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NT

Client: NT

LumCAT: 61-0233

Luminaire: 92.70.427.00

Report No: 20250328-B025

Ballast type: DC

Test No: 20250328-C025

LampCAT: CITIZEN CLU703

Lamp flux(lm): 1188.6

Number of Lamps: 1

Length(mm): 35

Phm Type: C

Voltage(V): 31.430

Current(A): 0.350

Power (W): 11.000

PF: 0.000

Width(mm): 35

Height(mm): 17

#### Photometric Results

Lumens(lm): 1001.45, Efficiency(%): 84.26% , Luminous Efficacy(lm/W): 91.04

Central intensity(cd): 5528.533, Maximum intensity(cd): 5528.533

Angle of maximum intensity: C=0.0  $\gamma$ =0.0

Beam Angle(50%Imax): [C0/180]Total=22.4

[C90/270]Total=22.4

Field angle(10%Imax): [C0/180]Total=39.0

[C90/270]Total=39.0

Maximum s/h(1/2): C0\_180=0.38 C90\_270=0.38

Maximum s/h(1/4): C0\_180=0.37 C90\_270=0.37

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 84.26%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 96.889%

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 5528.533      | 0.000       | 0         | 0.00%       | 0.00%      |
| 1.0                | 5501.393      | 5.278       | 5.278     | 0.44%       | 0.53%      |
| 2.0                | 5421.290      | 15.677      | 20.955    | 1.32%       | 2.09%      |
| 3.0                | 5282.446      | 25.600      | 46.555    | 2.15%       | 4.65%      |
| 4.0                | 5093.564      | 34.732      | 81.287    | 2.92%       | 8.12%      |
| 5.0                | 4850.330      | 42.778      | 124.065   | 3.60%       | 12.39%     |
| 6.0                | 4564.375      | 49.477      | 173.541   | 4.16%       | 17.33%     |
| 7.0                | 4243.306      | 54.669      | 228.211   | 4.60%       | 22.79%     |
| 8.0                | 3917.774      | 58.407      | 286.618   | 4.91%       | 28.62%     |
| 9.0                | 3557.495      | 60.583      | 347.201   | 5.10%       | 34.67%     |
| 10.0               | 3188.437      | 61.048      | 408.249   | 5.14%       | 40.77%     |
| 11.0               | 2850.470      | 60.341      | 468.59    | 5.08%       | 46.79%     |
| 12.0               | 2476.219      | 58.228      | 526.818   | 4.90%       | 52.61%     |
| 13.0               | 2137.081      | 54.748      | 581.567   | 4.61%       | 58.07%     |
| 14.0               | 1726.443      | 49.453      | 631.019   | 4.16%       | 63.01%     |
| 15.0               | 1419.895      | 43.194      | 674.214   | 3.63%       | 67.32%     |
| 16.0               | 1220.172      | 38.684      | 712.898   | 3.25%       | 71.19%     |
| 17.0               | 1012.512      | 34.769      | 747.667   | 2.93%       | 74.66%     |
| 18.0               | 797.120       | 29.837      | 777.504   | 2.51%       | 77.64%     |
| 19.0               | 623.543       | 24.717      | 802.221   | 2.08%       | 80.11%     |
| 20.0               | 487.149       | 20.329      | 822.549   | 1.71%       | 82.14%     |
| 21.0               | 380.360       | 16.658      | 839.207   | 1.40%       | 83.80%     |
| 22.0               | 296.833       | 13.608      | 852.816   | 1.14%       | 85.16%     |
| 23.0               | 255.165       | 11.582      | 864.398   | 0.97%       | 86.31%     |
| 24.0               | 215.421       | 10.289      | 874.687   | 0.87%       | 87.34%     |
| 25.0               | 163.095       | 8.607       | 883.294   | 0.72%       | 88.20%     |
| 26.0               | 126.255       | 6.830       | 890.124   | 0.57%       | 88.88%     |
| 27.0               | 107.696       | 5.724       | 895.847   | 0.48%       | 89.45%     |
| 28.0               | 94.397        | 5.117       | 900.964   | 0.43%       | 89.97%     |
| 29.0               | 81.924        | 4.613       | 905.577   | 0.39%       | 90.43%     |
| 30.0               | 72.831        | 4.178       | 909.755   | 0.35%       | 90.84%     |
| 31.0               | 64.419        | 3.819       | 913.575   | 0.32%       | 91.22%     |
| 32.0               | 57.711        | 3.499       | 917.074   | 0.29%       | 91.57%     |
| 33.0               | 51.946        | 3.231       | 920.304   | 0.27%       | 91.90%     |
| 34.0               | 46.964        | 2.993       | 923.297   | 0.25%       | 92.20%     |
| 35.0               | 42.421        | 2.776       | 926.073   | 0.23%       | 92.47%     |
| 36.0               | 38.852        | 2.588       | 928.661   | 0.22%       | 92.73%     |
| 37.0               | 35.684        | 2.431       | 931.092   | 0.20%       | 92.97%     |

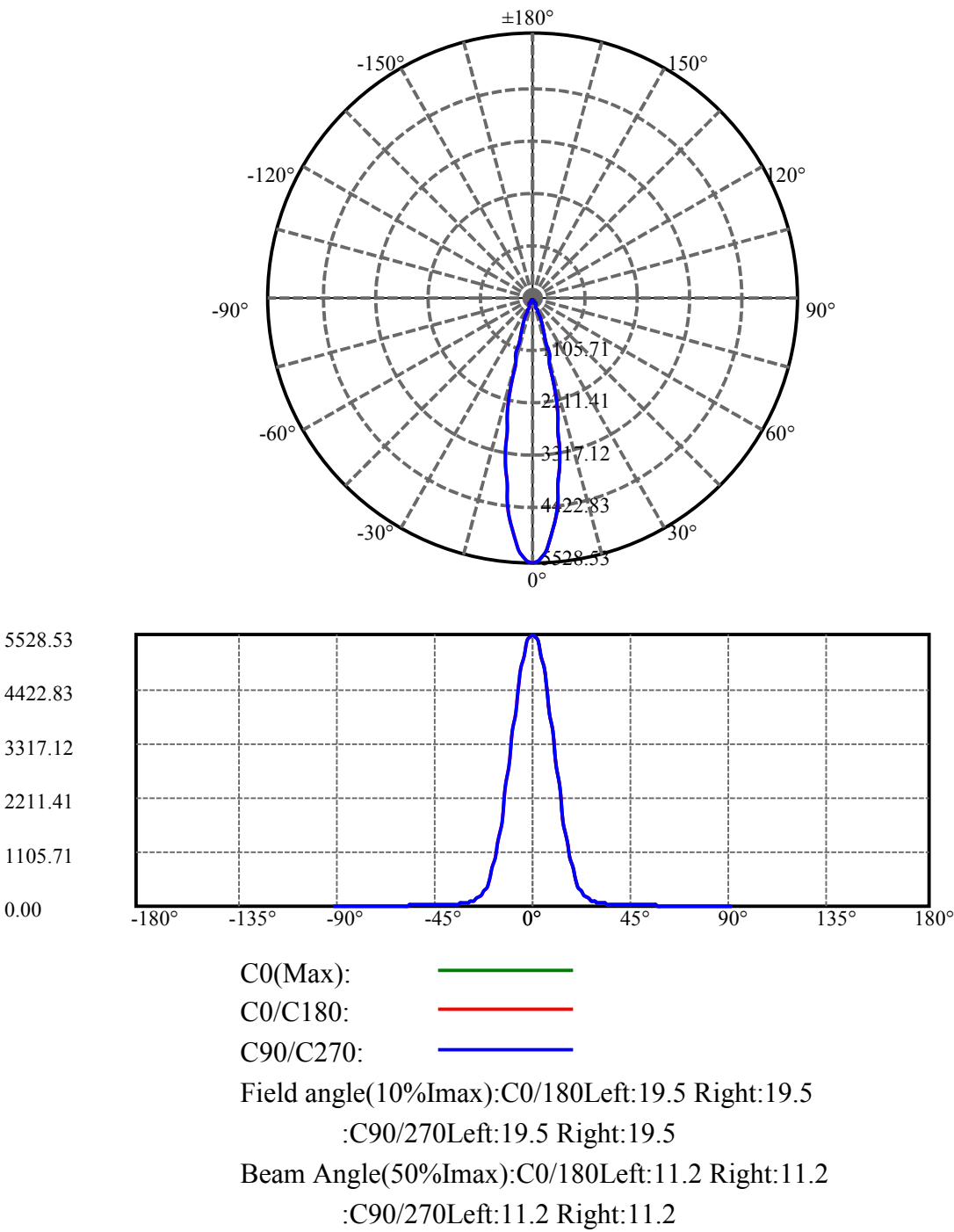
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 38.0               | 32.846        | 2.287       | 933.38    | 0.19%       | 93.20%     |
| 39.0               | 30.285        | 2.155       | 935.534   | 0.18%       | 93.42%     |
| 40.0               | 28.288        | 2.043       | 937.577   | 0.17%       | 93.62%     |
| 41.0               | 26.335        | 1.945       | 939.522   | 0.16%       | 93.82%     |
| 42.0               | 24.850        | 1.860       | 941.382   | 0.16%       | 94.00%     |
| 43.0               | 23.321        | 1.784       | 943.166   | 0.15%       | 94.18%     |
| 44.0               | 22.209        | 1.718       | 944.885   | 0.14%       | 94.35%     |
| 45.0               | 21.222        | 1.669       | 946.554   | 0.14%       | 94.52%     |
| 46.0               | 20.432        | 1.629       | 948.183   | 0.14%       | 94.68%     |
| 47.0               | 19.817        | 1.601       | 949.784   | 0.13%       | 94.84%     |
| 48.0               | 19.408        | 1.586       | 951.369   | 0.13%       | 95.00%     |
| 49.0               | 19.195        | 1.585       | 952.955   | 0.13%       | 95.16%     |
| 50.0               | 19.100        | 1.597       | 954.551   | 0.13%       | 95.32%     |
| 51.0               | 18.969        | 1.611       | 956.162   | 0.14%       | 95.48%     |
| 52.0               | 18.786        | 1.620       | 957.782   | 0.14%       | 95.64%     |
| 53.0               | 18.530        | 1.623       | 959.405   | 0.14%       | 95.80%     |
| 54.0               | 18.193        | 1.619       | 961.024   | 0.14%       | 95.96%     |
| 55.0               | 17.754        | 1.605       | 962.629   | 0.14%       | 96.12%     |
| 56.0               | 17.315        | 1.585       | 964.213   | 0.13%       | 96.28%     |
| 57.0               | 16.876        | 1.563       | 965.777   | 0.13%       | 96.44%     |
| 58.0               | 16.401        | 1.539       | 967.315   | 0.13%       | 96.59%     |
| 59.0               | 15.896        | 1.510       | 968.825   | 0.13%       | 96.74%     |
| 60.0               | 15.326        | 1.475       | 970.3     | 0.12%       | 96.89%     |
| 61.0               | 14.770        | 1.436       | 971.737   | 0.12%       | 97.03%     |
| 62.0               | 14.133        | 1.393       | 973.129   | 0.12%       | 97.17%     |
| 63.0               | 13.563        | 1.347       | 974.476   | 0.11%       | 97.31%     |
| 64.0               | 13.007        | 1.304       | 975.78    | 0.11%       | 97.44%     |
| 65.0               | 12.495        | 1.262       | 977.042   | 0.11%       | 97.56%     |
| 66.0               | 11.982        | 1.221       | 978.263   | 0.10%       | 97.68%     |
| 67.0               | 11.551        | 1.183       | 979.447   | 0.10%       | 97.80%     |
| 68.0               | 11.156        | 1.150       | 980.597   | 0.10%       | 97.92%     |
| 69.0               | 10.783        | 1.119       | 981.716   | 0.09%       | 98.03%     |
| 70.0               | 10.497        | 1.093       | 982.809   | 0.09%       | 98.14%     |
| 71.0               | 10.227        | 1.071       | 983.88    | 0.09%       | 98.25%     |
| 72.0               | 9.934         | 1.048       | 984.928   | 0.09%       | 98.35%     |
| 73.0               | 9.700         | 1.027       | 985.955   | 0.09%       | 98.45%     |
| 74.0               | 9.451         | 1.007       | 986.962   | 0.08%       | 98.55%     |
| 75.0               | 9.225         | 0.987       | 987.949   | 0.08%       | 98.65%     |

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0               | 8.991         | 0.967       | 988.916   | 0.08%       | 98.75%     |
| 77.0               | 8.793         | 0.948       | 989.864   | 0.08%       | 98.84%     |
| 78.0               | 8.705         | 0.937       | 990.801   | 0.08%       | 98.94%     |
| 79.0               | 8.676         | 0.934       | 991.734   | 0.08%       | 99.03%     |
| 80.0               | 8.661         | 0.935       | 992.669   | 0.08%       | 99.12%     |
| 81.0               | 8.581         | 0.932       | 993.602   | 0.08%       | 99.22%     |
| 82.0               | 8.486         | 0.925       | 994.527   | 0.08%       | 99.31%     |
| 83.0               | 8.354         | 0.915       | 995.442   | 0.08%       | 99.40%     |
| 84.0               | 8.244         | 0.904       | 996.347   | 0.08%       | 99.49%     |
| 85.0               | 8.091         | 0.892       | 997.238   | 0.08%       | 99.58%     |
| 86.0               | 7.959         | 0.877       | 998.116   | 0.07%       | 99.67%     |
| 87.0               | 7.879         | 0.867       | 998.982   | 0.07%       | 99.75%     |
| 88.0               | 7.827         | 0.860       | 999.843   | 0.07%       | 99.84%     |
| 89.0               | 7.440         | 0.837       | 1000.679  | 0.07%       | 99.92%     |
| 90.0               | 6.679         | 0.774       | 1001.454  | 0.07%       | 100.00%    |

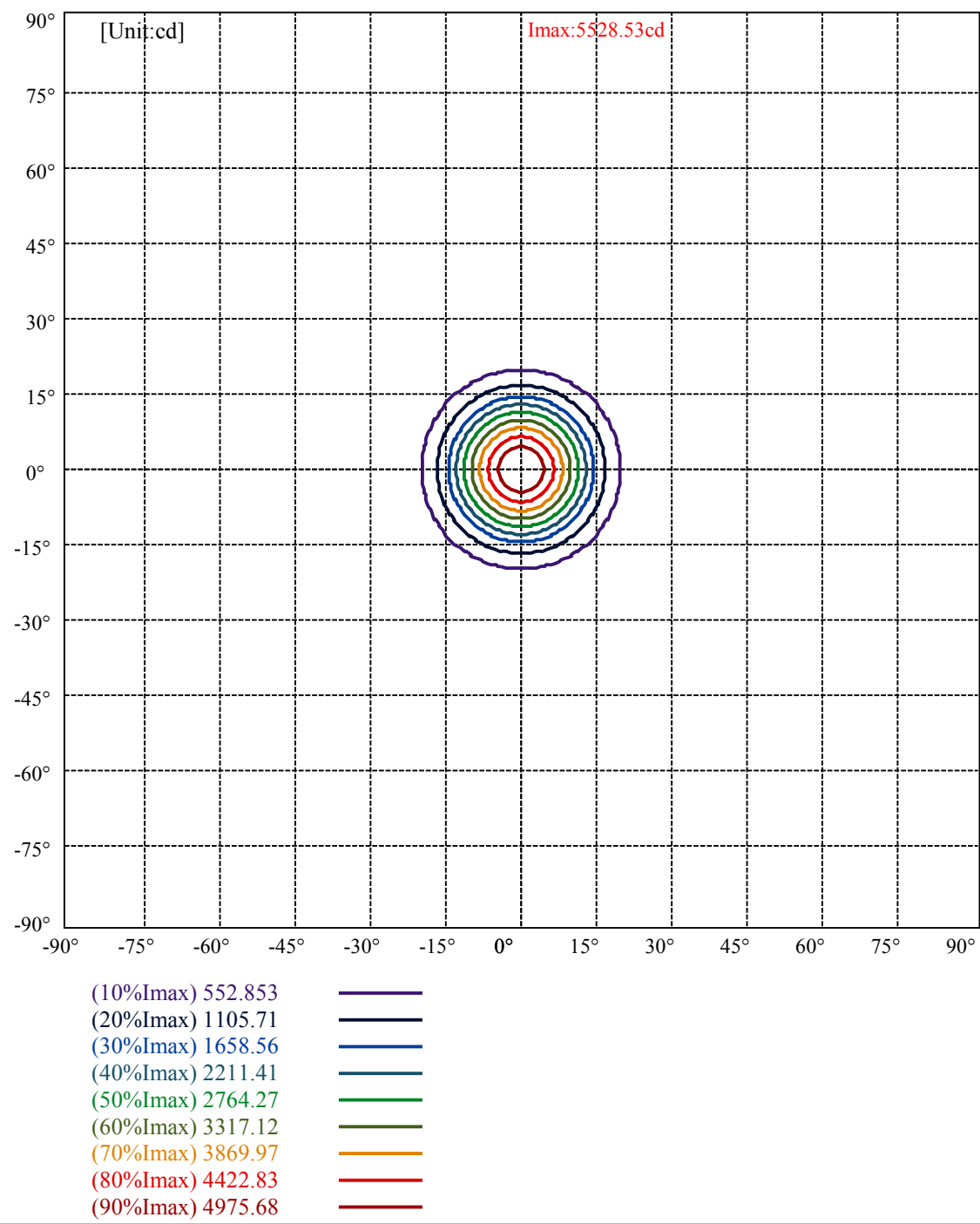
| ZONAL LUMEN SUMMARY |         |        |         |
|---------------------|---------|--------|---------|
| Zone                | Lumens  | %Lamp  | %Fixt   |
| 0-30                | 909.76  | 76.54% | 90.84%  |
| 0-40                | 937.58  | 78.88% | 93.62%  |
| 0-60                | 970.30  | 81.64% | 96.89%  |
| 0-90                | 1000.68 | 84.19% | 99.92%  |
| 0-120               | 1000.68 | 84.19% | 99.92%  |
| 0-180               | 1001.45 | 84.26% | 100.00% |
| 60-90               | 30.38   | 2.56%  | 3.03%   |
| 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%   |
| 0-18.96             | 801.16  | 67.41% | 80.00%  |

ZONAL LUMEN SUMMARY

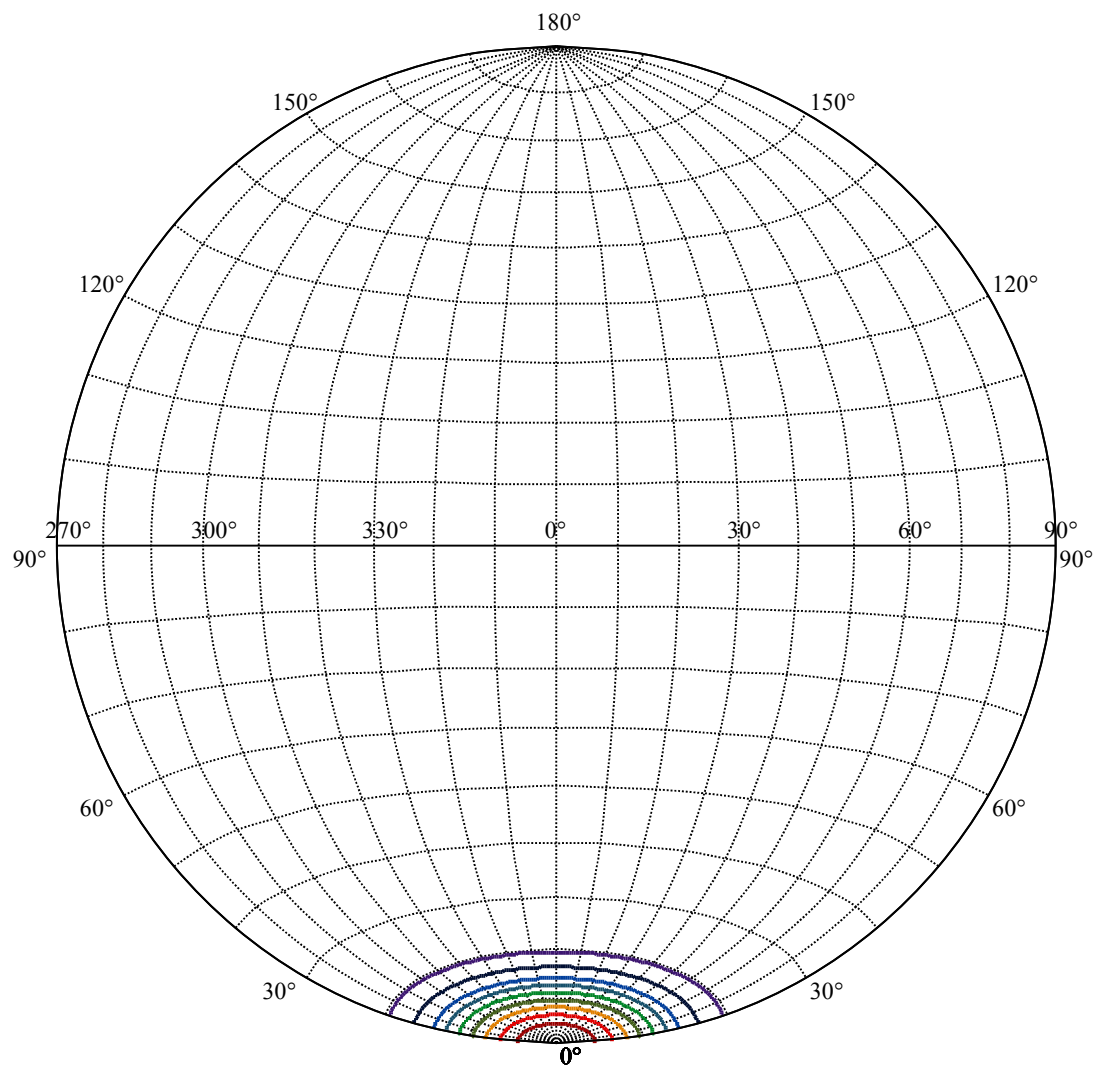
|         |        |
|---------|--------|
| 0-10    | 408.25 |
| 10-20   | 414.30 |
| 20-30   | 87.21  |
| 30-40   | 27.82  |
| 40-50   | 16.97  |
| 50-60   | 15.75  |
| 60-70   | 12.51  |
| 70-80   | 9.86   |
| 80-90   | 8.01   |
| 90-100  | 0.00   |
| 100-110 | 0.00   |
| 110-120 | 0.00   |
| 120-130 | 0.00   |
| 130-140 | 0.00   |
| 140-150 | 0.00   |
| 150-160 | 0.00   |
| 160-170 | 0.00   |
| 170-180 | 0.00   |









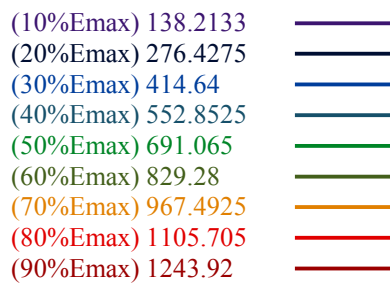


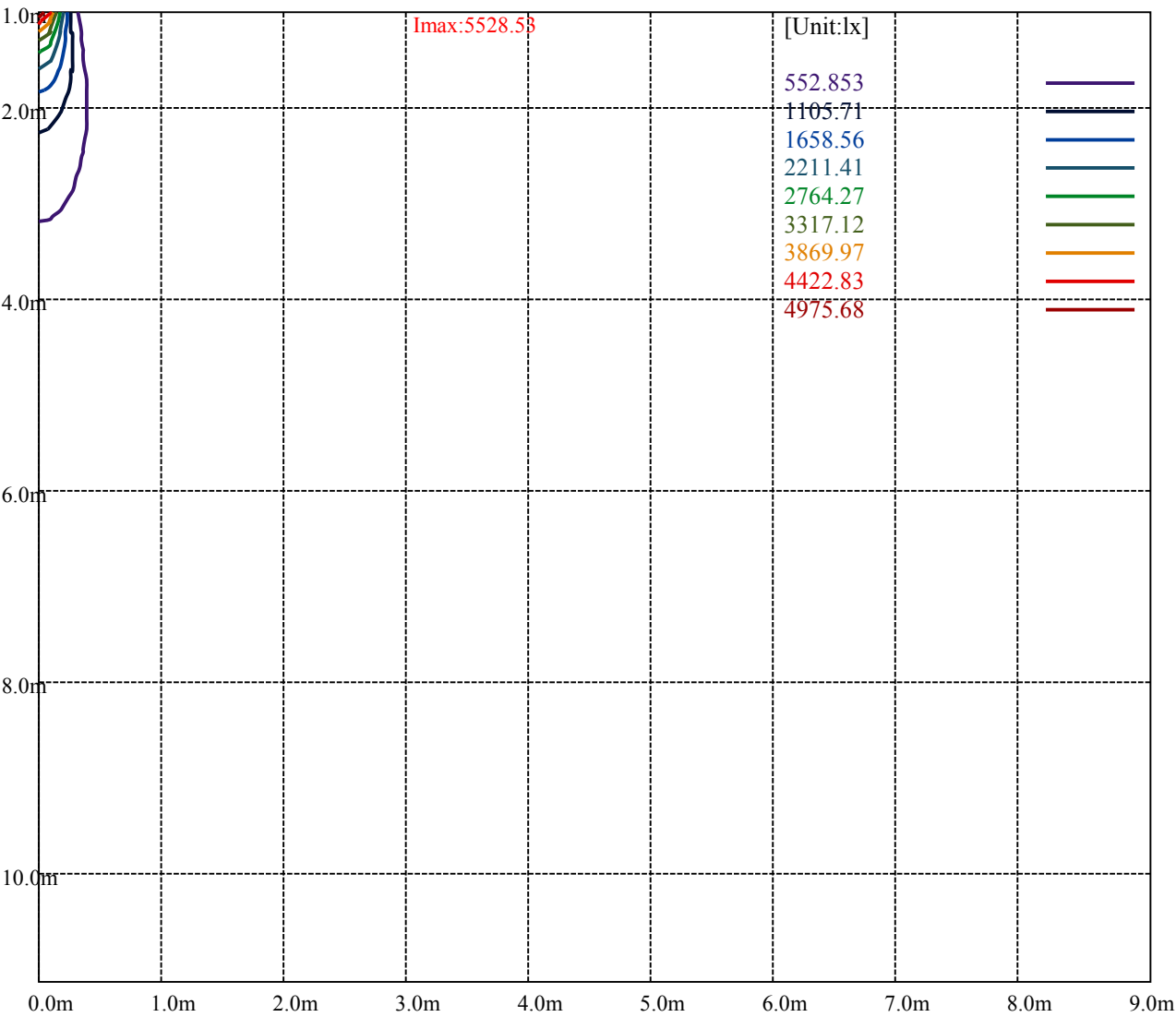
House

[Unit:cd]

Road

|              |         |
|--------------|---------|
| Imax:5528.53 |         |
| (10%Imax)    | 552.853 |
| (20%Imax)    | 1105.71 |
| (30%Imax)    | 1658.56 |
| (40%Imax)    | 2211.41 |
| (50%Imax)    | 2764.27 |
| (60%Imax)    | 3317.12 |
| (70%Imax)    | 3869.97 |
| (80%Imax)    | 4422.83 |
| (90%Imax)    | 4975.68 |





Luminance Table

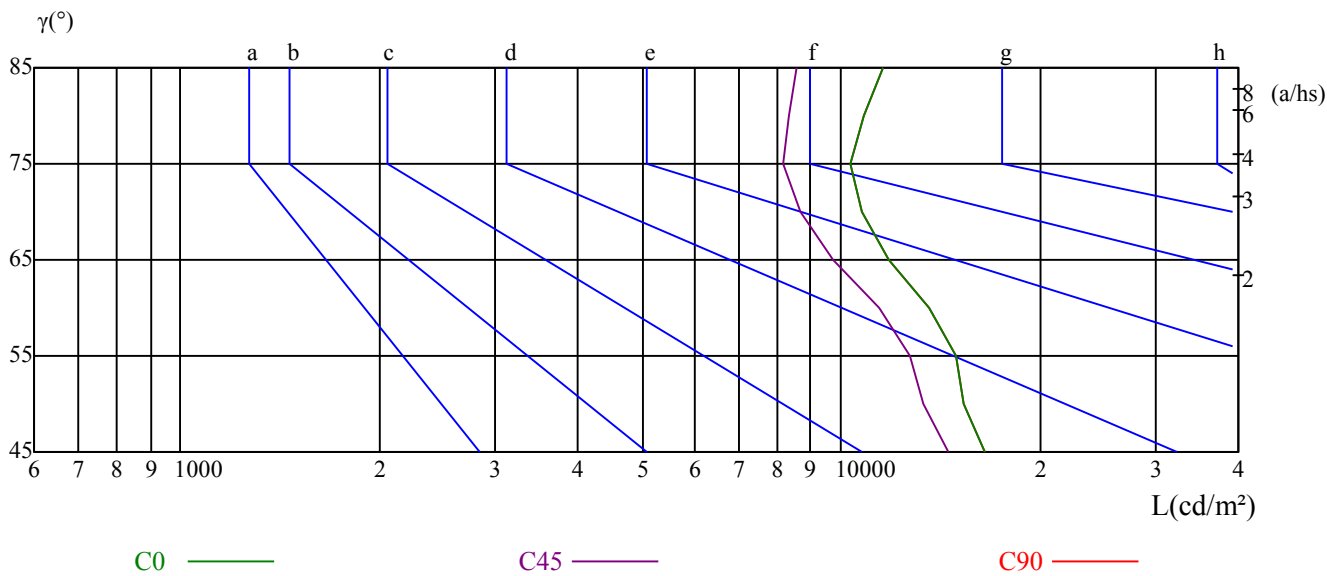
| $\gamma$ | 45    | 50    | 55    | 60    | 65    | 70    | 75    | 80    | 85    |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C0       | 16490 | 15364 | 14919 | 13589 | 11821 | 10733 | 10344 | 10845 | 11566 |
| C45      | 14523 | 13338 | 12755 | 11427 | 9759  | 8678  | 8165  | 8317  | 8561  |
| C90      | 16490 | 15364 | 14919 | 13589 | 11821 | 10733 | 10344 | 10845 | 11566 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 24134      | 24134      | 24134   | 29095      | 29095      | 29095   | 75780      | 75780      | 75780   |

Glare Table

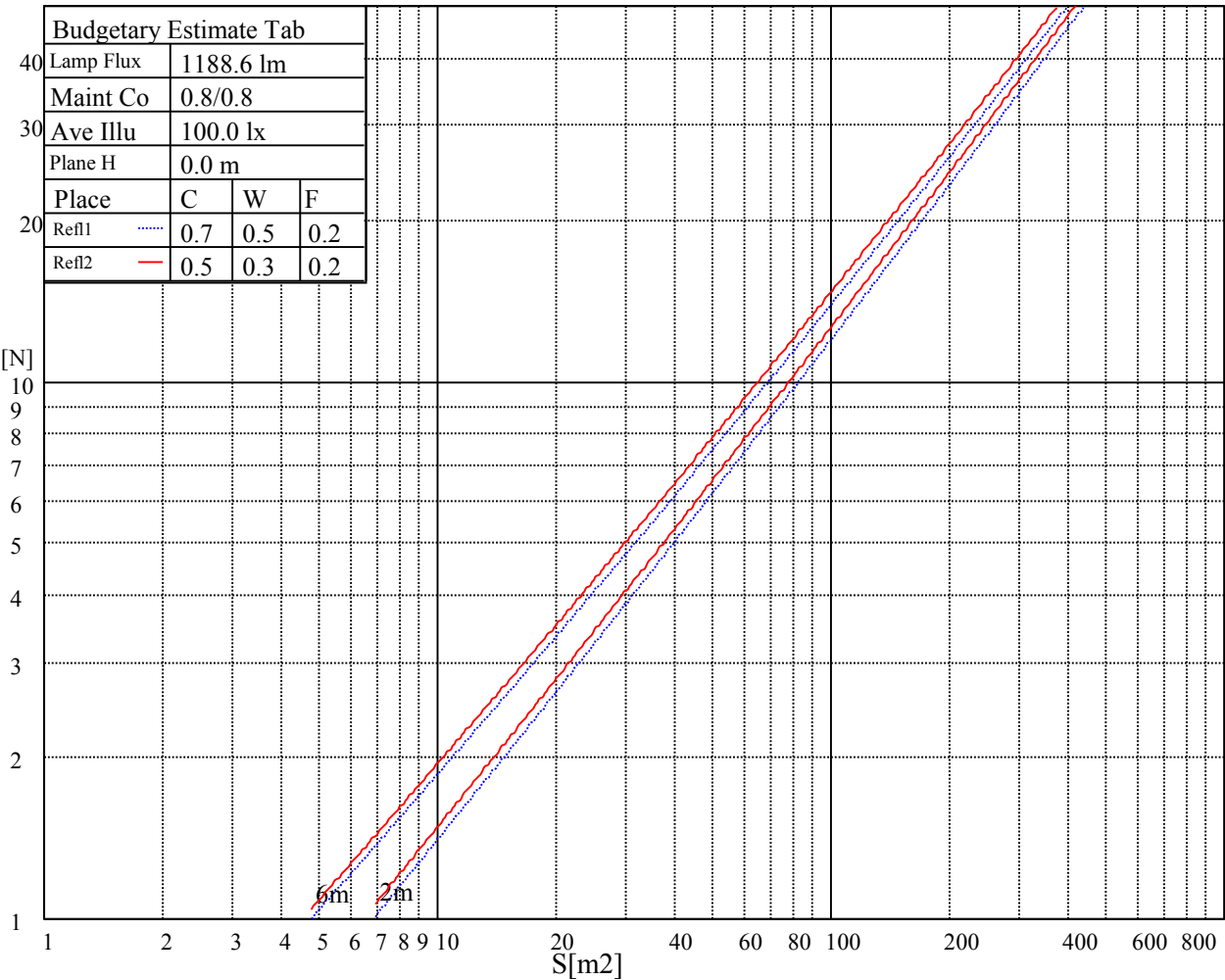
| Glare | Quality | Service Values Illuminance(lx) |      |      |       |       |       |       |       |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15  | A       | 2000                           | 1000 | 500  | <=300 |       |       |       |       |
| 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

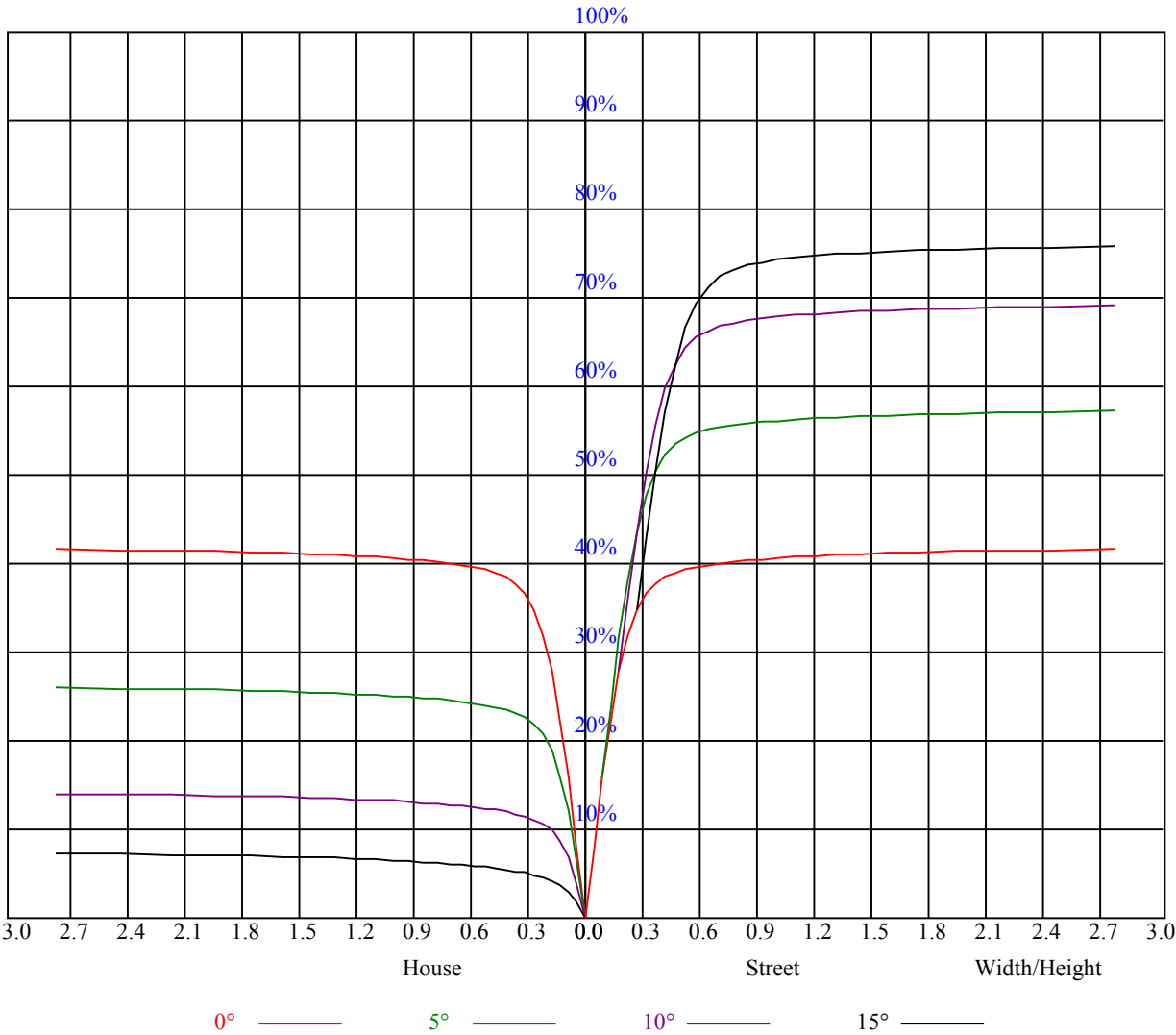


| Illumination assessment according UGR             |     |                  |       |       |       |       |                |       |       |       |       |
|---------------------------------------------------|-----|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Rf of Ceiling                                     |     | 70               | 70    | 50    | 50    | 30    | 70             | 70    | 50    | 50    | 30    |
| Rf of Wall                                        |     | 50               | 30    | 50    | 30    | 30    | 50             | 30    | 50    | 30    | 30    |
| Rf of Floor                                       |     | 20               | 20    | 20    | 20    | 20    | 20             | 20    | 20    | 20    | 20    |
| Room dimensions                                   |     | Viewed crosswise |       |       |       |       | Viewed endwise |       |       |       |       |
| X                                                 | Y   |                  |       |       |       |       |                |       |       |       |       |
| 2H                                                | 2H  | 14.03            | 15.01 | 14.39 | 15.32 | 15.63 | 13.91          | 14.89 | 14.27 | 15.20 | 15.52 |
|                                                   | 3H  | 15.53            | 16.41 | 15.92 | 16.74 | 17.09 | 15.43          | 16.30 | 15.81 | 16.64 | 16.98 |
|                                                   | 4H  | 16.27            | 17.08 | 16.67 | 17.44 | 17.80 | 16.23          | 17.04 | 16.63 | 17.39 | 17.76 |
|                                                   | 6H  | 17.09            | 17.84 | 17.51 | 18.21 | 18.61 | 17.16          | 17.90 | 17.57 | 18.28 | 18.68 |
|                                                   | 8H  | 17.52            | 18.23 | 17.94 | 18.62 | 19.02 | 17.63          | 18.34 | 18.06 | 18.73 | 19.14 |
|                                                   | 12H | 17.96            | 18.63 | 18.39 | 19.03 | 19.45 | 18.12          | 18.79 | 18.54 | 19.18 | 19.60 |
| 4H                                                | 2H  | 14.54            | 15.35 | 14.94 | 15.70 | 16.07 | 14.45          | 15.26 | 14.85 | 15.61 | 15.98 |
|                                                   | 3H  | 16.21            | 16.89 | 16.63 | 17.29 | 17.71 | 16.13          | 16.82 | 16.56 | 17.21 | 17.63 |
|                                                   | 4H  | 17.14            | 17.74 | 17.58 | 18.16 | 18.61 | 17.13          | 17.72 | 17.57 | 18.15 | 18.60 |
|                                                   | 6H  | 18.11            | 18.63 | 18.58 | 19.09 | 19.54 | 18.20          | 18.72 | 18.67 | 19.18 | 19.63 |
|                                                   | 8H  | 18.66            | 19.14 | 19.14 | 19.60 | 20.08 | 18.79          | 19.28 | 19.28 | 19.74 | 20.21 |
|                                                   | 12H | 19.22            | 19.68 | 19.71 | 20.13 | 20.65 | 19.40          | 19.85 | 19.89 | 20.31 | 20.83 |
| 8H                                                | 4H  | 17.43            | 17.92 | 17.92 | 18.38 | 18.85 | 17.42          | 17.91 | 17.91 | 18.37 | 18.84 |
|                                                   | 6H  | 18.62            | 19.02 | 19.12 | 19.50 | 20.01 | 18.71          | 19.11 | 19.21 | 19.59 | 20.10 |
|                                                   | 8H  | 19.37            | 19.70 | 19.90 | 20.23 | 20.72 | 19.51          | 19.84 | 20.04 | 20.36 | 20.86 |
|                                                   | 12H | 20.11            | 20.38 | 20.66 | 20.89 | 21.42 | 20.29          | 20.56 | 20.84 | 21.07 | 21.60 |
| 12H                                               | 4H  | 17.49            | 17.94 | 17.98 | 18.40 | 18.92 | 17.48          | 17.93 | 17.97 | 18.38 | 18.90 |
|                                                   | 6H  | 18.80            | 19.14 | 19.34 | 19.66 | 20.16 | 18.89          | 19.22 | 19.42 | 19.75 | 20.24 |
|                                                   | 8H  | 19.59            | 19.86 | 20.14 | 20.37 | 20.89 | 19.72          | 19.98 | 20.26 | 20.50 | 21.02 |
| Variation with the observer position at spacings: |     |                  |       |       |       |       |                |       |       |       |       |
| S = 1.0H                                          |     | 0.4/-0.8         |       |       |       |       | 0.4/-0.8       |       |       |       |       |
| S = 1.5H                                          |     | 0.6/-0.9         |       |       |       |       | 0.6/-0.9       |       |       |       |       |
| S = 2.0H                                          |     | 0.7/-0.8         |       |       |       |       | 0.7/-0.8       |       |       |       |       |
| Standard tables:                                  |     | BKBF             |       |       |       |       | BKBF           |       |       |       |       |
| Uncorrected UGR                                   |     | 3.4              |       |       |       |       | 3.4            |       |       |       |       |

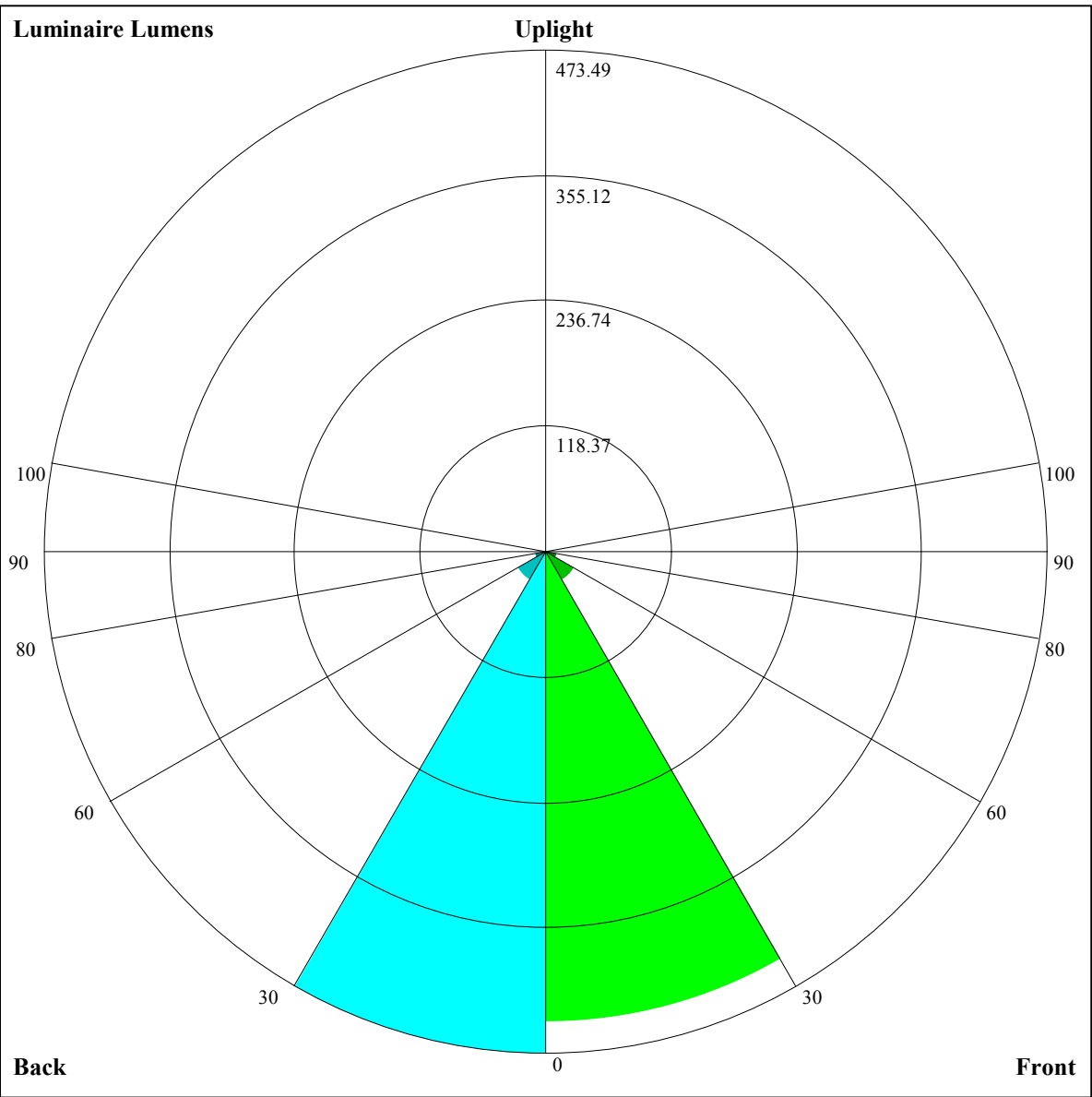
UGR calculation is based on CIE Publ. 117 ,S/H = 0.25



| 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   | COEFFCIENTS OF UTILIZATION RHOFC=20 CU |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 0     | 1.00                                   | 1.00 | 1.00 | 0.98 | 0.98 | 0.98 | 0.94 | 0.94 | 0.94 | 0.90 | 0.90 | 0.90 | 0.86 | 0.86 | 0.86 | 0.84 |
| 1     | 0.94                                   | 0.93 | 0.91 | 0.93 | 0.91 | 0.90 | 0.89 | 0.88 | 0.87 | 0.86 | 0.85 | 0.84 | 0.83 | 0.83 | 0.82 | 0.80 |
| 2     | 0.90                                   | 0.87 | 0.85 | 0.88 | 0.86 | 0.84 | 0.86 | 0.84 | 0.82 | 0.83 | 0.82 | 0.80 | 0.81 | 0.80 | 0.79 | 0.77 |
| 3     | 0.86                                   | 0.83 | 0.80 | 0.85 | 0.82 | 0.79 | 0.83 | 0.80 | 0.78 | 0.81 | 0.79 | 0.77 | 0.79 | 0.77 | 0.76 | 0.75 |
| 4     | 0.82                                   | 0.79 | 0.76 | 0.82 | 0.78 | 0.76 | 0.80 | 0.77 | 0.75 | 0.78 | 0.76 | 0.74 | 0.77 | 0.75 | 0.73 | 0.72 |
| 5     | 0.80                                   | 0.76 | 0.73 | 0.79 | 0.75 | 0.73 | 0.77 | 0.75 | 0.72 | 0.76 | 0.74 | 0.72 | 0.75 | 0.73 | 0.71 | 0.70 |
| 6     | 0.77                                   | 0.73 | 0.71 | 0.76 | 0.73 | 0.71 | 0.75 | 0.72 | 0.70 | 0.74 | 0.72 | 0.70 | 0.73 | 0.71 | 0.69 | 0.68 |
| 7     | 0.75                                   | 0.71 | 0.69 | 0.74 | 0.71 | 0.68 | 0.73 | 0.70 | 0.68 | 0.72 | 0.70 | 0.68 | 0.72 | 0.69 | 0.67 | 0.67 |
| 8     | 0.73                                   | 0.69 | 0.67 | 0.72 | 0.69 | 0.67 | 0.71 | 0.68 | 0.66 | 0.71 | 0.68 | 0.66 | 0.70 | 0.68 | 0.66 | 0.65 |
| 9     | 0.71                                   | 0.67 | 0.65 | 0.70 | 0.67 | 0.65 | 0.70 | 0.67 | 0.65 | 0.69 | 0.66 | 0.64 | 0.68 | 0.66 | 0.64 | 0.64 |
| 10    | 0.69                                   | 0.66 | 0.63 | 0.69 | 0.65 | 0.63 | 0.68 | 0.65 | 0.63 | 0.68 | 0.65 | 0.63 | 0.67 | 0.65 | 0.63 | 0.62 |







Luminaire Lumens:

FL=443.87,FM=30.22,FH=11.12,FVH=4.23

BL=473.49,BM=30.78,BH=11.34,BVH=4.48

UL=0,UH=0

BUG Rating:B1-U0-G0

## Intensity data(cd)

Appendix Page: 18 Total:20

| C/ $\gamma$ (°) | 0.0     | 1.0     | 2.0     | 3.0     | 4.0     | 5.0     | 6.0     | 7.0     | 8.0     |
|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0.0             | 5512.29 | 5432.12 | 5302.78 | 5074.54 | 4836.36 | 4483.47 | 4182.08 | 3859.62 | 3524.28 |
| 45.0            | 5546.24 | 5517.56 | 5440.90 | 5316.83 | 5097.95 | 4869.13 | 4604.61 | 4233.58 | 3916.97 |
| 90.0            | 5512.29 | 5426.26 | 5258.89 | 5083.91 | 4854.50 | 4590.56 | 4232.99 | 3915.80 | 3586.90 |
| 135.0           | 5543.31 | 5537.46 | 5477.76 | 5364.23 | 5150.04 | 4927.07 | 4668.40 | 4307.31 | 3997.15 |
| 180.0           | 5512.29 | 5544.48 | 5515.22 | 5435.04 | 5305.12 | 5126.04 | 4842.21 | 4564.81 | 4256.40 |
| 225.0           | 5546.24 | 5513.46 | 5437.97 | 5318.00 | 5153.55 | 4893.12 | 4632.70 | 4257.57 | 3934.53 |
| 270.0           | 5512.29 | 5543.31 | 5534.53 | 5453.19 | 5338.48 | 5141.26 | 4931.75 | 4696.49 | 4341.26 |
| 315.0           | 5543.31 | 5496.49 | 5402.27 | 5213.83 | 5012.51 | 4771.98 | 4420.26 | 4111.26 | 3784.71 |
| 360.0           | 5512.29 | 5432.12 | 5302.78 | 5074.54 | 4836.36 | 4483.47 | 4182.08 | 3859.62 | 3524.28 |
| C/ $\gamma$ (°) | 9.0     | 10.0    | 11.0    | 12.0    | 13.0    | 14.0    | 15.0    | 16.0    | 17.0    |
| 0.0             | 3094.73 | 2751.79 | 2415.28 | 2091.07 | 1714.18 | 1138.50 | 1138.50 | 923.95  | 743.24  |
| 45.0            | 3588.66 | 3164.37 | 2826.11 | 2490.78 | 2085.80 | 1780.31 | 1494.72 | 1175.19 | 950.46  |
| 90.0            | 3168.47 | 2830.79 | 2499.55 | 2103.94 | 1802.55 | 1158.98 | 1158.98 | 993.01  | 800.94  |
| 135.0           | 3671.17 | 3332.91 | 2996.41 | 2580.90 | 2257.27 | 1875.12 | 1593.63 | 1330.86 | 1040.59 |
| 180.0           | 3852.01 | 3514.92 | 3165.54 | 2726.04 | 2386.02 | 2062.98 | 1698.38 | 1420.40 | 1171.09 |
| 225.0           | 3596.85 | 3169.05 | 2820.26 | 2486.09 | 2163.05 | 1783.24 | 1127.32 | 1127.32 | 1016.30 |
| 270.0           | 4035.77 | 3714.48 | 3383.83 | 2955.44 | 2618.94 | 2300.58 | 1995.09 | 1638.10 | 1383.53 |
| 315.0           | 3452.30 | 3029.18 | 2696.78 | 2375.49 | 2068.83 | 1711.84 | 1152.54 | 1152.54 | 993.95  |
| 360.0           | 3094.73 | 2751.79 | 2415.28 | 2091.07 | 1714.18 | 1138.50 | 1138.50 | 923.95  | 743.24  |
| C/ $\gamma$ (°) | 18.0    | 19.0    | 20.0    | 21.0    | 22.0    | 23.0    | 24.0    | 25.0    | 26.0    |
| 0.0             | 592.01  | 442.55  | 349.55  | 277.57  | 212.14  | 174.75  | 146.77  | 126.12  | 106.34  |
| 45.0            | 759.68  | 601.67  | 446.00  | 349.44  | 309.64  | 309.64  | 167.49  | 140.04  | 119.74  |
| 90.0            | 600.09  | 471.57  | 369.34  | 289.63  | 216.42  | 175.22  | 145.19  | 123.19  | 103.53  |
| 135.0           | 842.78  | 676.58  | 506.86  | 399.18  | 315.49  | 297.35  | 297.35  | 156.02  | 131.79  |
| 180.0           | 898.38  | 717.54  | 571.24  | 447.76  | 327.20  | 307.30  | 307.30  | 166.79  | 133.37  |
| 225.0           | 770.92  | 610.39  | 480.70  | 377.94  | 280.50  | 223.79  | 181.71  | 144.90  | 123.07  |
| 270.0           | 1150.61 | 891.94  | 715.79  | 537.88  | 423.18  | 331.88  | 296.18  | 296.18  | 163.45  |
| 315.0           | 762.49  | 576.10  | 457.70  | 363.48  | 290.10  | 221.39  | 181.36  | 151.51  | 128.75  |
| 360.0           | 592.01  | 442.55  | 349.55  | 277.57  | 212.14  | 174.75  | 146.77  | 126.12  | 106.34  |
| C/ $\gamma$ (°) | 27.0    | 28.0    | 29.0    | 30.0    | 31.0    | 32.0    | 33.0    | 34.0    | 35.0    |
| 0.0             | 93.87   | 83.57   | 74.79   | 65.37   | 59.11   | 53.72   | 47.81   | 43.66   | 39.15   |
| 45.0            | 101.36  | 89.48   | 77.48   | 69.58   | 62.79   | 57.00   | 50.39   | 46.00   | 42.08   |
| 90.0            | 91.41   | 81.23   | 70.46   | 63.56   | 57.47   | 50.91   | 46.41   | 42.37   | 37.98   |
| 135.0           | 113.59  | 99.31   | 85.09   | 75.61   | 65.60   | 59.05   | 53.43   | 47.29   | 43.13   |
| 180.0           | 114.12  | 99.72   | 85.44   | 76.14   | 66.36   | 59.58   | 53.78   | 48.75   | 43.31   |
| 225.0           | 103.12  | 90.48   | 80.00   | 71.40   | 62.50   | 56.53   | 51.32   | 46.70   | 41.79   |
| 270.0           | 136.59  | 117.05  | 98.61   | 86.73   | 76.90   | 66.66   | 59.81   | 54.19   | 49.28   |
| 315.0           | 107.51  | 94.34   | 83.51   | 74.27   | 64.61   | 58.23   | 52.61   | 46.76   | 42.66   |
| 360.0           | 93.87   | 83.57   | 74.79   | 65.37   | 59.11   | 53.72   | 47.81   | 43.66   | 39.15   |
| C/ $\gamma$ (°) | 36.0    | 37.0    | 38.0    | 39.0    | 40.0    | 41.0    | 42.0    | 43.0    | 44.0    |
| 0.0             | 36.11   | 33.47   | 30.61   | 28.56   | 26.80   | 25.22   | 23.82   | 22.41   | 21.42   |
| 45.0            | 38.57   | 34.94   | 32.42   | 30.14   | 28.09   | 25.93   | 24.46   | 22.88   | 21.95   |
| 90.0            | 35.05   | 32.54   | 30.26   | 27.80   | 26.10   | 24.70   | 23.41   | 22.00   | 21.01   |
| 135.0           | 39.56   | 36.46   | 32.95   | 30.55   | 28.56   | 26.28   | 24.76   | 23.41   | 22.18   |
| 180.0           | 39.85   | 36.75   | 34.12   | 31.19   | 29.14   | 27.21   | 25.69   | 23.99   | 22.82   |
| 225.0           | 38.45   | 35.58   | 32.48   | 30.26   | 28.21   | 26.16   | 24.76   | 23.17   | 22.12   |
| 270.0           | 44.01   | 40.38   | 37.16   | 33.83   | 31.43   | 28.91   | 27.15   | 25.57   | 24.23   |
| 315.0           | 39.21   | 35.35   | 32.77   | 29.96   | 27.97   | 26.28   | 24.76   | 23.12   | 21.95   |
| 360.0           | 36.11   | 33.47   | 30.61   | 28.56   | 26.80   | 25.22   | 23.82   | 22.41   | 21.42   |

## Intensity data(cd)

Appendix Page: 19 Total:20

| C/ $\gamma$ (°) | 45.0  | 46.0  | 47.0  | 48.0  | 49.0  | 50.0  | 51.0  | 52.0  | 53.0  |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.0             | 20.66 | 20.01 | 19.37 | 18.96 | 18.67 | 18.55 | 18.43 | 18.26 | 18.08 |
| 45.0            | 21.01 | 20.19 | 19.72 | 19.43 | 19.49 | 19.61 | 19.37 | 19.08 | 18.61 |
| 90.0            | 20.31 | 19.66 | 19.31 | 18.90 | 18.79 | 18.67 | 18.55 | 18.32 | 17.97 |
| 135.0           | 20.95 | 20.25 | 19.61 | 19.08 | 18.73 | 18.49 | 18.38 | 18.26 | 18.08 |
| 180.0           | 21.83 | 20.83 | 20.25 | 19.90 | 19.84 | 19.96 | 19.84 | 19.61 | 19.25 |
| 225.0           | 21.19 | 20.48 | 19.78 | 19.37 | 19.20 | 18.96 | 18.79 | 18.73 | 18.61 |
| 270.0           | 22.82 | 21.83 | 21.07 | 20.54 | 20.01 | 19.72 | 19.55 | 19.37 | 19.25 |
| 315.0           | 21.01 | 20.19 | 19.43 | 19.08 | 18.84 | 18.84 | 18.84 | 18.67 | 18.38 |
| 360.0           | 20.66 | 20.01 | 19.37 | 18.96 | 18.67 | 18.55 | 18.43 | 18.26 | 18.08 |
| C/ $\gamma$ (°) | 54.0  | 55.0  | 56.0  | 57.0  | 58.0  | 59.0  | 60.0  | 61.0  | 62.0  |
| 0.0             | 17.79 | 17.50 | 17.15 | 16.74 | 16.33 | 15.68 | 15.16 | 14.57 | 14.05 |
| 45.0            | 17.97 | 17.44 | 16.97 | 16.50 | 16.09 | 15.68 | 15.04 | 14.51 | 13.81 |
| 90.0            | 17.62 | 17.21 | 16.68 | 16.27 | 15.74 | 15.16 | 14.51 | 13.93 | 13.34 |
| 135.0           | 17.85 | 17.50 | 17.21 | 16.80 | 16.27 | 15.80 | 15.33 | 14.75 | 14.10 |
| 180.0           | 18.79 | 18.02 | 17.38 | 16.80 | 16.33 | 15.86 | 15.45 | 14.98 | 14.28 |
| 225.0           | 18.43 | 18.02 | 17.67 | 17.21 | 16.80 | 16.27 | 15.63 | 15.04 | 14.46 |
| 270.0           | 19.08 | 18.67 | 18.26 | 17.91 | 17.32 | 16.85 | 16.33 | 15.74 | 14.98 |
| 315.0           | 18.02 | 17.67 | 17.21 | 16.80 | 16.33 | 15.86 | 15.16 | 14.63 | 14.05 |
| 360.0           | 17.79 | 17.50 | 17.15 | 16.74 | 16.33 | 15.68 | 15.16 | 14.57 | 14.05 |
| C/ $\gamma$ (°) | 63.0  | 64.0  | 65.0  | 66.0  | 67.0  | 68.0  | 69.0  | 70.0  | 71.0  |
| 0.0             | 13.40 | 12.87 | 12.41 | 11.82 | 11.41 | 10.94 | 10.59 | 10.30 | 10.01 |
| 45.0            | 13.28 | 12.76 | 12.29 | 11.70 | 11.29 | 10.94 | 10.59 | 10.24 | 9.95  |
| 90.0            | 12.82 | 12.41 | 11.82 | 11.47 | 11.12 | 10.77 | 10.53 | 10.30 | 10.07 |
| 135.0           | 13.52 | 12.93 | 12.47 | 12.06 | 11.59 | 11.24 | 10.89 | 10.53 | 10.30 |
| 180.0           | 13.69 | 13.17 | 12.52 | 12.00 | 11.59 | 11.18 | 10.77 | 10.53 | 10.30 |
| 225.0           | 13.87 | 13.23 | 12.70 | 12.17 | 11.76 | 11.29 | 10.89 | 10.65 | 10.30 |
| 270.0           | 14.40 | 13.81 | 13.28 | 12.64 | 12.23 | 11.82 | 11.35 | 11.00 | 10.77 |
| 315.0           | 13.52 | 12.87 | 12.47 | 12.00 | 11.41 | 11.06 | 10.65 | 10.42 | 10.12 |
| 360.0           | 13.40 | 12.87 | 12.41 | 11.82 | 11.41 | 10.94 | 10.59 | 10.30 | 10.01 |
| C/ $\gamma$ (°) | 72.0  | 73.0  | 74.0  | 75.0  | 76.0  | 77.0  | 78.0  | 79.0  | 80.0  |
| 0.0             | 9.66  | 9.42  | 9.19  | 8.90  | 8.54  | 8.37  | 8.31  | 8.13  | 8.02  |
| 45.0            | 9.71  | 9.42  | 9.19  | 8.95  | 8.66  | 8.37  | 8.37  | 8.31  | 8.31  |
| 90.0            | 9.77  | 9.66  | 9.42  | 9.25  | 8.95  | 8.95  | 8.84  | 8.72  | 8.60  |
| 135.0           | 10.07 | 9.83  | 9.60  | 9.42  | 9.31  | 9.07  | 8.95  | 8.95  | 8.95  |
| 180.0           | 10.01 | 9.77  | 9.60  | 9.42  | 9.31  | 9.25  | 9.19  | 9.42  | 9.66  |
| 225.0           | 10.01 | 9.77  | 9.48  | 9.19  | 8.95  | 8.66  | 8.54  | 8.49  | 8.43  |
| 270.0           | 10.42 | 10.18 | 9.83  | 9.66  | 9.42  | 9.19  | 8.90  | 8.84  | 8.78  |
| 315.0           | 9.83  | 9.54  | 9.31  | 9.01  | 8.78  | 8.49  | 8.54  | 8.54  | 8.54  |
| 360.0           | 9.66  | 9.42  | 9.19  | 8.90  | 8.54  | 8.37  | 8.31  | 8.13  | 8.02  |
| C/ $\gamma$ (°) | 81.0  | 82.0  | 83.0  | 84.0  | 85.0  | 86.0  | 87.0  | 88.0  | 89.0  |
| 0.0             | 7.90  | 7.72  | 7.55  | 7.43  | 7.32  | 7.20  | 7.08  | 7.14  | 6.73  |
| 45.0            | 8.19  | 8.13  | 8.02  | 7.96  | 7.90  | 7.78  | 7.72  | 7.72  | 7.49  |
| 90.0            | 8.43  | 8.25  | 8.08  | 7.96  | 7.72  | 7.55  | 7.61  | 7.43  | 6.85  |
| 135.0           | 8.90  | 8.84  | 8.66  | 8.43  | 8.31  | 8.08  | 7.90  | 7.72  | 7.49  |
| 180.0           | 9.83  | 9.89  | 9.83  | 9.83  | 9.66  | 9.66  | 9.60  | 9.54  | 9.60  |
| 225.0           | 8.25  | 8.13  | 8.08  | 7.84  | 7.61  | 7.43  | 7.26  | 7.26  | 6.91  |
| 270.0           | 8.72  | 8.60  | 8.43  | 8.31  | 8.13  | 7.96  | 7.84  | 7.84  | 7.67  |
| 315.0           | 8.43  | 8.31  | 8.19  | 8.19  | 8.08  | 8.02  | 8.02  | 7.96  | 6.79  |
| 360.0           | 7.90  | 7.72  | 7.55  | 7.43  | 7.32  | 7.20  | 7.08  | 7.14  | 6.73  |

Intensity data(cd)

|                       |      |
|-----------------------|------|
| C/ $\gamma(^{\circ})$ | 90.0 |
| 0.0                   | 6.26 |
| 45.0                  | 6.26 |
| 90.0                  | 6.50 |
| 135.0                 | 7.08 |
| 180.0                 | 7.78 |
| 225.0                 | 6.67 |
| 270.0                 | 6.79 |
| 315.0                 | 6.09 |
| 360.0                 | 6.26 |