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## Nata

LumCAT: 1-0920-M  
Luminaire: 92.70.127.00  
Report No: NATA0100  
Test No: GC2019091812  
LampCAT: CREE CXA1507  
Lamp flux(lm): 670.0  
Number of Lamps: 1  
Length(mm): 39  
Phm Type: C

Voltage(V): 37.8600  
Current(A): 0.2510  
Power (W): 9.5000  
PF: 0.0000  
Ballast type: DC  
Width(mm): 39  
Height(mm): 0

## Photometric Results

Lumens(lm): 546.25  
Efficiency(%): 81.53%  
Lumens(lm)/Power(W): 57.50  
Central intensity(cd): 1748.250  
Maximum intensity(cd): 1748.250  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=33.4  
[C90/270]Total=33.4  
Field angle(10%Imax): [C0/180]Total=49.9  
[C90/270]Total=49.9  
Maximum s/h(1/2): C0\_180=0.56 C90\_270=0.56  
Maximum s/h(1/4): C0\_180=0.53 C90\_270=0.53  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 81.53%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.576%

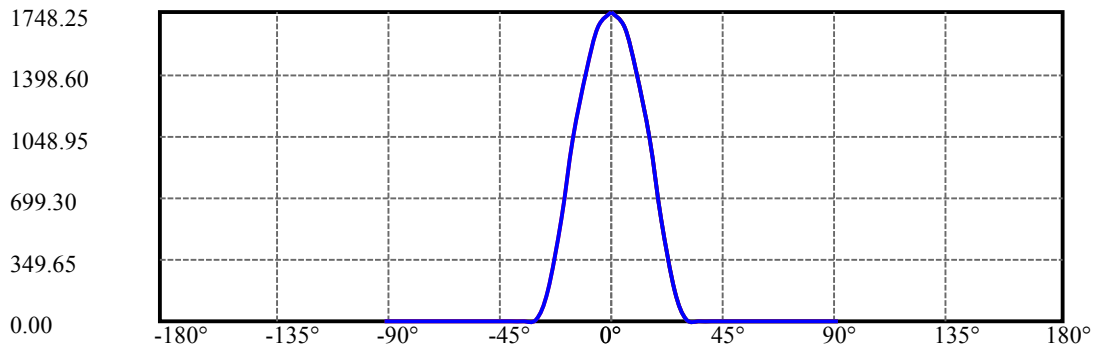
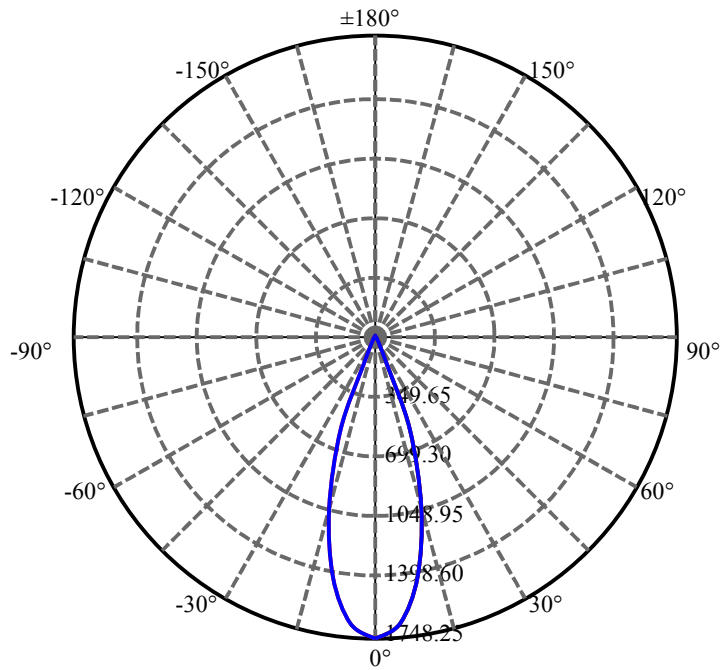
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 1748.250      | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 1665.000      | 40.804      | 40.804    | 6.090%      | 7.470%     |
| 10.0               | 1415.250      | 110.190     | 150.995   | 16.446%     | 27.642%    |
| 15.0               | 1027.245      | 144.887     | 295.882   | 21.625%     | 54.166%    |
| 20.0               | 574.179       | 131.980     | 427.862   | 19.698%     | 78.327%    |
| 25.0               | 171.105       | 78.167      | 506.028   | 11.667%     | 92.637%    |
| 30.0               | 14.351        | 23.470      | 529.498   | 3.503%      | 96.933%    |
| 35.0               | 4.718         | 2.808       | 532.306   | .419%       | 97.447%    |
| 40.0               | 3.565         | 1.382       | 533.688   | .206%       | 97.700%    |
| 45.0               | 3.030         | 1.221       | 534.909   | .182%       | 97.924%    |
| 50.0               | 2.791         | 1.176       | 536.085   | .176%       | 98.139%    |
| 55.0               | 2.651         | 1.183       | 537.269   | .177%       | 98.356%    |
| 60.0               | 2.559         | 1.204       | 538.473   | .180%       | 98.576%    |
| 65.0               | 2.496         | 1.229       | 539.702   | .183%       | 98.801%    |
| 70.0               | 2.489         | 1.262       | 540.964   | .188%       | 99.032%    |
| 75.0               | 2.454         | 1.292       | 542.256   | .193%       | 99.269%    |
| 80.0               | 2.468         | 1.317       | 543.573   | .197%       | 99.510%    |
| 85.0               | 2.454         | 1.337       | 544.911   | .200%       | 99.755%    |
| 90.0               | 2.440         | 1.340       | 546.251   | .200%       | 100.000%   |

## ZONAL LUMEN SUMMARY

| Zone    | Lumens | %Lamp  | %Fixt   |
|---------|--------|--------|---------|
| 0-30    | 529.50 | 79.03% | 96.93%  |
| 0-40    | 533.69 | 79.65% | 97.70%  |
| 0-60    | 538.47 | 80.37% | 98.58%  |
| 0-90    | 544.91 | 81.33% | 99.75%  |
| 0-120   | 544.91 | 81.33% | 99.75%  |
| 0-180   | 546.25 | 81.53% | 100.00% |
| 60-90   | 7.64   | 1.14%  | 1.40%   |
| 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%   |
| 0-20.58 | 437.00 | 65.22% | 80.00%  |

## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 150.99 |
| 10-20   | 276.87 |
| 20-30   | 101.64 |
| 30-40   | 4.19   |
| 40-50   | 2.40   |
| 50-60   | 2.39   |
| 60-70   | 2.49   |
| 70-80   | 2.61   |
| 80-90   | 1.34   |
| 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: —————

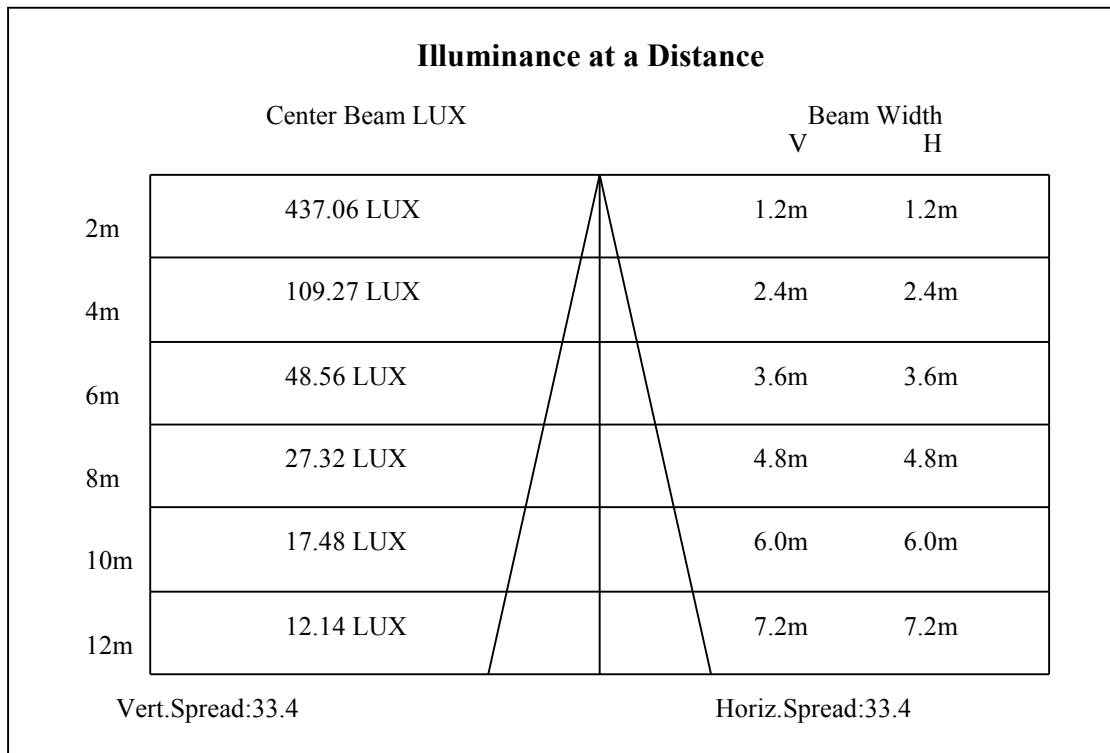
C90/C270: —————

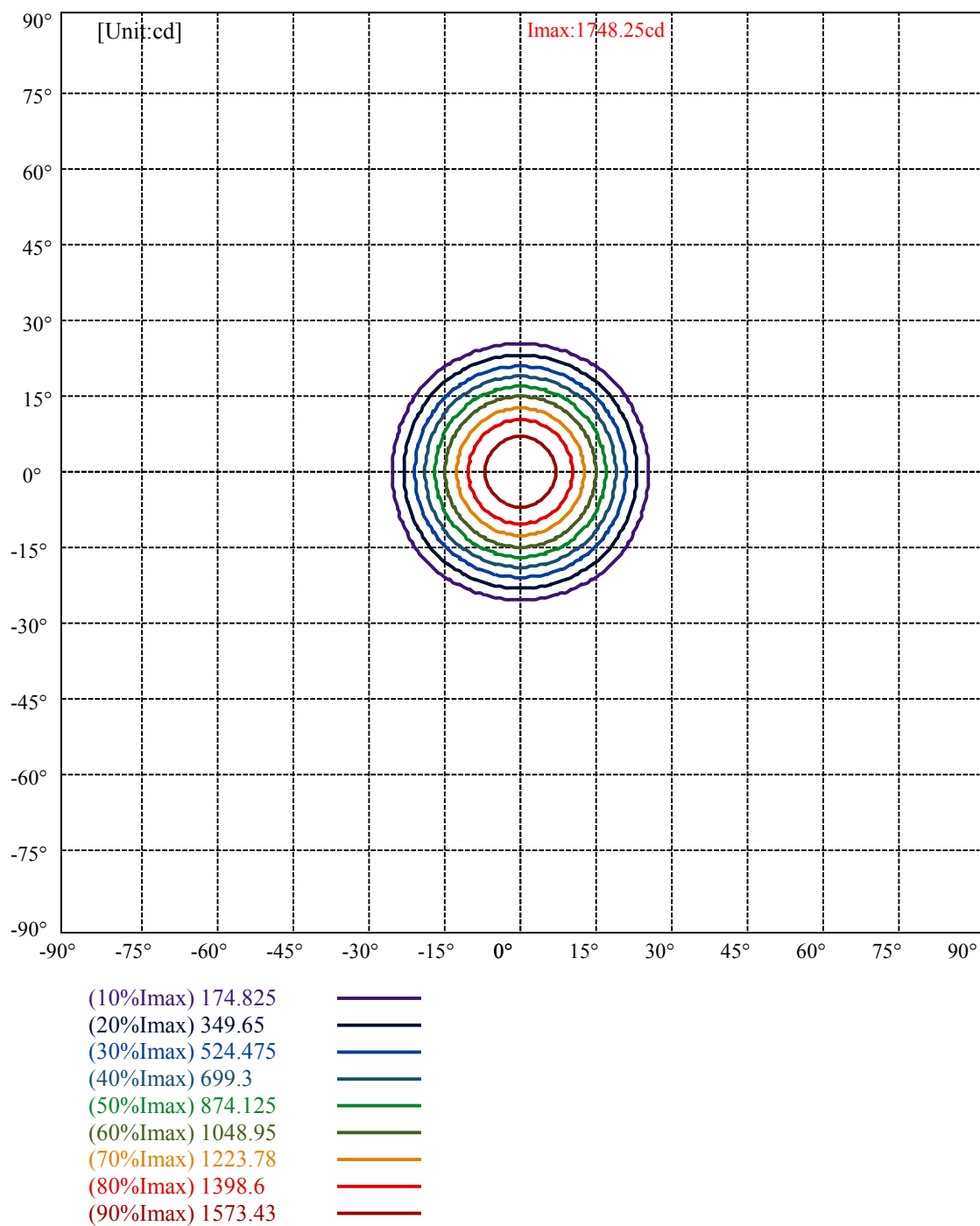
Field angle(10%Imax):C0/180Left:25.0 Right:25.0

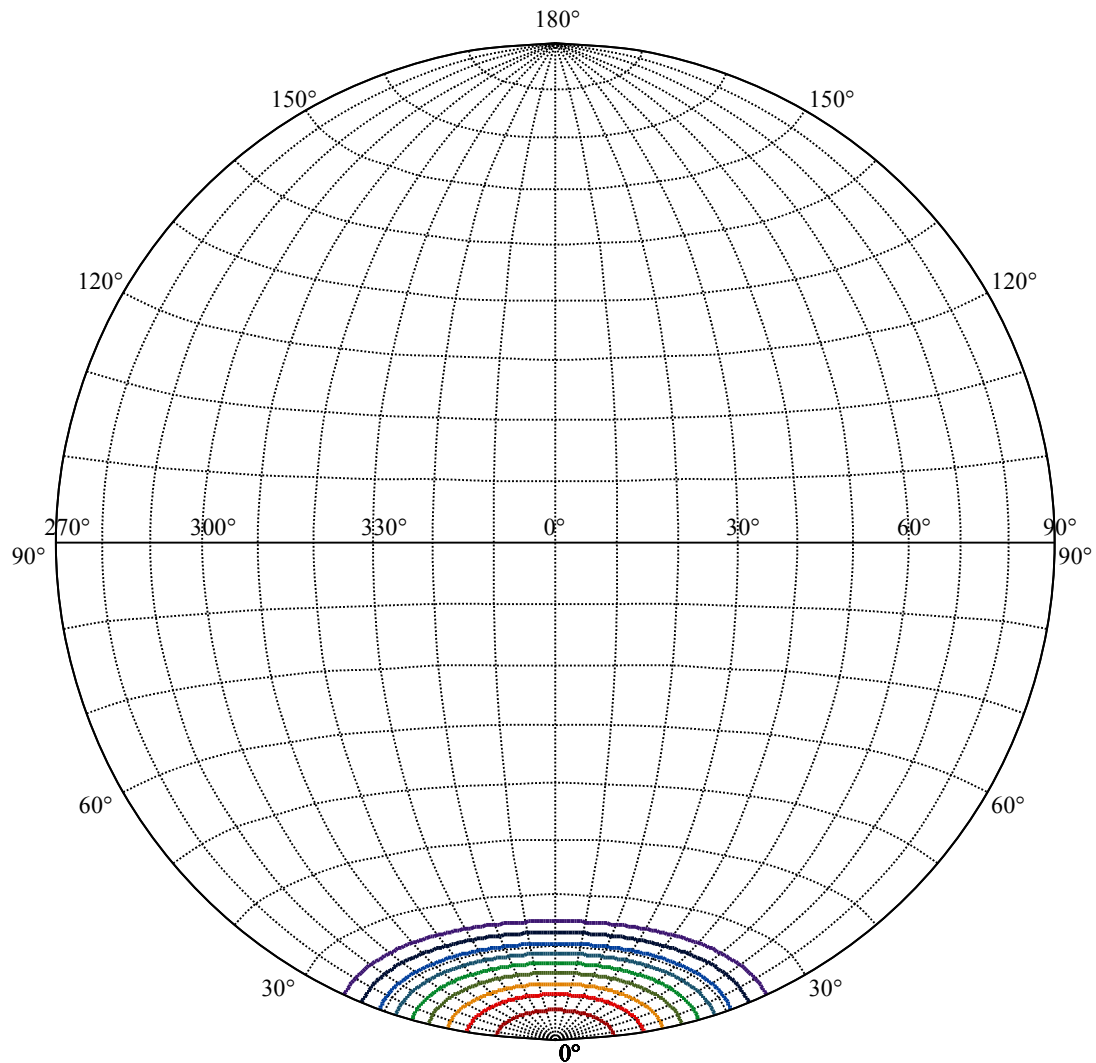
:C90/270Left:25.0 Right:25.0

Beam Angle(50%Imax):C0/180Left:16.7 Right:16.7

:C90/270Left:16.7 Right:16.7







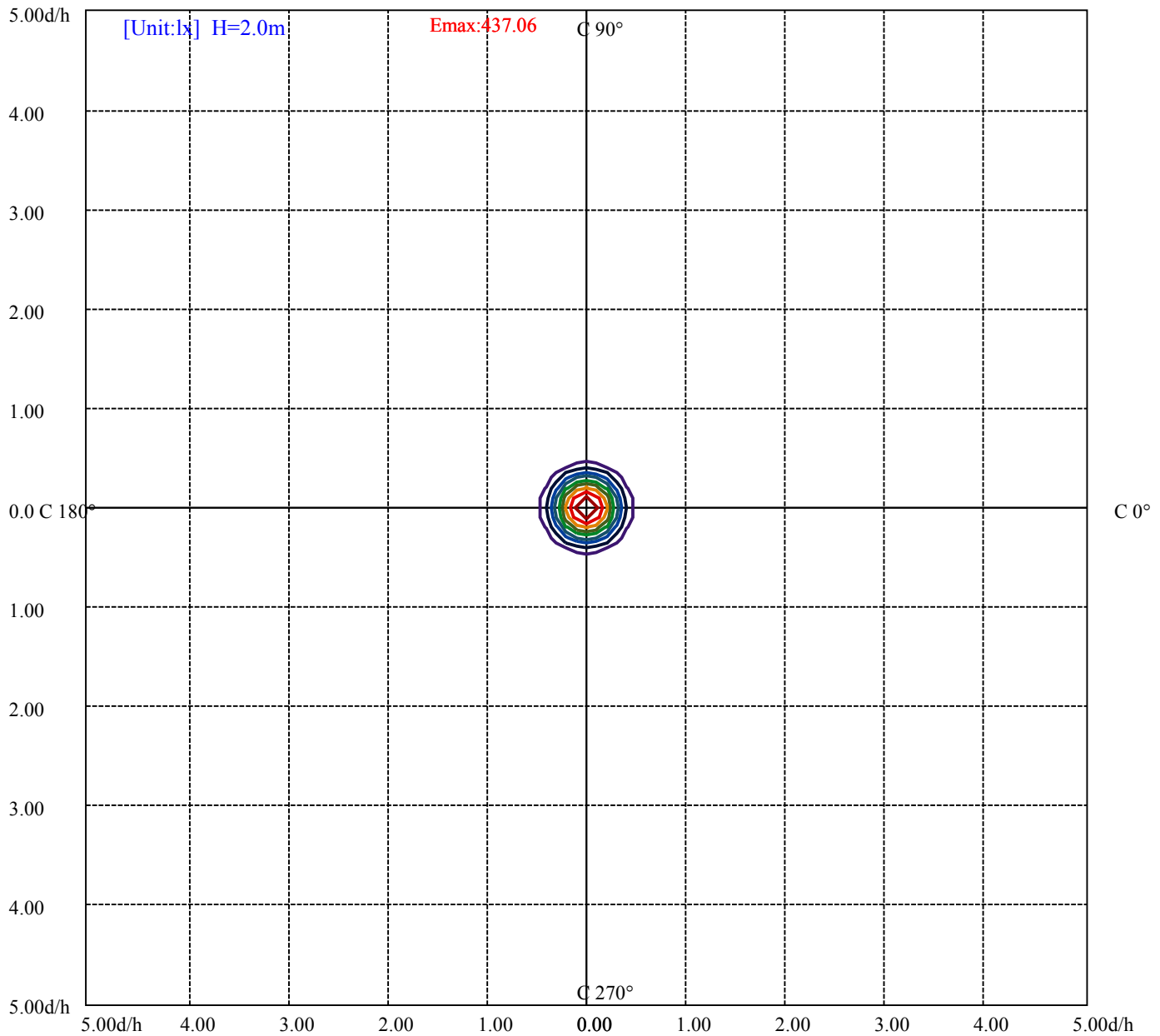
House

[Unit:cd]

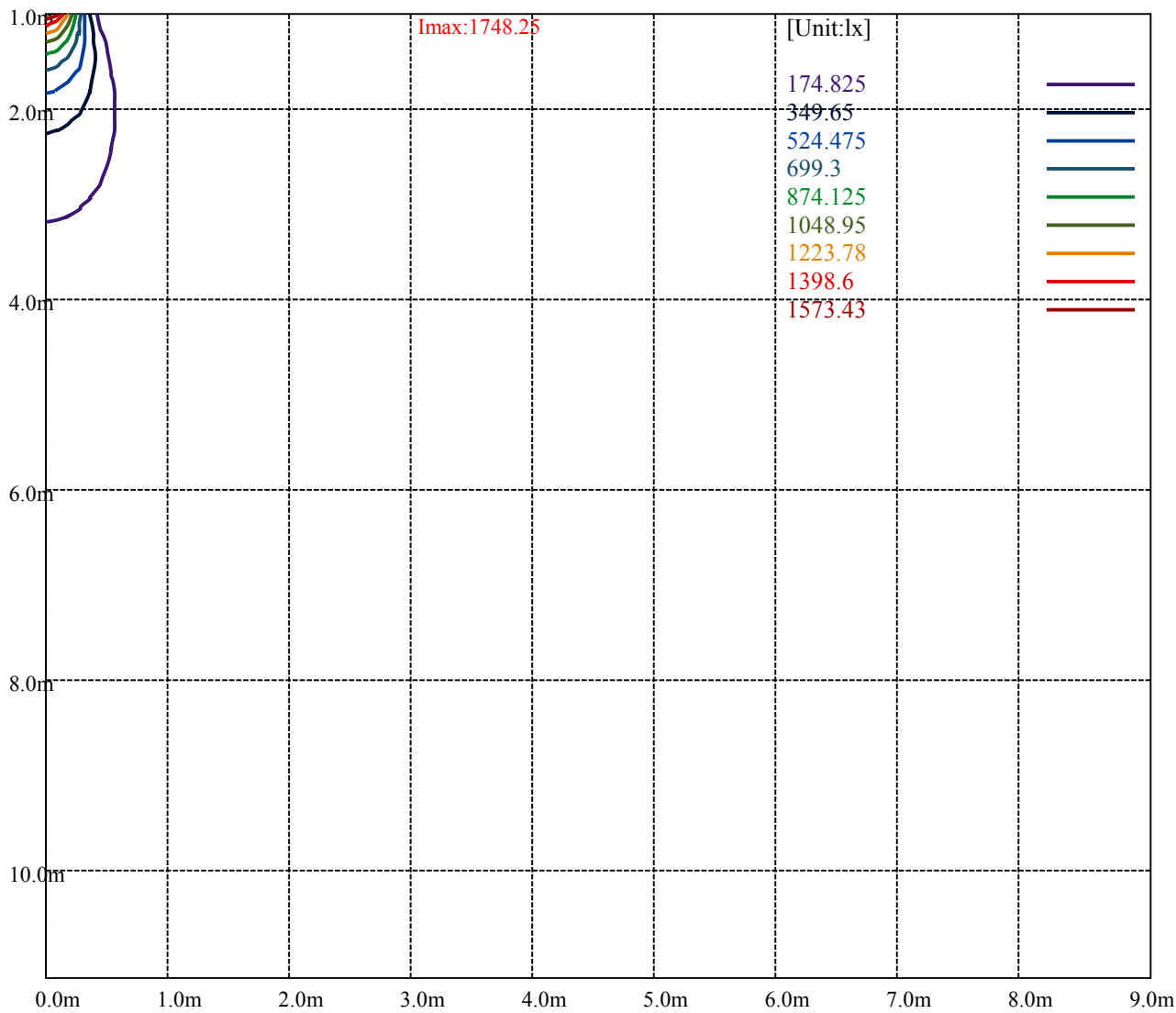
Road

**Imax:1748.25**

|           |         |   |
|-----------|---------|---|
| (10%Imax) | 174.825 | — |
| (20%Imax) | 349.65  | — |
| (30%Imax) | 524.475 | — |
| (40%Imax) | 699.3   | — |
| (50%Imax) | 874.125 | — |
| (60%Imax) | 1048.95 | — |
| (70%Imax) | 1223.78 | — |
| (80%Imax) | 1398.6  | — |
| (90%Imax) | 1573.43 | — |



|           |          |  |
|-----------|----------|--|
| (10%Emax) | 43.70625 |  |
| (20%Emax) | 87.4125  |  |
| (30%Emax) | 131.1185 |  |
| (40%Emax) | 174.8248 |  |
| (50%Emax) | 218.531  |  |
| (60%Emax) | 262.2375 |  |
| (70%Emax) | 305.9425 |  |
| (80%Emax) | 349.65   |  |
| (90%Emax) | 393.355  |  |



Luminance Table

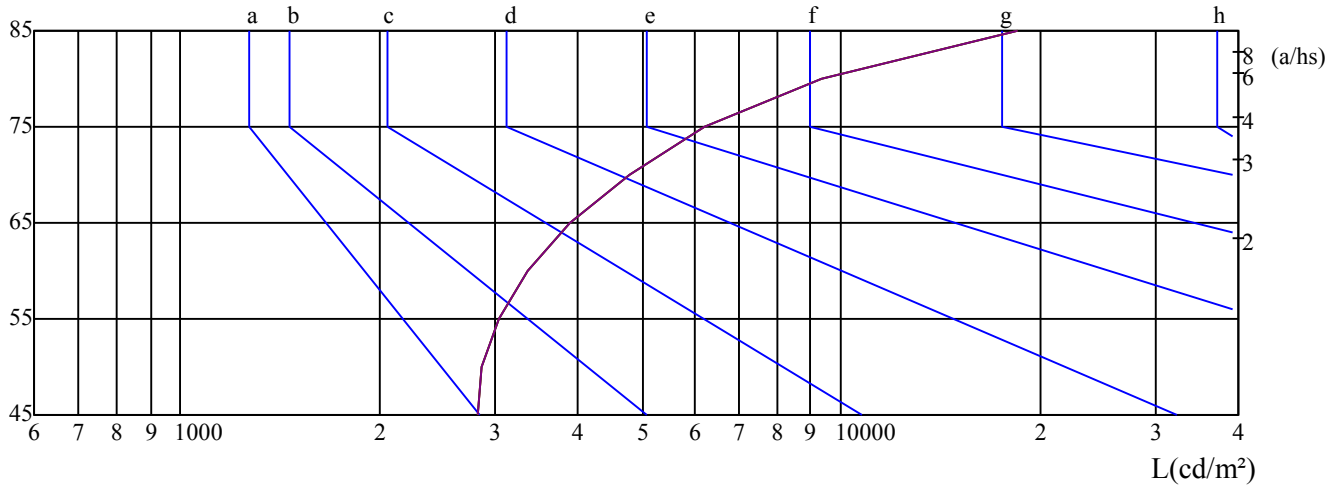
| $\gamma$ | 45   | 50   | 55   | 60   | 65   | 70   | 75   | 80   | 85    |
|----------|------|------|------|------|------|------|------|------|-------|
| C0       | 2818 | 2855 | 3038 | 3365 | 3883 | 4785 | 6234 | 9344 | 18511 |
| C45      | 2818 | 2855 | 3038 | 3365 | 3883 | 4785 | 6234 | 9344 | 18511 |
| C90      | 2818 | 2855 | 3038 | 3365 | 3883 | 4785 | 6234 | 9344 | 18511 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 3883       | 3883       | 3883    | 6234       | 6234       | 6234    | 18511      | 18511      | 18511   |

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          |

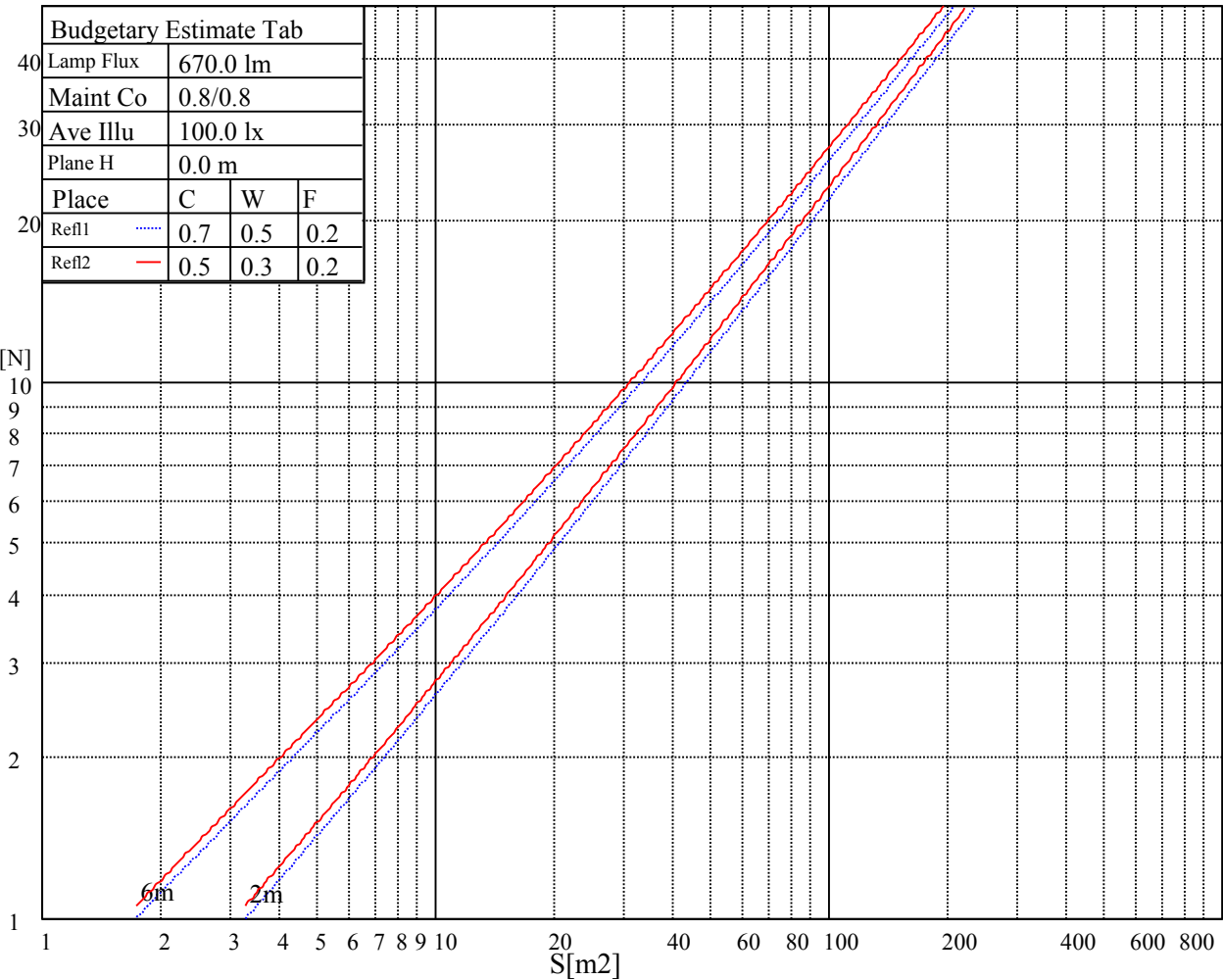
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

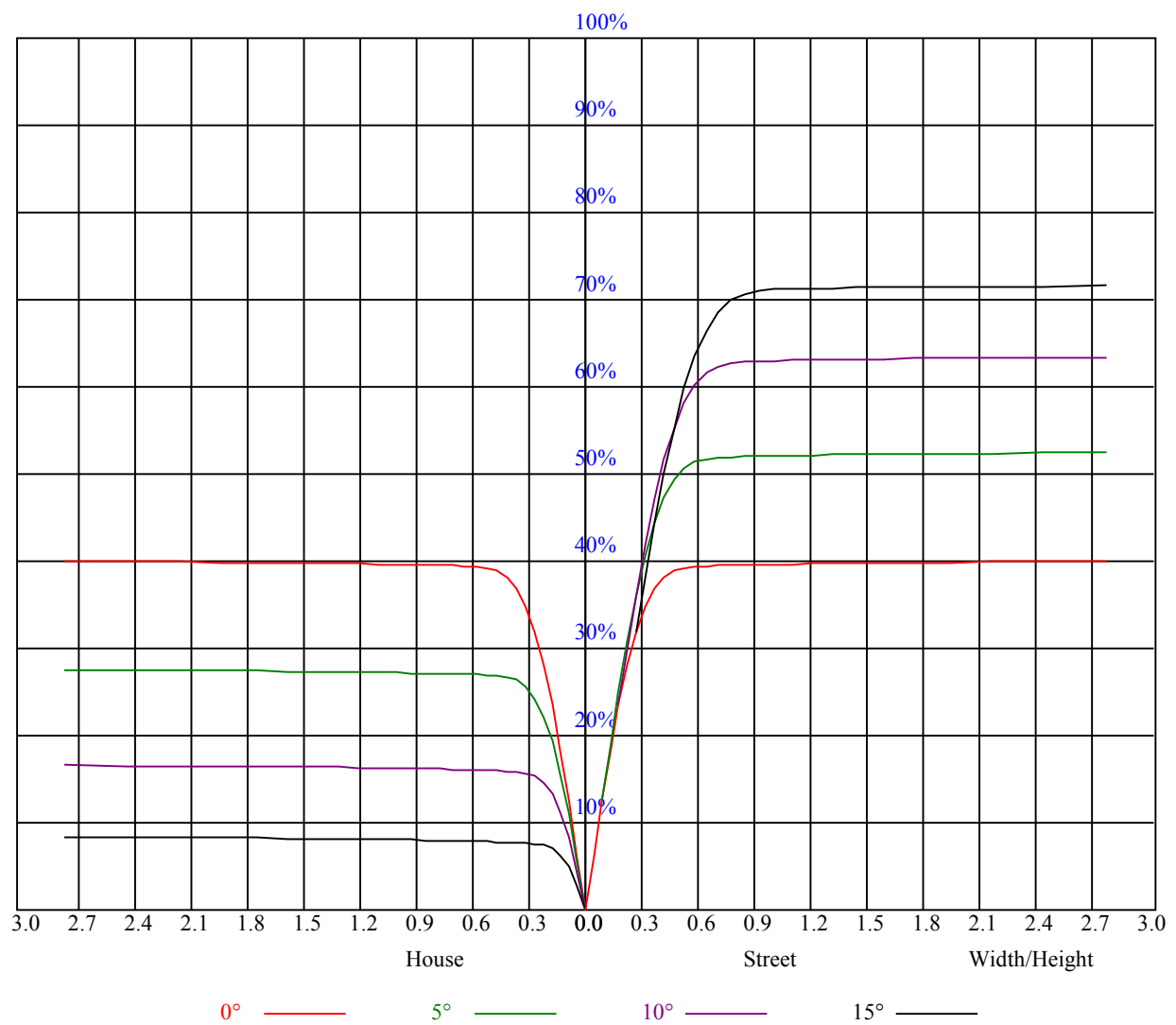
C0 ———

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     | 0.97                                    | 0.97 | 0.97 | 0.95 | 0.95 | 0.95 | 0.91 | 0.91 | 0.91 | 0.87 | 0.87 | 0.87 | 0.83 | 0.83 | 0.83 | 0.82 |
| 1     | 0.92                                    | 0.90 | 0.88 | 0.90 | 0.88 | 0.87 | 0.87 | 0.85 | 0.84 | 0.84 | 0.83 | 0.82 | 0.81 | 0.80 | 0.79 | 0.78 |
| 2     | 0.87                                    | 0.84 | 0.82 | 0.86 | 0.83 | 0.81 | 0.83 | 0.81 | 0.80 | 0.81 | 0.79 | 0.78 | 0.79 | 0.77 | 0.76 | 0.75 |
| 3     | 0.83                                    | 0.80 | 0.77 | 0.82 | 0.79 | 0.77 | 0.80 | 0.78 | 0.76 | 0.78 | 0.76 | 0.75 | 0.76 | 0.75 | 0.73 | 0.72 |
| 4     | 0.80                                    | 0.76 | 0.74 | 0.79 | 0.76 | 0.73 | 0.77 | 0.74 | 0.72 | 0.76 | 0.73 | 0.72 | 0.74 | 0.72 | 0.71 | 0.70 |
| 5     | 0.77                                    | 0.73 | 0.70 | 0.76 | 0.73 | 0.70 | 0.75 | 0.72 | 0.70 | 0.73 | 0.71 | 0.69 | 0.72 | 0.70 | 0.68 | 0.67 |
| 6     | 0.74                                    | 0.70 | 0.68 | 0.73 | 0.70 | 0.67 | 0.72 | 0.69 | 0.67 | 0.71 | 0.68 | 0.67 | 0.70 | 0.68 | 0.66 | 0.65 |
| 7     | 0.71                                    | 0.68 | 0.65 | 0.71 | 0.67 | 0.65 | 0.70 | 0.67 | 0.65 | 0.69 | 0.66 | 0.64 | 0.68 | 0.66 | 0.64 | 0.63 |
| 8     | 0.69                                    | 0.65 | 0.63 | 0.68 | 0.65 | 0.63 | 0.68 | 0.65 | 0.62 | 0.67 | 0.64 | 0.62 | 0.66 | 0.64 | 0.62 | 0.61 |
| 9     | 0.67                                    | 0.63 | 0.61 | 0.66 | 0.63 | 0.61 | 0.66 | 0.63 | 0.61 | 0.65 | 0.62 | 0.60 | 0.64 | 0.62 | 0.60 | 0.59 |
| 10    | 0.65                                    | 0.61 | 0.59 | 0.64 | 0.61 | 0.59 | 0.64 | 0.61 | 0.59 | 0.63 | 0.60 | 0.59 | 0.63 | 0.60 | 0.58 | 0.58 |



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| 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                | 1743.19 | 1716.19 | 1546.88 | 1204.31 | 763.31 | 295.88 | 28.41 | 5.74 | 3.99 |                            |
| 45.0               | 1750.50 | 1703.25 | 1501.88 | 1122.19 | 701.44 | 288.56 | 19.18 | 5.23 | 3.77 |                            |
| 90.0               | 1744.88 | 1646.44 | 1362.94 | 925.93  | 493.14 | 85.56  | 9.56  | 4.56 | 3.49 |                            |
| 135.0              | 1754.44 | 1639.13 | 1369.69 | 978.75  | 489.94 | 79.20  | 9.79  | 4.44 | 3.49 |                            |
| 180.0              | 1743.19 | 1604.25 | 1238.63 | 842.63  | 370.86 | 43.43  | 7.09  | 4.05 | 3.32 |                            |
| 225.0              | 1750.50 | 1633.50 | 1344.94 | 924.81  | 457.31 | 71.78  | 7.76  | 4.16 | 3.32 |                            |
| 270.0              | 1744.88 | 1690.88 | 1479.38 | 1122.19 | 669.38 | 305.44 | 16.99 | 4.78 | 3.54 |                            |
| 315.0              | 1754.44 | 1686.38 | 1477.69 | 1097.16 | 648.06 | 199.01 | 16.03 | 4.78 | 3.60 |                            |
| 360.0              | 1743.19 | 1716.19 | 1546.88 | 1204.31 | 763.31 | 295.88 | 28.41 | 5.74 | 3.99 |                            |
| C/γ(°)             | 45.0    | 50.0    | 55.0    | 60.0    | 65.0   | 70.0   | 75.0  | 80.0 | 85.0 |                            |
| 0.0                | 3.21    | 2.87    | 2.70    | 2.59    | 2.53   | 2.53   | 2.48  | 2.48 | 2.48 |                            |
| 45.0               | 3.09    | 2.87    | 2.64    | 2.59    | 2.53   | 2.48   | 2.48  | 2.42 | 2.48 |                            |
| 90.0               | 2.98    | 2.76    | 2.64    | 2.53    | 2.48   | 2.48   | 2.42  | 2.48 | 2.42 |                            |
| 135.0              | 3.04    | 2.76    | 2.64    | 2.53    | 2.48   | 2.48   | 2.48  | 2.48 | 2.42 |                            |
| 180.0              | 2.98    | 2.81    | 2.64    | 2.59    | 2.53   | 2.53   | 2.48  | 2.48 | 2.48 |                            |
| 225.0              | 2.93    | 2.70    | 2.64    | 2.53    | 2.48   | 2.48   | 2.42  | 2.48 | 2.48 |                            |
| 270.0              | 2.98    | 2.76    | 2.64    | 2.53    | 2.48   | 2.48   | 2.48  | 2.48 | 2.48 |                            |
| 315.0              | 3.04    | 2.81    | 2.64    | 2.59    | 2.48   | 2.48   | 2.42  | 2.48 | 2.42 |                            |
| 360.0              | 3.21    | 2.87    | 2.70    | 2.59    | 2.53   | 2.53   | 2.48  | 2.48 | 2.48 |                            |
| C/γ(°)             | 90.0    |         |         |         |        |        |       |      |      |                            |
| 0.0                | 2.48    |         |         |         |        |        |       |      |      |                            |
| 45.0               | 2.42    |         |         |         |        |        |       |      |      |                            |
| 90.0               | 2.42    |         |         |         |        |        |       |      |      |                            |
| 135.0              | 2.42    |         |         |         |        |        |       |      |      |                            |
| 180.0              | 2.48    |         |         |         |        |        |       |      |      |                            |
| 225.0              | 2.48    |         |         |         |        |        |       |      |      |                            |
| 270.0              | 2.42    |         |         |         |        |        |       |      |      |                            |
| 315.0              | 2.42    |         |         |         |        |        |       |      |      |                            |
| 360.0              | 2.48    |         |         |         |        |        |       |      |      |                            |