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## Nata

LumCAT: 3-2440-A  
Luminaire: 92.70.153.00  
Report No: NATA0100  
Test No: GC2019111308  
LampCAT: PHILIPS SLM92757 TWL112024  
Lamp flux(lm): 1026.0  
Number of Lamps: 1  
Length(mm): 0  
Phm Type: C

Voltage(V): 34.2100  
Current(A): 0.3220  
Power (W): 11.0100  
PF: 1.0000  
Ballast type: DC  
Width(mm): 0  
Height(mm): 0

## Photometric Results

Lumens(lm): 846.90  
Efficiency(%): 82.54%  
Lumens(lm)/Power(W): 76.92  
Central intensity(cd): 5548.781  
Maximum intensity(cd): 5548.781  
Angle of maximum intensity:  $C=0.0$   $\gamma=0.0$   
Beam Angle(50%Imax): [C0/180]Total=15.6  
[C90/270]Total=15.6  
Field angle(10%Imax): [C0/180]Total=34.5  
[C90/270]Total=34.5  
Maximum s/h(1/2): C0\_180=0.27 C90\_270=0.27  
Maximum s/h(1/4): C0\_180=0.28 C90\_270=0.28  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 82.54%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.174%

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 5548.781      | 0.000       | 0         | .000%       | .000%      |
| 1.0                | 5488.453      | 5.281       | 5.281     | .515%       | .624%      |
| 2.0                | 5276.883      | 15.451      | 20.733    | 1.506%      | 2.448%     |
| 3.0                | 4980.516      | 24.532      | 45.265    | 2.391%      | 5.345%     |
| 4.0                | 4613.484      | 32.114      | 77.379    | 3.130%      | 9.137%     |
| 5.0                | 4135.500      | 37.638      | 115.017   | 3.668%      | 13.581%    |
| 6.0                | 3654.352      | 40.938      | 155.954   | 3.990%      | 18.415%    |
| 7.0                | 3170.672      | 42.363      | 198.317   | 4.129%      | 23.417%    |
| 8.0                | 2683.898      | 41.900      | 240.217   | 4.084%      | 28.364%    |
| 9.0                | 2240.719      | 39.911      | 280.129   | 3.890%      | 33.077%    |
| 10.0               | 1850.203      | 37.021      | 317.15    | 3.608%      | 37.448%    |
| 11.0               | 1516.078      | 33.636      | 350.786   | 3.278%      | 41.420%    |
| 12.0               | 1222.425      | 29.936      | 380.722   | 2.918%      | 44.955%    |
| 13.0               | 1037.159      | 26.816      | 407.537   | 2.614%      | 48.121%    |
| 14.0               | 864.141       | 24.336      | 431.874   | 2.372%      | 50.995%    |
| 15.0               | 741.994       | 22.050      | 453.924   | 2.149%      | 53.598%    |
| 16.0               | 648.105       | 20.369      | 474.292   | 1.985%      | 56.003%    |
| 17.0               | 569.236       | 18.957      | 493.25    | 1.848%      | 58.242%    |
| 18.0               | 513.605       | 17.854      | 511.103   | 1.740%      | 60.350%    |
| 19.0               | 472.170       | 17.150      | 528.254   | 1.672%      | 62.375%    |
| 20.0               | 433.814       | 16.582      | 544.836   | 1.616%      | 64.333%    |
| 21.0               | 404.009       | 16.088      | 560.924   | 1.568%      | 66.232%    |
| 22.0               | 381.368       | 15.782      | 576.706   | 1.538%      | 68.096%    |
| 23.0               | 360.197       | 15.560      | 592.266   | 1.517%      | 69.933%    |
| 24.0               | 342.253       | 15.358      | 607.624   | 1.497%      | 71.747%    |
| 25.0               | 328.219       | 15.245      | 622.869   | 1.486%      | 73.547%    |
| 26.0               | 315.570       | 15.197      | 638.066   | 1.481%      | 75.341%    |
| 27.0               | 304.685       | 15.175      | 653.241   | 1.479%      | 77.133%    |
| 28.0               | 294.996       | 15.183      | 668.423   | 1.480%      | 78.926%    |
| 29.0               | 286.235       | 15.207      | 683.63    | 1.482%      | 80.721%    |
| 30.0               | 280.877       | 15.312      | 698.942   | 1.492%      | 82.529%    |
| 31.0               | 270.795       | 15.352      | 714.294   | 1.496%      | 84.342%    |
| 32.0               | 258.525       | 15.164      | 729.459   | 1.478%      | 86.133%    |
| 33.0               | 244.041       | 14.806      | 744.264   | 1.443%      | 87.881%    |
| 34.0               | 224.445       | 14.178      | 758.442   | 1.382%      | 89.555%    |
| 35.0               | 197.058       | 13.090      | 771.532   | 1.276%      | 91.101%    |
| 36.0               | 167.027       | 11.593      | 783.125   | 1.130%      | 92.469%    |
| 37.0               | 138.839       | 9.976       | 793.101   | .972%       | 93.647%    |

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 38.0               | 109.343       | 8.284       | 801.385   | .807%       | 94.625%    |
| 39.0               | 80.670        | 6.486       | 807.87    | .632%       | 95.391%    |
| 40.0               | 59.822        | 4.900       | 812.77    | .478%       | 95.970%    |
| 41.0               | 43.566        | 3.682       | 816.452   | .359%       | 96.405%    |
| 42.0               | 30.839        | 2.703       | 819.155   | .263%       | 96.724%    |
| 43.0               | 22.444        | 1.974       | 821.129   | .192%       | 96.957%    |
| 44.0               | 16.341        | 1.464       | 822.593   | .143%       | 97.130%    |
| 45.0               | 11.693        | 1.077       | 823.67    | .105%       | 97.257%    |
| 46.0               | 8.641         | 0.795       | 824.465   | .078%       | 97.351%    |
| 47.0               | 6.757         | 0.612       | 825.078   | .060%       | 97.423%    |
| 48.0               | 5.948         | 0.514       | 825.591   | .050%       | 97.484%    |
| 49.0               | 5.745         | 0.480       | 826.071   | .047%       | 97.540%    |
| 50.0               | 5.674         | 0.476       | 826.547   | .046%       | 97.597%    |
| 51.0               | 5.597         | 0.477       | 827.024   | .046%       | 97.653%    |
| 52.0               | 5.555         | 0.479       | 827.503   | .047%       | 97.709%    |
| 53.0               | 5.505         | 0.481       | 827.984   | .047%       | 97.766%    |
| 54.0               | 5.470         | 0.484       | 828.468   | .047%       | 97.823%    |
| 55.0               | 5.428         | 0.486       | 828.954   | .047%       | 97.881%    |
| 56.0               | 5.407         | 0.490       | 829.444   | .048%       | 97.939%    |
| 57.0               | 5.386         | 0.493       | 829.937   | .048%       | 97.997%    |
| 58.0               | 5.351         | 0.497       | 830.434   | .048%       | 98.055%    |
| 59.0               | 5.330         | 0.499       | 830.933   | .049%       | 98.114%    |
| 60.0               | 5.323         | 0.503       | 831.436   | .049%       | 98.174%    |
| 61.0               | 5.302         | 0.507       | 831.943   | .049%       | 98.234%    |
| 62.0               | 5.288         | 0.510       | 832.454   | .050%       | 98.294%    |
| 63.0               | 5.288         | 0.514       | 832.968   | .050%       | 98.355%    |
| 64.0               | 5.273         | 0.518       | 833.486   | .051%       | 98.416%    |
| 65.0               | 5.273         | 0.522       | 834.008   | .051%       | 98.478%    |
| 66.0               | 5.238         | 0.524       | 834.533   | .051%       | 98.539%    |
| 67.0               | 5.245         | 0.527       | 835.06    | .051%       | 98.602%    |
| 68.0               | 5.224         | 0.530       | 835.59    | .052%       | 98.664%    |
| 69.0               | 5.210         | 0.532       | 836.122   | .052%       | 98.727%    |
| 70.0               | 5.203         | 0.535       | 836.657   | .052%       | 98.790%    |
| 71.0               | 5.182         | 0.537       | 837.194   | .052%       | 98.854%    |
| 72.0               | 5.168         | 0.538       | 837.732   | .052%       | 98.917%    |
| 73.0               | 5.161         | 0.540       | 838.272   | .053%       | 98.981%    |
| 74.0               | 5.140         | 0.542       | 838.814   | .053%       | 99.045%    |
| 75.0               | 5.119         | 0.542       | 839.356   | .053%       | 99.109%    |

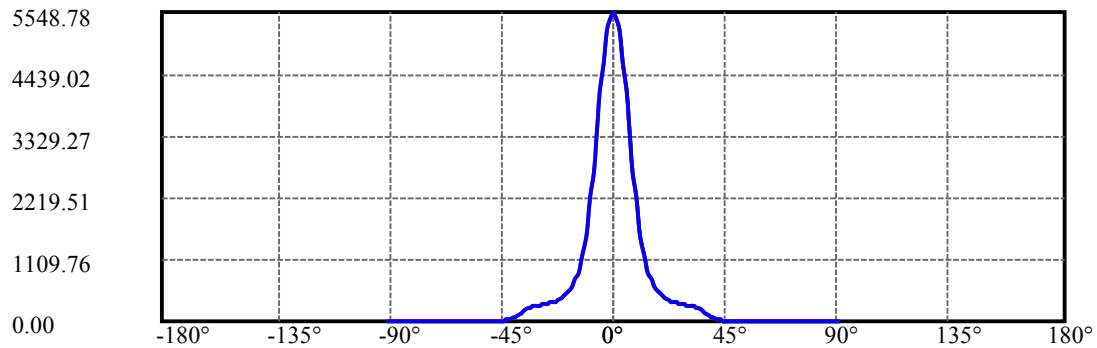
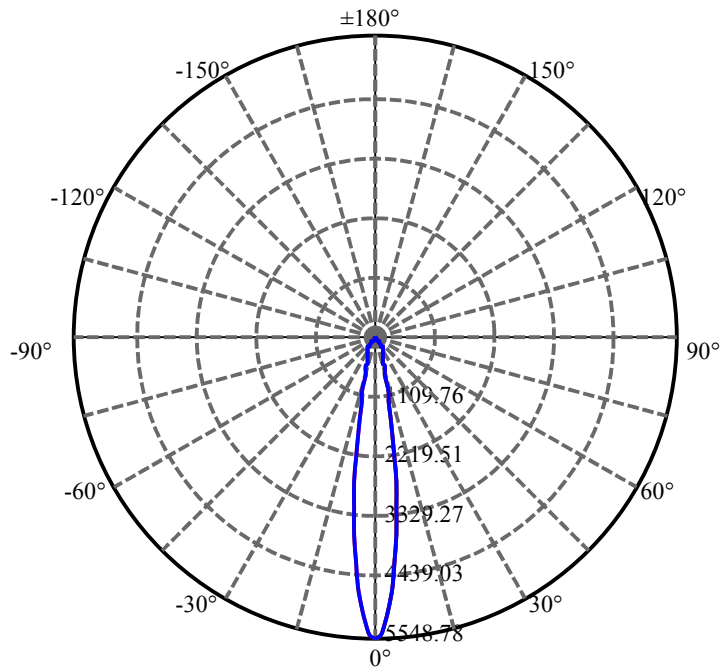
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0               | 5.105         | 0.543       | 839.899   | .053%       | 99.173%    |
| 77.0               | 5.084         | 0.543       | 840.442   | .053%       | 99.237%    |
| 78.0               | 5.055         | 0.543       | 840.984   | .053%       | 99.301%    |
| 79.0               | 5.020         | 0.541       | 841.526   | .053%       | 99.365%    |
| 80.0               | 4.992         | 0.540       | 842.066   | .053%       | 99.429%    |
| 81.0               | 4.964         | 0.538       | 842.604   | .052%       | 99.493%    |
| 82.0               | 4.929         | 0.536       | 843.141   | .052%       | 99.556%    |
| 83.0               | 4.880         | 0.533       | 843.674   | .052%       | 99.619%    |
| 84.0               | 4.809         | 0.528       | 844.202   | .051%       | 99.681%    |
| 85.0               | 4.683         | 0.518       | 844.72    | .050%       | 99.742%    |
| 86.0               | 4.366         | 0.495       | 845.214   | .048%       | 99.801%    |
| 87.0               | 3.980         | 0.457       | 845.671   | .045%       | 99.855%    |
| 88.0               | 3.727         | 0.422       | 846.093   | .041%       | 99.905%    |
| 89.0               | 3.684         | 0.406       | 846.499   | .040%       | 99.952%    |
| 90.0               | 3.656         | 0.402       | 846.902   | .039%       | 100.000%   |

## ZONAL LUMEN SUMMARY

| Zone    | Lumens | %Lamp  | %Fixt   |
|---------|--------|--------|---------|
| 0-30    | 698.94 | 68.12% | 82.53%  |
| 0-40    | 812.77 | 79.22% | 95.97%  |
| 0-60    | 831.44 | 81.04% | 98.17%  |
| 0-90    | 846.50 | 82.50% | 99.95%  |
| 0-120   | 846.50 | 82.50% | 99.95%  |
| 0-180   | 846.90 | 82.54% | 100.00% |
| 60-90   | 15.57  | 1.52%  | 1.84%   |
| 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%   |
| 0-28.60 | 677.52 | 66.04% | 80.00%  |

## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 317.15 |
| 10-20   | 227.69 |
| 20-30   | 154.11 |
| 30-40   | 113.83 |
| 40-50   | 13.78  |
| 50-60   | 4.89   |
| 60-70   | 5.22   |
| 70-80   | 5.41   |
| 80-90   | 4.43   |
| 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: —————

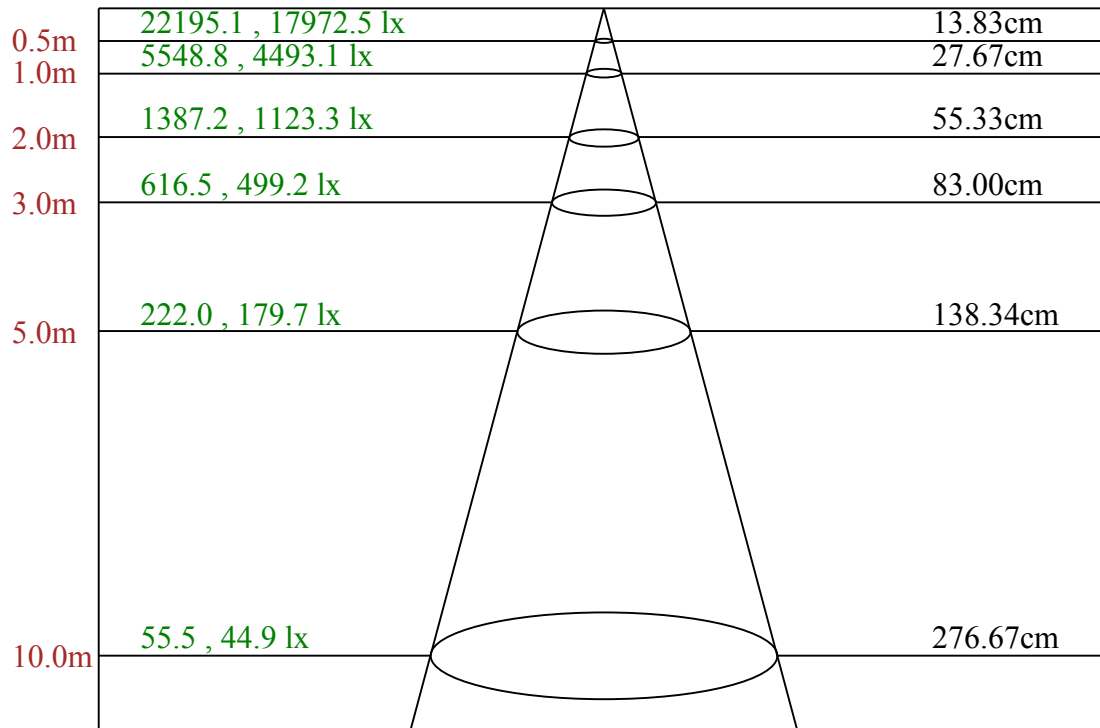
C90/C270: —————

Field angle(10%Imax):C0/180Left:17.3 Right:17.3

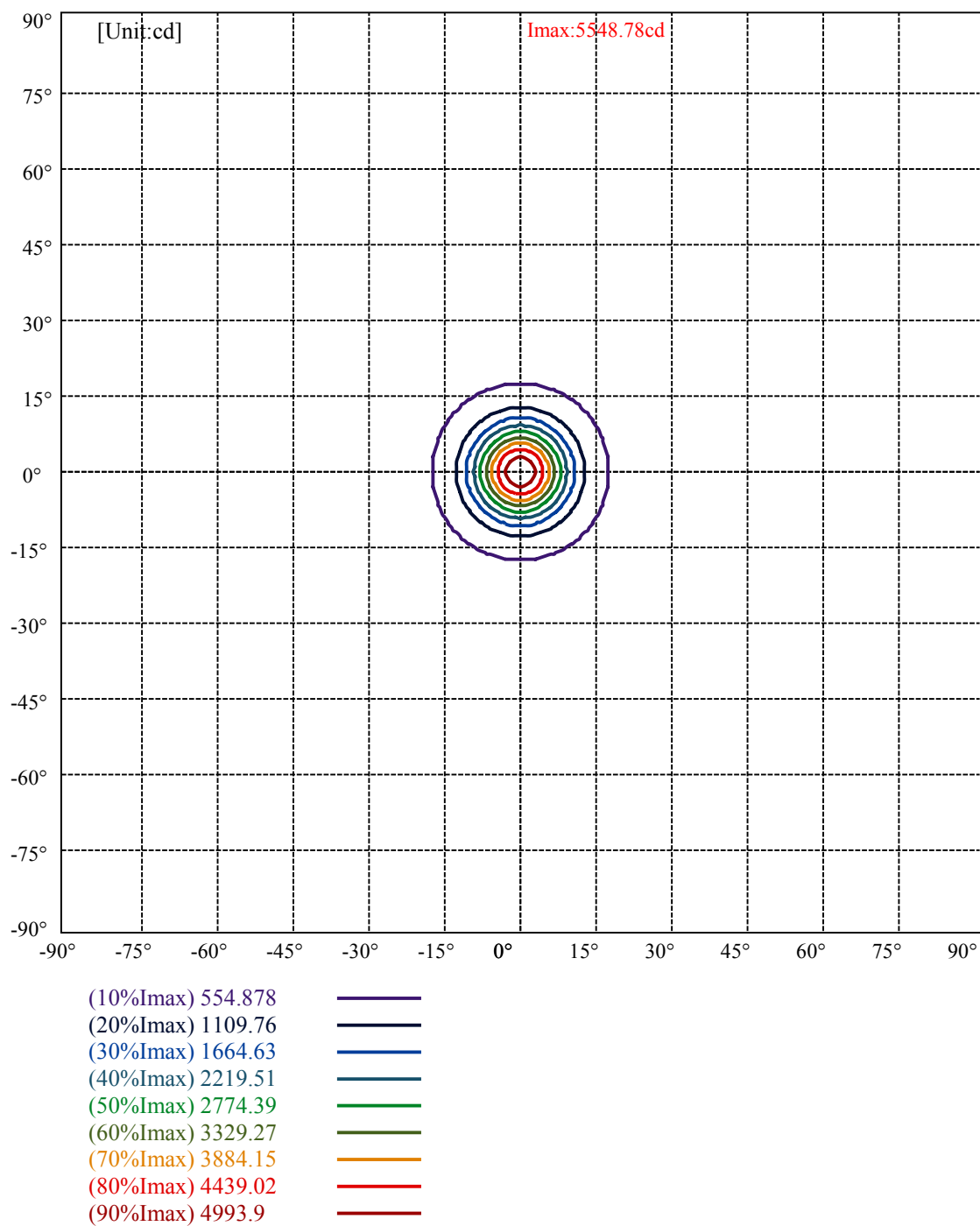
:C90/270Left:17.3 Right:17.3

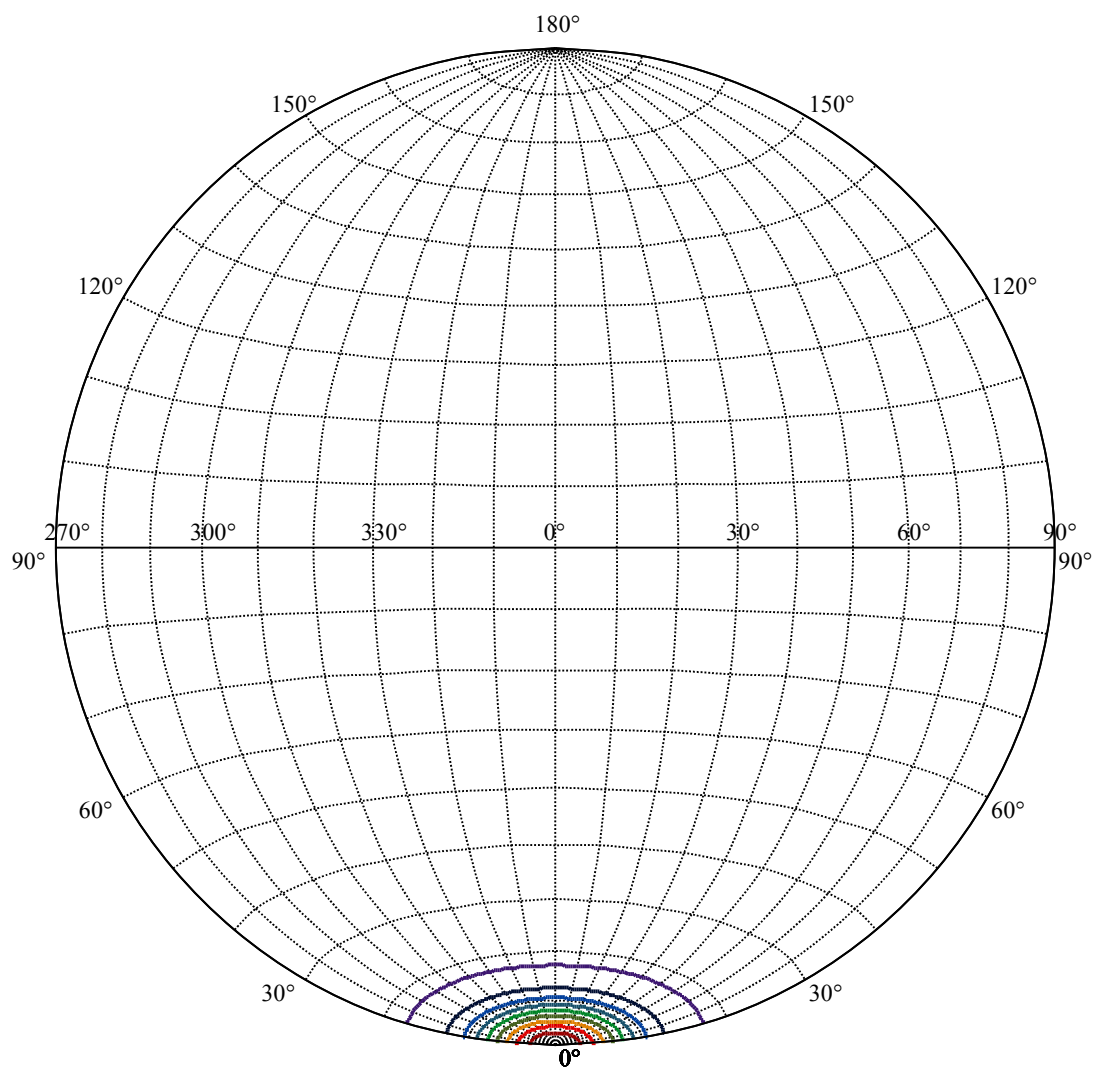
Beam Angle(50%Imax):C0/180Left:7.8 Right:7.8

:C90/270Left:7.8 Right:7.8



Max , Ave      Beam angle of C0 plane 15.75





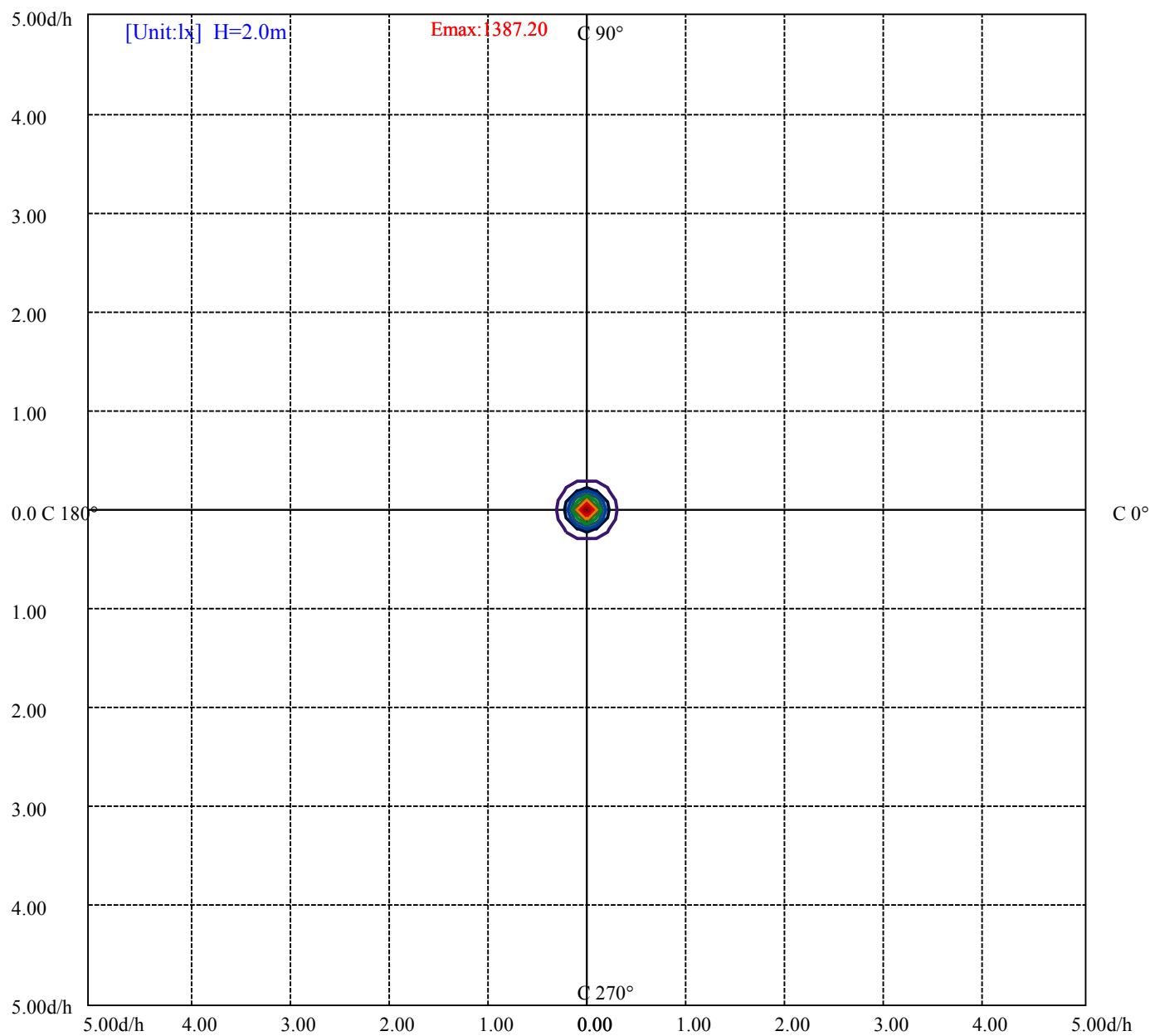
House

[Unit:cd]

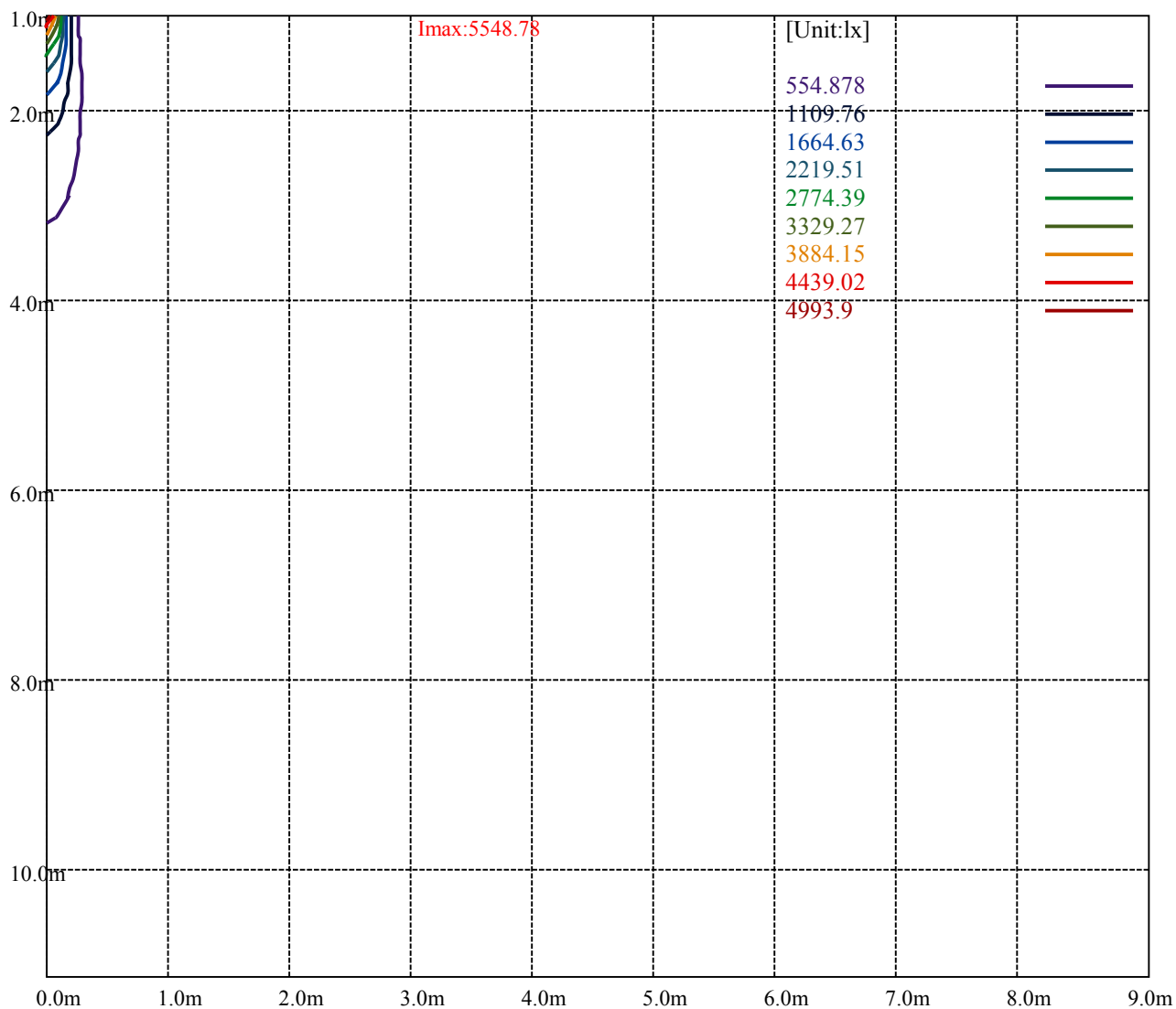
Road

**Imax:5548.78**

|           |         |   |
|-----------|---------|---|
| (10%Imax) | 554.878 | — |
| (20%Imax) | 1109.76 | — |
| (30%Imax) | 1664.63 | — |
| (40%Imax) | 2219.51 | — |
| (50%Imax) | 2774.39 | — |
| (60%Imax) | 3329.27 | — |
| (70%Imax) | 3884.15 | — |
| (80%Imax) | 4439.02 | — |
| (90%Imax) | 4993.9  | — |



|           |          |   |
|-----------|----------|---|
| (10%Emax) | 138.7193 | — |
| (20%Emax) | 277.4375 | — |
| (30%Emax) | 416.1575 | — |
| (40%Emax) | 554.8775 | — |
| (50%Emax) | 693.5975 | — |
| (60%Emax) | 832.315  | — |
| (70%Emax) | 971.035  | — |
| (80%Emax) | 1109.755 | — |
| (90%Emax) | 1248.473 | — |



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  | $\leq 300$ |            |            |            |            |
| 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          |

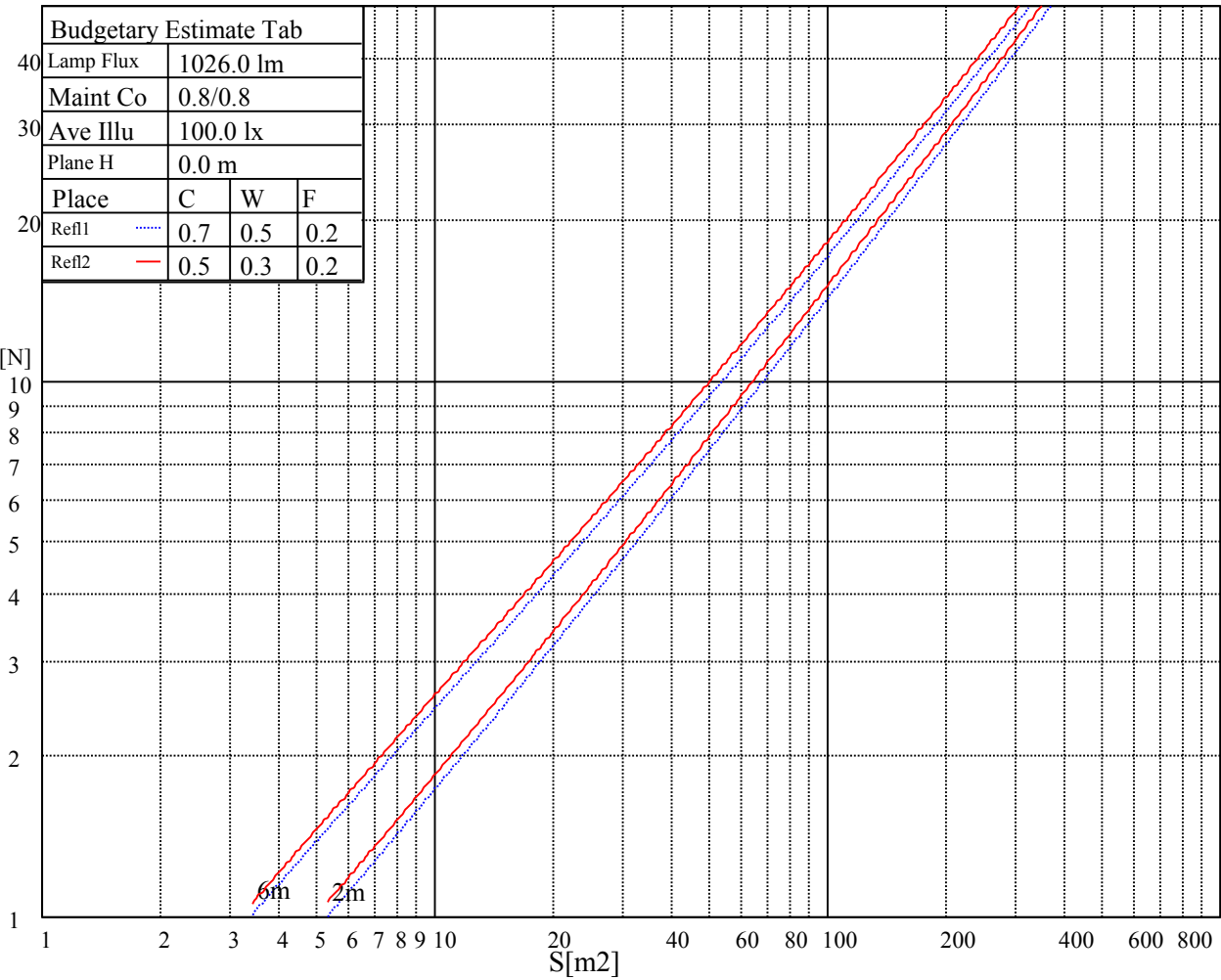
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

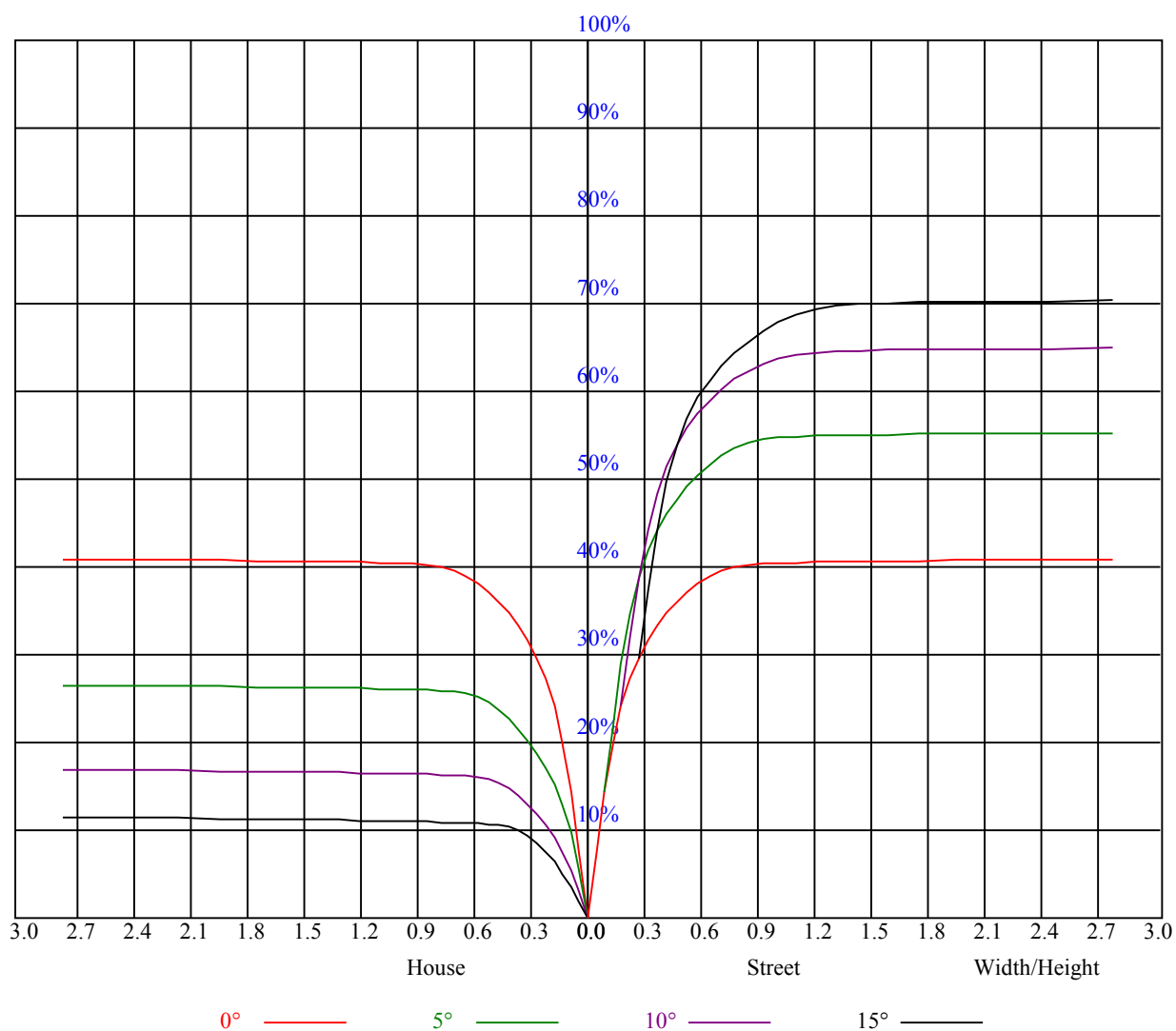
C0 ———

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     | 0.98                                    | 0.98 | 0.98 | 0.96 | 0.96 | 0.96 | 0.92 | 0.92 | 0.92 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.84 | 0.83 |
| 1     | 0.92                                    | 0.91 | 0.89 | 0.91 | 0.89 | 0.88 | 0.87 | 0.86 | 0.85 | 0.84 | 0.83 | 0.82 | 0.81 | 0.81 | 0.80 | 0.79 |
| 2     | 0.87                                    | 0.85 | 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 | 0.76 | 0.80 | 0.77 | 0.75 | 0.78 | 0.76 | 0.74 | 0.76 | 0.74 | 0.73 | 0.72 |
| 4     | 0.79                                    | 0.76 | 0.73 | 0.78 | 0.75 | 0.72 | 0.77 | 0.74 | 0.71 | 0.75 | 0.73 | 0.71 | 0.74 | 0.72 | 0.70 | 0.69 |
| 5     | 0.76                                    | 0.72 | 0.69 | 0.75 | 0.72 | 0.69 | 0.74 | 0.71 | 0.68 | 0.72 | 0.70 | 0.68 | 0.71 | 0.69 | 0.67 | 0.66 |
| 6     | 0.73                                    | 0.69 | 0.66 | 0.72 | 0.69 | 0.66 | 0.71 | 0.68 | 0.66 | 0.70 | 0.67 | 0.65 | 0.69 | 0.67 | 0.65 | 0.64 |
| 7     | 0.70                                    | 0.66 | 0.64 | 0.70 | 0.66 | 0.63 | 0.69 | 0.65 | 0.63 | 0.68 | 0.65 | 0.63 | 0.67 | 0.64 | 0.62 | 0.62 |
| 8     | 0.68                                    | 0.64 | 0.61 | 0.67 | 0.64 | 0.61 | 0.66 | 0.63 | 0.61 | 0.66 | 0.63 | 0.61 | 0.65 | 0.62 | 0.60 | 0.59 |
| 9     | 0.65                                    | 0.62 | 0.59 | 0.65 | 0.61 | 0.59 | 0.64 | 0.61 | 0.59 | 0.64 | 0.61 | 0.59 | 0.63 | 0.60 | 0.58 | 0.58 |
| 10    | 0.63                                    | 0.60 | 0.57 | 0.63 | 0.60 | 0.57 | 0.62 | 0.59 | 0.57 | 0.62 | 0.59 | 0.57 | 0.61 | 0.59 | 0.57 | 0.56 |



| Intensity data(cd) |         |         |         |         |         |         |         |         | Appendix Page: 16 Total:18 |
|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|----------------------------|
| C/ $\gamma$ (°)    | 0.0     | 1.0     | 2.0     | 3.0     | 4.0     | 5.0     | 6.0     | 7.0     | 8.0                        |
| 0.0                | 5537.81 | 5538.94 | 5387.63 | 5150.25 | 4821.75 | 4319.44 | 3876.75 | 3421.13 | 2917.69                    |
| 45.0               | 5550.19 | 5540.06 | 5393.25 | 5119.31 | 4786.31 | 4338.00 | 3837.94 | 3369.94 | 2968.88                    |
| 90.0               | 5558.06 | 5482.13 | 5230.69 | 4929.19 | 4557.94 | 4076.44 | 3552.75 | 3078.00 | 2568.94                    |
| 135.0              | 5549.06 | 5527.69 | 5336.44 | 5072.63 | 4731.19 | 4276.69 | 3771.00 | 3301.31 | 2788.88                    |
| 180.0              | 5537.81 | 5427.56 | 5150.81 | 4838.63 | 4460.06 | 3921.75 | 3517.31 | 2997.00 | 2458.13                    |
| 225.0              | 5550.19 | 5425.31 | 5204.81 | 4857.75 | 4424.63 | 3990.94 | 3540.38 | 2975.63 | 2542.50                    |
| 270.0              | 5558.06 | 5514.19 | 5297.06 | 5010.19 | 4644.00 | 4170.94 | 3663.00 | 3204.00 | 2700.00                    |
| 315.0              | 5549.06 | 5451.75 | 5214.38 | 4866.19 | 4482.00 | 3989.81 | 3475.69 | 3018.38 | 2526.19                    |
| 360.0              | 5537.81 | 5538.94 | 5387.63 | 5150.25 | 4821.75 | 4319.44 | 3876.75 | 3421.13 | 2917.69                    |
| C/ $\gamma$ (°)    | 9.0     | 10.0    | 11.0    | 12.0    | 13.0    | 14.0    | 15.0    | 16.0    | 17.0                       |
| 0.0                | 2448.56 | 2068.31 | 1693.69 | 1410.75 | 1149.75 | 942.75  | 798.75  | 675.56  | 585.56                     |
| 45.0               | 2378.25 | 1991.25 | 1692.00 | 1337.63 | 1087.88 | 935.44  | 772.31  | 666.00  | 601.88                     |
| 90.0               | 2154.94 | 1751.06 | 1422.56 | 1108.18 | 974.42  | 813.54  | 702.96  | 616.84  | 535.67                     |
| 135.0              | 2311.88 | 1932.19 | 1567.13 | 1298.25 | 1059.19 | 878.06  | 758.25  | 666.56  | 580.50                     |
| 180.0              | 2116.69 | 1731.94 | 1384.31 | 1107.28 | 994.39  | 827.55  | 701.72  | 616.16  | 550.63                     |
| 225.0              | 2147.06 | 1716.75 | 1428.75 | 1114.65 | 1003.84 | 830.19  | 726.47  | 644.63  | 572.85                     |
| 270.0              | 2241.00 | 1877.63 | 1533.38 | 1283.06 | 1061.44 | 886.50  | 765.00  | 668.81  | 579.38                     |
| 315.0              | 2127.38 | 1732.50 | 1406.81 | 1119.60 | 966.38  | 799.09  | 710.49  | 630.28  | 547.43                     |
| 360.0              | 2448.56 | 2068.31 | 1693.69 | 1410.75 | 1149.75 | 942.75  | 798.75  | 675.56  | 585.56                     |
| C/ $\gamma$ (°)    | 18.0    | 19.0    | 20.0    | 21.0    | 22.0    | 23.0    | 24.0    | 25.0    | 26.0                       |
| 0.0                | 526.50  | 481.50  | 438.19  | 410.63  | 387.56  | 362.81  | 347.06  | 332.44  | 318.94                     |
| 45.0               | 529.31  | 484.88  | 448.31  | 409.50  | 384.75  | 363.94  | 342.56  | 327.94  | 316.69                     |
| 90.0               | 486.73  | 448.43  | 410.57  | 386.16  | 365.63  | 344.48  | 330.02  | 317.48  | 303.92                     |
| 135.0              | 526.50  | 482.63  | 439.88  | 410.63  | 386.44  | 363.94  | 343.69  | 329.63  | 316.13                     |
| 180.0              | 489.26  | 451.91  | 421.48  | 390.66  | 370.29  | 352.80  | 336.09  | 322.14  | 311.29                     |
| 225.0              | 517.56  | 477.28  | 439.99  | 409.28  | 386.55  | 364.89  | 348.41  | 333.23  | 320.06                     |
| 270.0              | 526.50  | 483.75  | 441.56  | 414.56  | 391.50  | 371.81  | 351.00  | 336.94  | 324.56                     |
| 315.0              | 506.48  | 466.99  | 430.54  | 400.67  | 378.23  | 356.91  | 339.19  | 325.97  | 312.98                     |
| 360.0              | 526.50  | 481.50  | 438.19  | 410.63  | 387.56  | 362.81  | 347.06  | 332.44  | 318.94                     |
| C/ $\gamma$ (°)    | 27.0    | 28.0    | 29.0    | 30.0    | 31.0    | 32.0    | 33.0    | 34.0    | 35.0                       |
| 0.0                | 307.13  | 297.56  | 288.56  | 284.63  | 271.24  | 261.62  | 249.86  | 230.96  | 205.26                     |
| 45.0               | 303.19  | 293.63  | 285.75  | 284.06  | 268.71  | 257.96  | 245.36  | 223.48  | 201.88                     |
| 90.0               | 295.59  | 286.09  | 276.47  | 270.39  | 263.25  | 248.79  | 234.96  | 214.99  | 180.45                     |
| 135.0              | 305.44  | 294.75  | 285.75  | 284.63  | 268.26  | 257.23  | 243.56  | 226.07  | 198.62                     |
| 180.0              | 300.60  | 292.11  | 283.73  | 275.18  | 266.57  | 254.36  | 237.21  | 216.51  | 191.59                     |
| 225.0              | 309.99  | 300.99  | 291.32  | 284.57  | 276.13  | 263.08  | 248.01  | 227.93  | 198.73                     |
| 270.0              | 312.75  | 302.06  | 294.19  | 286.88  | 284.06  | 270.28  | 253.35  | 236.03  | 212.74                     |
| 315.0              | 302.79  | 292.78  | 284.12  | 276.69  | 268.14  | 254.87  | 240.02  | 219.60  | 187.20                     |
| 360.0              | 307.13  | 297.56  | 288.56  | 284.63  | 271.24  | 261.62  | 249.86  | 230.96  | 205.26                     |
| C/ $\gamma$ (°)    | 36.0    | 37.0    | 38.0    | 39.0    | 40.0    | 41.0    | 42.0    | 43.0    | 44.0                       |
| 0.0                | 178.59  | 150.19  | 114.64  | 88.54   | 66.66   | 47.98   | 34.31   | 25.54   | 18.28                      |
| 45.0               | 169.99  | 142.14  | 112.11  | 83.93   | 63.17   | 46.24   | 31.78   | 24.02   | 18.00                      |
| 90.0               | 156.54  | 128.98  | 99.90   | 73.97   | 54.90   | 38.93   | 28.97   | 20.70   | 14.74                      |
| 135.0              | 170.27  | 142.59  | 115.54  | 84.71   | 62.44   | 46.52   | 32.06   | 23.57   | 17.33                      |
| 180.0              | 157.33  | 129.60  | 102.99  | 76.22   | 54.39   | 39.94   | 28.46   | 20.36   | 15.08                      |
| 225.0              | 166.11  | 136.91  | 105.24  | 76.89   | 56.98   | 40.39   | 29.87   | 21.21   | 14.96                      |
| 270.0              | 178.20  | 149.12  | 120.09  | 86.85   | 64.69   | 47.70   | 32.34   | 23.74   | 17.33                      |
| 315.0              | 159.19  | 131.18  | 104.23  | 74.25   | 55.35   | 40.84   | 28.91   | 20.42   | 15.02                      |
| 360.0              | 178.59  | 150.19  | 114.64  | 88.54   | 66.66   | 47.98   | 34.31   | 25.54   | 18.28                      |

## Intensity data(cd)

|                 |       |      |      |      |      |      |      |      |      |
|-----------------|-------|------|------|------|------|------|------|------|------|
| C/ $\gamma$ (°) | 45.0  | 46.0 | 47.0 | 48.0 | 49.0 | 50.0 | 51.0 | 52.0 | 53.0 |
| 0.0             | 13.16 | 9.90 | 7.54 | 6.41 | 6.08 | 5.96 | 5.91 | 5.85 | 5.79 |
| 45.0            | 12.38 | 9.28 | 7.31 | 6.13 | 5.85 | 5.79 | 5.74 | 5.68 | 5.63 |
| 90.0            | 10.97 | 8.04 | 6.30 | 5.74 | 5.63 | 5.57 | 5.51 | 5.46 | 5.46 |
| 135.0           | 12.43 | 8.94 | 7.03 | 5.96 | 5.68 | 5.63 | 5.57 | 5.57 | 5.51 |
| 180.0           | 10.80 | 8.27 | 6.58 | 5.91 | 5.79 | 5.74 | 5.63 | 5.63 | 5.57 |
| 225.0           | 11.03 | 8.27 | 6.30 | 5.85 | 5.68 | 5.57 | 5.51 | 5.46 | 5.40 |
| 270.0           | 12.21 | 8.72 | 6.75 | 5.79 | 5.57 | 5.51 | 5.40 | 5.34 | 5.29 |
| 315.0           | 10.58 | 7.71 | 6.24 | 5.79 | 5.68 | 5.63 | 5.51 | 5.46 | 5.40 |
| 360.0           | 13.16 | 9.90 | 7.54 | 6.41 | 6.08 | 5.96 | 5.91 | 5.85 | 5.79 |
| C/ $\gamma$ (°) | 54.0  | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
| 0.0             | 5.74  | 5.68 | 5.68 | 5.63 | 5.63 | 5.57 | 5.57 | 5.51 | 5.51 |
| 45.0            | 5.57  | 5.57 | 5.51 | 5.51 | 5.46 | 5.46 | 5.46 | 5.40 | 5.40 |
| 90.0            | 5.40  | 5.34 | 5.34 | 5.34 | 5.29 | 5.29 | 5.29 | 5.29 | 5.23 |
| 135.0           | 5.46  | 5.40 | 5.40 | 5.40 | 5.34 | 5.34 | 5.34 | 5.34 | 5.34 |
| 180.0           | 5.57  | 5.51 | 5.46 | 5.46 | 5.40 | 5.40 | 5.40 | 5.40 | 5.34 |
| 225.0           | 5.40  | 5.34 | 5.34 | 5.29 | 5.29 | 5.23 | 5.18 | 5.18 | 5.18 |
| 270.0           | 5.23  | 5.23 | 5.18 | 5.18 | 5.18 | 5.12 | 5.12 | 5.06 | 5.06 |
| 315.0           | 5.40  | 5.34 | 5.34 | 5.29 | 5.23 | 5.23 | 5.23 | 5.23 | 5.23 |
| 360.0           | 5.74  | 5.68 | 5.68 | 5.63 | 5.63 | 5.57 | 5.57 | 5.51 | 5.51 |
| C/ $\gamma$ (°) | 63.0  | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
| 0.0             | 5.51  | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.40 | 5.40 | 5.40 |
| 45.0            | 5.40  | 5.40 | 5.40 | 5.34 | 5.34 | 5.34 | 5.34 | 5.34 | 5.29 |
| 90.0            | 5.23  | 5.23 | 5.23 | 5.23 | 5.18 | 5.18 | 5.18 | 5.12 | 5.12 |
| 135.0           | 5.29  | 5.29 | 5.29 | 5.23 | 5.29 | 5.29 | 5.23 | 5.23 | 5.18 |
| 180.0           | 5.34  | 5.34 | 5.34 | 5.29 | 5.34 | 5.29 | 5.29 | 5.29 | 5.23 |
| 225.0           | 5.18  | 5.18 | 5.18 | 5.12 | 5.12 | 5.12 | 5.12 | 5.12 | 5.06 |
| 270.0           | 5.12  | 5.12 | 5.06 | 5.06 | 5.06 | 5.01 | 5.01 | 4.95 | 5.01 |
| 315.0           | 5.23  | 5.18 | 5.23 | 5.18 | 5.18 | 5.12 | 5.12 | 5.18 | 5.18 |
| 360.0           | 5.51  | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.40 | 5.40 | 5.40 |
| C/ $\gamma$ (°) | 72.0  | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
| 0.0             | 5.40  | 5.34 | 5.34 | 5.34 | 5.29 | 5.29 | 5.29 | 5.23 | 5.23 |
| 45.0            | 5.29  | 5.29 | 5.29 | 5.23 | 5.23 | 5.23 | 5.18 | 5.18 | 5.18 |
| 90.0            | 5.12  | 5.12 | 5.06 | 5.06 | 5.06 | 4.95 | 4.95 | 4.95 | 4.89 |
| 135.0           | 5.18  | 5.18 | 5.18 | 5.12 | 5.12 | 5.12 | 5.06 | 5.01 | 5.01 |
| 180.0           | 5.23  | 5.23 | 5.18 | 5.18 | 5.18 | 5.12 | 5.06 | 5.06 | 5.01 |
| 225.0           | 5.06  | 5.06 | 5.06 | 5.06 | 5.01 | 5.01 | 5.01 | 4.95 | 4.95 |
| 270.0           | 4.95  | 4.95 | 4.95 | 4.89 | 4.89 | 4.89 | 4.84 | 4.78 | 4.73 |
| 315.0           | 5.12  | 5.12 | 5.06 | 5.06 | 5.06 | 5.06 | 5.06 | 5.01 | 4.95 |
| 360.0           | 5.40  | 5.34 | 5.34 | 5.34 | 5.29 | 5.29 | 5.29 | 5.23 | 5.23 |
| C/ $\gamma$ (°) | 81.0  | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
| 0.0             | 5.23  | 5.18 | 5.12 | 5.06 | 4.89 | 4.73 | 4.33 | 3.88 | 3.71 |
| 45.0            | 5.12  | 5.12 | 5.06 | 5.01 | 4.95 | 4.67 | 4.28 | 3.83 | 3.66 |
| 90.0            | 4.84  | 4.78 | 4.78 | 4.73 | 4.67 | 4.39 | 3.94 | 3.71 | 3.66 |
| 135.0           | 4.95  | 4.95 | 4.89 | 4.84 | 4.73 | 4.39 | 3.99 | 3.71 | 3.71 |
| 180.0           | 5.01  | 4.95 | 4.89 | 4.78 | 4.56 | 4.05 | 3.71 | 3.66 | 3.66 |
| 225.0           | 4.95  | 4.89 | 4.84 | 4.73 | 4.56 | 4.16 | 3.77 | 3.66 | 3.71 |
| 270.0           | 4.67  | 4.67 | 4.61 | 4.56 | 4.44 | 4.22 | 3.88 | 3.66 | 3.66 |
| 315.0           | 4.95  | 4.89 | 4.84 | 4.78 | 4.67 | 4.33 | 3.94 | 3.71 | 3.71 |
| 360.0           | 5.23  | 5.18 | 5.12 | 5.06 | 4.89 | 4.73 | 4.33 | 3.88 | 3.71 |

## Intensity data(cd)

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|                 |      |
|-----------------|------|
| C/ $\gamma$ (°) | 90.0 |
| 0.0             | 3.66 |
| 45.0            | 3.66 |
| 90.0            | 3.66 |
| 135.0           | 3.66 |
| 180.0           | 3.66 |
| 225.0           | 3.66 |
| 270.0           | 3.66 |
| 315.0           | 3.66 |
| 360.0           | 3.66 |