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## NATA

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Client:

LumCAT: 2-2646-L

Luminaire: 92.70.411.00

Report No: 20231019-B006

Ballast type: AC

Test No: 20231019-C006

Voltage(V): 34.160

LampCAT: NICHIA NFCWJ120B-V3

Current(A): 0.577

Lamp flux(lm): 2611.4

Power (W): 19.710

Number of Lamps: 1

PF: 0.000

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

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## Photometric Results

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Lumens(lm): 2386.21, Efficiency(%): 91.38% , Luminous Efficacy(lm/W): 121.07

Central intensity(cd): 4154.149, Maximum intensity(cd): 4154.149

Angle of maximum intensity: C=0.0  $\gamma$ =0.0

Beam Angle(50%Imax): [C0/180]Total=47.0

[C90/270]Total=47.0

Field angle(10%Imax): [C0/180]Total=66.8

[C90/270]Total=66.8

Maximum s/h(1/2): C0\_180=0.74 C90\_270=0.74

Maximum s/h(1/4): C0\_180=0.72 C90\_270=0.72

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 91.38%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 98.036%

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 4154.149      | 0.000       | 0         | 0.00%       | 0.00%      |
| 1.0                | 4142.110      | 3.970       | 3.97      | 0.15%       | 0.17%      |
| 2.0                | 4111.735      | 11.847      | 15.816    | 0.45%       | 0.66%      |
| 3.0                | 4068.905      | 19.565      | 35.382    | 0.75%       | 1.48%      |
| 4.0                | 4019.571      | 27.075      | 62.456    | 1.04%       | 2.62%      |
| 5.0                | 3962.003      | 34.336      | 96.793    | 1.31%       | 4.06%      |
| 6.0                | 3902.982      | 41.333      | 138.125   | 1.58%       | 5.79%      |
| 7.0                | 3836.766      | 48.040      | 186.166   | 1.84%       | 7.80%      |
| 8.0                | 3767.020      | 54.419      | 240.585   | 2.08%       | 10.08%     |
| 9.0                | 3699.696      | 60.514      | 301.098   | 2.32%       | 12.62%     |
| 10.0               | 3629.051      | 66.322      | 367.421   | 2.54%       | 15.40%     |
| 11.0               | 3552.386      | 71.757      | 439.178   | 2.75%       | 18.40%     |
| 12.0               | 3470.532      | 76.771      | 515.949   | 2.94%       | 21.62%     |
| 13.0               | 3385.426      | 81.363      | 597.312   | 3.12%       | 25.03%     |
| 14.0               | 3294.300      | 85.500      | 682.812   | 3.27%       | 28.61%     |
| 15.0               | 3200.891      | 89.169      | 771.98    | 3.41%       | 32.35%     |
| 16.0               | 3089.907      | 92.178      | 864.158   | 3.53%       | 36.21%     |
| 17.0               | 2975.948      | 94.462      | 958.62    | 3.62%       | 40.17%     |
| 18.0               | 2850.364      | 96.063      | 1054.683  | 3.68%       | 44.20%     |
| 19.0               | 2717.031      | 96.861      | 1151.544  | 3.71%       | 48.26%     |
| 20.0               | 2579.270      | 96.937      | 1248.481  | 3.71%       | 52.32%     |
| 21.0               | 2433.413      | 96.254      | 1344.735  | 3.69%       | 56.35%     |
| 22.0               | 2288.802      | 94.895      | 1439.63   | 3.63%       | 60.33%     |
| 23.0               | 2145.575      | 93.045      | 1532.675  | 3.56%       | 64.23%     |
| 24.0               | 1999.164      | 90.619      | 1623.294  | 3.47%       | 68.03%     |
| 25.0               | 1841.822      | 87.336      | 1710.63   | 3.34%       | 71.69%     |
| 26.0               | 1644.528      | 82.296      | 1792.925  | 3.15%       | 75.14%     |
| 27.0               | 1460.498      | 75.965      | 1868.891  | 2.91%       | 78.32%     |
| 28.0               | 1244.114      | 68.475      | 1937.366  | 2.62%       | 81.19%     |
| 29.0               | 1105.065      | 61.461      | 1998.827  | 2.35%       | 83.77%     |
| 30.0               | 948.961       | 55.458      | 2054.285  | 2.12%       | 86.09%     |
| 31.0               | 777.877       | 48.055      | 2102.34   | 1.84%       | 88.10%     |
| 32.0               | 619.614       | 40.036      | 2142.377  | 1.53%       | 89.78%     |
| 33.0               | 467.911       | 32.039      | 2174.416  | 1.23%       | 91.12%     |
| 34.0               | 347.330       | 24.672      | 2199.087  | 0.94%       | 92.16%     |
| 35.0               | 267.143       | 19.083      | 2218.171  | 0.73%       | 92.96%     |
| 36.0               | 215.374       | 15.363      | 2233.534  | 0.59%       | 93.60%     |
| 37.0               | 173.257       | 12.675      | 2246.209  | 0.49%       | 94.13%     |

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 38.0               | 124.871       | 9.951       | 2256.16   | 0.38%       | 94.55%     |
| 39.0               | 106.196       | 7.887       | 2264.047  | 0.30%       | 94.88%     |
| 40.0               | 91.956        | 6.911       | 2270.958  | 0.26%       | 95.17%     |
| 41.0               | 81.100        | 6.162       | 2277.12   | 0.24%       | 95.43%     |
| 42.0               | 72.257        | 5.572       | 2282.692  | 0.21%       | 95.66%     |
| 43.0               | 64.369        | 5.061       | 2287.753  | 0.19%       | 95.87%     |
| 44.0               | 58.094        | 4.622       | 2292.375  | 0.18%       | 96.07%     |
| 45.0               | 53.153        | 4.275       | 2296.651  | 0.16%       | 96.25%     |
| 46.0               | 48.690        | 3.983       | 2300.634  | 0.15%       | 96.41%     |
| 47.0               | 45.016        | 3.727       | 2304.361  | 0.14%       | 96.57%     |
| 48.0               | 41.633        | 3.503       | 2307.863  | 0.13%       | 96.72%     |
| 49.0               | 38.921        | 3.308       | 2311.171  | 0.13%       | 96.86%     |
| 50.0               | 36.236        | 3.134       | 2314.305  | 0.12%       | 96.99%     |
| 51.0               | 34.049        | 2.974       | 2317.278  | 0.11%       | 97.11%     |
| 52.0               | 32.084        | 2.838       | 2320.116  | 0.11%       | 97.23%     |
| 53.0               | 30.375        | 2.717       | 2322.833  | 0.10%       | 97.34%     |
| 54.0               | 28.839        | 2.610       | 2325.443  | 0.10%       | 97.45%     |
| 55.0               | 27.435        | 2.512       | 2327.955  | 0.10%       | 97.56%     |
| 56.0               | 26.217        | 2.424       | 2330.38   | 0.09%       | 97.66%     |
| 57.0               | 25.068        | 2.345       | 2332.724  | 0.09%       | 97.76%     |
| 58.0               | 24.072        | 2.272       | 2334.997  | 0.09%       | 97.85%     |
| 59.0               | 23.138        | 2.207       | 2337.204  | 0.08%       | 97.95%     |
| 60.0               | 22.335        | 2.148       | 2339.352  | 0.08%       | 98.04%     |
| 61.0               | 21.602        | 2.097       | 2341.449  | 0.08%       | 98.12%     |
| 62.0               | 20.896        | 2.048       | 2343.497  | 0.08%       | 98.21%     |
| 63.0               | 20.225        | 2.000       | 2345.497  | 0.08%       | 98.29%     |
| 64.0               | 19.630        | 1.956       | 2347.452  | 0.07%       | 98.38%     |
| 65.0               | 19.076        | 1.916       | 2349.368  | 0.07%       | 98.46%     |
| 66.0               | 18.557        | 1.878       | 2351.246  | 0.07%       | 98.53%     |
| 67.0               | 18.038        | 1.840       | 2353.086  | 0.07%       | 98.61%     |
| 68.0               | 17.575        | 1.804       | 2354.89   | 0.07%       | 98.69%     |
| 69.0               | 17.111        | 1.770       | 2356.659  | 0.07%       | 98.76%     |
| 70.0               | 16.703        | 1.737       | 2358.396  | 0.07%       | 98.83%     |
| 71.0               | 16.274        | 1.704       | 2360.1    | 0.07%       | 98.91%     |
| 72.0               | 15.852        | 1.670       | 2361.771  | 0.06%       | 98.98%     |
| 73.0               | 15.457        | 1.637       | 2363.408  | 0.06%       | 99.04%     |
| 74.0               | 15.070        | 1.605       | 2365.013  | 0.06%       | 99.11%     |
| 75.0               | 14.662        | 1.571       | 2366.584  | 0.06%       | 99.18%     |

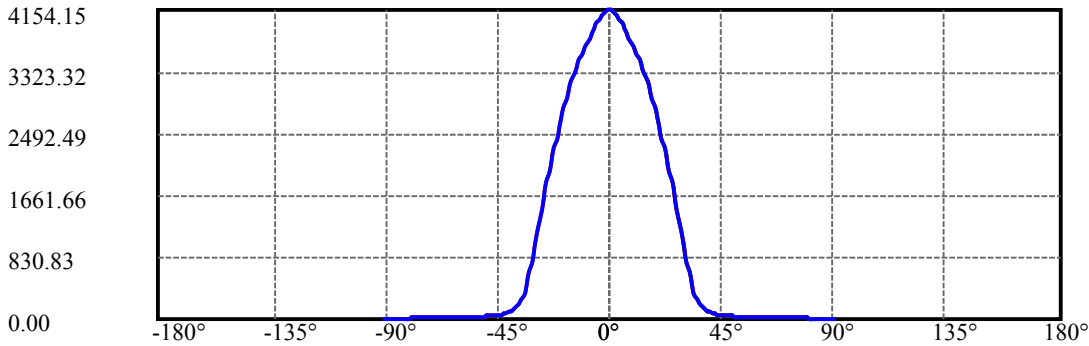
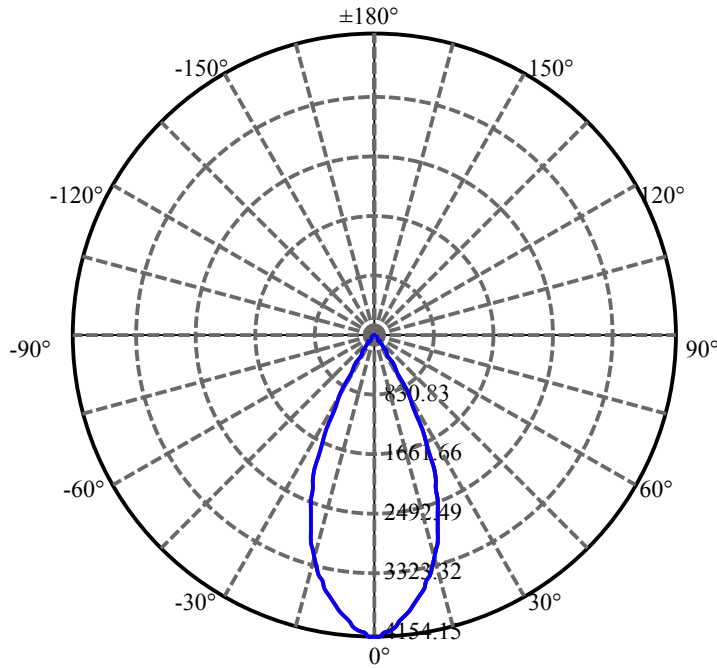
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0               | 14.267        | 1.536       | 2368.119  | 0.06%       | 99.24%     |
| 77.0               | 13.873        | 1.500       | 2369.62   | 0.06%       | 99.30%     |
| 78.0               | 13.506        | 1.466       | 2371.085  | 0.06%       | 99.37%     |
| 79.0               | 13.112        | 1.430       | 2372.516  | 0.05%       | 99.43%     |
| 80.0               | 12.766        | 1.395       | 2373.911  | 0.05%       | 99.48%     |
| 81.0               | 12.413        | 1.362       | 2375.272  | 0.05%       | 99.54%     |
| 82.0               | 12.081        | 1.328       | 2376.601  | 0.05%       | 99.60%     |
| 83.0               | 11.763        | 1.296       | 2377.897  | 0.05%       | 99.65%     |
| 84.0               | 11.493        | 1.267       | 2379.164  | 0.05%       | 99.70%     |
| 85.0               | 11.209        | 1.239       | 2380.403  | 0.05%       | 99.76%     |
| 86.0               | 10.939        | 1.211       | 2381.613  | 0.05%       | 99.81%     |
| 87.0               | 10.718        | 1.185       | 2382.799  | 0.05%       | 99.86%     |
| 88.0               | 10.462        | 1.160       | 2383.959  | 0.04%       | 99.91%     |
| 89.0               | 10.254        | 1.135       | 2385.094  | 0.04%       | 99.95%     |
| 90.0               | 10.171        | 1.120       | 2386.214  | 0.04%       | 100.00%    |

ZONAL LUMEN SUMMARY

| Zone    | Lumens  | %Lamp  | %Fixt   |
|---------|---------|--------|---------|
| 0-30    | 2054.29 | 78.67% | 86.09%  |
| 0-40    | 2270.96 | 86.96% | 95.17%  |
| 0-60    | 2339.35 | 89.58% | 98.04%  |
| 0-90    | 2385.09 | 91.33% | 99.95%  |
| 0-120   | 2385.09 | 91.33% | 99.95%  |
| 0-180   | 2386.21 | 91.38% | 100.00% |
| 60-90   | 45.74   | 1.75%  | 1.92%   |
| 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%   |
| 0-27.59 | 1908.97 | 73.10% | 80.00%  |

ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 367.42 |
| 10-20   | 881.06 |
| 20-30   | 805.80 |
| 30-40   | 216.67 |
| 40-50   | 43.35  |
| 50-60   | 25.05  |
| 60-70   | 19.04  |
| 70-80   | 15.51  |
| 80-90   | 11.18  |
| 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   |



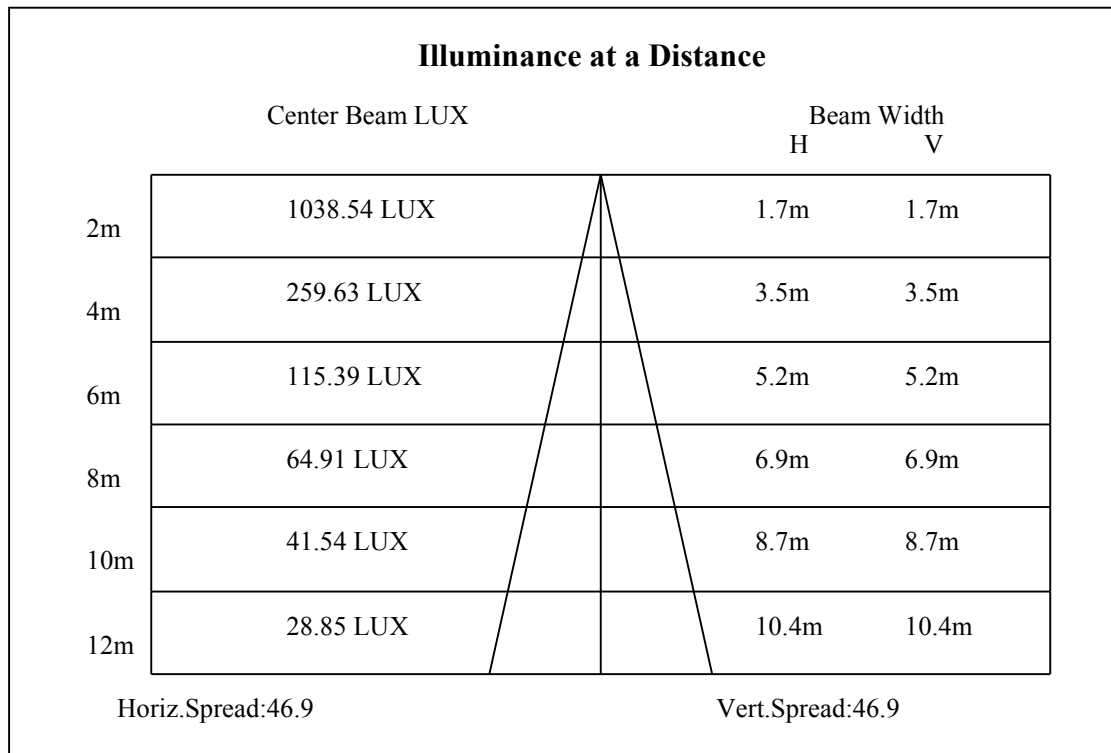
C0(Max): —————

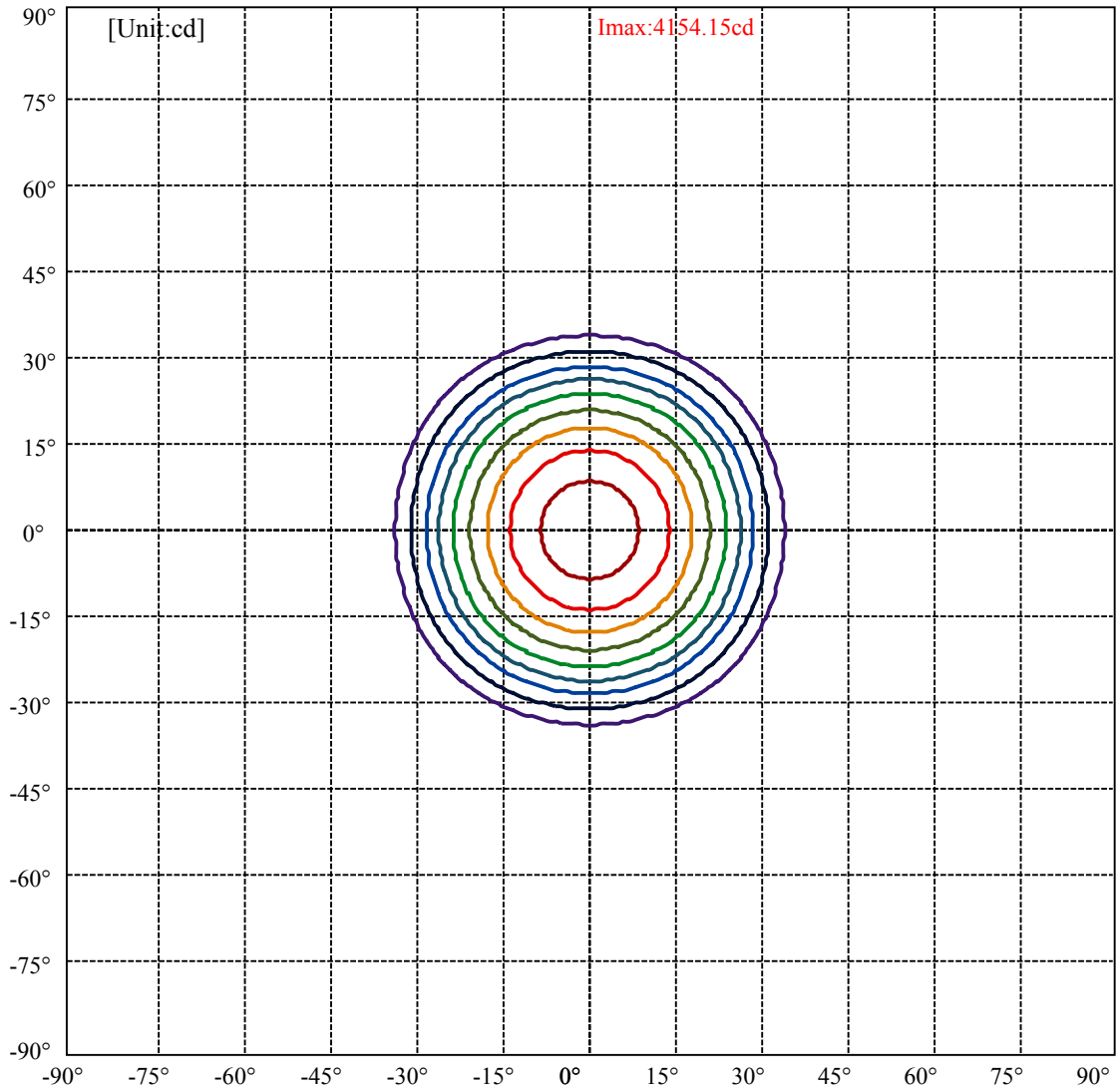
C0/C180: —————

C90/C270: —————

Field angle(10%Imax):C0/180Left:33.4 Right:33.4  
:C90/270Left:33.4 Right:33.4

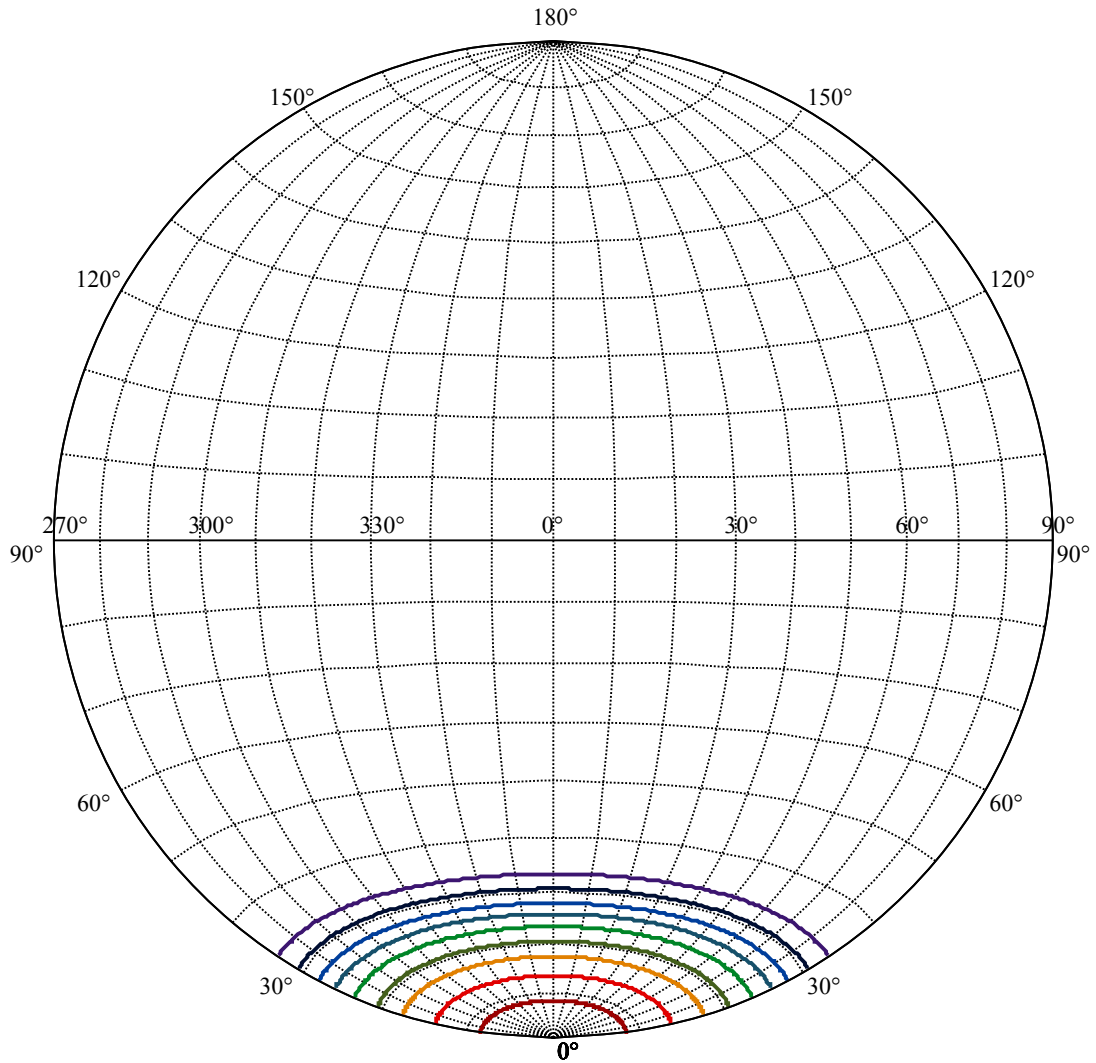
Beam Angle(50%Imax):C0/180Left:23.5 Right:23.5  
:C90/270Left:23.5 Right:23.5





|                   |   |
|-------------------|---|
| (10%Imax) 415.415 | — |
| (20%Imax) 830.83  | — |
| (30%Imax) 1246.24 | — |
| (40%Imax) 1661.66 | — |
| (50%Imax) 2077.07 | — |
| (60%Imax) 2492.49 | — |
| (70%Imax) 2907.9  | — |
| (80%Imax) 3323.32 | — |
| (90%Imax) 3738.73 | — |





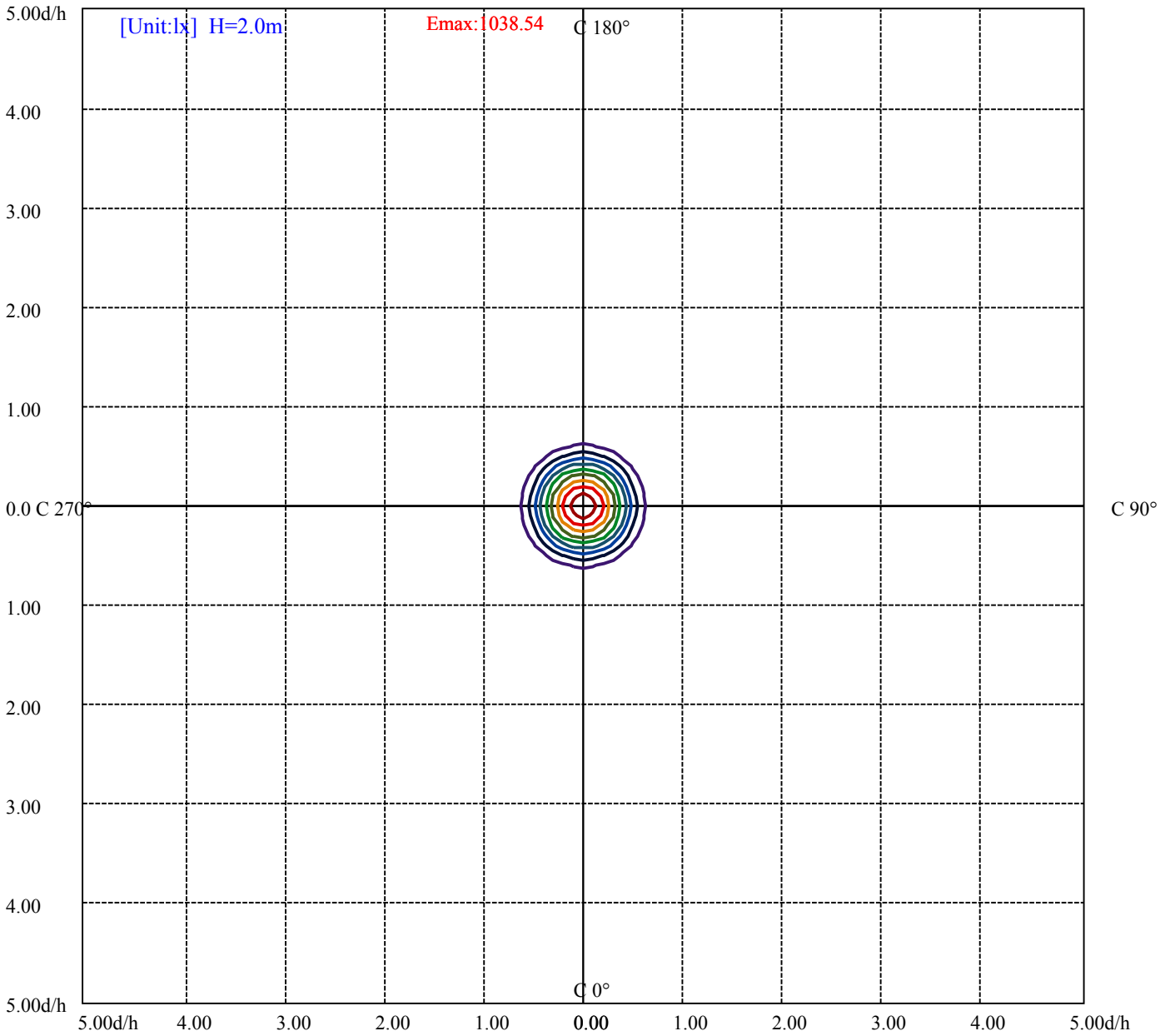
House

[Unit:cd]

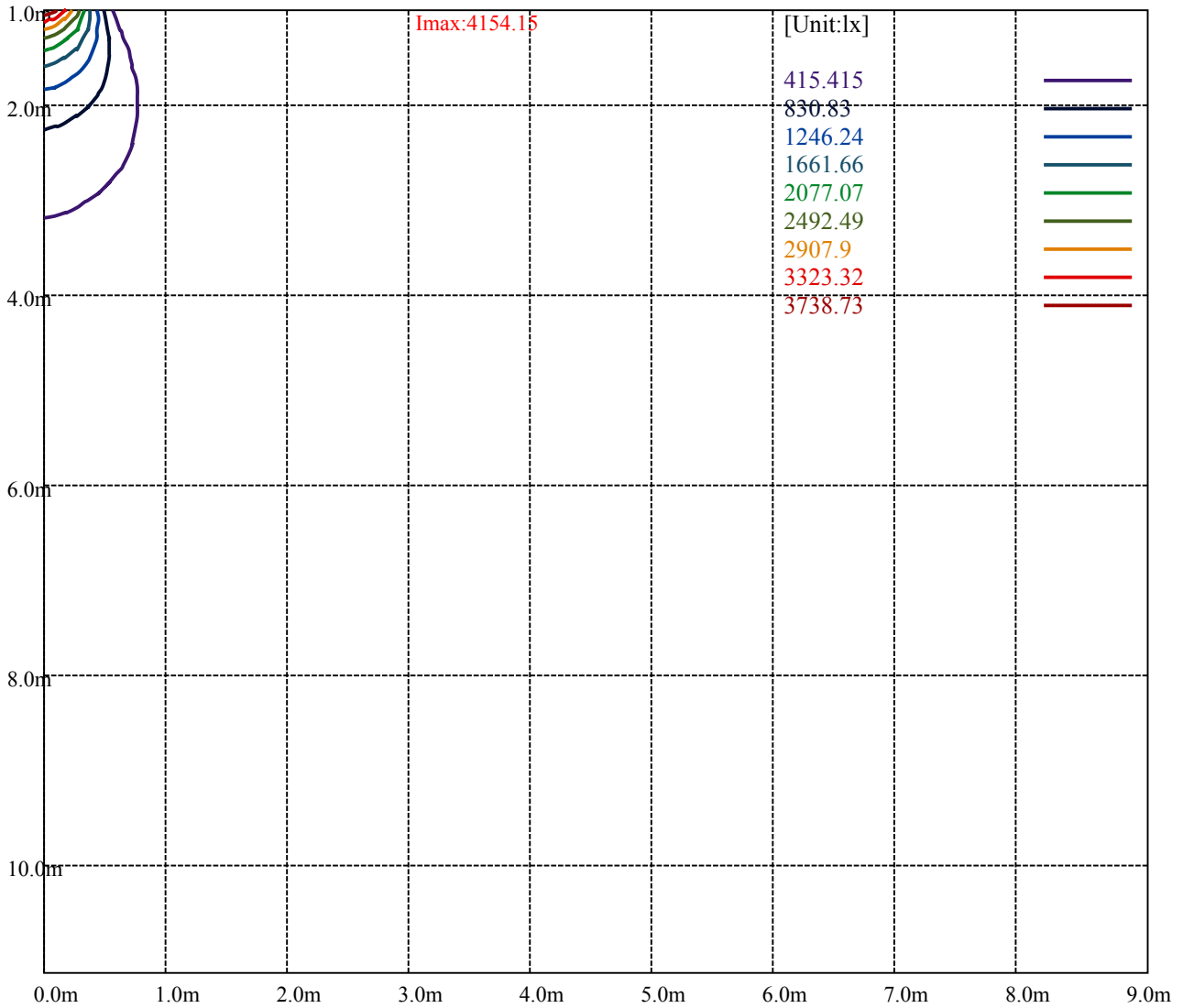
Road

Imax:4154.15

|           |         |   |
|-----------|---------|---|
| (10%Imax) | 415.415 | — |
| (20%Imax) | 830.83  | — |
| (30%Imax) | 1246.24 | — |
| (40%Imax) | 1661.66 | — |
| (50%Imax) | 2077.07 | — |
| (60%Imax) | 2492.49 | — |
| (70%Imax) | 2907.9  | — |
| (80%Imax) | 3323.32 | — |
| (90%Imax) | 3738.73 | — |



|                    |   |
|--------------------|---|
| (10%Emax) 103.8538 | — |
| (20%Emax) 207.7072 | — |
| (30%Emax) 311.56   | — |
| (40%Emax) 415.415  | — |
| (50%Emax) 519.2675 | — |
| (60%Emax) 623.1225 | — |
| (70%Emax) 726.975  | — |
| (80%Emax) 830.83   | — |
| (90%Emax) 934.6825 | — |



Luminance Table

| $\gamma$ | 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

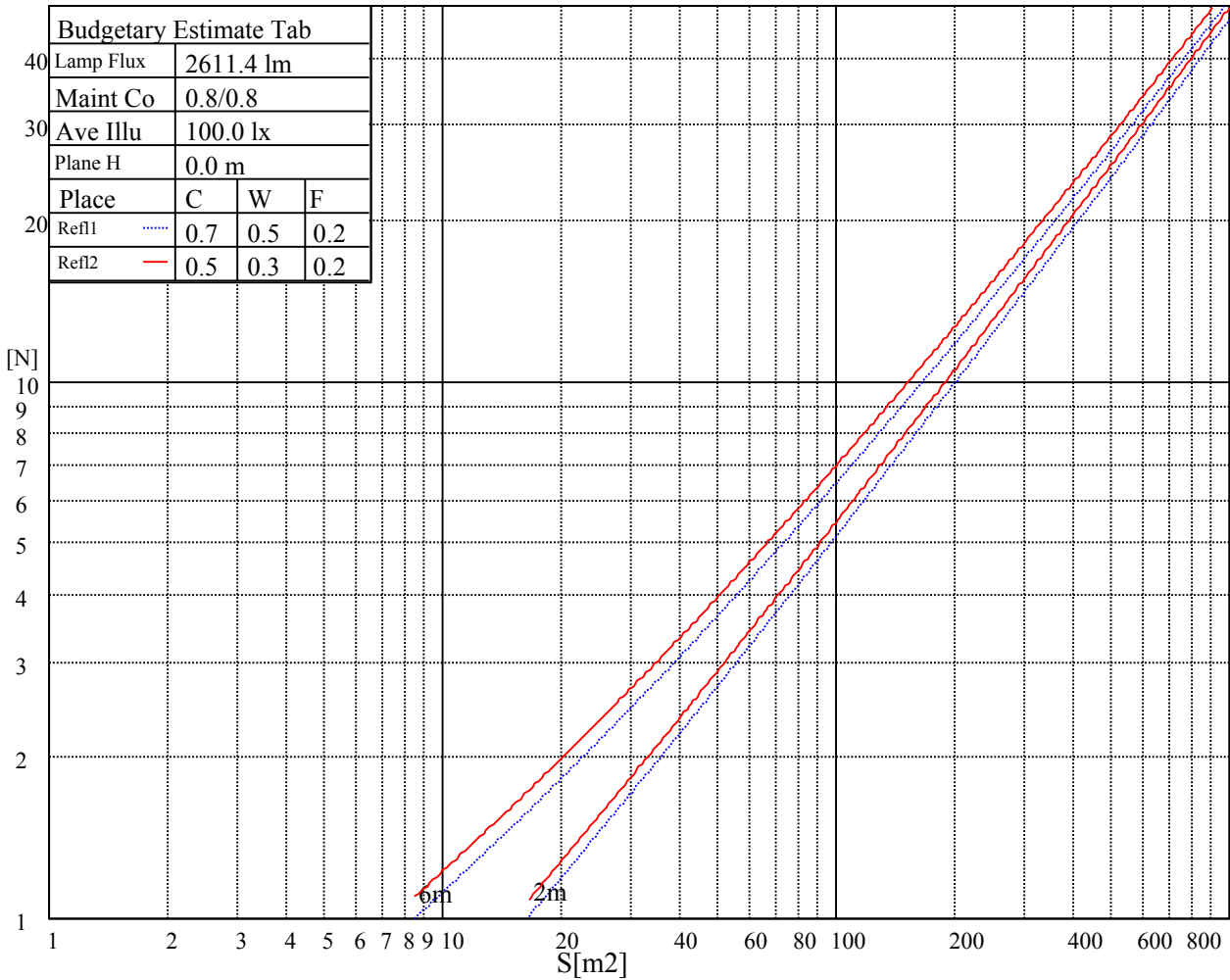
| Glare | Quality | Service Values Illuminance(lx) |      |      |       |       |       |       |       |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15  | A       | 2000                           | 1000 | 500  | <=300 |       |       |       |       |
| 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 Limiting Curve

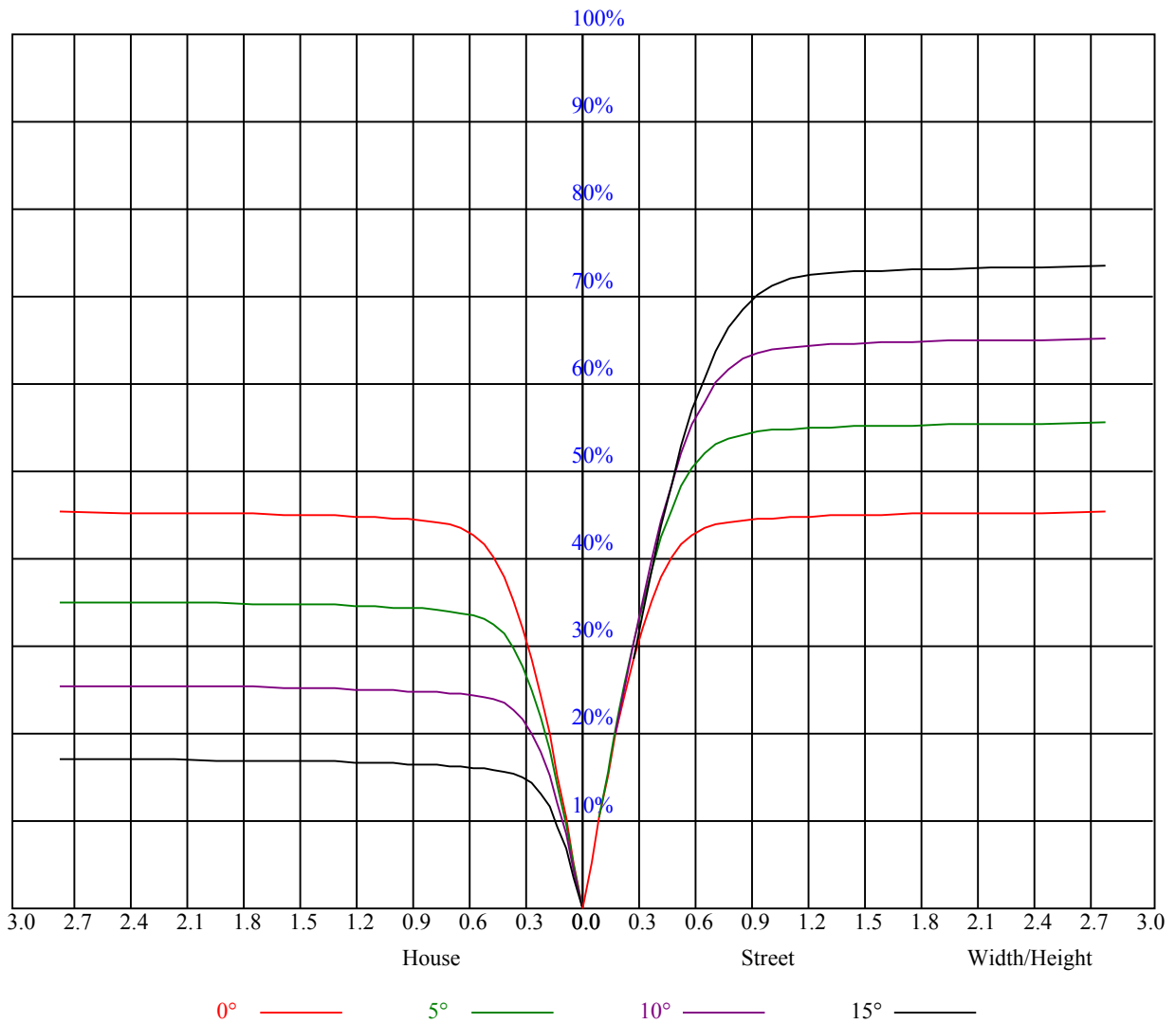


| Illumination assessment according UGR             |     |                  |     |     |     |     |                |     |     |     |  |
|---|-----|------------------|-----|-----|-----|-----|----------------|-----|-----|-----|--|
| Rf of Ceiling                                     | 70  | 70               | 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 |  |
|   | 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 |  |
|   | 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 |  |
|   | 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 |  |
|   | 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 |  |
| 4H  | 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 |  |
|   | 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 |  |
|   | 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 |  |
|   | 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 |  |
|   | 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 |  |
| 8H  | 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 |  |
|   | 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 |  |
|   | 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 |  |
|   | 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 |  |
|   | 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 |  |
| 12H   | 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 |  |
|   | 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 |  |
|   | 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 |  |
| 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 |     |  |
| 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



| 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   | COEFFICIENTS OF UTILIZATION RHOF=20 CU |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 0     | 1.09                                   | 1.09 | 1.09 | 1.06 | 1.06 | 1.06 | 1.02 | 1.02 | 1.02 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 | 0.91 |
| 1     | 1.01                                   | 0.99 | 0.97 | 1.00 | 0.98 | 0.96 | 0.96 | 0.94 | 0.93 | 0.92 | 0.91 | 0.90 | 0.89 | 0.88 | 0.87 | 0.86 |
| 2     | 0.95                                   | 0.92 | 0.89 | 0.94 | 0.90 | 0.88 | 0.91 | 0.88 | 0.86 | 0.88 | 0.86 | 0.84 | 0.85 | 0.84 | 0.82 | 0.81 |
| 3     | 0.90                                   | 0.85 | 0.82 | 0.88 | 0.85 | 0.81 | 0.86 | 0.83 | 0.80 | 0.84 | 0.81 | 0.79 | 0.82 | 0.80 | 0.78 | 0.76 |
| 4     | 0.85                                   | 0.80 | 0.77 | 0.84 | 0.79 | 0.76 | 0.82 | 0.78 | 0.75 | 0.80 | 0.77 | 0.74 | 0.78 | 0.76 | 0.73 | 0.72 |
| 5     | 0.80                                   | 0.75 | 0.72 | 0.79 | 0.75 | 0.71 | 0.78 | 0.74 | 0.71 | 0.76 | 0.73 | 0.70 | 0.75 | 0.72 | 0.70 | 0.68 |
| 6     | 0.76                                   | 0.71 | 0.68 | 0.75 | 0.71 | 0.67 | 0.74 | 0.70 | 0.67 | 0.73 | 0.69 | 0.67 | 0.72 | 0.69 | 0.66 | 0.65 |
| 7     | 0.72                                   | 0.67 | 0.64 | 0.72 | 0.67 | 0.64 | 0.71 | 0.66 | 0.63 | 0.70 | 0.66 | 0.63 | 0.69 | 0.65 | 0.63 | 0.62 |
| 8     | 0.69                                   | 0.64 | 0.61 | 0.68 | 0.64 | 0.61 | 0.67 | 0.63 | 0.60 | 0.67 | 0.63 | 0.60 | 0.66 | 0.62 | 0.60 | 0.59 |
| 9     | 0.66                                   | 0.61 | 0.58 | 0.65 | 0.61 | 0.58 | 0.65 | 0.60 | 0.57 | 0.64 | 0.60 | 0.57 | 0.63 | 0.60 | 0.57 | 0.56 |
| 10    | 0.63                                   | 0.58 | 0.55 | 0.63 | 0.58 | 0.55 | 0.62 | 0.58 | 0.55 | 0.61 | 0.57 | 0.55 | 0.61 | 0.57 | 0.54 | 0.53 |





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    | 4149.31 | 4103.36 | 4064.06 | 4005.94 | 3938.96 | 3886.38 | 3826.59 | 3766.26 | 3681.01 |
| 45.0   | 4164.80 | 4149.86 | 4111.67 | 4051.33 | 3995.98 | 3947.82 | 3879.73 | 3802.24 | 3736.92 |
| 90.0   | 4138.79 | 4088.42 | 4036.94 | 3992.10 | 3938.41 | 3869.22 | 3797.26 | 3737.48 | 3656.11 |
| 135.0  | 4163.70 | 4148.75 | 4102.81 | 4052.44 | 4003.73 | 3931.21 | 3872.54 | 3808.88 | 3733.60 |
| 180.0  | 4149.31 | 4169.23 | 4155.39 | 4129.38 | 4082.88 | 4036.38 | 3982.14 | 3921.80 | 3858.70 |
| 225.0  | 4164.80 | 4158.72 | 4133.25 | 4090.63 | 4047.46 | 3992.10 | 3938.41 | 3859.25 | 3797.81 |
| 270.0  | 4138.79 | 4164.80 | 4165.91 | 4137.13 | 4104.47 | 4061.85 | 4014.24 | 3943.39 | 3881.39 |
| 315.0  | 4163.70 | 4153.73 | 4123.84 | 4092.29 | 4044.69 | 3971.07 | 3912.95 | 3854.82 | 3790.61 |
| 360.0  | 4149.31 | 4103.36 | 4064.06 | 4005.94 | 3938.96 | 3886.38 | 3826.59 | 3766.26 | 3681.01 |

| C/γ(°) | 9.0     | 10.0    | 11.0    | 12.0    | 13.0    | 14.0    | 15.0    | 16.0    | 17.0    |
|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0.0    | 3612.93 | 3535.43 | 3460.15 | 3350.00 | 3263.09 | 3169.55 | 3046.11 | 2927.10 | 2803.66 |
| 45.0   | 3678.80 | 3618.46 | 3528.79 | 3451.30 | 3371.59 | 3267.52 | 3176.19 | 3078.21 | 2941.49 |
| 90.0   | 3588.57 | 3515.51 | 3423.62 | 3351.11 | 3270.84 | 3161.24 | 3069.91 | 2961.97 | 2850.71 |
| 135.0  | 3674.93 | 3605.73 | 3543.18 | 3450.19 | 3371.03 | 3284.13 | 3201.10 | 3078.77 | 2972.49 |
| 180.0  | 3796.15 | 3710.35 | 3641.71 | 3567.54 | 3495.58 | 3400.93 | 3319.56 | 3211.06 | 3113.64 |
| 225.0  | 3727.51 | 3659.43 | 3576.95 | 3504.99 | 3421.96 | 3337.82 | 3228.22 | 3130.80 | 3002.93 |
| 270.0  | 3809.43 | 3739.69 | 3673.26 | 3600.20 | 3500.01 | 3425.28 | 3343.36 | 3235.42 | 3133.57 |
| 315.0  | 3709.24 | 3647.80 | 3571.41 | 3488.94 | 3389.30 | 3307.93 | 3222.69 | 3095.93 | 2989.09 |
| 360.0  | 3612.93 | 3535.43 | 3460.15 | 3350.00 | 3263.09 | 3169.55 | 3046.11 | 2927.10 | 2803.66 |

| C/γ(°) | 18.0    | 19.0    | 20.0    | 21.0    | 22.0    | 23.0    | 24.0    | 25.0    | 26.0    |
|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0.0    | 2634.83 | 2492.02 | 2347.55 | 2165.43 | 2019.85 | 1877.59 | 1730.35 | 1532.74 | 1103.53 |
| 45.0   | 2820.27 | 2695.17 | 2535.75 | 2402.35 | 2272.82 | 2136.65 | 1963.95 | 1818.37 | 1657.84 |
| 90.0   | 2702.92 | 2581.69 | 2459.36 | 2340.35 | 2179.82 | 2046.42 | 1864.31 | 1705.44 | 1527.21 |
| 135.0  | 2857.91 | 2706.24 | 2577.26 | 2407.88 | 2274.48 | 2142.18 | 2007.12 | 1831.10 | 1672.23 |
| 180.0  | 3016.22 | 2865.10 | 2737.79 | 2602.73 | 2438.88 | 2303.82 | 2172.08 | 2034.24 | 1859.88 |
| 225.0  | 2892.23 | 2768.79 | 2609.37 | 2480.39 | 2353.64 | 2183.15 | 2050.85 | 1916.90 | 1768.55 |
| 270.0  | 3040.57 | 2918.24 | 2792.59 | 2631.51 | 2503.09 | 2339.24 | 2209.16 | 2032.03 | 1894.20 |
| 315.0  | 2837.98 | 2709.01 | 2574.50 | 2436.67 | 2267.84 | 2135.54 | 1995.50 | 1863.76 | 1672.79 |
| 360.0  | 2634.83 | 2492.02 | 2347.55 | 2165.43 | 2019.85 | 1877.59 | 1730.35 | 1532.74 | 1103.53 |

| C/γ(°) | 27.0    | 28.0    | 29.0    | 30.0    | 31.0   | 32.0   | 33.0   | 34.0   | 35.0   |
|--------|---------|---------|---------|---------|--------|--------|--------|--------|--------|
| 0.0    | 1103.53 | 1023.10 | 828.26  | 684.61  | 547.72 | 392.90 | 290.66 | 201.15 | 161.80 |
| 45.0   | 1480.71 | 1257.63 | 1084.93 | 919.42  | 722.36 | 575.12 | 414.04 | 304.44 | 280.64 |
| 90.0   | 1079.01 | 1079.01 | 948.04  | 739.30  | 586.91 | 449.36 | 329.85 | 223.52 | 173.53 |
| 135.0  | 1498.42 | 1322.95 | 1105.96 | 938.80  | 778.27 | 627.71 | 458.33 | 343.75 | 293.93 |
| 180.0  | 1714.85 | 1552.11 | 1382.73 | 1167.41 | 995.81 | 831.96 | 639.33 | 501.50 | 354.26 |
| 225.0  | 1563.74 | 1073.64 | 1073.64 | 1029.63 | 815.69 | 659.43 | 517.11 | 364.23 | 266.36 |
| 270.0  | 1741.42 | 1573.15 | 1345.65 | 1165.19 | 990.83 | 820.34 | 627.16 | 489.33 | 368.10 |
| 315.0  | 1502.30 | 1071.31 | 1071.31 | 947.32  | 785.41 | 600.09 | 466.80 | 350.72 | 238.52 |
| 360.0  | 1103.53 | 1023.10 | 828.26  | 684.61  | 547.72 | 392.90 | 290.66 | 201.15 | 161.80 |

| C/γ(°) | 36.0   | 37.0   | 38.0   | 39.0   | 40.0   | 41.0  | 42.0  | 43.0  | 44.0  |
|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|
| 0.0    | 136.67 | 113.81 | 100.02 | 88.68  | 79.10  | 69.14 | 62.60 | 57.12 | 52.42 |
| 45.0   | 192.74 | 131.13 | 111.43 | 96.48  | 82.09  | 72.79 | 65.21 | 58.73 | 52.36 |
| 90.0   | 142.76 | 120.23 | 103.23 | 87.24  | 76.94  | 66.92 | 60.39 | 55.24 | 49.65 |
| 135.0  | 293.93 | 141.54 | 115.14 | 99.36  | 87.18  | 77.22 | 67.03 | 60.34 | 55.13 |
| 180.0  | 282.86 | 282.86 | 158.42 | 128.53 | 111.21 | 97.75 | 86.30 | 74.84 | 67.37 |
| 225.0  | 199.22 | 153.77 | 130.63 | 112.98 | 96.37  | 85.36 | 76.39 | 68.64 | 60.94 |
| 270.0  | 291.71 | 291.71 | 151.95 | 128.64 | 107.66 | 95.04 | 84.41 | 73.62 | 66.48 |
| 315.0  | 183.11 | 151.00 | 128.14 | 107.66 | 95.10  | 84.58 | 75.72 | 66.42 | 60.39 |
| 360.0  | 136.67 | 113.81 | 100.02 | 88.68  | 79.10  | 69.14 | 62.60 | 57.12 | 52.42 |

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    | 47.38 | 44.01 | 40.96 | 37.64 | 35.37 | 32.82 | 31.05 | 29.45 | 28.06 |
| 45.0   | 48.16 | 44.62 | 41.57 | 38.30 | 35.92 | 33.49 | 31.72 | 30.17 | 28.45 |
| 90.0   | 46.00 | 42.90 | 39.58 | 37.25 | 35.15 | 33.27 | 31.16 | 29.72 | 28.40 |
| 135.0  | 50.65 | 45.89 | 42.73 | 39.97 | 36.92 | 34.82 | 32.94 | 30.83 | 29.39 |
| 180.0  | 61.33 | 56.29 | 51.09 | 47.44 | 44.23 | 40.74 | 38.19 | 35.43 | 33.38 |
| 225.0  | 55.91 | 51.64 | 47.88 | 43.84 | 40.96 | 37.92 | 35.65 | 33.60 | 31.44 |
| 270.0  | 60.39 | 54.19 | 49.98 | 46.28 | 43.18 | 39.74 | 37.31 | 35.15 | 33.21 |
| 315.0  | 55.41 | 49.98 | 46.33 | 42.35 | 39.63 | 37.09 | 34.37 | 32.33 | 30.67 |
| 360.0  | 47.38 | 44.01 | 40.96 | 37.64 | 35.37 | 32.82 | 31.05 | 29.45 | 28.06 |
| C/γ(°) | 54.0  | 55.0  | 56.0  | 57.0  | 58.0  | 59.0  | 60.0  | 61.0  | 62.0  |
| 0.0    | 26.40 | 25.30 | 24.30 | 23.41 | 22.42 | 21.70 | 20.98 | 20.37 | 19.65 |
| 45.0   | 27.23 | 26.13 | 25.08 | 23.97 | 23.14 | 22.42 | 21.70 | 20.92 | 20.37 |
| 90.0   | 27.18 | 25.79 | 24.74 | 23.86 | 22.81 | 22.09 | 21.20 | 20.59 | 20.04 |
| 135.0  | 28.17 | 26.68 | 25.57 | 24.58 | 23.53 | 22.75 | 21.98 | 21.37 | 20.65 |
| 180.0  | 31.61 | 30.06 | 28.29 | 27.01 | 25.96 | 24.69 | 23.80 | 23.03 | 22.20 |
| 225.0  | 29.89 | 28.56 | 27.34 | 25.96 | 24.91 | 24.02 | 23.25 | 22.25 | 21.59 |
| 270.0  | 31.05 | 29.56 | 28.17 | 26.63 | 25.57 | 24.36 | 23.47 | 22.69 | 21.75 |
| 315.0  | 29.17 | 27.40 | 26.24 | 25.13 | 24.24 | 23.08 | 22.31 | 21.59 | 20.92 |
| 360.0  | 26.40 | 25.30 | 24.30 | 23.41 | 22.42 | 21.70 | 20.98 | 20.37 | 19.65 |
| C/γ(°) | 63.0  | 64.0  | 65.0  | 66.0  | 67.0  | 68.0  | 69.0  | 70.0  | 71.0  |
| 0.0    | 19.15 | 18.65 | 18.05 | 17.60 | 17.10 | 16.72 | 16.27 | 15.94 | 15.50 |
| 45.0   | 19.82 | 19.15 | 18.71 | 18.21 | 17.71 | 17.33 | 16.88 | 16.44 | 16.05 |
| 90.0   | 19.37 | 18.88 | 18.43 | 17.93 | 17.38 | 16.94 | 16.55 | 16.22 | 15.78 |
| 135.0  | 20.09 | 19.54 | 18.93 | 18.43 | 18.05 | 17.49 | 17.05 | 16.66 | 16.22 |
| 180.0  | 21.31 | 20.70 | 20.09 | 19.37 | 18.88 | 18.38 | 17.77 | 17.38 | 16.94 |
| 225.0  | 20.87 | 20.15 | 19.60 | 19.10 | 18.49 | 18.05 | 17.49 | 17.05 | 16.61 |
| 270.0  | 21.09 | 20.43 | 19.87 | 19.37 | 18.71 | 18.27 | 17.82 | 17.27 | 16.83 |
| 315.0  | 20.09 | 19.54 | 18.93 | 18.43 | 17.99 | 17.44 | 17.05 | 16.66 | 16.27 |
| 360.0  | 19.15 | 18.65 | 18.05 | 17.60 | 17.10 | 16.72 | 16.27 | 15.94 | 15.50 |
| C/γ(°) | 72.0  | 73.0  | 74.0  | 75.0  | 76.0  | 77.0  | 78.0  | 79.0  | 80.0  |
| 0.0    | 15.17 | 14.83 | 14.50 | 14.06 | 13.73 | 13.40 | 13.01 | 12.62 | 12.29 |
| 45.0   | 15.67 | 15.33 | 14.83 | 14.50 | 14.17 | 13.84 | 13.40 | 13.06 | 12.73 |
| 90.0   | 15.33 | 14.95 | 14.56 | 14.17 | 13.84 | 13.40 | 13.06 | 12.73 | 12.34 |
| 135.0  | 15.78 | 15.44 | 15.06 | 14.61 | 14.28 | 13.89 | 13.56 | 13.12 | 12.84 |
| 180.0  | 16.44 | 16.05 | 15.67 | 15.33 | 14.83 | 14.45 | 14.06 | 13.67 | 13.23 |
| 225.0  | 16.22 | 15.72 | 15.33 | 14.89 | 14.45 | 13.95 | 13.62 | 13.23 | 12.90 |
| 270.0  | 16.44 | 15.94 | 15.55 | 15.06 | 14.67 | 14.28 | 13.89 | 13.45 | 13.06 |
| 315.0  | 15.78 | 15.39 | 15.06 | 14.67 | 14.17 | 13.78 | 13.45 | 13.01 | 12.73 |
| 360.0  | 15.17 | 14.83 | 14.50 | 14.06 | 13.73 | 13.40 | 13.01 | 12.62 | 12.29 |
| C/γ(°) | 81.0  | 82.0  | 83.0  | 84.0  | 85.0  | 86.0  | 87.0  | 88.0  | 89.0  |
| 0.0    | 11.96 | 11.73 | 11.46 | 11.29 | 11.02 | 10.68 | 10.46 | 10.07 | 10.19 |
| 45.0   | 12.40 | 12.12 | 11.73 | 11.46 | 11.18 | 10.85 | 10.57 | 10.41 | 10.13 |
| 90.0   | 12.07 | 11.73 | 11.46 | 11.18 | 10.90 | 10.68 | 10.52 | 10.24 | 10.07 |
| 135.0  | 12.45 | 12.07 | 11.79 | 11.46 | 11.13 | 10.90 | 10.74 | 10.46 | 10.19 |
| 180.0  | 12.90 | 12.51 | 12.07 | 11.79 | 11.51 | 11.18 | 10.96 | 10.79 | 10.57 |
| 225.0  | 12.45 | 12.12 | 11.85 | 11.51 | 11.29 | 11.02 | 10.79 | 10.52 | 10.24 |
| 270.0  | 12.79 | 12.34 | 12.01 | 11.79 | 11.46 | 11.24 | 10.96 | 10.74 | 10.46 |
| 315.0  | 12.29 | 12.01 | 11.73 | 11.46 | 11.18 | 10.96 | 10.74 | 10.46 | 10.19 |
| 360.0  | 11.96 | 11.73 | 11.46 | 11.29 | 11.02 | 10.68 | 10.46 | 10.07 | 10.19 |

Intensity data(cd)

|                 |       |
|-----------------|-------|
| C/ $\gamma$ (°) | 90.0  |
| 0.0             | 10.24 |
| 45.0            | 10.07 |
| 90.0            | 10.07 |
| 135.0           | 10.07 |
| 180.0           | 10.19 |
| 225.0           | 10.19 |
| 270.0           | 10.24 |
| 315.0           | 10.30 |
| 360.0           | 10.24 |