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

NT

Client:
LumCAT: 1-1384-L
Luminaire: 92.70.427.00
Report No: 20231120-B002
Ballast type: AC

| | |
|---|---|
| Test No: 20231120-C002 | Voltage(V): 36.510 |
| LampCAT: P2121-018-1203-P3090-1 | Current(A): 0.399 |
| Lamp flux(lm): 2085.4 | Power (W): 14.567 |
| Number of Lamps: 1 | PF: 0.000 |
| Length(mm): 0 | Width(mm): 0 |
| Phm Type: C | Height(mm): 0 |

## Photometric Results

Lumens(lm): 1852.60, Efficiency(%): 88.84% , Luminous Efficacy(lm/W): 127.18
Central intensity(cd): 2993.384, Maximum intensity(cd): 2993.384
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=48.6
[C90/270]Total=48.6
Field angle(10%Imax): [C0/180]Total=67.6
[C90/270]Total=67.6
Beam angle of C0 plane : 48.61
Aveage BeamAngle(IEC 61341):48.61
Maximum s/h(1/2): C0_180=0.78 C90_270=0.78
Maximum s/h(1/4): C0_180=0.74 C90_270=0.74
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.84%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.858%

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 0.0 | 2993.384 | 0.000 | 0 | 0.00% | 0.00% |
| 1.0 | 2992.554 | 2.864 | 2.864 | 0.14% | 0.15% |
| 2.0 | 2988.679 | 8.585 | 11.449 | 0.41% | 0.62% |
| 3.0 | 2978.854 | 14.272 | 25.721 | 0.68% | 1.39% |
| 4.0 | 2965.569 | 19.898 | 45.619 | 0.95% | 2.46% |
| 5.0 | 2949.032 | 25.444 | 71.064 | 1.22% | 3.84% |
| 6.0 | 2929.797 | 30.895 | 101.958 | 1.48% | 5.50% |
| 7.0 | 2905.303 | 36.218 | 138.177 | 1.74% | 7.46% |
| 8.0 | 2870.569 | 41.337 | 179.514 | 1.98% | 9.69% |
| 9.0 | 2830.576 | 46.205 | 225.718 | 2.22% | 12.18% |
| 10.0 | 2789.752 | 50.862 | 276.58 | 2.44% | 14.93% |
| 11.0 | 2738.273 | 55.236 | 331.816 | 2.65% | 17.91% |
| 12.0 | 2677.938 | 59.207 | 391.023 | 2.84% | 21.11% |
| 13.0 | 2614.766 | 62.811 | 453.834 | 3.01% | 24.50% |
| 14.0 | 2545.366 | 66.049 | 519.884 | 3.17% | 28.06% |
| 15.0 | 2465.380 | 68.790 | 588.673 | 3.30% | 31.78% |
| 16.0 | 2379.513 | 70.991 | 659.665 | 3.40% | 35.61% |
| 17.0 | 2282.367 | 72.598 | 732.263 | 3.48% | 39.53% |
| 18.0 | 2189.166 | 73.726 | 805.989 | 3.54% | 43.51% |
| 19.0 | 2093.404 | 74.508 | 880.496 | 3.57% | 47.53% |
| 20.0 | 1988.025 | 74.701 | 955.198 | 3.58% | 51.56% |
| 21.0 | 1884.098 | 74.353 | 1029.551 | 3.57% | 55.57% |
| 22.0 | 1774.706 | 73.525 | 1103.076 | 3.53% | 59.54% |
| 23.0 | 1665.728 | 72.190 | 1175.265 | 3.46% | 63.44% |
| 24.0 | 1547.202 | 70.246 | 1245.512 | 3.37% | 67.23% |
| 25.0 | 1381.564 | 66.594 | 1312.105 | 3.19% | 70.82% |
| 26.0 | 1239.312 | 61.866 | 1373.971 | 2.97% | 74.16% |
| 27.0 | 1146.698 | 58.374 | 1432.346 | 2.80% | 77.32% |
| 28.0 | 1013.607 | 54.694 | 1487.04 | 2.62% | 80.27% |
| 29.0 | 862.893 | 49.095 | 1536.135 | 2.35% | 82.92% |
| 30.0 | 724.800 | 42.867 | 1579.002 | 2.06% | 85.23% |
| 31.0 | 591.778 | 36.638 | 1615.64 | 1.76% | 87.21% |
| 32.0 | 476.594 | 30.608 | 1646.248 | 1.47% | 88.86% |
| 33.0 | 365.777 | 24.817 | 1671.065 | 1.19% | 90.20% |
| 34.0 | 282.504 | 19.619 | 1690.683 | 0.94% | 91.26% |
| 35.0 | 232.208 | 15.985 | 1706.669 | 0.77% | 92.12% |
| 36.0 | 196.208 | 13.641 | 1720.309 | 0.65% | 92.86% |
| 37.0 | 134.855 | 10.797 | 1731.107 | 0.52% | 93.44% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 38.0 | 110.520 | 8.190 | 1739.297 | 0.39% | 93.88% |
| 39.0 | 95.008 | 7.015 | 1746.312 | 0.34% | 94.26% |
| 40.0 | 82.857 | 6.203 | 1752.516 | 0.30% | 94.60% |
| 41.0 | 73.427 | 5.565 | 1758.081 | 0.27% | 94.90% |
| 42.0 | 64.985 | 5.029 | 1763.11 | 0.24% | 95.17% |
| 43.0 | 58.045 | 4.557 | 1767.667 | 0.22% | 95.42% |
| 44.0 | 52.012 | 4.154 | 1771.821 | 0.20% | 95.64% |
| 45.0 | 47.189 | 3.812 | 1775.633 | 0.18% | 95.85% |
| 46.0 | 42.816 | 3.520 | 1779.153 | 0.17% | 96.04% |
| 47.0 | 39.045 | 3.256 | 1782.409 | 0.16% | 96.21% |
| 48.0 | 36.118 | 3.038 | 1785.447 | 0.15% | 96.38% |
| 49.0 | 33.676 | 2.866 | 1788.314 | 0.14% | 96.53% |
| 50.0 | 31.448 | 2.715 | 1791.029 | 0.13% | 96.68% |
| 51.0 | 29.649 | 2.585 | 1793.614 | 0.12% | 96.82% |
| 52.0 | 27.947 | 2.471 | 1796.085 | 0.12% | 96.95% |
| 53.0 | 26.445 | 2.366 | 1798.451 | 0.11% | 97.08% |
| 54.0 | 25.200 | 2.276 | 1800.727 | 0.11% | 97.20% |
| 55.0 | 23.975 | 2.195 | 1802.923 | 0.11% | 97.32% |
| 56.0 | 22.979 | 2.122 | 1805.044 | 0.10% | 97.43% |
| 57.0 | 21.989 | 2.056 | 1807.1 | 0.10% | 97.54% |
| 58.0 | 21.131 | 1.994 | 1809.094 | 0.10% | 97.65% |
| 59.0 | 20.329 | 1.938 | 1811.033 | 0.09% | 97.76% |
| 60.0 | 19.581 | 1.885 | 1812.918 | 0.09% | 97.86% |
| 61.0 | 18.903 | 1.837 | 1814.755 | 0.09% | 97.96% |
| 62.0 | 18.225 | 1.789 | 1816.544 | 0.09% | 98.05% |
| 63.0 | 17.658 | 1.745 | 1818.289 | 0.08% | 98.15% |
| 64.0 | 17.070 | 1.704 | 1819.993 | 0.08% | 98.24% |
| 65.0 | 16.544 | 1.664 | 1821.656 | 0.08% | 98.33% |
| 66.0 | 15.997 | 1.624 | 1823.28 | 0.08% | 98.42% |
| 67.0 | 15.554 | 1.587 | 1824.867 | 0.08% | 98.50% |
| 68.0 | 15.084 | 1.552 | 1826.419 | 0.07% | 98.59% |
| 69.0 | 14.655 | 1.517 | 1827.936 | 0.07% | 98.67% |
| 70.0 | 14.240 | 1.484 | 1829.42 | 0.07% | 98.75% |
| 71.0 | 13.797 | 1.449 | 1830.869 | 0.07% | 98.83% |
| 72.0 | 13.437 | 1.416 | 1832.285 | 0.07% | 98.90% |
| 73.0 | 13.050 | 1.385 | 1833.67 | 0.07% | 98.98% |
| 74.0 | 12.648 | 1.351 | 1835.021 | 0.06% | 99.05% |
| 75.0 | 12.275 | 1.317 | 1836.338 | 0.06% | 99.12% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 76.0 | 11.922 | 1.284 | 1837.622 | 0.06% | 99.19% |
| 77.0 | 11.811 | 1.265 | 1838.888 | 0.06% | 99.26% |
| 78.0 | 11.534 | 1.250 | 1840.137 | 0.06% | 99.33% |
| 79.0 | 10.918 | 1.206 | 1841.344 | 0.06% | 99.39% |
| 80.0 | 10.593 | 1.160 | 1842.503 | 0.06% | 99.45% |
| 81.0 | 10.323 | 1.131 | 1843.634 | 0.05% | 99.52% |
| 82.0 | 10.047 | 1.105 | 1844.739 | 0.05% | 99.58% |
| 83.0 | 9.811 | 1.080 | 1845.819 | 0.05% | 99.63% |
| 84.0 | 9.555 | 1.055 | 1846.874 | 0.05% | 99.69% |
| 85.0 | 9.272 | 1.028 | 1847.901 | 0.05% | 99.75% |
| 86.0 | 8.947 | 0.996 | 1848.897 | 0.05% | 99.80% |
| 87.0 | 8.635 | 0.962 | 1849.859 | 0.05% | 99.85% |
| 88.0 | 8.476 | 0.937 | 1850.797 | 0.04% | 99.90% |
| 89.0 | 8.165 | 0.912 | 1851.709 | 0.04% | 99.95% |
| 90.0 | 8.144 | 0.894 | 1852.603 | 0.04% | 100.00% |

## Zonal flux distribution table



ZONAL LUMEN SUMMARY

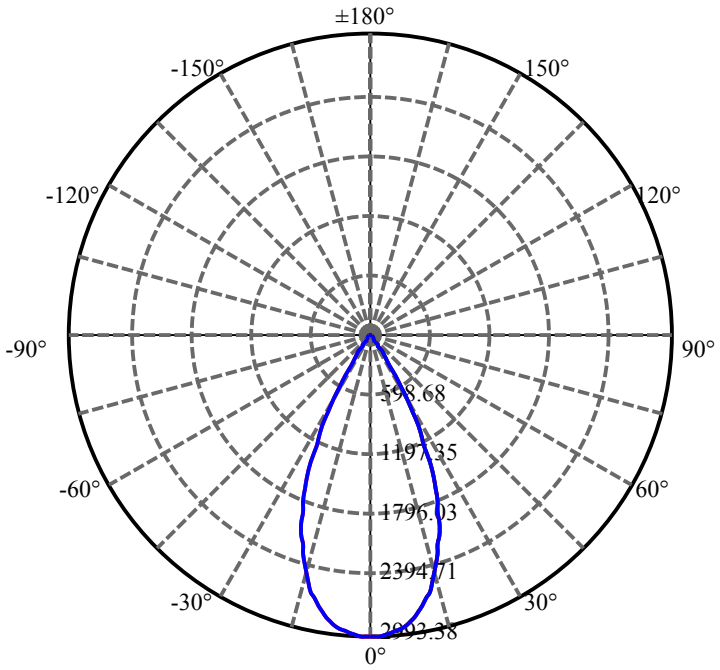
| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-30 | 1579.00 | 75.72% | 85.23% |
| 0-40 | 1752.52 | 84.04% | 94.60% |
| 0-60 | 1812.92 | 86.94% | 97.86% |
| 0-90 | 1851.71 | 88.80% | 99.95% |
| 0-120 | 1851.71 | 88.80% | 99.95% |
| 0-180 | 1852.60 | 88.84% | 100.00% |
| 60-90 | 38.79 | 1.86% | 2.09% |
| 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% |
| 0-27.91 | 1482.08 | 71.07% | 80.00% |

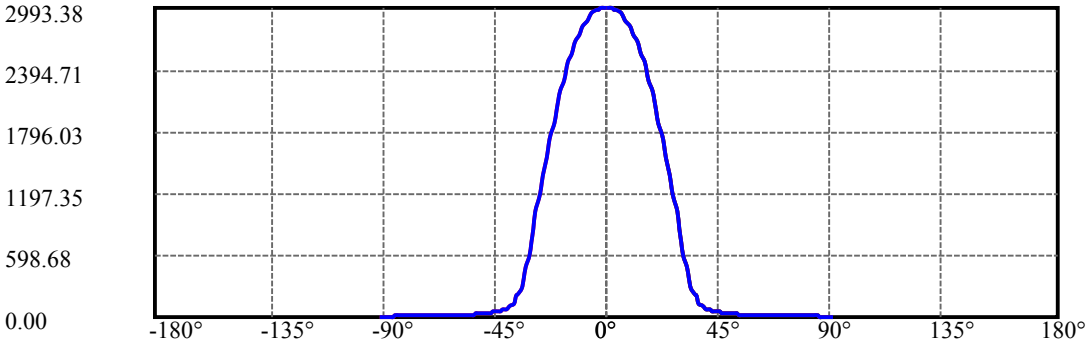
ZONAL LUMEN SUMMARY

| | |
|---|---|
| 0-10 | 276.58 |
| 10-20 | 678.62 |
| 20-30 | 623.80 |
| 30-40 | 173.51 |
| 40-50 | 38.51 |
| 50-60 | 21.89 |
| 60-70 | 16.50 |
| 70-80 | 13.08 |
| 80-90 | 9.21 |
| 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:

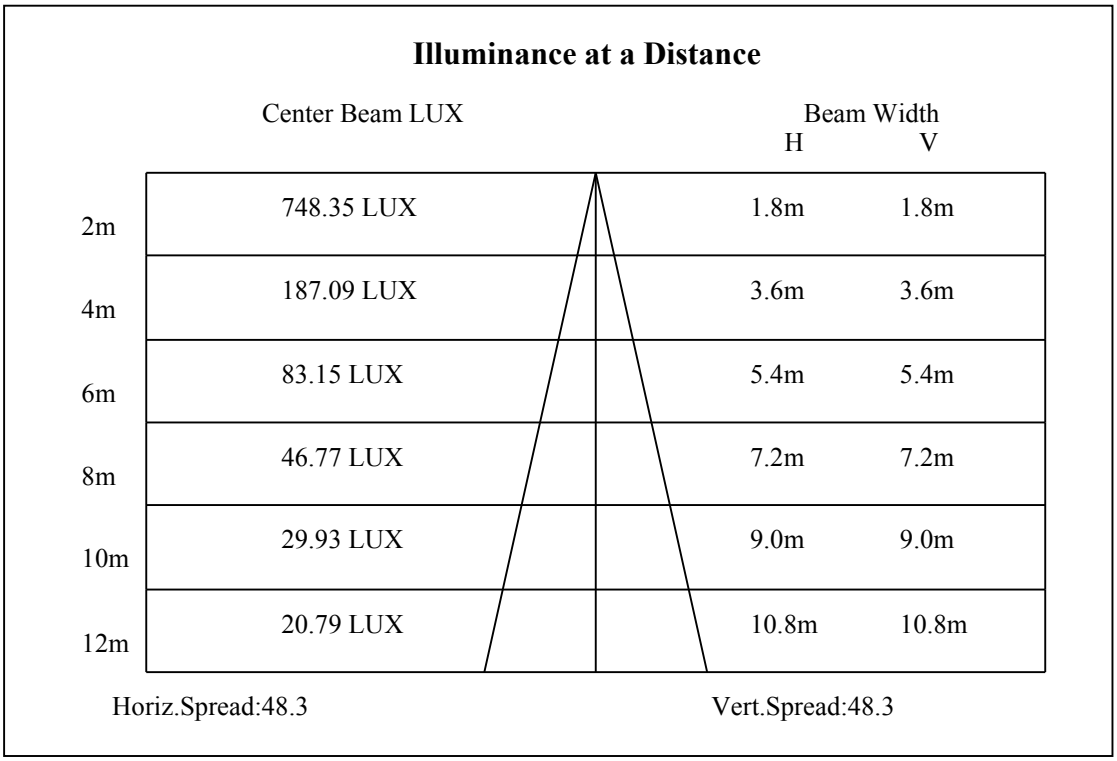
C90/C270:

Field angle(10%Imax):C0/180Left:33.8 Right:33.8
:C90/270Left:33.8 Right:33.8

Beam Angle(50%Imax):C0/180Left:24.3 Right:24.3
:C90/270Left:24.3 Right:24.3

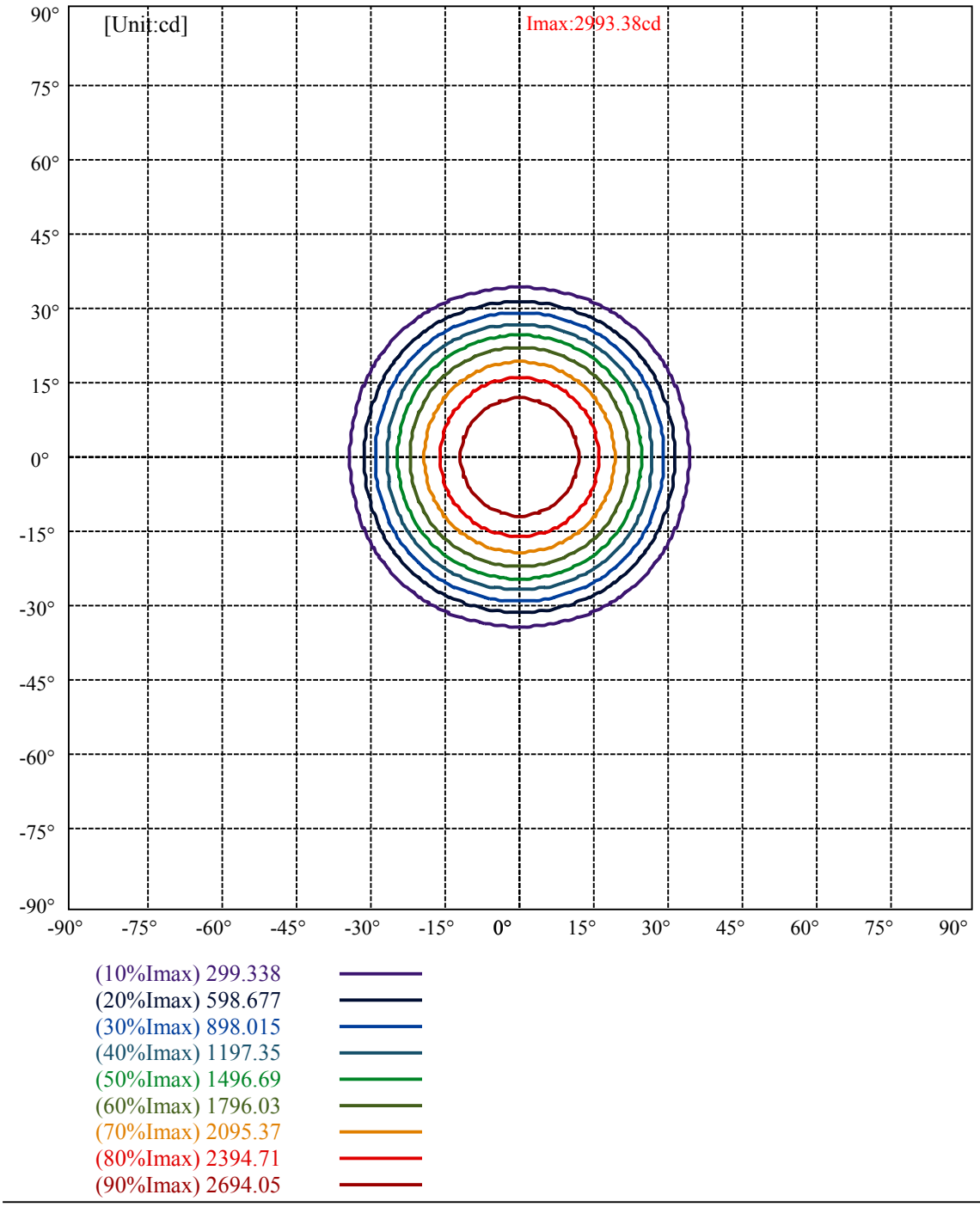
Lux distance Curve





ISO-Intensity(V-H)





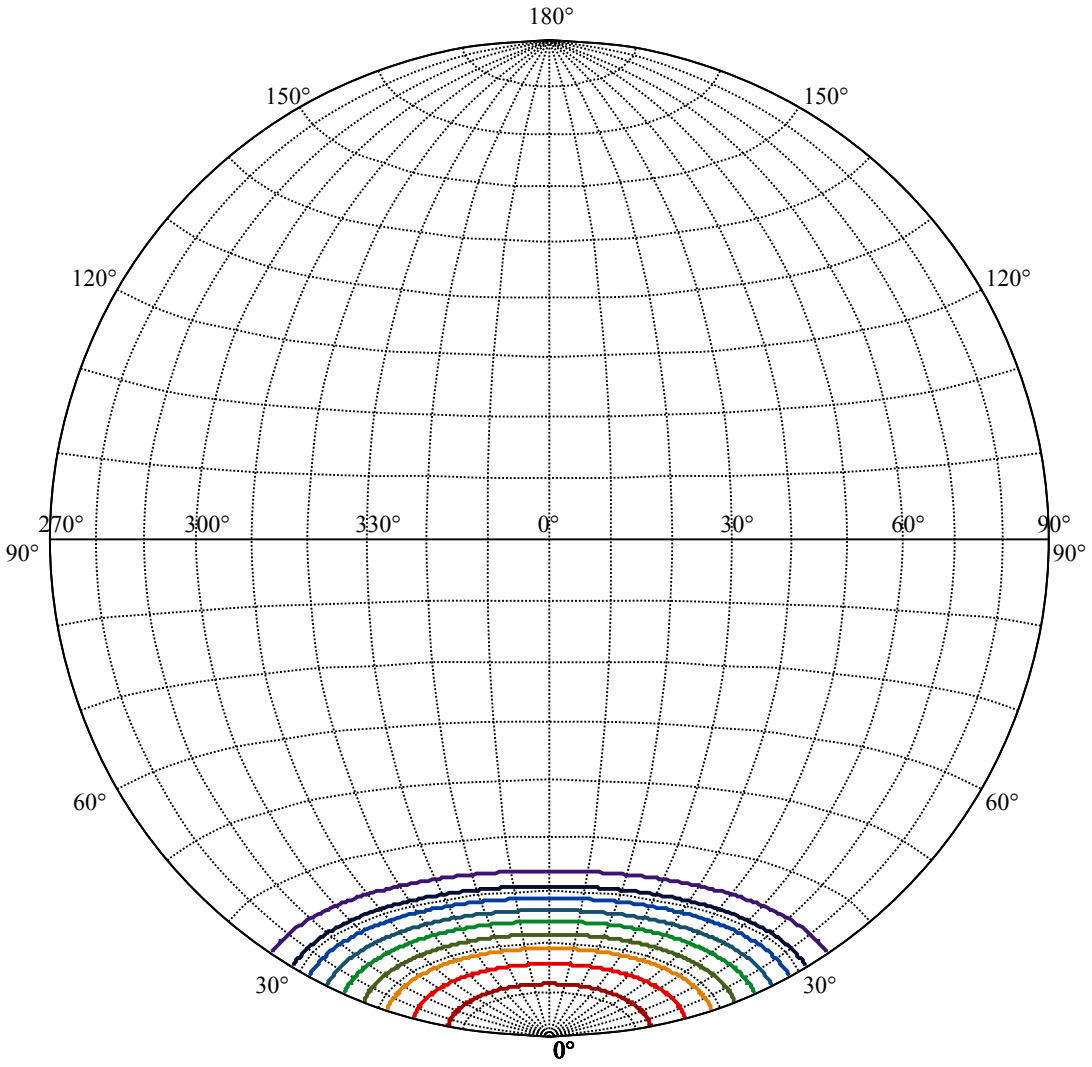

Equipment: GMS1980
Temperature(°C): 0.0

Date: 2023/11/20
Humidity(%): 0.0%

Operator: NT07
Distance(m): 7.44

## ISO candela diagram on circular web





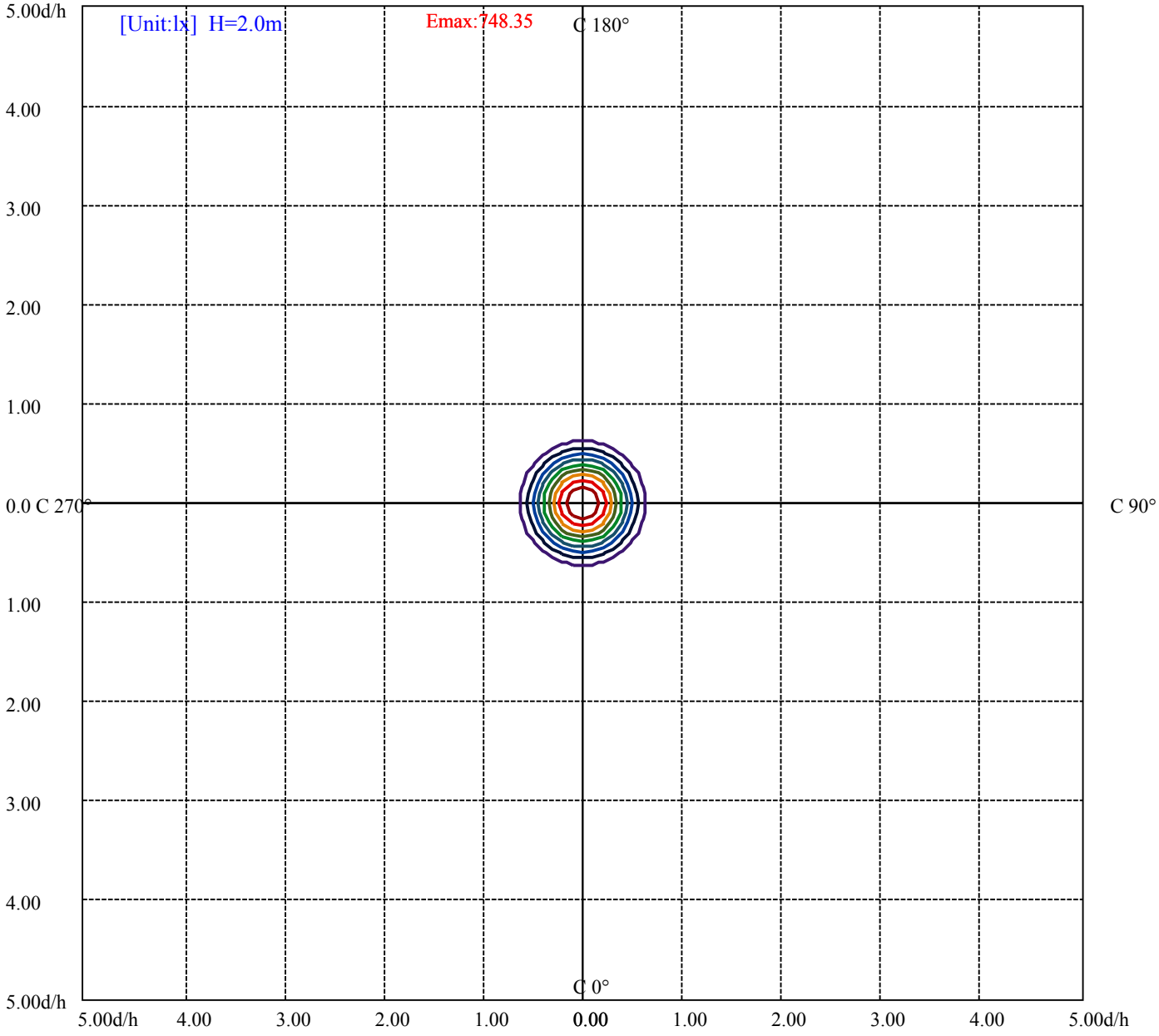

House [Unit:cd] Road

Imax:2993.38

(10%Imax) 299.338
(20%Imax) 598.677
(30%Imax) 898.015
(40%Imax) 1197.35
(50%Imax) 1496.69
(60%Imax) 1796.03
(70%Imax) 2095.37
(80%Imax) 2394.71
(90%Imax) 2694.05

## ISO illuminance diagram



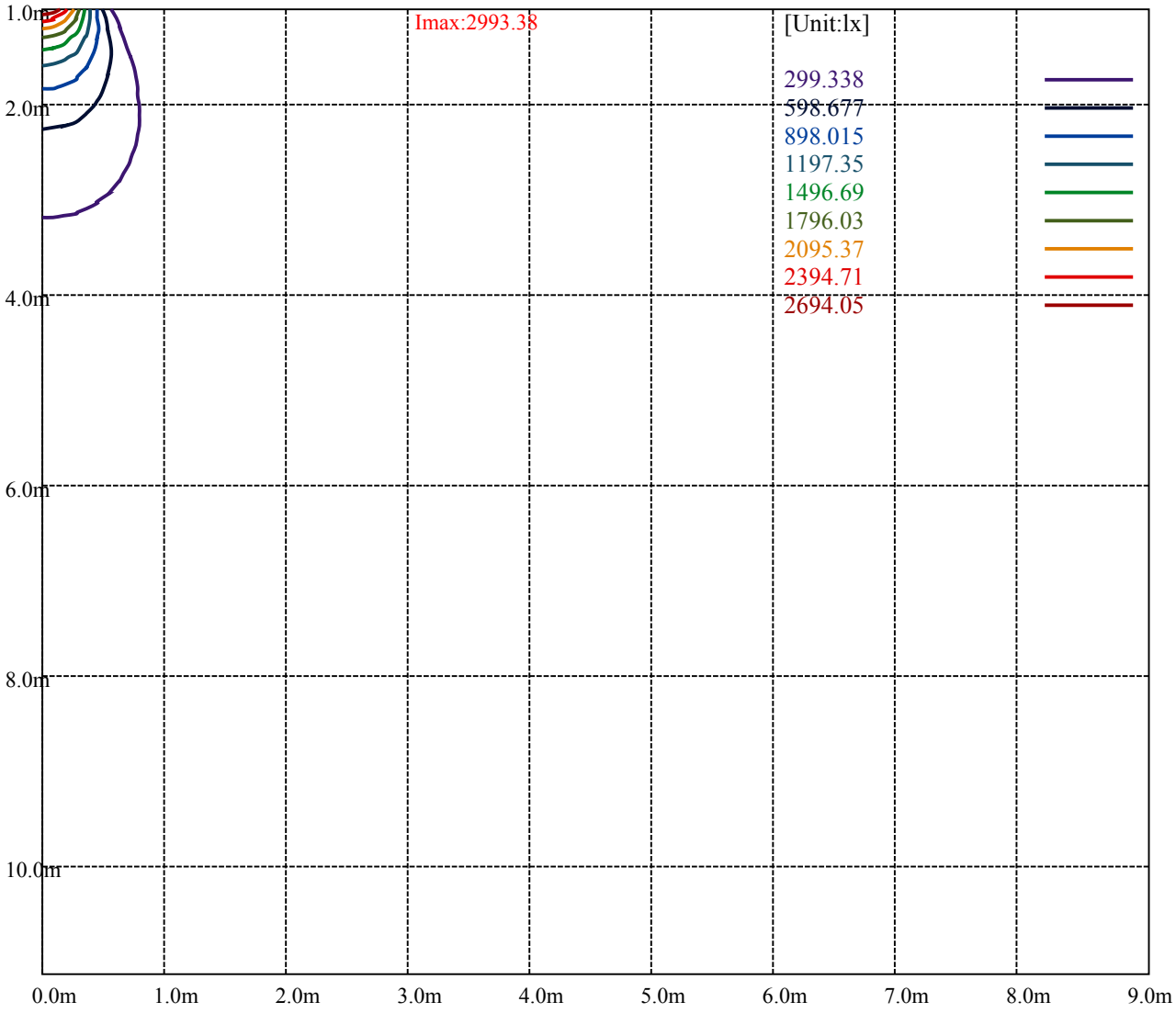



(10%Emax) 74.8345
(20%Emax) 149.6693
(30%Emax) 224.5038
(40%Emax) 299.3375
(50%Emax) 374.1725
(60%Emax) 449.0075
(70%Emax) 523.8425
(80%Emax) 598.6775
(90%Emax) 673.5125

Equipment: GMS1980
Temperature(°C): 0.0
Date: 2023/11/20
Humidity(%): 0.0%
Operator: NT07
Distance(m): 7.44

Space ISO Lux diagram






Equipment: GMS1980
Temperature(°C): 0.0

Date: 2023/11/20
Humidity(%): 0.0%

Operator: NT07
Distance(m): 7.44

## Luminance Limitting Curve(no luminous side)



Luminance Table

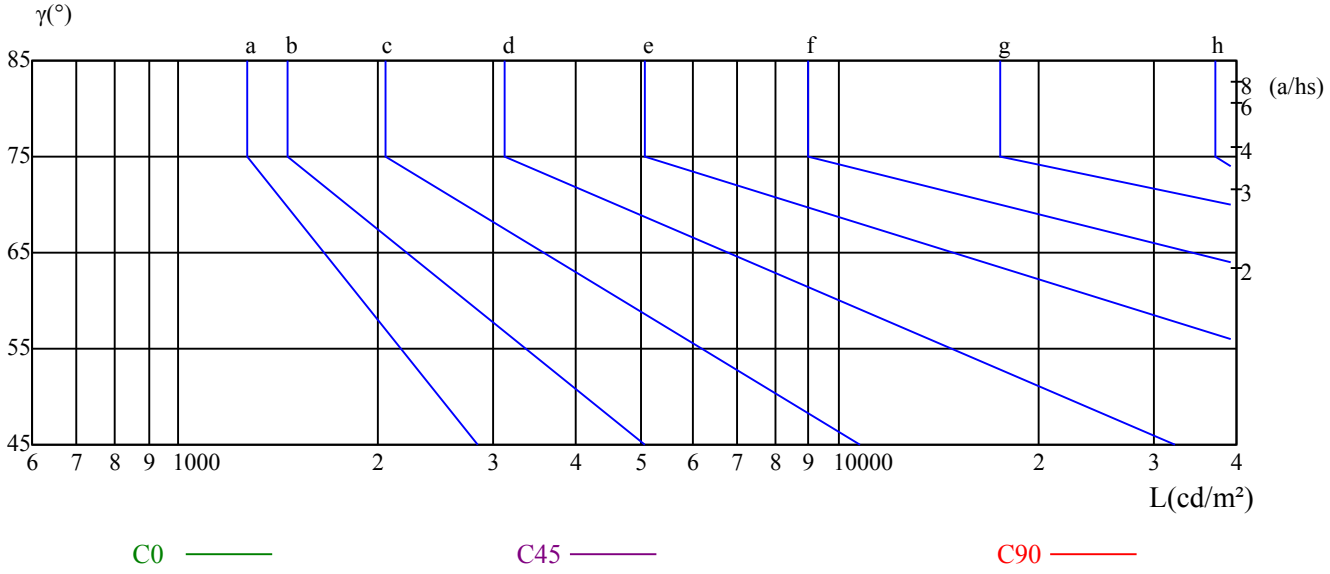
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|---|---|---|---|---|---|---|---|---|---|
| C0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 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

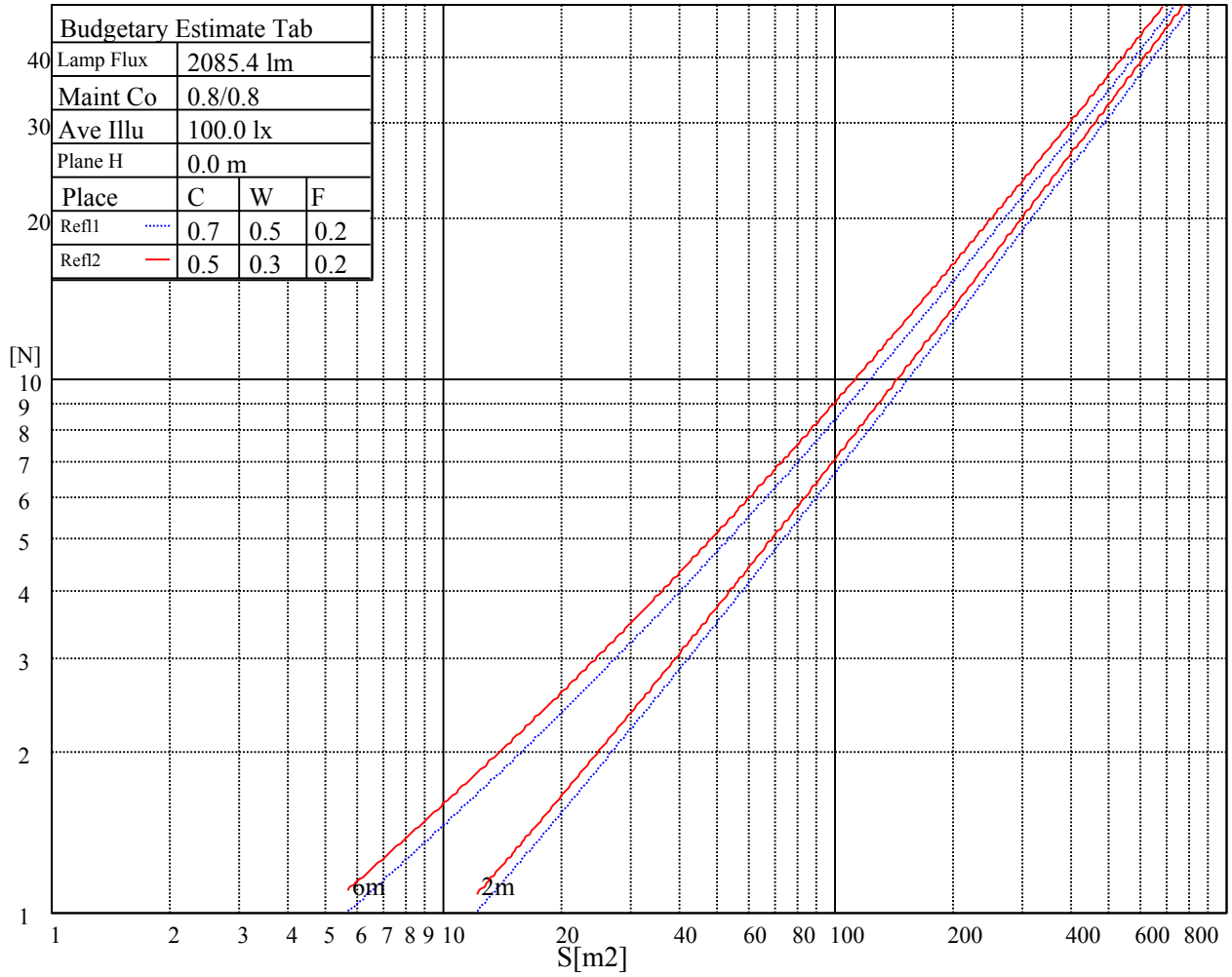


| Illumination assessment according UGR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rf of Ceiling | | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 |
| Rf of Wall | | 50 | 30 | 50 | 30 | 30 | 50 | 30 | 50 | 30 | 30 |
| Rf of Floor | | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 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: 2023/11/20 Operator: NT07
Temperature(°C): 0.0 Humidity(%): 0.0% Distance(m): 7.44

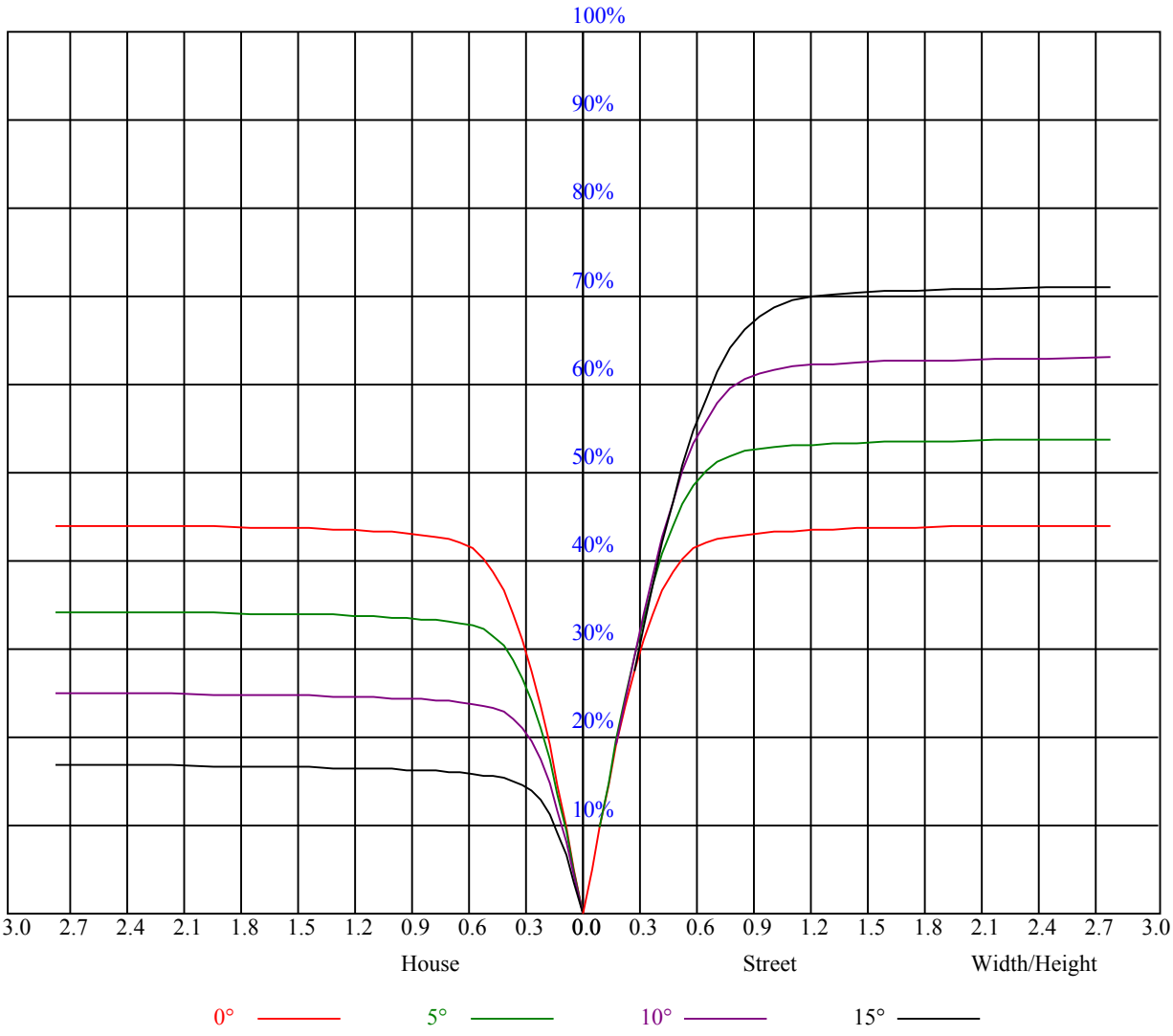
# Utilization factor table for indoor luminaire



| 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 | 1.06 | 1.06 | 1.06 | 1.03 | 1.03 | 1.03 | 0.99 | 0.99 | 0.99 | 0.95 | 0.95 | 0.95 | 0.91 | 0.91 | 0.91 | 0.89 |
| 1 | 0.99 | 0.96 | 0.95 | 0.97 | 0.95 | 0.93 | 0.93 | 0.92 | 0.90 | 0.90 | 0.89 | 0.87 | 0.87 | 0.86 | 0.85 | 0.83 |
| 2 | 0.92 | 0.89 | 0.86 | 0.91 | 0.88 | 0.85 | 0.88 | 0.85 | 0.83 | 0.85 | 0.83 | 0.82 | 0.83 | 0.81 | 0.80 | 0.78 |
| 3 | 0.87 | 0.83 | 0.79 | 0.86 | 0.82 | 0.79 | 0.83 | 0.80 | 0.78 | 0.81 | 0.79 | 0.76 | 0.79 | 0.77 | 0.75 | 0.74 |
| 4 | 0.82 | 0.77 | 0.74 | 0.81 | 0.77 | 0.74 | 0.79 | 0.76 | 0.73 | 0.77 | 0.74 | 0.72 | 0.76 | 0.73 | 0.71 | 0.70 |
| 5 | 0.78 | 0.73 | 0.69 | 0.77 | 0.72 | 0.69 | 0.75 | 0.71 | 0.68 | 0.74 | 0.70 | 0.68 | 0.72 | 0.70 | 0.67 | 0.66 |
| 6 | 0.74 | 0.69 | 0.65 | 0.73 | 0.68 | 0.65 | 0.72 | 0.68 | 0.65 | 0.70 | 0.67 | 0.64 | 0.69 | 0.66 | 0.64 | 0.63 |
| 7 | 0.70 | 0.65 | 0.62 | 0.69 | 0.65 | 0.62 | 0.68 | 0.64 | 0.61 | 0.67 | 0.64 | 0.61 | 0.66 | 0.63 | 0.61 | 0.59 |
| 8 | 0.67 | 0.62 | 0.59 | 0.66 | 0.62 | 0.58 | 0.65 | 0.61 | 0.58 | 0.64 | 0.61 | 0.58 | 0.63 | 0.60 | 0.58 | 0.57 |
| 9 | 0.64 | 0.59 | 0.56 | 0.63 | 0.59 | 0.56 | 0.62 | 0.58 | 0.55 | 0.62 | 0.58 | 0.55 | 0.61 | 0.57 | 0.55 | 0.54 |
| 10 | 0.61 | 0.56 | 0.53 | 0.60 | 0.56 | 0.53 | 0.60 | 0.56 | 0.53 | 0.59 | 0.55 | 0.53 | 0.58 | 0.55 | 0.52 | 0.51 |

## Coefficient Utilization Curve






| | | |
|---|---|---|
| Equipment: GMS1980 | Date: 2023/11/20 | 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 | 2974.15 | 2964.74 | 2956.44 | 2954.78 | 2943.70 | 2922.12 | 2892.78 | 2857.35 | 2812.52 |
| 45.0 | 2989.09 | 2979.68 | 2985.77 | 2978.58 | 2968.61 | 2954.78 | 2943.70 | 2918.24 | 2885.58 |
| 90.0 | 3004.59 | 3014.56 | 3002.38 | 2992.97 | 2982.45 | 2963.63 | 2934.85 | 2901.64 | 2854.59 |
| 135.0 | 3005.70 | 3015.11 | 3018.43 | 3005.15 | 2992.42 | 2970.27 | 2944.26 | 2923.78 | 2896.10 |
| 180.0 | 2974.15 | 2983.56 | 2983.56 | 2980.79 | 2971.93 | 2963.63 | 2956.99 | 2948.13 | 2922.67 |
| 225.0 | 2989.09 | 2981.90 | 2979.68 | 2963.63 | 2945.92 | 2934.29 | 2923.78 | 2895.55 | 2866.21 |
| 270.0 | 3004.59 | 3000.72 | 2994.08 | 2979.13 | 2958.10 | 2945.37 | 2930.97 | 2907.72 | 2872.85 |
| 315.0 | 3005.70 | 3000.17 | 2989.09 | 2975.81 | 2961.42 | 2938.17 | 2911.05 | 2890.01 | 2854.03 |
| 360.0 | 2974.15 | 2964.74 | 2956.44 | 2954.78 | 2943.70 | 2922.12 | 2892.78 | 2857.35 | 2812.52 |

| C/γ(°) | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 17.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 2768.79 | 2728.38 | 2671.92 | 2588.89 | 2518.04 | 2448.84 | 2340.90 | 2246.80 | 2133.88 |
| 45.0 | 2846.28 | 2806.43 | 2744.43 | 2683.54 | 2625.97 | 2535.75 | 2462.13 | 2385.74 | 2271.71 |
| 90.0 | 2816.39 | 2768.79 | 2699.04 | 2630.96 | 2561.76 | 2463.79 | 2380.76 | 2292.19 | 2203.63 |
| 135.0 | 2856.80 | 2811.96 | 2771.00 | 2718.97 | 2664.72 | 2602.17 | 2525.23 | 2416.74 | 2330.94 |
| 180.0 | 2889.46 | 2849.60 | 2816.39 | 2777.64 | 2722.29 | 2670.26 | 2612.14 | 2541.28 | 2439.43 |
| 225.0 | 2828.02 | 2793.70 | 2737.24 | 2681.33 | 2622.10 | 2568.41 | 2484.82 | 2405.67 | 2296.07 |
| 270.0 | 2835.21 | 2802.55 | 2761.59 | 2696.27 | 2634.83 | 2576.71 | 2514.71 | 2421.17 | 2338.14 |
| 315.0 | 2803.66 | 2756.61 | 2704.58 | 2645.90 | 2568.41 | 2497.00 | 2402.35 | 2326.51 | 2245.14 |
| 360.0 | 2768.79 | 2728.38 | 2671.92 | 2588.89 | 2518.04 | 2448.84 | 2340.90 | 2246.80 | 2133.88 |

| C/γ(°) | 18.0 | 19.0 | 20.0 | 21.0 | 22.0 | 23.0 | 24.0 | 25.0 | 26.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 2033.69 | 1945.13 | 1837.74 | 1707.66 | 1599.72 | 1490.67 | 1378.86 | 1076.57 | 1076.57 |
| 45.0 | 2190.90 | 2106.20 | 1993.84 | 1895.31 | 1794.01 | 1691.05 | 1560.42 | 1443.62 | 1324.61 |
| 90.0 | 2091.81 | 1993.84 | 1899.74 | 1798.99 | 1673.89 | 1562.08 | 1423.14 | 1102.75 | 1102.75 |
| 135.0 | 2245.70 | 2136.10 | 2045.32 | 1925.20 | 1826.67 | 1722.05 | 1610.24 | 1474.07 | 1356.16 |
| 180.0 | 2352.53 | 2243.48 | 2147.17 | 2053.07 | 1931.84 | 1828.33 | 1717.07 | 1605.81 | 1464.66 |
| 225.0 | 2204.73 | 2107.87 | 1986.09 | 1885.34 | 1784.60 | 1652.86 | 1541.04 | 1425.36 | 1103.64 |
| 270.0 | 2258.98 | 2177.61 | 2057.49 | 1966.71 | 1870.95 | 1767.44 | 1637.36 | 1528.87 | 1385.50 |
| 315.0 | 2134.99 | 2037.01 | 1936.82 | 1840.51 | 1715.96 | 1611.34 | 1509.49 | 1395.46 | 1100.60 |
| 360.0 | 2033.69 | 1945.13 | 1837.74 | 1707.66 | 1599.72 | 1490.67 | 1378.86 | 1076.57 | 1076.57 |

| C/γ(°) | 27.0 | 28.0 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 | 34.0 | 35.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 942.51 | 818.57 | 661.86 | 550.16 | 422.46 | 329.80 | 251.80 | 177.91 | 141.76 |
| 45.0 | 1190.66 | 1020.72 | 882.34 | 716.28 | 589.52 | 474.93 | 374.74 | 289.50 | 289.50 |
| 90.0 | 997.97 | 866.23 | 737.48 | 615.20 | 474.66 | 375.57 | 291.10 | 223.79 | 163.79 |
| 135.0 | 1223.87 | 1087.70 | 916.10 | 786.57 | 660.37 | 546.89 | 417.92 | 326.59 | 286.73 |
| 180.0 | 1349.52 | 1216.12 | 1082.72 | 910.01 | 778.27 | 647.08 | 501.50 | 397.44 | 305.55 |
| 225.0 | 1103.64 | 1003.95 | 865.01 | 726.02 | 564.44 | 447.53 | 325.20 | 248.93 | 190.14 |
| 270.0 | 1264.83 | 1128.11 | 954.85 | 817.57 | 684.72 | 559.07 | 423.46 | 332.12 | 292.27 |
| 315.0 | 1100.60 | 967.47 | 802.79 | 676.59 | 559.79 | 431.87 | 340.48 | 263.76 | 187.93 |
| 360.0 | 942.51 | 818.57 | 661.86 | 550.16 | 422.46 | 329.80 | 251.80 | 177.91 | 141.76 |

| C/γ(°) | 36.0 | 37.0 | 38.0 | 39.0 | 40.0 | 41.0 | 42.0 | 43.0 | 44.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 119.29 | 99.14 | 86.68 | 76.55 | 68.08 | 61.39 | 54.08 | 49.04 | 44.62 |
| 45.0 | 158.53 | 124.77 | 107.39 | 93.38 | 79.99 | 70.74 | 63.27 | 57.07 | 50.32 |
| 90.0 | 134.29 | 114.69 | 99.58 | 85.13 | 75.78 | 65.98 | 59.28 | 53.58 | 47.49 |
| 135.0 | 286.73 | 141.21 | 114.80 | 99.19 | 87.40 | 77.38 | 67.31 | 60.56 | 54.69 |
| 180.0 | 285.62 | 202.54 | 133.79 | 110.43 | 95.71 | 84.30 | 72.57 | 64.71 | 58.01 |
| 225.0 | 143.14 | 121.06 | 105.01 | 92.05 | 79.16 | 70.30 | 62.83 | 56.35 | 49.60 |
| 270.0 | 292.27 | 148.74 | 127.48 | 110.71 | 94.88 | 84.36 | 75.11 | 65.59 | 59.12 |
| 315.0 | 149.79 | 126.70 | 109.43 | 92.61 | 81.87 | 72.96 | 65.43 | 57.46 | 52.25 |
| 360.0 | 119.29 | 99.14 | 86.68 | 76.55 | 68.08 | 61.39 | 54.08 | 49.04 | 44.62 |

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 | 39.97 | 36.87 | 33.82 | 31.77 | 30.06 | 28.06 | 26.68 | 25.46 | 24.30 |
| 45.0 | 45.78 | 41.96 | 37.70 | 34.98 | 32.71 | 30.33 | 28.67 | 27.18 | 25.57 |
| 90.0 | 43.45 | 39.97 | 37.03 | 33.99 | 31.99 | 30.22 | 28.62 | 26.90 | 25.63 |
| 135.0 | 49.71 | 44.45 | 40.80 | 37.81 | 34.76 | 32.66 | 30.78 | 28.73 | 27.34 |
| 180.0 | 52.31 | 47.38 | 42.12 | 38.64 | 35.87 | 32.99 | 31.05 | 28.84 | 27.34 |
| 225.0 | 45.06 | 41.13 | 37.31 | 34.71 | 32.55 | 30.17 | 28.51 | 27.07 | 25.46 |
| 270.0 | 53.53 | 47.77 | 43.78 | 40.46 | 37.14 | 34.82 | 32.77 | 30.89 | 28.78 |
| 315.0 | 47.71 | 43.01 | 39.80 | 36.59 | 34.32 | 32.33 | 30.11 | 28.51 | 27.12 |
| 360.0 | 39.97 | 36.87 | 33.82 | 31.77 | 30.06 | 28.06 | 26.68 | 25.46 | 24.30 |

| C/γ(°) | 54.0 | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 23.30 | 22.14 | 21.26 | 20.54 | 19.82 | 18.99 | 18.38 | 17.82 | 17.16 |
| 45.0 | 24.47 | 23.47 | 22.47 | 21.42 | 20.65 | 19.98 | 19.26 | 18.54 | 17.93 |
| 90.0 | 24.47 | 23.19 | 22.25 | 21.20 | 20.43 | 19.76 | 18.93 | 18.32 | 17.77 |
| 135.0 | 25.79 | 24.69 | 23.69 | 22.75 | 21.70 | 20.92 | 20.15 | 19.48 | 18.65 |
| 180.0 | 26.07 | 24.58 | 23.53 | 22.58 | 21.70 | 20.92 | 20.04 | 19.37 | 18.76 |
| 225.0 | 24.30 | 23.30 | 22.36 | 21.37 | 20.54 | 19.87 | 19.21 | 18.43 | 17.88 |
| 270.0 | 27.34 | 26.07 | 24.91 | 23.58 | 22.64 | 21.59 | 20.81 | 20.09 | 19.21 |
| 315.0 | 25.85 | 24.36 | 23.36 | 22.47 | 21.59 | 20.59 | 19.87 | 19.15 | 18.43 |
| 360.0 | 23.30 | 22.14 | 21.26 | 20.54 | 19.82 | 18.99 | 18.38 | 17.82 | 17.16 |

| C/γ(°) | 63.0 | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 16.66 | 16.11 | 15.67 | 15.22 | 14.72 | 14.34 | 13.95 | 13.62 | 13.12 |
| 45.0 | 17.44 | 16.77 | 16.27 | 15.78 | 15.39 | 14.95 | 14.56 | 14.06 | 13.67 |
| 90.0 | 17.21 | 16.61 | 16.16 | 15.67 | 15.28 | 14.72 | 14.34 | 13.95 | 13.45 |
| 135.0 | 18.16 | 17.60 | 16.99 | 16.44 | 15.94 | 15.39 | 14.95 | 14.56 | 14.00 |
| 180.0 | 18.10 | 17.55 | 16.99 | 16.38 | 15.94 | 15.50 | 15.00 | 14.61 | 14.12 |
| 225.0 | 17.27 | 16.66 | 16.22 | 15.61 | 15.22 | 14.83 | 14.34 | 13.95 | 13.62 |
| 270.0 | 18.60 | 17.99 | 17.44 | 16.77 | 16.33 | 15.89 | 15.50 | 15.00 | 14.61 |
| 315.0 | 17.82 | 17.27 | 16.61 | 16.11 | 15.61 | 15.06 | 14.61 | 14.17 | 13.78 |
| 360.0 | 16.66 | 16.11 | 15.67 | 15.22 | 14.72 | 14.34 | 13.95 | 13.62 | 13.12 |

| C/γ(°) | 72.0 | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 12.79 | 12.45 | 12.07 | 11.68 | 11.35 | 11.02 | 10.74 | 10.35 | 10.02 |
| 45.0 | 13.34 | 13.01 | 12.57 | 12.23 | 11.90 | 11.51 | 11.24 | 10.90 | 10.52 |
| 90.0 | 13.12 | 12.79 | 12.34 | 12.01 | 11.68 | 11.29 | 10.96 | 10.68 | 10.41 |
| 135.0 | 13.67 | 13.28 | 12.90 | 12.45 | 12.12 | 11.79 | 11.51 | 11.07 | 10.85 |
| 180.0 | 13.73 | 13.40 | 12.95 | 12.62 | 12.18 | 11.79 | 11.51 | 11.18 | 10.79 |
| 225.0 | 13.28 | 12.79 | 12.45 | 12.12 | 11.79 | 11.51 | 11.18 | 10.79 | 10.46 |
| 270.0 | 14.23 | 13.73 | 13.28 | 12.84 | 12.51 | 14.00 | 13.89 | 11.46 | 11.07 |
| 315.0 | 13.34 | 12.95 | 12.62 | 12.23 | 11.85 | 11.57 | 11.24 | 10.90 | 10.63 |
| 360.0 | 12.79 | 12.45 | 12.07 | 11.68 | 11.35 | 11.02 | 10.74 | 10.35 | 10.02 |

| C/γ(°) | 81.0 | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 9.80 | 9.58 | 9.35 | 8.91 | 8.69 | 8.52 | 8.36 | 8.19 | 7.97 |
| 45.0 | 10.24 | 9.96 | 9.63 | 9.41 | 8.97 | 8.75 | 8.52 | 8.41 | 8.25 |
| 90.0 | 10.07 | 9.74 | 9.52 | 9.35 | 8.86 | 8.64 | 8.47 | 8.36 | 8.03 |
| 135.0 | 10.63 | 10.30 | 9.96 | 9.69 | 9.47 | 8.91 | 8.75 | 8.64 | 8.14 |
| 180.0 | 10.57 | 10.24 | 10.13 | 9.85 | 9.63 | 9.41 | 9.02 | 8.69 | 8.47 |
| 225.0 | 10.24 | 10.02 | 9.80 | 9.63 | 9.47 | 9.02 | 8.69 | 8.36 | 8.30 |
| 270.0 | 10.79 | 10.46 | 10.30 | 10.02 | 9.74 | 9.58 | 8.75 | 8.69 | 8.14 |
| 315.0 | 10.24 | 10.07 | 9.80 | 9.58 | 9.35 | 8.75 | 8.52 | 8.47 | 8.03 |
| 360.0 | 9.80 | 9.58 | 9.35 | 8.91 | 8.69 | 8.52 | 8.36 | 8.19 | 7.97 |

Intensity data(cd)



| C/γ(°) | 90.0 |
|---|---|
| 0.0 | 7.92 |
| 45.0 | 8.08 |
| 90.0 | 7.97 |
| 135.0 | 8.08 |
| 180.0 | 8.25 |
| 225.0 | 8.58 |
| 270.0 | 8.25 |
| 315.0 | 8.03 |
| 360.0 | 7.92 |