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## NATA

LumCAT: 2-1259-N  
Luminaire: 92.70.045.00+92.70.059.00  
Report No: NATA0100  
Test No: GC2018110808  
LampCAT: PHILIPS 1205 G7  
Lamp flux(lm): 2969.0  
Number of Lamps: 1  
Length(mm): 70  
Phm Type: C  
Voltage(V): 35.8000  
Current(A): 0.6000  
Power (W): 21.4800  
PF: 0.0000  
Ballast type: DC  
Width(mm): 70  
Height(mm): 0

## Photometric Results

Lumens(lm): 2222.58  
Efficiency(%): 74.86%  
Lumens(lm)/Power(W): 104.65  
Central intensity(cd): 4593.797  
Maximum intensity(cd): 4593.797  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=36.6  
[C90/270]Total=36.6  
Field angle(10%Imax): [C0/180]Total=66.3  
[C90/270]Total=66.3  
Maximum s/h(1/2): C0\_180=0.60 C90\_270=0.60  
Maximum s/h(1/4): C0\_180=0.60 C90\_270=0.60  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 75.71%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 96.503%

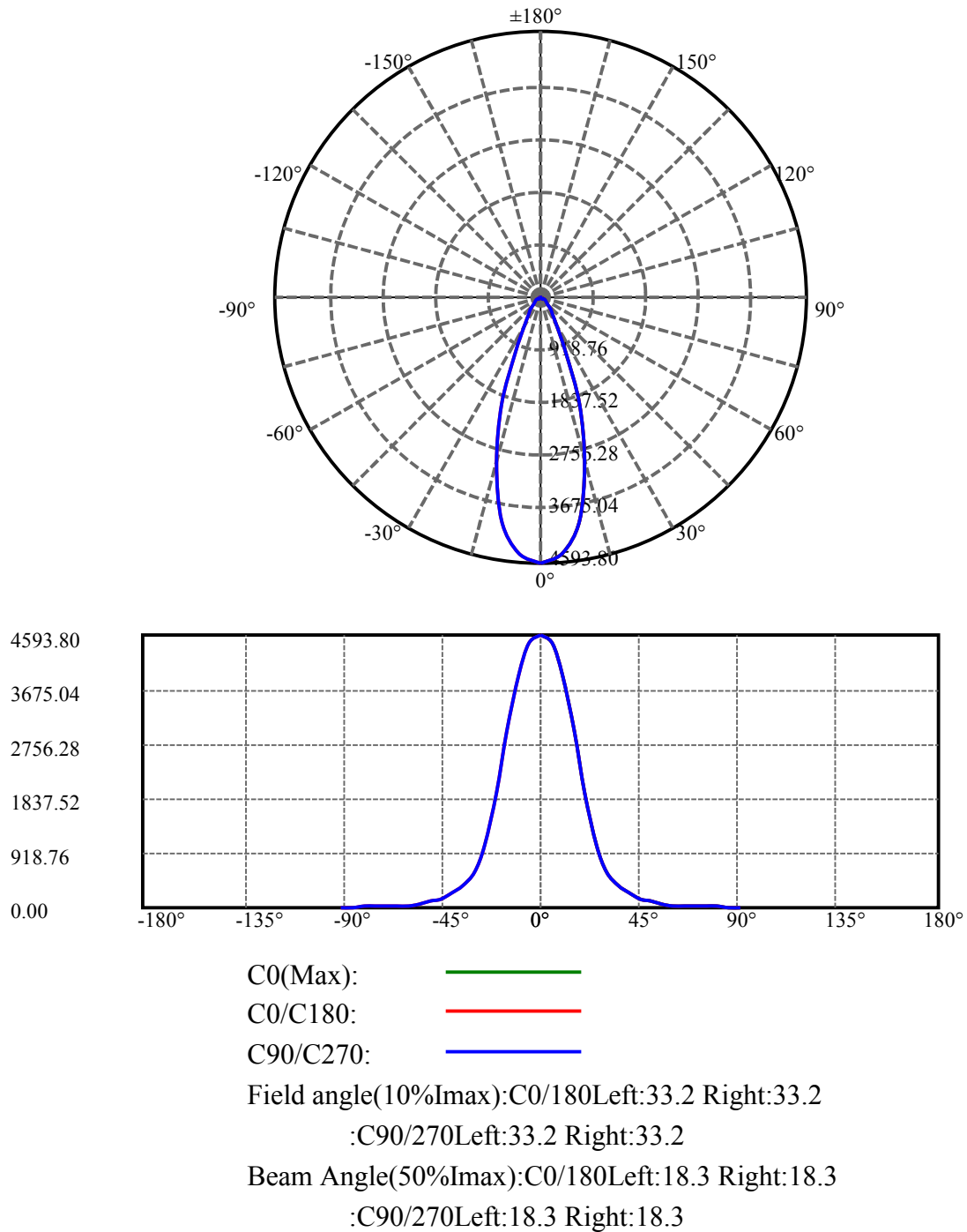
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 4593.797      | 27.472      | 27.472    | .925%       | 1.236%     |
| 5.0                | 4440.797      | 212.152     | 239.623   | 7.146%      | 10.781%    |
| 10.0               | 3907.547      | 371.932     | 611.556   | 12.527%     | 27.516%    |
| 15.0               | 2970.492      | 421.419     | 1032.975  | 14.194%     | 46.476%    |
| 20.0               | 1952.016      | 365.952     | 1398.927  | 12.326%     | 62.942%    |
| 25.0               | 1062.028      | 246.022     | 1644.949  | 8.286%      | 74.011%    |
| 30.0               | 611.030       | 167.464     | 1812.413  | 5.640%      | 81.545%    |
| 35.0               | 370.913       | 116.614     | 1929.027  | 3.928%      | 86.792%    |
| 40.0               | 255.241       | 89.931      | 2018.958  | 3.029%      | 90.838%    |
| 45.0               | 154.976       | 60.067      | 2079.025  | 2.023%      | 93.541%    |
| 50.0               | 100.062       | 42.016      | 2121.041  | 1.415%      | 95.431%    |
| 55.0               | 63.113        | 28.338      | 2149.379  | .954%       | 96.706%    |
| 60.0               | 42.026        | 19.950      | 2169.329  | .672%       | 97.604%    |
| 65.0               | 28.730        | 14.272      | 2183.601  | .481%       | 98.246%    |
| 70.0               | 23.344        | 12.024      | 2195.625  | .405%       | 98.787%    |
| 75.0               | 18.977        | 10.048      | 2205.673  | .338%       | 99.239%    |
| 80.0               | 15.159        | 8.183       | 2213.856  | .276%       | 99.607%    |
| 85.0               | 11.377        | 6.212       | 2220.068  | .209%       | 99.887%    |
| 90.0               | 9.169         | 2.513       | 2222.581  | .085%       | 100.000%   |

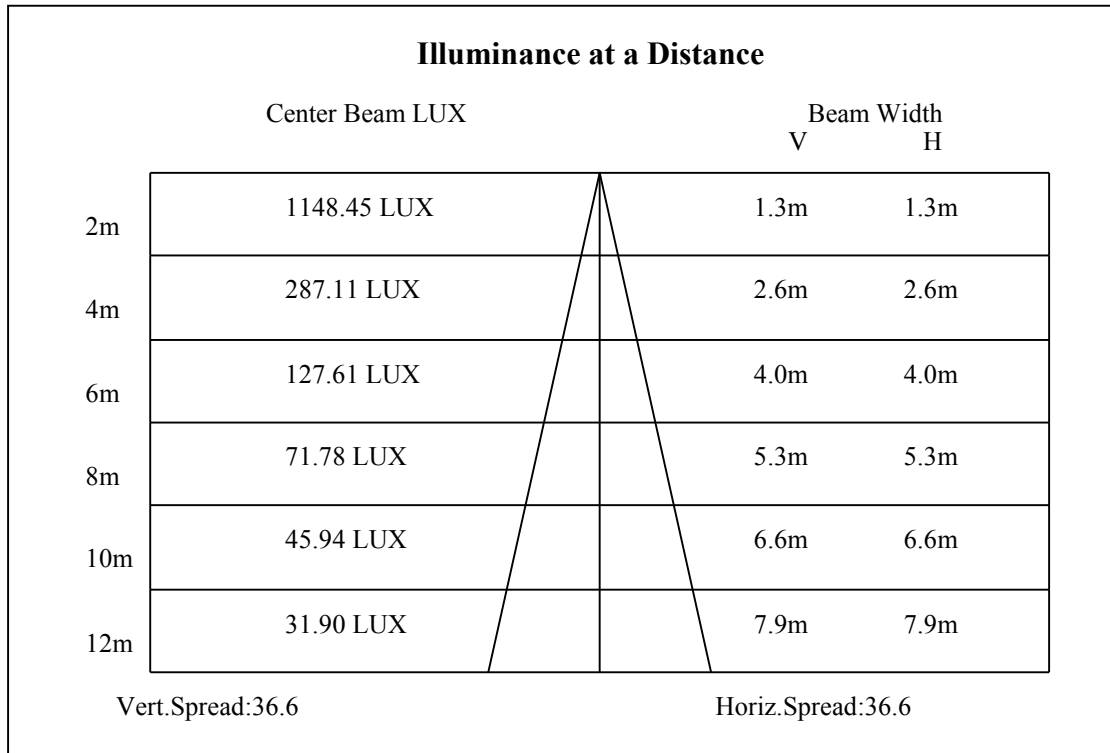
## ZONAL LUMEN SUMMARY

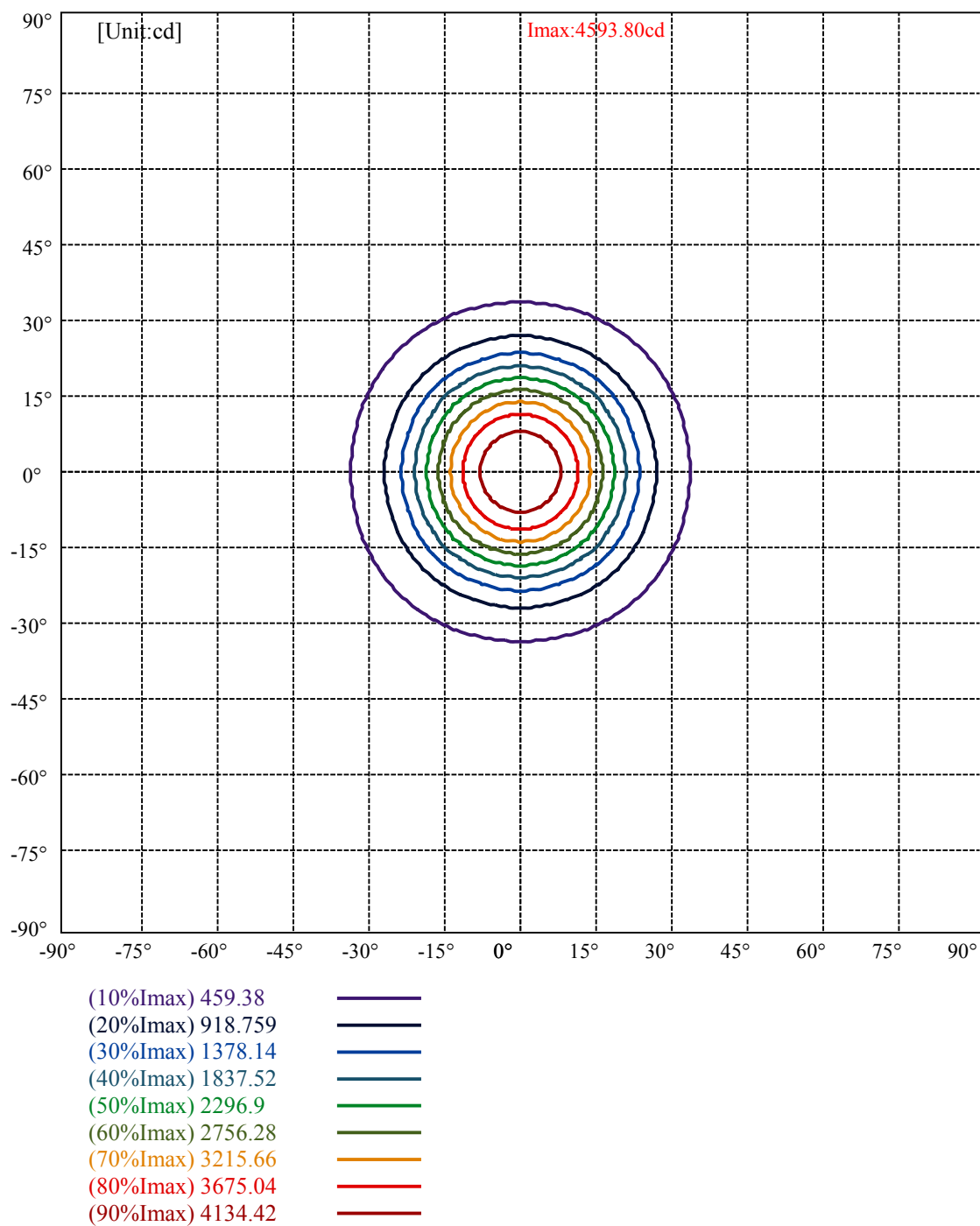
| Zone    | Lumens  | %Lamp  | %Fixt   |
|---------|---------|--------|---------|
| 0-30    | 1812.41 | 61.04% | 81.55%  |
| 0-40    | 2018.96 | 68.00% | 90.84%  |
| 0-60    | 2169.33 | 73.07% | 97.60%  |
| 0-90    | 2220.07 | 74.77% | 99.89%  |
| 0-120   | 2220.07 | 74.77% | 99.89%  |
| 0-180   | 2222.58 | 74.86% | 100.00% |
| 60-90   | 70.69   | 2.38%  | 3.18%   |
| 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%   |
| 0-28.97 | 1778.07 | 59.89% | 80.00%  |

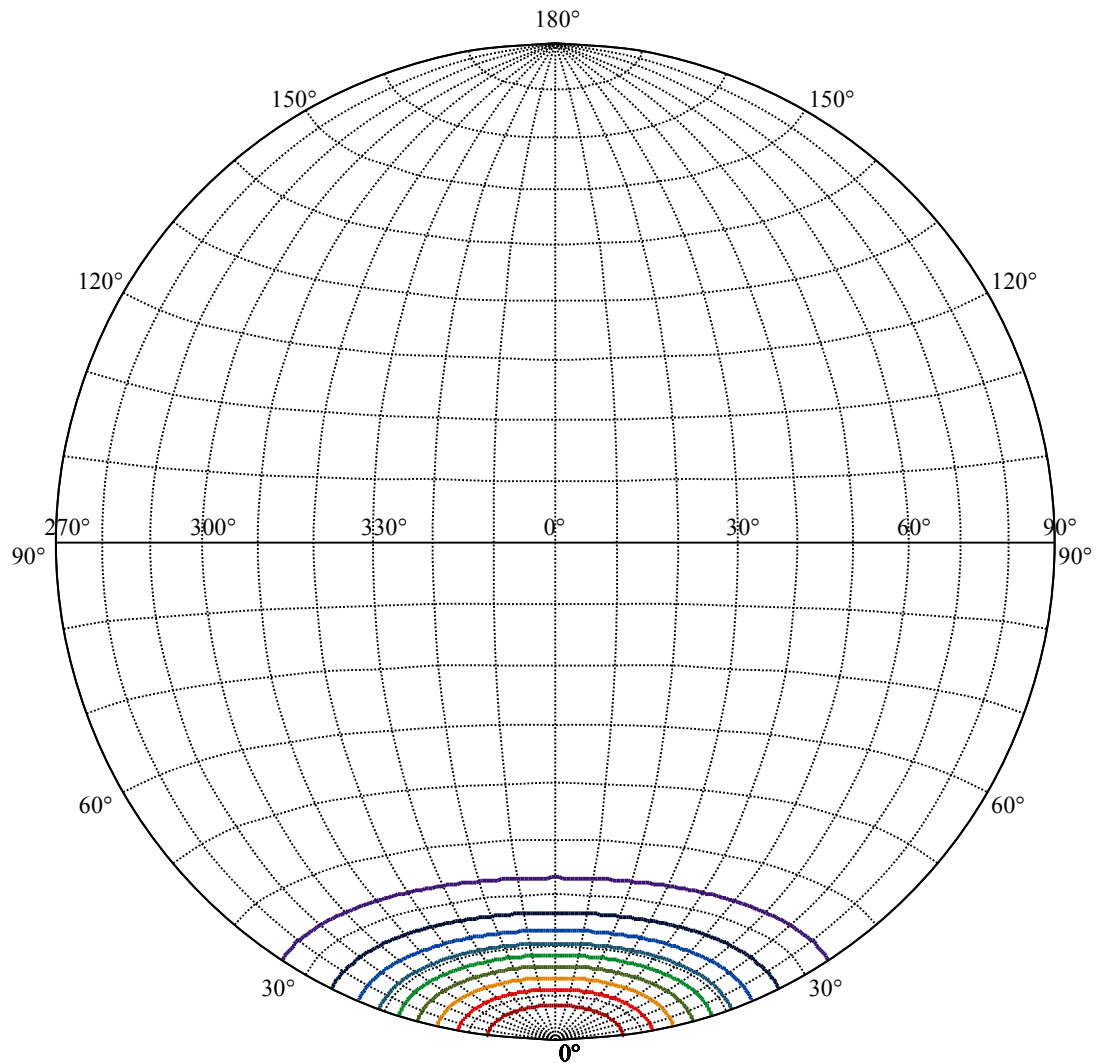
## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 611.56 |
| 10-20   | 787.37 |
| 20-30   | 413.49 |
| 30-40   | 206.55 |
| 40-50   | 102.08 |
| 50-60   | 48.29  |
| 60-70   | 26.30  |
| 70-80   | 18.23  |
| 80-90   | 6.21   |
| 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

Imax:4593.80

(10%Imax) 459.38

(20%Imax) 918.759

(30%Imax) 1378.14

(40%Imax) 1837.52

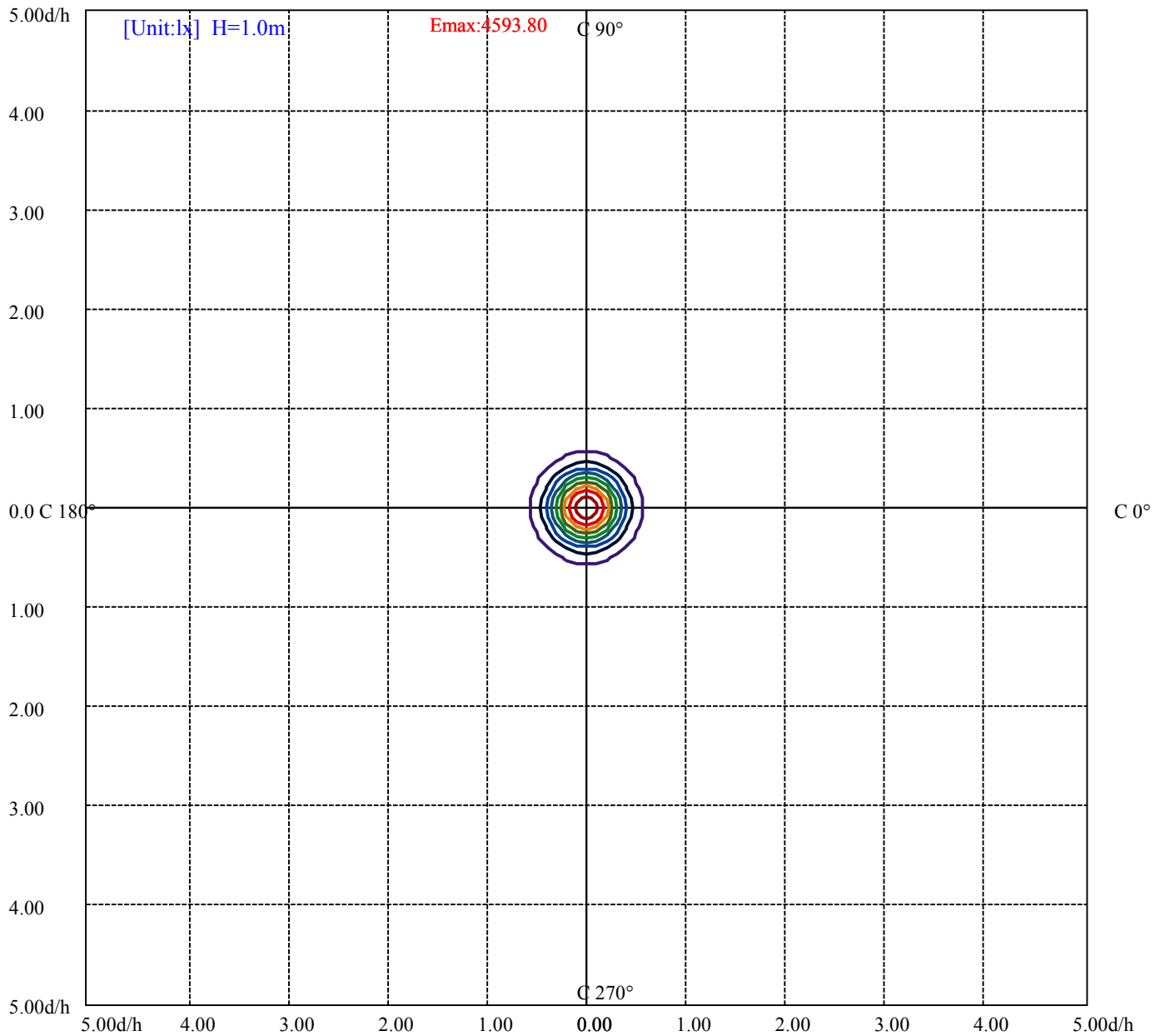
(50%Imax) 2296.9

(60%Imax) 2756.28

(70%Imax) 3215.66

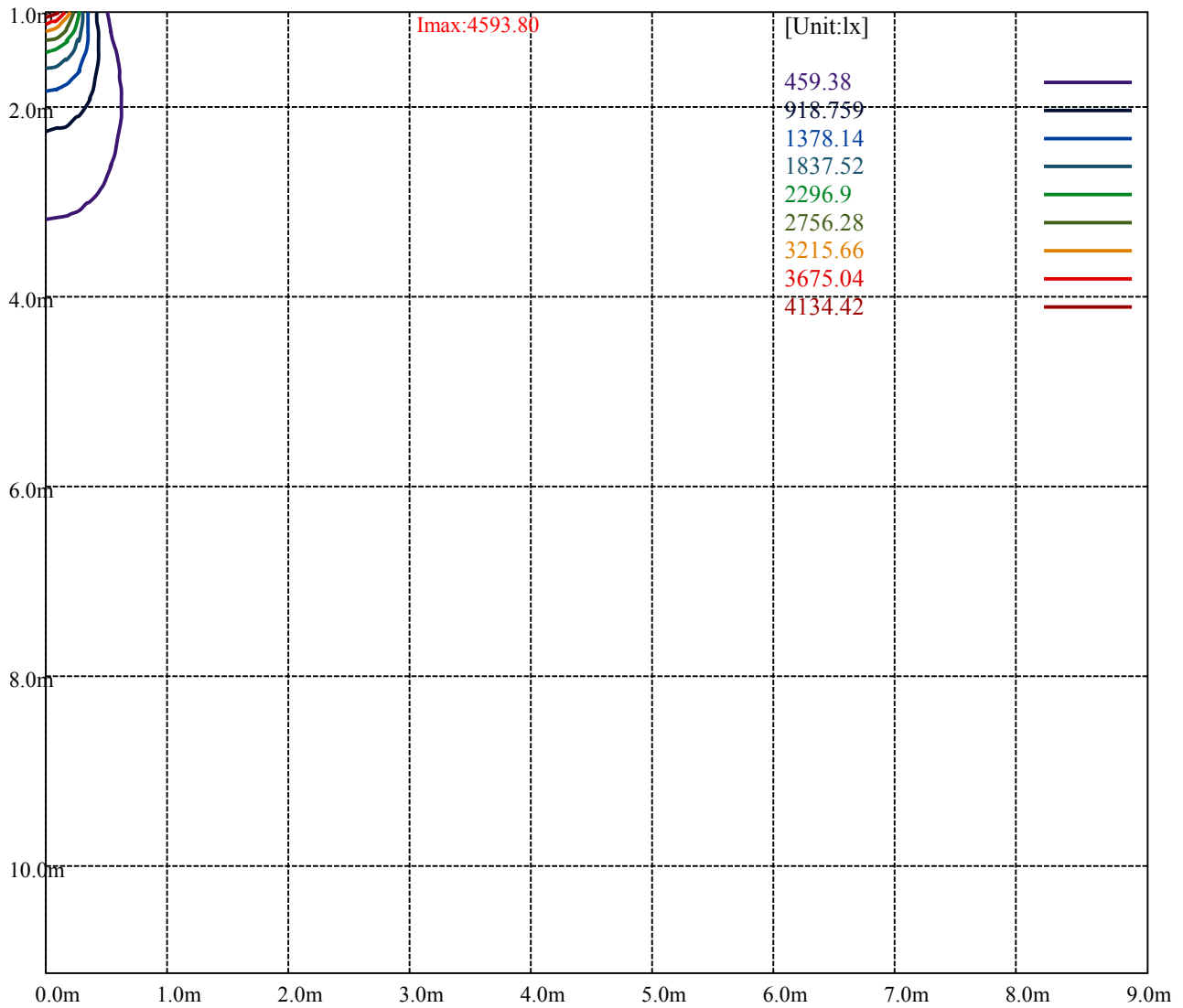
(80%Imax) 3675.04

(90%Imax) 4134.42



|                   |   |
|-------------------|---|
| (10%Emax) 459.379 | — |
| (20%Emax) 918.758 | — |
| (30%Emax) 1378.14 | — |
| (40%Emax) 1837.52 | — |
| (50%Emax) 2296.9  | — |
| (60%Emax) 2756.28 | — |
| (70%Emax) 3215.65 | — |
| (80%Emax) 3675.03 | — |
| (90%Emax) 4134.41 | — |





Luminance Table

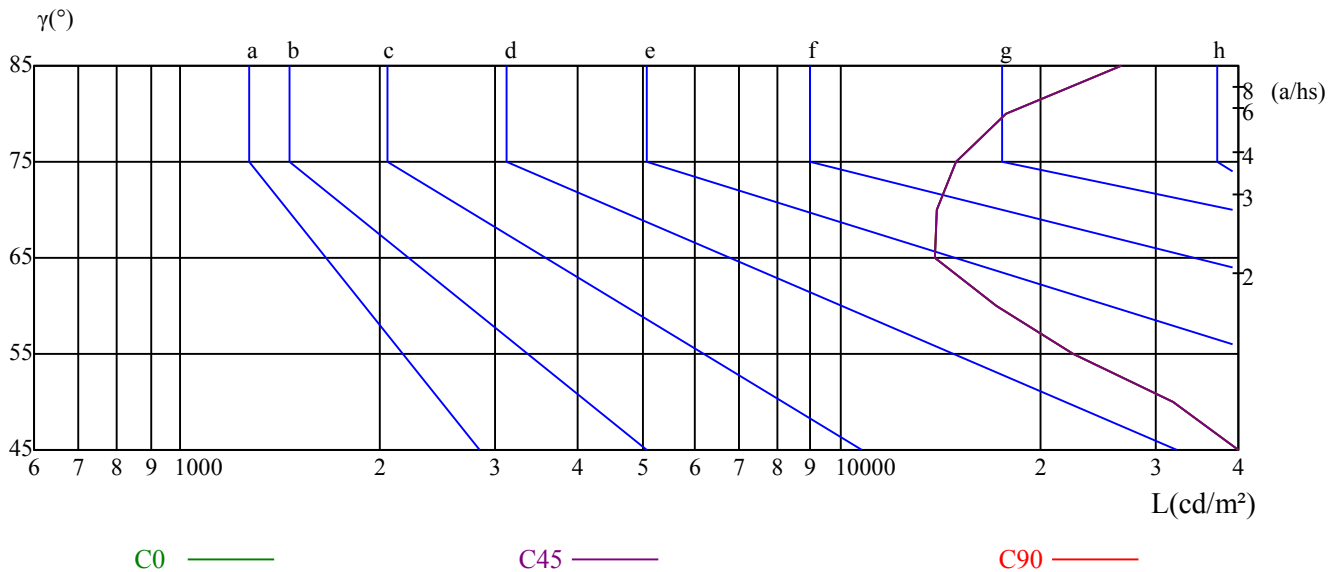
| $\gamma$ | 45    | 50    | 55    | 60    | 65    | 70    | 75    | 80    | 85    |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C0       | 44728 | 31769 | 22456 | 17153 | 13874 | 13929 | 14964 | 17816 | 26639 |
| C45      | 44728 | 31769 | 22456 | 17153 | 13874 | 13929 | 14964 | 17816 | 26639 |
| C90      | 44728 | 31769 | 22456 | 17153 | 13874 | 13929 | 14964 | 17816 | 26639 |

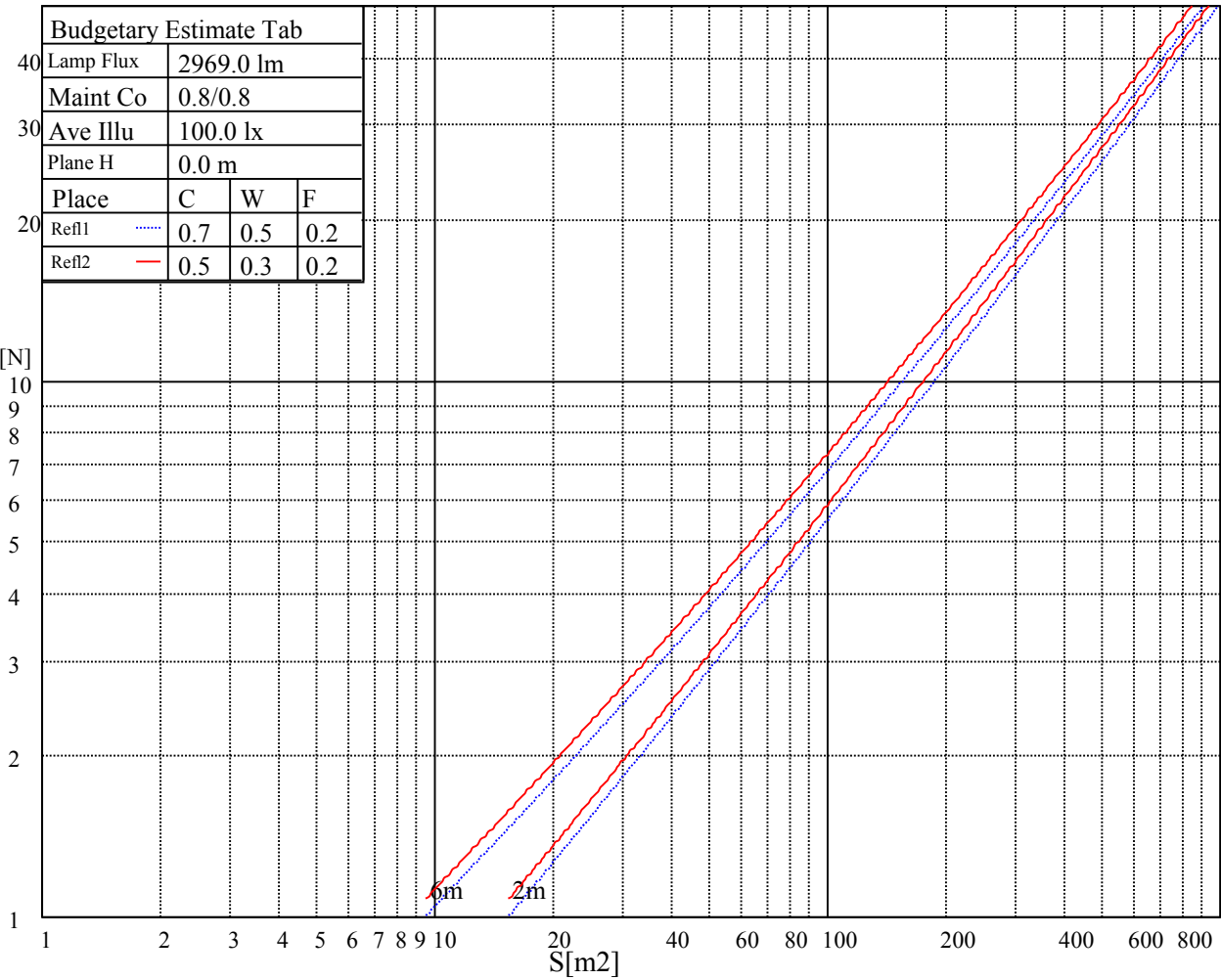
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 13874      | 13874      | 13874   | 14964      | 14964      | 14964   | 26639      | 26639      | 26639   |

Glare Table

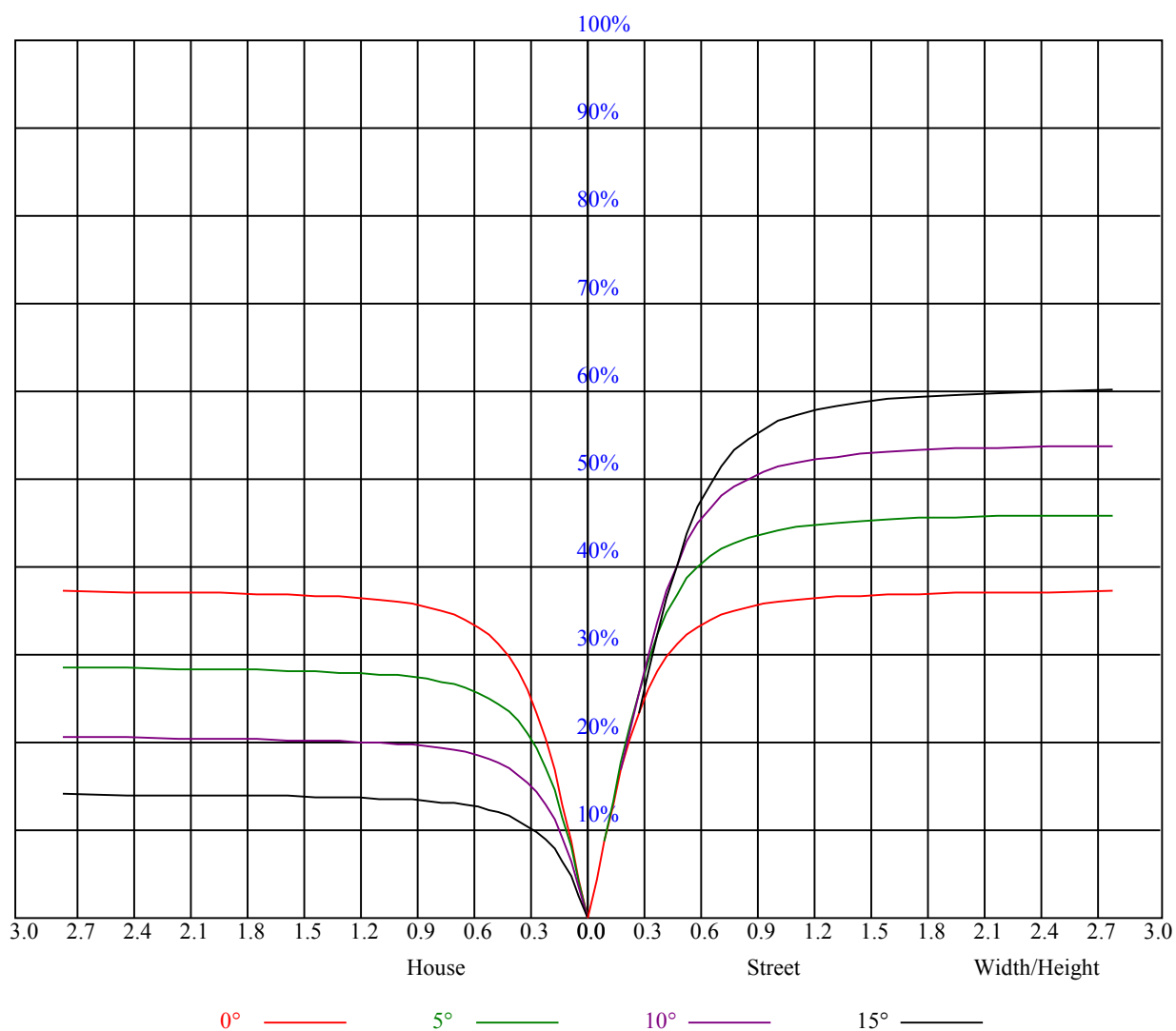
| Glare | Quality | Service Values Illuminance(lx) |      |      |            |            |            |            |            |
|-------|---------|--------------------------------|------|------|------------|------------|------------|------------|------------|
| 1.15  | A       | 2000                           | 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





| 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     | 0.90                                    | 0.90 | 0.90 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.84 | 0.81 | 0.81 | 0.81 | 0.77 | 0.77 | 0.77 | 0.76 |
| 1     | 0.83                                    | 0.81 | 0.79 | 0.81 | 0.80 | 0.78 | 0.78 | 0.77 | 0.76 | 0.76 | 0.74 | 0.73 | 0.73 | 0.72 | 0.71 | 0.70 |
| 2     | 0.78                                    | 0.75 | 0.72 | 0.77 | 0.74 | 0.72 | 0.74 | 0.72 | 0.70 | 0.72 | 0.70 | 0.69 | 0.70 | 0.68 | 0.67 | 0.66 |
| 3     | 0.74                                    | 0.70 | 0.67 | 0.73 | 0.69 | 0.67 | 0.71 | 0.68 | 0.66 | 0.69 | 0.67 | 0.65 | 0.67 | 0.65 | 0.64 | 0.62 |
| 4     | 0.70                                    | 0.66 | 0.63 | 0.69 | 0.65 | 0.63 | 0.67 | 0.64 | 0.62 | 0.66 | 0.63 | 0.61 | 0.65 | 0.62 | 0.60 | 0.59 |
| 5     | 0.66                                    | 0.62 | 0.59 | 0.66 | 0.62 | 0.59 | 0.64 | 0.61 | 0.59 | 0.63 | 0.60 | 0.58 | 0.62 | 0.60 | 0.58 | 0.57 |
| 6     | 0.63                                    | 0.59 | 0.56 | 0.63 | 0.59 | 0.56 | 0.62 | 0.58 | 0.56 | 0.61 | 0.58 | 0.56 | 0.60 | 0.57 | 0.55 | 0.54 |
| 7     | 0.61                                    | 0.57 | 0.54 | 0.60 | 0.56 | 0.54 | 0.59 | 0.56 | 0.53 | 0.58 | 0.55 | 0.53 | 0.58 | 0.55 | 0.53 | 0.52 |
| 8     | 0.58                                    | 0.54 | 0.52 | 0.58 | 0.54 | 0.51 | 0.57 | 0.54 | 0.51 | 0.56 | 0.53 | 0.51 | 0.56 | 0.53 | 0.51 | 0.50 |
| 9     | 0.56                                    | 0.52 | 0.49 | 0.56 | 0.52 | 0.49 | 0.55 | 0.52 | 0.49 | 0.54 | 0.51 | 0.49 | 0.54 | 0.51 | 0.49 | 0.48 |
| 10    | 0.54                                    | 0.50 | 0.48 | 0.54 | 0.50 | 0.48 | 0.53 | 0.50 | 0.47 | 0.52 | 0.49 | 0.47 | 0.52 | 0.49 | 0.47 | 0.46 |



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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                | 4592.25 | 4468.50 | 4016.25 | 3134.81 | 2108.25 | 1157.06 | 677.81 | 402.19 | 286.88 |                            |  |
| 45.0               | 4599.56 | 4392.00 | 3852.56 | 2883.94 | 1847.25 | 983.25  | 577.69 | 353.25 | 231.30 |                            |  |
| 90.0               | 4588.88 | 4383.56 | 3723.75 | 2767.50 | 1709.44 | 923.18  | 542.25 | 343.74 | 225.28 |                            |  |
| 135.0              | 4594.50 | 4461.75 | 3956.06 | 2985.75 | 1998.00 | 1090.13 | 609.19 | 374.63 | 284.63 |                            |  |
| 180.0              | 4592.25 | 4381.88 | 3814.31 | 2824.31 | 1769.63 | 982.69  | 553.84 | 339.13 | 228.77 |                            |  |
| 225.0              | 4599.56 | 4488.19 | 4001.63 | 3092.06 | 2044.69 | 1091.64 | 636.41 | 381.04 | 259.99 |                            |  |
| 270.0              | 4588.88 | 4512.94 | 4053.38 | 3180.38 | 2212.31 | 1215.00 | 687.38 | 407.81 | 287.44 |                            |  |
| 315.0              | 4594.50 | 4437.56 | 3842.44 | 2895.19 | 1926.56 | 1053.28 | 603.68 | 365.51 | 237.66 |                            |  |
| 360.0              | 4592.25 | 4468.50 | 4016.25 | 3134.81 | 2108.25 | 1157.06 | 677.81 | 402.19 | 286.88 |                            |  |
| C/γ(°)             | 45.0    | 50.0    | 55.0    | 60.0    | 65.0    | 70.0    | 75.0   | 80.0   | 85.0   |                            |  |
| 0.0                | 165.26  | 106.93  | 67.56   | 45.62   | 29.98   | 24.08   | 19.41  | 15.75  | 11.70  |                            |  |
| 45.0               | 147.15  | 94.67   | 59.18   | 39.94   | 27.73   | 22.78   | 18.90  | 14.68  | 10.86  |                            |  |
| 90.0               | 143.33  | 91.35   | 57.09   | 36.45   | 27.06   | 22.33   | 18.11  | 14.57  | 10.69  |                            |  |
| 135.0              | 153.56  | 101.25  | 63.56   | 41.51   | 28.80   | 23.34   | 18.96  | 15.24  | 11.36  |                            |  |
| 180.0              | 144.62  | 92.98   | 58.33   | 39.43   | 27.62   | 22.50   | 18.28  | 14.34  | 10.97  |                            |  |
| 225.0              | 163.97  | 104.85  | 64.07   | 44.10   | 29.48   | 23.68   | 19.41  | 15.64  | 11.98  |                            |  |
| 270.0              | 170.78  | 110.25  | 71.16   | 47.03   | 30.66   | 24.81   | 20.03  | 16.14  | 12.09  |                            |  |
| 315.0              | 151.14  | 98.21   | 63.96   | 42.13   | 28.52   | 23.23   | 18.73  | 14.91  | 11.36  |                            |  |
| 360.0              | 165.26  | 106.93  | 67.56   | 45.62   | 29.98   | 24.08   | 19.41  | 15.75  | 11.70  |                            |  |
| C/γ(°)             | 90.0    |         |         |         |         |         |        |        |        |                            |  |
| 0.0                | 9.11    |         |         |         |         |         |        |        |        |                            |  |
| 45.0               | 9.17    |         |         |         |         |         |        |        |        |                            |  |
| 90.0               | 9.11    |         |         |         |         |         |        |        |        |                            |  |
| 135.0              | 9.17    |         |         |         |         |         |        |        |        |                            |  |
| 180.0              | 9.06    |         |         |         |         |         |        |        |        |                            |  |
| 225.0              | 9.28    |         |         |         |         |         |        |        |        |                            |  |
| 270.0              | 9.28    |         |         |         |         |         |        |        |        |                            |  |
| 315.0              | 9.17    |         |         |         |         |         |        |        |        |                            |  |
| 360.0              | 9.11    |         |         |         |         |         |        |        |        |                            |  |