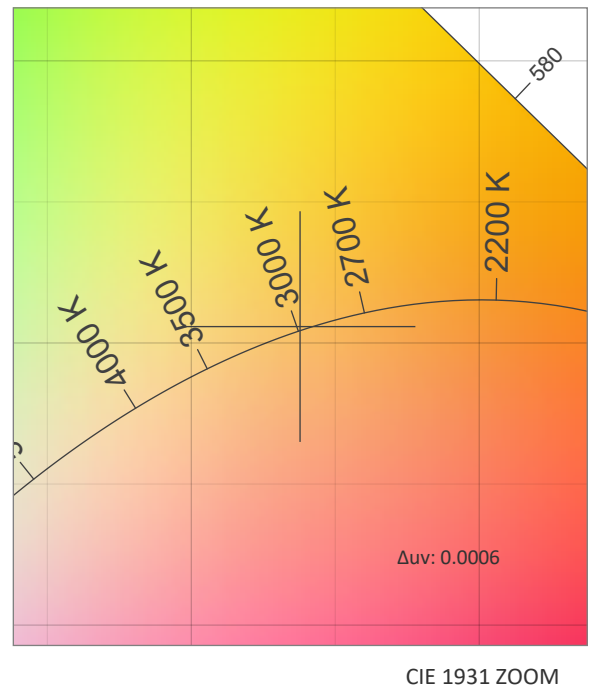
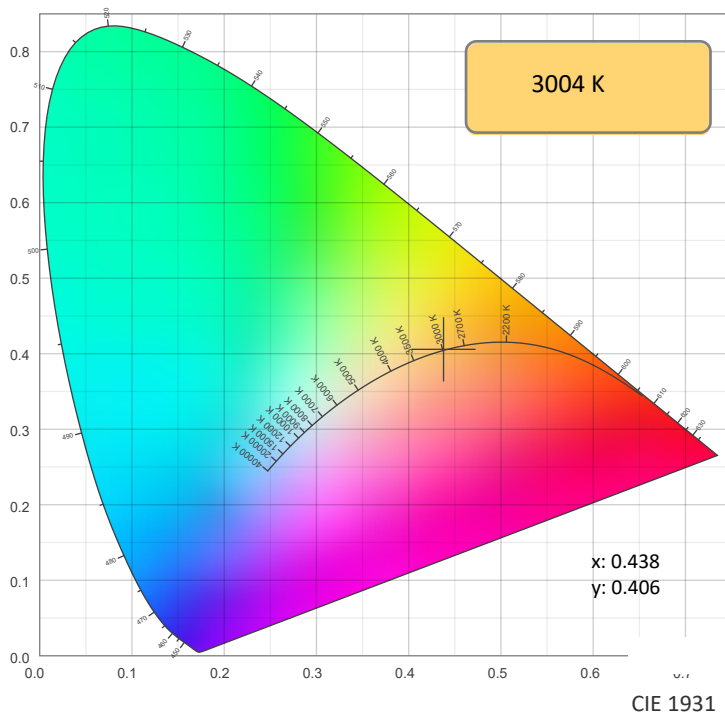
### SPECTRA



### POWER

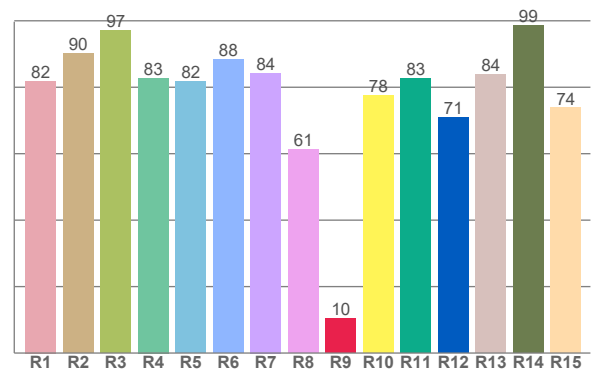
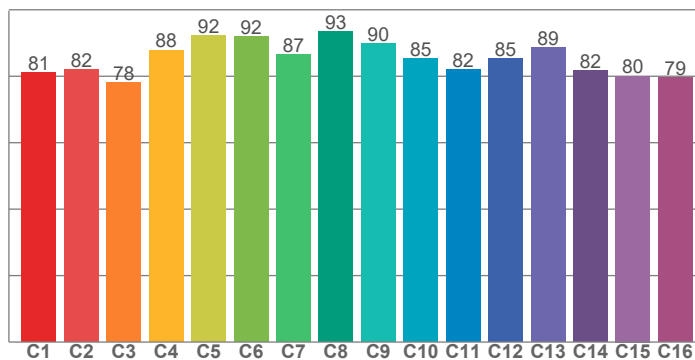


## COLOR DETAILS



TM30: 85.3

CRI: 83.4 (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  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 81.9 | 90.2 | 97.1 | 82.8 | 81.8 | 88.3 | 84.3 | 61.3 | 10.4 | 77.6 | 82.7 | 70.9 | 83.8 | 98.5 | 73.8 |

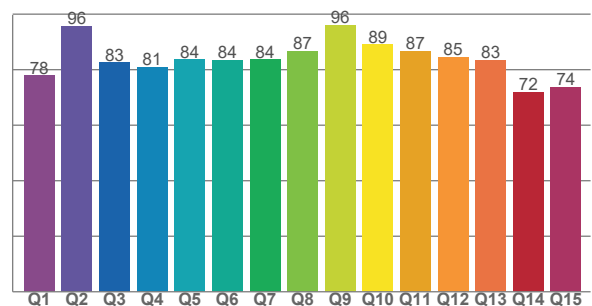
TM30 C values, 16 binned values out of total of 99 C values

| C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8   | C9   | C10  | C11  | C12  | C13  | C14  | C15  | C16  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 81.0 | 82.0 | 78.1 | 87.9 | 92.4 | 91.9 | 86.6 | 93.5 | 89.8 | 85.2 | 82.0 | 85.4 | 88.6 | 81.7 | 80.1 | 79.5 |

CQS Q values

| Q1   | Q2   | Q3   | Q4   | Q5   | Q6   | Q7   | Q8   | Q9   | Q10  | Q11  | Q12  | Q13  | Q14  | Q15  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 77.8 | 95.7 | 82.6 | 81.0 | 83.7 | 83.6 | 83.6 | 86.6 | 96.1 | 89.0 | 86.6 | 84.5 | 83.4 | 71.9 | 73.8 |

CQS: 82.6



## 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                             |
| 3004 K            | 83.4                  | 10.4          | 85.3           | 97.1        | 82.6                | 0.438                     | 0.406                     | 0.250            | 0.348            | 0.0006                          |

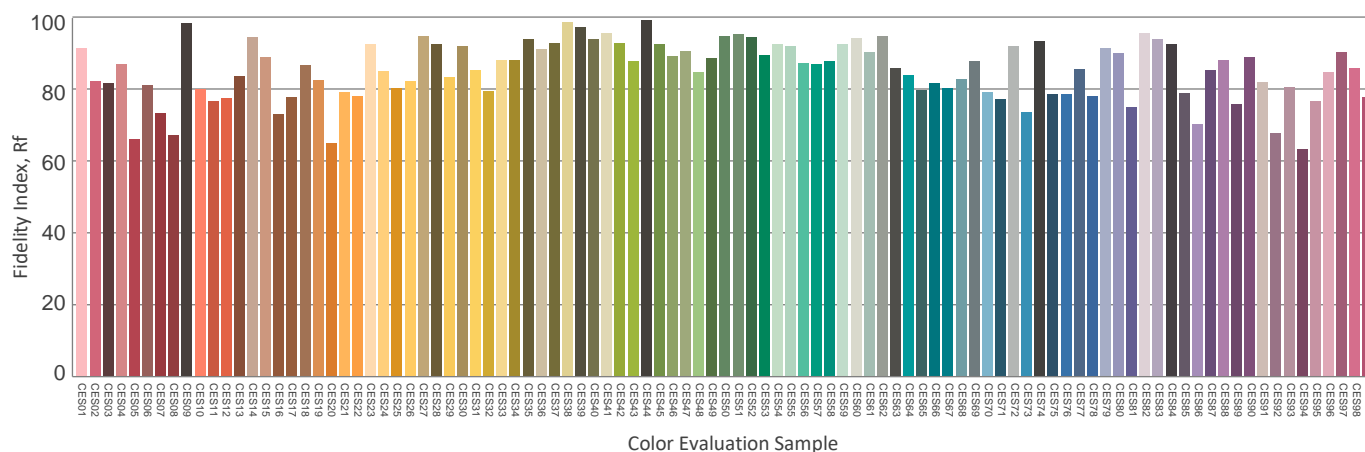
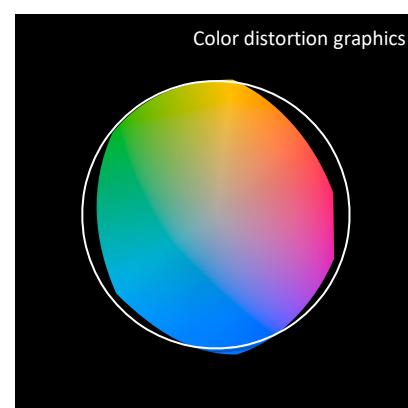
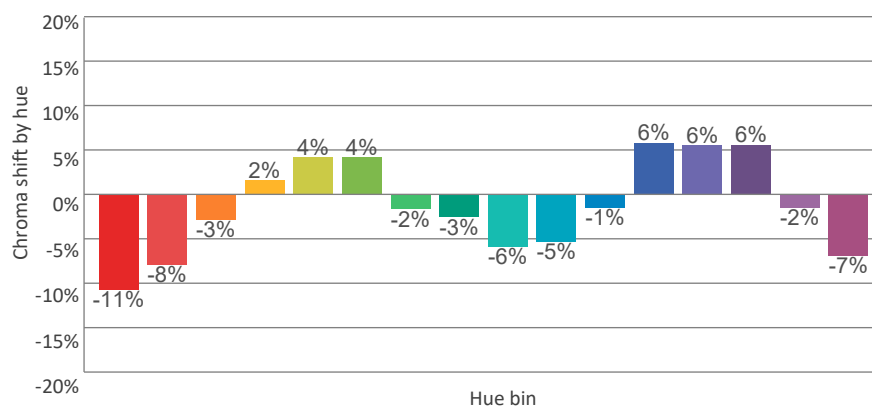
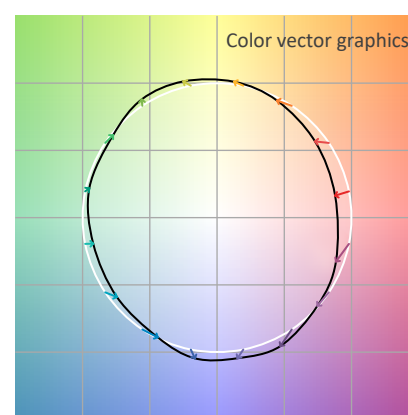
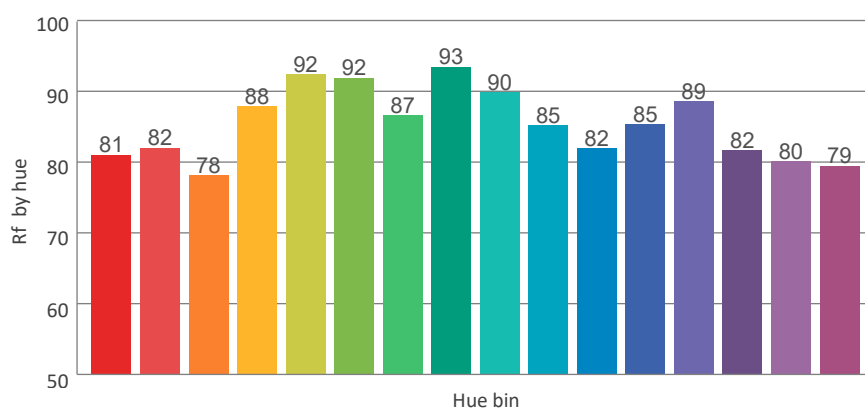
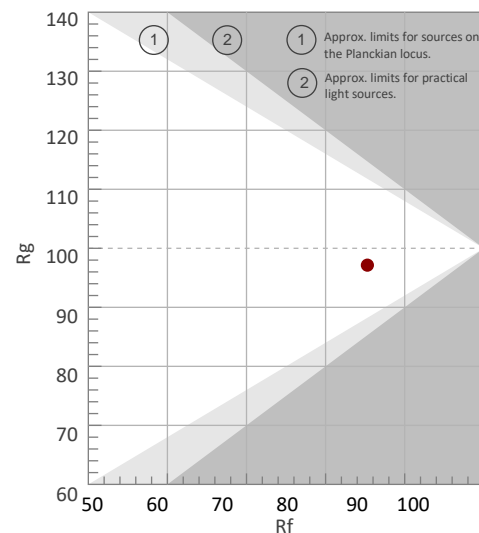
Rf 85.3

Fidelity index Rf

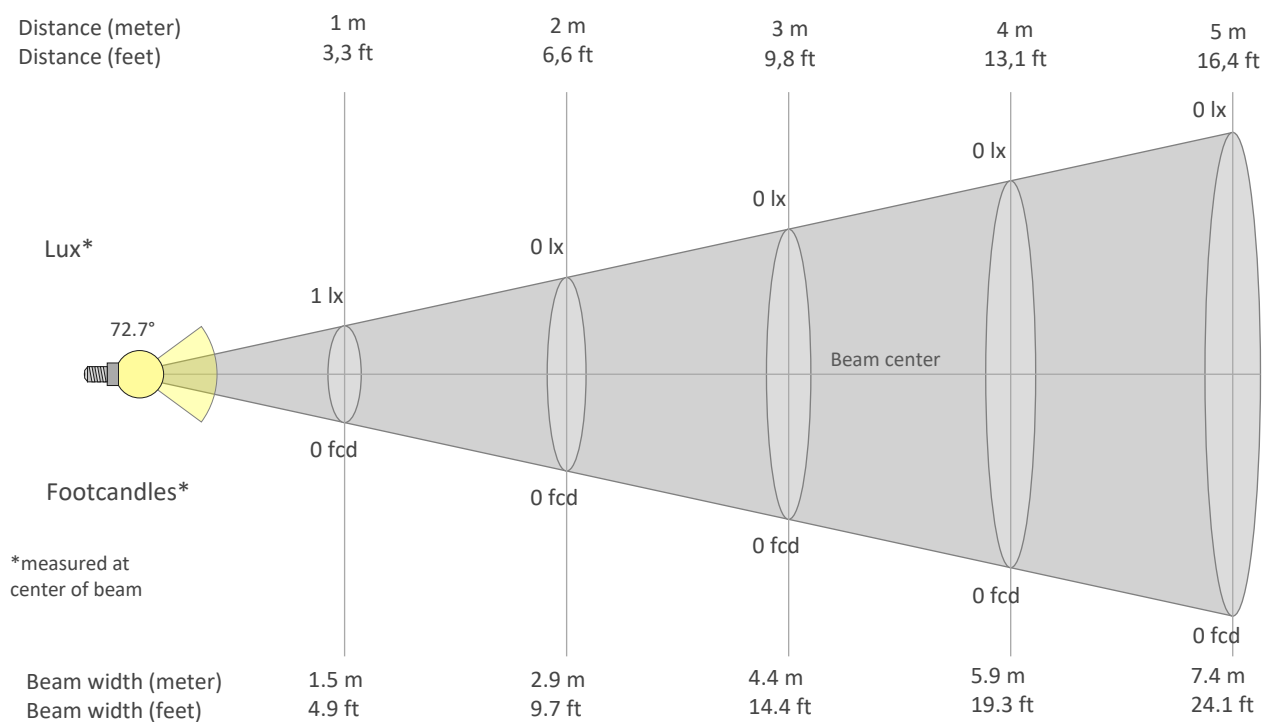
Rg 97.1

Gammut index Rg

| Hue Bin | Graphic shifts (%) |        |      |
|---------|--------------------|--------|------|
|         | R <sub>f</sub>     | Chroma | Hue  |
| 1       | 81                 | -11%   | -1%  |
| 2       | 82                 | -8%    | 7%   |
| 3       | 78                 | -3%    | 11%  |
| 4       | 88                 | 2%     | 7%   |
| 5       | 92                 | 4%     | 5%   |
| 6       | 92                 | 4%     | -2%  |
| 7       | 87                 | -2%    | -8%  |
| 8       | 93                 | -3%    | -3%  |
| 9       | 90                 | -6%    | 1%   |
| 10      | 85                 | -5%    | 8%   |
| 11      | 82                 | -1%    | 13%  |
| 12      | 85                 | 6%     | 4%   |
| 13      | 89                 | 6%     | -5%  |
| 14      | 82                 | 6%     | -14% |
| 15      | 80                 | -2%    | -13% |
| 16      | 79                 | -7%    | -15% |



## BEAM DETAILS



## 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 |
| 1lx   | 0lx   | 0lx   | 0lx    | 0lx    | 0lx    | 0lx  | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    | 0lx    |
| 0fcd  | 0fcd  | 0fcd  | 0fcd   | 0fcd   | 0fcd   | 0fcd | 0fcd   | 0fcd   | 0fcd   | 0fcd   | 0fcd   | 0fcd   | 0fcd   | 0fcd   | 0fcd   | 0fcd   | 0fcd   | 0fcd   | 0fcd   |

## Intensities in 0° c-plane

| 0°    | 5°    | 10°   | 15°   | 20°   | 25°   | 30°   | 35°   | 40°   | 45°   | 50°   | 55°   | 60°   | 65°   | 70°   | 75°   | 80°   | 85°   | 90°   | 95°   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.523 | 0.601 | 0.537 | 0.528 | 0.471 | 0.468 | 0.373 | 0.338 | 0.356 | 0.308 | 0.335 | 0.325 | 0.346 | 0.360 | 0.357 | 0.330 | 0.220 | 0.064 | 0.048 | 0.057 |
| 100%  | 115%  | 103%  | 101%  | 90%   | 90%   | 71%   | 65%   | 68%   | 59%   | 64%   | 62%   | 66%   | 69%   | 68%   | 63%   | 42%   | 12%   | 9%    | 11%   |

## Intensities in 90° c-plane

| 0°   | 5°   | 10°  | 15°  | 20°  | 25°  | 30°  | 35°   | 40°   | 45°    | 50°    | 55°    | 60°    | 65°    | 70°    | 75°    | 80°    | 85°    | 90°    | 95°    |
|------|------|------|------|------|------|------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1    | 2    | 3    | 3    | 3    | 3    | 4    | 7     | 32    | 124    | 223    | 258    | 268    | 274    | 277    | 277    | 275    | 272    | 266    | 259    |
| 100% | 430% | 486% | 543% | 587% | 614% | 751% | 1294% | 6130% | 23793% | 42718% | 49286% | 51302% | 52432% | 52918% | 52957% | 52641% | 51961% | 50943% | 49479% |

## Intensities in 180° c-plane

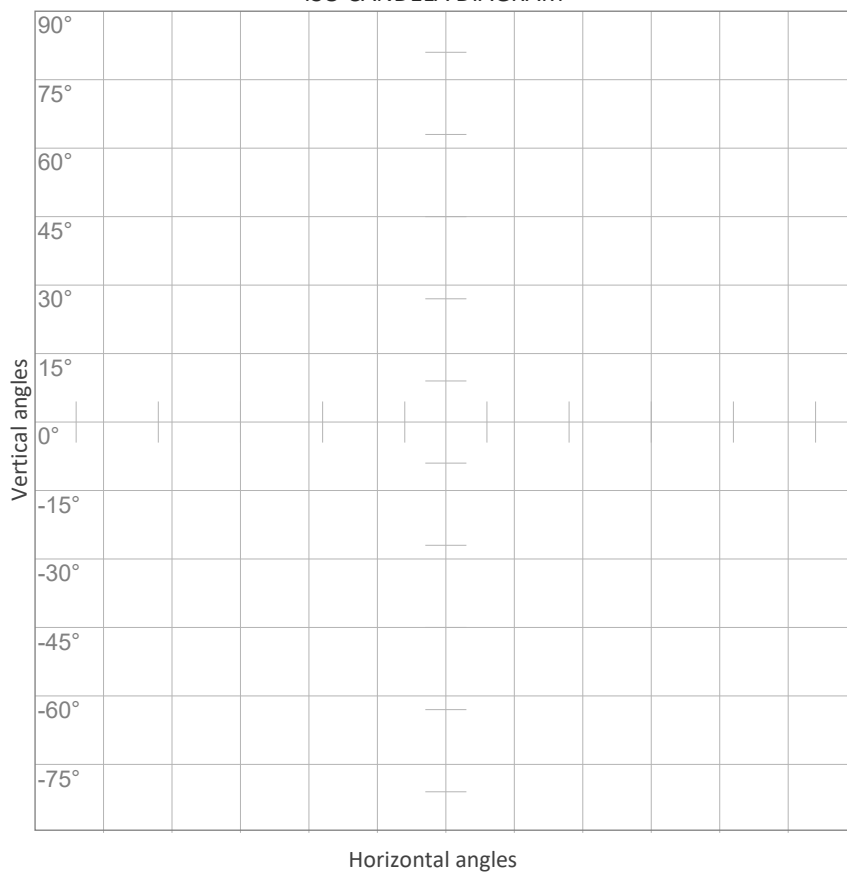
| 0°    | 5°    | 10°   | 15°   | 20°   | 25°   | 30°   | 35°   | 40°   | 45°   | 50°   | 55°   | 60°   | 65°   | 70°   | 75°   | 80°   | 85°   | 90°   | 95°   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.523 | 0.593 | 0.556 | 0.545 | 0.469 | 0.409 | 0.364 | 0.330 | 0.312 | 0.332 | 0.335 | 0.314 | 0.264 | 0.268 | 0.224 | 0.065 | 0.111 | 0.077 | 0.046 | 0.052 |
| 100%  | 113%  | 106%  | 104%  | 90%   | 78%   | 70%   | 63%   | 60%   | 64%   | 64%   | 60%   | 50%   | 51%   | 43%   | 13%   | 21%   | 15%   | 9%    | 10%   |

## Intensities in 270° c-plane

| 0°    | 5°    | 10°   | 15°   | 20°   | 25°   | 30°   | 35°   | 40°   | 45°   | 50°   | 55°   | 60°   | 65°   | 70°   | 75°   | 80°   | 85°   | 90°   | 95°   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.523 | 0.131 | 0.108 | 0.127 | 0.102 | 0.100 | 0.132 | 0.180 | 0.209 | 0.284 | 0.330 | 0.350 | 0.380 | 0.418 | 0.496 | 0.490 | 0.546 | 0.568 | 0.591 | 0.574 |
| 100%  | 25%   | 21%   | 24%   | 20%   | 19%   | 25%   | 34%   | 40%   | 54%   | 63%   | 67%   | 73%   | 80%   | 95%   | 94%   | 105%  | 109%  | 113%  | 110%  |

| Beam angle 50% | Field angle 10% | Cutoff angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|----------------|-----------------|-------------------|------------------------------|-----------------------------|
| 72.7°          | 130.1°          | 157.8°            | 14.1%                        | 1.2%                        |

ISO CANDELA DIAGRAM



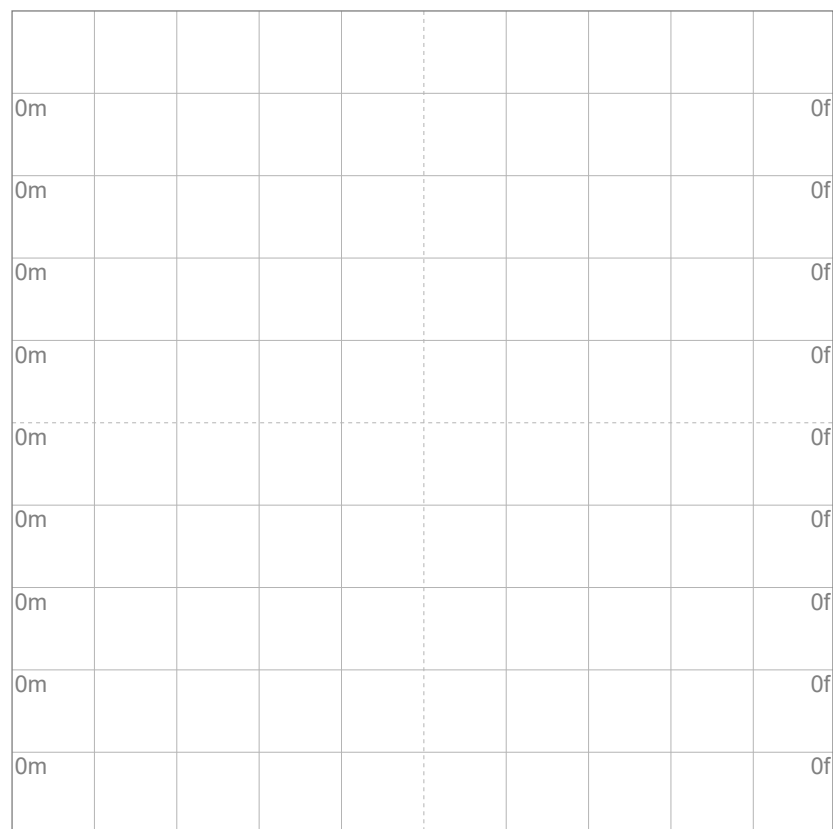
|     |      |
|-----|------|
| 10% | 0 cd |
| 20% | 0 cd |
| 30% | 0 cd |
| 40% | 0 cd |
| 50% | 0 cd |
| 60% | 0 cd |
| 70% | 0 cd |
| 80% | 0 cd |
| 90% | 0 cd |

Conditions:

Number of c-planes: 8

Candela at center: 1 cd

ISO LUX DIAGRAM



Mounting height: 10 meters (33 feet)

|     |                |
|-----|----------------|
| 3%  | 157u lx        |
| 5%  | 261u lx        |
| 10% | 523u lx        |
| 30% | 1.57m lx       |
| 50% | {LUX_10M50} lx |

Conditions:

Number of c-planes: 8

Lux at center: 5.23m lx

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

## UGR

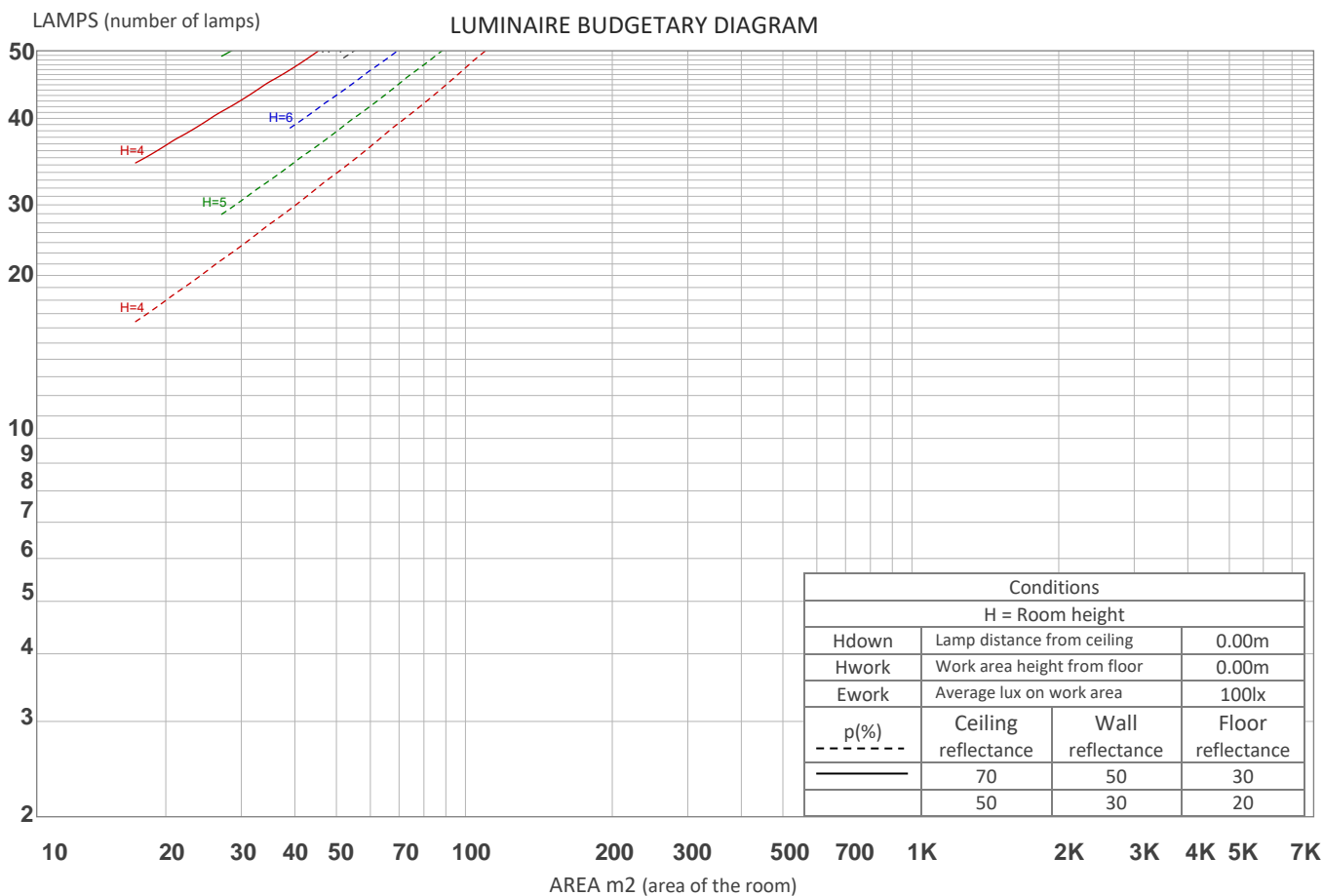
## GLARE EVALUATION ACCORDING TO UGR

|   |  |     |     |     |     |   |     |     |     |     |
|---|--|-----|-----|-----|-----|---|-----|-----|-----|-----|
| p Ceiling   | 70   | 70  | 50  | 50  | 30  | 70                                      | 70  | 50  | 50  | 30  |
| p Walls   | 50   | 30  | 50  | 30  | 30  | 50                                      | 30  | 50  | 30  | 30  |
| p Floor   | 20   | 20  | 20  | 20  | 20  | 20                                      | 20  | 20  | 20  | 20  |
| Room size<br>X    Y   | Viewing direction at right angles to lamp axis |     |     |     |     | Viewing direction parallel to lamp axis |     |     |     |     |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| n/a   | n/a  | n/a | n/a | n/a | n/a | n/a                                     | n/a | n/a | n/a | n/a |
| Variation of the observer position for the luminaire distance S |  |     |     |     |     |   |     |     |     |     |
| n/a   | n/a  |     |     |     |     | n/a                                     |     |     |     |     |
| n/a   | n/a  |     |     |     |     | n/a                                     |     |     |     |     |
| n/a   | n/a  |     |     |     |     | n/a                                     |     |     |     |     |
| Standard table  | n/a  |     |     |     |     | n/a                                     |     |     |     |     |
| Correction summand  | n/a  |     |     |     |     | n/a                                     |     |     |     |     |
| Corrected glare indices referring to 486 lm total luminous flux |  |     |     |     |     |   |     |     |     |     |

UGR data could not be calculated due to missing/wrong symmetry. Goto Edit->Photometric->Corrections and select Correct asymmetry.

## 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                   | 111  | 111 | 111 | 111 | 104 | 104 | 104 | 104 | 92 | 92 | 92 | 80 | 80 | 80 | 70 | 70 | 70 | 65 |
| 1                   | 92   | 83  | 76  | 69  | 85  | 77  | 71  | 64  | 66 | 61 | 56 | 56 | 52 | 48 | 47 | 44 | 40 | 35 |
| 2                   | 79   | 67  | 57  | 48  | 73  | 62  | 53  | 45  | 52 | 45 | 38 | 44 | 37 | 32 | 35 | 31 | 26 | 22 |
| 3                   | 70   | 55  | 44  | 35  | 64  | 51  | 41  | 33  | 43 | 34 | 27 | 35 | 28 | 23 | 28 | 22 | 18 | 14 |
| 4                   | 63   | 47  | 36  | 27  | 57  | 43  | 33  | 25  | 36 | 27 | 21 | 29 | 22 | 17 | 23 | 17 | 13 | 9  |
| 5                   | 56   | 41  | 29  | 21  | 52  | 37  | 27  | 19  | 31 | 23 | 16 | 25 | 18 | 13 | 20 | 14 | 9  | 6  |
| 6                   | 51   | 36  | 25  | 17  | 47  | 33  | 23  | 16  | 27 | 19 | 13 | 22 | 15 | 10 | 17 | 12 | 7  | 4  |
| 7                   | 47   | 32  | 21  | 14  | 43  | 29  | 20  | 13  | 24 | 16 | 10 | 20 | 13 | 8  | 15 | 10 | 6  | 3  |
| 8                   | 44   | 28  | 19  | 12  | 40  | 26  | 17  | 11  | 22 | 14 | 9  | 18 | 11 | 7  | 14 | 9  | 5  | 2  |
| 9                   | 41   | 26  | 16  | 10  | 37  | 24  | 15  | 9   | 20 | 13 | 7  | 16 | 10 | 6  | 13 | 8  | 4  | 1  |
| 10                  | 38   | 23  | 15  | 9   | 35  | 22  | 14  | 8   | 18 | 11 | 6  | 15 | 9  | 5  | 12 | 7  | 3  | 1  |



## ZONAL LUMEN SUMMARY

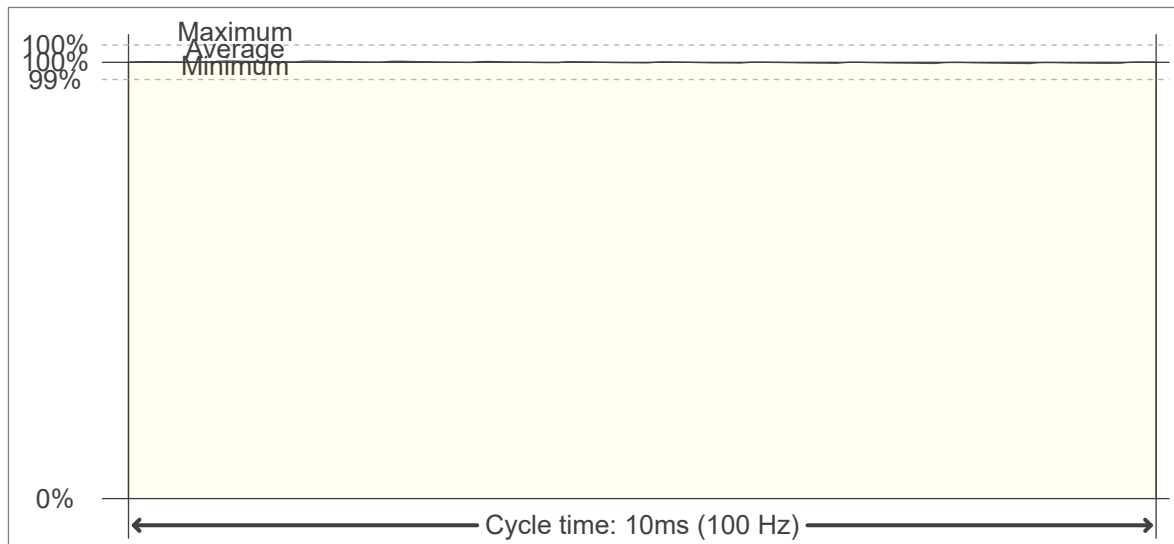
| 0°-10°   | 10°-20°   | 20°-30°   | 30°-40°   | 40°-50°   | 50°-60°   | 60°-70°   | 70°-80°   | 80°-90°   |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 0.099 lm | 0.327 lm  | 0.582 lm  | 1.31 lm   | 14.1 lm   | 52.1 lm   | 81.3 lm   | 86.6 lm   | 80.2 lm   |
| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
| 61.8 lm  | 40.2 lm   | 35.7 lm   | 29.6 lm   | 2.11 lm   | 0.285 lm  | 0.079 lm  | 0.018 lm  | 0.005 lm  |

## FLICKER

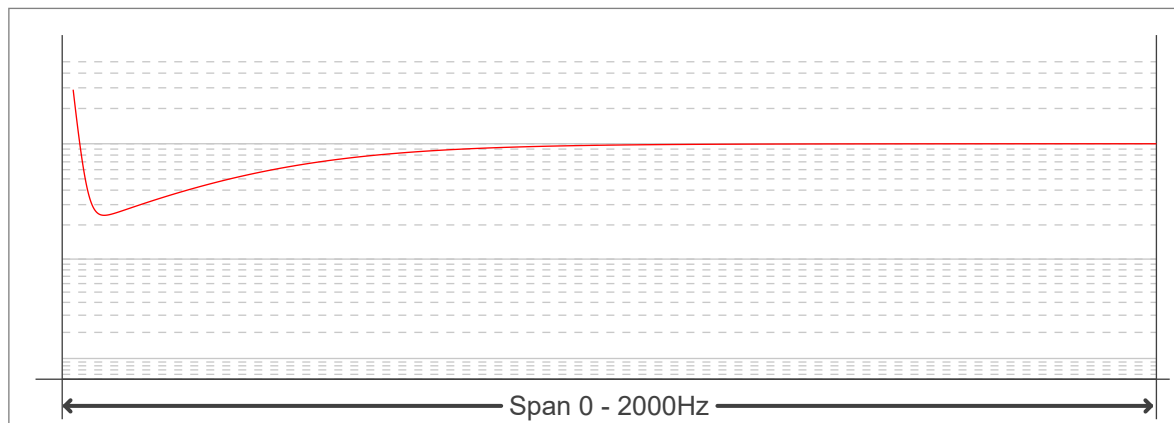
## FLICKER CURVE (COMPLETE SAMPLED FLICKER)



## FLICKER FRAME (FRAME OF ONE FLICKER PERIOD)



## FLICKER FFT (FREQUENCY SCOPE OF FLICKER CURVE)



## FLICKER RESULTS:

|                       |        |
|-----------------------|--------|
| Flicker frequency:    | 100 Hz |
| Flicker index:        | 0      |
| Flicker percentage:   | 0.36 % |
| SVM: (Visual flicker) | 0.01   |

## FLICKER CONDITIONS:

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