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

## NATA

LumCAT: 2-2641-L
Luminaire: 92.70.411.00
LampCAT: NICHIA NFCWJ120B-V3
Ballast type: AC

| | |
|---|---|
| Report No: 20231019-B011 | Voltage(V): 34.1900 |
| Test No: 20231019-C011 | Current(A): 0.5770 |
| Number of Lamps: 1 | Power (W): 19.7270 |
| Lamp flux(lm): 2611.4 | PF: 0.0000 |
| Length(mm): 0 | Width(mm): 0 |
| Phm Type: C | Height(mm): 0 |

## Photometric Results

Lumens(lm): 2402.03, Efficiency(%): 91.98% , Luminous Efficacy(lm/W): 121.76
Central intensity(cd): 5256.654, Maximum intensity(cd): 5256.654
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=36.8
[C90/270]Total=36.8
Field angle(10%Imax): [C0/180]Total=65.4
[C90/270]Total=65.4
Maximum s/h(1/2): C0_180=0.60 C90_270=0.60
Maximum s/h(1/4): C0_180=0.61 C90_270=0.61
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.98%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.817%

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 0.0 | 5256.655 | 0.000 | 0 | 0.00% | 0.00% |
| 1.0 | 5247.245 | 5.026 | 5.026 | 0.19% | 0.21% |
| 2.0 | 5208.497 | 15.007 | 20.033 | 0.57% | 0.83% |
| 3.0 | 5152.797 | 24.781 | 44.814 | 0.95% | 1.87% |
| 4.0 | 5080.007 | 34.252 | 79.066 | 1.31% | 3.29% |
| 5.0 | 4990.265 | 43.322 | 122.388 | 1.66% | 5.10% |
| 6.0 | 4879.835 | 51.870 | 174.258 | 1.99% | 7.25% |
| 7.0 | 4753.560 | 59.794 | 234.052 | 2.29% | 9.74% |
| 8.0 | 4606.803 | 66.990 | 301.043 | 2.57% | 12.53% |
| 9.0 | 4449.599 | 73.397 | 374.44 | 2.81% | 15.59% |
| 10.0 | 4278.972 | 78.990 | 453.43 | 3.02% | 18.88% |
| 11.0 | 4103.432 | 83.757 | 537.188 | 3.21% | 22.36% |
| 12.0 | 3913.984 | 87.642 | 624.83 | 3.36% | 26.01% |
| 13.0 | 3724.675 | 90.652 | 715.481 | 3.47% | 29.79% |
| 14.0 | 3539.171 | 92.977 | 808.458 | 3.56% | 33.66% |
| 15.0 | 3333.186 | 94.347 | 902.805 | 3.61% | 37.59% |
| 16.0 | 3124.088 | 94.617 | 997.422 | 3.62% | 41.52% |
| 17.0 | 2931.457 | 94.301 | 1091.723 | 3.61% | 45.45% |
| 18.0 | 2725.058 | 93.264 | 1184.986 | 3.57% | 49.33% |
| 19.0 | 2506.688 | 91.022 | 1276.008 | 3.49% | 53.12% |
| 20.0 | 2302.641 | 88.024 | 1364.032 | 3.37% | 56.79% |
| 21.0 | 2111.671 | 84.764 | 1448.796 | 3.25% | 60.32% |
| 22.0 | 1927.551 | 81.170 | 1529.966 | 3.11% | 63.69% |
| 23.0 | 1762.113 | 77.419 | 1607.385 | 2.96% | 66.92% |
| 24.0 | 1612.866 | 73.789 | 1681.174 | 2.83% | 69.99% |
| 25.0 | 1422.795 | 69.024 | 1750.198 | 2.64% | 72.86% |
| 26.0 | 1312.572 | 64.569 | 1814.767 | 2.47% | 75.55% |
| 27.0 | 1163.969 | 60.589 | 1875.356 | 2.32% | 78.07% |
| 28.0 | 1059.067 | 56.283 | 1931.639 | 2.16% | 80.42% |
| 29.0 | 930.895 | 52.063 | 1983.702 | 1.99% | 82.58% |
| 30.0 | 810.833 | 47.026 | 2030.728 | 1.80% | 84.54% |
| 31.0 | 700.804 | 42.067 | 2072.795 | 1.61% | 86.29% |
| 32.0 | 593.308 | 37.075 | 2109.869 | 1.42% | 87.84% |
| 33.0 | 500.659 | 32.229 | 2142.098 | 1.23% | 89.18% |
| 34.0 | 419.144 | 27.836 | 2169.934 | 1.07% | 90.34% |
| 35.0 | 336.785 | 23.476 | 2193.41 | 0.90% | 91.31% |
| 36.0 | 276.650 | 19.532 | 2212.942 | 0.75% | 92.13% |
| 37.0 | 234.464 | 16.670 | 2229.612 | 0.64% | 92.82% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 38.0 | 178.460 | 13.783 | 2243.395 | 0.53% | 93.40% |
| 39.0 | 135.907 | 10.730 | 2254.125 | 0.41% | 93.84% |
| 40.0 | 110.057 | 8.578 | 2262.703 | 0.33% | 94.20% |
| 41.0 | 97.415 | 7.388 | 2270.091 | 0.28% | 94.51% |
| 42.0 | 87.998 | 6.736 | 2276.828 | 0.26% | 94.79% |
| 43.0 | 80.415 | 6.239 | 2283.066 | 0.24% | 95.05% |
| 44.0 | 74.035 | 5.829 | 2288.896 | 0.22% | 95.29% |
| 45.0 | 68.209 | 5.467 | 2294.362 | 0.21% | 95.52% |
| 46.0 | 63.408 | 5.147 | 2299.51 | 0.20% | 95.73% |
| 47.0 | 58.848 | 4.862 | 2304.372 | 0.19% | 95.93% |
| 48.0 | 54.807 | 4.595 | 2308.966 | 0.18% | 96.13% |
| 49.0 | 50.870 | 4.340 | 2313.306 | 0.17% | 96.31% |
| 50.0 | 47.749 | 4.112 | 2317.418 | 0.16% | 96.48% |
| 51.0 | 44.636 | 3.909 | 2321.327 | 0.15% | 96.64% |
| 52.0 | 41.882 | 3.713 | 2325.039 | 0.14% | 96.79% |
| 53.0 | 39.405 | 3.536 | 2328.575 | 0.14% | 96.94% |
| 54.0 | 37.218 | 3.377 | 2331.952 | 0.13% | 97.08% |
| 55.0 | 35.253 | 3.235 | 2335.187 | 0.12% | 97.22% |
| 56.0 | 33.371 | 3.101 | 2338.288 | 0.12% | 97.35% |
| 57.0 | 31.808 | 2.980 | 2341.268 | 0.11% | 97.47% |
| 58.0 | 30.348 | 2.874 | 2344.143 | 0.11% | 97.59% |
| 59.0 | 28.998 | 2.774 | 2346.917 | 0.11% | 97.71% |
| 60.0 | 27.774 | 2.682 | 2349.599 | 0.10% | 97.82% |
| 61.0 | 26.646 | 2.597 | 2352.196 | 0.10% | 97.93% |
| 62.0 | 25.608 | 2.518 | 2354.714 | 0.10% | 98.03% |
| 63.0 | 24.653 | 2.444 | 2357.159 | 0.09% | 98.13% |
| 64.0 | 23.754 | 2.375 | 2359.534 | 0.09% | 98.23% |
| 65.0 | 22.875 | 2.308 | 2361.842 | 0.09% | 98.33% |
| 66.0 | 22.065 | 2.242 | 2364.084 | 0.09% | 98.42% |
| 67.0 | 21.325 | 2.182 | 2366.266 | 0.08% | 98.51% |
| 68.0 | 20.515 | 2.119 | 2368.385 | 0.08% | 98.60% |
| 69.0 | 19.844 | 2.059 | 2370.444 | 0.08% | 98.69% |
| 70.0 | 19.173 | 2.004 | 2372.448 | 0.08% | 98.77% |
| 71.0 | 18.523 | 1.948 | 2374.396 | 0.07% | 98.85% |
| 72.0 | 17.852 | 1.891 | 2376.288 | 0.07% | 98.93% |
| 73.0 | 17.284 | 1.837 | 2378.125 | 0.07% | 99.00% |
| 74.0 | 16.675 | 1.785 | 2379.91 | 0.07% | 99.08% |
| 75.0 | 16.101 | 1.732 | 2381.642 | 0.07% | 99.15% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 76.0 | 15.554 | 1.680 | 2383.322 | 0.06% | 99.22% |
| 77.0 | 15.001 | 1.629 | 2384.951 | 0.06% | 99.29% |
| 78.0 | 14.461 | 1.577 | 2386.529 | 0.06% | 99.35% |
| 79.0 | 13.949 | 1.526 | 2388.055 | 0.06% | 99.42% |
| 80.0 | 13.472 | 1.478 | 2389.533 | 0.06% | 99.48% |
| 81.0 | 12.967 | 1.430 | 2390.963 | 0.05% | 99.54% |
| 82.0 | 12.510 | 1.382 | 2392.345 | 0.05% | 99.60% |
| 83.0 | 12.053 | 1.335 | 2393.68 | 0.05% | 99.65% |
| 84.0 | 11.666 | 1.292 | 2394.972 | 0.05% | 99.71% |
| 85.0 | 11.341 | 1.256 | 2396.228 | 0.05% | 99.76% |
| 86.0 | 11.036 | 1.223 | 2397.451 | 0.05% | 99.81% |
| 87.0 | 10.725 | 1.191 | 2398.642 | 0.05% | 99.86% |
| 88.0 | 10.400 | 1.157 | 2399.799 | 0.04% | 99.91% |
| 89.0 | 10.150 | 1.126 | 2400.925 | 0.04% | 99.95% |
| 90.0 | 9.977 | 1.104 | 2402.029 | 0.04% | 100.00% |

## Zonal flux distribution table



ZONAL LUMEN SUMMARY

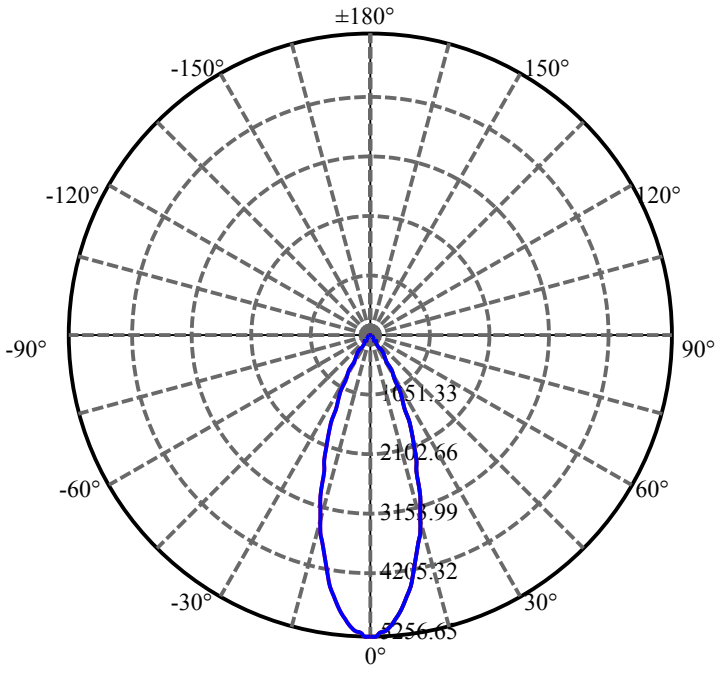
| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-30 | 2030.73 | 77.76% | 84.54% |
| 0-40 | 2262.70 | 86.65% | 94.20% |
| 0-60 | 2349.60 | 89.98% | 97.82% |
| 0-90 | 2400.93 | 91.94% | 99.95% |
| 0-120 | 2400.93 | 91.94% | 99.95% |
| 0-180 | 2402.03 | 91.98% | 100.00% |
| 60-90 | 51.33 | 1.97% | 2.14% |
| 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% |
| 0-27.82 | 1921.62 | 73.59% | 80.00% |

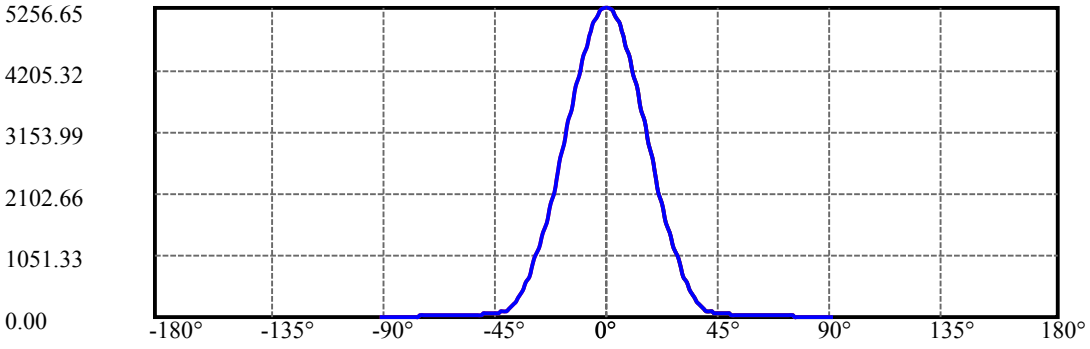
ZONAL LUMEN SUMMARY

| | |
|---|---|
| 0-10 | 453.43 |
| 10-20 | 910.60 |
| 20-30 | 666.70 |
| 30-40 | 231.98 |
| 40-50 | 54.71 |
| 50-60 | 32.18 |
| 60-70 | 22.85 |
| 70-80 | 17.09 |
| 80-90 | 11.39 |
| 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:

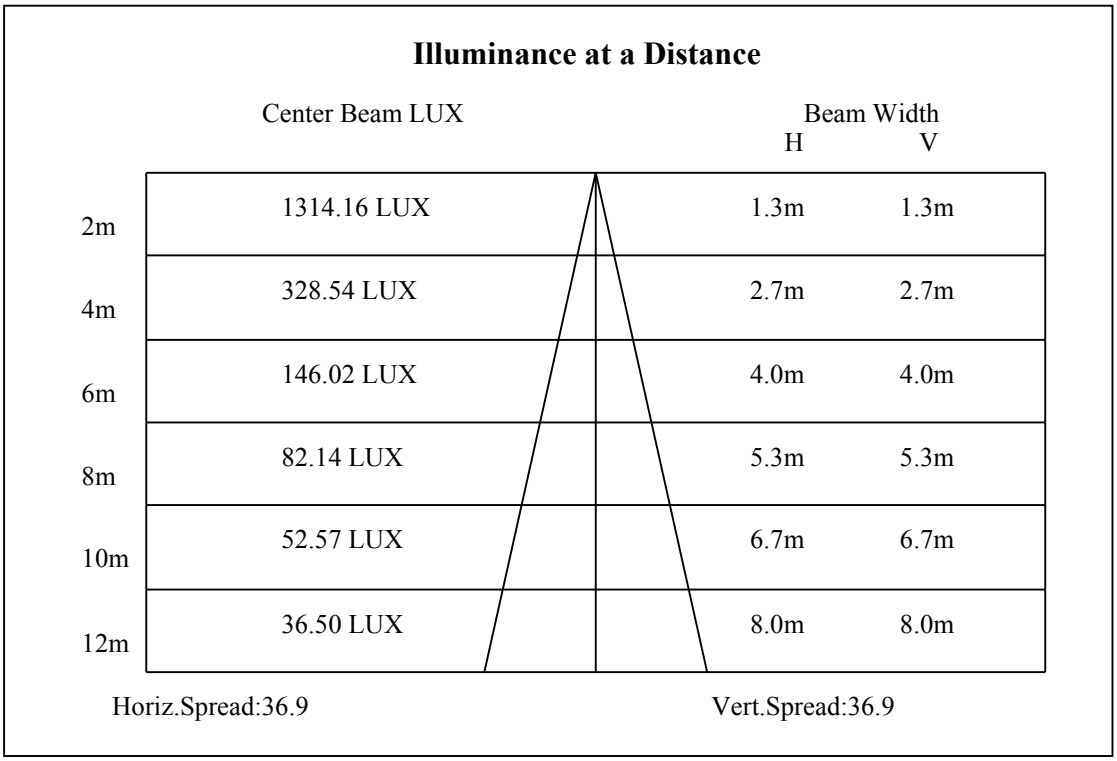
C90/C270:

Field angle(10%Imax):C0/180Left:32.7 Right:32.7
:C90/270Left:32.7 Right:32.7

Beam Angle(50%Imax):C0/180Left:18.4 Right:18.4
:C90/270Left:18.4 Right:18.4

Lux distance Curve

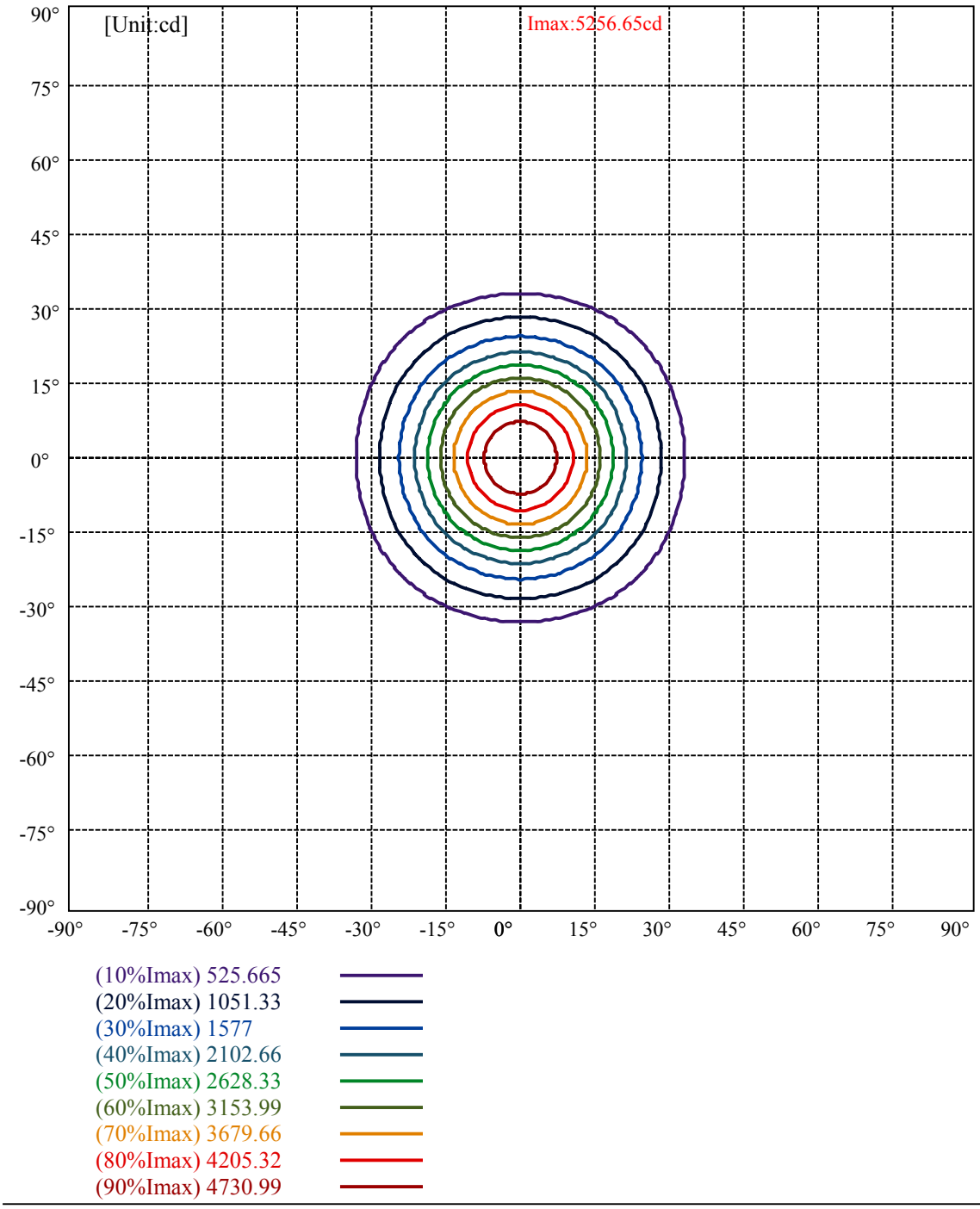





Equipment: GMS1980 Date: 2023/10/19 Operator: NT07
Temperature(°C): 0.0 Humidity(%): 0.0% Distance(m): 7.44

ISO-Intensity(V-H)





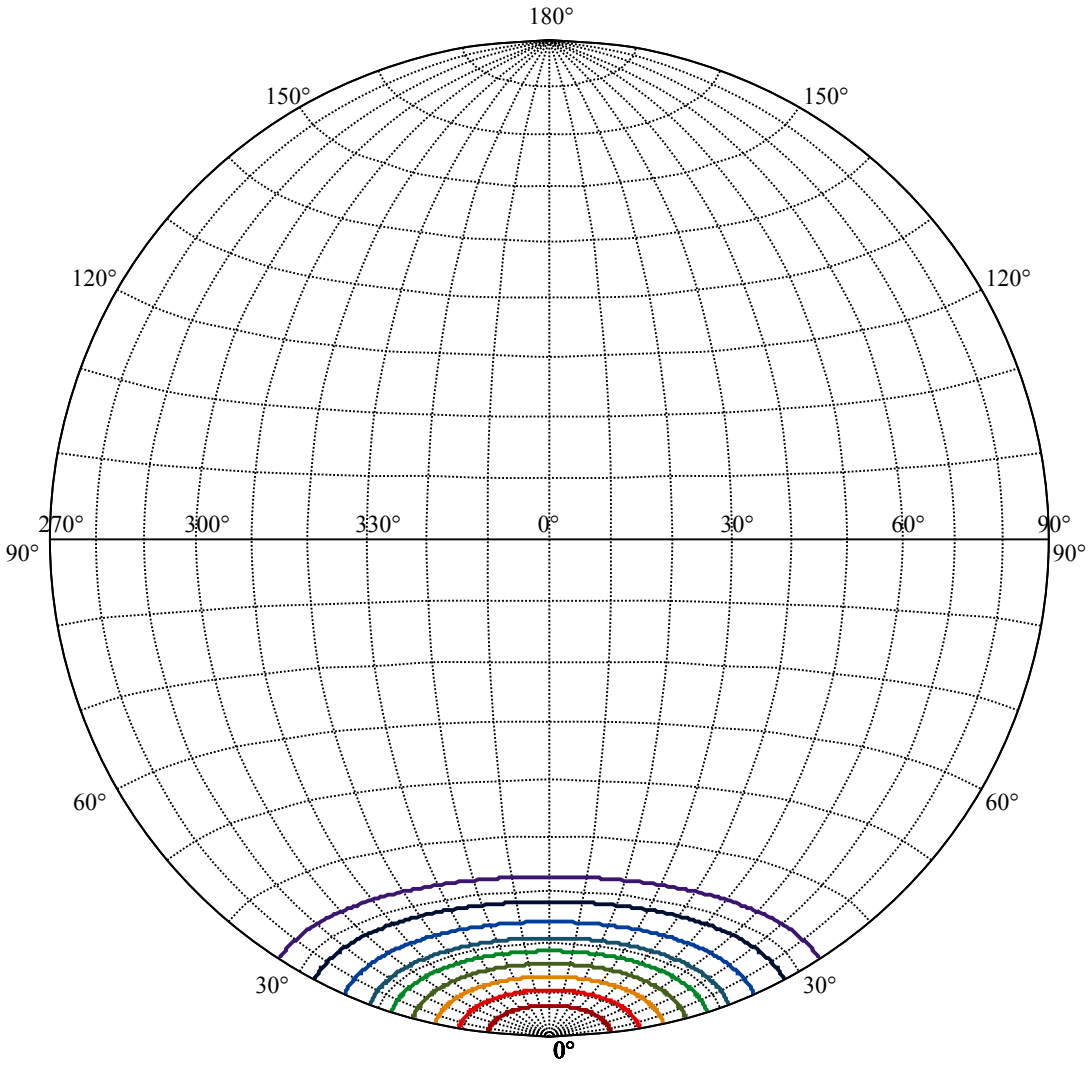

Equipment: GMS1980
Temperature(°C): 0.0

Date: 2023/10/19
Humidity(%): 0.0%

Operator: NT07
Distance(m): 7.44

ISO candela diagram on circular web






House [Unit:cd] Road

Imax:5256.65

(10%Imax) 525.665
(20%Imax) 1051.33
(30%Imax) 1577
(40%Imax) 2102.66
(50%Imax) 2628.33
(60%Imax) 3153.99
(70%Imax) 3679.66
(80%Imax) 4205.32
(90%Imax) 4730.99

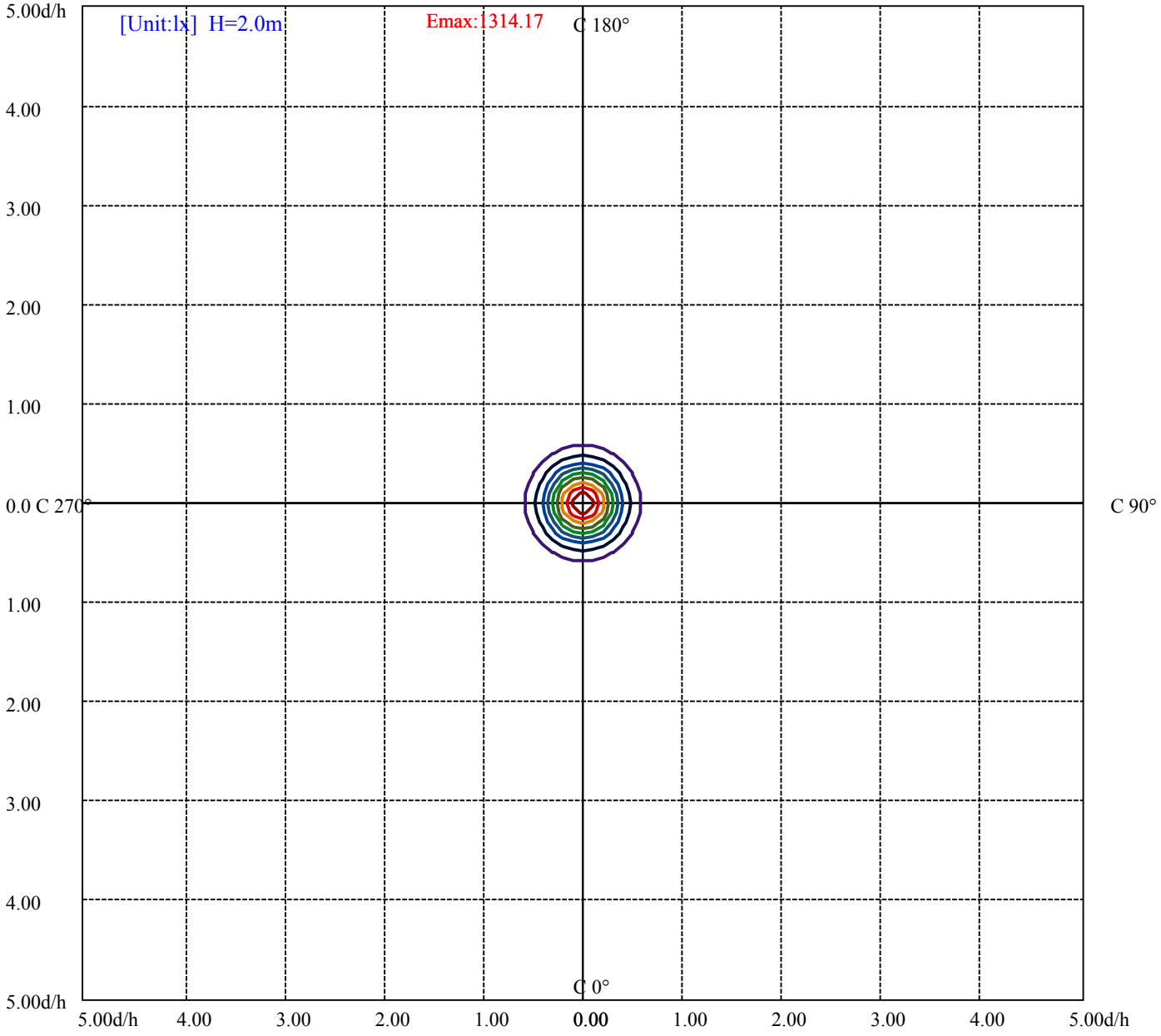
Equipment: GMS1980
Temperature(°C): 0.0

Date: 2023/10/19
Humidity(%): 0.0%

Operator: NT07
Distance(m): 7.44

## ISO illuminance diagram



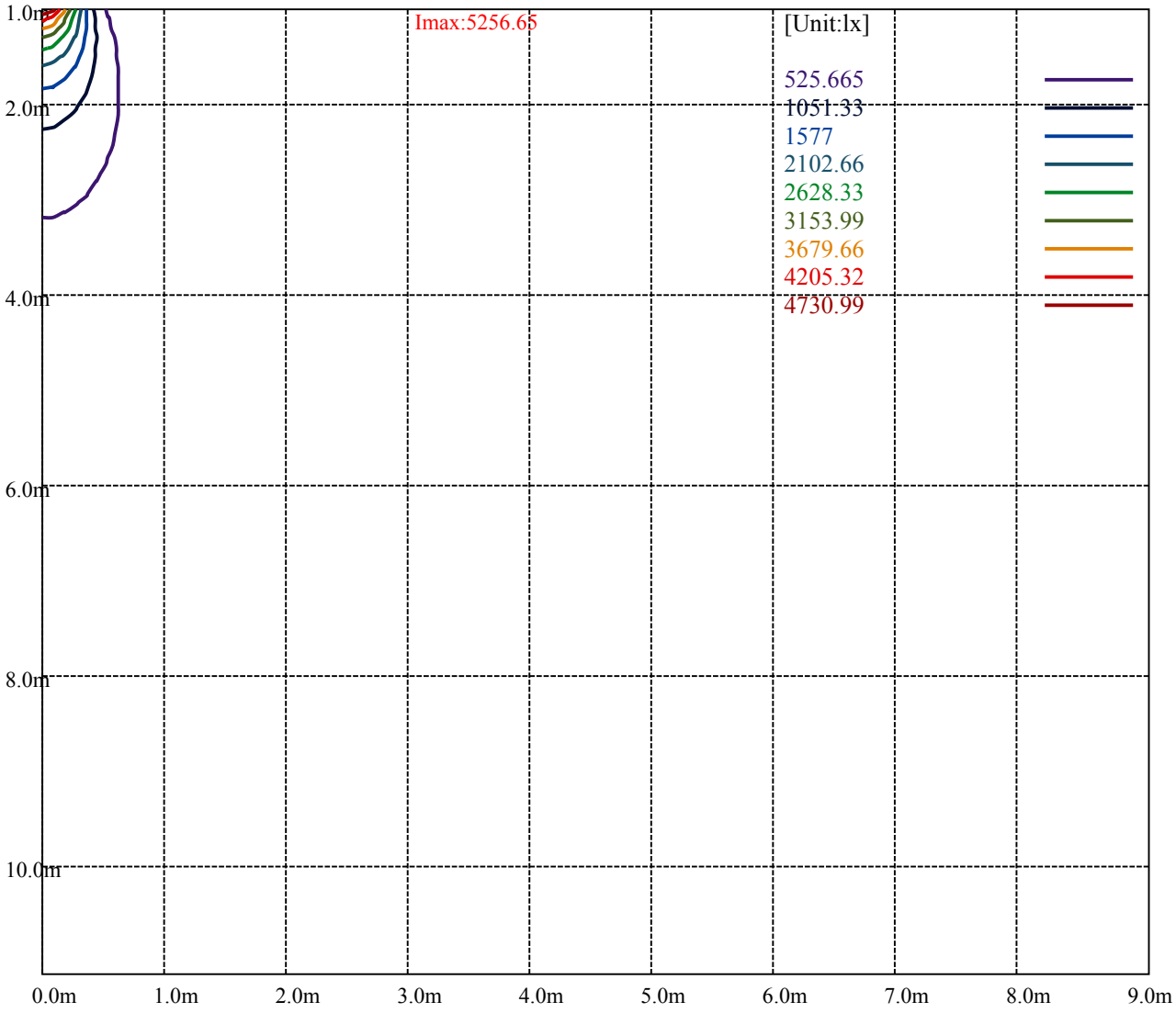



(10%Emax) 131.4162
(20%Emax) 262.8325
(30%Emax) 394.25
(40%Emax) 525.665
(50%Emax) 657.0825
(60%Emax) 788.4975
(70%Emax) 919.915
(80%Emax) 1051.33
(90%Emax) 1182.748

Equipment: GMS1980
Temperature(°C): 0.0
Date: 2023/10/19
Humidity(%): 0.0%
Operator: NT07
Distance(m): 7.44

Space ISO Lux diagram






Equipment: GMS1980
Temperature(°C): 0.0

Date: 2023/10/19
Humidity(%): 0.0%

Operator: NT07
Distance(m): 7.44

## Luminance Limitting Curve(no luminous side)



Luminance Table

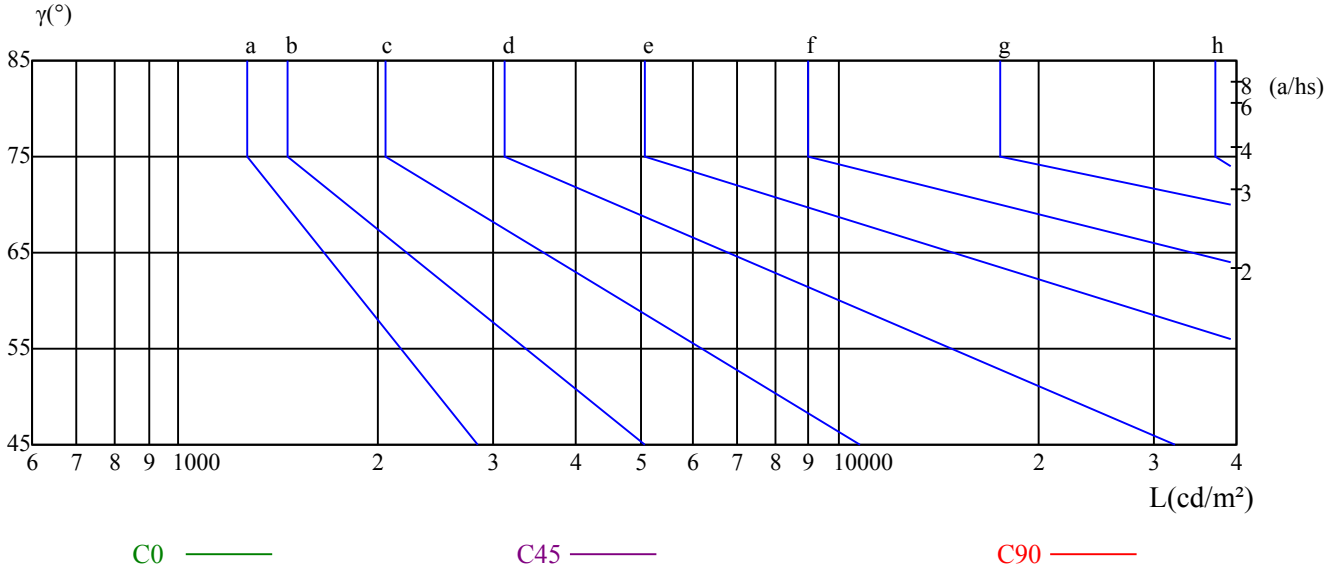
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|---|---|---|---|---|---|---|---|---|---|
| C0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 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



UGR Glare

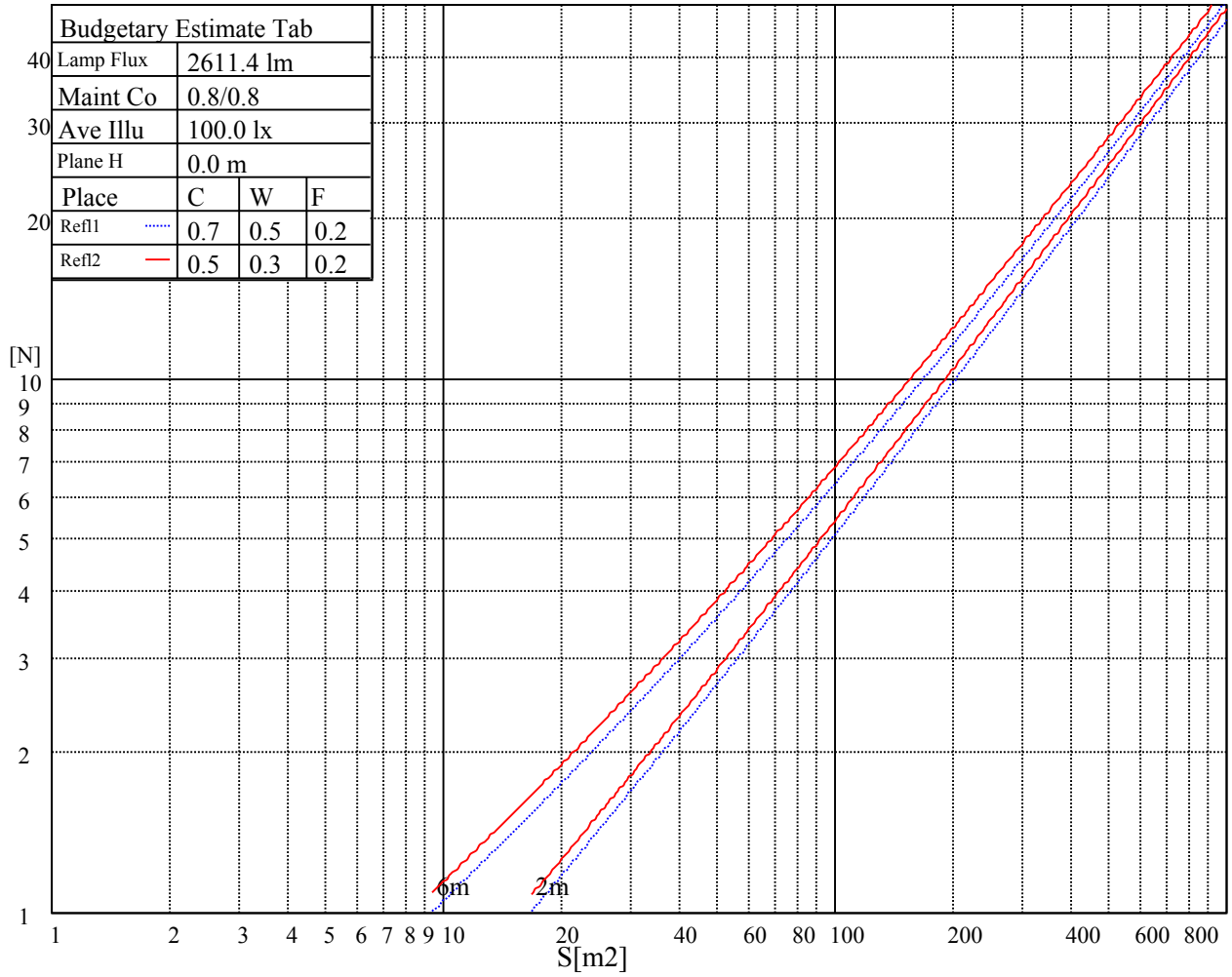


| Illumination assessment according UGR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rf of Ceiling | | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 |
| Rf of Wall | | 50 | 30 | 50 | 30 | 30 | 50 | 30 | 50 | 30 | 30 |
| Rf of Floor | | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 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






Equipment: GMS1980 Date: 2023/10/19 Operator: NT07
Temperature(°C): 0.0 Humidity(%): 0.0% Distance(m): 7.44

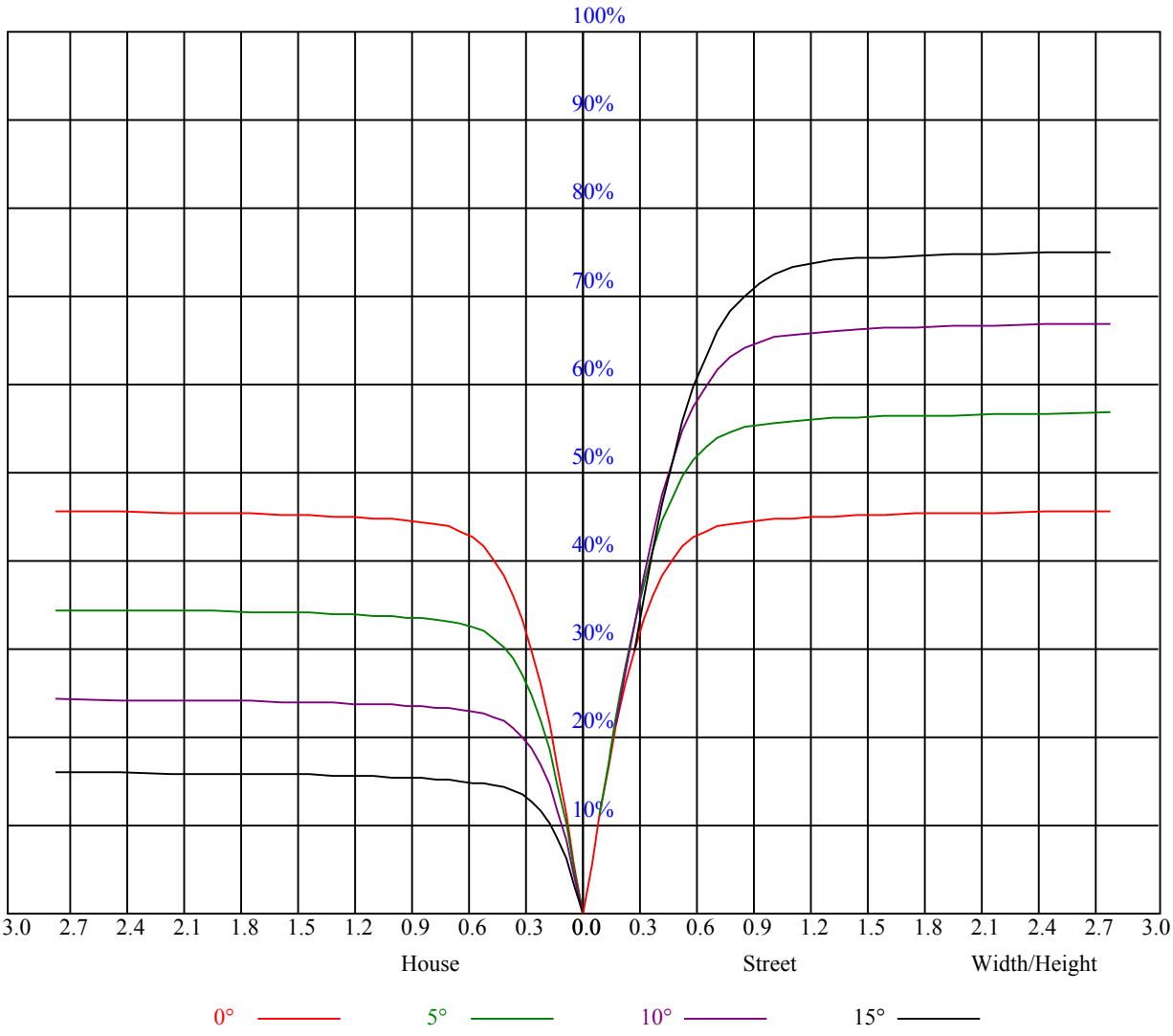
Utilization factor table for indoor luminaire



| 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 | 1.07 | 1.07 | 1.07 | 1.02 | 1.02 | 1.02 | 0.98 | 0.98 | 0.98 | 0.94 | 0.94 | 0.94 | 0.92 |
| 1 | 1.02 | 1.00 | 0.98 | 1.00 | 0.98 | 0.97 | 0.97 | 0.95 | 0.94 | 0.93 | 0.92 | 0.91 | 0.90 | 0.89 | 0.88 | 0.87 |
| 2 | 0.96 | 0.93 | 0.90 | 0.94 | 0.91 | 0.89 | 0.91 | 0.89 | 0.87 | 0.89 | 0.87 | 0.85 | 0.86 | 0.85 | 0.83 | 0.82 |
| 3 | 0.90 | 0.86 | 0.83 | 0.89 | 0.85 | 0.82 | 0.87 | 0.84 | 0.81 | 0.85 | 0.82 | 0.80 | 0.83 | 0.80 | 0.79 | 0.77 |
| 4 | 0.86 | 0.81 | 0.78 | 0.85 | 0.80 | 0.77 | 0.83 | 0.79 | 0.76 | 0.81 | 0.78 | 0.75 | 0.79 | 0.77 | 0.74 | 0.73 |
| 5 | 0.81 | 0.76 | 0.73 | 0.80 | 0.76 | 0.73 | 0.79 | 0.75 | 0.72 | 0.77 | 0.74 | 0.71 | 0.76 | 0.73 | 0.71 | 0.70 |
| 6 | 0.77 | 0.72 | 0.69 | 0.77 | 0.72 | 0.69 | 0.75 | 0.71 | 0.68 | 0.74 | 0.70 | 0.68 | 0.73 | 0.70 | 0.67 | 0.66 |
| 7 | 0.74 | 0.69 | 0.65 | 0.73 | 0.68 | 0.65 | 0.72 | 0.68 | 0.65 | 0.71 | 0.67 | 0.65 | 0.70 | 0.67 | 0.64 | 0.63 |
| 8 | 0.70 | 0.66 | 0.62 | 0.70 | 0.65 | 0.62 | 0.69 | 0.65 | 0.62 | 0.68 | 0.64 | 0.62 | 0.67 | 0.64 | 0.61 | 0.60 |
| 9 | 0.67 | 0.63 | 0.59 | 0.67 | 0.62 | 0.59 | 0.66 | 0.62 | 0.59 | 0.65 | 0.62 | 0.59 | 0.65 | 0.61 | 0.59 | 0.58 |
| 10 | 0.65 | 0.60 | 0.57 | 0.64 | 0.60 | 0.57 | 0.64 | 0.59 | 0.57 | 0.63 | 0.59 | 0.56 | 0.62 | 0.59 | 0.56 | 0.55 |

## Coefficient Utilization Curve






| | | |
|---|---|---|
| Equipment: GMS1980 | Date: 2023/10/19 | Operator: NT07 |
| Temperature(°C): 0.0 | Humidity(%): 0.0% | Distance(m): 7.44 |

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 | 5232.02 | 5205.45 | 5123.53 | 5043.27 | 4928.68 | 4821.30 | 4694.54 | 4562.80 | 4363.52 |
| 45.0 | 5269.11 | 5244.75 | 5203.24 | 5126.85 | 5054.89 | 4956.36 | 4852.30 | 4701.18 | 4561.69 |
| 90.0 | 5251.95 | 5213.20 | 5127.40 | 5055.44 | 4977.95 | 4871.67 | 4720.56 | 4586.60 | 4434.38 |
| 135.0 | 5273.54 | 5248.63 | 5225.93 | 5171.13 | 5090.87 | 5003.97 | 4894.37 | 4753.77 | 4618.70 |
| 180.0 | 5232.02 | 5272.98 | 5267.45 | 5240.33 | 5199.92 | 5121.87 | 5043.27 | 4953.59 | 4839.57 |
| 225.0 | 5269.11 | 5266.90 | 5236.45 | 5190.51 | 5110.80 | 5029.98 | 4933.11 | 4786.98 | 4655.79 |
| 270.0 | 5251.95 | 5270.77 | 5270.77 | 5237.56 | 5193.27 | 5115.23 | 5027.77 | 4927.58 | 4773.69 |
| 315.0 | 5273.54 | 5255.27 | 5213.20 | 5157.29 | 5083.67 | 5001.75 | 4872.78 | 4755.98 | 4607.08 |
| 360.0 | 5232.02 | 5205.45 | 5123.53 | 5043.27 | 4928.68 | 4821.30 | 4694.54 | 4562.80 | 4363.52 |

| C/γ(°) | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 17.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 4200.23 | 4028.64 | 3850.40 | 3626.21 | 3441.33 | 3260.33 | 3066.04 | 2824.14 | 2631.51 |
| 45.0 | 4412.79 | 4217.39 | 4044.69 | 3876.41 | 3650.02 | 3475.65 | 3288.00 | 3052.20 | 2861.78 |
| 90.0 | 4230.68 | 4060.74 | 3880.84 | 3657.77 | 3483.96 | 3298.52 | 3067.14 | 2872.30 | 2676.90 |
| 135.0 | 4468.70 | 4313.15 | 4102.26 | 3929.55 | 3745.22 | 3559.24 | 3332.84 | 3140.76 | 2947.03 |
| 180.0 | 4684.02 | 4540.10 | 4380.13 | 4209.64 | 3996.53 | 3822.72 | 3597.43 | 3422.51 | 3228.78 |
| 225.0 | 4507.44 | 4312.05 | 4145.98 | 3978.26 | 3805.56 | 3634.52 | 3409.78 | 3228.22 | 3043.34 |
| 270.0 | 4645.83 | 4504.12 | 4343.60 | 4129.38 | 3951.69 | 3762.38 | 3583.59 | 3367.16 | 3166.78 |
| 315.0 | 4447.11 | 4255.58 | 4079.56 | 3904.64 | 3723.08 | 3500.01 | 3320.66 | 3085.41 | 2895.55 |
| 360.0 | 4200.23 | 4028.64 | 3850.40 | 3626.21 | 3441.33 | 3260.33 | 3066.04 | 2824.14 | 2631.51 |

| C/γ(°) | 18.0 | 19.0 | 20.0 | 21.0 | 22.0 | 23.0 | 24.0 | 25.0 | 26.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 2436.67 | 2203.63 | 2021.51 | 1819.47 | 1672.23 | 1535.51 | 1407.09 | 1086.31 | 1086.31 |
| 45.0 | 2670.26 | 2479.84 | 2242.93 | 2061.37 | 1895.86 | 1743.08 | 1566.51 | 1439.75 | 1311.88 |
| 90.0 | 2488.70 | 2252.89 | 2066.90 | 1905.27 | 1716.52 | 1575.92 | 1449.71 | 1091.85 | 1091.85 |
| 135.0 | 2705.68 | 2516.93 | 2285.00 | 2107.31 | 1943.46 | 1787.92 | 1614.11 | 1483.48 | 1360.04 |
| 180.0 | 3009.58 | 2808.09 | 2602.73 | 2410.65 | 2179.27 | 2002.69 | 1844.38 | 1699.36 | 1532.19 |
| 225.0 | 2798.12 | 2600.51 | 2406.22 | 2173.18 | 1997.16 | 1799.55 | 1656.73 | 1521.67 | 1396.57 |
| 270.0 | 2992.42 | 2740.56 | 2536.30 | 2341.46 | 2110.08 | 1935.72 | 1782.39 | 1604.70 | 1477.39 |
| 315.0 | 2699.04 | 2451.06 | 2259.53 | 2074.65 | 1905.82 | 1716.52 | 1582.01 | 1455.25 | 1244.35 |
| 360.0 | 2436.67 | 2203.63 | 2021.51 | 1819.47 | 1672.23 | 1535.51 | 1407.09 | 1086.31 | 1086.31 |

| C/γ(°) | 27.0 | 28.0 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 | 34.0 | 35.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 991.22 | 872.93 | 740.19 | 642.66 | 552.71 | 448.09 | 373.58 | 304.39 | 226.73 |
| 45.0 | 1146.93 | 1020.17 | 897.84 | 760.00 | 658.71 | 565.71 | 459.99 | 384.15 | 314.41 |
| 90.0 | 1025.59 | 872.43 | 762.61 | 661.70 | 545.45 | 461.15 | 385.93 | 317.90 | 241.06 |
| 135.0 | 1228.30 | 1096.00 | 938.80 | 825.32 | 719.60 | 596.71 | 508.15 | 408.51 | 336.55 |
| 180.0 | 1410.41 | 1286.97 | 1124.79 | 991.38 | 871.27 | 733.99 | 631.03 | 539.70 | 437.29 |
| 225.0 | 1074.69 | 1074.69 | 981.31 | 864.40 | 731.11 | 632.41 | 542.19 | 458.49 | 365.83 |
| 270.0 | 1355.61 | 1201.17 | 1074.97 | 953.19 | 840.27 | 715.17 | 617.19 | 529.18 | 447.26 |
| 315.0 | 1079.01 | 1048.18 | 926.67 | 788.01 | 687.33 | 593.22 | 487.22 | 410.83 | 325.15 |
| 360.0 | 991.22 | 872.93 | 740.19 | 642.66 | 552.71 | 448.09 | 373.58 | 304.39 | 226.73 |

| C/γ(°) | 36.0 | 37.0 | 38.0 | 39.0 | 40.0 | 41.0 | 42.0 | 43.0 | 44.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 174.53 | 136.11 | 108.66 | 98.42 | 89.67 | 82.53 | 74.51 | 69.30 | 64.60 |
| 45.0 | 281.75 | 281.75 | 138.00 | 114.53 | 102.46 | 91.44 | 83.86 | 77.33 | 70.35 |
| 90.0 | 188.76 | 148.40 | 117.52 | 105.67 | 96.20 | 87.90 | 79.21 | 73.40 | 68.08 |
| 135.0 | 286.73 | 286.73 | 152.78 | 124.32 | 109.43 | 97.70 | 89.67 | 82.70 | 76.61 |
| 180.0 | 363.67 | 298.36 | 282.86 | 213.66 | 136.17 | 114.64 | 103.12 | 91.72 | 84.25 |
| 225.0 | 299.46 | 227.34 | 177.69 | 139.60 | 112.04 | 101.13 | 91.72 | 82.42 | 76.06 |
| 270.0 | 355.92 | 290.05 | 290.05 | 163.90 | 128.75 | 108.05 | 94.43 | 85.80 | 79.10 |
| 315.0 | 262.38 | 206.97 | 160.14 | 127.15 | 105.73 | 95.93 | 87.46 | 80.65 | 73.23 |
| 360.0 | 174.53 | 136.11 | 108.66 | 98.42 | 89.67 | 82.53 | 74.51 | 69.30 | 64.60 |

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 | 59.39 | 55.52 | 52.09 | 48.88 | 45.33 | 42.68 | 40.30 | 37.70 | 35.81 |
| 45.0 | 65.54 | 61.17 | 56.13 | 52.53 | 48.32 | 45.39 | 42.68 | 40.19 | 37.59 |
| 90.0 | 62.27 | 58.01 | 54.30 | 49.98 | 46.88 | 44.12 | 41.52 | 38.80 | 36.75 |
| 135.0 | 70.02 | 65.32 | 60.89 | 55.96 | 52.42 | 48.93 | 45.33 | 42.68 | 39.91 |
| 180.0 | 77.66 | 70.80 | 65.87 | 61.44 | 56.35 | 52.92 | 48.77 | 45.83 | 43.18 |
| 225.0 | 70.58 | 65.70 | 60.22 | 56.13 | 52.70 | 49.38 | 45.61 | 42.95 | 40.52 |
| 270.0 | 71.96 | 67.03 | 62.66 | 58.67 | 54.14 | 50.81 | 47.77 | 45.06 | 41.85 |
| 315.0 | 68.25 | 63.71 | 58.62 | 54.86 | 50.81 | 47.77 | 45.11 | 41.85 | 39.63 |
| 360.0 | 59.39 | 55.52 | 52.09 | 48.88 | 45.33 | 42.68 | 40.30 | 37.70 | 35.81 |

| C/γ(°) | 54.0 | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 33.71 | 32.22 | 30.83 | 29.50 | 28.06 | 27.01 | 26.07 | 25.13 | 24.13 |
| 45.0 | 35.70 | 33.93 | 32.33 | 31.00 | 29.39 | 28.29 | 26.90 | 25.85 | 24.96 |
| 90.0 | 34.93 | 33.21 | 31.39 | 30.06 | 28.84 | 27.40 | 26.35 | 25.19 | 24.30 |
| 135.0 | 37.70 | 35.76 | 34.10 | 32.16 | 30.83 | 29.61 | 28.34 | 26.96 | 26.02 |
| 180.0 | 40.85 | 38.03 | 36.15 | 34.32 | 32.77 | 31.00 | 29.72 | 28.45 | 27.18 |
| 225.0 | 37.75 | 35.76 | 33.54 | 31.99 | 30.61 | 29.34 | 27.84 | 26.79 | 25.79 |
| 270.0 | 39.58 | 37.47 | 35.09 | 33.38 | 31.55 | 30.22 | 29.01 | 27.90 | 26.57 |
| 315.0 | 37.53 | 35.65 | 33.54 | 32.05 | 30.72 | 29.12 | 27.95 | 26.90 | 25.91 |
| 360.0 | 33.71 | 32.22 | 30.83 | 29.50 | 28.06 | 27.01 | 26.07 | 25.13 | 24.13 |

| C/γ(°) | 63.0 | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 23.30 | 22.53 | 21.64 | 20.98 | 20.26 | 19.43 | 18.82 | 18.27 | 17.55 |
| 45.0 | 23.91 | 23.14 | 22.36 | 21.42 | 20.76 | 20.09 | 19.43 | 18.65 | 18.10 |
| 90.0 | 23.53 | 22.47 | 21.75 | 21.03 | 20.31 | 19.48 | 18.88 | 18.27 | 17.71 |
| 135.0 | 25.08 | 24.24 | 23.19 | 22.47 | 21.59 | 20.81 | 20.09 | 19.43 | 18.65 |
| 180.0 | 26.13 | 25.19 | 24.08 | 23.30 | 22.53 | 21.59 | 20.92 | 20.26 | 19.60 |
| 225.0 | 24.85 | 23.80 | 22.97 | 22.25 | 21.53 | 20.65 | 20.04 | 19.26 | 18.60 |
| 270.0 | 25.63 | 24.69 | 23.86 | 22.86 | 22.14 | 21.48 | 20.59 | 19.93 | 19.26 |
| 315.0 | 24.80 | 23.97 | 23.14 | 22.20 | 21.48 | 20.59 | 19.98 | 19.32 | 18.71 |
| 360.0 | 23.30 | 22.53 | 21.64 | 20.98 | 20.26 | 19.43 | 18.82 | 18.27 | 17.55 |

| C/γ(°) | 72.0 | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 16.94 | 16.44 | 15.89 | 15.28 | 14.78 | 14.28 | 13.78 | 13.23 | 12.79 |
| 45.0 | 17.55 | 16.99 | 16.33 | 15.78 | 15.28 | 14.67 | 14.23 | 13.62 | 13.17 |
| 90.0 | 16.99 | 16.44 | 15.94 | 15.28 | 14.83 | 14.34 | 13.78 | 13.34 | 12.84 |
| 135.0 | 17.99 | 17.44 | 16.77 | 16.22 | 15.67 | 15.17 | 14.56 | 14.06 | 13.67 |
| 180.0 | 18.82 | 18.21 | 17.66 | 17.05 | 16.38 | 15.83 | 15.28 | 14.67 | 14.17 |
| 225.0 | 18.05 | 17.38 | 16.77 | 16.27 | 15.72 | 15.06 | 14.56 | 14.12 | 13.62 |
| 270.0 | 18.54 | 17.99 | 17.21 | 16.72 | 16.11 | 15.61 | 14.95 | 14.50 | 14.00 |
| 315.0 | 17.93 | 17.38 | 16.83 | 16.22 | 15.67 | 15.06 | 14.56 | 14.06 | 13.51 |
| 360.0 | 16.94 | 16.44 | 15.89 | 15.28 | 14.78 | 14.28 | 13.78 | 13.23 | 12.79 |

| C/γ(°) | 81.0 | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 12.34 | 11.90 | 11.57 | 11.24 | 10.90 | 10.63 | 10.30 | 9.96 | 9.96 |
| 45.0 | 12.73 | 12.23 | 11.85 | 11.46 | 11.18 | 10.85 | 10.57 | 10.19 | 9.91 |
| 90.0 | 12.34 | 12.01 | 11.68 | 11.29 | 11.02 | 10.74 | 10.41 | 9.96 | 9.91 |
| 135.0 | 13.06 | 12.62 | 12.07 | 11.73 | 11.35 | 11.07 | 10.79 | 10.46 | 10.02 |
| 180.0 | 13.56 | 13.17 | 12.57 | 12.12 | 11.85 | 11.40 | 11.13 | 10.85 | 10.57 |
| 225.0 | 13.06 | 12.62 | 12.12 | 11.73 | 11.46 | 11.13 | 10.85 | 10.57 | 10.24 |
| 270.0 | 13.56 | 13.01 | 12.51 | 12.01 | 11.62 | 11.35 | 10.96 | 10.68 | 10.46 |
| 315.0 | 13.06 | 12.51 | 12.07 | 11.73 | 11.35 | 11.13 | 10.79 | 10.52 | 10.13 |
| 360.0 | 12.34 | 11.90 | 11.57 | 11.24 | 10.90 | 10.63 | 10.30 | 9.96 | 9.96 |

Intensity data(cd)



| C/γ(°) | 90.0 |
|---|---|
| 0.0 | 9.96 |
| 45.0 | 9.91 |
| 90.0 | 9.91 |
| 135.0 | 9.91 |
| 180.0 | 10.19 |
| 225.0 | 9.91 |
| 270.0 | 10.07 |
| 315.0 | 9.96 |
| 360.0 | 9.96 |