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## NATA

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|                               |                     |
|-------------------------------|---------------------|
| LumCAT: 3-1822-E              |                     |
| Luminaire: 99.02.73.181       |                     |
| Report No: NATA0100           | Voltage(V): 34.8400 |
| Test No: GC2019022109         | Current(A): 0.7000  |
| LampCAT: LUMILEDS LUXEON 1208 | Power (W): 24.4300  |
| Lamp flux(lm): 2996.0         | PF: 1.0000          |
| Number of Lamps: 1            | Ballast type: DC    |
| Length(mm): 72                | Width(mm): 72       |
| Phm Type: C                   | Height(mm): 0       |

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## Photometric Results

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Lumens(lm): 2641.25  
Efficiency(%): 88.16%  
Lumens(lm)/Power(W): 108.28  
Central intensity(cd): 16801.170  
Maximum intensity(cd): 16801.170  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=16.9  
                                  [C90/270]Total=16.9  
Field angle(10%Imax): [C0/180]Total=37.5  
                                  [C90/270]Total=37.5  
Maximum s/h(1/2): C0\_180=0.29 C90\_270=0.29  
Maximum s/h(1/4): C0\_180=0.30 C90\_270=0.30  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 88.29%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.573%

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 16801.172     | 4.020       | 4.02      | .134%       | .152%      |
| 1.0                | 16676.016     | 31.915      | 35.935    | 1.065%      | 1.361%     |
| 2.0                | 16280.859     | 62.309      | 98.244    | 2.080%      | 3.720%     |
| 3.0                | 15568.594     | 89.351      | 187.595   | 2.982%      | 7.103%     |
| 4.0                | 14575.078     | 111.493     | 299.088   | 3.721%      | 11.324%    |
| 5.0                | 13335.469     | 127.455     | 426.543   | 4.254%      | 16.149%    |
| 6.0                | 11617.031     | 133.162     | 559.705   | 4.445%      | 21.191%    |
| 7.0                | 10356.398     | 138.406     | 698.111   | 4.620%      | 26.431%    |
| 8.0                | 9016.031      | 137.601     | 835.712   | 4.593%      | 31.641%    |
| 9.0                | 7610.484      | 130.556     | 966.268   | 4.358%      | 36.584%    |
| 10.0               | 6291.773      | 119.811     | 1086.079  | 3.999%      | 41.120%    |
| 11.0               | 5291.156      | 110.714     | 1196.792  | 3.695%      | 45.312%    |
| 12.0               | 4432.500      | 101.060     | 1297.852  | 3.373%      | 49.138%    |
| 13.0               | 3651.680      | 90.081      | 1387.933  | 3.007%      | 52.548%    |
| 14.0               | 3120.750      | 82.792      | 1470.725  | 2.763%      | 55.683%    |
| 15.0               | 2743.172      | 77.858      | 1548.582  | 2.599%      | 58.631%    |
| 16.0               | 2315.039      | 69.976      | 1618.558  | 2.336%      | 61.280%    |
| 17.0               | 2044.406      | 65.547      | 1684.105  | 2.188%      | 63.762%    |
| 18.0               | 1825.383      | 61.857      | 1745.962  | 2.065%      | 66.104%    |
| 19.0               | 1631.883      | 58.262      | 1804.224  | 1.945%      | 68.309%    |
| 20.0               | 1494.281      | 56.045      | 1860.269  | 1.871%      | 70.431%    |
| 21.0               | 1382.977      | 54.350      | 1914.618  | 1.814%      | 72.489%    |
| 22.0               | 1284.961      | 52.786      | 1967.404  | 1.762%      | 74.488%    |
| 23.0               | 1214.086      | 52.021      | 2019.425  | 1.736%      | 76.457%    |
| 24.0               | 1151.374      | 51.355      | 2070.78   | 1.714%      | 78.402%    |
| 25.0               | 1102.331      | 51.087      | 2121.867  | 1.705%      | 80.336%    |
| 26.0               | 1065.656      | 51.228      | 2173.095  | 1.710%      | 82.275%    |
| 27.0               | 1032.975      | 51.427      | 2224.522  | 1.717%      | 84.222%    |
| 28.0               | 997.910       | 51.375      | 2275.897  | 1.715%      | 86.167%    |
| 29.0               | 945.577       | 50.271      | 2326.168  | 1.678%      | 88.071%    |
| 30.0               | 875.159       | 47.985      | 2374.154  | 1.602%      | 89.888%    |
| 31.0               | 775.645       | 43.808      | 2417.962  | 1.462%      | 91.546%    |
| 32.0               | 668.848       | 38.868      | 2456.83   | 1.297%      | 93.018%    |
| 33.0               | 570.973       | 34.102      | 2490.931  | 1.138%      | 94.309%    |
| 34.0               | 454.915       | 27.896      | 2518.827  | .931%       | 95.365%    |
| 35.0               | 353.559       | 22.238      | 2541.066  | .742%       | 96.207%    |
| 36.0               | 263.602       | 16.991      | 2558.057  | .567%       | 96.850%    |
| 37.0               | 181.709       | 11.992      | 2570.049  | .400%       | 97.304%    |

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 38.0               | 92.742        | 6.261       | 2576.31   | .209%       | 97.541%    |
| 39.0               | 51.026        | 3.521       | 2579.832  | .118%       | 97.675%    |
| 40.0               | 36.035        | 2.540       | 2582.372  | .085%       | 97.771%    |
| 41.0               | 29.503        | 2.123       | 2584.494  | .071%       | 97.851%    |
| 42.0               | 22.317        | 1.638       | 2586.132  | .055%       | 97.913%    |
| 43.0               | 17.831        | 1.334       | 2587.465  | .045%       | 97.964%    |
| 44.0               | 16.826        | 1.282       | 2588.747  | .043%       | 98.012%    |
| 45.0               | 16.151        | 1.252       | 2589.999  | .042%       | 98.060%    |
| 46.0               | 15.511        | 1.224       | 2591.223  | .041%       | 98.106%    |
| 47.0               | 14.920        | 1.197       | 2592.42   | .040%       | 98.151%    |
| 48.0               | 14.456        | 1.178       | 2593.598  | .039%       | 98.196%    |
| 49.0               | 13.950        | 1.155       | 2594.752  | .039%       | 98.240%    |
| 50.0               | 13.591        | 1.142       | 2595.894  | .038%       | 98.283%    |
| 51.0               | 13.310        | 1.134       | 2597.028  | .038%       | 98.326%    |
| 52.0               | 13.099        | 1.132       | 2598.16   | .038%       | 98.369%    |
| 53.0               | 12.909        | 1.131       | 2599.291  | .038%       | 98.411%    |
| 54.0               | 12.797        | 1.135       | 2600.426  | .038%       | 98.454%    |
| 55.0               | 12.684        | 1.139       | 2601.566  | .038%       | 98.498%    |
| 56.0               | 12.607        | 1.146       | 2602.712  | .038%       | 98.541%    |
| 57.0               | 12.593        | 1.158       | 2603.87   | .039%       | 98.585%    |
| 58.0               | 12.551        | 1.167       | 2605.037  | .039%       | 98.629%    |
| 59.0               | 12.579        | 1.182       | 2606.219  | .039%       | 98.674%    |
| 60.0               | 12.593        | 1.196       | 2607.415  | .040%       | 98.719%    |
| 61.0               | 12.579        | 1.206       | 2608.622  | .040%       | 98.765%    |
| 62.0               | 12.551        | 1.215       | 2609.837  | .041%       | 98.811%    |
| 63.0               | 12.452        | 1.217       | 2611.054  | .041%       | 98.857%    |
| 64.0               | 12.305        | 1.213       | 2612.267  | .040%       | 98.903%    |
| 65.0               | 12.066        | 1.199       | 2613.466  | .040%       | 98.948%    |
| 66.0               | 11.834        | 1.185       | 2614.651  | .040%       | 98.993%    |
| 67.0               | 11.559        | 1.167       | 2615.818  | .039%       | 99.037%    |
| 68.0               | 11.334        | 1.152       | 2616.971  | .038%       | 99.081%    |
| 69.0               | 11.159        | 1.142       | 2618.113  | .038%       | 99.124%    |
| 70.0               | 11.046        | 1.138       | 2619.251  | .038%       | 99.167%    |
| 71.0               | 10.927        | 1.133       | 2620.384  | .038%       | 99.210%    |
| 72.0               | 10.856        | 1.132       | 2621.516  | .038%       | 99.253%    |
| 73.0               | 10.793        | 1.132       | 2622.648  | .038%       | 99.296%    |
| 74.0               | 10.765        | 1.135       | 2623.783  | .038%       | 99.339%    |
| 75.0               | 10.723        | 1.136       | 2624.919  | .038%       | 99.382%    |

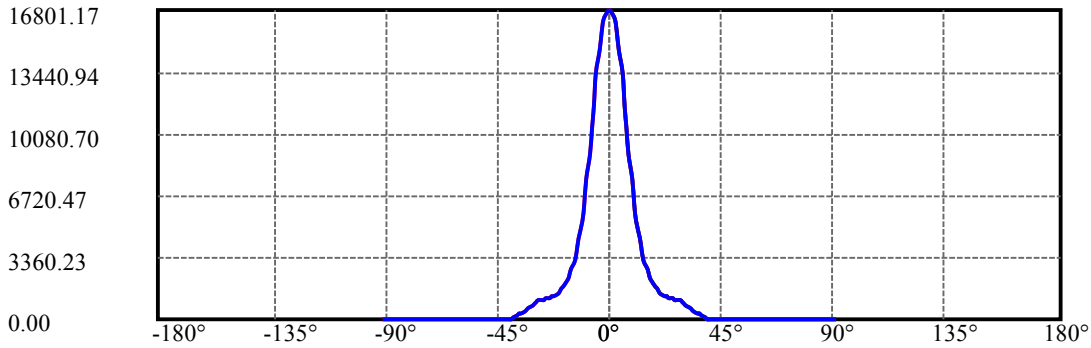
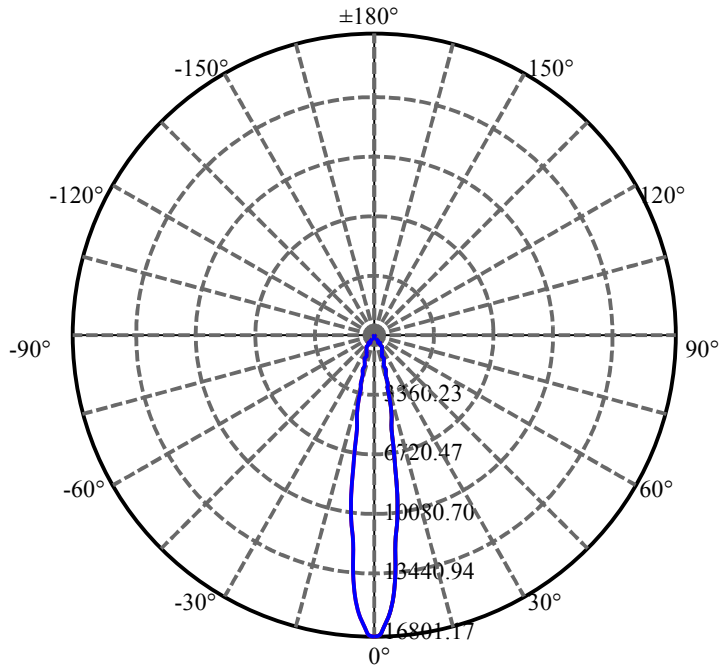
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0               | 10.673        | 1.136       | 2626.054  | .038%       | 99.425%    |
| 77.0               | 10.617        | 1.134       | 2627.189  | .038%       | 99.468%    |
| 78.0               | 10.568        | 1.134       | 2628.322  | .038%       | 99.511%    |
| 79.0               | 10.540        | 1.135       | 2629.457  | .038%       | 99.554%    |
| 80.0               | 10.505        | 1.134       | 2630.591  | .038%       | 99.596%    |
| 81.0               | 10.470        | 1.134       | 2631.725  | .038%       | 99.639%    |
| 82.0               | 10.413        | 1.131       | 2632.856  | .038%       | 99.682%    |
| 83.0               | 10.385        | 1.130       | 2633.987  | .038%       | 99.725%    |
| 84.0               | 10.364        | 1.130       | 2635.117  | .038%       | 99.768%    |
| 85.0               | 10.329        | 1.128       | 2636.245  | .038%       | 99.811%    |
| 86.0               | 10.273        | 1.124       | 2637.369  | .038%       | 99.853%    |
| 87.0               | 10.195        | 1.116       | 2638.486  | .037%       | 99.895%    |
| 88.0               | 10.139        | 1.111       | 2639.597  | .037%       | 99.937%    |
| 89.0               | 10.076        | 1.105       | 2640.701  | .037%       | 99.979%    |
| 90.0               | 9.991         | 0.548       | 2641.249  | .018%       | 100.000%   |

ZONAL LUMEN SUMMARY

| Zone    | Lumens  | %Lamp  | %Fixt   |
|---------|---------|--------|---------|
| 0-30    | 2374.15 | 79.24% | 89.89%  |
| 0-40    | 2582.37 | 86.19% | 97.77%  |
| 0-60    | 2607.42 | 87.03% | 98.72%  |
| 0-90    | 2640.70 | 88.14% | 99.98%  |
| 0-120   | 2640.70 | 88.14% | 99.98%  |
| 0-180   | 2641.25 | 88.16% | 100.00% |
| 60-90   | 34.48   | 1.15%  | 1.31%   |
| 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%   |
| 0-24.83 | 2113.00 | 70.53% | 80.00%  |

ZONAL LUMEN SUMMARY

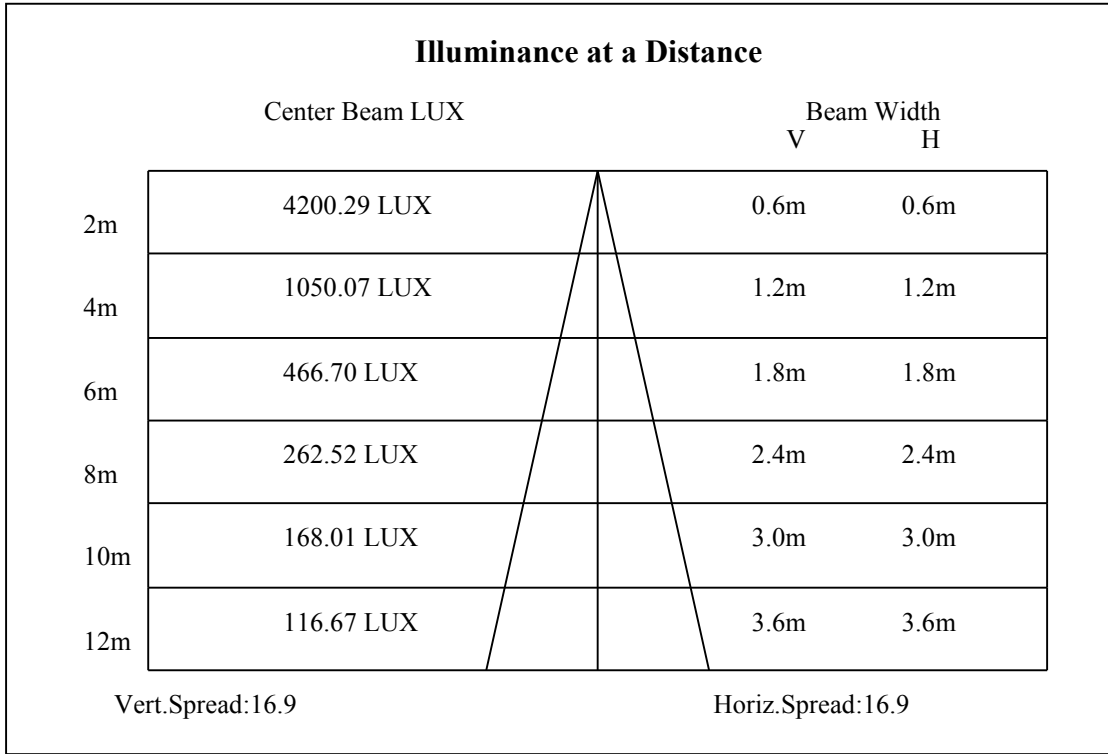
|         |         |
|---------|---------|
| 0-10    | 1086.08 |
| 10-20   | 774.19  |
| 20-30   | 513.89  |
| 30-40   | 208.22  |
| 40-50   | 13.52   |
| 50-60   | 11.52   |
| 60-70   | 11.84   |
| 70-80   | 11.34   |
| 80-90   | 10.11   |
| 90-100  | 0.00    |
| 100-110 | 0.00    |
| 110-120 | 0.00    |
| 120-130 | 0.00    |
| 130-140 | 0.00    |
| 140-150 | 0.00    |
| 150-160 | 0.00    |
| 160-170 | 0.00    |
| 170-180 | 0.00    |

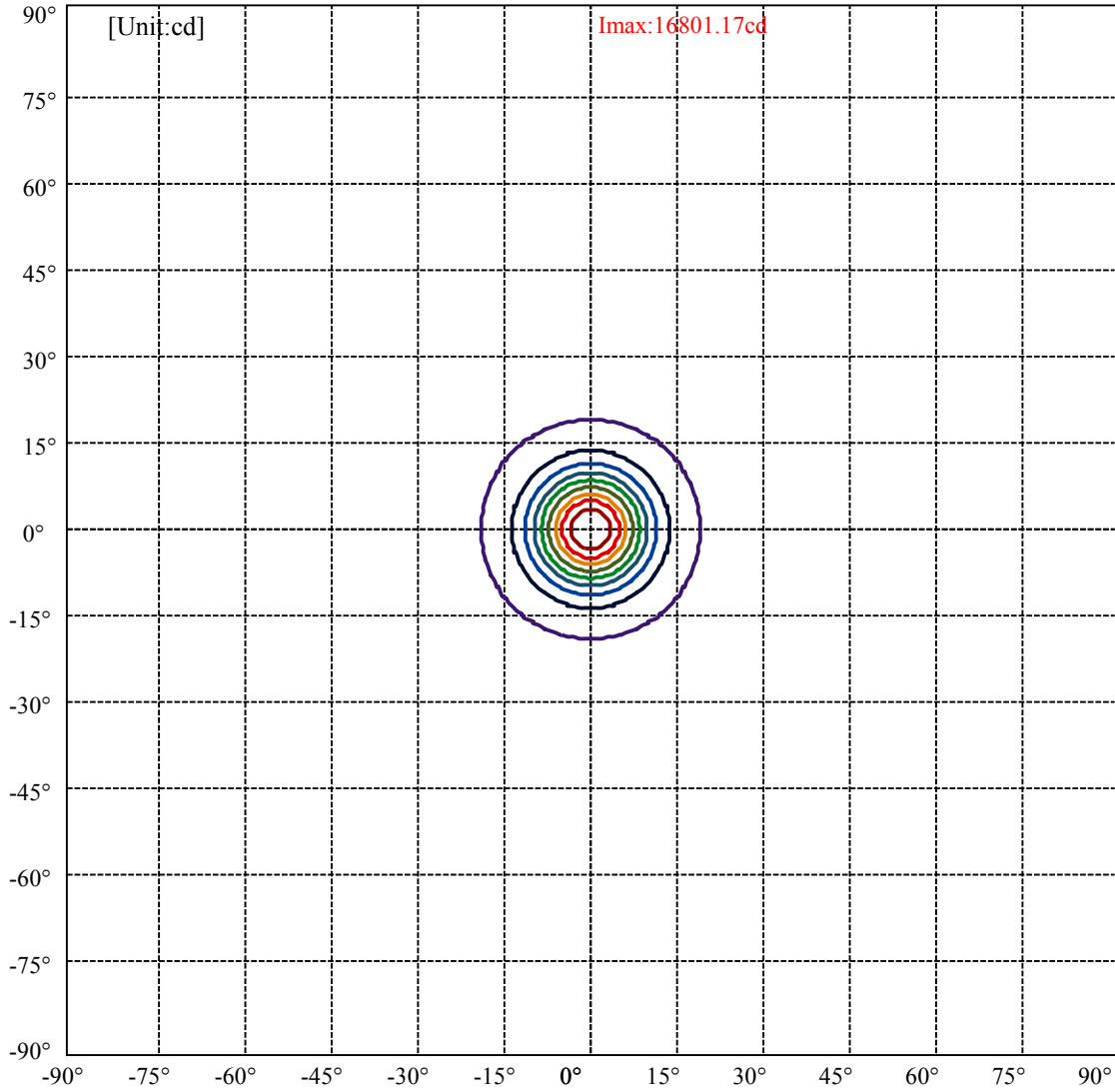


C0(Max): —————  
C0/C180: —————  
C90/C270: —————

Field angle(10%Imax):C0/180Left:18.8 Right:18.8  
:C90/270Left:18.8 Right:18.8

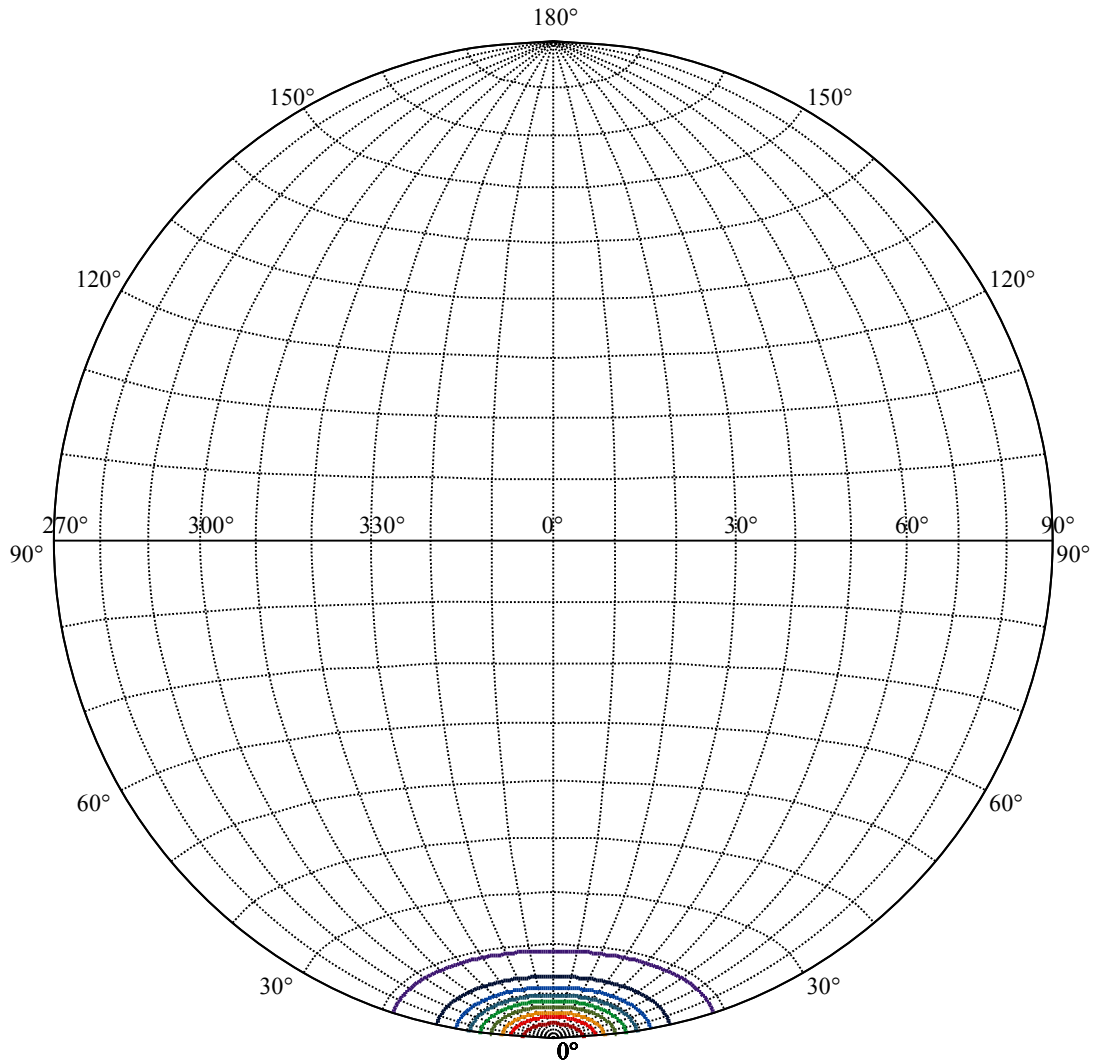
Beam Angle(50%Imax):C0/180Left:8.4 Right:8.4  
:C90/270Left:8.4 Right:8.4





|                   |   |
|-------------------|---|
| (10%Imax) 1680.12 | — |
| (20%Imax) 3360.23 | — |
| (30%Imax) 5040.35 | — |
| (40%Imax) 6720.47 | — |
| (50%Imax) 8400.59 | — |
| (60%Imax) 10080.7 | — |
| (70%Imax) 11760.8 | — |
| (80%Imax) 13440.9 | — |
| (90%Imax) 15121.1 | — |





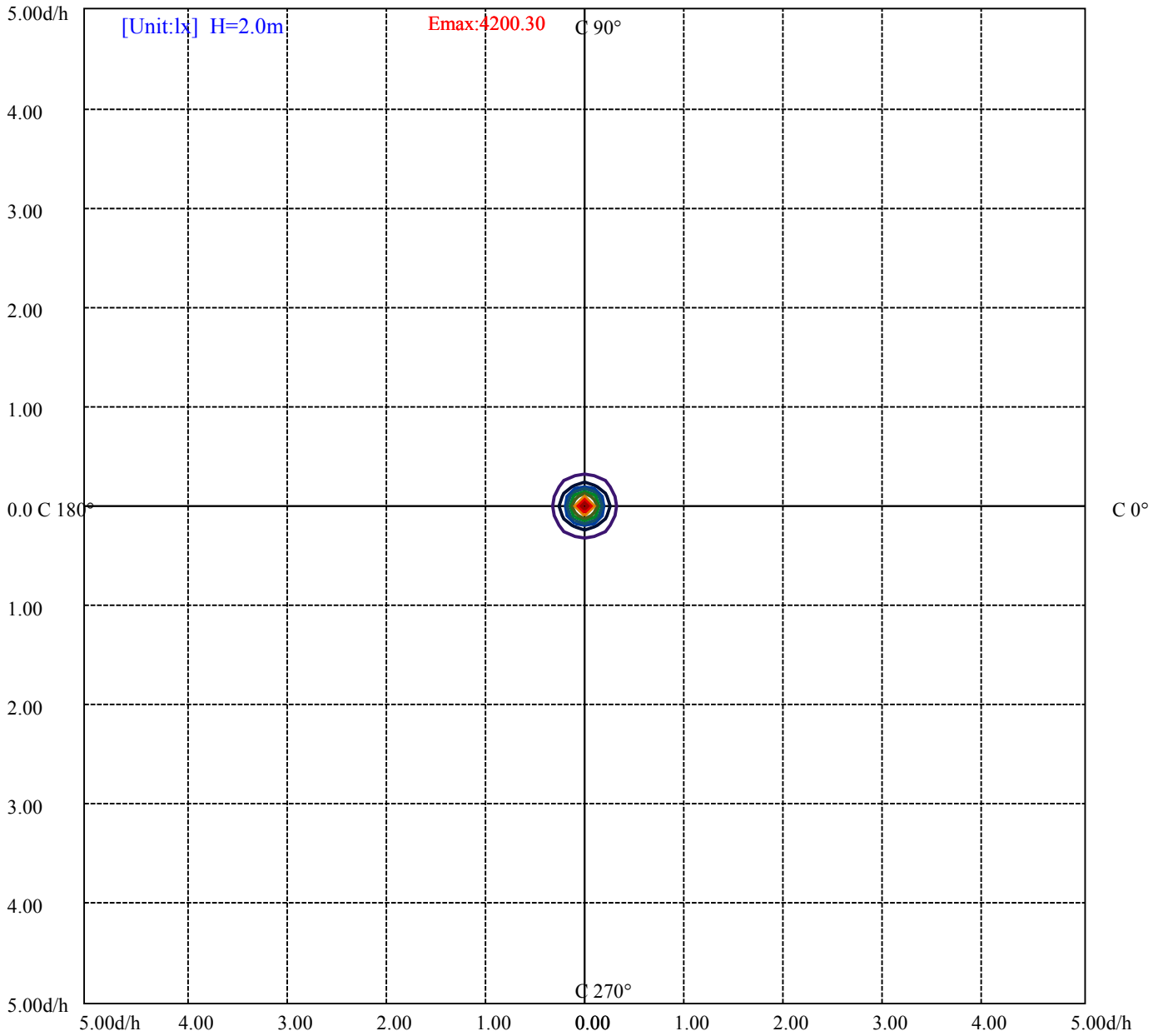
House

[Unit:cd]

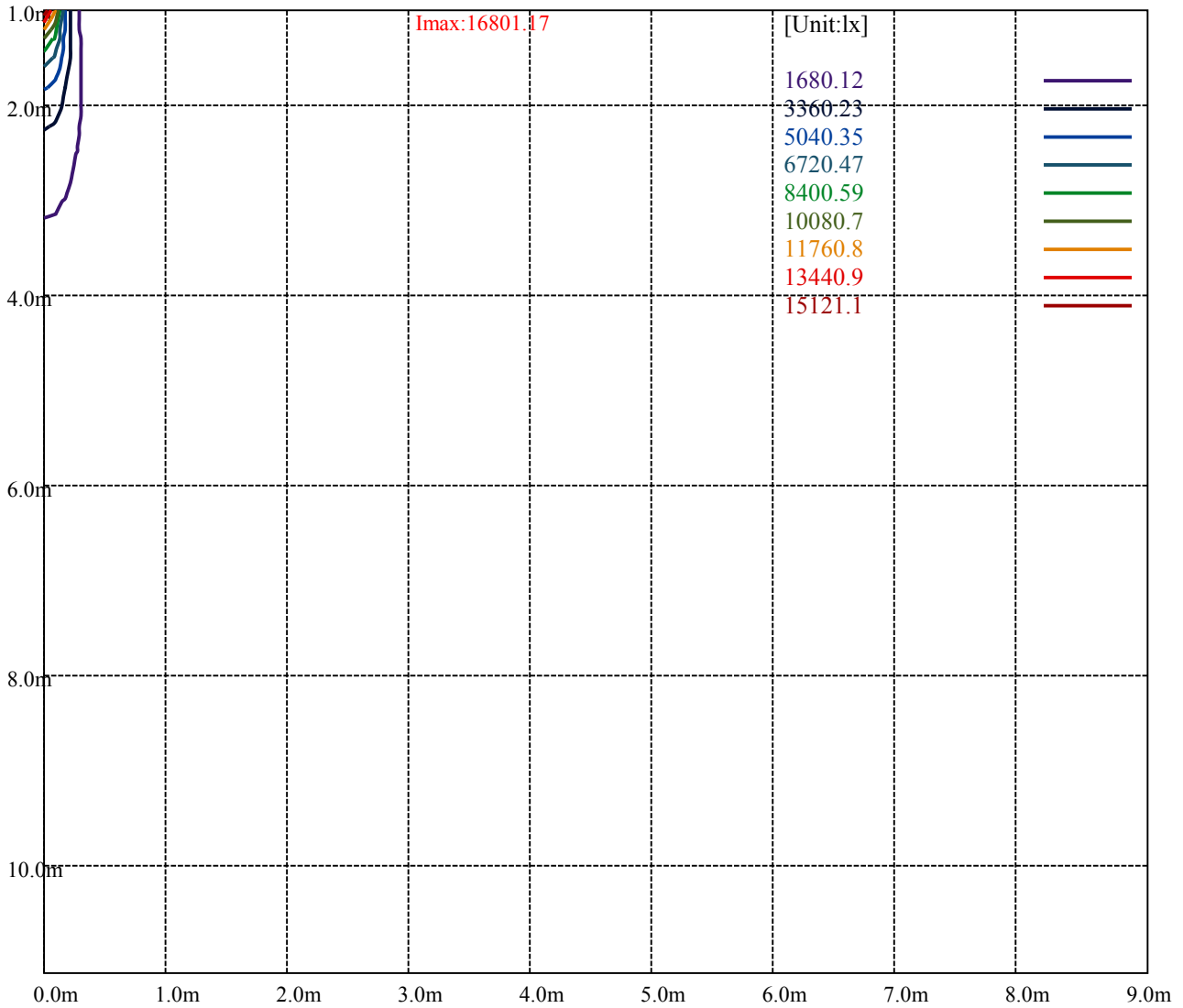
Road

Imax:16801.17

|           |         |   |
|-----------|---------|---|
| (10%Imax) | 1680.12 | — |
| (20%Imax) | 3360.23 | — |
| (30%Imax) | 5040.35 | — |
| (40%Imax) | 6720.47 | — |
| (50%Imax) | 8400.59 | — |
| (60%Imax) | 10080.7 | — |
| (70%Imax) | 11760.8 | — |
| (80%Imax) | 13440.9 | — |
| (90%Imax) | 15121.1 | — |



|                    |   |
|--------------------|---|
| (10%Emax) 420.03   | — |
| (20%Emax) 840.0575 | — |
| (30%Emax) 1260.088 | — |
| (40%Emax) 1680.115 | — |
| (50%Emax) 2100.145 | — |
| (60%Emax) 2520.175 | — |
| (70%Emax) 2940.2   | — |
| (80%Emax) 3360.225 | — |
| (90%Emax) 3780.25  | — |



Luminance Table

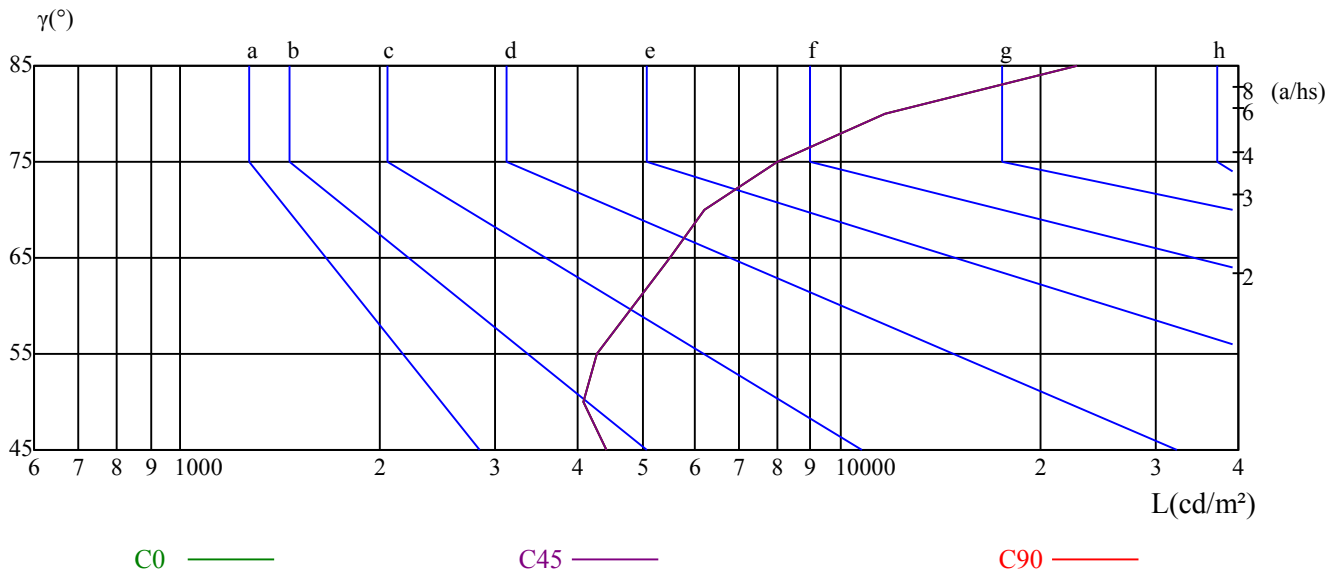
| $\gamma$ | 45   | 50   | 55   | 60   | 65   | 70   | 75   | 80    | 85    |
|----------|------|------|------|------|------|------|------|-------|-------|
| C0       | 4406 | 4079 | 4266 | 4858 | 5507 | 6230 | 7992 | 11669 | 22861 |
| C45      | 4406 | 4079 | 4266 | 4858 | 5507 | 6230 | 7992 | 11669 | 22861 |
| C90      | 4406 | 4079 | 4266 | 4858 | 5507 | 6230 | 7992 | 11669 | 22861 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 5507       | 5507       | 5507    | 7992       | 7992       | 7992    | 22861      | 22861      | 22861   |

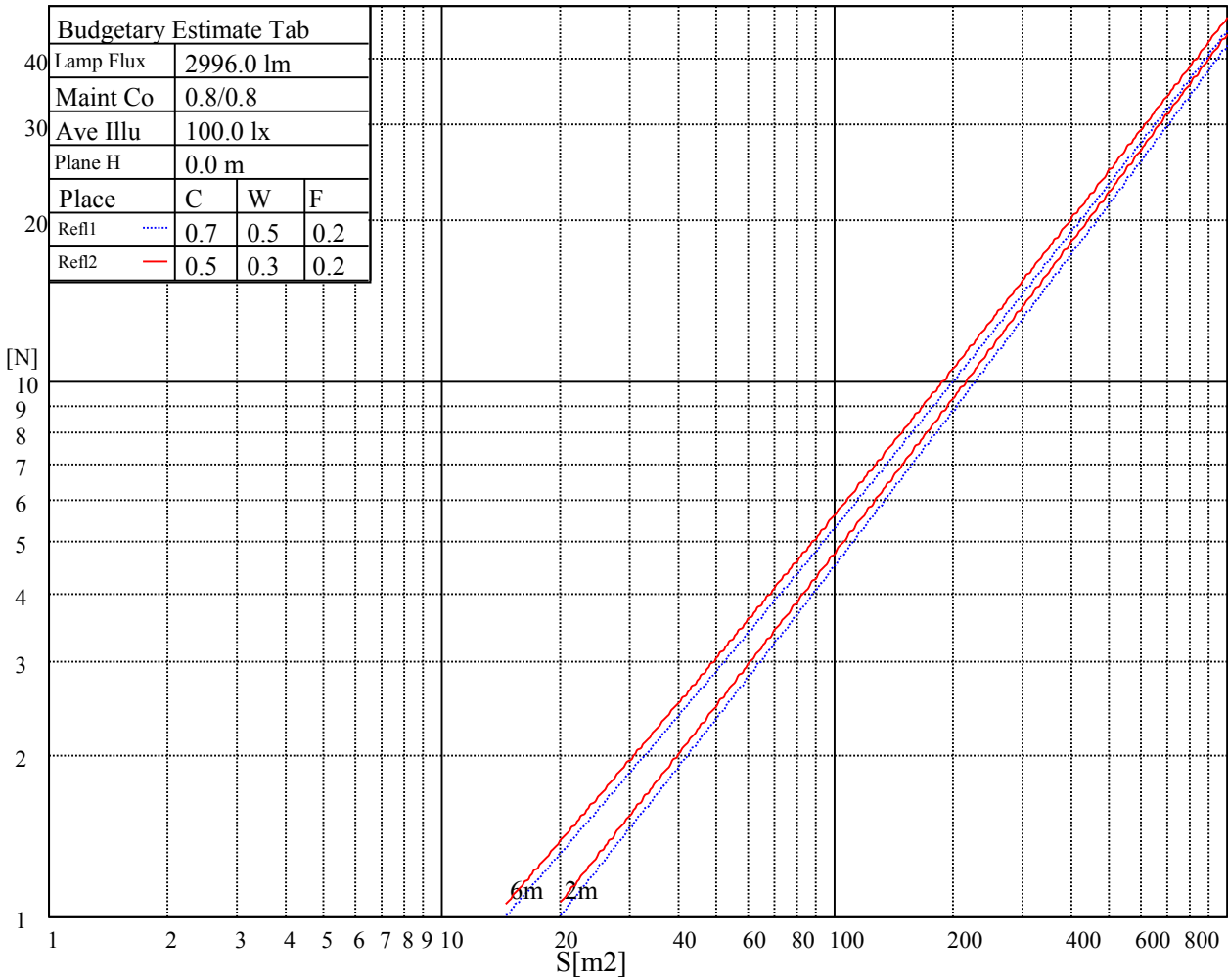
Glare Table

| 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     |

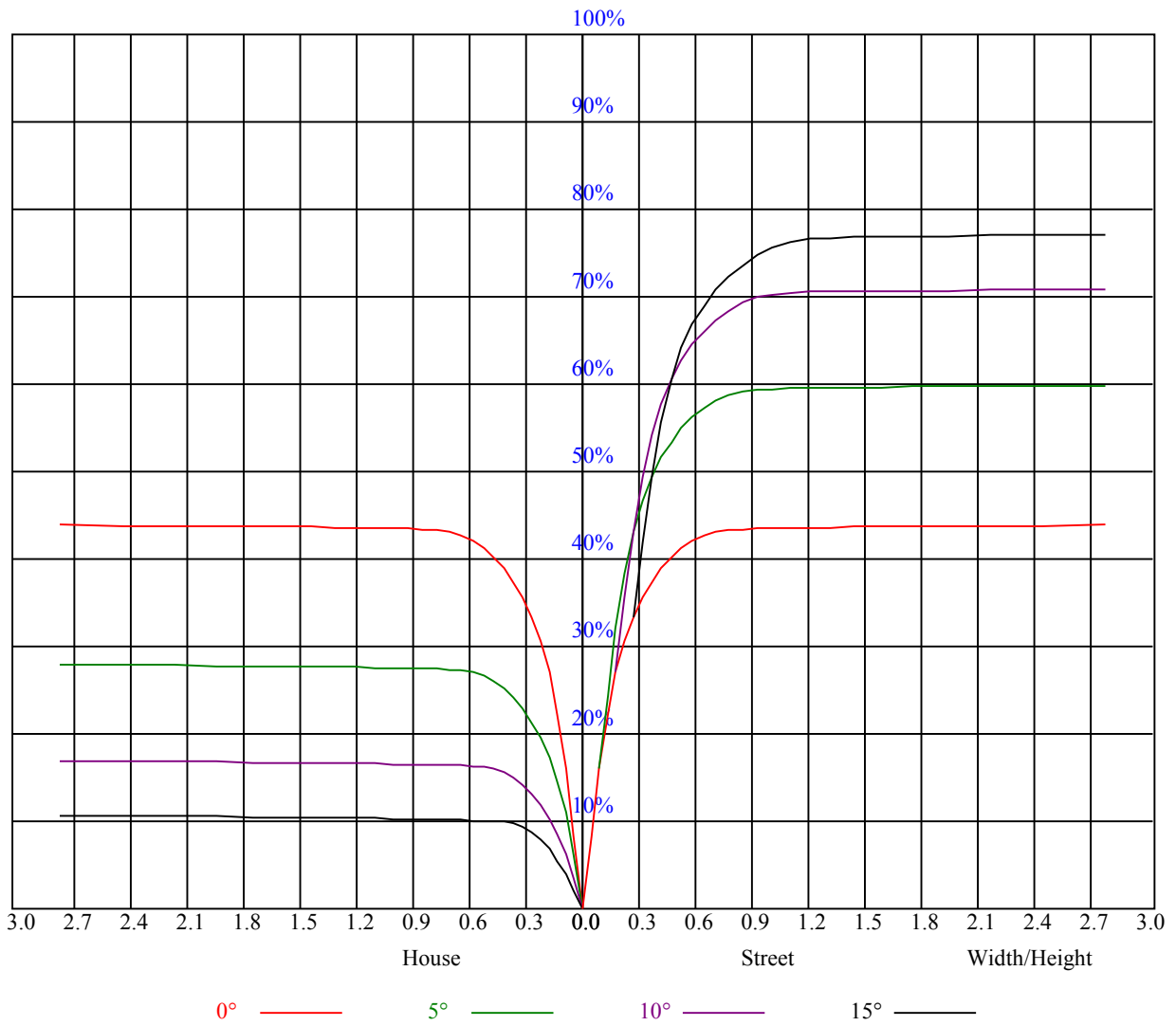
Luminance Limiting Curve



| 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       | 3.22             | 4.13  | 3.59  | 4.44  | 4.76     | 2.20           | 3.11  | 2.56  | 3.42  | 3.73  |
|   | 3H       | 6.05             | 6.85  | 6.43  | 7.18  | 7.55     | 5.46           | 6.26  | 5.84  | 6.59  | 6.96  |
|   | 4H       | 7.61             | 8.35  | 8.02  | 8.70  | 9.10     | 7.14           | 7.89  | 7.55  | 8.24  | 8.63  |
|   | 6H       | 9.42             | 10.10 | 9.84  | 10.48 | 10.87    | 9.04           | 9.72  | 9.46  | 10.10 | 10.50 |
|   | 8H       | 10.43            | 11.07 | 10.87 | 11.46 | 11.87    | 10.11          | 10.74 | 10.55 | 11.14 | 11.55 |
|   | 12H      | 12.08            | 12.69 | 12.52 | 13.07 | 13.50    | 11.85          | 12.46 | 12.29 | 12.84 | 13.27 |
| 4H  | 2H       | 3.98             | 4.72  | 4.39  | 5.08  | 5.47     | 3.26           | 4.00  | 3.67  | 4.36  | 4.75  |
|   | 3H       | 7.05             | 7.66  | 7.46  | 8.07  | 8.47     | 6.64           | 7.25  | 7.06  | 7.66  | 8.07  |
|   | 4H       | 8.80             | 9.35  | 9.24  | 9.77  | 10.22    | 8.48           | 9.02  | 8.91  | 9.44  | 9.89  |
|   | 6H       | 10.78            | 11.24 | 11.25 | 11.69 | 12.17    | 10.51          | 10.98 | 10.98 | 11.43 | 11.90 |
|   | 8H       | 11.91            | 12.34 | 12.39 | 12.79 | 13.27    | 11.68          | 12.11 | 12.15 | 12.56 | 13.04 |
|   | 12H      | 13.50            | 13.87 | 13.99 | 14.36 | 14.83    | 13.32          | 13.69 | 13.81 | 14.18 | 14.66 |
| 8H  | 4H       | 9.44             | 9.87  | 9.92  | 10.33 | 10.80    | 9.19           | 9.62  | 9.67  | 10.07 | 10.55 |
|   | 6H       | 11.71            | 12.05 | 12.22 | 12.55 | 13.04    | 11.51          | 11.85 | 12.02 | 12.35 | 12.84 |
|   | 8H       | 13.04            | 13.34 | 13.57 | 13.86 | 14.36    | 12.86          | 13.16 | 13.40 | 13.69 | 14.18 |
|   | 12H      | 14.80            | 15.05 | 15.32 | 15.55 | 16.13    | 14.65          | 14.91 | 15.17 | 15.41 | 15.99 |
| 12H   | 4H       | 9.62             | 9.99  | 10.12 | 10.48 | 10.96    | 9.39           | 9.76  | 9.88  | 10.25 | 10.73 |
|   | 6H       | 12.19            | 12.30 | 12.54 | 12.77 | 13.32    | 12.02          | 12.12 | 12.36 | 12.60 | 13.15 |
|   | 8H       | 13.46            | 13.72 | 13.99 | 14.22 | 14.80    | 13.31          | 13.56 | 13.83 | 14.06 | 14.65 |
| Variation with the observer position at spacings: |          |                  |       |       |       |          |                |       |       |       |       |
| S = 1.0H  | 5.8/-5.7 |                  |       |       |       | 5.8/-5.7 |                |       |       |       |       |
| S = 1.5H  | 7.6/-4.1 |                  |       |       |       | 7.6/-4.1 |                |       |       |       |       |
| S = 2.0H  | 8.6/-2.9 |                  |       |       |       | 8.6/-2.9 |                |       |       |       |       |
| Standard tables:                                  | BK4      |                  |       |       |       | BK4      |                |       |       |       |       |
| Uncorrected UGR                                   | 0.6      |                  |       |       |       | 0.6      |                |       |       |       |       |



| 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 RHOFC=20 CU |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 0     | 1.05                                    | 1.05 | 1.05 | 1.03 | 1.03 | 1.03 | 0.98 | 0.98 | 0.98 | 0.94 | 0.94 | 0.94 | 0.90 | 0.90 | 0.90 | 0.88 |
| 1     | 0.99                                    | 0.97 | 0.96 | 0.97 | 0.96 | 0.94 | 0.94 | 0.92 | 0.91 | 0.90 | 0.89 | 0.88 | 0.87 | 0.87 | 0.86 | 0.84 |
| 2     | 0.94                                    | 0.91 | 0.89 | 0.93 | 0.90 | 0.88 | 0.90 | 0.88 | 0.86 | 0.87 | 0.86 | 0.84 | 0.85 | 0.84 | 0.83 | 0.81 |
| 3     | 0.90                                    | 0.87 | 0.84 | 0.89 | 0.86 | 0.83 | 0.87 | 0.84 | 0.82 | 0.85 | 0.82 | 0.81 | 0.83 | 0.81 | 0.79 | 0.78 |
| 4     | 0.86                                    | 0.83 | 0.80 | 0.85 | 0.82 | 0.79 | 0.84 | 0.81 | 0.78 | 0.82 | 0.80 | 0.78 | 0.80 | 0.78 | 0.77 | 0.76 |
| 5     | 0.83                                    | 0.79 | 0.76 | 0.82 | 0.79 | 0.76 | 0.81 | 0.78 | 0.75 | 0.79 | 0.77 | 0.75 | 0.78 | 0.76 | 0.74 | 0.73 |
| 6     | 0.80                                    | 0.76 | 0.73 | 0.79 | 0.76 | 0.73 | 0.78 | 0.75 | 0.73 | 0.77 | 0.74 | 0.72 | 0.76 | 0.74 | 0.72 | 0.71 |
| 7     | 0.77                                    | 0.74 | 0.71 | 0.77 | 0.73 | 0.71 | 0.76 | 0.73 | 0.70 | 0.75 | 0.72 | 0.70 | 0.74 | 0.72 | 0.70 | 0.69 |
| 8     | 0.75                                    | 0.71 | 0.69 | 0.75 | 0.71 | 0.68 | 0.74 | 0.71 | 0.68 | 0.73 | 0.70 | 0.68 | 0.72 | 0.70 | 0.68 | 0.67 |
| 9     | 0.73                                    | 0.69 | 0.67 | 0.72 | 0.69 | 0.66 | 0.72 | 0.68 | 0.66 | 0.71 | 0.68 | 0.66 | 0.70 | 0.68 | 0.66 | 0.65 |
| 10    | 0.71                                    | 0.67 | 0.65 | 0.70 | 0.67 | 0.65 | 0.70 | 0.67 | 0.64 | 0.69 | 0.66 | 0.64 | 0.69 | 0.66 | 0.64 | 0.63 |





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    | 16807.50 | 16706.25 | 16306.88 | 15699.38 | 14731.88 | 13595.63 | 12099.38 | 10563.75 | 9241.88 |
| 45.0   | 16824.38 | 16689.38 | 16267.50 | 15570.00 | 14720.63 | 13460.63 | 11964.38 | 10591.88 | 9270.00 |
| 90.0   | 16785.00 | 16571.25 | 16138.13 | 15395.63 | 14338.13 | 13151.25 | 11129.06 | 10112.63 | 8796.38 |
| 135.0  | 16785.00 | 16751.25 | 16430.63 | 15811.88 | 14985.00 | 13753.13 | 12307.50 | 10957.50 | 9613.13 |
| 180.0  | 16813.13 | 16672.50 | 16216.88 | 15412.50 | 14394.38 | 13168.13 | 11126.25 | 10080.00 | 8710.88 |
| 225.0  | 16824.38 | 16717.50 | 16357.50 | 15615.00 | 14484.38 | 13235.63 | 11208.38 | 10167.75 | 8793.56 |
| 270.0  | 16785.00 | 16745.63 | 16436.25 | 15766.88 | 14838.75 | 13494.38 | 11981.25 | 10614.38 | 9247.50 |
| 315.0  | 16785.00 | 16554.38 | 16093.13 | 15277.50 | 14107.50 | 12825.00 | 11120.06 | 9763.31  | 8454.94 |
| 360.0  | 16807.50 | 16706.25 | 16306.88 | 15699.38 | 14731.88 | 13595.63 | 12099.38 | 10563.75 | 9241.88 |
| C/γ(°) | 9.0      | 10.0     | 11.0     | 12.0     | 13.0     | 14.0     | 15.0     | 16.0     | 17.0    |
| 0.0    | 7858.13  | 6575.63  | 5557.50  | 4680.00  | 3836.25  | 3296.25  | 2919.38  | 2481.75  | 2175.19 |
| 45.0   | 7717.50  | 6564.38  | 5540.63  | 4561.88  | 3791.25  | 3251.25  | 2874.38  | 2394.56  | 2129.63 |
| 90.0   | 7544.81  | 6132.38  | 5165.44  | 4364.44  | 3643.88  | 3077.44  | 2675.81  | 2309.63  | 2049.19 |
| 135.0  | 8015.63  | 6811.88  | 5731.88  | 4820.63  | 3909.38  | 3341.25  | 2874.38  | 2428.31  | 2142.56 |
| 180.0  | 7408.13  | 5977.13  | 5038.88  | 4266.56  | 3490.88  | 3000.38  | 2598.75  | 2234.25  | 1941.19 |
| 225.0  | 7481.81  | 6005.25  | 5016.38  | 4218.75  | 3441.38  | 2957.63  | 2559.38  | 2197.69  | 1942.88 |
| 270.0  | 7627.50  | 6423.75  | 5377.50  | 4410.00  | 3645.00  | 3110.63  | 2885.63  | 2256.19  | 1989.00 |
| 315.0  | 7230.38  | 5843.81  | 4901.06  | 4137.75  | 3455.44  | 2931.19  | 2557.69  | 2217.94  | 1985.63 |
| 360.0  | 7858.13  | 6575.63  | 5557.50  | 4680.00  | 3836.25  | 3296.25  | 2919.38  | 2481.75  | 2175.19 |
| C/γ(°) | 18.0     | 19.0     | 20.0     | 21.0     | 22.0     | 23.0     | 24.0     | 25.0     | 26.0    |
| 0.0    | 1956.94  | 1756.69  | 1596.94  | 1481.06  | 1374.75  | 1297.13  | 1225.13  | 1166.63  | 1123.88 |
| 45.0   | 1903.50  | 1695.94  | 1548.56  | 1432.69  | 1329.19  | 1252.13  | 1197.00  | 1145.25  | 1105.88 |
| 90.0   | 1811.81  | 1626.75  | 1494.00  | 1375.31  | 1281.38  | 1213.88  | 1119.60  | 1098.62  | 1061.55 |
| 135.0  | 1905.19  | 1697.63  | 1537.31  | 1422.56  | 1319.63  | 1238.06  | 1180.69  | 1128.94  | 1092.38 |
| 180.0  | 1734.19  | 1551.94  | 1425.38  | 1315.13  | 1230.75  | 1168.31  | 1116.90  | 1075.95  | 1045.52 |
| 225.0  | 1720.69  | 1531.69  | 1427.06  | 1319.63  | 1228.50  | 1178.44  | 1118.31  | 1087.99  | 1054.86 |
| 270.0  | 1794.94  | 1582.31  | 1434.94  | 1338.75  | 1225.13  | 1139.63  | 1081.69  | 1005.19  | 961.88  |
| 315.0  | 1775.81  | 1612.13  | 1490.06  | 1378.69  | 1290.38  | 1225.13  | 1171.69  | 1110.09  | 1079.33 |
| 360.0  | 1956.94  | 1756.69  | 1596.94  | 1481.06  | 1374.75  | 1297.13  | 1225.13  | 1166.63  | 1123.88 |
| C/γ(°) | 27.0     | 28.0     | 29.0     | 30.0     | 31.0     | 32.0     | 33.0     | 34.0     | 35.0    |
| 0.0    | 1086.75  | 1046.25  | 1015.88  | 959.06   | 859.50   | 765.56   | 667.13   | 551.81   | 433.69  |
| 45.0   | 1068.19  | 1037.25  | 1005.75  | 952.88   | 844.31   | 743.06   | 656.44   | 519.19   | 425.81  |
| 90.0   | 1029.49  | 1001.36  | 947.87   | 872.83   | 785.42   | 664.99   | 565.88   | 466.31   | 356.91  |
| 135.0  | 1055.25  | 1024.31  | 979.88   | 909.00   | 801.56   | 698.63   | 595.69   | 474.19   | 372.94  |
| 180.0  | 1018.80  | 972.28   | 903.04   | 817.76   | 710.83   | 596.64   | 494.94   | 371.36   | 277.93  |
| 225.0  | 1029.09  | 994.78   | 913.11   | 829.74   | 736.65   | 611.94   | 510.86   | 408.38   | 296.16  |
| 270.0  | 927.56   | 891.00   | 843.19   | 780.75   | 689.63   | 603.56   | 513.56   | 403.31   | 323.44  |
| 315.0  | 1048.67  | 1016.04  | 955.91   | 879.24   | 777.26   | 666.39   | 563.29   | 444.77   | 341.61  |
| 360.0  | 1086.75  | 1046.25  | 1015.88  | 959.06   | 859.50   | 765.56   | 667.13   | 551.81   | 433.69  |
| C/γ(°) | 36.0     | 37.0     | 38.0     | 39.0     | 40.0     | 41.0     | 42.0     | 43.0     | 44.0    |
| 0.0    | 330.19   | 305.44   | 135.17   | 65.03    | 35.78    | 30.04    | 22.16    | 15.75    | 13.95   |
| 45.0   | 334.69   | 284.06   | 128.14   | 68.85    | 39.21    | 33.08    | 24.98    | 18.84    | 17.55   |
| 90.0   | 254.81   | 174.54   | 99.96    | 54.34    | 38.64    | 31.22    | 24.24    | 19.80    | 19.07   |
| 135.0  | 284.06   | 171.68   | 95.57    | 50.18    | 33.69    | 27.28    | 19.18    | 14.29    | 13.44   |
| 180.0  | 191.93   | 101.76   | 56.93    | 33.98    | 27.11    | 21.15    | 15.53    | 13.39    | 13.11   |
| 225.0  | 194.46   | 110.93   | 58.05    | 37.07    | 31.95    | 24.81    | 19.24    | 16.88    | 16.14   |
| 270.0  | 284.63   | 162.90   | 90.28    | 56.31    | 47.59    | 41.06    | 32.57    | 27.39    | 25.76   |
| 315.0  | 234.06   | 142.37   | 77.85    | 42.47    | 34.31    | 27.39    | 20.64    | 16.31    | 15.58   |
| 360.0  | 330.19   | 305.44   | 135.17   | 65.03    | 35.78    | 30.04    | 22.16    | 15.75    | 13.95   |

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    | 13.50 | 13.05 | 12.71 | 12.49 | 12.15 | 11.93 | 11.76 | 11.59 | 11.48 |
| 45.0   | 16.76 | 15.98 | 15.41 | 14.79 | 14.12 | 13.73 | 13.39 | 13.11 | 12.88 |
| 90.0   | 18.28 | 17.49 | 16.54 | 15.86 | 15.24 | 14.79 | 14.40 | 14.23 | 14.12 |
| 135.0  | 13.11 | 12.77 | 12.54 | 12.32 | 12.09 | 11.93 | 11.81 | 11.70 | 11.59 |
| 180.0  | 12.83 | 12.54 | 12.38 | 12.21 | 12.04 | 11.81 | 11.70 | 11.59 | 11.53 |
| 225.0  | 15.47 | 14.96 | 14.40 | 14.12 | 13.78 | 13.56 | 13.39 | 13.28 | 13.16 |
| 270.0  | 24.30 | 22.84 | 21.49 | 20.36 | 19.01 | 18.17 | 17.44 | 16.88 | 16.26 |
| 315.0  | 14.96 | 14.46 | 13.89 | 13.50 | 13.16 | 12.83 | 12.60 | 12.43 | 12.26 |
| 360.0  | 13.50 | 13.05 | 12.71 | 12.49 | 12.15 | 11.93 | 11.76 | 11.59 | 11.48 |
| C/γ(°) | 54.0  | 55.0  | 56.0  | 57.0  | 58.0  | 59.0  | 60.0  | 61.0  | 62.0  |
| 0.0    | 11.42 | 11.31 | 11.25 | 11.25 | 11.19 | 11.19 | 11.19 | 11.14 | 11.14 |
| 45.0   | 12.77 | 12.60 | 12.43 | 12.43 | 12.26 | 12.43 | 12.49 | 12.54 | 12.60 |
| 90.0   | 13.95 | 13.95 | 13.89 | 13.89 | 13.95 | 14.01 | 14.12 | 14.18 | 14.18 |
| 135.0  | 11.53 | 11.42 | 11.42 | 11.36 | 11.36 | 11.31 | 11.31 | 11.31 | 11.25 |
| 180.0  | 11.48 | 11.42 | 11.42 | 11.48 | 11.48 | 11.53 | 11.53 | 11.53 | 11.53 |
| 225.0  | 13.11 | 13.11 | 13.22 | 13.33 | 13.56 | 13.78 | 14.01 | 14.18 | 14.23 |
| 270.0  | 16.03 | 15.69 | 15.41 | 15.24 | 14.96 | 14.85 | 14.57 | 14.29 | 14.01 |
| 315.0  | 12.09 | 11.98 | 11.81 | 11.76 | 11.64 | 11.53 | 11.53 | 11.48 | 11.48 |
| 360.0  | 11.42 | 11.31 | 11.25 | 11.25 | 11.19 | 11.19 | 11.19 | 11.14 | 11.14 |
| C/γ(°) | 63.0  | 64.0  | 65.0  | 66.0  | 67.0  | 68.0  | 69.0  | 70.0  | 71.0  |
| 0.0    | 11.14 | 11.08 | 11.03 | 11.03 | 10.97 | 10.86 | 10.80 | 10.74 | 10.63 |
| 45.0   | 12.54 | 12.38 | 12.09 | 11.87 | 11.48 | 11.25 | 11.03 | 10.97 | 10.91 |
| 90.0   | 13.95 | 13.73 | 13.11 | 12.54 | 11.98 | 11.59 | 11.36 | 11.25 | 11.19 |
| 135.0  | 11.31 | 11.31 | 11.36 | 11.31 | 11.25 | 11.19 | 11.08 | 11.03 | 10.86 |
| 180.0  | 11.53 | 11.59 | 11.64 | 11.64 | 11.64 | 11.59 | 11.48 | 11.25 | 11.03 |
| 225.0  | 14.06 | 13.78 | 13.16 | 12.60 | 12.09 | 11.59 | 11.31 | 11.08 | 10.91 |
| 270.0  | 13.67 | 13.22 | 12.83 | 12.43 | 11.93 | 11.64 | 11.42 | 11.31 | 11.19 |
| 315.0  | 11.42 | 11.36 | 11.31 | 11.25 | 11.14 | 10.97 | 10.80 | 10.74 | 10.69 |
| 360.0  | 11.14 | 11.08 | 11.03 | 11.03 | 10.97 | 10.86 | 10.80 | 10.74 | 10.63 |
| C/γ(°) | 72.0  | 73.0  | 74.0  | 75.0  | 76.0  | 77.0  | 78.0  | 79.0  | 80.0  |
| 0.0    | 10.58 | 10.52 | 10.52 | 10.46 | 10.41 | 10.35 | 10.29 | 10.35 | 10.29 |
| 45.0   | 10.86 | 10.80 | 10.80 | 10.74 | 10.74 | 10.69 | 10.58 | 10.58 | 10.58 |
| 90.0   | 11.19 | 11.19 | 11.19 | 11.19 | 11.14 | 11.08 | 11.08 | 10.97 | 10.91 |
| 135.0  | 10.86 | 10.74 | 10.69 | 10.63 | 10.58 | 10.52 | 10.46 | 10.41 | 10.41 |
| 180.0  | 10.86 | 10.74 | 10.63 | 10.63 | 10.58 | 10.52 | 10.46 | 10.46 | 10.41 |
| 225.0  | 10.86 | 10.80 | 10.80 | 10.74 | 10.69 | 10.63 | 10.58 | 10.58 | 10.52 |
| 270.0  | 11.08 | 10.97 | 10.97 | 10.91 | 10.86 | 10.80 | 10.74 | 10.69 | 10.63 |
| 315.0  | 10.58 | 10.58 | 10.52 | 10.46 | 10.41 | 10.35 | 10.35 | 10.29 | 10.29 |
| 360.0  | 10.58 | 10.52 | 10.52 | 10.46 | 10.41 | 10.35 | 10.29 | 10.35 | 10.29 |
| C/γ(°) | 81.0  | 82.0  | 83.0  | 84.0  | 85.0  | 86.0  | 87.0  | 88.0  | 89.0  |
| 0.0    | 10.29 | 10.24 | 10.24 | 10.24 | 10.24 | 10.18 | 10.18 | 10.13 | 10.13 |
| 45.0   | 10.58 | 10.52 | 10.52 | 10.46 | 10.41 | 10.29 | 10.18 | 10.13 | 10.13 |
| 90.0   | 10.86 | 10.74 | 10.63 | 10.58 | 10.52 | 10.41 | 10.24 | 10.13 | 10.01 |
| 135.0  | 10.29 | 10.29 | 10.29 | 10.29 | 10.24 | 10.24 | 10.18 | 10.18 | 10.13 |
| 180.0  | 10.41 | 10.41 | 10.41 | 10.41 | 10.41 | 10.35 | 10.24 | 10.18 | 10.01 |
| 225.0  | 10.52 | 10.41 | 10.41 | 10.35 | 10.29 | 10.29 | 10.24 | 10.13 | 10.07 |
| 270.0  | 10.52 | 10.46 | 10.35 | 10.35 | 10.24 | 10.18 | 10.13 | 10.07 | 10.01 |
| 315.0  | 10.29 | 10.24 | 10.24 | 10.24 | 10.29 | 10.24 | 10.18 | 10.18 | 10.13 |
| 360.0  | 10.29 | 10.24 | 10.24 | 10.24 | 10.24 | 10.18 | 10.18 | 10.13 | 10.13 |

Intensity data(cd)

|               |              |
|---------------|--------------|
| <b>C/γ(°)</b> | <b>90.0</b>  |
| <b>0.0</b>    | <b>10.07</b> |
| <b>45.0</b>   | <b>10.01</b> |
| <b>90.0</b>   | <b>9.96</b>  |
| <b>135.0</b>  | <b>9.96</b>  |
| <b>180.0</b>  | <b>9.96</b>  |
| <b>225.0</b>  | <b>10.01</b> |
| <b>270.0</b>  | <b>9.96</b>  |
| <b>315.0</b>  | <b>10.01</b> |
| <b>360.0</b>  | <b>10.07</b> |