



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

## Nata

|                          |                     |
|--------------------------|---------------------|
| LumCAT: 1-1062-N         |                     |
| Luminaire: 92.70.361.000 |                     |
| Report No: 220517-B001   | Voltage(V): 35.3900 |
| Test No: 220517-C005     | Current(A): 0.3600  |
| LampCAT: CREE CMA1516    | Power (W): 12.7040  |
| Lamp flux(lm): 1756.1    | PF: 0.0000          |
| Number of Lamps: 1       | Ballast type: DC    |
| Length(mm): 43           | Width(mm): 43       |
| Phm Type: C              | Height(mm): 0       |

## Photometric Results

Lumens(lm): 1489.51  
Efficiency(%): 84.82%  
Lumens(lm)/Power(W): 117.25  
Central intensity(cd): 3784.151  
Maximum intensity(cd): 3784.151  
Angle of maximum intensity:  $C=0.0$   $\gamma=0.0$   
Beam Angle(50%Imax): [C0/180]Total=35.2  
[C90/270]Total=35.2  
Field angle(10%Imax): [C0/180]Total=58.7  
[C90/270]Total=58.7  
Maximum s/h(1/2): C0\_180=0.58 C90\_270=0.58  
Maximum s/h(1/4): C0\_180=0.58 C90\_270=0.58  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 84.82%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.127%

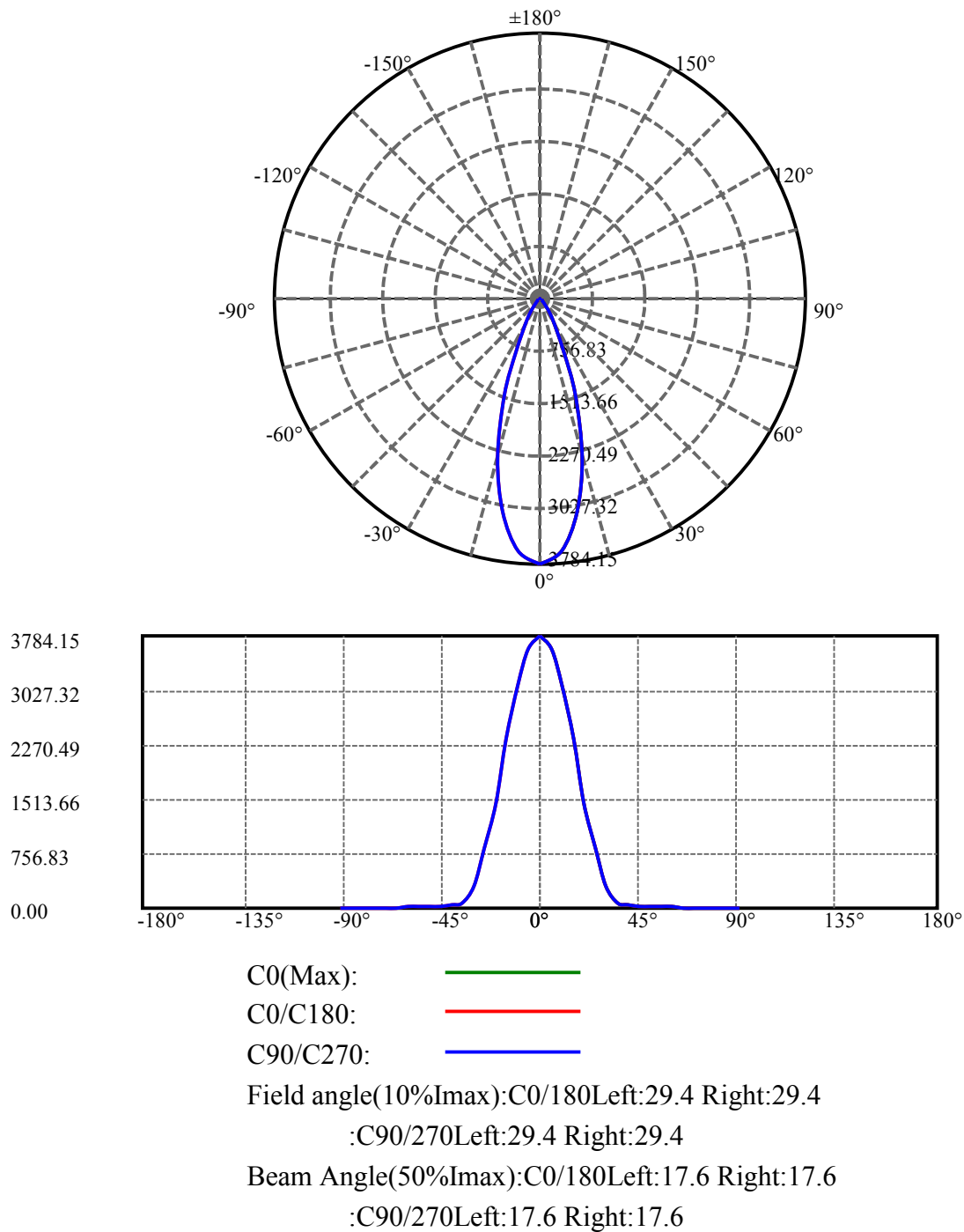
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 3784.151      | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 3604.220      | 88.326      | 88.326    | 5.030%      | 5.930%     |
| 10.0               | 3093.930      | 239.614     | 327.94    | 13.645%     | 22.017%    |
| 15.0               | 2349.633      | 322.909     | 650.848   | 18.388%     | 43.695%    |
| 20.0               | 1465.178      | 314.394     | 965.242   | 17.903%     | 64.803%    |
| 25.0               | 812.430       | 238.879     | 1204.122  | 13.603%     | 80.840%    |
| 30.0               | 315.518       | 142.743     | 1346.864  | 8.129%      | 90.423%    |
| 35.0               | 65.616        | 56.125      | 1402.989  | 3.196%      | 94.191%    |
| 40.0               | 42.036        | 17.961      | 1420.95   | 1.023%      | 95.397%    |
| 45.0               | 29.981        | 13.335      | 1434.285  | .759%       | 96.292%    |
| 50.0               | 23.236        | 10.753      | 1445.038  | .612%       | 97.014%    |
| 55.0               | 18.225        | 9.015       | 1454.053  | .513%       | 97.620%    |
| 60.0               | 14.468        | 7.557       | 1461.61   | .430%       | 98.127%    |
| 65.0               | 11.480        | 6.308       | 1467.918  | .359%       | 98.550%    |
| 70.0               | 9.620         | 5.343       | 1473.26   | .304%       | 98.909%    |
| 75.0               | 8.298         | 4.684       | 1477.944  | .267%       | 99.223%    |
| 80.0               | 7.409         | 4.203       | 1482.147  | .239%       | 99.506%    |
| 85.0               | 6.722         | 3.840       | 1485.987  | .219%       | 99.763%    |
| 90.0               | 6.147         | 3.524       | 1489.51   | .201%       | 100.000%   |

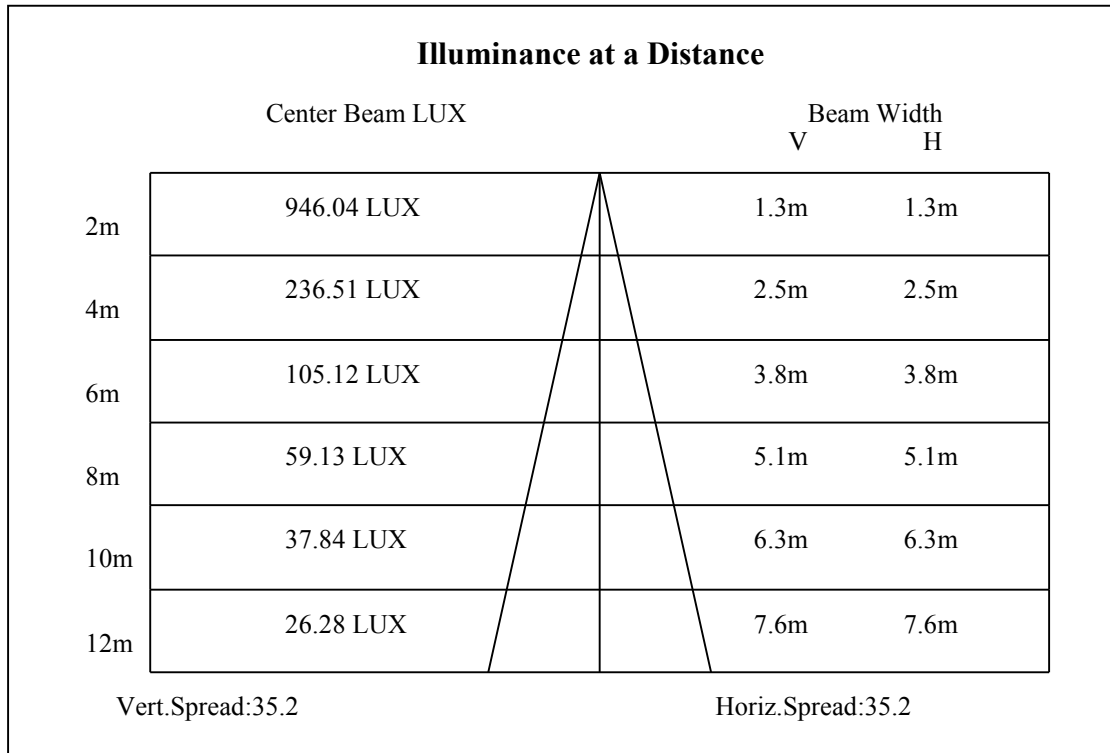
## ZONAL LUMEN SUMMARY

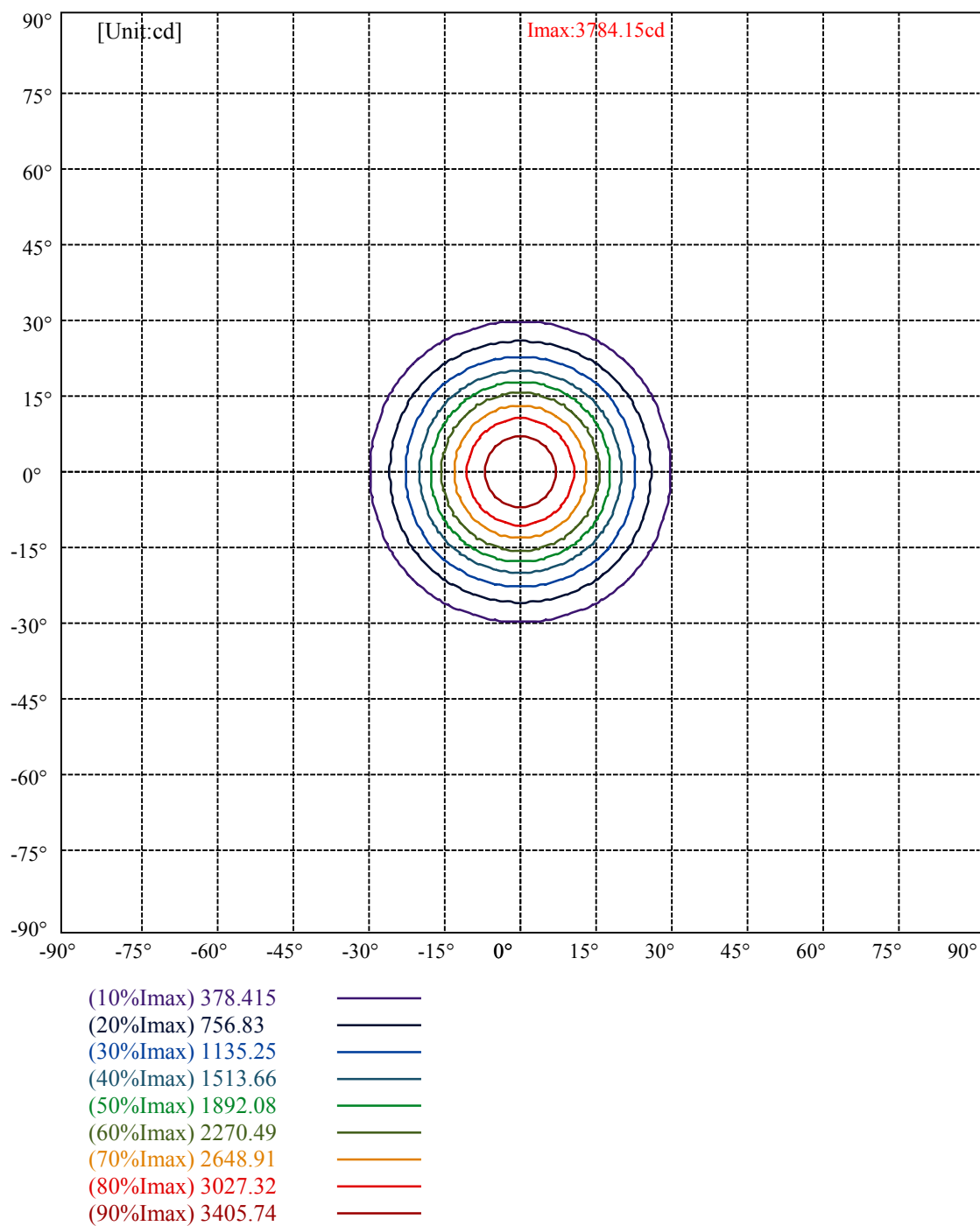
| Zone    | Lumens  | %Lamp  | %Fixt   |
|---------|---------|--------|---------|
| 0-30    | 1346.86 | 76.70% | 90.42%  |
| 0-40    | 1420.95 | 80.92% | 95.40%  |
| 0-60    | 1461.61 | 83.23% | 98.13%  |
| 0-90    | 1485.99 | 84.62% | 99.76%  |
| 0-120   | 1485.99 | 84.62% | 99.76%  |
| 0-180   | 1489.51 | 84.82% | 100.00% |
| 60-90   | 31.93   | 1.82%  | 2.14%   |
| 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%   |
| 0-24.74 | 1191.61 | 67.86% | 80.00%  |

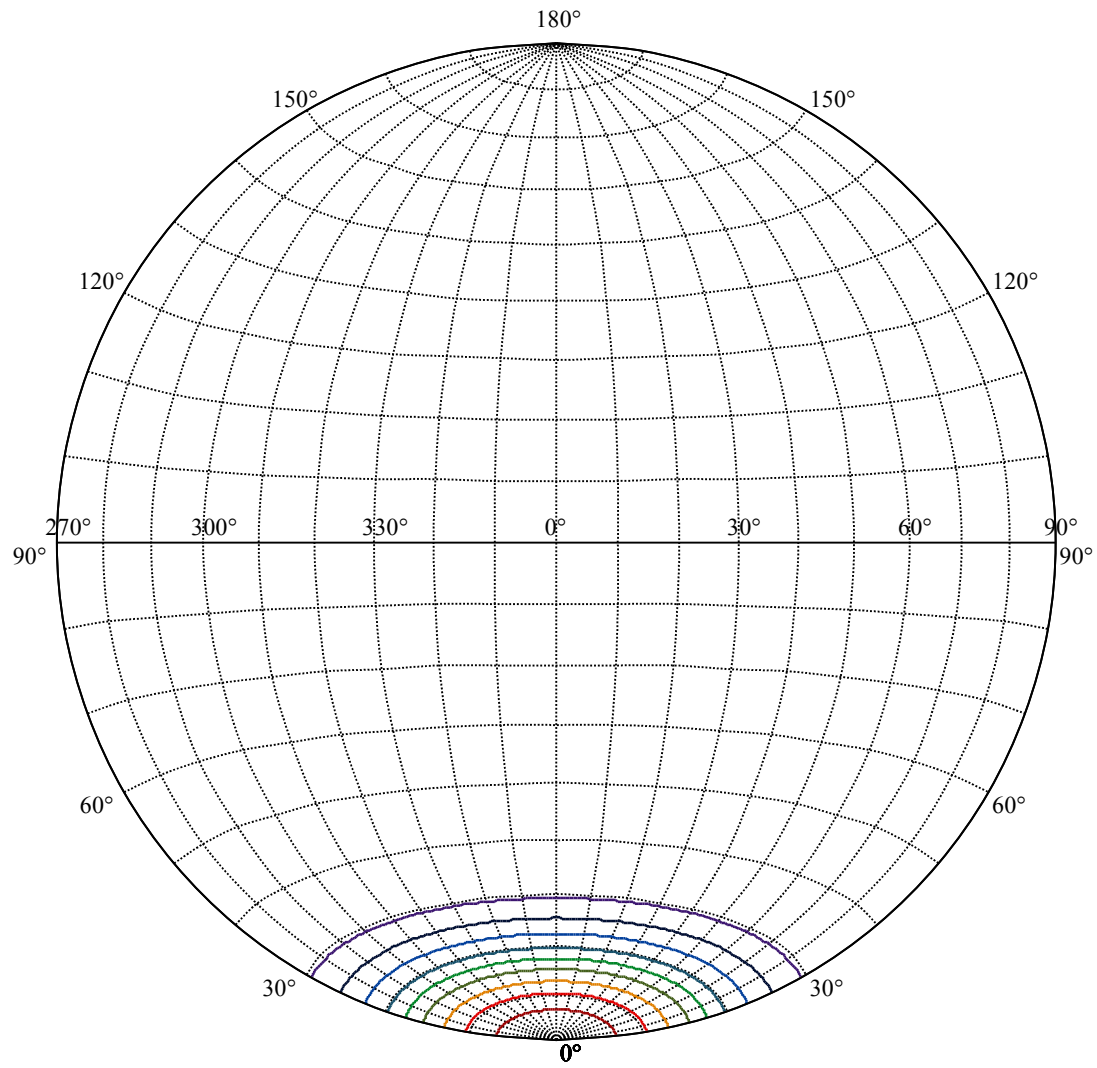
## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 327.94 |
| 10-20   | 637.30 |
| 20-30   | 381.62 |
| 30-40   | 74.09  |
| 40-50   | 24.09  |
| 50-60   | 16.57  |
| 60-70   | 11.65  |
| 70-80   | 8.89   |
| 80-90   | 3.84   |
| 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   |







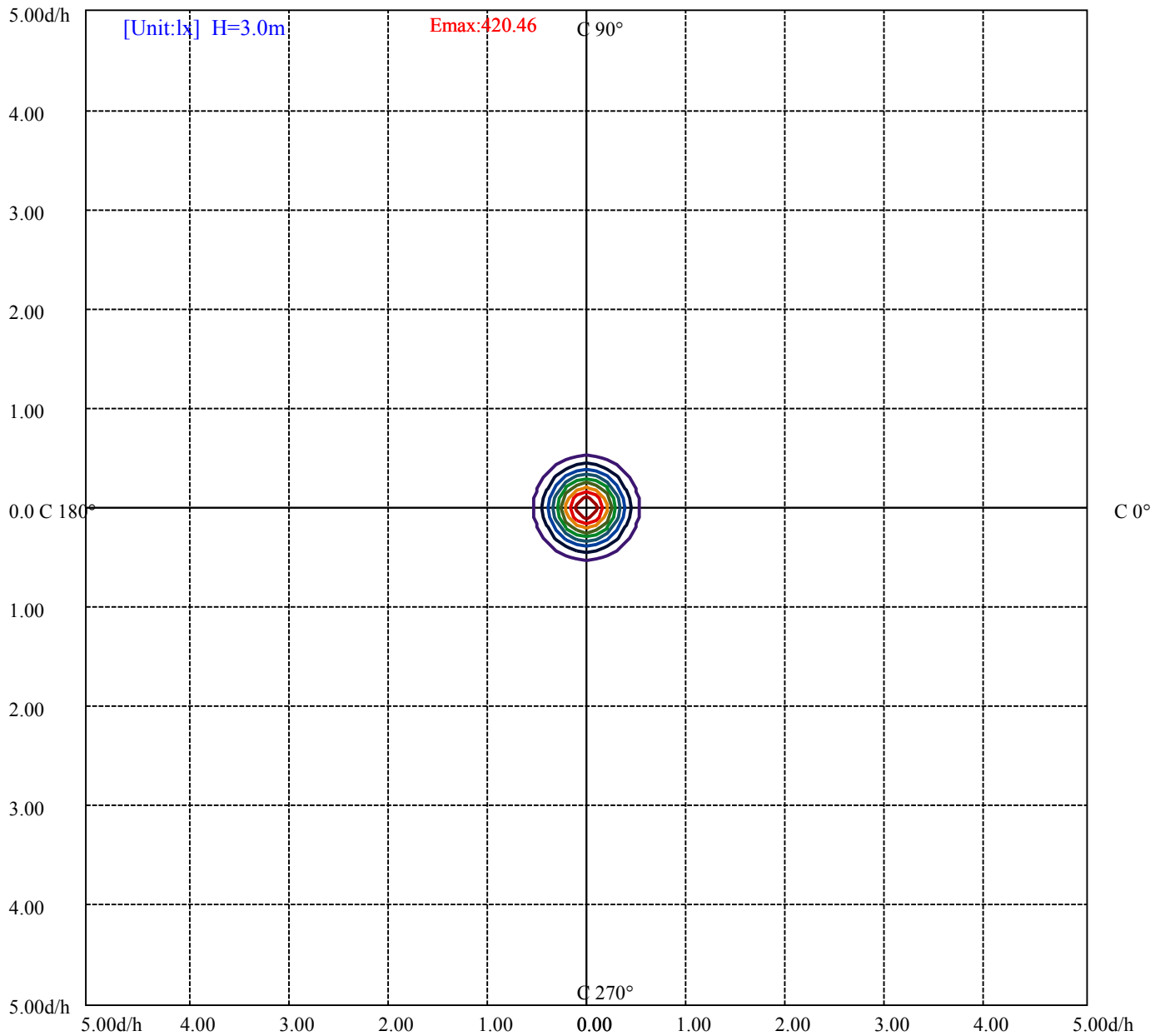


House

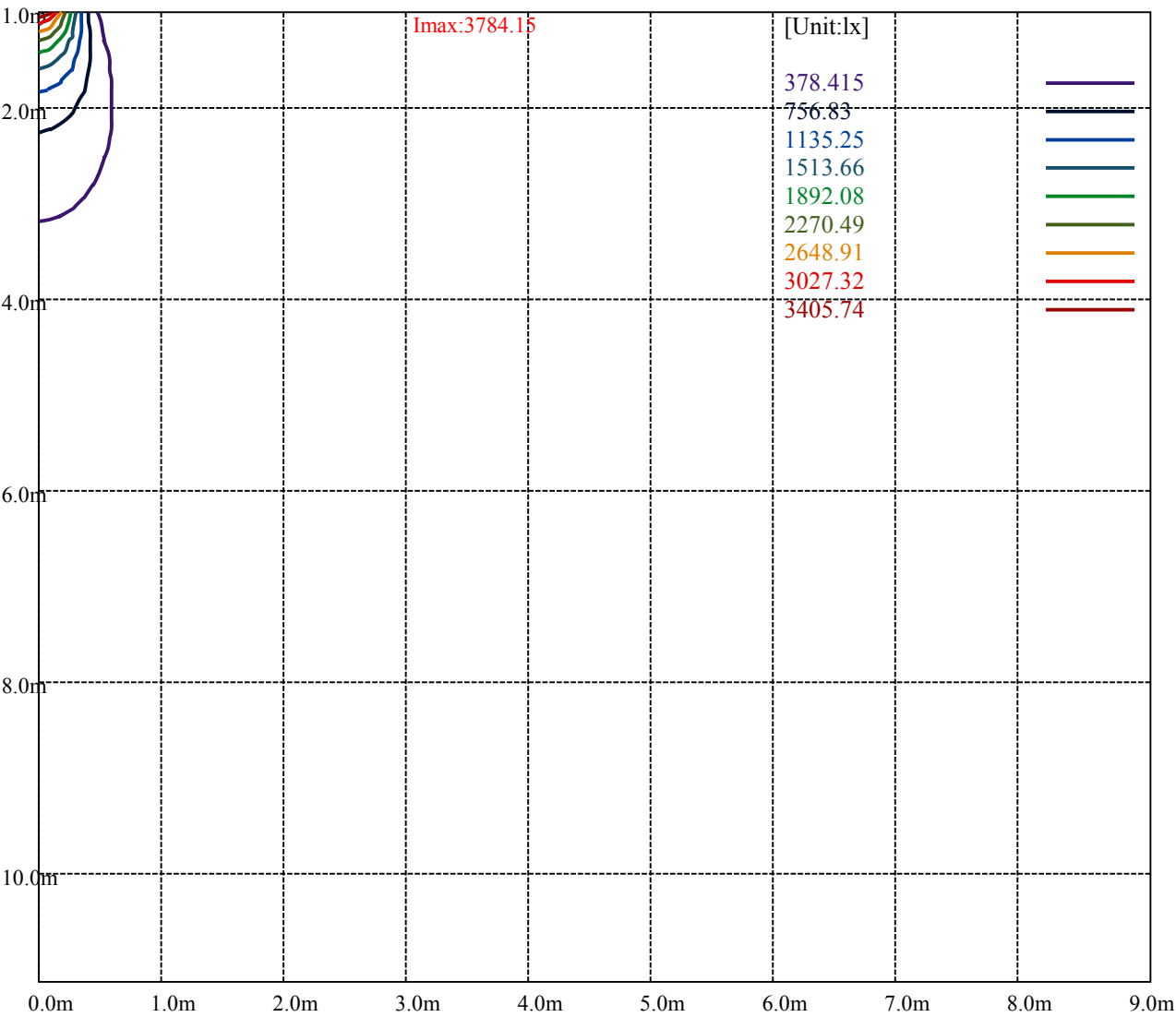
[Unit:cd]

Road

|                     |   |
|---------------------|---|
| <b>Imax:3784.15</b> |   |
| (10%Imax) 378.415   | — |
| (20%Imax) 756.83    | — |
| (30%Imax) 1135.25   | — |
| (40%Imax) 1513.66   | — |
| (50%Imax) 1892.08   | — |
| (60%Imax) 2270.49   | — |
| (70%Imax) 2648.91   | — |
| (80%Imax) 3027.32   | — |
| (90%Imax) 3405.74   | — |



|           |          |   |
|-----------|----------|---|
| (10%Emax) | 42.04611 | — |
| (20%Emax) | 84.09211 | — |
| (30%Emax) | 126.1378 | — |
| (40%Emax) | 168.1844 | — |
| (50%Emax) | 210.23   | — |
| (60%Emax) | 252.2767 | — |
| (70%Emax) | 294.3222 | — |
| (80%Emax) | 336.3689 | — |
| (90%Emax) | 378.4144 | — |



Luminance Table

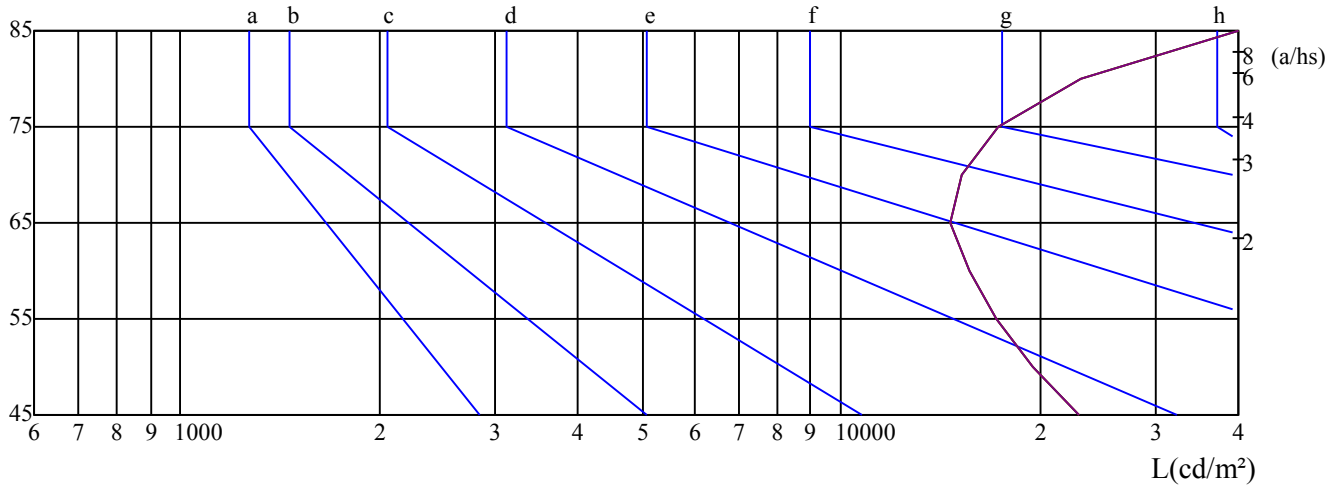
| $\gamma$ | 45    | 50    | 55    | 60    | 65    | 70    | 75    | 80    | 85    |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C0       | 22931 | 19551 | 17184 | 15649 | 14691 | 15212 | 17340 | 23077 | 41714 |
| C45      | 22931 | 19551 | 17184 | 15649 | 14691 | 15212 | 17340 | 23077 | 41714 |
| C90      | 22931 | 19551 | 17184 | 15649 | 14691 | 15212 | 17340 | 23077 | 41714 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 14691      | 14691      | 14691   | 17340      | 17340      | 17340   | 41714      | 41714      | 41714   |

Glare Table

| Glare | Quality | Service Values Illuminance(lx) |      |      |            |            |            |            |            |
|-------|---------|--------------------------------|------|------|------------|------------|------------|------------|------------|
| 1.15  | A       | 2000                           | 1000 | 500  | $\leq 300$ |            |            |            |            |
| 1.5   | B       |                                | 2000 | 1000 | 500        | $\leq 300$ |            |            |            |
| 1.85  | C       |                                |      | 2000 | 1000       | 500        | $\leq 300$ |            |            |
| 2.2   | D       |                                |      |      | 2000       | 1000       | 500        | $\leq 300$ |            |
| 2.55  | E       |                                |      |      |            | 2000       | 1000       | 500        | $\leq 300$ |
|       |         | a                              | b    | c    | d          | e          | f          | g          | h          |

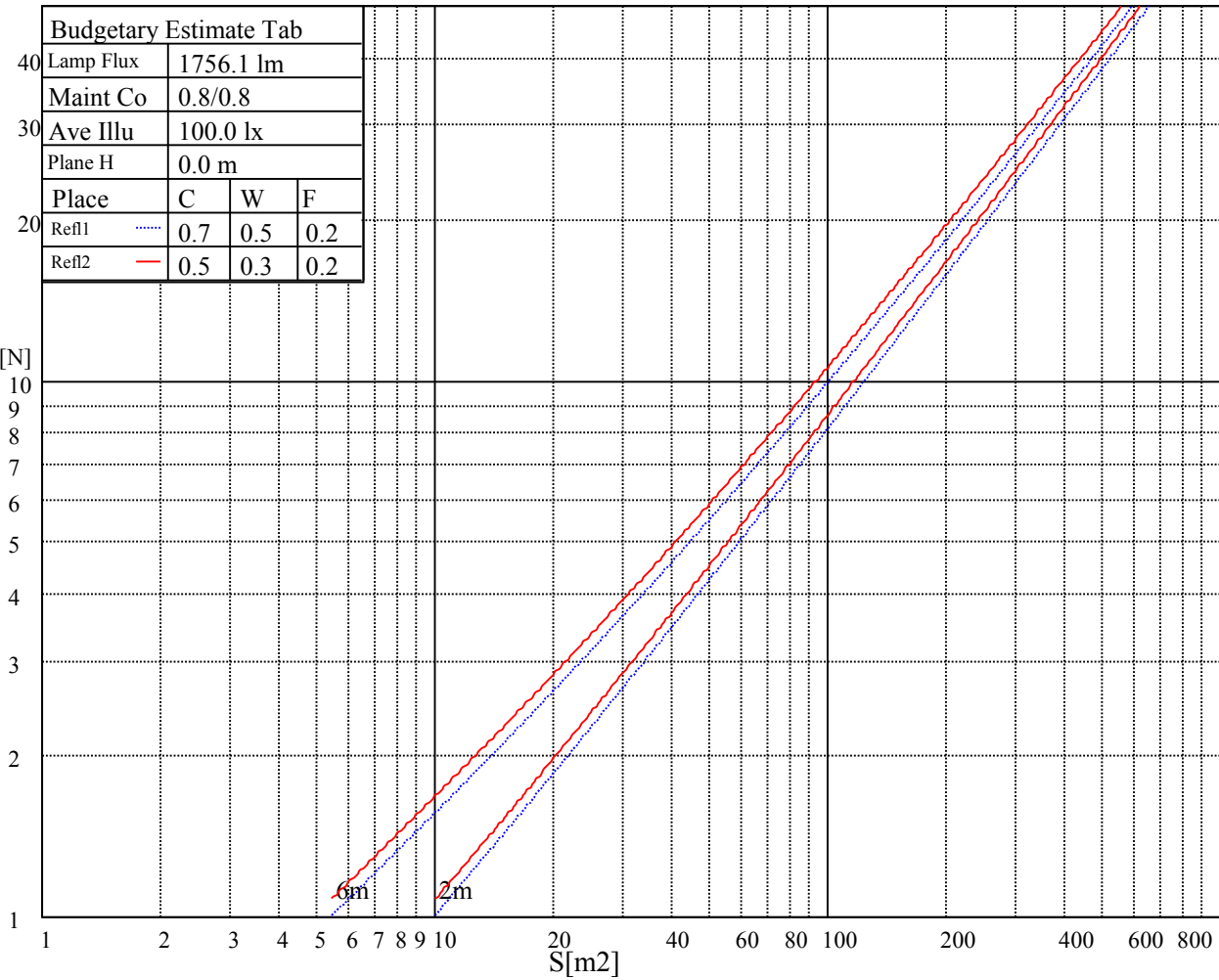
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

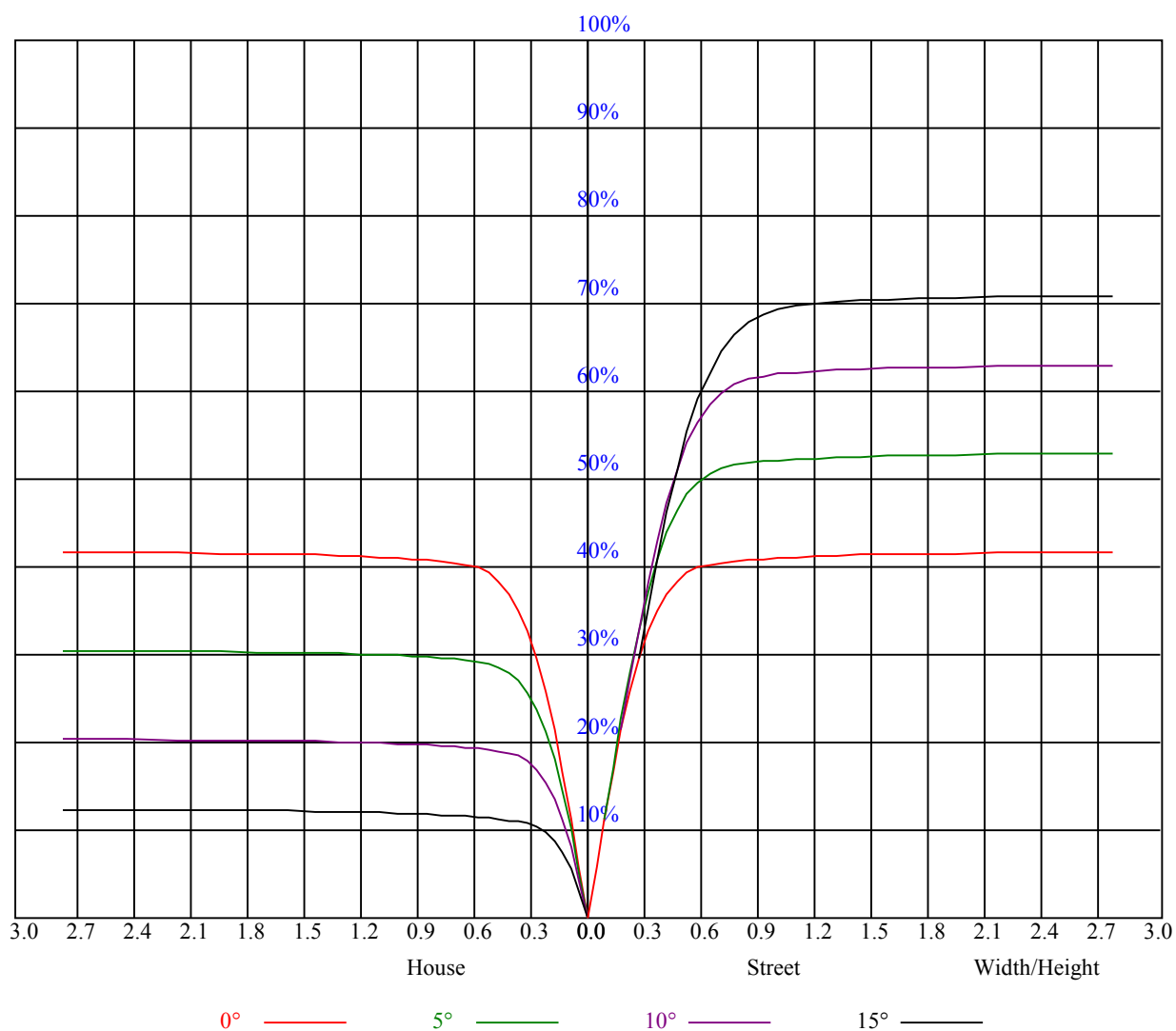
C0 ———

C45 ———

C90 ———



| 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     | 1.01                                    | 1.01 | 1.01 | 0.99 | 0.99 | 0.99 | 0.94 | 0.94 | 0.94 | 0.90 | 0.90 | 0.90 | 0.87 | 0.87 | 0.87 | 0.85 |
| 1     | 0.95                                    | 0.93 | 0.91 | 0.93 | 0.91 | 0.90 | 0.89 | 0.88 | 0.87 | 0.86 | 0.85 | 0.84 | 0.83 | 0.83 | 0.82 | 0.80 |
| 2     | 0.89                                    | 0.86 | 0.84 | 0.88 | 0.85 | 0.83 | 0.85 | 0.83 | 0.81 | 0.83 | 0.81 | 0.79 | 0.80 | 0.79 | 0.78 | 0.76 |
| 3     | 0.85                                    | 0.81 | 0.78 | 0.83 | 0.80 | 0.78 | 0.81 | 0.79 | 0.76 | 0.79 | 0.77 | 0.75 | 0.77 | 0.76 | 0.74 | 0.73 |
| 4     | 0.80                                    | 0.77 | 0.74 | 0.80 | 0.76 | 0.73 | 0.78 | 0.75 | 0.72 | 0.76 | 0.74 | 0.71 | 0.75 | 0.72 | 0.71 | 0.69 |
| 5     | 0.77                                    | 0.73 | 0.70 | 0.76 | 0.72 | 0.69 | 0.75 | 0.71 | 0.69 | 0.73 | 0.70 | 0.68 | 0.72 | 0.70 | 0.68 | 0.66 |
| 6     | 0.73                                    | 0.69 | 0.66 | 0.73 | 0.69 | 0.66 | 0.72 | 0.68 | 0.66 | 0.70 | 0.67 | 0.65 | 0.69 | 0.67 | 0.65 | 0.64 |
| 7     | 0.70                                    | 0.66 | 0.63 | 0.70 | 0.66 | 0.63 | 0.69 | 0.65 | 0.63 | 0.68 | 0.65 | 0.62 | 0.67 | 0.64 | 0.62 | 0.61 |
| 8     | 0.68                                    | 0.63 | 0.61 | 0.67 | 0.63 | 0.60 | 0.66 | 0.63 | 0.60 | 0.65 | 0.62 | 0.60 | 0.65 | 0.62 | 0.60 | 0.59 |
| 9     | 0.65                                    | 0.61 | 0.58 | 0.65 | 0.61 | 0.58 | 0.64 | 0.60 | 0.58 | 0.63 | 0.60 | 0.58 | 0.62 | 0.60 | 0.57 | 0.57 |
| 10    | 0.63                                    | 0.59 | 0.56 | 0.62 | 0.58 | 0.56 | 0.62 | 0.58 | 0.56 | 0.61 | 0.58 | 0.56 | 0.60 | 0.57 | 0.55 | 0.54 |



Intensity data(cd)

Appendix Page: 14 Total:14

| C/γ(°) | 0.0     | 5.0     | 10.0    | 15.0    | 20.0    | 25.0    | 30.0   | 35.0  | 40.0  |
|--------|---------|---------|---------|---------|---------|---------|--------|-------|-------|
| 0.0    | 3774.59 | 3709.46 | 3309.12 | 2595.67 | 1753.75 | 1006.84 | 431.42 | 79.11 | 48.40 |
| 45.0   | 3791.92 | 3586.97 | 3067.71 | 2310.64 | 1456.78 | 764.84  | 325.06 | 62.80 | 41.65 |
| 90.0   | 3776.38 | 3515.86 | 2890.85 | 2071.04 | 1168.53 | 643.48  | 180.69 | 55.81 | 37.94 |
| 135.0  | 3793.71 | 3578.60 | 2988.24 | 2278.98 | 1403.00 | 723.01  | 316.09 | 58.26 | 38.18 |
| 180.0  | 3774.59 | 3466.86 | 2859.77 | 2094.94 | 1190.22 | 595.92  | 185.65 | 54.43 | 36.51 |
| 225.0  | 3791.92 | 3642.54 | 3142.41 | 2380.56 | 1356.99 | 859.49  | 313.22 | 63.82 | 42.19 |
| 270.0  | 3776.38 | 3692.73 | 3286.41 | 2615.38 | 1784.22 | 1001.46 | 421.26 | 81.56 | 46.43 |
| 315.0  | 3793.71 | 3640.74 | 3206.94 | 2449.87 | 1607.95 | 904.42  | 350.75 | 69.13 | 44.99 |
| 360.0  | 3774.59 | 3709.46 | 3309.12 | 2595.67 | 1753.75 | 1006.84 | 431.42 | 79.11 | 48.40 |
| C/γ(°) | 45.0    | 50.0    | 55.0    | 60.0    | 65.0    | 70.0    | 75.0   | 80.0  | 85.0  |
| 0.0    | 33.58   | 25.45   | 20.08   | 15.83   | 12.31   | 10.22   | 8.78   | 7.71  | 6.87  |
| 45.0   | 29.94   | 23.18   | 18.11   | 14.16   | 11.35   | 9.56    | 8.19   | 7.35  | 6.57  |
| 90.0   | 27.37   | 21.45   | 16.91   | 13.38   | 10.76   | 9.14    | 7.95   | 7.17  | 6.51  |
| 135.0  | 28.26   | 22.23   | 17.39   | 14.10   | 11.11   | 9.38    | 8.07   | 7.23  | 6.51  |
| 180.0  | 27.07   | 21.27   | 16.55   | 13.38   | 10.76   | 9.08    | 7.89   | 7.11  | 6.51  |
| 225.0  | 29.88   | 23.12   | 18.40   | 14.52   | 11.59   | 9.62    | 8.37   | 7.47  | 6.87  |
| 270.0  | 32.27   | 24.98   | 19.42   | 15.36   | 12.13   | 10.10   | 8.60   | 7.71  | 6.99  |
| 315.0  | 31.49   | 24.20   | 18.94   | 15.00   | 11.83   | 9.86    | 8.54   | 7.53  | 6.93  |
| 360.0  | 33.58   | 25.45   | 20.08   | 15.83   | 12.31   | 10.22   | 8.78   | 7.71  | 6.87  |
| C/γ(°) | 90.0    |         |         |         |         |         |        |       |       |
| 0.0    | 6.27    |         |         |         |         |         |        |       |       |
| 45.0   | 6.09    |         |         |         |         |         |        |       |       |
| 90.0   | 6.09    |         |         |         |         |         |        |       |       |
| 135.0  | 6.09    |         |         |         |         |         |        |       |       |
| 180.0  | 6.09    |         |         |         |         |         |        |       |       |
| 225.0  | 6.09    |         |         |         |         |         |        |       |       |
| 270.0  | 6.21    |         |         |         |         |         |        |       |       |
| 315.0  | 6.21    |         |         |         |         |         |        |       |       |
| 360.0  | 6.27    |         |         |         |         |         |        |       |       |