NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.com
Tel:+86-750-3770000 Fax:+86 750 3771111
Address:Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

## Nata

Client:
LumCAT: 2-2561-L
Luminaire: 92.70.411.00
Report No: 2024912-B002
Ballast type: AC

| | |
|---|---|
| Test No: 2024912-C002 | Voltage(V): 36.670 |
| LampCAT: NICHIA NFCWJ130B-V3 | Current(A): 0.580 |
| Lamp flux(lm): 2826.0 | Power (W): 21.260 |
| Number of Lamps: 1 | PF: 0.000 |
| Length(mm): 0 | Width(mm): 0 |
| Phm Type: C | Height(mm): 0 |

## Photometric Results

Lumens(lm): 2614.71, Efficiency(%): 92.52% , Luminous Efficacy(lm/W): 122.99
Central intensity(cd): 10815.220, Maximum intensity(cd): 10815.220
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=21.2
[C90/270]Total=21.2
Field angle(10%Imax): [C0/180]Total=55.2
[C90/270]Total=55.2
Maximum s/h(1/2): C0_180=0.36 C90_270=0.36
Maximum s/h(1/4): C0_180=0.39 C90_270=0.39
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 92.52%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 99.015%

| | | |
|---|---|---|
| Equipment: GMS 1800 | Date: 2024/9/12 | Operator: NT |
| Temperature(°C): 25.0 | Humidity(%): 60.0% | Distance(m): 7.25 |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 0.0 | 10815.221 | 0.000 | 0 | 0.00% | 0.00% |
| 1.0 | 10768.512 | 10.327 | 10.327 | 0.37% | 0.39% |
| 2.0 | 10606.797 | 30.680 | 41.007 | 1.09% | 1.57% |
| 3.0 | 10343.393 | 50.106 | 91.113 | 1.77% | 3.48% |
| 4.0 | 10000.239 | 68.097 | 159.21 | 2.41% | 6.09% |
| 5.0 | 9421.500 | 83.551 | 242.761 | 2.96% | 9.28% |
| 6.0 | 8818.095 | 95.854 | 338.615 | 3.39% | 12.95% |
| 7.0 | 8085.013 | 104.917 | 443.532 | 3.71% | 16.96% |
| 8.0 | 7315.202 | 110.216 | 553.749 | 3.90% | 21.18% |
| 9.0 | 6546.482 | 112.341 | 666.09 | 3.98% | 25.47% |
| 10.0 | 5813.938 | 111.857 | 777.948 | 3.96% | 29.75% |
| 11.0 | 5138.852 | 109.441 | 887.388 | 3.87% | 33.94% |
| 12.0 | 4553.154 | 105.947 | 993.336 | 3.75% | 37.99% |
| 13.0 | 4040.000 | 101.979 | 1095.315 | 3.61% | 41.89% |
| 14.0 | 3591.063 | 97.677 | 1192.992 | 3.46% | 45.63% |
| 15.0 | 3196.181 | 93.178 | 1286.17 | 3.30% | 49.19% |
| 16.0 | 2866.824 | 88.840 | 1375.01 | 3.14% | 52.59% |
| 17.0 | 2566.377 | 84.610 | 1459.62 | 2.99% | 55.82% |
| 18.0 | 2309.800 | 80.398 | 1540.017 | 2.84% | 58.90% |
| 19.0 | 2109.149 | 76.881 | 1616.898 | 2.72% | 61.84% |
| 20.0 | 1923.347 | 73.806 | 1690.704 | 2.61% | 64.66% |
| 21.0 | 1770.752 | 70.934 | 1761.638 | 2.51% | 67.37% |
| 22.0 | 1637.033 | 68.481 | 1830.119 | 2.42% | 69.99% |
| 23.0 | 1526.500 | 66.379 | 1896.498 | 2.35% | 72.53% |
| 24.0 | 1423.084 | 64.488 | 1960.987 | 2.28% | 75.00% |
| 25.0 | 1324.674 | 62.478 | 2023.465 | 2.21% | 77.39% |
| 26.0 | 1215.199 | 59.954 | 2083.419 | 2.12% | 79.68% |
| 27.0 | 1128.392 | 57.336 | 2140.755 | 2.03% | 81.87% |
| 28.0 | 1045.731 | 55.044 | 2195.8 | 1.95% | 83.98% |
| 29.0 | 943.359 | 52.040 | 2247.84 | 1.84% | 85.97% |
| 30.0 | 835.139 | 48.019 | 2295.859 | 1.70% | 87.81% |
| 31.0 | 727.616 | 43.489 | 2339.348 | 1.54% | 89.47% |
| 32.0 | 622.274 | 38.673 | 2378.021 | 1.37% | 90.95% |
| 33.0 | 521.190 | 33.687 | 2411.708 | 1.19% | 92.24% |
| 34.0 | 424.554 | 28.621 | 2440.329 | 1.01% | 93.33% |
| 35.0 | 341.249 | 23.783 | 2464.112 | 0.84% | 94.24% |
| 36.0 | 275.270 | 19.630 | 2483.742 | 0.69% | 94.99% |
| 37.0 | 209.416 | 15.808 | 2499.55 | 0.56% | 95.60% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 38.0 | 149.652 | 11.985 | 2511.535 | 0.42% | 96.05% |
| 39.0 | 113.029 | 8.966 | 2520.501 | 0.32% | 96.40% |
| 40.0 | 83.548 | 6.856 | 2527.357 | 0.24% | 96.66% |
| 41.0 | 69.842 | 5.462 | 2532.819 | 0.19% | 96.87% |
| 42.0 | 61.833 | 4.784 | 2537.603 | 0.17% | 97.05% |
| 43.0 | 55.513 | 4.347 | 2541.95 | 0.15% | 97.22% |
| 44.0 | 49.869 | 3.977 | 2545.927 | 0.14% | 97.37% |
| 45.0 | 45.388 | 3.661 | 2549.588 | 0.13% | 97.51% |
| 46.0 | 41.564 | 3.400 | 2552.988 | 0.12% | 97.64% |
| 47.0 | 38.449 | 3.182 | 2556.171 | 0.11% | 97.76% |
| 48.0 | 35.861 | 3.004 | 2559.175 | 0.11% | 97.88% |
| 49.0 | 33.712 | 2.857 | 2562.032 | 0.10% | 97.99% |
| 50.0 | 31.748 | 2.729 | 2564.761 | 0.10% | 98.09% |
| 51.0 | 30.138 | 2.618 | 2567.379 | 0.09% | 98.19% |
| 52.0 | 28.844 | 2.531 | 2569.91 | 0.09% | 98.29% |
| 53.0 | 27.681 | 2.459 | 2572.369 | 0.09% | 98.38% |
| 54.0 | 26.879 | 2.405 | 2574.774 | 0.09% | 98.47% |
| 55.0 | 26.268 | 2.372 | 2577.146 | 0.08% | 98.56% |
| 56.0 | 25.848 | 2.355 | 2579.501 | 0.08% | 98.65% |
| 57.0 | 25.670 | 2.356 | 2581.857 | 0.08% | 98.74% |
| 58.0 | 25.519 | 2.367 | 2584.224 | 0.08% | 98.83% |
| 59.0 | 25.269 | 2.374 | 2586.598 | 0.08% | 98.92% |
| 60.0 | 24.790 | 2.365 | 2588.963 | 0.08% | 99.02% |
| 61.0 | 23.975 | 2.327 | 2591.29 | 0.08% | 99.10% |
| 62.0 | 22.208 | 2.225 | 2593.516 | 0.08% | 99.19% |
| 63.0 | 20.230 | 2.064 | 2595.58 | 0.07% | 99.27% |
| 64.0 | 17.838 | 1.868 | 2597.448 | 0.07% | 99.34% |
| 65.0 | 15.296 | 1.640 | 2599.087 | 0.06% | 99.40% |
| 66.0 | 13.515 | 1.437 | 2600.525 | 0.05% | 99.46% |
| 67.0 | 12.004 | 1.283 | 2601.808 | 0.05% | 99.51% |
| 68.0 | 10.959 | 1.163 | 2602.971 | 0.04% | 99.55% |
| 69.0 | 10.131 | 1.076 | 2604.047 | 0.04% | 99.59% |
| 70.0 | 9.422 | 1.004 | 2605.052 | 0.04% | 99.63% |
| 71.0 | 8.811 | 0.942 | 2605.994 | 0.03% | 99.67% |
| 72.0 | 8.226 | 0.886 | 2606.88 | 0.03% | 99.70% |
| 73.0 | 7.674 | 0.831 | 2607.711 | 0.03% | 99.73% |
| 74.0 | 7.043 | 0.774 | 2608.485 | 0.03% | 99.76% |
| 75.0 | 6.505 | 0.716 | 2609.201 | 0.03% | 99.79% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 76.0 | 5.959 | 0.662 | 2609.862 | 0.02% | 99.81% |
| 77.0 | 5.434 | 0.607 | 2610.47 | 0.02% | 99.84% |
| 78.0 | 5.013 | 0.559 | 2611.029 | 0.02% | 99.86% |
| 79.0 | 4.534 | 0.513 | 2611.542 | 0.02% | 99.88% |
| 80.0 | 4.139 | 0.468 | 2612.01 | 0.02% | 99.90% |
| 81.0 | 3.778 | 0.428 | 2612.438 | 0.02% | 99.91% |
| 82.0 | 3.423 | 0.391 | 2612.828 | 0.01% | 99.93% |
| 83.0 | 3.035 | 0.351 | 2613.179 | 0.01% | 99.94% |
| 84.0 | 2.740 | 0.315 | 2613.494 | 0.01% | 99.95% |
| 85.0 | 2.392 | 0.280 | 2613.774 | 0.01% | 99.96% |
| 86.0 | 2.109 | 0.246 | 2614.02 | 0.01% | 99.97% |
| 87.0 | 1.866 | 0.218 | 2614.238 | 0.01% | 99.98% |
| 88.0 | 1.577 | 0.189 | 2614.426 | 0.01% | 99.99% |
| 89.0 | 1.262 | 0.156 | 2614.582 | 0.01% | 99.99% |
| 90.0 | 1.130 | 0.131 | 2614.713 | 0.00% | 100.00% |

# Zonal flux distribution table



ZONAL LUMEN SUMMARY

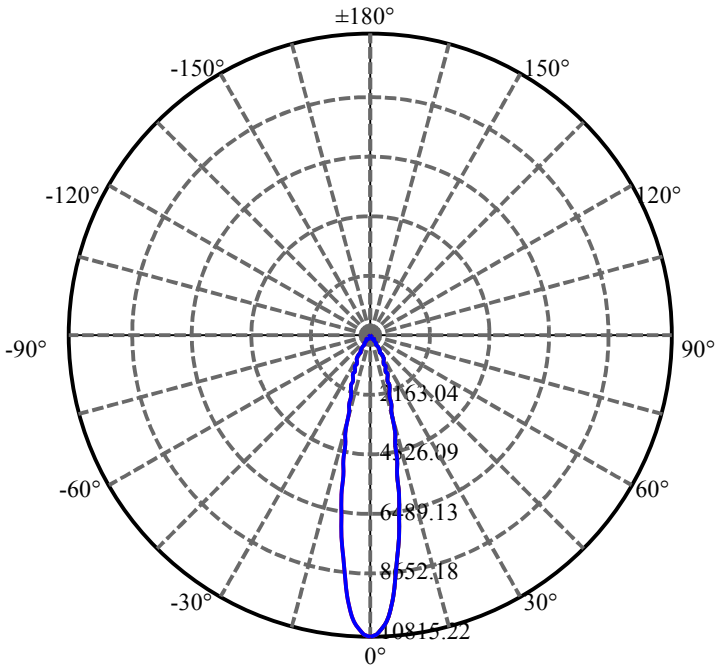
| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-30 | 2295.86 | 81.24% | 87.81% |
| 0-40 | 2527.36 | 89.43% | 96.66% |
| 0-60 | 2588.96 | 91.61% | 99.02% |
| 0-90 | 2614.58 | 92.52% | 99.99% |
| 0-120 | 2614.58 | 92.52% | 99.99% |
| 0-180 | 2614.71 | 92.52% | 100.00% |
| 60-90 | 25.62 | 0.91% | 0.98% |
| 90-120 | 0.00 | 0.00% | 0.00% |
| 90-130 | 0.00 | 0.00% | 0.00% |
| 90-150 | 0.00 | 0.00% | 0.00% |
| 90-180 | 0.00 | 0.00% | 0.00% |
| 0-26.15 | 2091.77 | 74.02% | 80.00% |

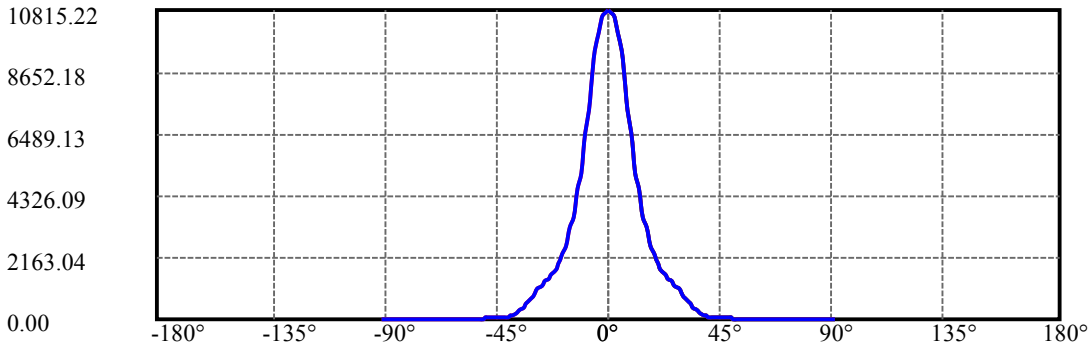
ZONAL LUMEN SUMMARY

| | |
|---|---|
| 0-10 | 777.95 |
| 10-20 | 912.76 |
| 20-30 | 605.15 |
| 30-40 | 231.50 |
| 40-50 | 37.40 |
| 50-60 | 24.20 |
| 60-70 | 16.09 |
| 70-80 | 6.96 |
| 80-90 | 2.57 |
| 90-100 | 0.00 |
| 100-110 | 0.00 |
| 110-120 | 0.00 |
| 120-130 | 0.00 |
| 130-140 | 0.00 |
| 140-150 | 0.00 |
| 150-160 | 0.00 |
| 160-170 | 0.00 |
| 170-180 | 0.00 |

Light Distribution Curve [Unit:cd]






C0(Max):

C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:27.6 Right:27.6
:C90/270Left:27.6 Right:27.6

Beam Angle(50%Imax):C0/180Left:10.6 Right:10.6
:C90/270Left:10.6 Right:10.6

Lux distance Curve



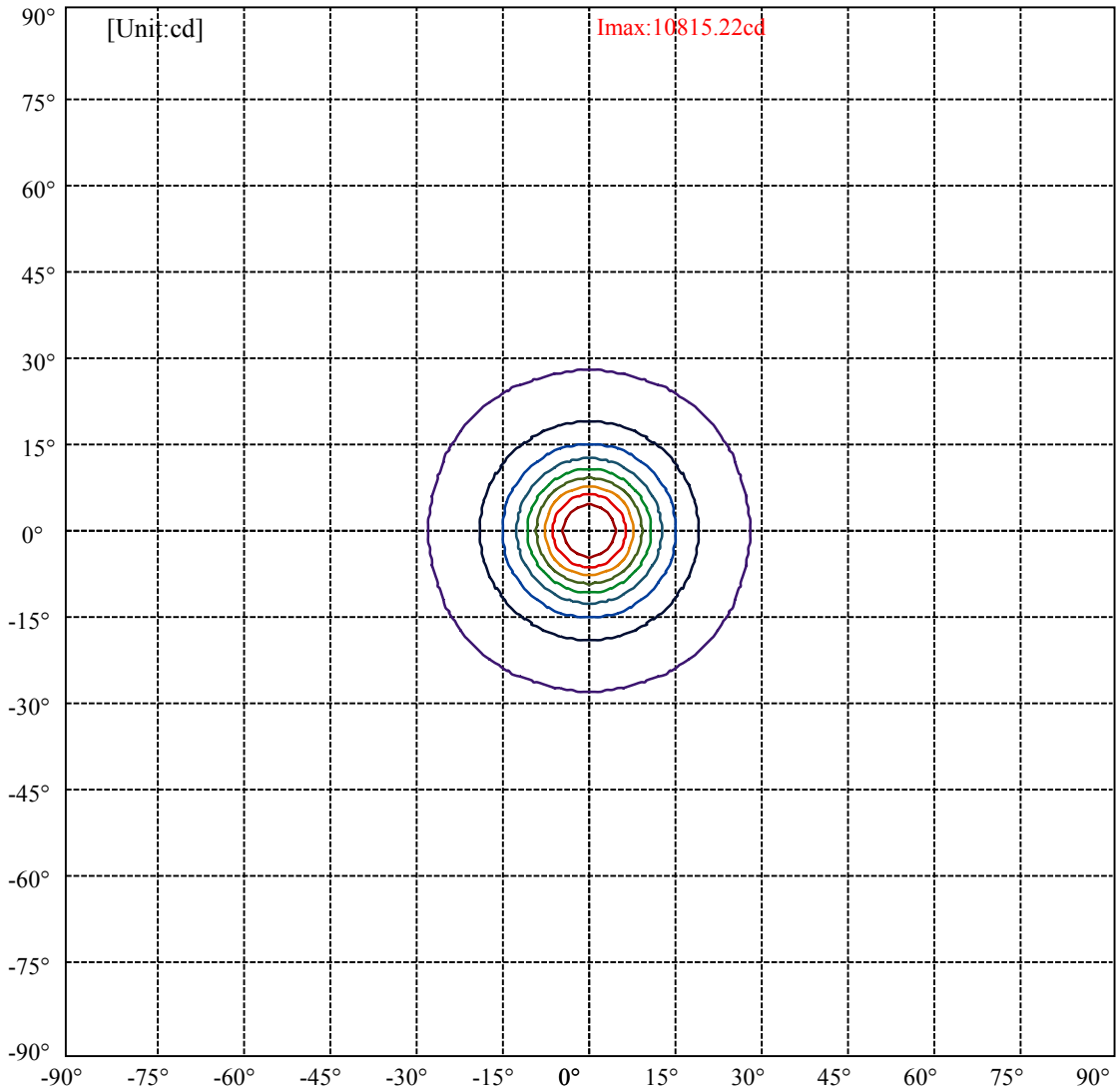
## Illuminance at a Distance

| | Center Beam LUX | Beam Width H | Beam Width V |
|---|---|---|---|
| 2m | 2703.81 LUX | 0.8m | 0.8m |
| 4m | 675.95 LUX | 1.5m | 1.5m |
| 6m | 300.42 LUX | 2.3m | 2.3m |
| 8m | 168.99 LUX | 3.0m | 3.0m |
| 10m | 108.15 LUX | 3.8m | 3.8m |
| 12m | 75.11 LUX | 4.5m | 4.5m |

Horiz.Spread:21.3 Vert.Spread:21.3

ISO-Intensity(V-H)



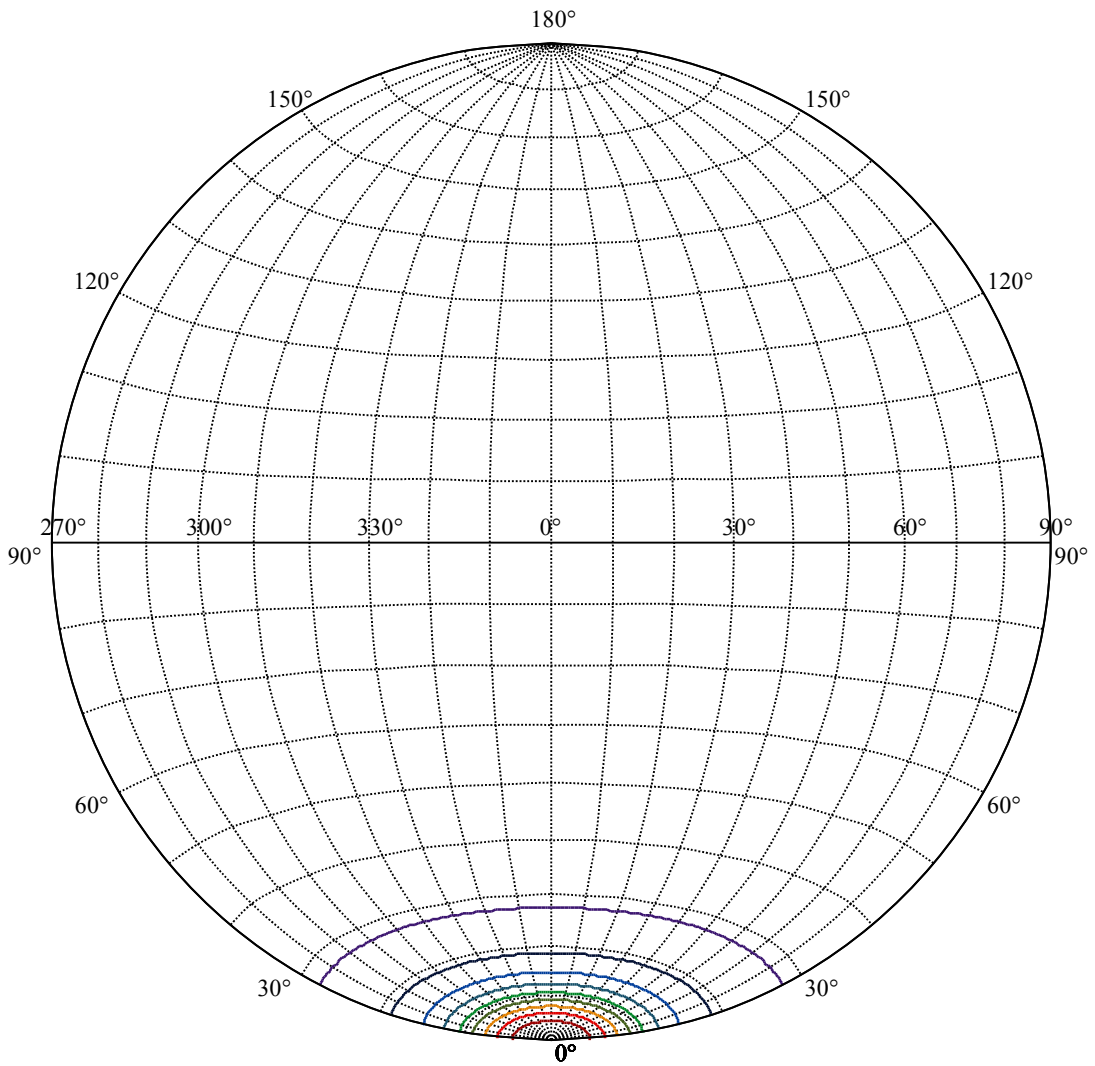



(10%Imax) 1081.52
(20%Imax) 2163.04
(30%Imax) 3244.57
(40%Imax) 4326.09
(50%Imax) 5407.61
(60%Imax) 6489.13
(70%Imax) 7570.65
(80%Imax) 8652.18
(90%Imax) 9733.7

Equipment: GMS 1800 Date: 2024/9/12 Operator: NT
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.25

ISO candela diagram on circular web





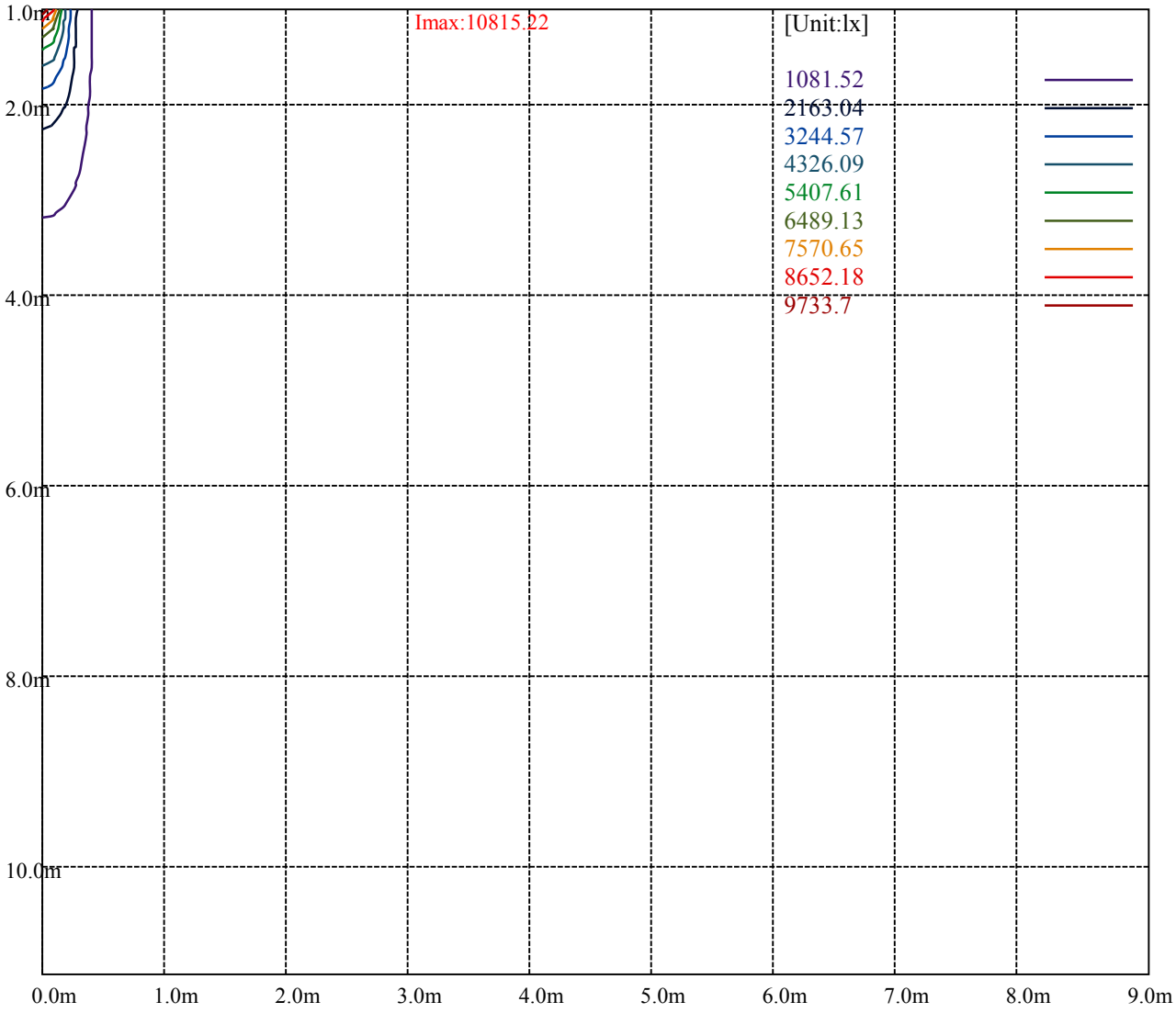

House [Unit:cd] Road

Imax:10815.22

(10%Imax) 1081.52
(20%Imax) 2163.04
(30%Imax) 3244.57
(40%Imax) 4326.09
(50%Imax) 5407.61
(60%Imax) 6489.13
(70%Imax) 7570.65
(80%Imax) 8652.18
(90%Imax) 9733.7

## Space ISO Lux diagram






Equipment: GMS 1800 Date: 2024/9/12 Operator: NT
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.25

## Luminance Limitting Curve(no luminous side)



Luminance Table

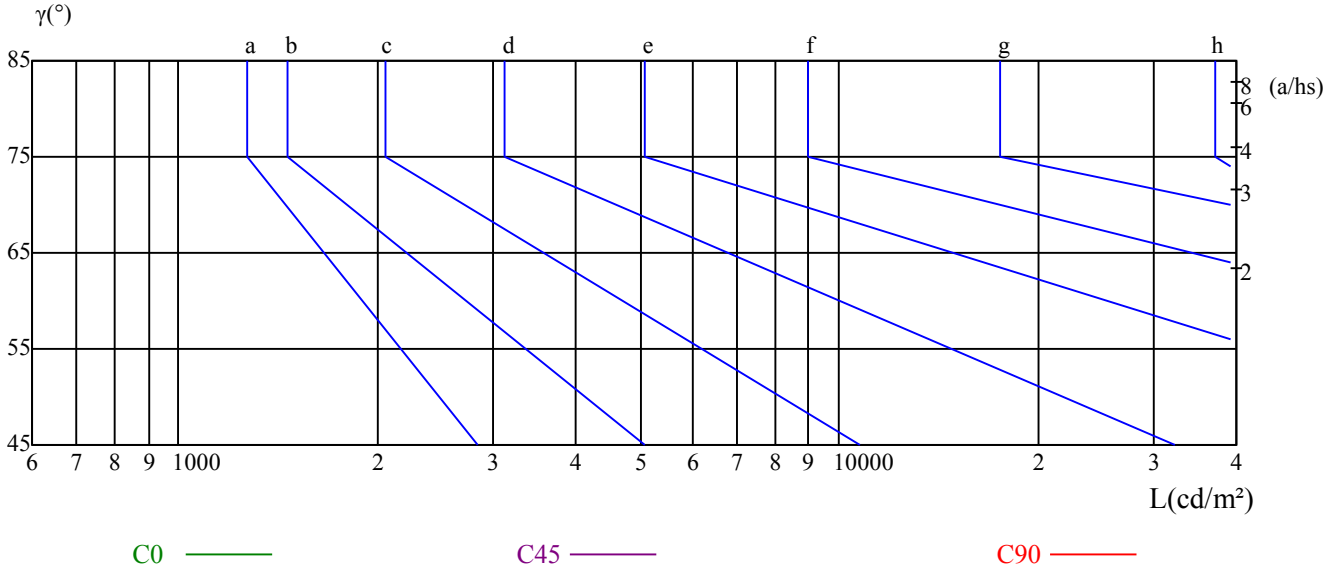
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|---|---|---|---|---|---|---|---|---|---|
| C0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Glare Table

| Glare | Quality | Service Values Illuminance(lx) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.15 | A | 2000 | 1000 | 500 | <=300 | | | | |
| 1.5 | B | | 2000 | 1000 | 500 | <=300 | | | |
| 1.85 | C | | | 2000 | 1000 | 500 | <=300 | | |
| 2.2 | D | | | | 2000 | 1000 | 500 | <=300 | |
| 2.55 | E | | | | | 2000 | 1000 | 500 | <=300 |
| | | a | b | c | d | e | f | g | h |

Luminance Limitting Curve

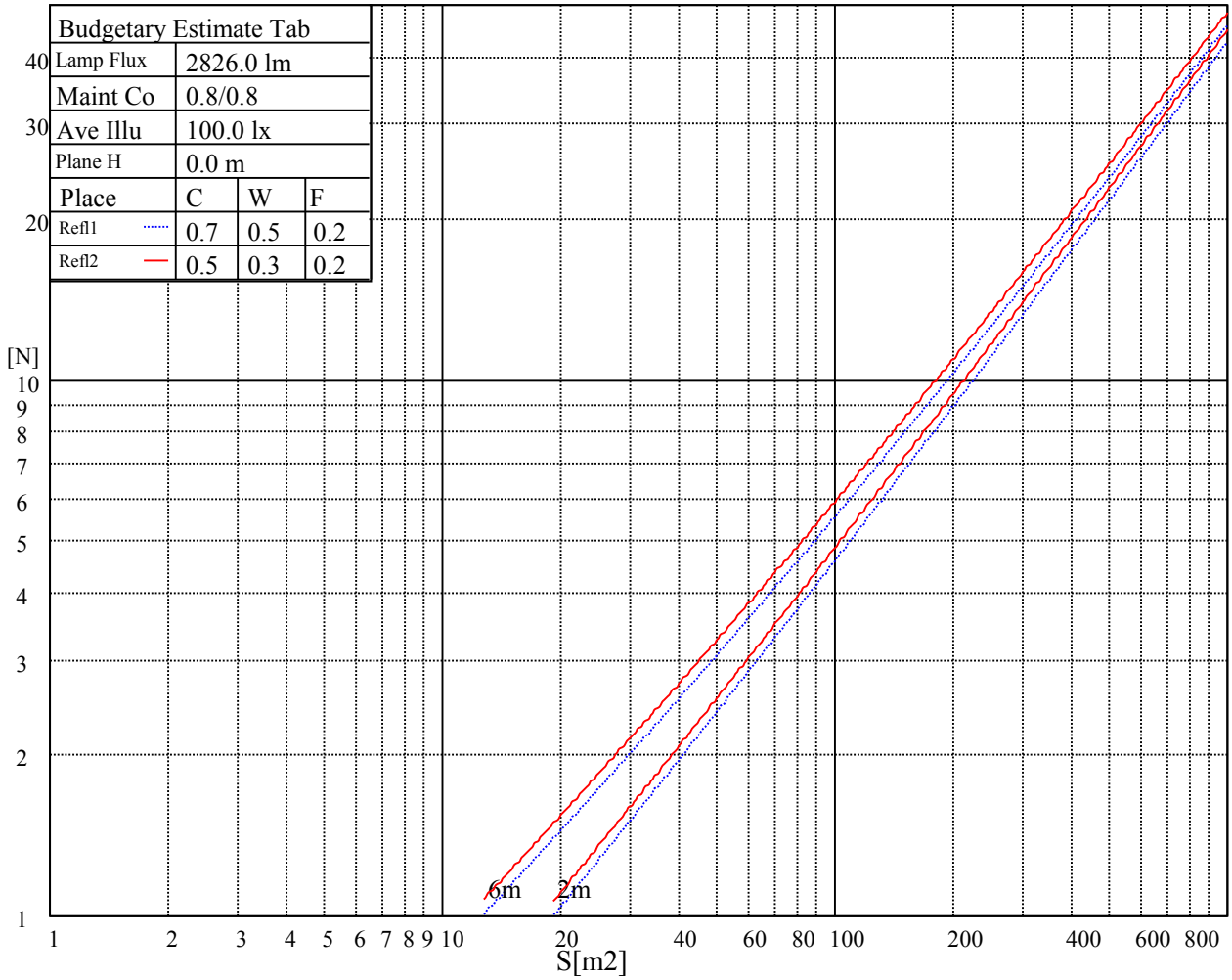


| Illumination assessment according UGR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rf of Ceiling | | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 |
| Rf of Wall | | 50 | 30 | 50 | 30 | 30 | 50 | 30 | 50 | 30 | 30 |
| Rf of Floor | | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Room dimensions | | Viewed crosswise | | | | | Viewed endwise | | | | |
| X | Y | | | | | | | | | | |
| 2H | 2H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 3H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 4H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 6H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 8H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 12H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| 4H | 2H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 3H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 4H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 6H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 8H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 12H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| 8H | 4H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 6H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 8H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 12H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| 12H | 4H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 6H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| | 8H | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 | 非数字 |
| Variation with the observer position at spacings: | | | | | | | | | | | |
| S = 1.0H | | 非数字/非数字 | | | | | 非数字/非数字 | | | | |
| S = 1.5H | | 非数字/非数字 | | | | | 非数字/非数字 | | | | |
| S = 2.0H | | 非数字/非数字 | | | | | 非数字/非数字 | | | | |
| Standard tables: | | BK0 | | | | | BK0 | | | | |
| Uncorrected UGR | | 负无穷大 | | | | | 负无穷大 | | | | |

UGR calculation is based on CIE Publ. 117 ,S/H = 0.25

## Budgetary Estimate Table





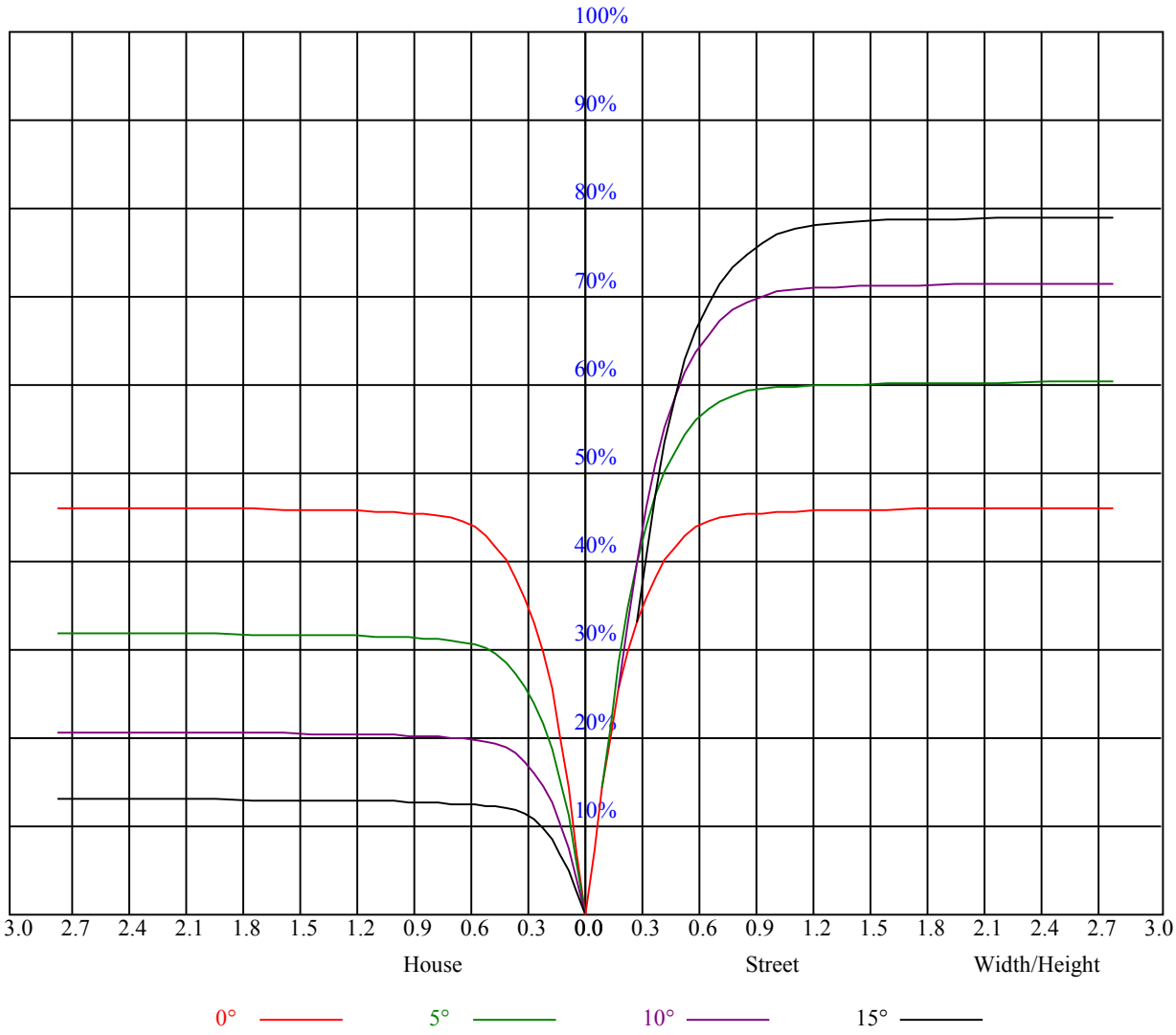
Utilization factor table for indoor luminaire



| RHOCC | 80 | | | 70 | | | 50 | | | 30 | | | 10 | | | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RHOW | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| RCR | COEFFCIENTS OF UTILIZATION RHOFC=20 CU | | | | | | | | | | | | | | | |
| 0 | 1.10 | 1.10 | 1.10 | 1.08 | 1.08 | 1.08 | 1.03 | 1.03 | 1.03 | 0.98 | 0.98 | 0.98 | 0.94 | 0.94 | 0.94 | 0.93 |
| 1 | 1.04 | 1.02 | 1.00 | 1.02 | 1.00 | 0.98 | 0.98 | 0.97 | 0.95 | 0.95 | 0.94 | 0.93 | 0.91 | 0.91 | 0.90 | 0.88 |
| 2 | 0.98 | 0.95 | 0.92 | 0.97 | 0.94 | 0.91 | 0.94 | 0.91 | 0.89 | 0.91 | 0.89 | 0.87 | 0.88 | 0.87 | 0.86 | 0.84 |
| 3 | 0.93 | 0.89 | 0.86 | 0.92 | 0.88 | 0.86 | 0.90 | 0.87 | 0.84 | 0.87 | 0.85 | 0.83 | 0.85 | 0.83 | 0.82 | 0.81 |
| 4 | 0.89 | 0.85 | 0.81 | 0.88 | 0.84 | 0.81 | 0.86 | 0.83 | 0.80 | 0.84 | 0.81 | 0.79 | 0.83 | 0.80 | 0.78 | 0.77 |
| 5 | 0.85 | 0.81 | 0.77 | 0.84 | 0.80 | 0.77 | 0.82 | 0.79 | 0.76 | 0.81 | 0.78 | 0.76 | 0.80 | 0.77 | 0.75 | 0.74 |
| 6 | 0.81 | 0.77 | 0.74 | 0.81 | 0.77 | 0.74 | 0.79 | 0.76 | 0.73 | 0.78 | 0.75 | 0.73 | 0.77 | 0.74 | 0.72 | 0.71 |
| 7 | 0.78 | 0.74 | 0.71 | 0.78 | 0.73 | 0.70 | 0.76 | 0.73 | 0.70 | 0.75 | 0.72 | 0.70 | 0.75 | 0.72 | 0.69 | 0.68 |
| 8 | 0.75 | 0.71 | 0.68 | 0.75 | 0.71 | 0.68 | 0.74 | 0.70 | 0.67 | 0.73 | 0.70 | 0.67 | 0.72 | 0.69 | 0.67 | 0.66 |
| 9 | 0.72 | 0.68 | 0.65 | 0.72 | 0.68 | 0.65 | 0.71 | 0.68 | 0.65 | 0.71 | 0.67 | 0.65 | 0.70 | 0.67 | 0.65 | 0.64 |
| 10 | 0.70 | 0.66 | 0.63 | 0.70 | 0.66 | 0.63 | 0.69 | 0.65 | 0.63 | 0.68 | 0.65 | 0.63 | 0.68 | 0.65 | 0.62 | 0.62 |

## Coefficient Utilization Curve





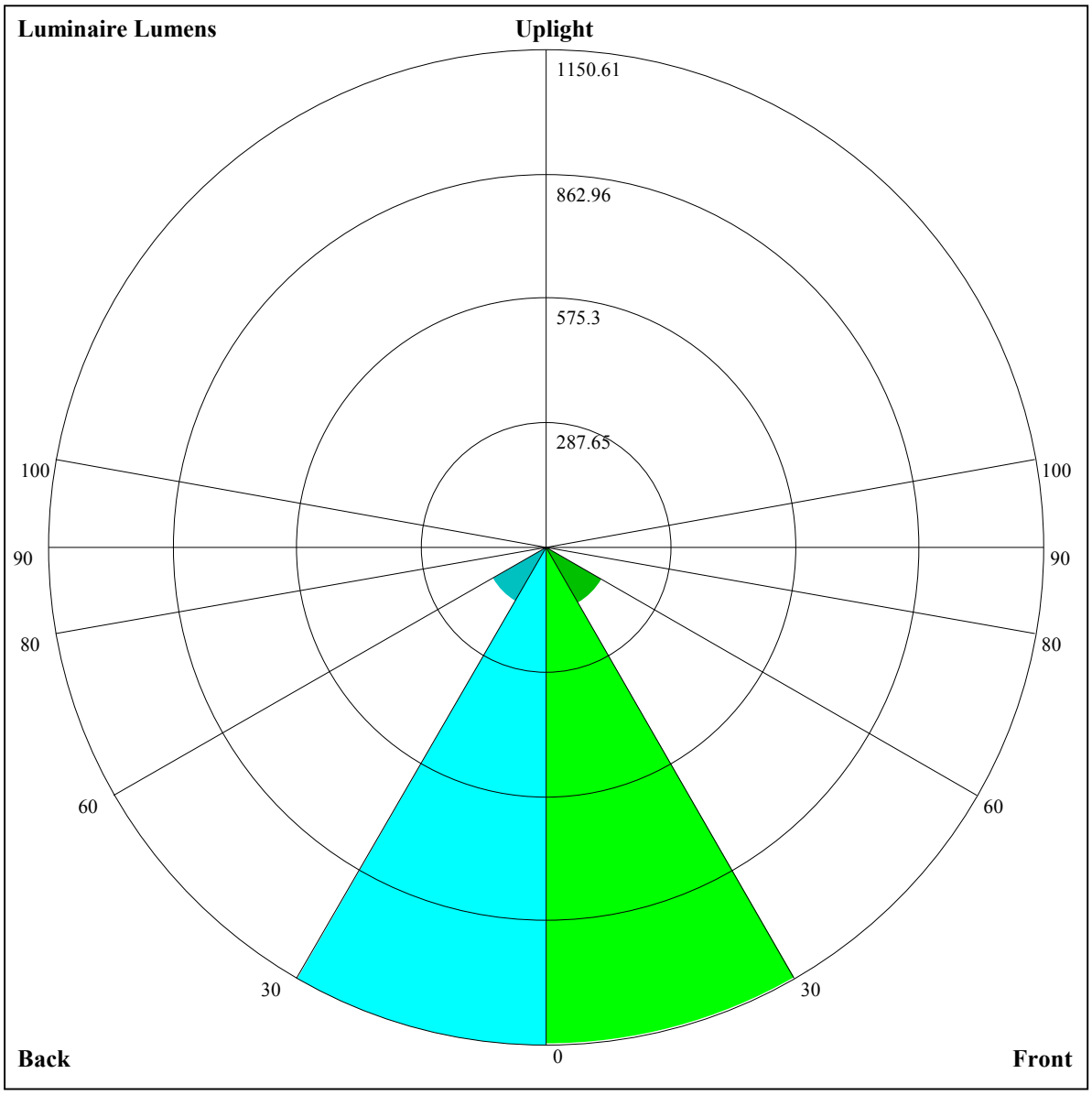

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2024/9/12
Humidity(%): 60.0%

Operator: NT
Distance(m): 7.25

LCS Graph






Luminaire Lumens:

FL=1146.92,FM=150.35,FH=11.37,FVH=1.36

BL=1150.61,BM=145.13,BH=11.51,BVH=1.35

UL=0,UH=0

BUG Rating:B3-U0-G0

Intensity data(cd)



| C/γ(°) | 0.0 | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 10781.94 | 10691.11 | 10307.82 | 10069.35 | 9565.11 | 8668.66 | 8245.74 | 7520.85 | 6769.26 |
| 45.0 | 10872.19 | 10802.54 | 10619.83 | 10325.64 | 9893.84 | 9353.92 | 8709.87 | 8005.06 | 7258.99 |
| 90.0 | 10718.97 | 10465.51 | 10085.48 | 9557.33 | 9188.45 | 8479.22 | 7708.66 | 6935.31 | 6166.95 |
| 135.0 | 10887.80 | 10782.51 | 10676.65 | 10248.16 | 9976.84 | 9399.65 | 8693.15 | 7910.92 | 7111.92 |
| 180.0 | 10781.94 | 10858.83 | 10798.12 | 10668.82 | 10406.95 | 9986.88 | 9392.97 | 8664.19 | 7872.44 |
| 225.0 | 10872.19 | 10837.13 | 10684.43 | 10481.65 | 10093.84 | 9404.64 | 8826.87 | 8035.70 | 7248.42 |
| 270.0 | 10718.97 | 10854.94 | 10901.20 | 10828.19 | 10656.57 | 10362.96 | 9907.19 | 9301.57 | 8565.53 |
| 315.0 | 10887.80 | 10855.52 | 10780.83 | 10568.01 | 10220.31 | 9716.07 | 9060.30 | 8306.50 | 7528.11 |
| 360.0 | 10781.94 | 10691.11 | 10307.82 | 10069.35 | 9565.11 | 8668.66 | 8245.74 | 7520.85 | 6769.26 |

| C/γ(°) | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 17.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 6050.52 | 5366.32 | 4742.29 | 4209.68 | 3736.09 | 3322.63 | 2976.67 | 2666.34 | 2405.00 |
| 45.0 | 6513.55 | 5820.98 | 5159.06 | 4582.98 | 4074.80 | 3626.87 | 3237.43 | 3024.55 | 2709.75 |
| 90.0 | 5456.04 | 4819.19 | 4271.49 | 3804.05 | 3383.40 | 3020.14 | 2696.40 | 2427.28 | 2198.32 |
| 135.0 | 6310.18 | 5576.93 | 4924.48 | 4371.26 | 3883.74 | 3456.93 | 3086.42 | 2764.95 | 2484.68 |
| 180.0 | 7053.99 | 6261.67 | 5516.75 | 4888.26 | 4345.03 | 3869.23 | 3433.54 | 3044.63 | 2707.55 |
| 225.0 | 6464.50 | 5709.55 | 5044.27 | 4485.47 | 3988.44 | 3536.04 | 3128.78 | 2764.37 | 2449.57 |
| 270.0 | 7781.09 | 6982.67 | 6188.13 | 5446.00 | 4794.12 | 4240.85 | 3754.43 | 3328.20 | 2961.63 |
| 315.0 | 6741.98 | 5974.20 | 5264.34 | 4637.54 | 4114.38 | 3655.83 | 3255.77 | 2914.28 | 2614.51 |
| 360.0 | 6050.52 | 5366.32 | 4742.29 | 4209.68 | 3736.09 | 3322.63 | 2976.67 | 2666.34 | 2405.00 |

| C/γ(°) | 18.0 | 19.0 | 20.0 | 21.0 | 22.0 | 23.0 | 24.0 | 25.0 | 26.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 2194.96 | 2013.30 | 1858.45 | 1720.27 | 1619.40 | 1491.25 | 1390.44 | 1322.42 | 1077.06 |
| 45.0 | 2344.81 | 2207.78 | 2018.35 | 1845.05 | 1696.88 | 1562.00 | 1443.89 | 1340.29 | 1248.89 |
| 90.0 | 2007.20 | 1843.37 | 1706.34 | 1585.44 | 1476.22 | 1379.82 | 1291.25 | 1102.34 | 1102.34 |
| 135.0 | 2241.74 | 2037.27 | 1930.88 | 1715.80 | 1589.33 | 1518.58 | 1416.03 | 1326.36 | 1231.64 |
| 180.0 | 2403.89 | 2247.89 | 1941.45 | 1834.48 | 1686.26 | 1560.37 | 1456.14 | 1360.90 | 1273.96 |
| 225.0 | 2178.24 | 1959.85 | 1785.44 | 1643.94 | 1518.01 | 1411.57 | 1318.00 | 1265.07 | 1085.47 |
| 270.0 | 2699.19 | 2419.50 | 2183.81 | 1986.02 | 1823.34 | 1693.51 | 1574.30 | 1470.65 | 1379.82 |
| 315.0 | 2408.36 | 2144.23 | 1962.05 | 1835.01 | 1686.84 | 1594.90 | 1494.61 | 1409.36 | 1322.42 |
| 360.0 | 2194.96 | 2013.30 | 1858.45 | 1720.27 | 1619.40 | 1491.25 | 1390.44 | 1322.42 | 1077.06 |

| C/γ(°) | 27.0 | 28.0 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 | 34.0 | 35.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 1077.06 | 1034.01 | 923.89 | 815.51 | 708.02 | 599.32 | 496.08 | 397.27 | 309.17 |
| 45.0 | 1157.53 | 1058.35 | 951.91 | 846.62 | 741.34 | 637.69 | 535.72 | 438.21 | 350.75 |
| 90.0 | 1015.03 | 903.81 | 793.27 | 683.05 | 577.66 | 475.43 | 380.18 | 291.98 | 217.19 |
| 135.0 | 1129.10 | 1021.55 | 909.02 | 799.84 | 691.72 | 585.86 | 485.57 | 392.54 | 306.18 |
| 180.0 | 1184.29 | 1083.42 | 976.98 | 870.59 | 764.15 | 661.08 | 558.58 | 462.76 | 374.14 |
| 225.0 | 1085.47 | 979.08 | 875.85 | 769.88 | 665.76 | 563.94 | 468.86 | 377.03 | 295.03 |
| 270.0 | 1292.35 | 1199.32 | 1095.14 | 986.49 | 874.48 | 767.52 | 662.76 | 557.48 | 456.61 |
| 315.0 | 1086.31 | 1086.31 | 1020.82 | 909.12 | 797.79 | 687.36 | 581.76 | 479.16 | 420.92 |
| 360.0 | 1077.06 | 1034.01 | 923.89 | 815.51 | 708.02 | 599.32 | 496.08 | 397.27 | 309.17 |

| C/γ(°) | 36.0 | 37.0 | 38.0 | 39.0 | 40.0 | 41.0 | 42.0 | 43.0 | 44.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 230.70 | 163.73 | 113.48 | 92.98 | 71.12 | 61.81 | 57.66 | 52.14 | 47.36 |
| 45.0 | 302.29 | 302.29 | 156.32 | 113.27 | 88.04 | 74.85 | 65.28 | 58.08 | 52.35 |
| 90.0 | 155.22 | 109.33 | 82.00 | 69.75 | 64.07 | 53.35 | 47.78 | 44.68 | 38.58 |
| 135.0 | 306.18 | 151.27 | 121.58 | 77.42 | 70.70 | 61.97 | 54.82 | 49.51 | 44.63 |
| 180.0 | 293.35 | 293.35 | 151.38 | 124.57 | 94.56 | 80.21 | 70.91 | 63.44 | 57.50 |
| 225.0 | 222.44 | 162.10 | 118.58 | 96.72 | 78.16 | 69.17 | 63.13 | 57.03 | 51.30 |
| 270.0 | 363.00 | 277.21 | 277.21 | 206.83 | 112.75 | 84.05 | 71.49 | 62.71 | 56.29 |
| 315.0 | 328.99 | 216.03 | 176.66 | 122.68 | 88.99 | 73.32 | 63.60 | 56.50 | 50.93 |
| 360.0 | 230.70 | 163.73 | 113.48 | 92.98 | 71.12 | 61.81 | 57.66 | 52.14 | 47.36 |

Intensity data(cd)



| C/γ(°) | 45.0 | 46.0 | 47.0 | 48.0 | 49.0 | 50.0 | 51.0 | 52.0 | 53.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 43.26 | 40.26 | 37.69 | 35.53 | 33.64 | 31.75 | 30.28 | 29.12 | 28.28 |
| 45.0 | 47.04 | 42.79 | 39.37 | 36.74 | 34.69 | 32.85 | 31.54 | 30.80 | 29.28 |
| 90.0 | 36.48 | 33.69 | 31.43 | 29.38 | 27.81 | 26.44 | 25.39 | 24.49 | 23.81 |
| 135.0 | 40.68 | 37.37 | 34.74 | 32.48 | 30.59 | 28.86 | 27.33 | 26.23 | 25.23 |
| 180.0 | 52.04 | 47.67 | 43.94 | 41.00 | 38.42 | 36.06 | 33.96 | 32.12 | 30.59 |
| 225.0 | 46.73 | 42.79 | 39.58 | 36.79 | 34.59 | 32.54 | 30.91 | 29.44 | 28.28 |
| 270.0 | 50.93 | 46.15 | 42.47 | 39.42 | 37.11 | 34.90 | 32.90 | 31.17 | 29.75 |
| 315.0 | 45.94 | 41.79 | 38.37 | 35.53 | 32.85 | 30.59 | 28.80 | 27.39 | 26.23 |
| 360.0 | 43.26 | 40.26 | 37.69 | 35.53 | 33.64 | 31.75 | 30.28 | 29.12 | 28.28 |

| C/γ(°) | 54.0 | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 27.60 | 27.28 | 27.49 | 27.49 | 27.44 | 27.12 | 26.23 | 24.28 | 21.60 |
| 45.0 | 28.38 | 28.02 | 27.07 | 26.91 | 26.75 | 26.60 | 25.97 | 24.60 | 22.65 |
| 90.0 | 23.65 | 23.55 | 23.55 | 23.44 | 23.50 | 22.97 | 21.87 | 20.87 | 17.66 |
| 135.0 | 24.55 | 24.02 | 23.76 | 23.71 | 23.55 | 23.71 | 23.39 | 23.07 | 21.76 |
| 180.0 | 29.22 | 28.07 | 27.12 | 26.75 | 26.39 | 25.76 | 25.60 | 24.97 | 24.02 |
| 225.0 | 27.44 | 26.86 | 26.44 | 26.23 | 25.86 | 25.44 | 24.76 | 24.13 | 21.87 |
| 270.0 | 28.80 | 27.54 | 26.81 | 26.44 | 26.18 | 26.07 | 25.97 | 25.86 | 25.18 |
| 315.0 | 25.39 | 24.81 | 24.55 | 24.39 | 24.49 | 24.49 | 24.55 | 24.02 | 22.92 |
| 360.0 | 27.60 | 27.28 | 27.49 | 27.49 | 27.44 | 27.12 | 26.23 | 24.28 | 21.60 |

| C/γ(°) | 63.0 | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 19.24 | 16.40 | 14.24 | 12.62 | 11.51 | 10.72 | 10.09 | 9.36 | 8.73 |
| 45.0 | 19.92 | 16.93 | 14.40 | 12.67 | 11.35 | 10.57 | 9.83 | 9.20 | 8.62 |
| 90.0 | 15.14 | 13.61 | 11.35 | 10.67 | 9.83 | 9.20 | 8.52 | 7.99 | 7.52 |
| 135.0 | 19.82 | 17.40 | 14.82 | 13.09 | 11.67 | 10.72 | 9.93 | 9.30 | 8.73 |
| 180.0 | 22.29 | 20.13 | 17.82 | 15.40 | 13.61 | 12.30 | 11.30 | 10.46 | 9.78 |
| 225.0 | 20.34 | 17.40 | 14.24 | 13.25 | 11.83 | 10.72 | 10.04 | 9.36 | 8.78 |
| 270.0 | 23.86 | 21.92 | 19.19 | 16.45 | 13.93 | 12.25 | 11.04 | 10.14 | 9.41 |
| 315.0 | 21.24 | 18.92 | 16.29 | 13.98 | 12.30 | 11.20 | 10.30 | 9.57 | 8.94 |
| 360.0 | 19.24 | 16.40 | 14.24 | 12.62 | 11.51 | 10.72 | 10.09 | 9.36 | 8.73 |

| C/γ(°) | 72.0 | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 8.20 | 7.62 | 6.94 | 6.36 | 5.78 | 5.26 | 4.84 | 4.36 | 3.99 |
| 45.0 | 8.09 | 7.73 | 6.99 | 6.47 | 6.10 | 5.62 | 5.10 | 4.73 | 4.21 |
| 90.0 | 6.99 | 6.52 | 6.04 | 5.62 | 5.10 | 4.73 | 4.31 | 3.94 | 3.57 |
| 135.0 | 8.04 | 7.52 | 6.99 | 6.47 | 5.83 | 5.31 | 4.89 | 4.52 | 4.05 |
| 180.0 | 9.04 | 8.46 | 7.78 | 7.10 | 6.57 | 5.94 | 5.41 | 4.99 | 4.52 |
| 225.0 | 8.30 | 7.57 | 6.83 | 6.36 | 5.78 | 5.26 | 4.84 | 4.36 | 4.05 |
| 270.0 | 8.78 | 8.25 | 7.62 | 6.99 | 6.52 | 5.89 | 5.57 | 4.78 | 4.36 |
| 315.0 | 8.36 | 7.73 | 7.15 | 6.68 | 5.99 | 5.47 | 5.15 | 4.57 | 4.36 |
| 360.0 | 8.20 | 7.62 | 6.94 | 6.36 | 5.78 | 5.26 | 4.84 | 4.36 | 3.99 |

| C/γ(°) | 81.0 | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 3.68 | 3.26 | 3.00 | 2.68 | 2.31 | 2.10 | 1.89 | 1.58 | 1.26 |
| 45.0 | 3.84 | 3.36 | 3.00 | 2.63 | 2.31 | 2.00 | 1.73 | 1.42 | 1.16 |
| 90.0 | 3.21 | 3.00 | 2.52 | 2.26 | 2.10 | 1.84 | 1.52 | 1.16 | 1.05 |
| 135.0 | 3.73 | 3.36 | 3.05 | 2.73 | 2.37 | 2.10 | 1.84 | 1.52 | 1.10 |
| 180.0 | 4.15 | 3.73 | 3.26 | 2.94 | 2.52 | 2.26 | 2.00 | 1.73 | 1.37 |
| 225.0 | 3.63 | 3.31 | 2.89 | 2.63 | 2.21 | 1.94 | 1.79 | 1.42 | 1.16 |
| 270.0 | 4.15 | 3.73 | 3.31 | 3.10 | 2.68 | 2.37 | 2.10 | 1.94 | 1.52 |
| 315.0 | 3.84 | 3.63 | 3.26 | 2.94 | 2.63 | 2.26 | 2.05 | 1.84 | 1.47 |
| 360.0 | 3.68 | 3.26 | 3.00 | 2.68 | 2.31 | 2.10 | 1.89 | 1.58 | 1.26 |

Intensity data(cd)



| C/γ(°) | 90.0 |
|---|---|
| 0.0 | 1.05 |
| 45.0 | 1.00 |
| 90.0 | 1.05 |
| 135.0 | 1.05 |
| 180.0 | 1.16 |
| 225.0 | 1.00 |
| 270.0 | 1.31 |
| 315.0 | 1.42 |
| 360.0 | 1.05 |