



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

---

## NATA

---

|                                |                     |
|--------------------------------|---------------------|
| LumCAT: 1763-A                 |                     |
| Luminaire: 99.02.73.171        |                     |
| Report No: NATA0100            | Voltage(V): 36.5000 |
| Test No: GC2018101504          | Current(A): 0.4000  |
| LampCAT: CITIZEN CLU028-1203C4 | Power (W): 14.6000  |
| Lamp flux(lm): 1490.0          | PF: 0.0000          |
| Number of Lamps: 1             | Ballast type: DC    |
| Length(mm): 46                 | Width(mm): 46       |
| Phm Type: C                    | Height(mm): 0       |

---

## Photometric Results

---

Lumens(lm): 1288.83  
Efficiency(%): 86.50%  
Lumens(lm)/Power(W): 89.52  
Central intensity(cd): 3245.766  
Maximum intensity(cd): 3245.766  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=39.0  
                                  [C90/270]Total=39.0  
Field angle(10%Imax): [C0/180]Total=56.3  
                                  [C90/270]Total=56.3  
Maximum s/h(1/2): C0\_180=0.65 C90\_270=0.65  
Maximum s/h(1/4): C0\_180=0.60 C90\_270=0.60  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 87.72%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 97.254%

---

Equipment:  
Temperature(°C): 25.0

Date: 2018/10/15  
Humidity(%): 60.0%

Operator: NT07  
Distance(m): 7.50

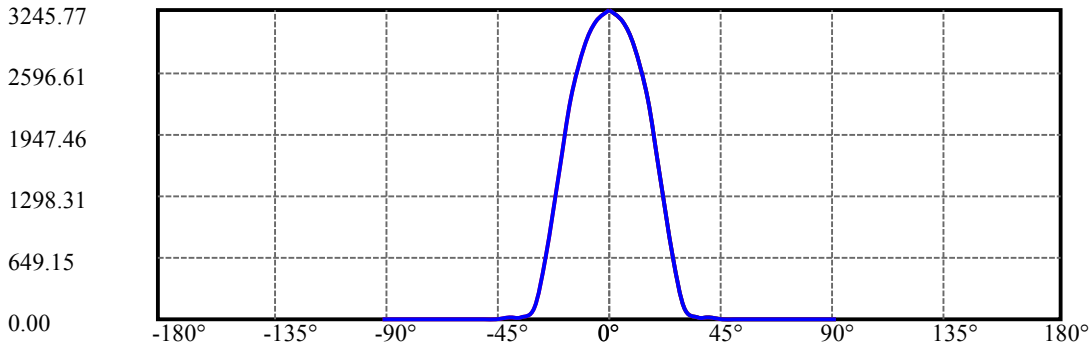
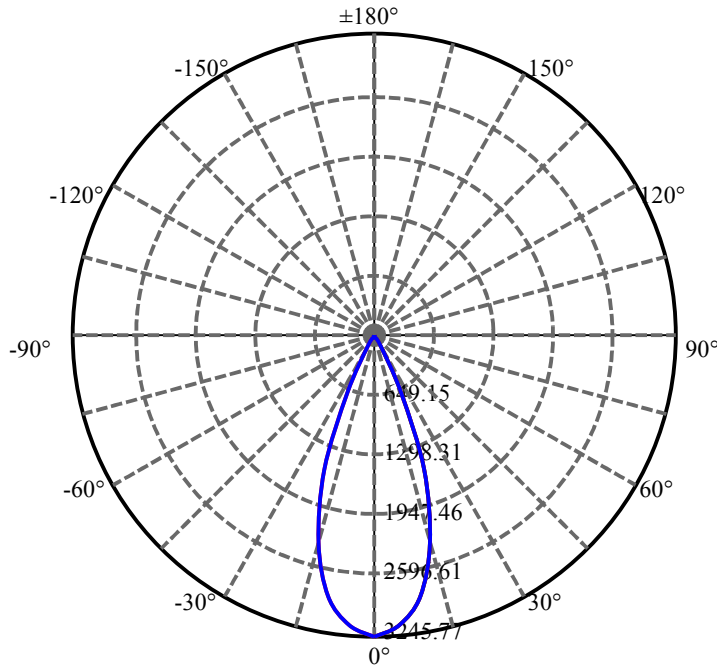
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 3245.766      | 19.410      | 19.41     | 1.303%      | 1.506%     |
| 5.0                | 3126.305      | 149.354     | 168.764   | 10.024%     | 13.094%    |
| 10.0               | 2864.461      | 272.648     | 441.412   | 18.299%     | 34.249%    |
| 15.0               | 2316.164      | 328.590     | 770.003   | 22.053%     | 59.744%    |
| 20.0               | 1548.605      | 290.323     | 1060.326  | 19.485%     | 82.270%    |
| 25.0               | 673.263       | 155.963     | 1216.289  | 10.467%     | 94.372%    |
| 30.0               | 121.753       | 33.369      | 1249.658  | 2.240%      | 96.961%    |
| 35.0               | 15.539        | 4.885       | 1254.544  | .328%       | 97.340%    |
| 40.0               | 10.533        | 3.711       | 1258.255  | .249%       | 97.628%    |
| 45.0               | 8.620         | 3.341       | 1261.596  | .224%       | 97.887%    |
| 50.0               | 7.643         | 3.209       | 1264.805  | .215%       | 98.136%    |
| 55.0               | 7.017         | 3.151       | 1267.956  | .211%       | 98.380%    |
| 60.0               | 6.673         | 3.168       | 1271.123  | .213%       | 98.626%    |
| 65.0               | 6.413         | 3.186       | 1274.309  | .214%       | 98.873%    |
| 70.0               | 6.258         | 3.223       | 1277.532  | .216%       | 99.123%    |
| 75.0               | 6.117         | 3.239       | 1280.771  | .217%       | 99.375%    |
| 80.0               | 6.005         | 3.241       | 1284.013  | .218%       | 99.626%    |
| 85.0               | 5.970         | 3.260       | 1287.272  | .219%       | 99.879%    |
| 90.0               | 5.681         | 1.557       | 1288.829  | .105%       | 100.000%   |

ZONAL LUMEN SUMMARY

| Zone    | Lumens  | %Lamp  | %Fixt   |
|---------|---------|--------|---------|
| 0-30    | 1249.66 | 83.87% | 96.96%  |
| 0-40    | 1258.25 | 84.45% | 97.63%  |
| 0-60    | 1271.12 | 85.31% | 98.63%  |
| 0-90    | 1287.27 | 86.39% | 99.88%  |
| 0-120   | 1287.27 | 86.39% | 99.88%  |
| 0-180   | 1288.83 | 86.50% | 100.00% |
| 60-90   | 19.32   | 1.30%  | 1.50%   |
| 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%   |
| 0-19.50 | 1031.06 | 69.20% | 80.00%  |

ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 441.41 |
| 10-20   | 618.91 |
| 20-30   | 189.33 |
| 30-40   | 8.60   |
| 40-50   | 6.55   |
| 50-60   | 6.32   |
| 60-70   | 6.41   |
| 70-80   | 6.48   |
| 80-90   | 3.26   |
| 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: —————

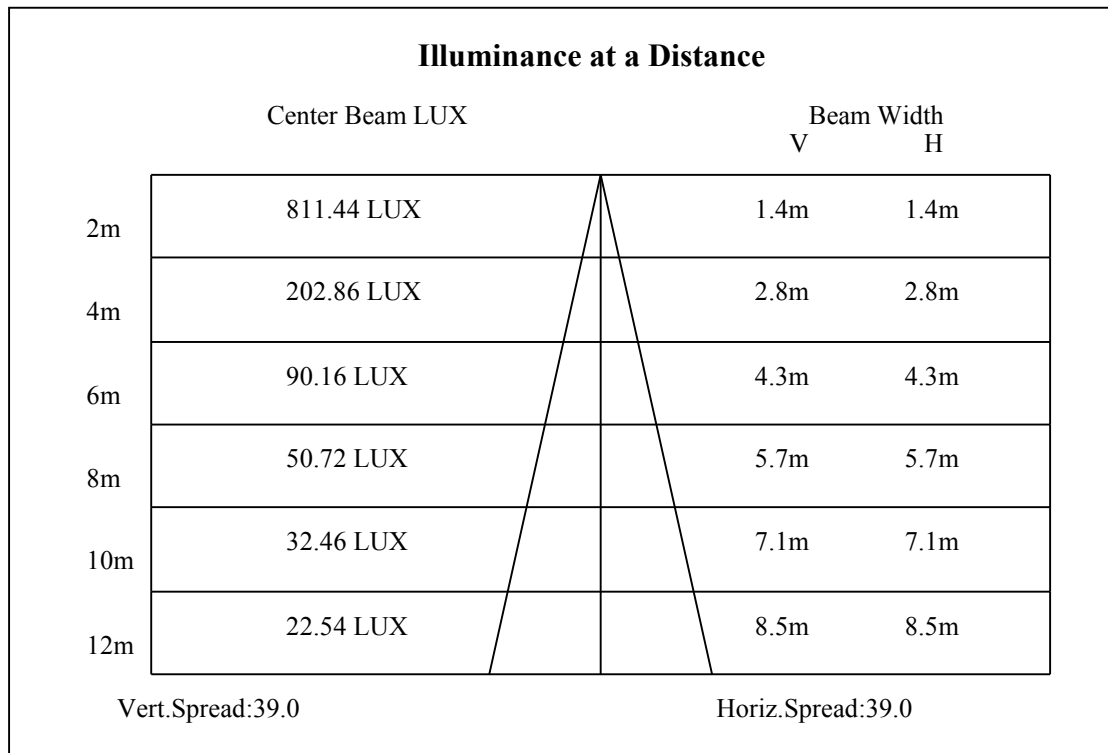
C90/C270: —————

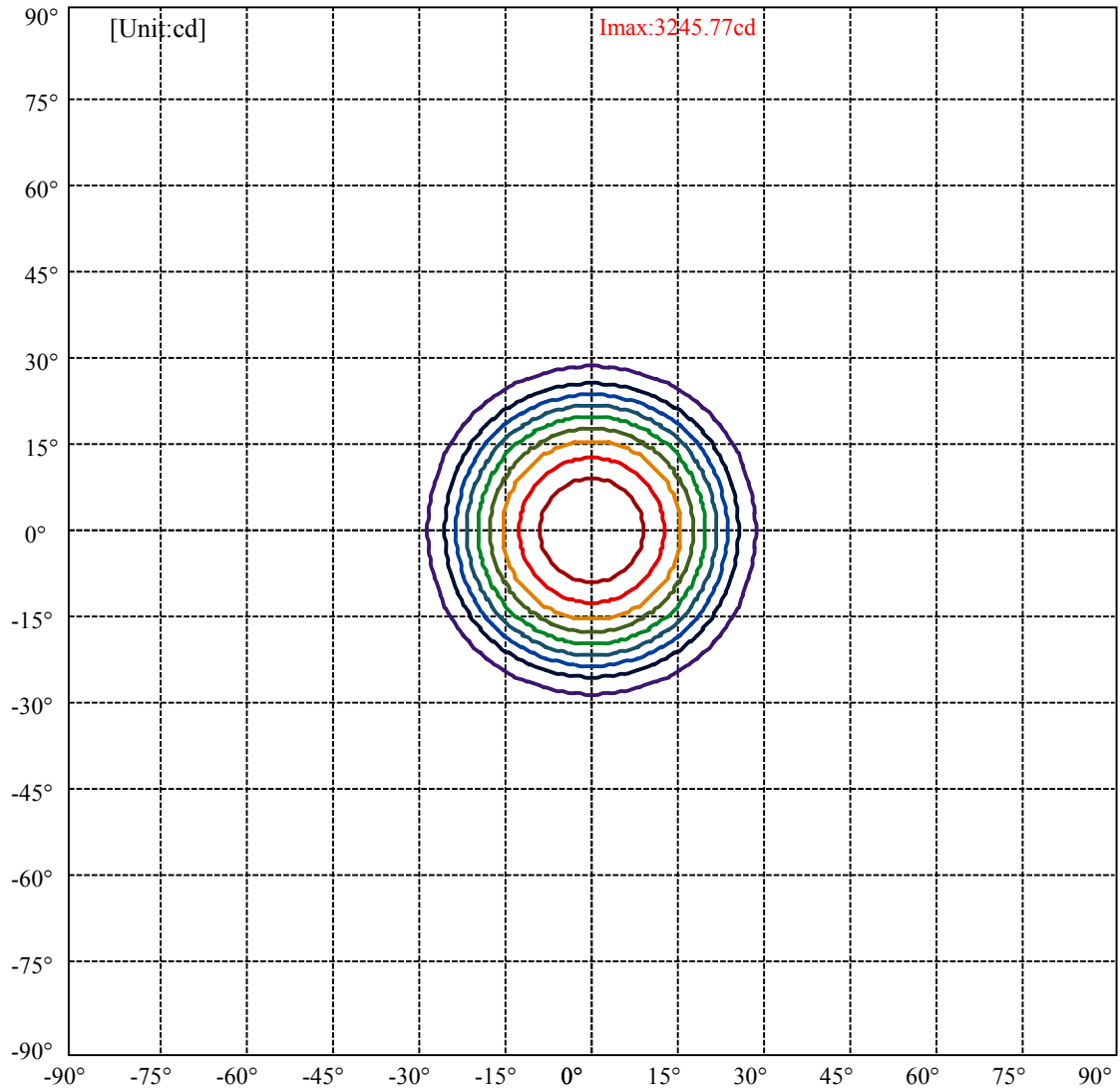
Field angle(10%Imax):C0/180Left:28.2 Right:28.2

:C90/270Left:28.2 Right:28.2

Beam Angle(50%Imax):C0/180Left:19.5 Right:19.5

:C90/270Left:19.5 Right:19.5



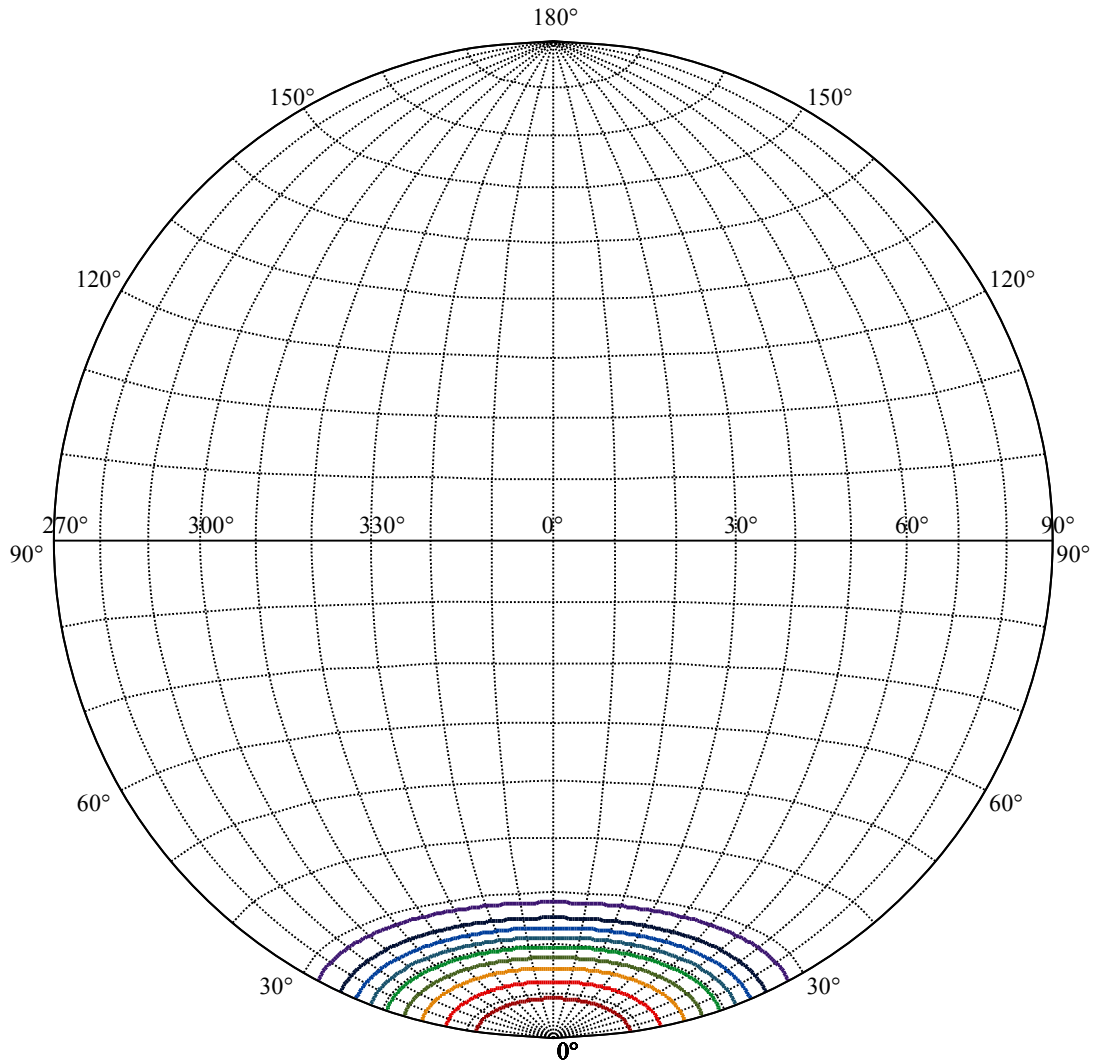


|                                |   |
|--------------------------------|---|
| (10%I <sub>max</sub> ) 324.577 | — |
| (20%I <sub>max</sub> ) 649.153 | — |
| (30%I <sub>max</sub> ) 973.73  | — |
| (40%I <sub>max</sub> ) 1298.31 | — |
| (50%I <sub>max</sub> ) 1622.88 | — |
| (60%I <sub>max</sub> ) 1947.46 | — |
| (70%I <sub>max</sub> ) 2272.04 | — |
| (80%I <sub>max</sub> ) 2596.61 | — |
| (90%I <sub>max</sub> ) 2921.19 | — |

Equipment:  
Temperature(°C): 25.0

Date: 2018/10/15  
Humidity(%): 60.0%

Operator: NT07  
Distance(m): 7.50



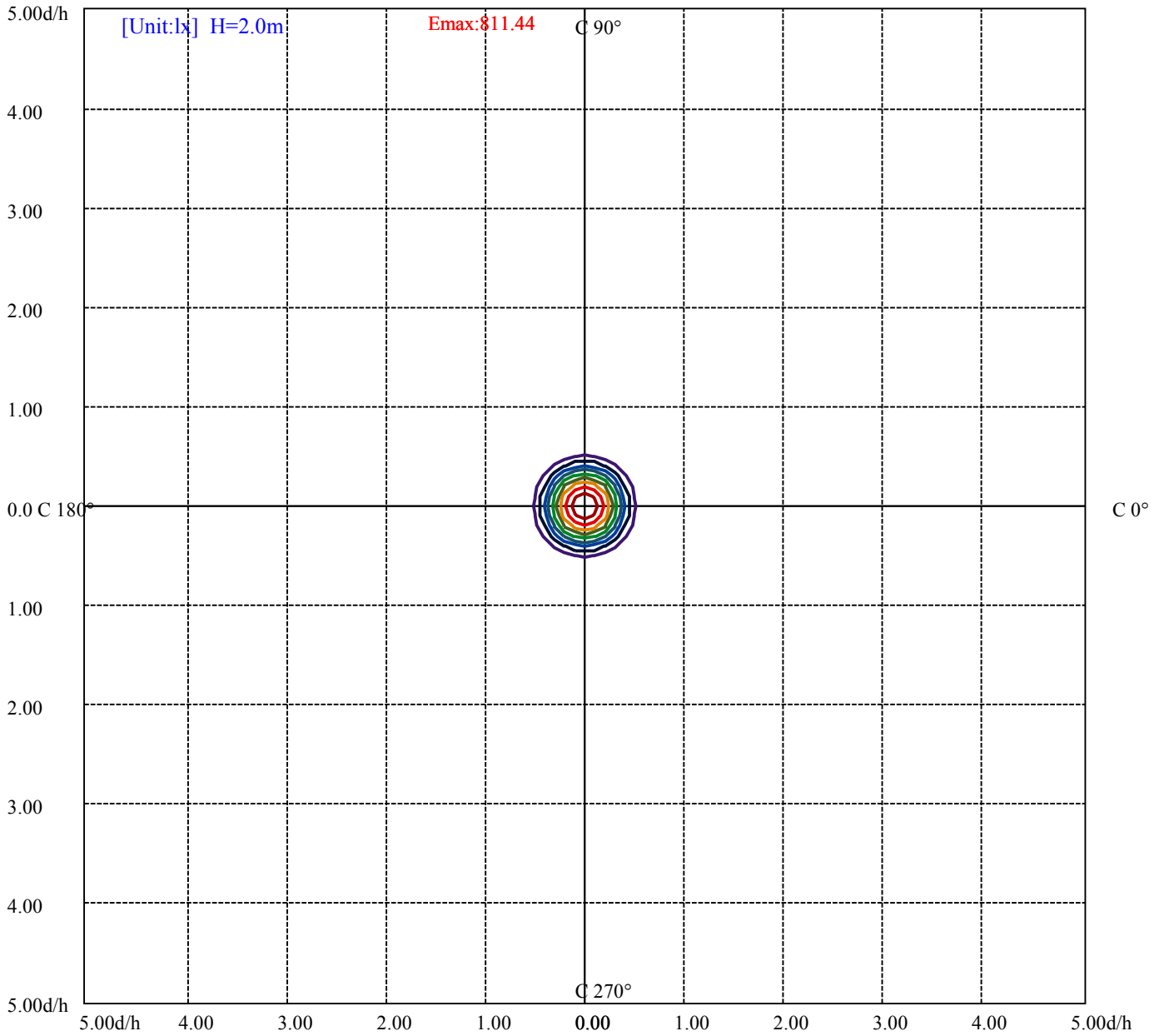
House

[Unit:cd]

Road

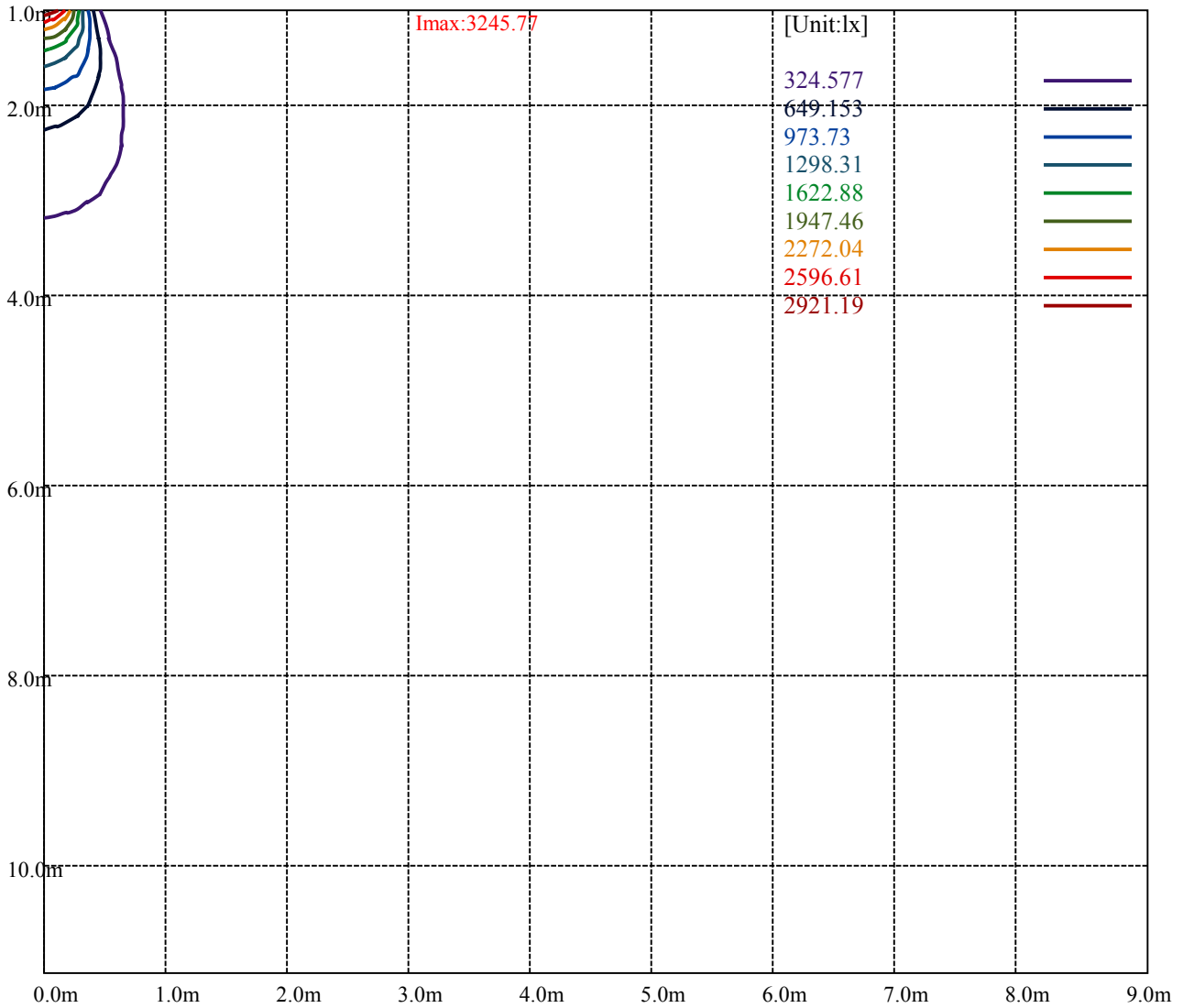
**Imax:3245.77**

|                   |   |
|-------------------|---|
| (10%Imax) 324.577 | — |
| (20%Imax) 649.153 | — |
| (30%Imax) 973.73  | — |
| (40%Imax) 1298.31 | — |
| (50%Imax) 1622.88 | — |
| (60%Imax) 1947.46 | — |
| (70%Imax) 2272.04 | — |
| (80%Imax) 2596.61 | — |
| (90%Imax) 2921.19 | — |



- (10%Emax) 81.144
- (20%Emax) 162.288
- (30%Emax) 243.4323
- (40%Emax) 324.575
- (50%Emax) 405.72
- (60%Emax) 486.865
- (70%Emax) 568.0075
- (80%Emax) 649.1525
- (90%Emax) 730.2975





Luminance Table

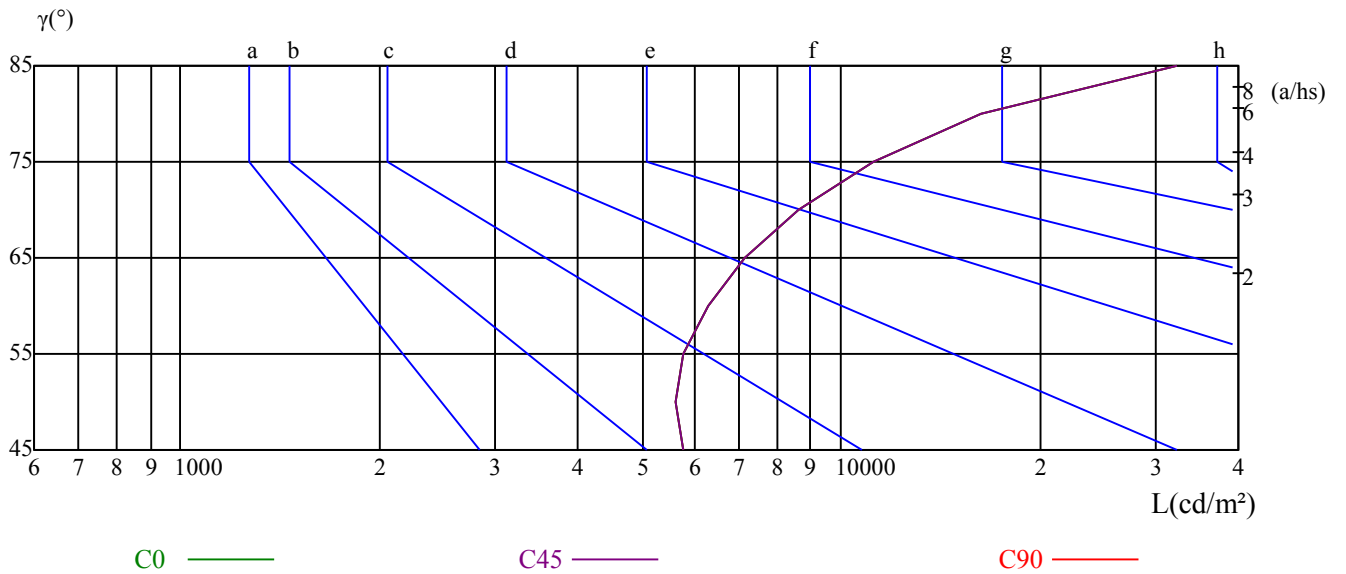
| $\gamma$ | 45   | 50   | 55   | 60   | 65   | 70   | 75    | 80    | 85    |
|----------|------|------|------|------|------|------|-------|-------|-------|
| C0       | 5761 | 5619 | 5782 | 6307 | 7171 | 8647 | 11170 | 16342 | 32369 |
| C45      | 5761 | 5619 | 5782 | 6307 | 7171 | 8647 | 11170 | 16342 | 32369 |
| C90      | 5761 | 5619 | 5782 | 6307 | 7171 | 8647 | 11170 | 16342 | 32369 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 7171       | 7171       | 7171    | 11170      | 11170      | 11170   | 32369      | 32369      | 32369   |

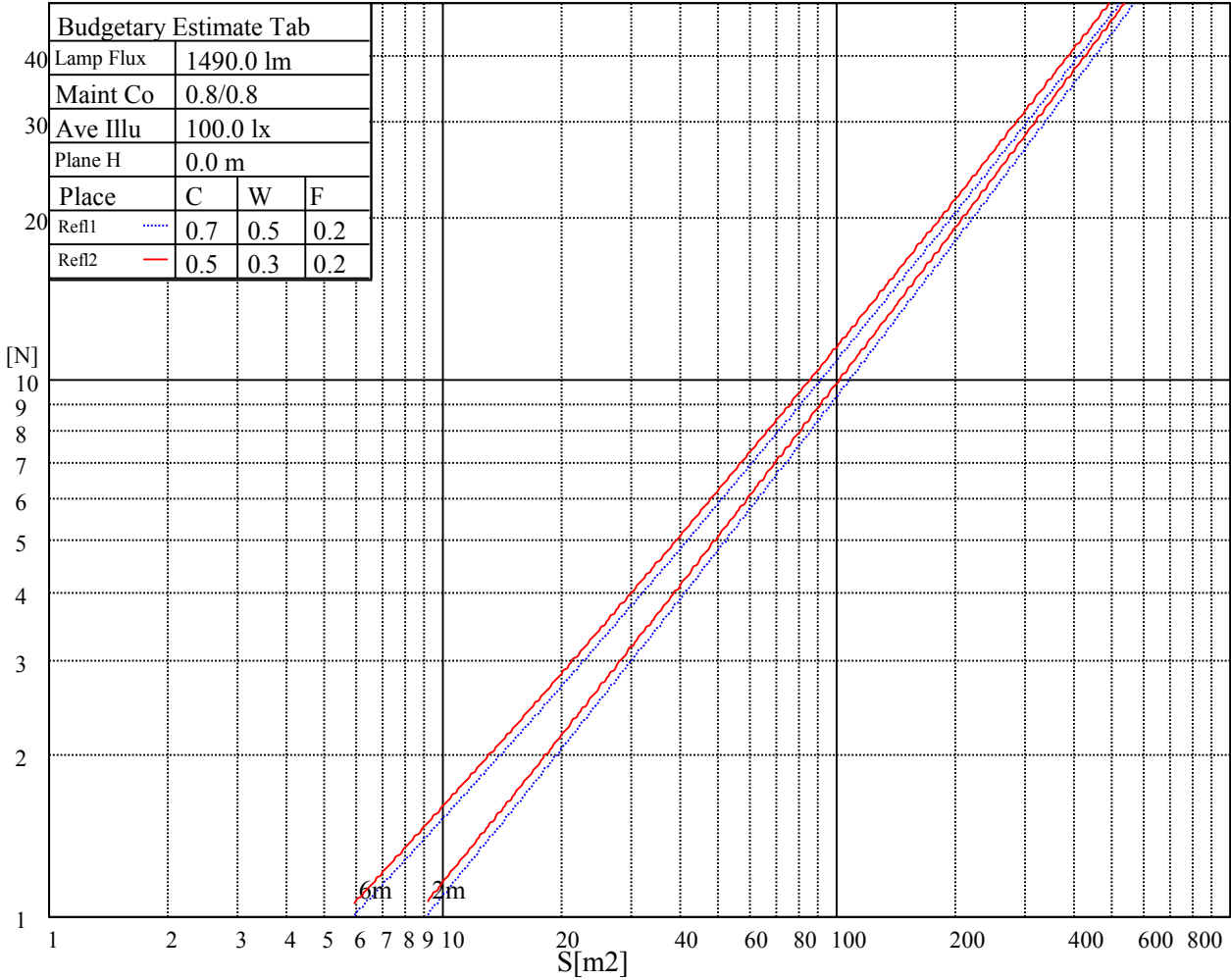
Glare Table

| 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     |

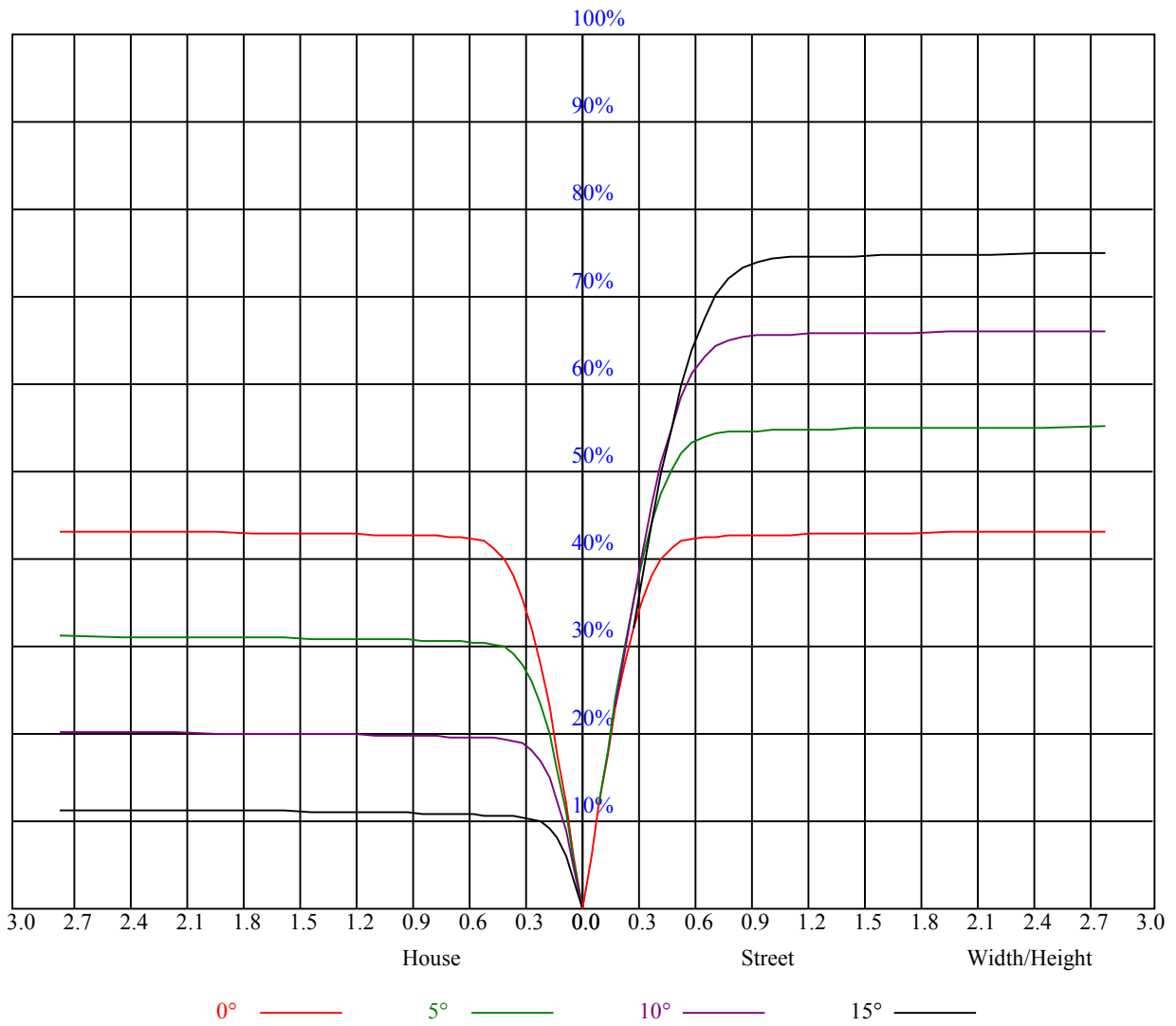
Luminance Limiting Curve



| 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       | 6.58             | 7.49  | 6.94  | 7.80  | 8.12     | 6.46           | 7.38  | 6.82  | 7.69  | 8.00  |
|   | 3H       | 9.71             | 10.52 | 10.10 | 10.85 | 11.22    | 9.59           | 10.40 | 9.97  | 10.73 | 11.10 |
|   | 4H       | 11.42            | 12.17 | 11.83 | 12.52 | 12.91    | 11.29          | 12.04 | 11.70 | 12.40 | 12.79 |
|   | 6H       | 13.34            | 14.03 | 13.76 | 14.40 | 14.80    | 13.22          | 13.90 | 13.64 | 14.28 | 14.68 |
|   | 8H       | 14.42            | 15.06 | 14.86 | 15.45 | 15.86    | 14.28          | 14.93 | 14.72 | 15.32 | 15.73 |
|   | 12H      | 16.19            | 16.80 | 16.62 | 17.18 | 17.62    | 16.02          | 16.63 | 16.45 | 17.01 | 17.45 |
| 4H  | 2H       | 7.46             | 8.21  | 7.87  | 8.57  | 8.96     | 7.38           | 8.13  | 7.79  | 8.48  | 8.88  |
|   | 3H       | 10.85            | 11.47 | 11.27 | 11.88 | 12.29    | 10.76          | 11.37 | 11.17 | 11.78 | 12.19 |
|   | 4H       | 12.73            | 13.28 | 13.17 | 13.70 | 14.15    | 12.63          | 13.18 | 13.07 | 13.60 | 14.05 |
|   | 6H       | 14.78            | 15.25 | 15.25 | 15.70 | 16.18    | 14.68          | 15.15 | 15.16 | 15.60 | 16.08 |
|   | 8H       | 15.97            | 16.41 | 16.45 | 16.86 | 17.33    | 15.85          | 16.29 | 16.33 | 16.74 | 17.22 |
|   | 12H      | 17.64            | 18.02 | 18.14 | 18.51 | 18.99    | 17.49          | 17.87 | 17.98 | 18.36 | 18.84 |
| 8H  | 4H       | 13.44            | 13.88 | 13.92 | 14.33 | 14.81    | 13.37          | 13.80 | 13.84 | 14.26 | 14.73 |
|   | 6H       | 15.78            | 16.12 | 16.29 | 16.63 | 17.11    | 15.70          | 16.05 | 16.22 | 16.55 | 17.04 |
|   | 8H       | 17.16            | 17.46 | 17.69 | 17.98 | 18.48    | 17.06          | 17.37 | 17.60 | 17.89 | 18.39 |
|   | 12H      | 18.97            | 19.23 | 19.50 | 19.73 | 20.31    | 18.84          | 19.10 | 19.36 | 19.60 | 20.18 |
| 12H   | 4H       | 13.64            | 14.02 | 14.13 | 14.51 | 14.99    | 13.57          | 13.95 | 14.07 | 14.44 | 14.92 |
|   | 6H       | 16.30            | 16.40 | 16.63 | 16.87 | 17.42    | 16.23          | 16.33 | 16.57 | 16.81 | 17.36 |
|   | 8H       | 17.60            | 17.86 | 18.13 | 18.36 | 18.94    | 17.52          | 17.78 | 18.04 | 18.28 | 18.86 |
| Variation with the observer position at spacings: |          |                  |       |       |       |          |                |       |       |       |       |
| S = 1.0H  | 1.6/-1.6 |                  |       |       |       | 1.6/-1.6 |                |       |       |       |       |
| S = 1.5H  | 1.5/-1.4 |                  |       |       |       | 1.5/-1.4 |                |       |       |       |       |
| S = 2.0H  | 1.6/-1.1 |                  |       |       |       | 1.6/-1.1 |                |       |       |       |       |
| Standard tables:                                  | BKBF     |                  |       |       |       | BKBF     |                |       |       |       |       |
| Uncorrected UGR                                   | 0.2      |                  |       |       |       | 0.2      |                |       |       |       |       |



| 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     | 1.04                                    | 1.04 | 1.04 | 1.02 | 1.02 | 1.02 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 | 0.90 | 0.90 | 0.90 | 0.88 |
| 1     | 0.97                                    | 0.95 | 0.93 | 0.95 | 0.93 | 0.91 | 0.92 | 0.90 | 0.89 | 0.88 | 0.87 | 0.86 | 0.85 | 0.84 | 0.83 | 0.82 |
| 2     | 0.92                                    | 0.89 | 0.87 | 0.91 | 0.88 | 0.86 | 0.88 | 0.86 | 0.84 | 0.86 | 0.84 | 0.82 | 0.83 | 0.82 | 0.80 | 0.79 |
| 3     | 0.88                                    | 0.85 | 0.82 | 0.87 | 0.84 | 0.81 | 0.85 | 0.82 | 0.80 | 0.83 | 0.81 | 0.79 | 0.81 | 0.79 | 0.78 | 0.76 |
| 4     | 0.85                                    | 0.81 | 0.78 | 0.84 | 0.80 | 0.78 | 0.82 | 0.79 | 0.77 | 0.80 | 0.78 | 0.76 | 0.79 | 0.77 | 0.75 | 0.74 |
| 5     | 0.82                                    | 0.78 | 0.75 | 0.81 | 0.77 | 0.75 | 0.80 | 0.76 | 0.74 | 0.78 | 0.75 | 0.73 | 0.77 | 0.75 | 0.73 | 0.72 |
| 6     | 0.79                                    | 0.75 | 0.72 | 0.78 | 0.75 | 0.72 | 0.77 | 0.74 | 0.72 | 0.76 | 0.73 | 0.71 | 0.75 | 0.73 | 0.71 | 0.70 |
| 7     | 0.76                                    | 0.72 | 0.70 | 0.76 | 0.72 | 0.70 | 0.75 | 0.72 | 0.69 | 0.74 | 0.71 | 0.69 | 0.73 | 0.71 | 0.69 | 0.68 |
| 8     | 0.74                                    | 0.70 | 0.68 | 0.74 | 0.70 | 0.67 | 0.73 | 0.70 | 0.67 | 0.72 | 0.69 | 0.67 | 0.71 | 0.69 | 0.67 | 0.66 |
| 9     | 0.72                                    | 0.68 | 0.66 | 0.71 | 0.68 | 0.66 | 0.71 | 0.68 | 0.65 | 0.70 | 0.67 | 0.65 | 0.70 | 0.67 | 0.65 | 0.64 |
| 10    | 0.70                                    | 0.66 | 0.64 | 0.70 | 0.66 | 0.64 | 0.69 | 0.66 | 0.64 | 0.68 | 0.65 | 0.63 | 0.68 | 0.65 | 0.63 | 0.62 |



NATA 1763-A

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             | 3246.75 | 3104.44 | 2783.81 | 2278.69 | 1668.94 | 760.50 | 83.48  | 14.63 | 10.29 |
| 45.0            | 3249.56 | 3150.00 | 2831.63 | 2321.44 | 1844.44 | 970.31 | 284.06 | 18.34 | 11.03 |
| 90.0            | 3248.44 | 3132.00 | 2808.56 | 2328.75 | 1779.75 | 871.48 | 120.43 | 18.23 | 11.25 |
| 135.0           | 3238.31 | 3158.44 | 2929.50 | 2595.38 | 1916.44 | 977.63 | 311.06 | 19.74 | 12.43 |
| 180.0           | 3246.75 | 3138.75 | 2953.69 | 2438.44 | 1566.56 | 554.40 | 59.85  | 15.08 | 10.29 |
| 225.0           | 3249.56 | 3147.19 | 2948.63 | 2168.44 | 1098.73 | 357.19 | 33.98  | 12.83 | 9.62  |
| 270.0           | 3248.44 | 3124.69 | 2912.63 | 2298.38 | 1439.44 | 487.69 | 43.48  | 12.99 | 9.68  |
| 315.0           | 3238.31 | 3054.94 | 2747.25 | 2099.81 | 1074.54 | 406.91 | 37.69  | 12.49 | 9.68  |
| 360.0           | 3246.75 | 3104.44 | 2783.81 | 2278.69 | 1668.94 | 760.50 | 83.48  | 14.63 | 10.29 |
| C/ $\gamma$ (°) | 45.0    | 50.0    | 55.0    | 60.0    | 65.0    | 70.0   | 75.0   | 80.0  | 85.0  |
| 0.0             | 8.55    | 7.59    | 6.92    | 6.58    | 6.30    | 6.13   | 6.02   | 5.96  | 5.85  |
| 45.0            | 9.06    | 8.04    | 7.31    | 6.92    | 6.64    | 6.47   | 6.30   | 6.13  | 6.02  |
| 90.0            | 9.00    | 7.88    | 7.14    | 6.75    | 6.47    | 6.30   | 6.13   | 6.02  | 5.85  |
| 135.0           | 9.45    | 7.93    | 7.14    | 6.81    | 6.47    | 6.36   | 6.19   | 6.08  | 5.96  |
| 180.0           | 8.27    | 7.31    | 6.75    | 6.47    | 6.24    | 6.08   | 5.96   | 5.85  | 5.79  |
| 225.0           | 8.10    | 7.43    | 6.98    | 6.64    | 6.47    | 6.30   | 6.13   | 6.02  | 6.02  |
| 270.0           | 8.27    | 7.48    | 6.98    | 6.64    | 6.41    | 6.24   | 6.13   | 6.02  | 6.24  |
| 315.0           | 8.27    | 7.48    | 6.92    | 6.58    | 6.30    | 6.19   | 6.08   | 5.96  | 6.02  |
| 360.0           | 8.55    | 7.59    | 6.92    | 6.58    | 6.30    | 6.13   | 6.02   | 5.96  | 5.85  |
| C/ $\gamma$ (°) | 90.0    |         |         |         |         |        |        |       |       |
| 0.0             | 5.57    |         |         |         |         |        |        |       |       |
| 45.0            | 5.85    |         |         |         |         |        |        |       |       |
| 90.0            | 5.68    |         |         |         |         |        |        |       |       |
| 135.0           | 5.79    |         |         |         |         |        |        |       |       |
| 180.0           | 5.63    |         |         |         |         |        |        |       |       |
| 225.0           | 5.79    |         |         |         |         |        |        |       |       |
| 270.0           | 5.63    |         |         |         |         |        |        |       |       |
| 315.0           | 5.51    |         |         |         |         |        |        |       |       |
| 360.0           | 5.57    |         |         |         |         |        |        |       |       |