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## Nata

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|                           |                     |
|---------------------------|---------------------|
| LumCAT: 2-2164-M          |                     |
| Luminaire: BJB47.360.5080 |                     |
| Report No: NATA0100       | Voltage(V): 35.1600 |
| Test No: GC2020022009     | Current(A): 0.7000  |
| LampCAT: LUMILEDS 1208    | Power (W): 24.5770  |
| Lamp flux(lm): 2931.0     | PF: 0.0000          |
| Number of Lamps: 1        | Ballast type: DC    |
| Length(mm): 0             | Width(mm): 0        |
| Phm Type: C               | Height(mm): 0       |

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## Photometric Results

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Lumens(lm): 2335.52  
Efficiency(%): 79.68%  
Lumens(lm)/Power(W): 95.03  
Central intensity(cd): 9863.297  
Maximum intensity(cd): 9863.297  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=25.9  
                                  [C90/270]Total=25.9  
Field angle(10%Imax): [C0/180]Total=47.9  
                                  [C90/270]Total=47.9  
Maximum s/h(1/2): C0\_180=0.44 C90\_270=0.44  
Maximum s/h(1/4): C0\_180=0.45 C90\_270=0.45  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 79.68%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.085%

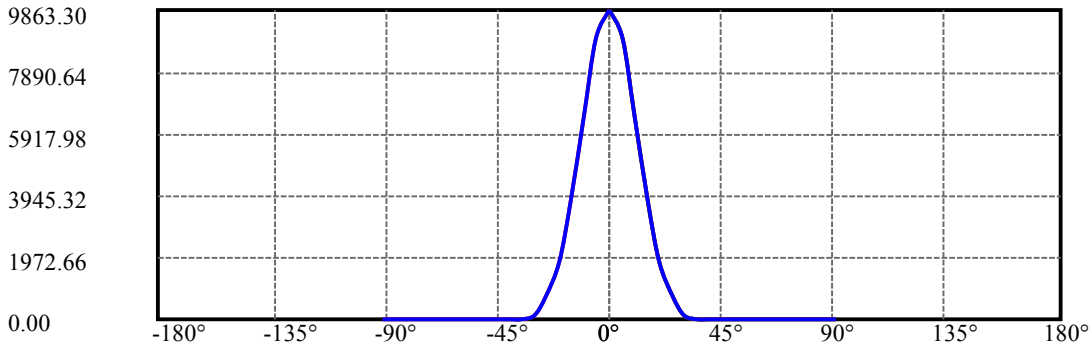
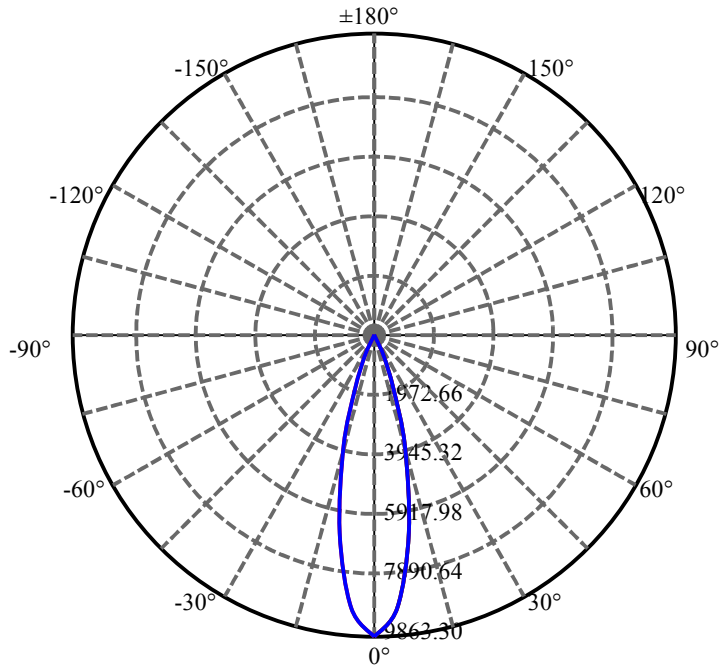
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 9863.297      | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 8931.094      | 224.682     | 224.682   | 7.666%      | 9.620%     |
| 10.0               | 6539.203      | 553.421     | 778.103   | 18.882%     | 33.316%    |
| 15.0               | 3803.555      | 613.525     | 1391.628  | 20.932%     | 59.585%    |
| 20.0               | 1850.541      | 465.977     | 1857.605  | 15.898%     | 79.537%    |
| 25.0               | 759.023       | 273.695     | 2131.3    | 9.338%      | 91.256%    |
| 30.0               | 118.287       | 111.024     | 2242.325  | 3.788%      | 96.010%    |
| 35.0               | 16.952        | 19.915      | 2262.239  | .679%       | 96.862%    |
| 40.0               | 15.117        | 5.351       | 2267.59   | .183%       | 97.092%    |
| 45.0               | 14.238        | 5.435       | 2273.025  | .185%       | 97.324%    |
| 50.0               | 13.760        | 5.657       | 2278.683  | .193%       | 97.566%    |
| 55.0               | 13.395        | 5.904       | 2284.587  | .201%       | 97.819%    |
| 60.0               | 13.402        | 6.194       | 2290.781  | .211%       | 98.084%    |
| 65.0               | 14.667        | 6.824       | 2297.605  | .233%       | 98.377%    |
| 70.0               | 18.387        | 8.369       | 2305.974  | .286%       | 98.735%    |
| 75.0               | 19.491        | 9.901       | 2315.875  | .338%       | 99.159%    |
| 80.0               | 11.714        | 8.350       | 2324.224  | .285%       | 99.516%    |
| 85.0               | 10.111        | 5.930       | 2330.155  | .202%       | 99.770%    |
| 90.0               | 9.478         | 5.364       | 2335.518  | .183%       | 100.000%   |

ZONAL LUMEN SUMMARY

| Zone    | Lumens  | %Lamp  | %Fixt   |
|---------|---------|--------|---------|
| 0-30    | 2242.32 | 76.50% | 96.01%  |
| 0-40    | 2267.59 | 77.37% | 97.09%  |
| 0-60    | 2290.78 | 78.16% | 98.08%  |
| 0-90    | 2330.15 | 79.50% | 99.77%  |
| 0-120   | 2330.15 | 79.50% | 99.77%  |
| 0-180   | 2335.52 | 79.68% | 100.00% |
| 60-90   | 45.57   | 1.55%  | 1.95%   |
| 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%   |
| 0-20.20 | 1868.42 | 63.75% | 80.00%  |

ZONAL LUMEN SUMMARY

|         |         |
|---------|---------|
| 0-10    | 778.10  |
| 10-20   | 1079.50 |
| 20-30   | 384.72  |
| 30-40   | 25.27   |
| 40-50   | 11.09   |
| 50-60   | 12.10   |
| 60-70   | 15.19   |
| 70-80   | 18.25   |
| 80-90   | 5.93    |
| 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: ———

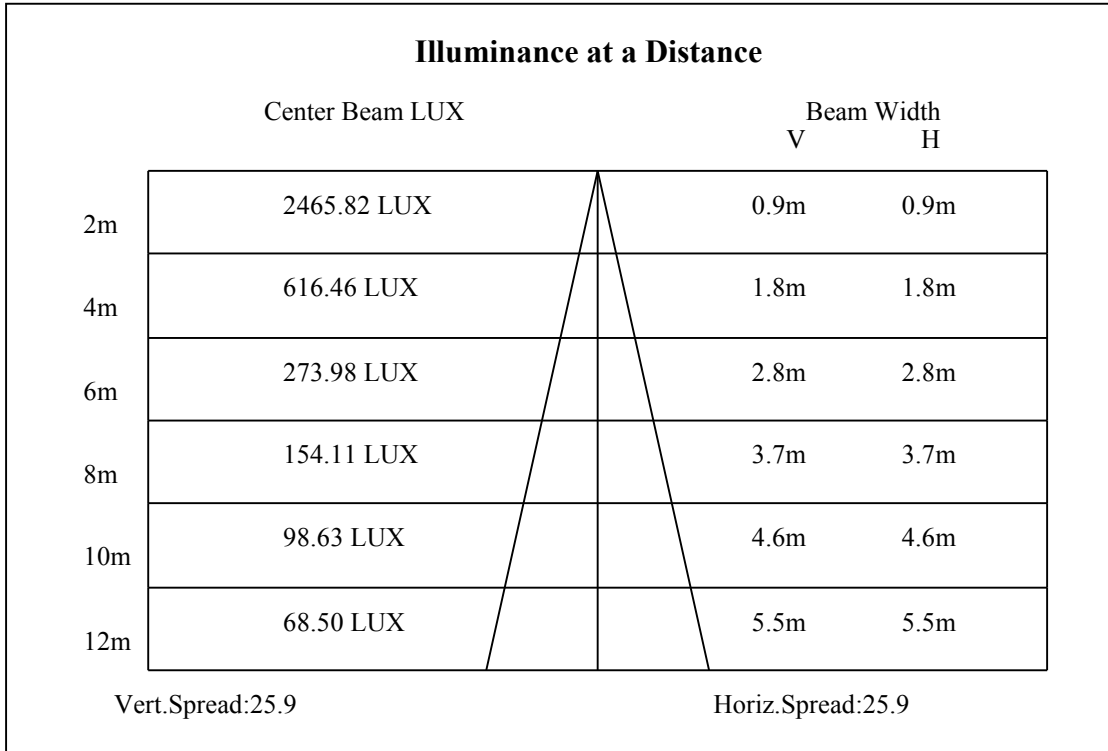
C90/C270: ———

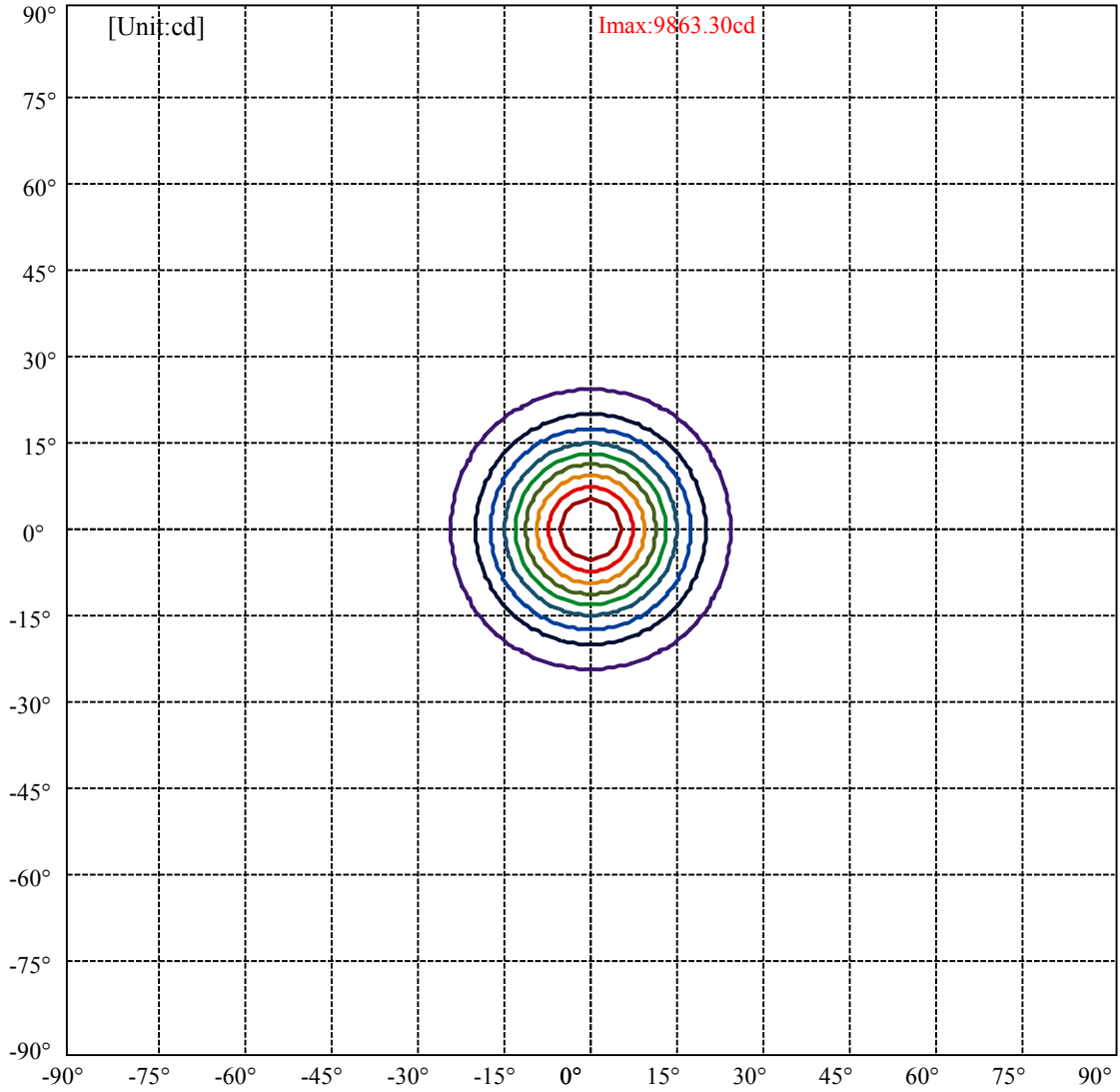
Field angle(10%Imax):C0/180Left:24.0 Right:24.0

:C90/270Left:24.0 Right:24.0

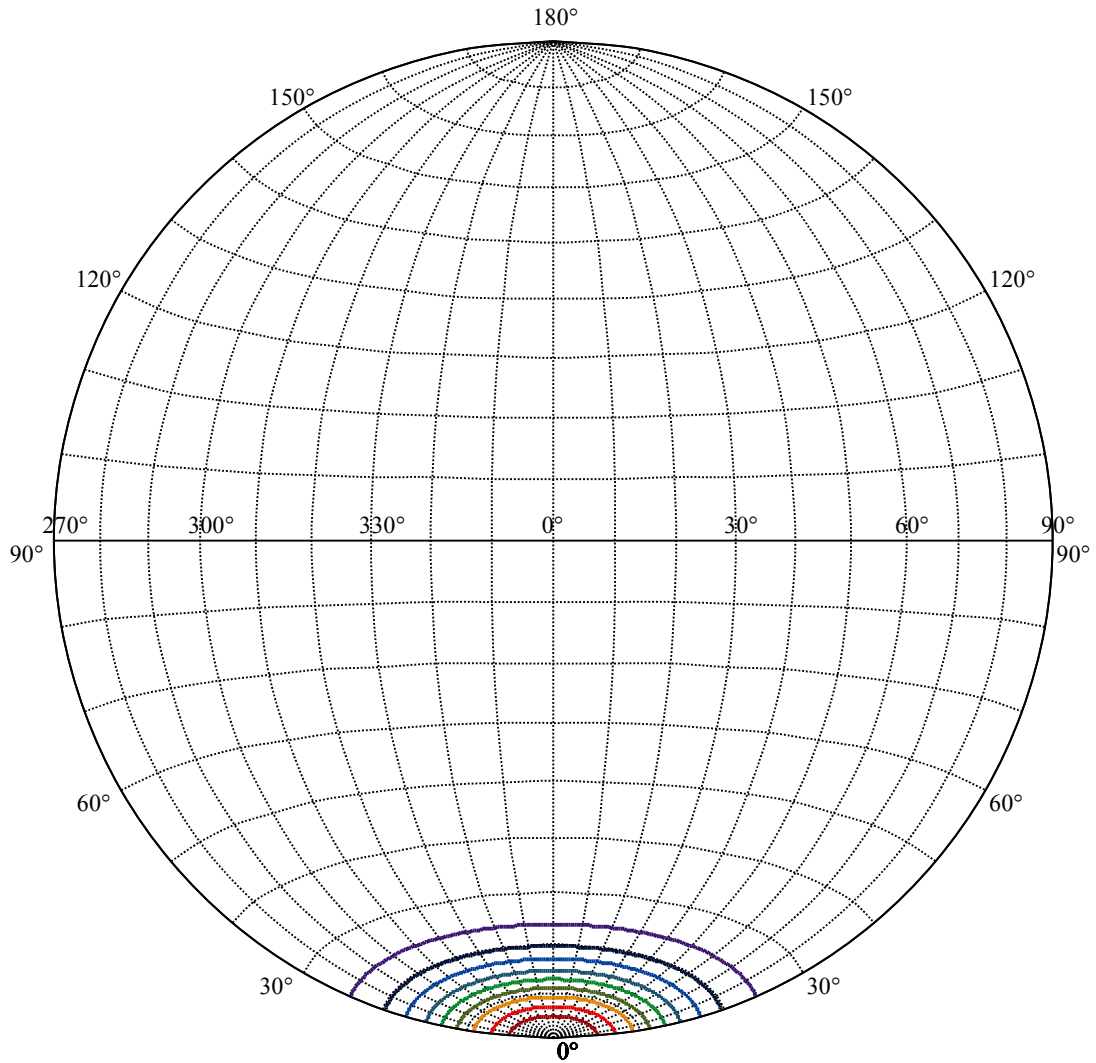
Beam Angle(50%Imax):C0/180Left:12.9 Right:12.9

:C90/270Left:12.9 Right:12.9





|                   |   |
|-------------------|---|
| (10%Imax) 986.33  | — |
| (20%Imax) 1972.66 | — |
| (30%Imax) 2958.99 | — |
| (40%Imax) 3945.32 | — |
| (50%Imax) 4931.65 | — |
| (60%Imax) 5917.98 | — |
| (70%Imax) 6904.31 | — |
| (80%Imax) 7890.64 | — |
| (90%Imax) 8876.97 | — |



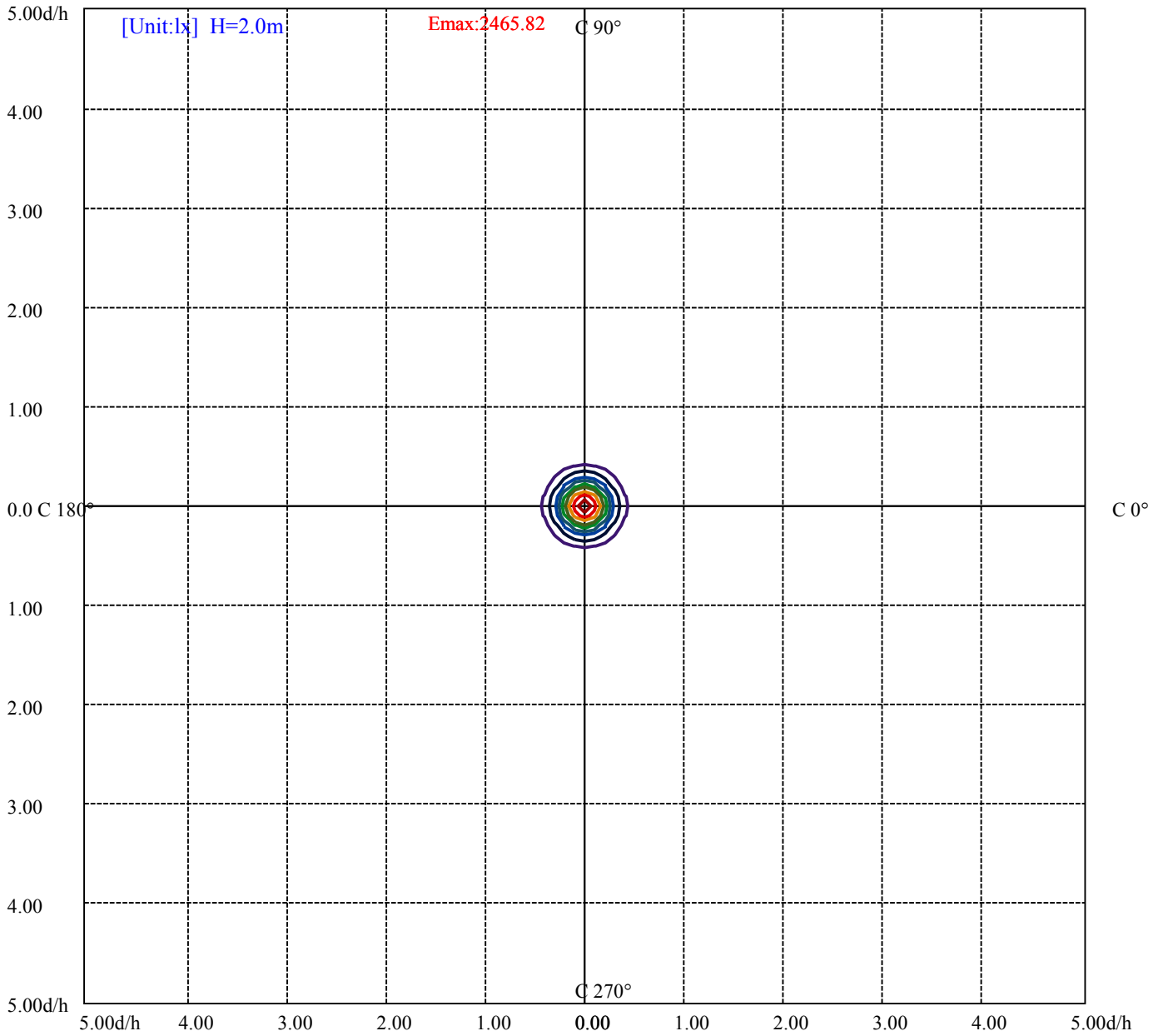
House

[Unit:cd]

Road

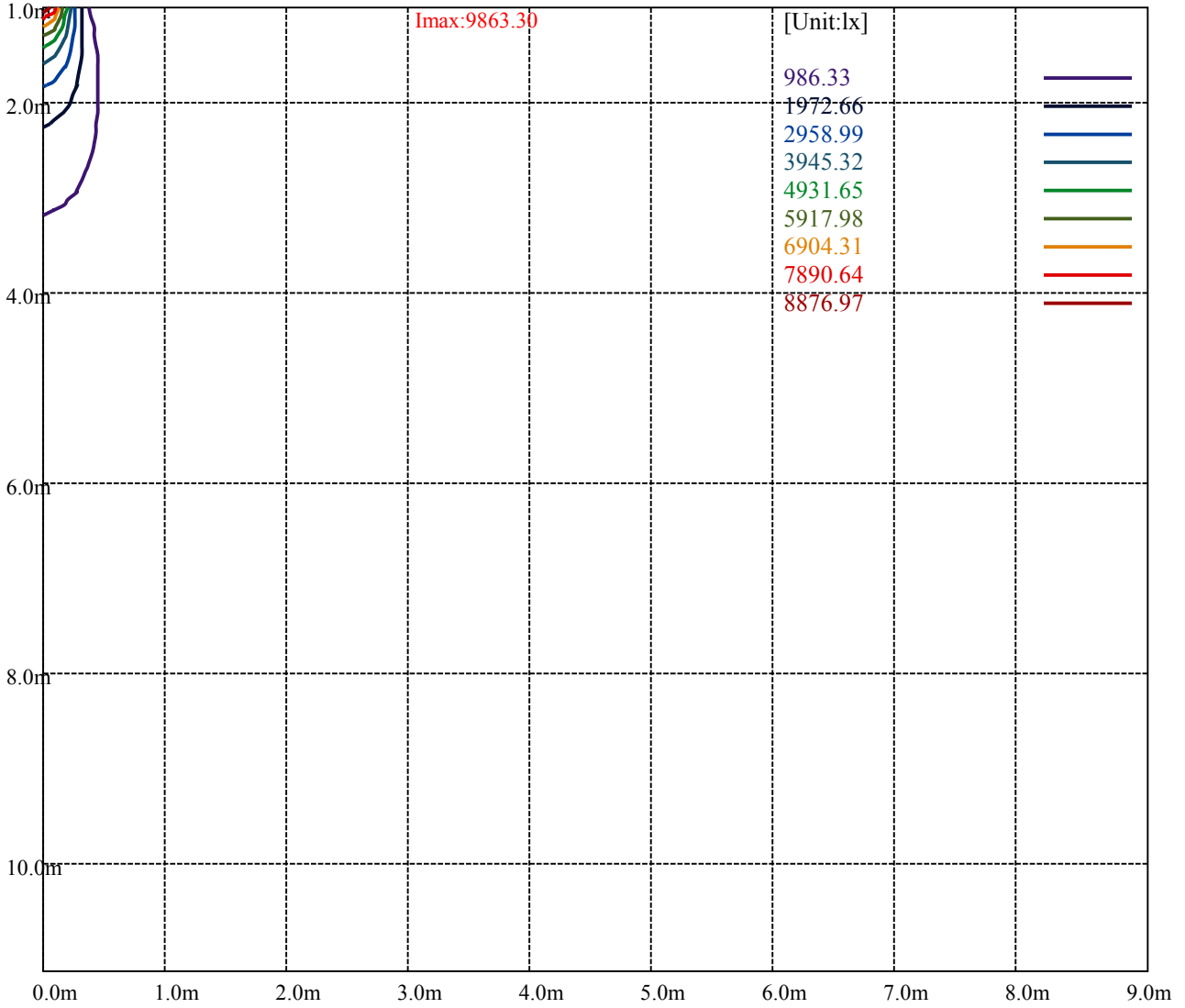
**Imax:9863.30**

|                   |   |
|-------------------|---|
| (10%Imax) 986.33  | — |
| (20%Imax) 1972.66 | — |
| (30%Imax) 2958.99 | — |
| (40%Imax) 3945.32 | — |
| (50%Imax) 4931.65 | — |
| (60%Imax) 5917.98 | — |
| (70%Imax) 6904.31 | — |
| (80%Imax) 7890.64 | — |
| (90%Imax) 8876.97 | — |



|                    |   |
|--------------------|---|
| (10%Emax) 246.5818 | — |
| (20%Emax) 493.1625 | — |
| (30%Emax) 739.745  | — |
| (40%Emax) 986.3275 | — |
| (50%Emax) 1232.907 | — |
| (60%Emax) 1479.49  | — |
| (70%Emax) 1726.073 | — |
| (80%Emax) 1972.652 | — |
| (90%Emax) 2219.235 | — |





Luminance Table

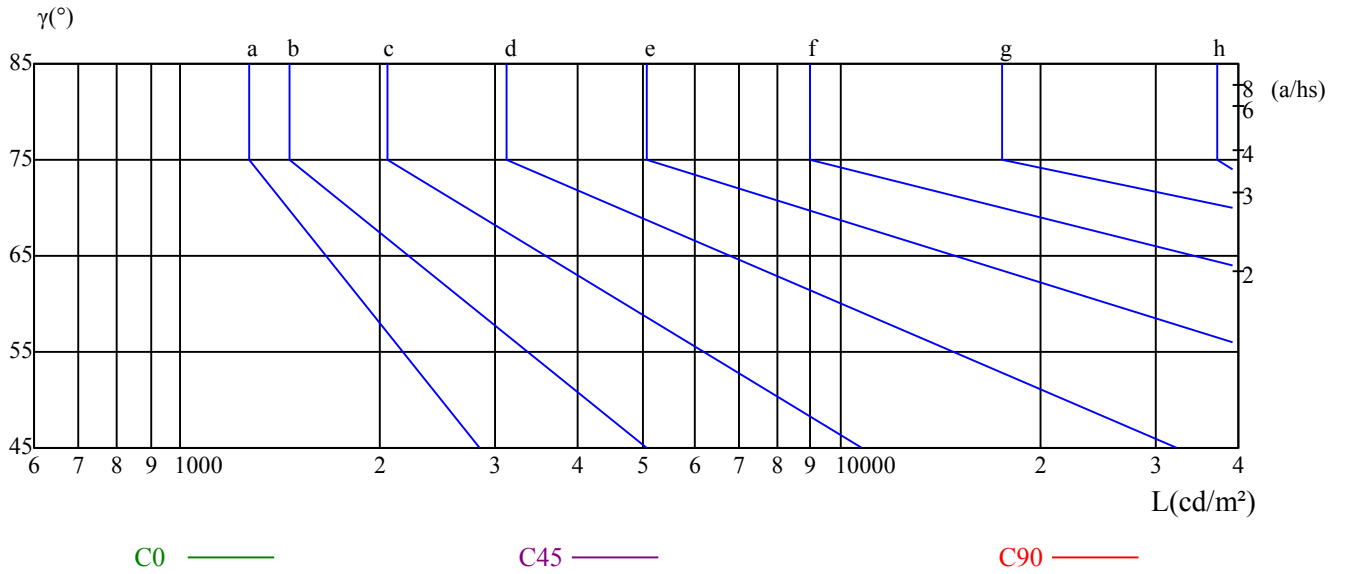
| $\gamma$ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|----|----|----|----|----|----|----|----|----|
| C0       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C45      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C90      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |

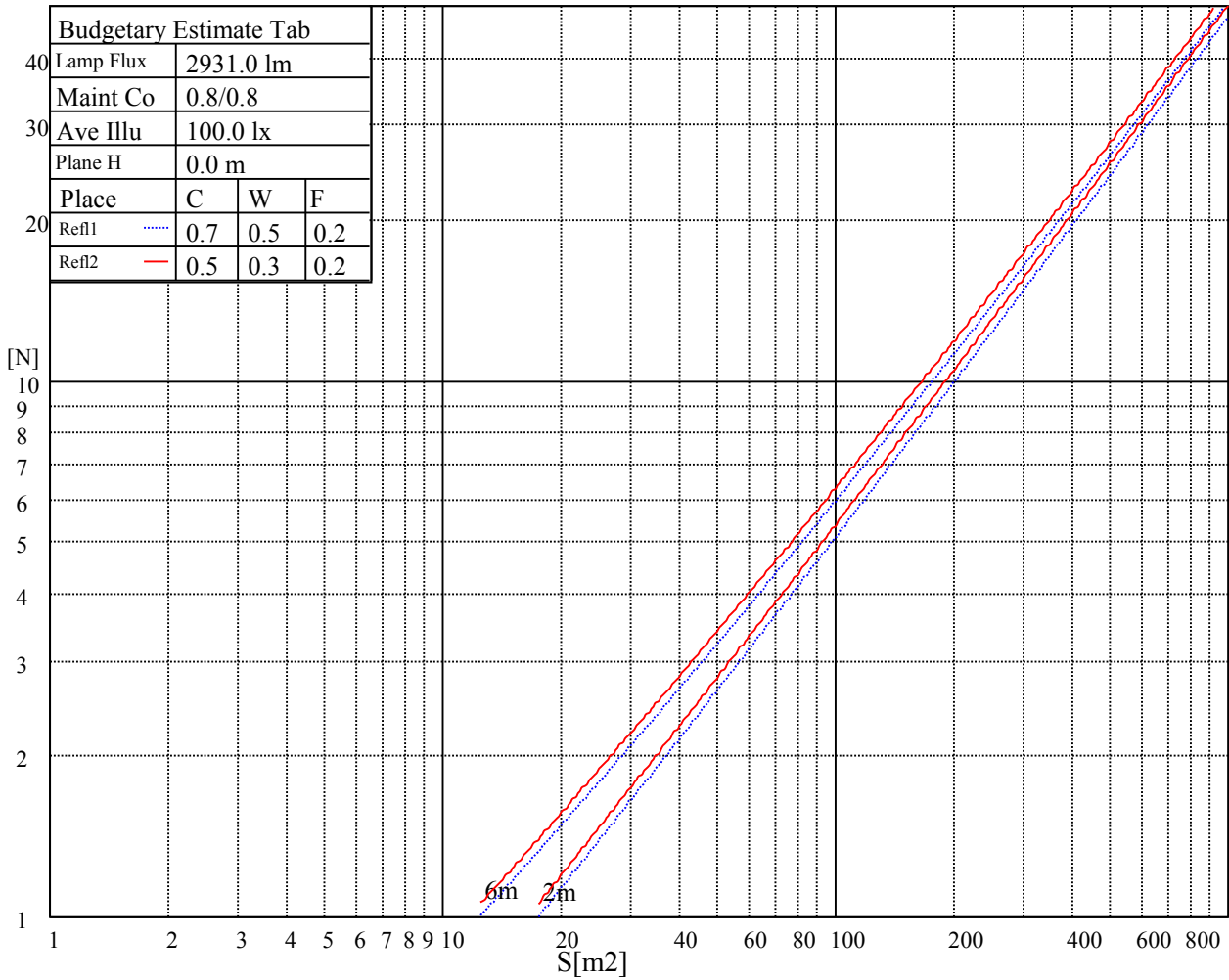
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 0          | 0          | 0       | 0          | 0          | 0       | 0     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

Glare Table

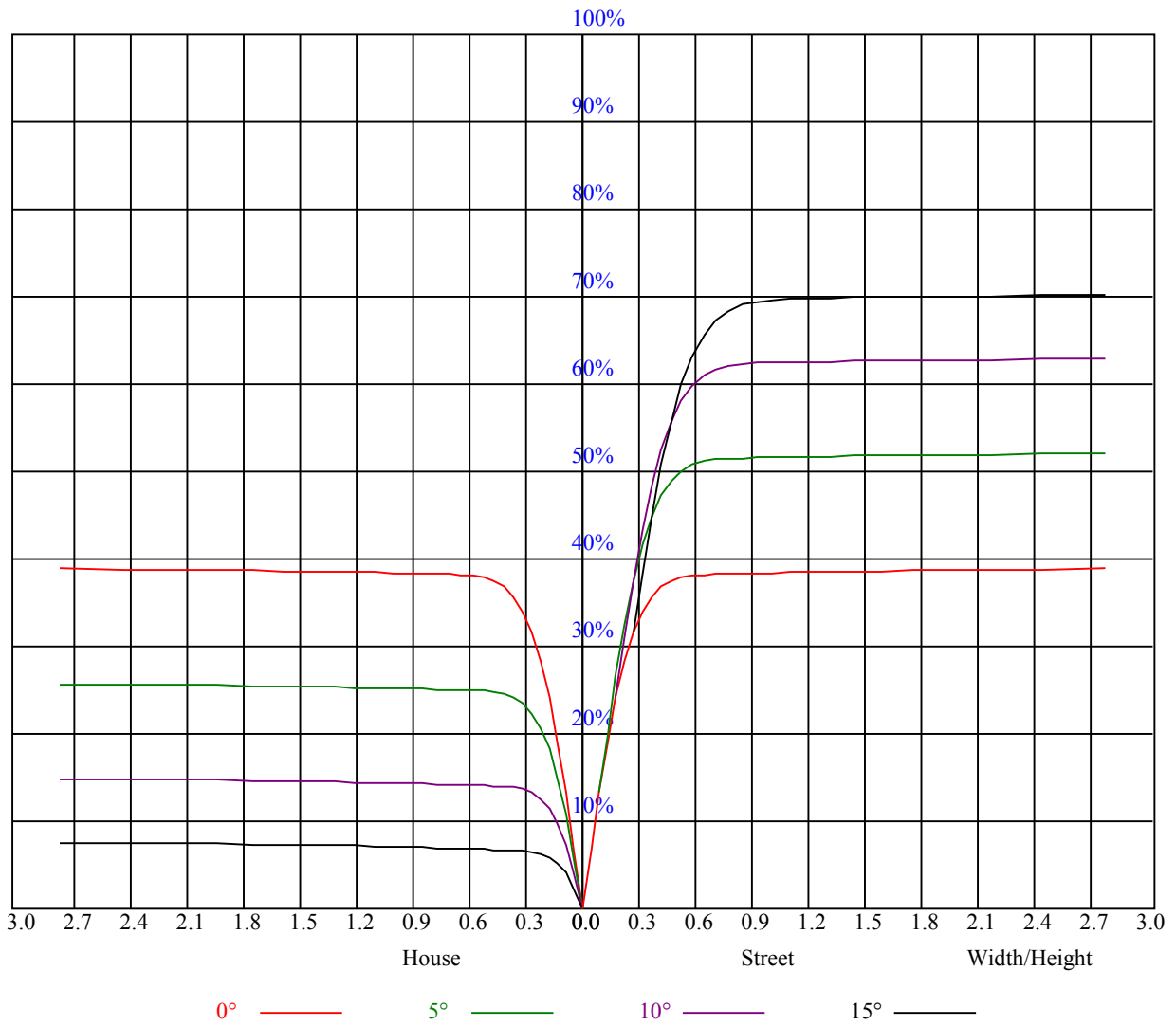
| Glare | Quality | Service Values Illuminance(lx) |      |      |       |       |       |       |       |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15  | A       | 2000                           | 1000 | 500  | <=300 |       |    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





| 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     | 0.95                                    | 0.95 | 0.95 | 0.93 | 0.93 | 0.93 | 0.89 | 0.89 | 0.89 | 0.85 | 0.85 | 0.85 | 0.81 | 0.81 | 0.81 | 0.80 |
| 1     | 0.90                                    | 0.88 | 0.86 | 0.88 | 0.86 | 0.85 | 0.85 | 0.83 | 0.82 | 0.82 | 0.81 | 0.80 | 0.79 | 0.78 | 0.78 | 0.76 |
| 2     | 0.85                                    | 0.83 | 0.80 | 0.84 | 0.82 | 0.80 | 0.81 | 0.79 | 0.78 | 0.79 | 0.78 | 0.76 | 0.77 | 0.76 | 0.75 | 0.73 |
| 3     | 0.81                                    | 0.78 | 0.76 | 0.80 | 0.78 | 0.75 | 0.78 | 0.76 | 0.74 | 0.77 | 0.75 | 0.73 | 0.75 | 0.73 | 0.72 | 0.71 |
| 4     | 0.78                                    | 0.75 | 0.72 | 0.77 | 0.74 | 0.72 | 0.76 | 0.73 | 0.71 | 0.74 | 0.72 | 0.70 | 0.73 | 0.71 | 0.70 | 0.69 |
| 5     | 0.75                                    | 0.72 | 0.69 | 0.75 | 0.71 | 0.69 | 0.73 | 0.71 | 0.69 | 0.72 | 0.70 | 0.68 | 0.71 | 0.69 | 0.67 | 0.67 |
| 6     | 0.73                                    | 0.69 | 0.67 | 0.72 | 0.69 | 0.67 | 0.71 | 0.68 | 0.66 | 0.70 | 0.68 | 0.66 | 0.69 | 0.67 | 0.65 | 0.65 |
| 7     | 0.70                                    | 0.67 | 0.65 | 0.70 | 0.67 | 0.64 | 0.69 | 0.66 | 0.64 | 0.68 | 0.66 | 0.64 | 0.67 | 0.65 | 0.63 | 0.63 |
| 8     | 0.68                                    | 0.65 | 0.63 | 0.68 | 0.65 | 0.62 | 0.67 | 0.64 | 0.62 | 0.66 | 0.64 | 0.62 | 0.66 | 0.63 | 0.62 | 0.61 |
| 9     | 0.66                                    | 0.63 | 0.61 | 0.66 | 0.63 | 0.61 | 0.65 | 0.62 | 0.60 | 0.65 | 0.62 | 0.60 | 0.64 | 0.62 | 0.60 | 0.59 |
| 10    | 0.64                                    | 0.61 | 0.59 | 0.64 | 0.61 | 0.59 | 0.63 | 0.61 | 0.59 | 0.63 | 0.60 | 0.59 | 0.63 | 0.60 | 0.58 | 0.58 |



Intensity data(cd)

|                 |         |         |         |         |         |         |        |       |       |
|-----------------|---------|---------|---------|---------|---------|---------|--------|-------|-------|
| C/ $\gamma$ (°) | 0.0     | 5.0     | 10.0    | 15.0    | 20.0    | 25.0    | 30.0   | 35.0  | 40.0  |
| 0.0             | 9915.19 | 8775.56 | 6156.56 | 3641.06 | 1805.06 | 619.88  | 37.24  | 16.31 | 14.34 |
| 45.0            | 9813.38 | 9365.06 | 7448.63 | 4547.25 | 2378.25 | 1049.06 | 291.94 | 17.78 | 15.30 |
| 90.0            | 9898.88 | 9147.38 | 6877.69 | 4167.56 | 2165.06 | 898.20  | 143.55 | 16.48 | 14.57 |
| 135.0           | 9825.75 | 9491.06 | 7536.94 | 4617.00 | 2496.38 | 1113.19 | 290.81 | 17.38 | 15.13 |
| 180.0           | 9915.19 | 9186.75 | 6916.50 | 4038.75 | 2075.63 | 885.04  | 117.34 | 18.79 | 16.99 |
| 225.0           | 9813.38 | 8361.00 | 5719.50 | 3081.94 | 1094.63 | 482.29  | 22.33  | 17.89 | 16.37 |
| 270.0           | 9898.88 | 8790.19 | 6151.50 | 3525.75 | 1724.06 | 609.75  | 24.98  | 16.31 | 14.85 |
| 315.0           | 9825.75 | 8331.75 | 5506.31 | 2809.13 | 1065.26 | 414.79  | 18.11  | 14.68 | 13.39 |
| 360.0           | 9915.19 | 8775.56 | 6156.56 | 3641.06 | 1805.06 | 619.88  | 37.24  | 16.31 | 14.34 |
| C/ $\gamma$ (°) | 45.0    | 50.0    | 55.0    | 60.0    | 65.0    | 70.0    | 75.0   | 80.0  | 85.0  |
| 0.0             | 13.39   | 12.88   | 12.43   | 12.15   | 12.94   | 18.34   | 22.33  | 10.58 | 9.90  |
| 45.0            | 14.12   | 13.44   | 13.16   | 13.28   | 13.89   | 22.39   | 26.66  | 13.73 | 10.07 |
| 90.0            | 13.73   | 13.16   | 12.71   | 12.43   | 12.32   | 12.43   | 13.50  | 11.53 | 9.96  |
| 135.0           | 14.18   | 13.73   | 13.11   | 12.77   | 12.49   | 12.32   | 12.43  | 11.87 | 10.41 |
| 180.0           | 15.81   | 15.02   | 14.57   | 14.51   | 15.58   | 22.44   | 30.32  | 12.04 | 10.86 |
| 225.0           | 15.86   | 15.69   | 15.58   | 17.04   | 25.20   | 33.19   | 23.91  | 11.59 | 10.13 |
| 270.0           | 14.06   | 13.78   | 13.61   | 13.33   | 13.50   | 14.74   | 15.53  | 12.15 | 9.84  |
| 315.0           | 12.77   | 12.38   | 11.98   | 11.70   | 11.42   | 11.25   | 11.25  | 10.24 | 9.73  |
| 360.0           | 13.39   | 12.88   | 12.43   | 12.15   | 12.94   | 18.34   | 22.33  | 10.58 | 9.90  |
| C/ $\gamma$ (°) | 90.0    |         |         |         |         |         |        |       |       |
| 0.0             | 9.45    |         |         |         |         |         |        |       |       |
| 45.0            | 9.56    |         |         |         |         |         |        |       |       |
| 90.0            | 9.45    |         |         |         |         |         |        |       |       |
| 135.0           | 9.45    |         |         |         |         |         |        |       |       |
| 180.0           | 9.51    |         |         |         |         |         |        |       |       |
| 225.0           | 9.51    |         |         |         |         |         |        |       |       |
| 270.0           | 9.45    |         |         |         |         |         |        |       |       |
| 315.0           | 9.45    |         |         |         |         |         |        |       |       |
| 360.0           | 9.45    |         |         |         |         |         |        |       |       |