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## Nata

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|                               |                   |
|-------------------------------|-------------------|
| LumCAT: 1-0805-S              |                   |
| Luminaire: 92.70.208.00       |                   |
| Report No: NATA0100           | Voltage(V):       |
| Test No: GC2019092605         | Current(A):       |
| LampCAT: LUMILEDS LUXEON 5050 | Power (W): 4.9400 |
| Lamp flux(lm): 460.0          | PF:               |
| Number of Lamps: 1            | Ballast type:     |
| Length(mm): 0                 | Width(mm): 0      |
| Phm Type: C                   | Height(mm): 0     |

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## Photometric Results

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Lumens(lm): 389.54  
Efficiency(%): 84.68%  
Lumens(lm)/Power(W): 78.85  
Central intensity(cd): 259.875  
Maximum intensity(cd): 266.344  
Angle of maximum intensity: C=45.0  $\gamma$ =5.0  
Beam Angle(50%Imax): [C0/180]Total=75.5  
                                  [C90/270]Total=75.1  
Field angle(10%Imax): [C0/180]Total=93.9  
                                  [C90/270]Total=94.7  
Maximum s/h(1/2): C0\_180=1.17 C90\_270=1.16  
Maximum s/h(1/4): C0\_180=1.12 C90\_270=1.11  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 84.68%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 97.584%

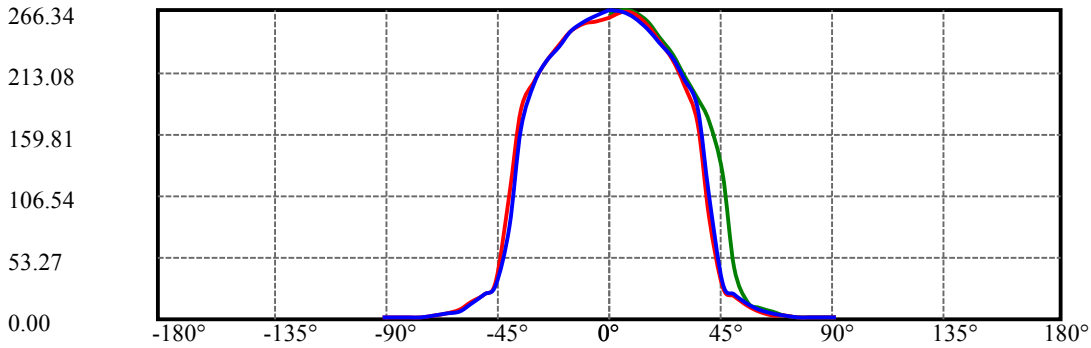
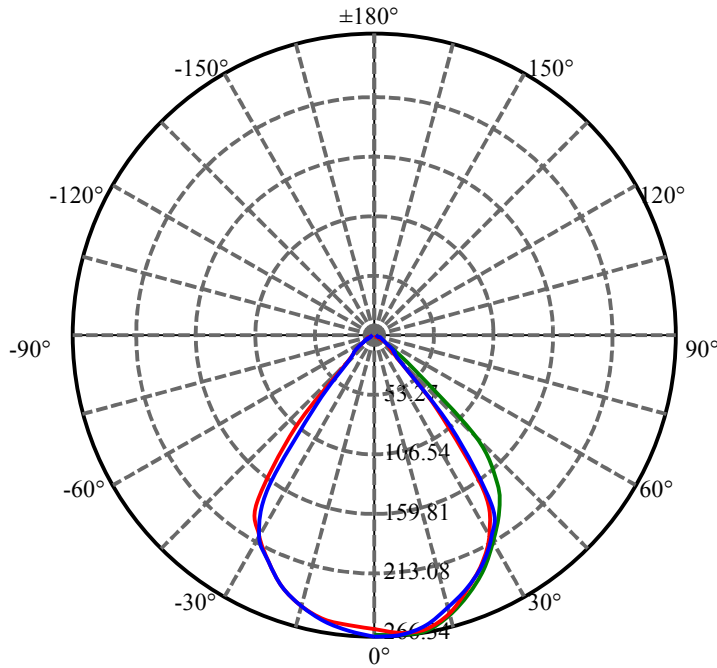
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 263.405       | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 262.308       | 6.285       | 6.285     | 1.366%      | 1.613%     |
| 10.0               | 258.314       | 18.624      | 24.909    | 4.049%      | 6.395%     |
| 15.0               | 249.898       | 30.147      | 55.056    | 6.554%      | 14.134%    |
| 20.0               | 238.310       | 40.235      | 95.291    | 8.747%      | 24.463%    |
| 25.0               | 223.130       | 48.397      | 143.688   | 10.521%     | 36.887%    |
| 30.0               | 205.601       | 54.256      | 197.944   | 11.795%     | 50.815%    |
| 35.0               | 181.090       | 56.943      | 254.887   | 12.379%     | 65.433%    |
| 40.0               | 130.317       | 51.956      | 306.843   | 11.295%     | 78.771%    |
| 45.0               | 72.647        | 37.581      | 344.423   | 8.170%      | 88.418%    |
| 50.0               | 30.832        | 20.909      | 365.333   | 4.546%      | 93.786%    |
| 55.0               | 13.648        | 9.671       | 375.004   | 2.102%      | 96.269%    |
| 60.0               | 8.515         | 5.123       | 380.127   | 1.114%      | 97.584%    |
| 65.0               | 5.147         | 3.321       | 383.448   | .722%       | 98.437%    |
| 70.0               | 3.263         | 2.129       | 385.578   | .463%       | 98.983%    |
| 75.0               | 2.117         | 1.406       | 386.984   | .306%       | 99.344%    |
| 80.0               | 1.547         | 0.980       | 387.964   | .213%       | 99.596%    |
| 85.0               | 1.420         | 0.806       | 388.77    | .175%       | 99.803%    |
| 90.0               | 1.385         | 0.768       | 389.538   | .167%       | 100.000%   |

ZONAL LUMEN SUMMARY

| Zone    | Lumens | %Lamp  | %Fixt   |
|---------|--------|--------|---------|
| 0-30    | 197.94 | 43.03% | 50.81%  |
| 0-40    | 306.84 | 66.70% | 78.77%  |
| 0-60    | 380.13 | 82.64% | 97.58%  |
| 0-90    | 388.77 | 84.52% | 99.80%  |
| 0-120   | 388.77 | 84.52% | 99.80%  |
| 0-180   | 389.54 | 84.68% | 100.00% |
| 60-90   | 13.77  | 2.99%  | 3.53%   |
| 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%   |
| 0-40.64 | 311.63 | 67.75% | 80.00%  |

ZONAL LUMEN SUMMARY

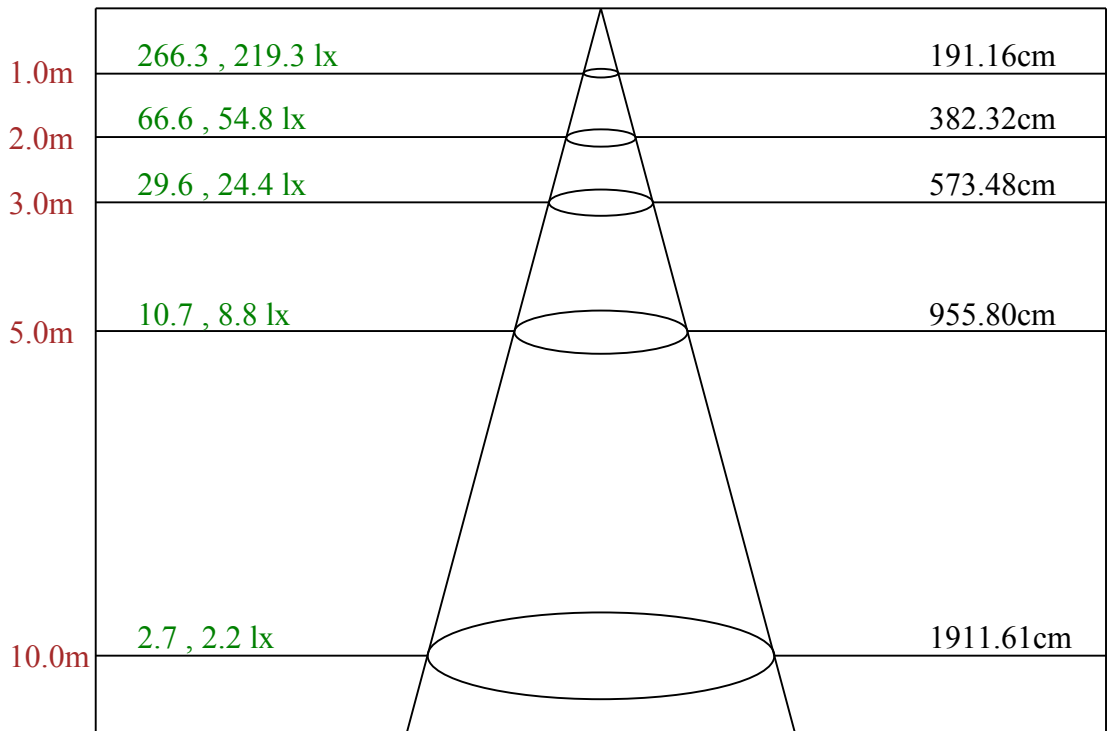
|         |        |
|---------|--------|
| 0-10    | 24.91  |
| 10-20   | 70.38  |
| 20-30   | 102.65 |
| 30-40   | 108.90 |
| 40-50   | 58.49  |
| 50-60   | 14.79  |
| 60-70   | 5.45   |
| 70-80   | 2.39   |
| 80-90   | 0.81   |
| 90-100  | 0.00   |
| 100-110 | 0.00   |
| 110-120 | 0.00   |
| 120-130 | 0.00   |
| 130-140 | 0.00   |
| 140-150 | 0.00   |
| 150-160 | 0.00   |
| 160-170 | 0.00   |
| 170-180 | 0.00   |



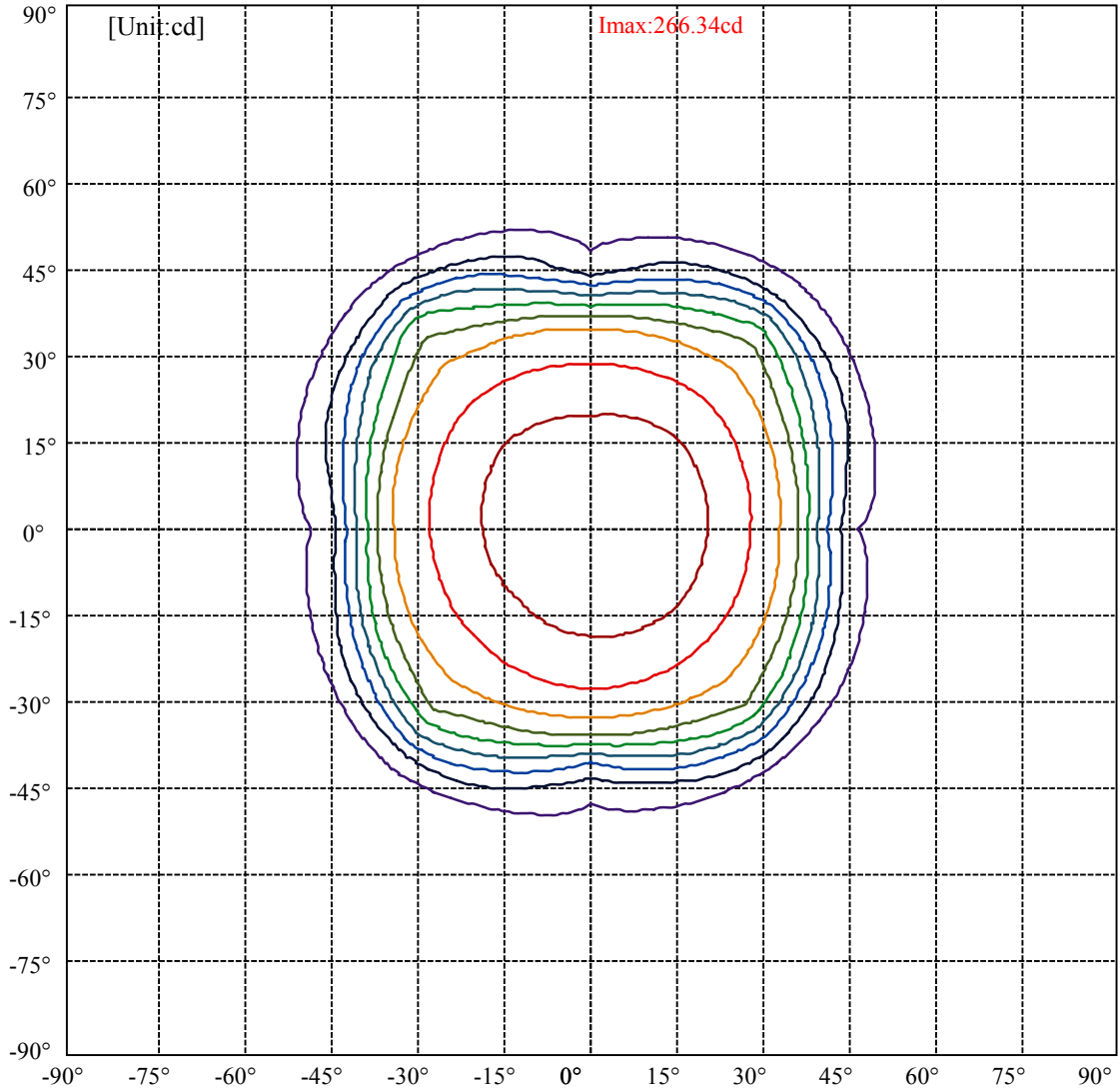
C45(Max): —  
C0/C180: —  
C90/C270: —

Field angle(10%Imax):C0/180Left:53.0 Right:40.9  
:C90/270Left:47.0 Right:47.7

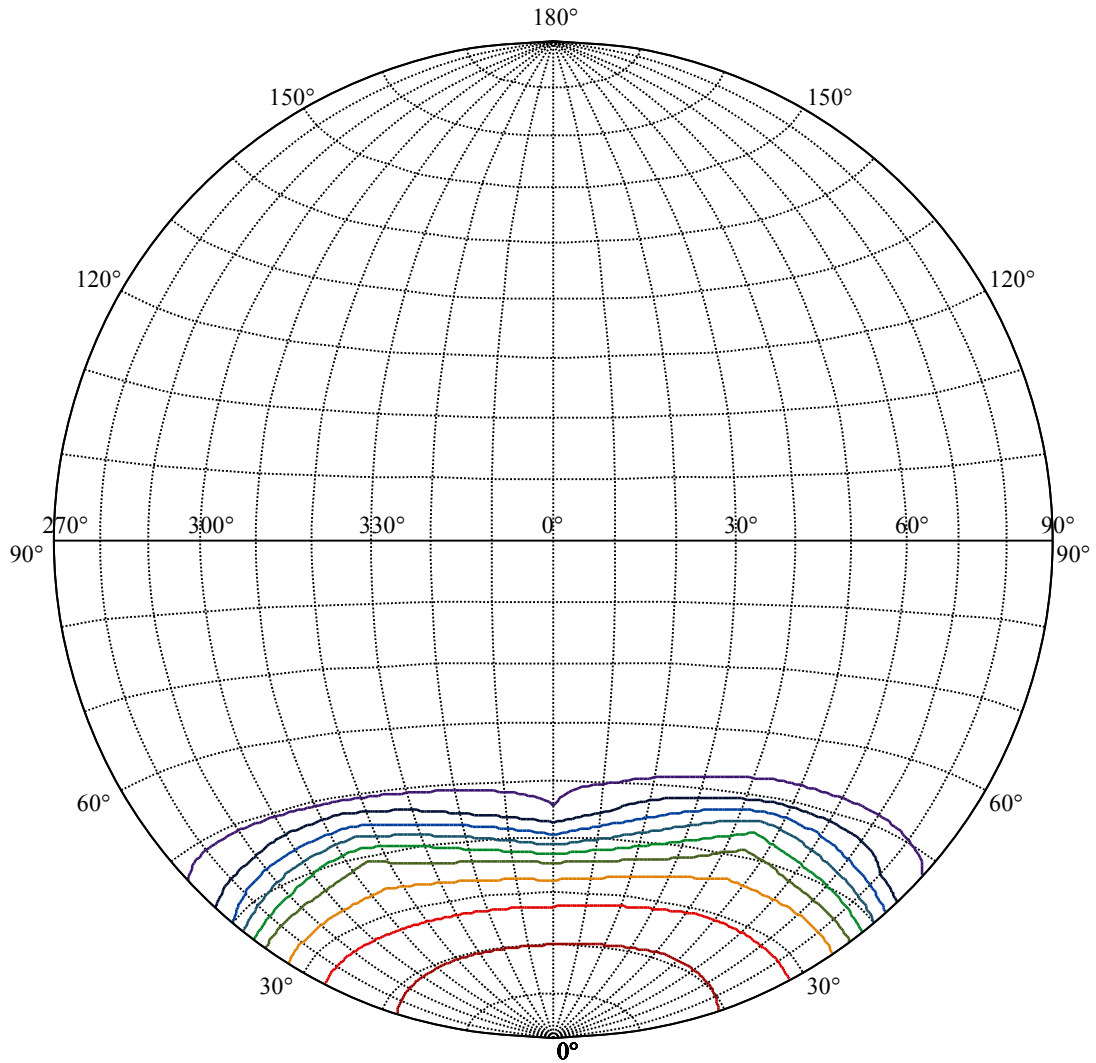
Beam Angle(50%Imax):C0/180Left:43.3 Right:32.2  
:C90/270Left:36.8 Right:38.3



Max , Ave      Beam angle of C45 plane 87.38



|                   |   |
|-------------------|---|
| (10%Imax) 26.6164 | — |
| (20%Imax) 53.2328 | — |
| (30%Imax) 79.8492 | — |
| (40%Imax) 106.466 | — |
| (50%Imax) 133.082 | — |
| (60%Imax) 159.698 | — |
| (70%Imax) 186.315 | — |
| (80%Imax) 212.931 | — |
| (90%Imax) 239.548 | — |



House

[Unit:cd]

Road

**Imax:266.34**

(10%Imax) 26.6344

(20%Imax) 53.2688

(30%Imax) 79.9032

(40%Imax) 106.538

(50%Imax) 133.172

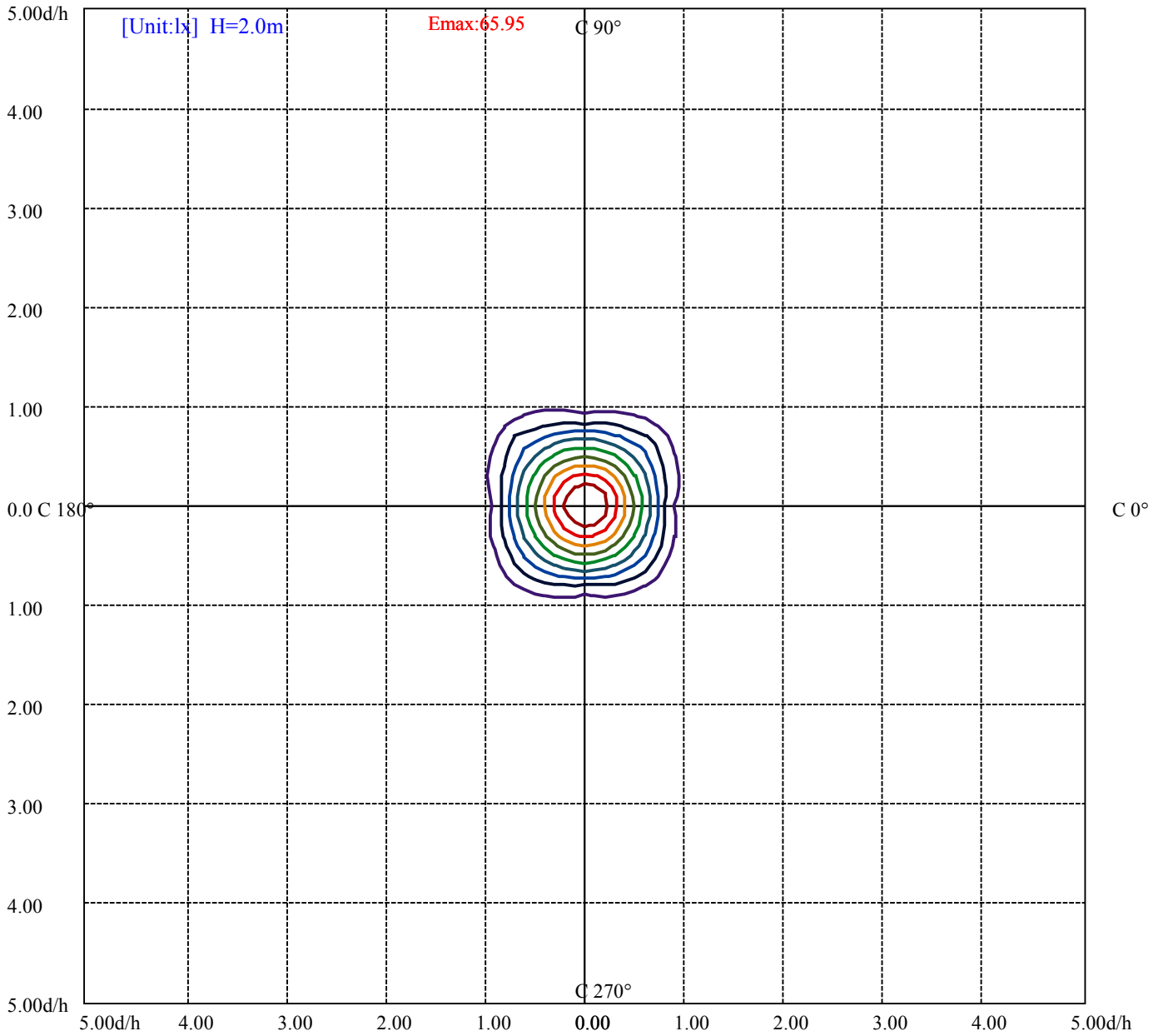
(60%Imax) 159.806

(70%Imax) 186.441

(80%Imax) 213.075

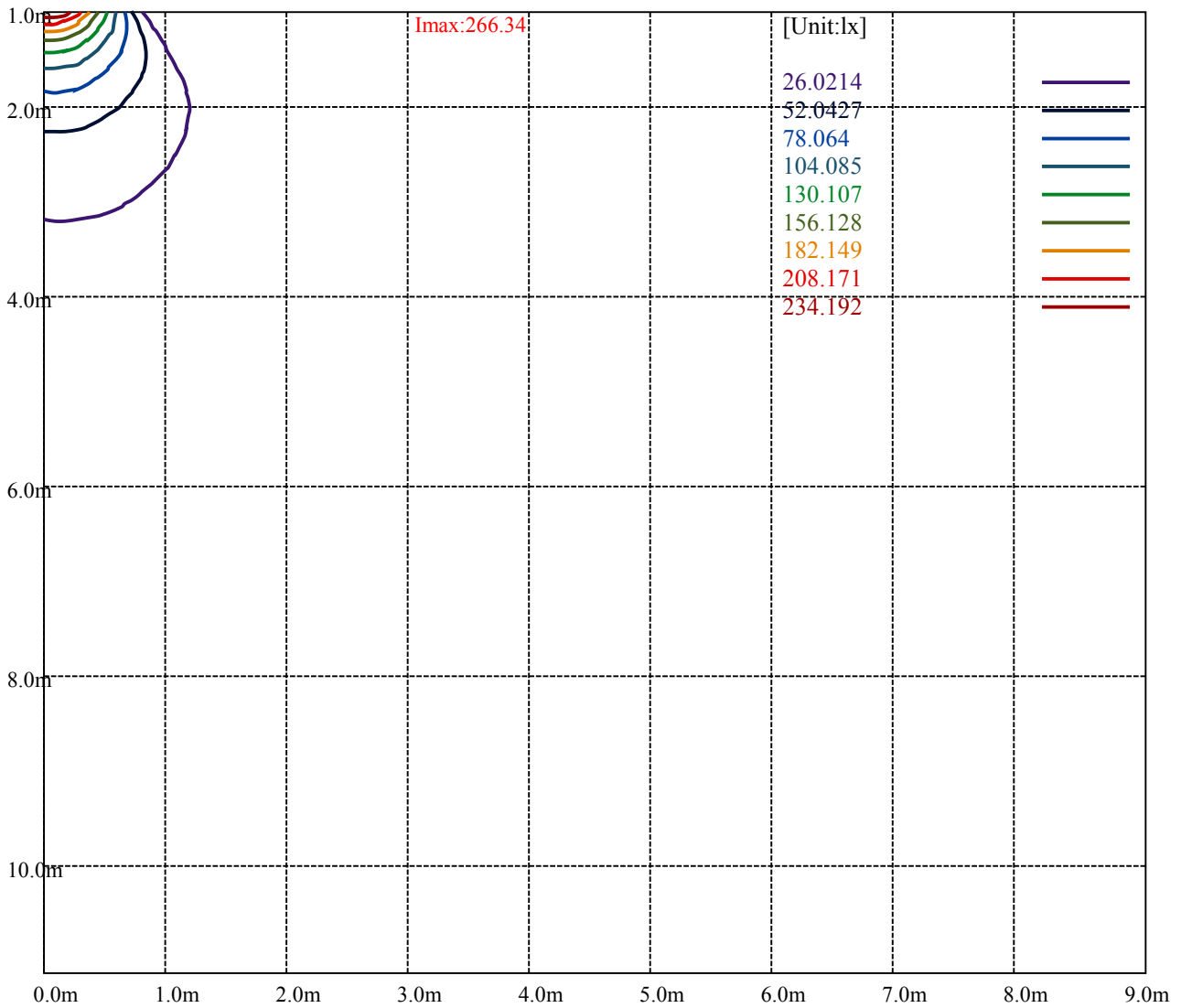
(90%Imax) 239.71





|                    |   |
|--------------------|---|
| (10%Emax) 6.595325 | — |
| (20%Emax) 13.19065 | — |
| (30%Emax) 19.786   | — |
| (40%Emax) 26.38125 | — |
| (50%Emax) 32.97675 | — |
| (60%Emax) 39.572   | — |
| (70%Emax) 46.16725 | — |
| (80%Emax) 52.76275 | — |
| (90%Emax) 59.358   | — |





Luminance Table

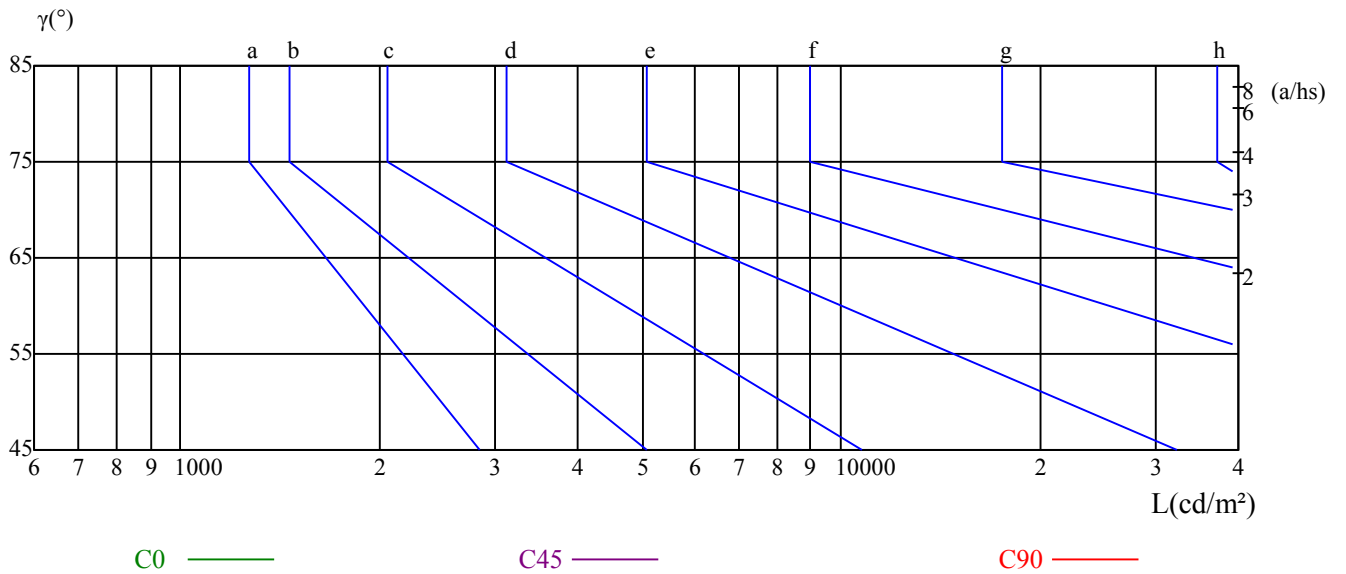
| $\gamma$ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|----|----|----|----|----|----|----|----|----|
| C0       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C45      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C90      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |

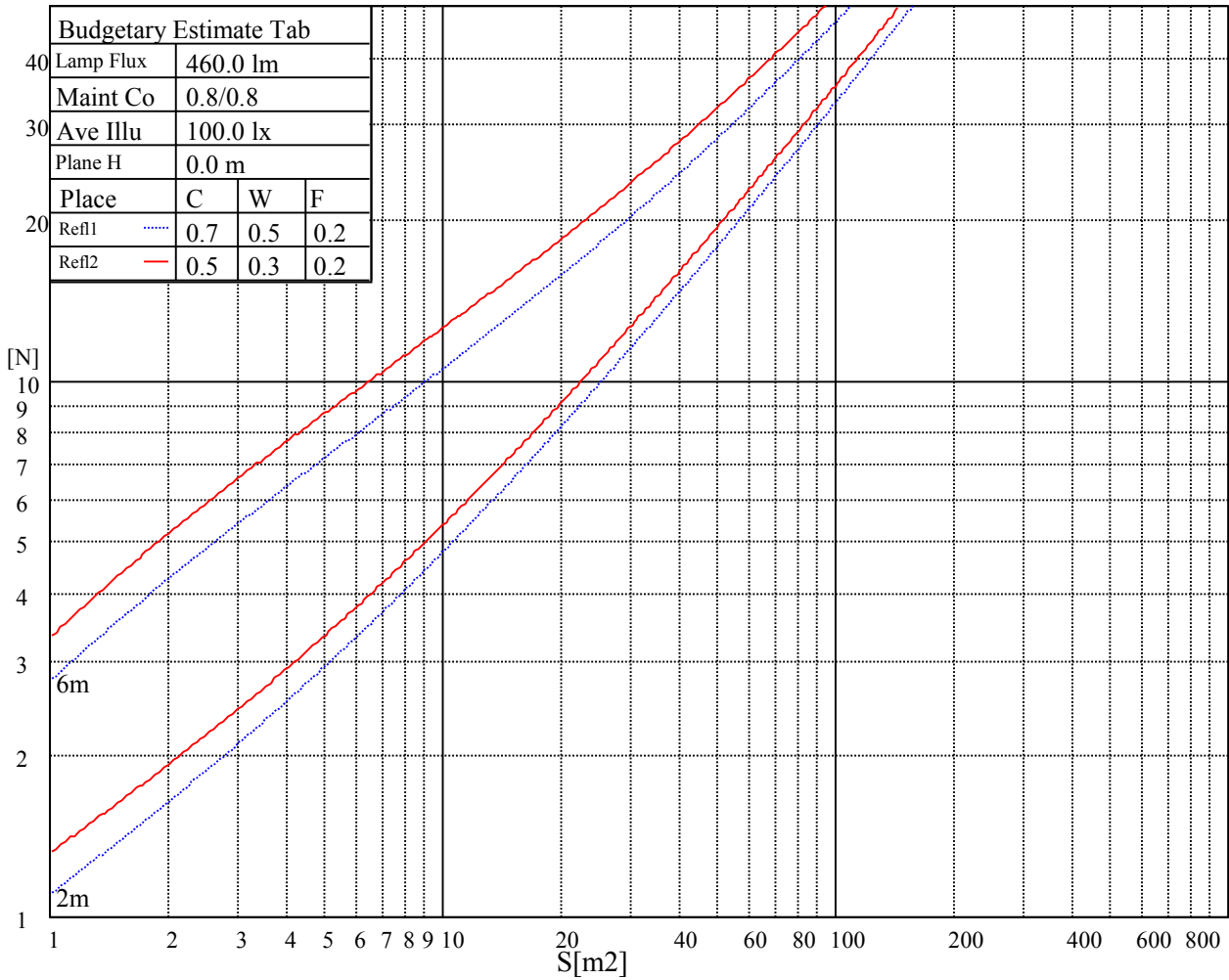
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 0          | 0          | 0       | 0          | 0          | 0       | 0     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

Glare Table

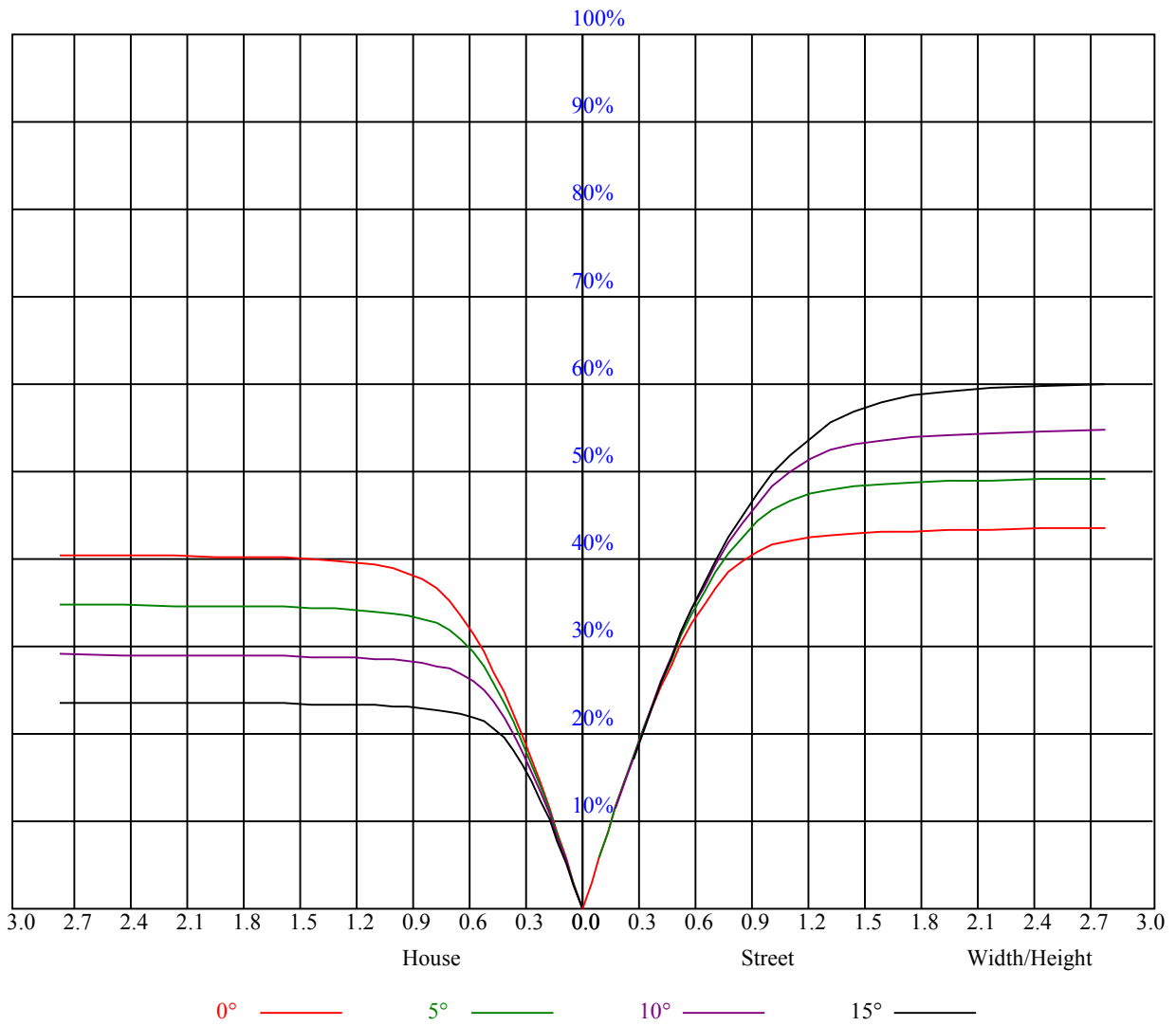
| Glare | Quality | Service Values Illuminance(lx) |      |      |       |       |       |       |       |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15  | A       | 2000                           | 1000 | 500  | <=300 |       |       |       |       |
| 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     | 1.01                                    | 1.01 | 1.01 | 0.98 | 0.98 | 0.98 | 0.94 | 0.94 | 0.94 | 0.90 | 0.90 | 0.90 | 0.86 | 0.86 | 0.86 | 0.85 |
| 1     | 0.92                                    | 0.90 | 0.88 | 0.91 | 0.88 | 0.86 | 0.87 | 0.85 | 0.84 | 0.84 | 0.83 | 0.81 | 0.81 | 0.80 | 0.79 | 0.77 |
| 2     | 0.85                                    | 0.81 | 0.77 | 0.83 | 0.79 | 0.76 | 0.80 | 0.77 | 0.75 | 0.78 | 0.75 | 0.73 | 0.75 | 0.73 | 0.71 | 0.70 |
| 3     | 0.78                                    | 0.73 | 0.69 | 0.76 | 0.72 | 0.68 | 0.74 | 0.70 | 0.67 | 0.72 | 0.69 | 0.66 | 0.70 | 0.67 | 0.65 | 0.63 |
| 4     | 0.71                                    | 0.66 | 0.62 | 0.70 | 0.65 | 0.61 | 0.68 | 0.64 | 0.60 | 0.67 | 0.63 | 0.60 | 0.65 | 0.62 | 0.59 | 0.58 |
| 5     | 0.66                                    | 0.60 | 0.56 | 0.65 | 0.59 | 0.55 | 0.63 | 0.58 | 0.55 | 0.62 | 0.57 | 0.54 | 0.60 | 0.57 | 0.54 | 0.52 |
| 6     | 0.61                                    | 0.55 | 0.50 | 0.60 | 0.54 | 0.50 | 0.58 | 0.54 | 0.50 | 0.57 | 0.53 | 0.49 | 0.56 | 0.52 | 0.49 | 0.48 |
| 7     | 0.56                                    | 0.50 | 0.46 | 0.55 | 0.50 | 0.46 | 0.54 | 0.49 | 0.46 | 0.53 | 0.49 | 0.45 | 0.52 | 0.48 | 0.45 | 0.44 |
| 8     | 0.52                                    | 0.46 | 0.42 | 0.51 | 0.46 | 0.42 | 0.50 | 0.45 | 0.42 | 0.50 | 0.45 | 0.42 | 0.49 | 0.45 | 0.41 | 0.40 |
| 9     | 0.48                                    | 0.43 | 0.39 | 0.48 | 0.42 | 0.39 | 0.47 | 0.42 | 0.39 | 0.46 | 0.42 | 0.38 | 0.46 | 0.41 | 0.38 | 0.37 |
| 10    | 0.45                                    | 0.40 | 0.36 | 0.45 | 0.39 | 0.36 | 0.44 | 0.39 | 0.36 | 0.43 | 0.39 | 0.36 | 0.43 | 0.38 | 0.35 | 0.34 |



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             | 259.88 | 264.32 | 262.97 | 253.86 | 239.68 | 222.92 | 202.28 | 168.64 | 86.96  |
| 45.0            | 263.81 | 266.34 | 264.99 | 256.16 | 243.73 | 227.53 | 210.43 | 190.91 | 169.93 |
| 90.0            | 265.61 | 264.88 | 259.37 | 250.09 | 238.05 | 225.51 | 206.38 | 181.86 | 106.65 |
| 135.0           | 264.32 | 261.84 | 256.05 | 249.41 | 241.20 | 227.59 | 211.22 | 195.92 | 174.49 |
| 180.0           | 259.88 | 256.50 | 254.48 | 247.39 | 236.25 | 221.63 | 204.47 | 179.94 | 107.10 |
| 225.0           | 263.81 | 259.09 | 253.41 | 244.63 | 233.44 | 217.97 | 203.23 | 184.73 | 161.78 |
| 270.0           | 265.61 | 261.79 | 255.88 | 247.39 | 235.69 | 221.68 | 202.78 | 163.69 | 79.37  |
| 315.0           | 264.32 | 263.70 | 259.37 | 250.26 | 238.44 | 220.22 | 204.02 | 183.04 | 156.26 |
| 360.0           | 259.88 | 264.32 | 262.97 | 253.86 | 239.68 | 222.92 | 202.28 | 168.64 | 86.96  |
| C/ $\gamma$ (°) | 45.0   | 50.0   | 55.0   | 60.0   | 65.0   | 70.0   | 75.0   | 80.0   | 85.0   |
| 0.0             | 27.79  | 19.86  | 11.64  | 6.75   | 3.99   | 2.70   | 1.91   | 1.52   | 1.46   |
| 45.0            | 126.00 | 44.83  | 14.23  | 9.73   | 6.08   | 3.71   | 2.36   | 1.63   | 1.41   |
| 90.0            | 31.73  | 22.28  | 14.01  | 7.93   | 4.78   | 3.04   | 2.08   | 1.52   | 1.46   |
| 135.0           | 145.24 | 64.29  | 15.98  | 10.97  | 7.03   | 4.39   | 2.64   | 1.74   | 1.41   |
| 180.0           | 33.19  | 21.99  | 15.02  | 8.33   | 4.78   | 3.09   | 2.14   | 1.58   | 1.46   |
| 225.0           | 103.95 | 31.67  | 13.33  | 9.11   | 5.68   | 3.38   | 2.03   | 1.46   | 1.35   |
| 270.0           | 30.04  | 21.38  | 13.05  | 7.31   | 4.16   | 2.81   | 1.86   | 1.46   | 1.41   |
| 315.0           | 83.25  | 20.36  | 11.93  | 7.99   | 4.67   | 2.98   | 1.91   | 1.46   | 1.41   |
| 360.0           | 27.79  | 19.86  | 11.64  | 6.75   | 3.99   | 2.70   | 1.91   | 1.52   | 1.46   |
| C/ $\gamma$ (°) | 90.0   |        |        |        |        |        |        |        |        |
| 0.0             | 1.41   |        |        |        |        |        |        |        |        |
| 45.0            | 1.35   |        |        |        |        |        |        |        |        |
| 90.0            | 1.41   |        |        |        |        |        |        |        |        |
| 135.0           | 1.35   |        |        |        |        |        |        |        |        |
| 180.0           | 1.46   |        |        |        |        |        |        |        |        |
| 225.0           | 1.35   |        |        |        |        |        |        |        |        |
| 270.0           | 1.41   |        |        |        |        |        |        |        |        |
| 315.0           | 1.35   |        |        |        |        |        |        |        |        |
| 360.0           | 1.41   |        |        |        |        |        |        |        |        |