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## Nata

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LumCAT: 2977-E  
Luminaire: 92.76.233.00  
Report No: NT2017010909  
Test No: GC2017010909  
LampCAT: CITIZEN CLU241  
Lamp flux(lm): 615.0  
Number of Lamps: 1  
Length(mm): 70  
Phm Type: C

Voltage(V): 218.0000  
Current(A): 0.0290  
Power (W): 6.2000  
PF: 0.9870  
Ballast type: DC  
Width(mm): 70  
Height(mm): 0

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## Photometric Results

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Lumens(lm): 576.35  
Efficiency(%): 93.71%  
Lumens(lm)/Power(W): 92.96  
Central intensity(cd): 2740.432  
Maximum intensity(cd): 2740.432  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=18.4  
                                  [C90/270]Total=18.4  
Field angle(10%Imax): [C0/180]Total=46.6  
                                  [C90/270]Total=46.6  
Maximum s/h(1/2): C0\_180=0.32 C90\_270=0.32  
Maximum s/h(1/4): C0\_180=0.34 C90\_270=0.34  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 93.71%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.447%

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Equipment: gms1980  
Temperature(°C): 25.0

Date: 2017/1/9  
Humidity(%): 60.0%

Operator: NT07  
Distance(m): 7.42

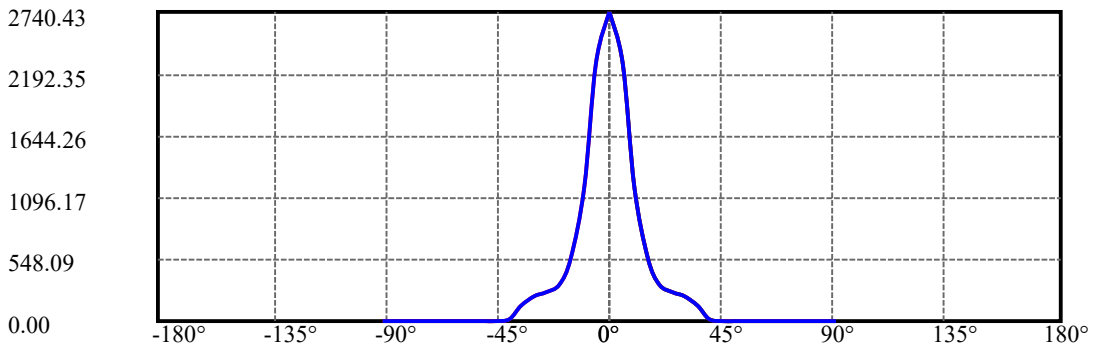
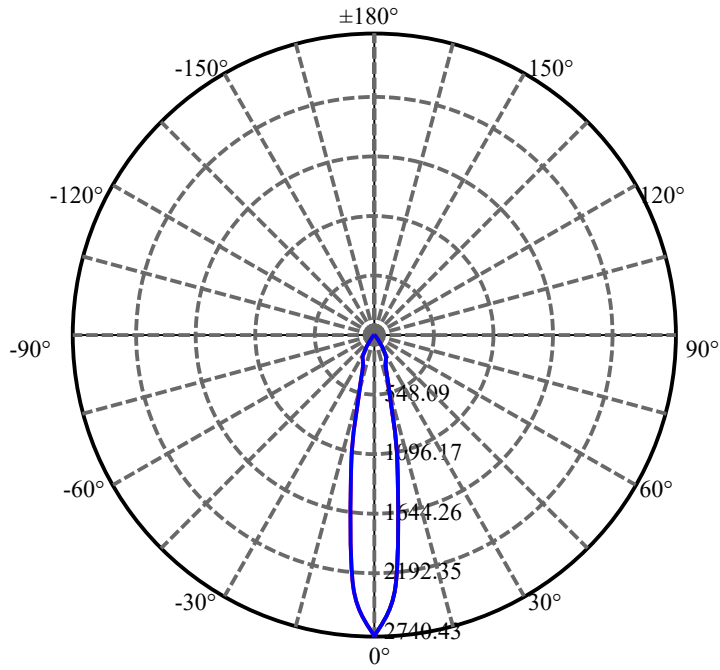
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 2740.432      | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 2287.869      | 60.112      | 60.112    | 9.774%      | 10.430%    |
| 10.0               | 1193.988      | 124.557     | 184.669   | 20.253%     | 32.041%    |
| 15.0               | 555.822       | 103.798     | 288.466   | 16.878%     | 50.051%    |
| 20.0               | 322.747       | 72.406      | 360.873   | 11.773%     | 62.614%    |
| 25.0               | 249.447       | 60.013      | 420.885   | 9.758%      | 73.026%    |
| 30.0               | 217.961       | 59.151      | 480.036   | 9.618%      | 83.290%    |
| 35.0               | 134.971       | 51.972      | 532.008   | 8.451%      | 92.307%    |
| 40.0               | 19.662        | 25.799      | 557.807   | 4.195%      | 96.783%    |
| 45.0               | 6.923         | 4.922       | 562.73    | .800%       | 97.637%    |
| 50.0               | 3.049         | 2.015       | 564.745   | .328%       | 97.987%    |
| 55.0               | 2.911         | 1.296       | 566.041   | .211%       | 98.212%    |
| 60.0               | 2.959         | 1.357       | 567.398   | .221%       | 98.447%    |
| 65.0               | 3.028         | 1.456       | 568.853   | .237%       | 98.700%    |
| 70.0               | 3.104         | 1.553       | 570.406   | .252%       | 98.969%    |
| 75.0               | 3.069         | 1.614       | 572.019   | .262%       | 99.249%    |
| 80.0               | 2.650         | 1.530       | 573.55    | .249%       | 99.515%    |
| 85.0               | 2.588         | 1.423       | 574.973   | .231%       | 99.762%    |
| 90.0               | 2.429         | 1.374       | 576.346   | .223%       | 100.000%   |

## ZONAL LUMEN SUMMARY

| Zone    | Lumens | %Lamp  | %Fixt   |
|---------|--------|--------|---------|
| 0-30    | 480.04 | 78.05% | 83.29%  |
| 0-40    | 557.81 | 90.70% | 96.78%  |
| 0-60    | 567.40 | 92.26% | 98.45%  |
| 0-90    | 574.97 | 93.49% | 99.76%  |
| 0-120   | 574.97 | 93.49% | 99.76%  |
| 0-180   | 576.35 | 93.71% | 100.00% |
| 60-90   | 8.93   | 1.45%  | 1.55%   |
| 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%   |
| 0-28.40 | 461.08 | 74.97% | 80.00%  |

## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 184.67 |
| 10-20   | 176.20 |
| 20-30   | 119.16 |
| 30-40   | 77.77  |
| 40-50   | 6.94   |
| 50-60   | 2.65   |
| 60-70   | 3.01   |
| 70-80   | 3.14   |
| 80-90   | 1.42   |
| 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: —————

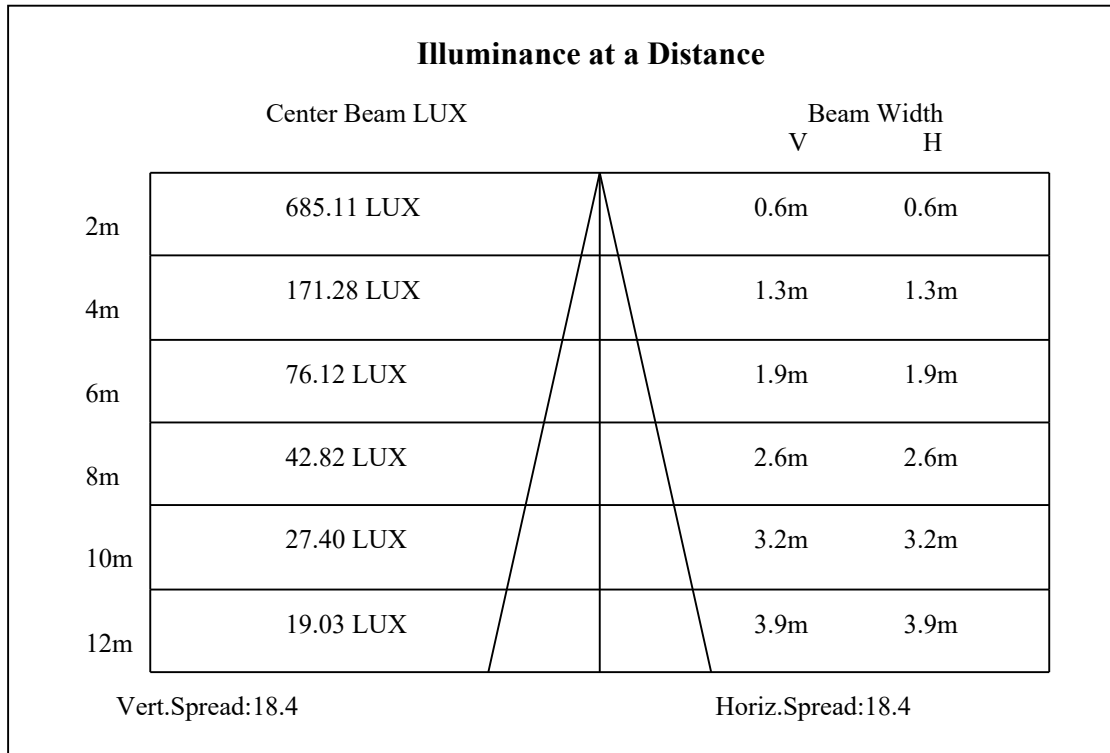
C90/C270: —————

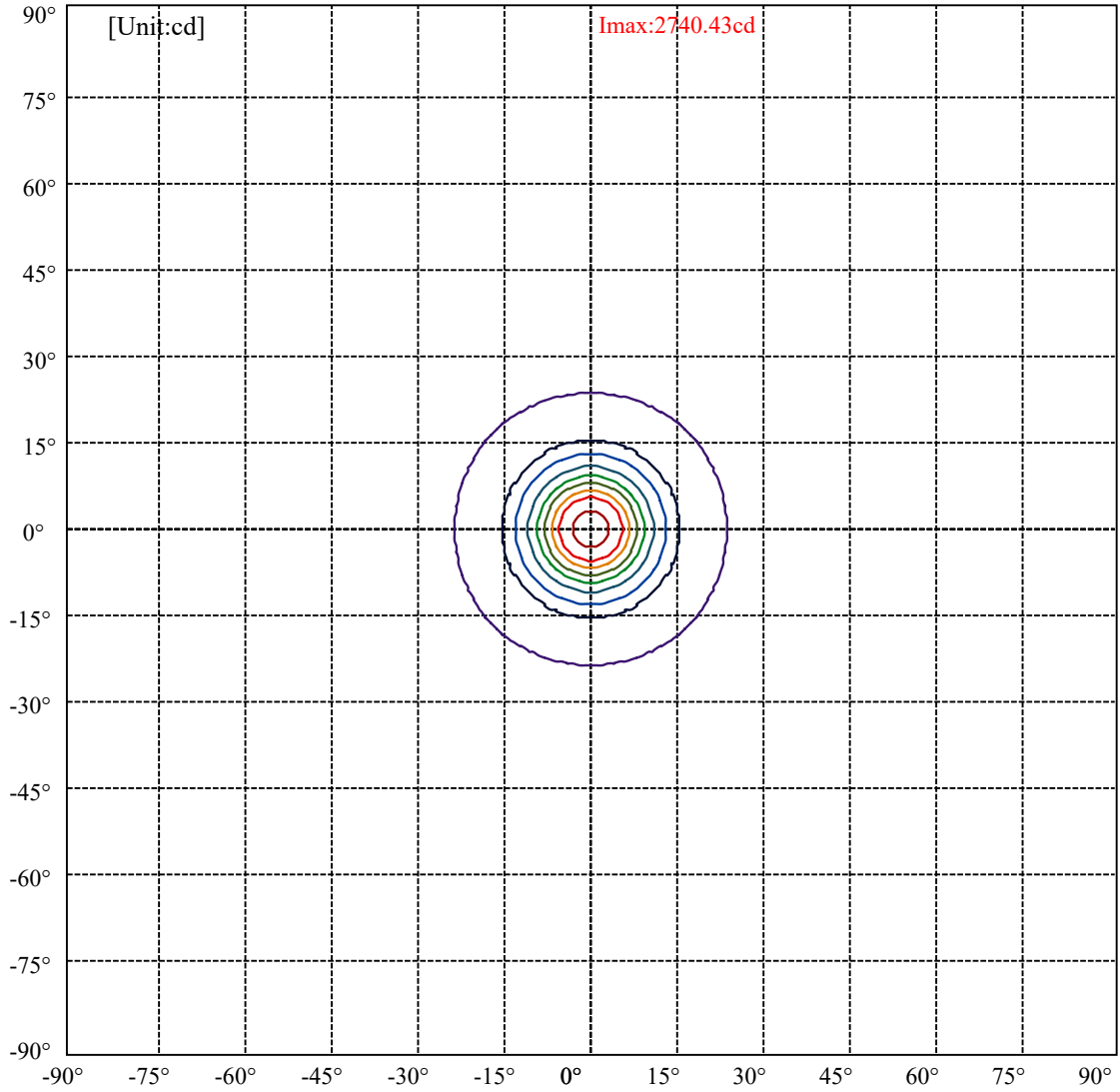
Field angle(10%Imax):C0/180Left:23.3 Right:23.3

:C90/270Left:23.3 Right:23.3

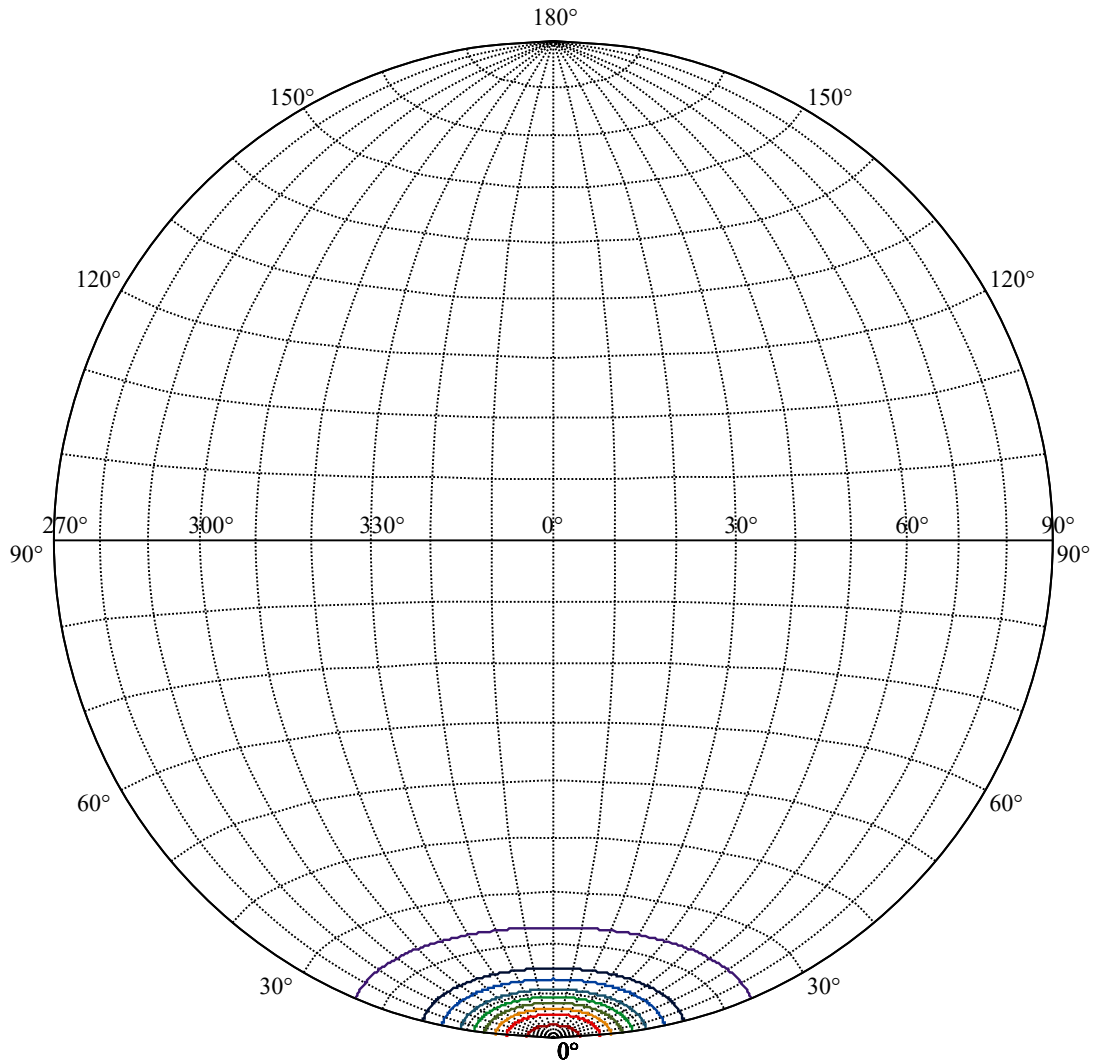
Beam Angle(50%Imax):C0/180Left:9.2 Right:9.2

:C90/270Left:9.2 Right:9.2





|                   |   |
|-------------------|---|
| (10%Imax) 274.043 | — |
| (20%Imax) 548.086 | — |
| (30%Imax) 822.13  | — |
| (40%Imax) 1096.17 | — |
| (50%Imax) 1370.22 | — |
| (60%Imax) 1644.26 | — |
| (70%Imax) 1918.3  | — |
| (80%Imax) 2192.35 | — |
| (90%Imax) 2466.39 | — |



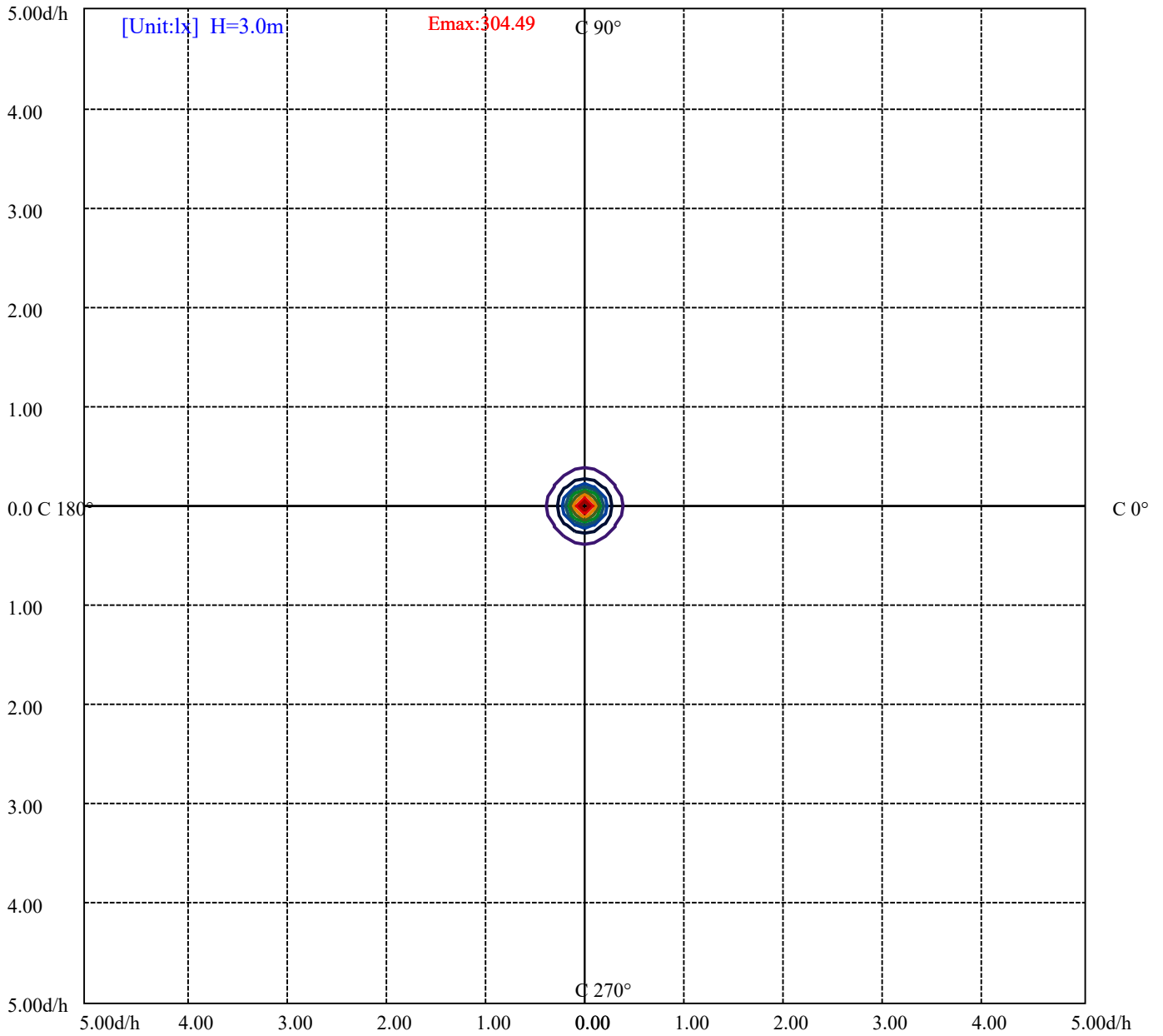
House

[Unit:cd]

Road

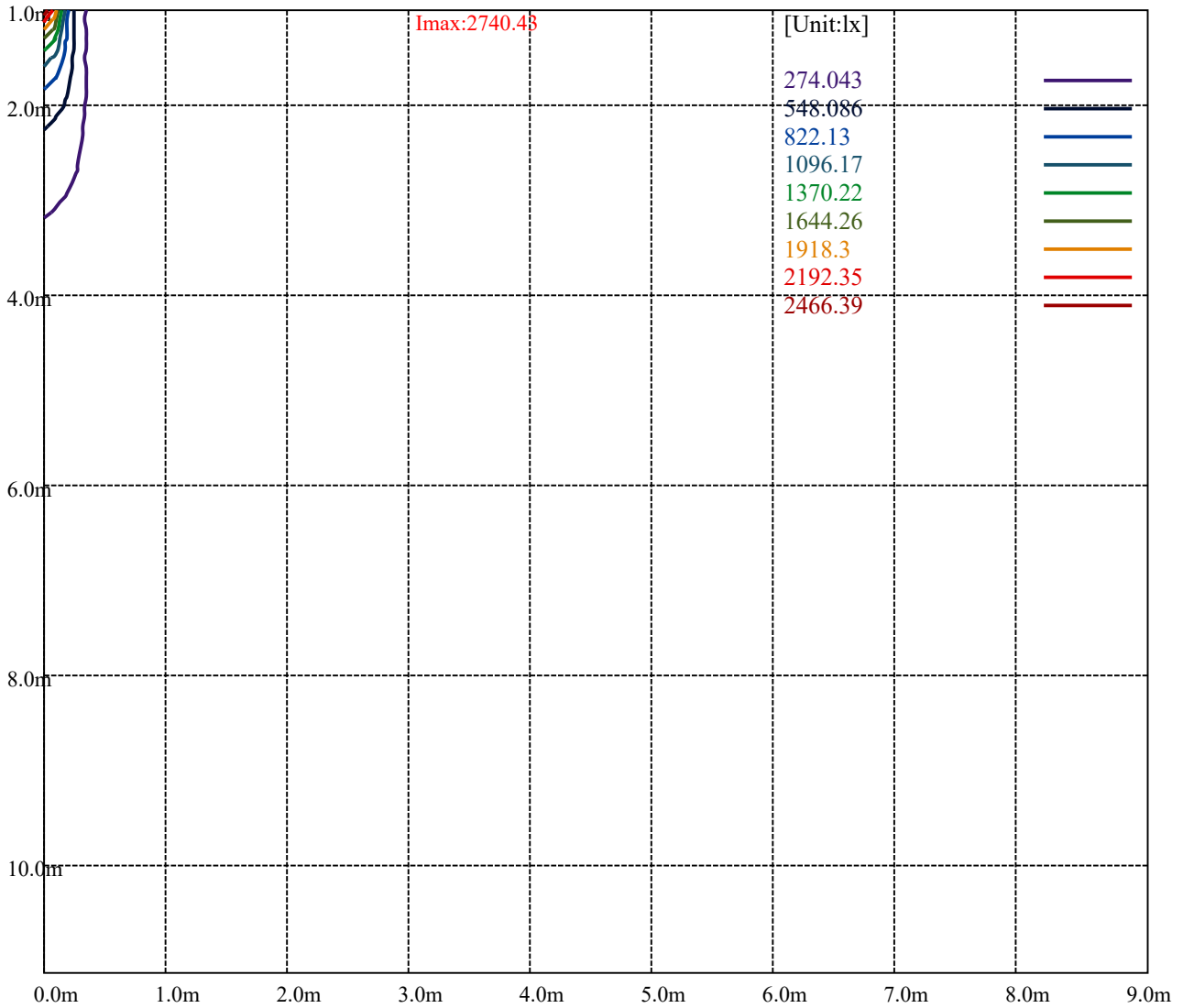
**Imax:2740.43**

|                   |   |
|-------------------|---|
| (10%Imax) 274.043 | — |
| (20%Imax) 548.086 | — |
| (30%Imax) 822.13  | — |
| (40%Imax) 1096.17 | — |
| (50%Imax) 1370.22 | — |
| (60%Imax) 1644.26 | — |
| (70%Imax) 1918.3  | — |
| (80%Imax) 2192.35 | — |
| (90%Imax) 2466.39 | — |



|                    |   |
|--------------------|---|
| (10%Emax) 30.44911 | — |
| (20%Emax) 60.89822 | — |
| (30%Emax) 91.34733 | — |
| (40%Emax) 121.7967 | — |
| (50%Emax) 152.2455 | — |
| (60%Emax) 182.6944 | — |
| (70%Emax) 213.1433 | — |
| (80%Emax) 243.5922 | — |
| (90%Emax) 274.0422 | — |





Luminance Table

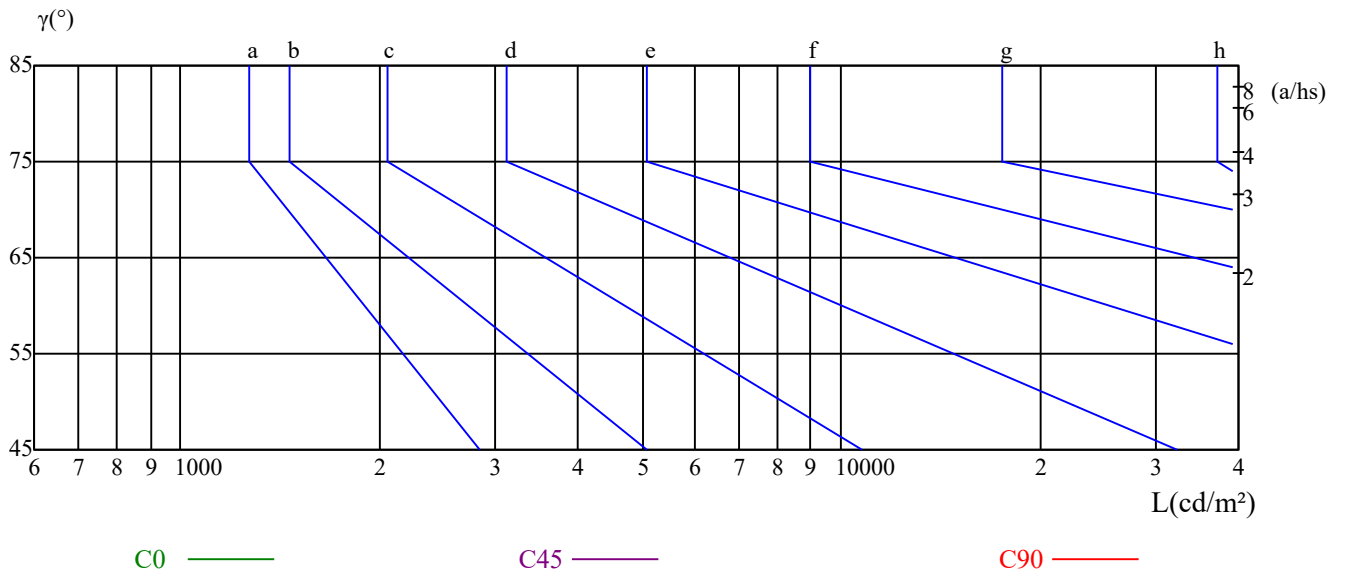
| $\gamma$ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|----|----|----|----|----|----|----|----|----|
| C0       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C45      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C90      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |

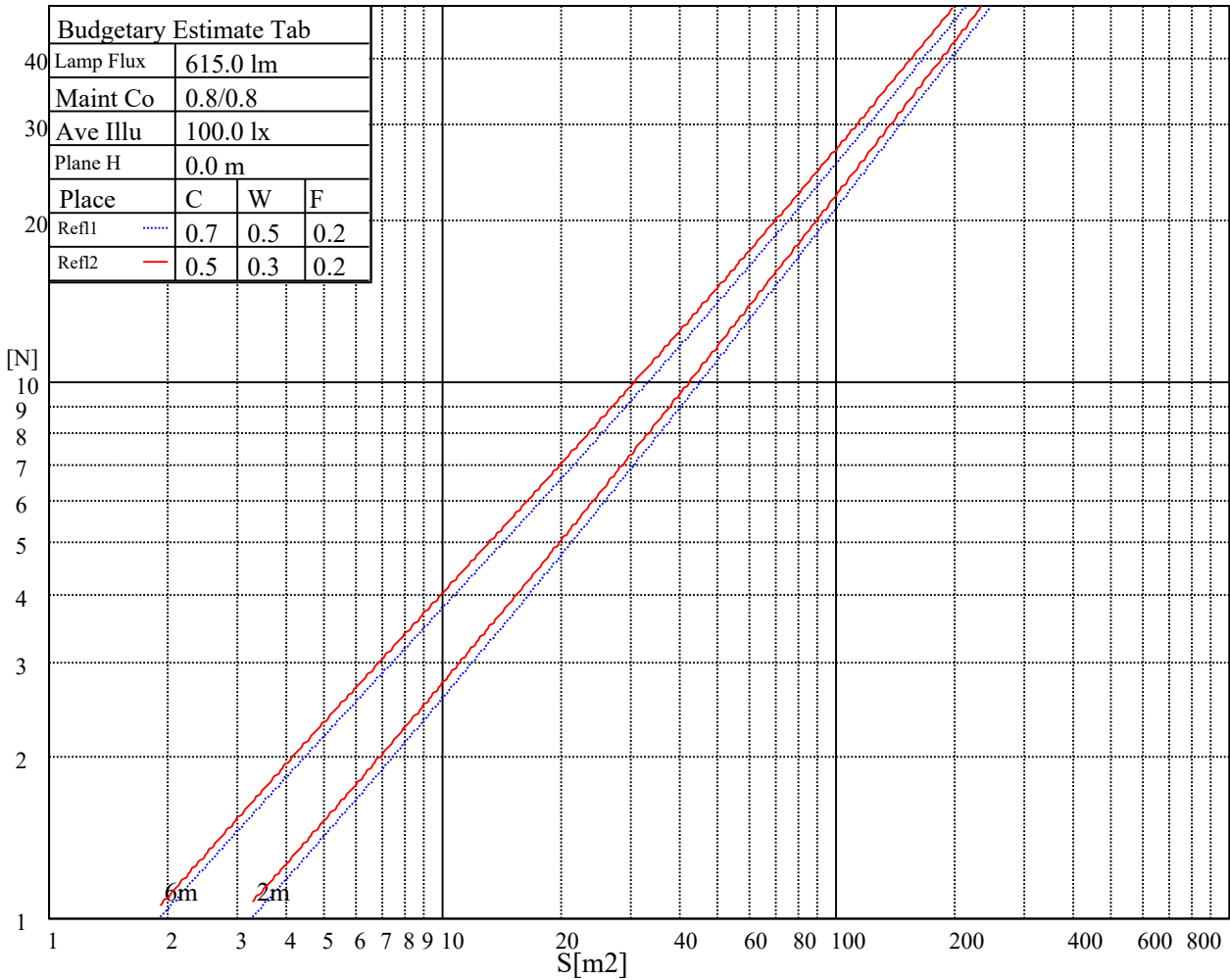
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 0          | 0          | 0       | 0          | 0          | 0       | 0     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

Glare Table

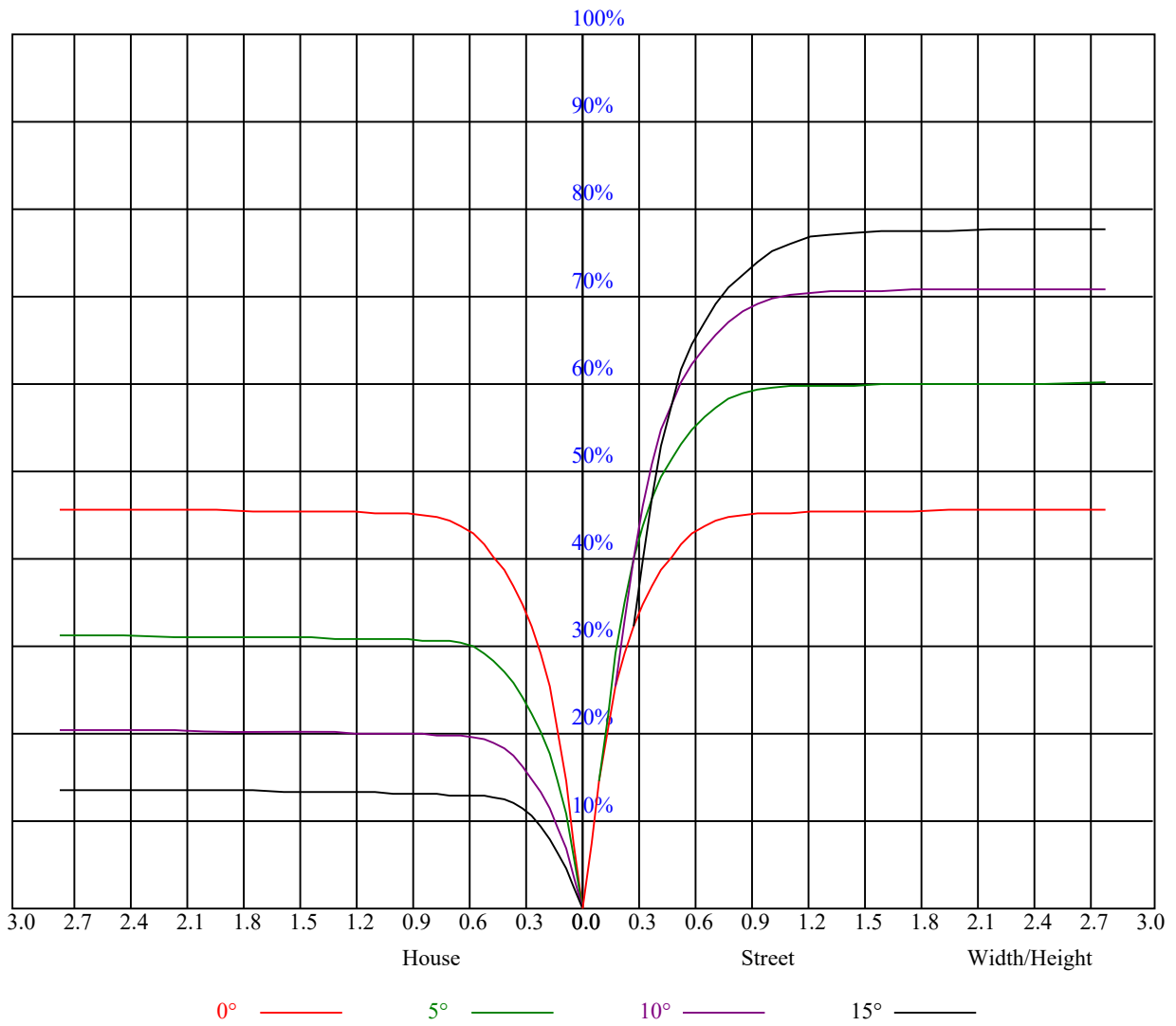
| Glare | Quality | Service Values Illuminance(lx) |      |      |       |       |       |       |       |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15  | A       | 2000                           | 1000 | 500  | <=300 |       |       |       |       |
| 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 RHOF=20 CU |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 0     | 1.12                                   | 1.12 | 1.12 | 1.09 | 1.09 | 1.09 | 1.04 | 1.04 | 1.04 | 1.00 | 1.00 | 1.00 | 0.96 | 0.96 | 0.96 | 0.94 |
| 1     | 1.05                                   | 1.03 | 1.01 | 1.03 | 1.01 | 0.99 | 0.99 | 0.98 | 0.96 | 0.96 | 0.94 | 0.93 | 0.92 | 0.91 | 0.91 | 0.89 |
| 2     | 0.99                                   | 0.96 | 0.93 | 0.97 | 0.94 | 0.92 | 0.94 | 0.92 | 0.90 | 0.92 | 0.90 | 0.88 | 0.89 | 0.88 | 0.86 | 0.85 |
| 3     | 0.94                                   | 0.90 | 0.87 | 0.93 | 0.89 | 0.86 | 0.90 | 0.87 | 0.85 | 0.88 | 0.86 | 0.84 | 0.86 | 0.84 | 0.82 | 0.81 |
| 4     | 0.89                                   | 0.85 | 0.82 | 0.88 | 0.85 | 0.81 | 0.87 | 0.83 | 0.81 | 0.85 | 0.82 | 0.80 | 0.83 | 0.81 | 0.79 | 0.78 |
| 5     | 0.85                                   | 0.81 | 0.78 | 0.85 | 0.80 | 0.77 | 0.83 | 0.79 | 0.77 | 0.82 | 0.79 | 0.76 | 0.80 | 0.78 | 0.75 | 0.74 |
| 6     | 0.82                                   | 0.77 | 0.74 | 0.81 | 0.77 | 0.74 | 0.80 | 0.76 | 0.73 | 0.79 | 0.75 | 0.73 | 0.78 | 0.75 | 0.72 | 0.71 |
| 7     | 0.79                                   | 0.74 | 0.71 | 0.78 | 0.74 | 0.71 | 0.77 | 0.73 | 0.70 | 0.76 | 0.73 | 0.70 | 0.75 | 0.72 | 0.70 | 0.69 |
| 8     | 0.76                                   | 0.71 | 0.68 | 0.75 | 0.71 | 0.68 | 0.74 | 0.70 | 0.68 | 0.73 | 0.70 | 0.67 | 0.73 | 0.69 | 0.67 | 0.66 |
| 9     | 0.73                                   | 0.69 | 0.66 | 0.73 | 0.68 | 0.65 | 0.72 | 0.68 | 0.65 | 0.71 | 0.68 | 0.65 | 0.70 | 0.67 | 0.65 | 0.64 |
| 10    | 0.70                                   | 0.66 | 0.63 | 0.70 | 0.66 | 0.63 | 0.69 | 0.66 | 0.63 | 0.69 | 0.65 | 0.63 | 0.68 | 0.65 | 0.63 | 0.62 |



Intensity data(cd)

|        |         |         |         |        |        |        |        |        |       |
|--------|---------|---------|---------|--------|--------|--------|--------|--------|-------|
| C/γ(°) | 0.0     | 5.0     | 10.0    | 15.0   | 20.0   | 25.0   | 30.0   | 35.0   | 40.0  |
| 0.0    | 2755.57 | 2160.41 | 1200.23 | 517.53 | 310.52 | 243.24 | 216.32 | 111.87 | 12.55 |
| 45.0   | 2756.12 | 2170.87 | 1171.60 | 499.36 | 302.26 | 238.83 | 214.66 | 107.53 | 13.21 |
| 90.0   | 2718.13 | 2107.01 | 1085.27 | 453.94 | 301.54 | 235.75 | 212.79 | 106.59 | 10.35 |
| 135.0  | 2731.90 | 2396.05 | 1467.80 | 659.58 | 348.51 | 279.69 | 221.93 | 162.97 | 27.64 |
| 180.0  | 2755.57 | 2443.40 | 1075.53 | 610.63 | 332.10 | 250.40 | 218.46 | 153.28 | 24.45 |
| 225.0  | 2756.12 | 2449.46 | 1047.39 | 623.40 | 348.67 | 251.72 | 222.37 | 162.47 | 29.01 |
| 270.0  | 2718.13 | 2416.43 | 1455.69 | 613.33 | 343.00 | 258.43 | 222.65 | 171.94 | 28.13 |
| 315.0  | 2731.90 | 2159.31 | 1048.38 | 468.81 | 295.38 | 237.51 | 214.50 | 103.12 | 11.95 |
| 360.0  | 2755.57 | 2160.41 | 1200.23 | 517.53 | 310.52 | 243.24 | 216.32 | 111.87 | 12.55 |
| C/γ(°) | 45.0    | 50.0    | 55.0    | 60.0   | 65.0   | 70.0   | 75.0   | 80.0   | 85.0  |
| 0.0    | 5.29    | 2.97    | 2.86    | 3.03   | 3.19   | 2.59   | 2.64   | 2.59   | 2.59  |
| 45.0   | 9.47    | 3.08    | 2.97    | 3.25   | 3.08   | 2.75   | 2.70   | 2.70   | 2.64  |
| 90.0   | 5.45    | 3.03    | 3.03    | 3.03   | 3.03   | 5.51   | 5.01   | 2.86   | 2.64  |
| 135.0  | 6.50    | 3.14    | 2.97    | 3.36   | 4.07   | 3.19   | 3.80   | 2.75   | 2.64  |
| 180.0  | 8.15    | 3.08    | 2.92    | 2.81   | 2.86   | 2.70   | 2.64   | 2.59   | 2.59  |
| 225.0  | 6.99    | 3.08    | 2.92    | 2.75   | 2.70   | 2.70   | 2.59   | 2.59   | 2.53  |
| 270.0  | 6.88    | 3.03    | 2.86    | 2.75   | 2.70   | 2.81   | 2.64   | 2.59   | 2.53  |
| 315.0  | 6.66    | 2.97    | 2.75    | 2.70   | 2.59   | 2.59   | 2.53   | 2.53   | 2.53  |
| 360.0  | 5.29    | 2.97    | 2.86    | 3.03   | 3.19   | 2.59   | 2.64   | 2.59   | 2.59  |
| C/γ(°) | 90.0    |         |         |        |        |        |        |        |       |
| 0.0    | 2.42    |         |         |        |        |        |        |        |       |
| 45.0   | 2.48    |         |         |        |        |        |        |        |       |
| 90.0   | 2.42    |         |         |        |        |        |        |        |       |
| 135.0  | 2.42    |         |         |        |        |        |        |        |       |
| 180.0  | 2.42    |         |         |        |        |        |        |        |       |
| 225.0  | 2.42    |         |         |        |        |        |        |        |       |
| 270.0  | 2.42    |         |         |        |        |        |        |        |       |
| 315.0  | 2.42    |         |         |        |        |        |        |        |       |
| 360.0  | 2.42    |         |         |        |        |        |        |        |       |