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## Nata

Client: NT

LumCAT: 1-1546-L & 92.70.395.00

Luminaire: 92.70.458.00 LED HOLDER

Report No: 20240904-B018

Ballast type: AC

Test No: 20240904-C018

Voltage(V): 33.610

LampCAT: CREE CXA1310 LES6

Current(A): 0.250

Lamp flux(lm): 963.0

Power (W): 8.402

Number of Lamps: 1

PF: 0.000

Length(mm): 35

Width(mm): 35

Phm Type: C

Height(mm): 24

## Photometric Results

Lumens(lm): 878.75, Efficiency(%): 91.25% , Luminous Efficacy(lm/W): 104.59

Central intensity(cd): 1381.500, Maximum intensity(cd): 1391.940

Angle of maximum intensity: C=0.0  $\gamma$ =6.0

Beam Angle(50%Imax): [C0/180]Total=49.4

[C90/270]Total=49.4

Field angle(10%Imax): [C0/180]Total=67.6

[C90/270]Total=67.6

Maximum s/h(1/2): C0\_180=0.82 C90\_270=0.82

Maximum s/h(1/4): C0\_180=0.73 C90\_270=0.73

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 91.25%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 99.434%

Equipment: GMS 1800  
Temperature(°C): 25.0

Date: 2024/9/4  
Humidity(%): 60.0%

Operator: NT  
Distance(m): 7.25

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 1381.500      | 0.000       | 0         | 0.00%       | 0.00%      |
| 1.0                | 1383.025      | 1.323       | 1.323     | 0.14%       | 0.15%      |
| 2.0                | 1383.031      | 3.970       | 5.293     | 0.41%       | 0.60%      |
| 3.0                | 1387.413      | 6.626       | 11.919    | 0.69%       | 1.36%      |
| 4.0                | 1390.488      | 9.299       | 21.217    | 0.97%       | 2.41%      |
| 5.0                | 1391.671      | 11.969      | 33.186    | 1.24%       | 3.78%      |
| 6.0                | 1391.940      | 14.629      | 47.815    | 1.52%       | 5.44%      |
| 7.0                | 1390.981      | 17.274      | 65.088    | 1.79%       | 7.41%      |
| 8.0                | 1387.565      | 19.886      | 84.974    | 2.06%       | 9.67%      |
| 9.0                | 1380.456      | 22.433      | 107.407   | 2.33%       | 12.22%     |
| 10.0               | 1369.523      | 24.886      | 132.293   | 2.58%       | 15.05%     |
| 11.0               | 1355.797      | 27.232      | 159.525   | 2.83%       | 18.15%     |
| 12.0               | 1339.010      | 29.458      | 188.983   | 3.06%       | 21.51%     |
| 13.0               | 1316.231      | 31.511      | 220.494   | 3.27%       | 25.09%     |
| 14.0               | 1290.613      | 33.367      | 253.861   | 3.46%       | 28.89%     |
| 15.0               | 1255.633      | 34.956      | 288.817   | 3.63%       | 32.87%     |
| 16.0               | 1224.654      | 36.343      | 325.161   | 3.77%       | 37.00%     |
| 17.0               | 1184.227      | 37.513      | 362.673   | 3.90%       | 41.27%     |
| 18.0               | 1130.968      | 38.173      | 400.846   | 3.96%       | 45.62%     |
| 19.0               | 1092.347      | 38.681      | 439.527   | 4.02%       | 50.02%     |
| 20.0               | 1027.978      | 38.808      | 478.335   | 4.03%       | 54.43%     |
| 21.0               | 977.124       | 38.502      | 516.837   | 4.00%       | 58.81%     |
| 22.0               | 905.402       | 37.830      | 554.667   | 3.93%       | 63.12%     |
| 23.0               | 828.339       | 36.379      | 591.046   | 3.78%       | 67.26%     |
| 24.0               | 746.342       | 34.428      | 625.474   | 3.58%       | 71.18%     |
| 25.0               | 661.841       | 32.019      | 657.493   | 3.32%       | 74.82%     |
| 26.0               | 582.951       | 29.383      | 686.876   | 3.05%       | 78.16%     |
| 27.0               | 503.660       | 26.584      | 713.46    | 2.76%       | 81.19%     |
| 28.0               | 429.981       | 23.638      | 737.098   | 2.45%       | 83.88%     |
| 29.0               | 360.815       | 20.689      | 757.788   | 2.15%       | 86.23%     |
| 30.0               | 303.509       | 17.937      | 775.724   | 1.86%       | 88.28%     |
| 31.0               | 261.032       | 15.710      | 791.435   | 1.63%       | 90.06%     |
| 32.0               | 212.681       | 13.571      | 805.006   | 1.41%       | 91.61%     |
| 33.0               | 181.584       | 11.615      | 816.621   | 1.21%       | 92.93%     |
| 34.0               | 129.856       | 9.425       | 826.046   | 0.98%       | 94.00%     |
| 35.0               | 104.409       | 7.275       | 833.322   | 0.76%       | 94.83%     |
| 36.0               | 84.836        | 6.026       | 839.347   | 0.63%       | 95.52%     |
| 37.0               | 66.636        | 4.940       | 844.287   | 0.51%       | 96.08%     |

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 38.0               | 54.770        | 4.052       | 848.34    | 0.42%       | 96.54%     |
| 39.0               | 44.632        | 3.393       | 851.733   | 0.35%       | 96.93%     |
| 40.0               | 37.063        | 2.849       | 854.582   | 0.30%       | 97.25%     |
| 41.0               | 30.499        | 2.406       | 856.988   | 0.25%       | 97.52%     |
| 42.0               | 25.828        | 2.046       | 859.034   | 0.21%       | 97.76%     |
| 43.0               | 22.011        | 1.772       | 860.806   | 0.18%       | 97.96%     |
| 44.0               | 18.745        | 1.538       | 862.344   | 0.16%       | 98.13%     |
| 45.0               | 16.498        | 1.354       | 863.699   | 0.14%       | 98.29%     |
| 46.0               | 14.501        | 1.212       | 864.911   | 0.13%       | 98.42%     |
| 47.0               | 12.753        | 1.084       | 865.995   | 0.11%       | 98.55%     |
| 48.0               | 11.255        | 0.971       | 866.966   | 0.10%       | 98.66%     |
| 49.0               | 9.993         | 0.873       | 867.838   | 0.09%       | 98.76%     |
| 50.0               | 8.909         | 0.788       | 868.626   | 0.08%       | 98.85%     |
| 51.0               | 7.990         | 0.715       | 869.341   | 0.07%       | 98.93%     |
| 52.0               | 7.208         | 0.652       | 869.993   | 0.07%       | 99.00%     |
| 53.0               | 6.551         | 0.598       | 870.592   | 0.06%       | 99.07%     |
| 54.0               | 6.038         | 0.555       | 871.147   | 0.06%       | 99.13%     |
| 55.0               | 5.473         | 0.514       | 871.661   | 0.05%       | 99.19%     |
| 56.0               | 5.046         | 0.475       | 872.136   | 0.05%       | 99.25%     |
| 57.0               | 4.737         | 0.447       | 872.583   | 0.05%       | 99.30%     |
| 58.0               | 4.382         | 0.422       | 873.005   | 0.04%       | 99.35%     |
| 59.0               | 4.106         | 0.397       | 873.402   | 0.04%       | 99.39%     |
| 60.0               | 3.804         | 0.374       | 873.776   | 0.04%       | 99.43%     |
| 61.0               | 3.561         | 0.351       | 874.127   | 0.04%       | 99.47%     |
| 62.0               | 3.338         | 0.332       | 874.459   | 0.03%       | 99.51%     |
| 63.0               | 3.108         | 0.313       | 874.773   | 0.03%       | 99.55%     |
| 64.0               | 2.950         | 0.297       | 875.07    | 0.03%       | 99.58%     |
| 65.0               | 2.740         | 0.282       | 875.352   | 0.03%       | 99.61%     |
| 66.0               | 2.582         | 0.266       | 875.617   | 0.03%       | 99.64%     |
| 67.0               | 2.424         | 0.252       | 875.869   | 0.03%       | 99.67%     |
| 68.0               | 2.293         | 0.239       | 876.108   | 0.02%       | 99.70%     |
| 69.0               | 2.162         | 0.227       | 876.335   | 0.02%       | 99.73%     |
| 70.0               | 2.037         | 0.216       | 876.551   | 0.02%       | 99.75%     |
| 71.0               | 1.905         | 0.204       | 876.755   | 0.02%       | 99.77%     |
| 72.0               | 1.833         | 0.194       | 876.949   | 0.02%       | 99.79%     |
| 73.0               | 1.708         | 0.185       | 877.134   | 0.02%       | 99.82%     |
| 74.0               | 1.577         | 0.173       | 877.307   | 0.02%       | 99.84%     |
| 75.0               | 1.445         | 0.160       | 877.467   | 0.02%       | 99.85%     |

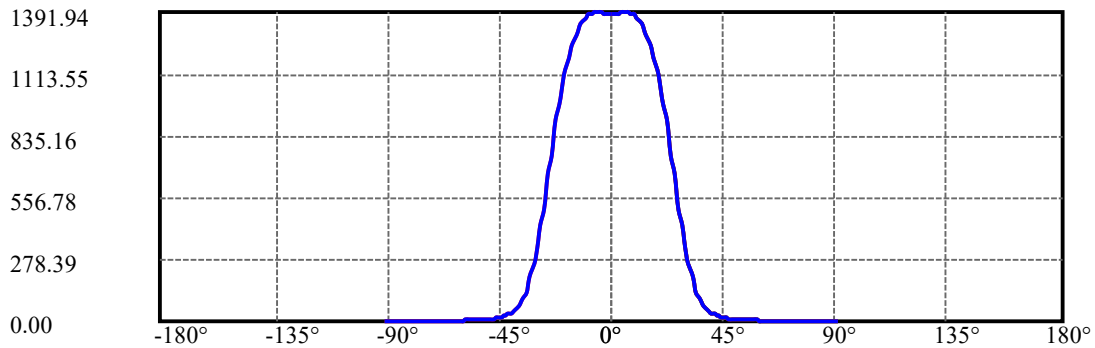
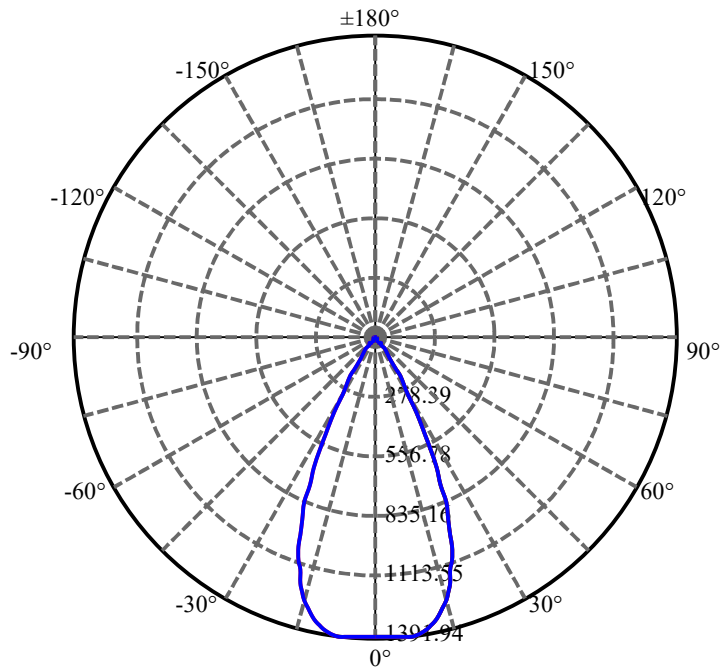
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0               | 1.360         | 0.149       | 877.616   | 0.02%       | 99.87%     |
| 77.0               | 1.268         | 0.140       | 877.756   | 0.01%       | 99.89%     |
| 78.0               | 1.176         | 0.131       | 877.887   | 0.01%       | 99.90%     |
| 79.0               | 1.071         | 0.121       | 878.007   | 0.01%       | 99.92%     |
| 80.0               | 0.979         | 0.111       | 878.118   | 0.01%       | 99.93%     |
| 81.0               | 0.887         | 0.101       | 878.219   | 0.01%       | 99.94%     |
| 82.0               | 0.821         | 0.093       | 878.311   | 0.01%       | 99.95%     |
| 83.0               | 0.696         | 0.083       | 878.394   | 0.01%       | 99.96%     |
| 84.0               | 0.604         | 0.071       | 878.465   | 0.01%       | 99.97%     |
| 85.0               | 0.539         | 0.062       | 878.527   | 0.01%       | 99.97%     |
| 86.0               | 0.473         | 0.055       | 878.582   | 0.01%       | 99.98%     |
| 87.0               | 0.421         | 0.049       | 878.631   | 0.01%       | 99.99%     |
| 88.0               | 0.388         | 0.044       | 878.676   | 0.00%       | 99.99%     |
| 89.0               | 0.342         | 0.040       | 878.716   | 0.00%       | 100.00%    |
| 90.0               | 0.315         | 0.036       | 878.752   | 0.00%       | 100.00%    |

Zonal flux distribution table

| ZONAL LUMEN SUMMARY |        |        |         |
|---------------------|--------|--------|---------|
| Zone                | Lumens | %Lamp  | %Fixt   |
| 0-30                | 775.72 | 80.55% | 88.28%  |
| 0-40                | 854.58 | 88.74% | 97.25%  |
| 0-60                | 873.78 | 90.73% | 99.43%  |
| 0-90                | 878.72 | 91.25% | 100.00% |
| 0-120               | 878.72 | 91.25% | 100.00% |
| 0-180               | 878.75 | 91.25% | 100.00% |
| 60-90               | 4.94   | 0.51%  | 0.56%   |
| 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%   |
| 0-26.61             | 703.00 | 73.00% | 80.00%  |

ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 132.29 |
| 10-20   | 346.04 |
| 20-30   | 297.39 |
| 30-40   | 78.86  |
| 40-50   | 14.04  |
| 50-60   | 5.15   |
| 60-70   | 2.78   |
| 70-80   | 1.57   |
| 80-90   | 0.60   |
| 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: —————

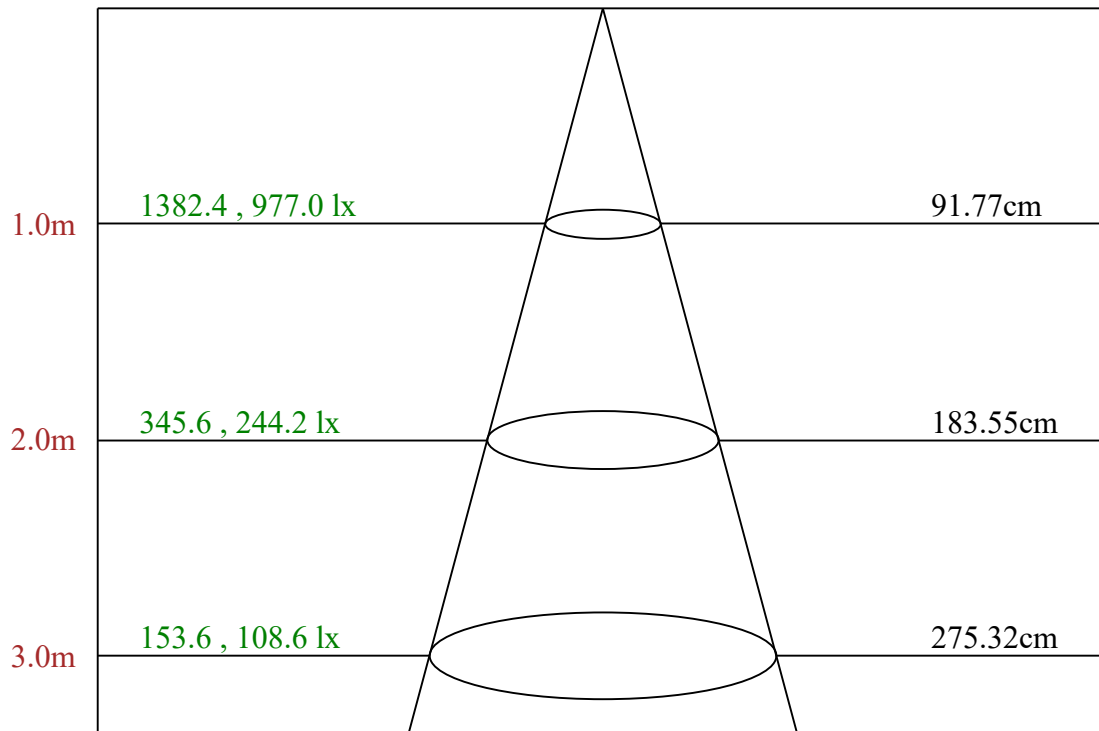
C90/C270: —————

Field angle(10%Imax):C0/180Left:33.8 Right:33.8

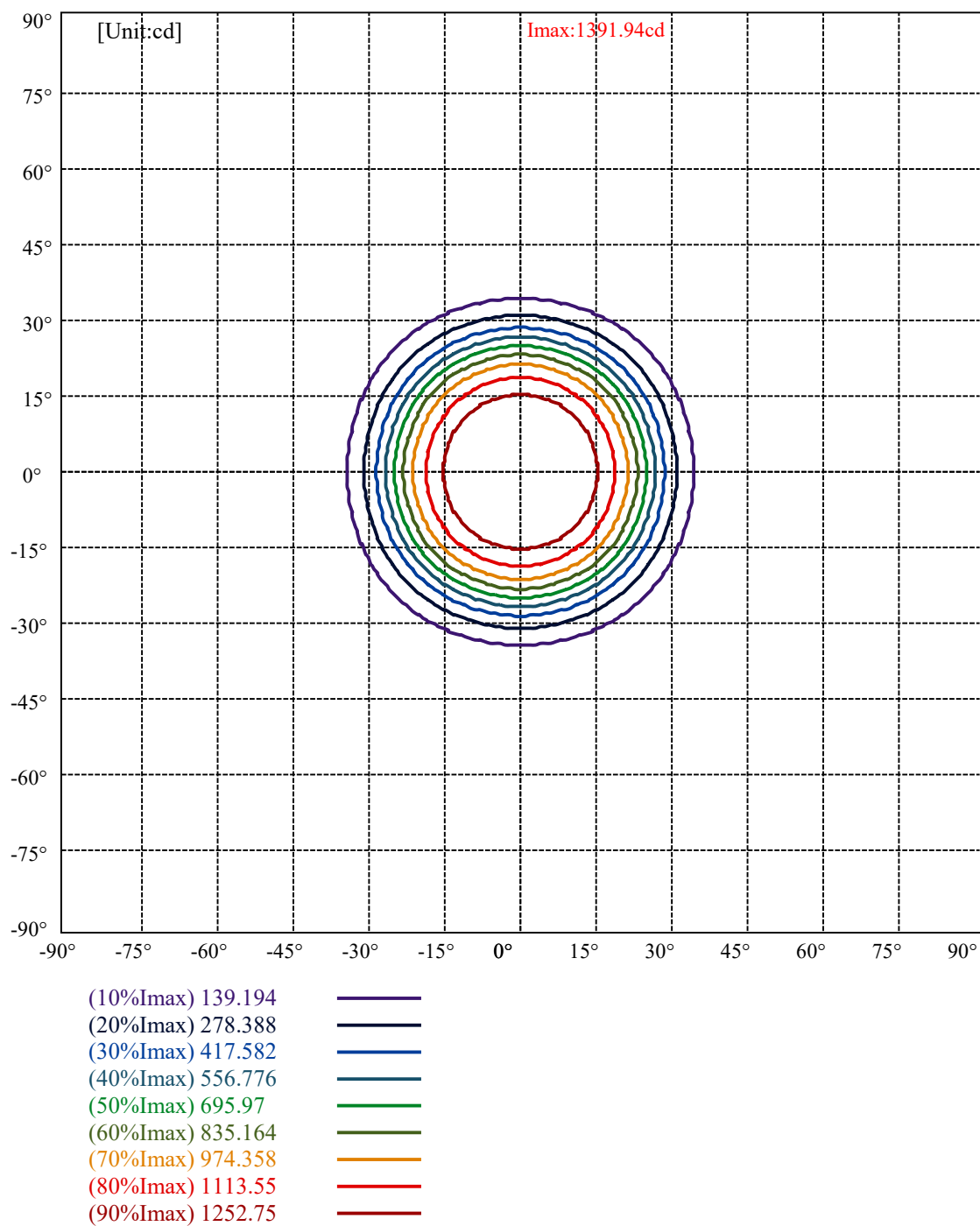
:C90/270Left:33.8 Right:33.8

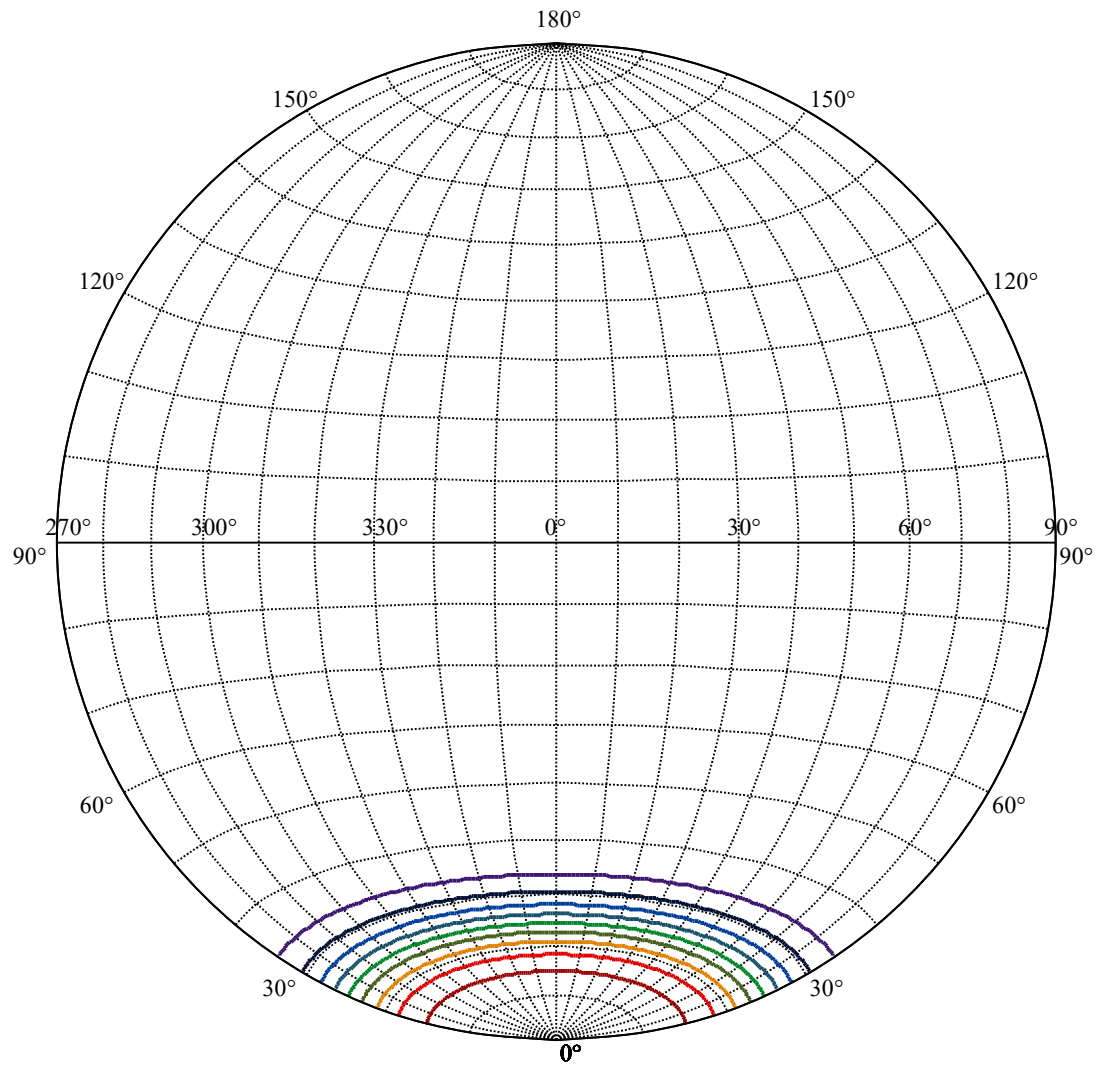
Beam Angle(50%Imax):C0/180Left:24.7 Right:24.7

:C90/270Left:24.7 Right:24.7



Max , Ave      Beam angle of C0 plane 49.30



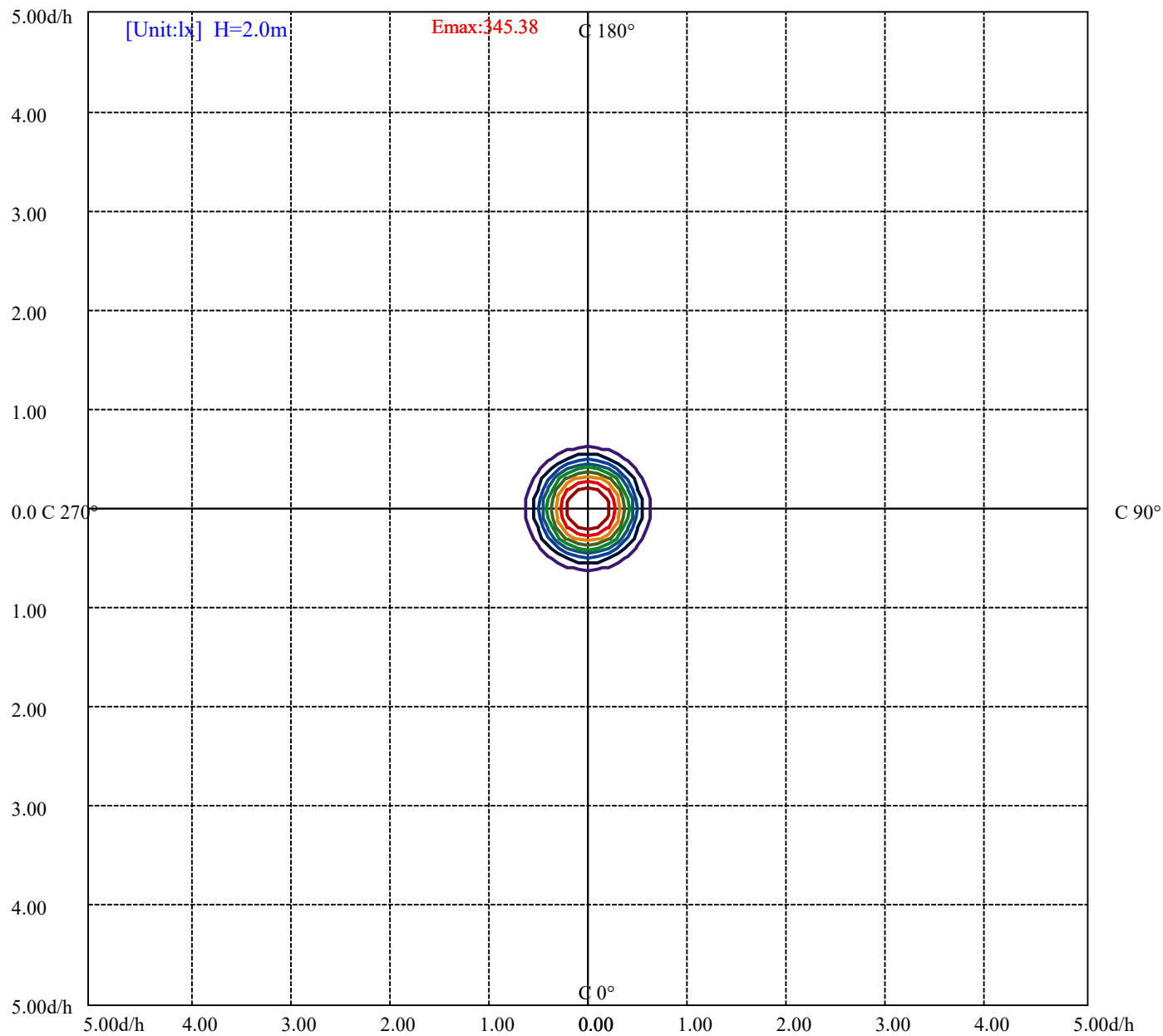


House

[Unit:cd]

Road

|                   |  |
|-------------------|--|
| Imax:1391.94      |  |
| (10%Imax) 139.194 |  |
| (20%Imax) 278.388 |  |
| (30%Imax) 417.582 |  |
| (40%Imax) 556.776 |  |
| (50%Imax) 695.97  |  |
| (60%Imax) 835.164 |  |
| (70%Imax) 974.358 |  |
| (80%Imax) 1113.55 |  |
| (90%Imax) 1252.75 |  |



|           |          |                                                                                     |
|-----------|----------|-------------------------------------------------------------------------------------|
| (10%Emax) | 34.5375  |  |
| (20%Emax) | 69.075   |  |
| (30%Emax) | 103.6125 |  |
| (40%Emax) | 138.15   |  |
| (50%Emax) | 172.6875 |  |
| (60%Emax) | 207.225  |  |
| (70%Emax) | 241.7625 |  |
| (80%Emax) | 276.3    |  |
| (90%Emax) | 310.8375 |  |

Luminance Limiting Curve(no luminous side)

Luminance Table

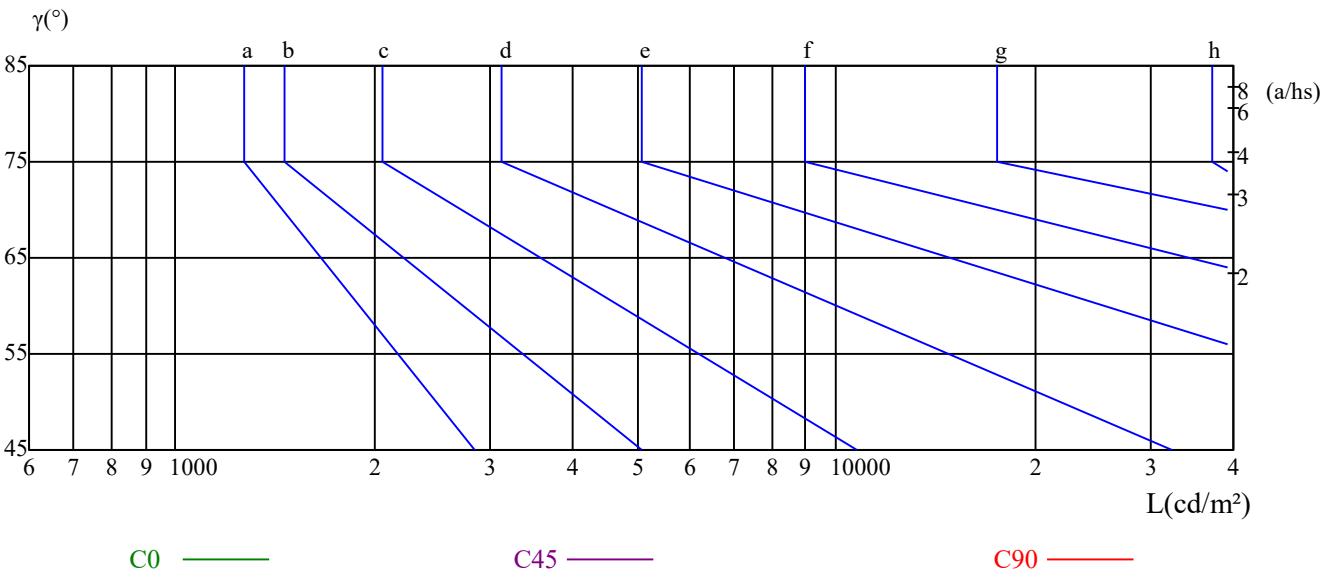
| $\gamma$ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|----|----|----|----|----|----|----|----|----|
| C0       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C45      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C90      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |

| 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

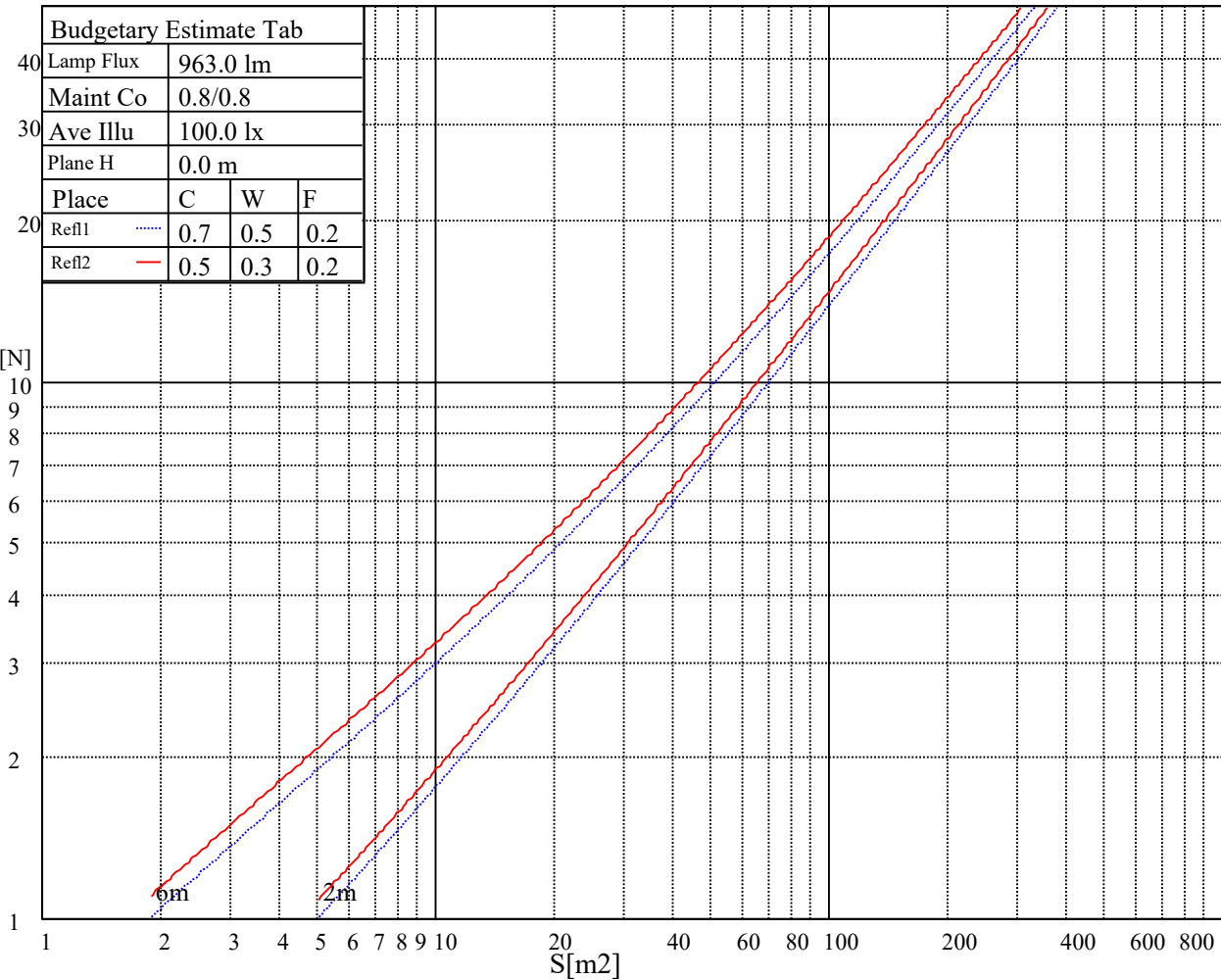
| Glare | Quality | Service Values Illuminance(lx) |      |      |            |            |            |            |            |
|-------|---------|--------------------------------|------|------|------------|------------|------------|------------|------------|
| 1.15  | A       | 2000            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



| 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  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 3H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 4H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 6H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 8H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
| 4H                                                | 12H | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 2H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 3H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 4H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 6H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
| 8H                                                | 8H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 12H | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 4H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 6H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 8H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
| 12H                                               | 12H | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 4H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 6H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
|                                                   | 8H  | 非数字              | 非数字 | 非数字 | 非数字 | 非数字 | 非数字            | 非数字 | 非数字 | 非数字 |  |
| Variation with the observer position at spacings: |     |                  |     |     |     |     |                |     |     |     |  |
| S = 1.0H                                          |     | 非数字/非数字          |     |     |     |     | 非数字/非数字        |     |     |     |  |
| S = 1.5H                                          |     | 非数字/非数字          |     |     |     |     | 非数字/非数字        |     |     |     |  |
| S = 2.0H                                          |     | 非数字/非数字          |     |     |     |     | 非数字/非数字        |     |     |     |  |
| Standard tables:                                  |     | BK0              |     |     |     |     | BK0            |     |     |     |  |
| Uncorrected UGR                                   |     | 负无穷大             |     |     |     |     | 负无穷大           |     |     |     |  |
|                                                   |     |                  |     |     |     |     |                |     |     |     |  |

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



| RHOC | 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    | 1.09                                    | 1.09 | 1.09 | 1.06 | 1.06 | 1.06 | 1.01 | 1.01 | 1.01 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 | 0.91 |
| 1    | 1.02                                    | 1.00 | 0.98 | 1.00 | 0.98 | 0.96 | 0.96 | 0.95 | 0.93 | 0.93 | 0.92 | 0.91 | 0.90 | 0.89 | 0.88 | 0.86 |
| 2    | 0.96                                    | 0.92 | 0.90 | 0.94 | 0.91 | 0.89 | 0.91 | 0.89 | 0.87 | 0.89 | 0.87 | 0.85 | 0.86 | 0.85 | 0.83 | 0.82 |
| 3    | 0.90                                    | 0.86 | 0.83 | 0.89 | 0.85 | 0.82 | 0.87 | 0.84 | 0.81 | 0.85 | 0.82 | 0.80 | 0.83 | 0.81 | 0.79 | 0.77 |
| 4    | 0.85                                    | 0.81 | 0.78 | 0.84 | 0.80 | 0.77 | 0.83 | 0.79 | 0.76 | 0.81 | 0.78 | 0.75 | 0.79 | 0.77 | 0.75 | 0.73 |
| 5    | 0.81                                    | 0.76 | 0.73 | 0.80 | 0.76 | 0.73 | 0.79 | 0.75 | 0.72 | 0.77 | 0.74 | 0.71 | 0.76 | 0.73 | 0.71 | 0.70 |
| 6    | 0.77                                    | 0.72 | 0.69 | 0.76 | 0.72 | 0.69 | 0.75 | 0.71 | 0.68 | 0.74 | 0.70 | 0.68 | 0.73 | 0.70 | 0.67 | 0.66 |
| 7    | 0.73                                    | 0.68 | 0.65 | 0.73 | 0.68 | 0.65 | 0.72 | 0.68 | 0.65 | 0.71 | 0.67 | 0.64 | 0.70 | 0.66 | 0.64 | 0.63 |
| 8    | 0.70                                    | 0.65 | 0.62 | 0.69 | 0.65 | 0.62 | 0.68 | 0.64 | 0.61 | 0.68 | 0.64 | 0.61 | 0.67 | 0.63 | 0.61 | 0.60 |
| 9    | 0.67                                    | 0.62 | 0.59 | 0.66 | 0.62 | 0.59 | 0.65 | 0.61 | 0.59 | 0.65 | 0.61 | 0.58 | 0.64 | 0.61 | 0.58 | 0.57 |
| 10   | 0.64                                    | 0.59 | 0.56 | 0.63 | 0.59 | 0.56 | 0.63 | 0.59 | 0.56 | 0.62 | 0.58 | 0.56 | 0.61 | 0.58 | 0.56 | 0.55 |

| Intensity data(cd) |         |         |         |         |         |         |         |         |         | Appendix Page: 15 Total:17 |  |
|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------------------------|--|
| C/γ(°)             | 0.0     | 1.0     | 2.0     | 3.0     | 4.0     | 5.0     | 6.0     | 7.0     | 8.0     |                            |  |
| 0.0                | 1383.71 | 1382.08 | 1383.71 | 1385.39 | 1390.96 | 1389.28 | 1383.18 | 1382.08 | 1377.61 |                            |  |
| 45.0               | 1384.86 | 1378.14 | 1368.67 | 1360.90 | 1351.43 | 1341.40 | 1333.04 | 1323.58 | 1314.64 |                            |  |
| 90.0               | 1369.78 | 1361.42 | 1342.50 | 1333.56 | 1327.99 | 1315.22 | 1305.71 | 1292.93 | 1277.85 |                            |  |
| 135.0              | 1387.65 | 1377.03 | 1368.67 | 1361.42 | 1354.75 | 1346.39 | 1340.82 | 1329.15 | 1320.79 |                            |  |
| 180.0              | 1383.71 | 1380.92 | 1382.08 | 1386.49 | 1389.86 | 1392.64 | 1394.85 | 1397.64 | 1396.01 |                            |  |
| 225.0              | 1384.86 | 1402.10 | 1414.35 | 1432.22 | 1438.90 | 1454.51 | 1458.92 | 1463.39 | 1463.97 |                            |  |
| 270.0              | 1369.78 | 1381.50 | 1396.01 | 1417.72 | 1435.01 | 1451.72 | 1466.76 | 1483.47 | 1491.25 |                            |  |
| 315.0              | 1387.65 | 1401.00 | 1408.25 | 1421.61 | 1435.01 | 1442.21 | 1452.25 | 1455.61 | 1458.40 |                            |  |
| 360.0              | 1383.71 | 1382.08 | 1383.71 | 1385.39 | 1390.96 | 1389.28 | 1383.18 | 1382.08 | 1377.61 |                            |  |
| C/γ(°)             | 9.0     | 10.0    | 11.0    | 12.0    | 13.0    | 14.0    | 15.0    | 16.0    | 17.0    |                            |  |
| 0.0                | 1366.47 | 1359.21 | 1344.18 | 1325.21 | 1302.92 | 1278.43 | 1246.10 | 1213.25 | 1184.29 |                            |  |
| 45.0               | 1300.13 | 1286.20 | 1272.85 | 1260.61 | 1240.00 | 1221.61 | 1198.21 | 1177.03 | 1145.81 |                            |  |
| 90.0               | 1265.60 | 1243.89 | 1224.92 | 1208.20 | 1185.92 | 1163.63 | 1098.40 | 1098.40 | 1066.44 |                            |  |
| 135.0              | 1310.75 | 1298.50 | 1284.00 | 1269.49 | 1249.99 | 1229.38 | 1202.63 | 1170.88 | 1130.20 |                            |  |
| 180.0              | 1388.75 | 1376.51 | 1363.68 | 1344.71 | 1322.42 | 1292.35 | 1266.70 | 1231.07 | 1186.49 |                            |  |
| 225.0              | 1463.39 | 1448.94 | 1431.07 | 1411.04 | 1384.29 | 1351.43 | 1312.96 | 1264.50 | 1210.46 |                            |  |
| 270.0              | 1496.82 | 1497.93 | 1492.93 | 1476.22 | 1450.57 | 1428.28 | 1397.64 | 1357.01 | 1308.49 |                            |  |
| 315.0              | 1451.72 | 1445.00 | 1432.75 | 1416.61 | 1393.75 | 1359.79 | 1322.42 | 1285.10 | 1241.63 |                            |  |
| 360.0              | 1366.47 | 1359.21 | 1344.18 | 1325.21 | 1302.92 | 1278.43 | 1246.10 | 1213.25 | 1184.29 |                            |  |
| C/γ(°)             | 18.0    | 19.0    | 20.0    | 21.0    | 22.0    | 23.0    | 24.0    | 25.0    | 26.0    |                            |  |
| 0.0                | 1106.34 | 1106.34 | 1024.08 | 984.65  | 914.75  | 841.95  | 763.84  | 679.00  | 597.85  |                            |  |
| 45.0               | 1116.27 | 1084.00 | 1039.95 | 992.59  | 936.35  | 872.27  | 800.37  | 729.04  | 650.51  |                            |  |
| 90.0               | 1018.98 | 986.02  | 908.07  | 869.54  | 801.05  | 698.71  | 653.14  | 574.35  | 499.50  |                            |  |
| 135.0              | 1083.42 | 1029.91 | 967.52  | 902.92  | 831.59  | 785.91  | 672.22  | 584.76  | 534.04  |                            |  |
| 180.0              | 1135.77 | 1106.28 | 1024.92 | 985.34  | 913.48  | 835.48  | 751.33  | 664.44  | 577.50  |                            |  |
| 225.0              | 1091.93 | 1091.93 | 1013.04 | 947.23  | 860.13  | 768.99  | 679.42  | 589.91  | 503.55  |                            |  |
| 270.0              | 1279.00 | 1225.49 | 1137.45 | 1095.14 | 1021.03 | 940.76  | 852.77  | 763.63  | 674.48  |                            |  |
| 315.0              | 1216.03 | 1108.81 | 1108.81 | 1039.58 | 964.84  | 882.63  | 797.64  | 709.59  | 626.18  |                            |  |
| 360.0              | 1106.34 | 1106.34 | 1024.08 | 984.65  | 914.75  | 841.95  | 763.84  | 679.00  | 597.85  |                            |  |
| C/γ(°)             | 27.0    | 28.0    | 29.0    | 30.0    | 31.0    | 32.0    | 33.0    | 34.0    | 35.0    |                            |  |
| 0.0                | 516.90  | 441.31  | 371.09  | 308.59  | 253.61  | 205.62  | 165.26  | 131.25  | 103.34  |                            |  |
| 45.0               | 572.51  | 496.72  | 422.60  | 356.90  | 296.14  | 296.14  | 285.57  | 172.67  | 138.82  |                            |  |
| 90.0               | 425.60  | 360.05  | 299.19  | 245.94  | 200.42  | 161.79  | 129.51  | 103.39  | 81.89   |                            |  |
| 135.0              | 457.71  | 385.86  | 319.00  | 295.61  | 284.47  | 170.62  | 136.93  | 108.80  | 85.99   |                            |  |
| 180.0              | 496.72  | 420.97  | 351.33  | 288.88  | 288.88  | 190.07  | 152.59  | 121.73  | 96.87   |                            |  |
| 225.0              | 427.12  | 357.64  | 294.30  | 240.00  | 194.69  | 157.48  | 127.25  | 102.29  | 82.47   |                            |  |
| 270.0              | 586.97  | 507.33  | 430.96  | 361.31  | 297.82  | 297.82  | 274.95  | 152.54  | 122.31  |                            |  |
| 315.0              | 545.76  | 469.96  | 398.06  | 330.83  | 272.22  | 221.92  | 180.60  | 146.18  | 123.57  |                            |  |
| 360.0              | 516.90  | 441.31  | 371.09  | 308.59  | 253.61  | 205.62  | 165.26  | 131.25  | 103.34  |                            |  |
| C/γ(°)             | 36.0    | 37.0    | 38.0    | 39.0    | 40.0    | 41.0    | 42.0    | 43.0    | 44.0    |                            |  |
| 0.0                | 81.68   | 64.60   | 51.88   | 42.16   | 34.53   | 28.65   | 24.81   | 21.08   | 18.08   |                            |  |
| 45.0               | 109.59  | 86.41   | 68.12   | 54.30   | 43.78   | 35.58   | 29.33   | 24.65   | 20.92   |                            |  |
| 90.0               | 64.55   | 51.46   | 41.63   | 34.11   | 30.54   | 24.23   | 22.02   | 19.03   | 15.93   |                            |  |
| 135.0              | 68.17   | 54.45   | 45.89   | 35.90   | 31.01   | 25.97   | 21.18   | 18.71   | 16.24   |                            |  |
| 180.0              | 80.95   | 65.07   | 50.35   | 42.68   | 34.80   | 28.70   | 24.07   | 20.66   | 18.03   |                            |  |
| 225.0              | 66.54   | 53.98   | 44.10   | 36.06   | 29.59   | 24.44   | 22.02   | 18.76   | 15.35   |                            |  |
| 270.0              | 107.70  | 80.05   | 70.64   | 57.77   | 47.36   | 38.90   | 31.85   | 26.33   | 22.23   |                            |  |
| 315.0              | 99.50   | 77.06   | 65.55   | 54.09   | 44.89   | 37.53   | 31.33   | 26.86   | 23.18   |                            |  |
| 360.0              | 81.68   | 64.60   | 51.88   | 42.16   | 34.53   | 28.65   | 24.81   | 21.08   | 18.08   |                            |  |

## Intensity data(cd)

| C/γ(°) | 45.0  | 46.0  | 47.0  | 48.0  | 49.0  | 50.0  | 51.0 | 52.0 | 53.0 |
|--------|-------|-------|-------|-------|-------|-------|------|------|------|
| 0.0    | 15.82 | 13.93 | 12.19 | 10.78 | 9.57  | 8.57  | 7.67 | 6.94 | 6.41 |
| 45.0   | 17.98 | 15.77 | 13.82 | 12.19 | 10.78 | 9.57  | 8.52 | 7.83 | 6.94 |
| 90.0   | 14.88 | 13.19 | 11.67 | 10.41 | 9.36  | 8.41  | 7.62 | 6.83 | 6.25 |
| 135.0  | 14.24 | 12.56 | 11.04 | 9.67  | 8.57  | 7.67  | 6.94 | 6.20 | 5.73 |
| 180.0  | 15.87 | 14.19 | 12.62 | 11.25 | 10.04 | 8.99  | 8.09 | 7.36 | 6.68 |
| 225.0  | 14.14 | 12.40 | 10.88 | 9.62  | 8.57  | 7.67  | 6.89 | 6.25 | 5.73 |
| 270.0  | 18.92 | 16.35 | 14.35 | 12.51 | 11.04 | 9.83  | 8.83 | 7.88 | 7.15 |
| 315.0  | 20.13 | 17.61 | 15.45 | 13.61 | 12.04 | 10.57 | 9.36 | 8.36 | 7.52 |
| 360.0  | 15.82 | 13.93 | 12.19 | 10.78 | 9.57  | 8.57  | 7.67 | 6.94 | 6.41 |
| C/γ(°) | 54.0  | 55.0  | 56.0  | 57.0  | 58.0  | 59.0  | 60.0 | 61.0 | 62.0 |
| 0.0    | 5.83  | 5.31  | 4.94  | 4.63  | 4.26  | 3.99  | 3.68 | 3.42 | 3.26 |
| 45.0   | 6.36  | 5.83  | 5.20  | 4.89  | 4.52  | 4.21  | 3.94 | 3.63 | 3.42 |
| 90.0   | 5.73  | 5.20  | 4.84  | 4.52  | 4.21  | 3.89  | 3.63 | 3.36 | 3.15 |
| 135.0  | 5.20  | 4.84  | 4.52  | 4.15  | 3.94  | 3.78  | 3.42 | 3.21 | 3.15 |
| 180.0  | 6.10  | 5.62  | 5.15  | 4.94  | 4.57  | 4.15  | 3.99 | 3.73 | 3.42 |
| 225.0  | 5.31  | 4.89  | 4.57  | 4.21  | 3.99  | 3.78  | 3.42 | 3.36 | 3.05 |
| 270.0  | 6.78  | 5.99  | 5.57  | 5.31  | 4.78  | 4.52  | 4.21 | 3.94 | 3.68 |
| 315.0  | 6.99  | 6.10  | 5.57  | 5.26  | 4.78  | 4.52  | 4.15 | 3.84 | 3.57 |
| 360.0  | 5.83  | 5.31  | 4.94  | 4.63  | 4.26  | 3.99  | 3.68 | 3.42 | 3.26 |
| C/γ(°) | 63.0  | 64.0  | 65.0  | 66.0  | 67.0  | 68.0  | 69.0 | 70.0 | 71.0 |
| 0.0    | 3.00  | 2.89  | 2.63  | 2.47  | 2.37  | 2.26  | 2.10 | 2.00 | 1.84 |
| 45.0   | 3.21  | 3.00  | 2.79  | 2.63  | 2.47  | 2.31  | 2.21 | 2.05 | 1.94 |
| 90.0   | 2.94  | 2.84  | 2.63  | 2.47  | 2.37  | 2.21  | 2.05 | 2.00 | 1.84 |
| 135.0  | 2.89  | 2.79  | 2.68  | 2.47  | 2.26  | 2.16  | 2.10 | 2.00 | 1.84 |
| 180.0  | 3.21  | 3.00  | 2.84  | 2.63  | 2.47  | 2.37  | 2.21 | 2.05 | 1.94 |
| 225.0  | 2.94  | 2.79  | 2.47  | 2.42  | 2.26  | 2.16  | 2.05 | 1.89 | 1.79 |
| 270.0  | 3.36  | 3.15  | 3.00  | 2.84  | 2.68  | 2.47  | 2.31 | 2.21 | 2.05 |
| 315.0  | 3.31  | 3.15  | 2.89  | 2.73  | 2.52  | 2.42  | 2.26 | 2.10 | 2.00 |
| 360.0  | 3.00  | 2.89  | 2.63  | 2.47  | 2.37  | 2.26  | 2.10 | 2.00 | 1.84 |
| C/γ(°) | 72.0  | 73.0  | 74.0  | 75.0  | 76.0  | 77.0  | 78.0 | 79.0 | 80.0 |
| 0.0    | 1.79  | 1.68  | 1.52  | 1.37  | 1.31  | 1.21  | 1.10 | 1.00 | 0.95 |
| 45.0   | 1.89  | 1.73  | 1.58  | 1.47  | 1.42  | 1.31  | 1.21 | 1.16 | 1.05 |
| 90.0   | 1.79  | 1.58  | 1.47  | 1.37  | 1.31  | 1.21  | 1.10 | 1.00 | 0.95 |
| 135.0  | 1.73  | 1.68  | 1.52  | 1.37  | 1.26  | 1.16  | 1.10 | 1.05 | 0.95 |
| 180.0  | 1.84  | 1.73  | 1.58  | 1.47  | 1.42  | 1.31  | 1.26 | 1.16 | 1.00 |
| 225.0  | 1.73  | 1.58  | 1.47  | 1.37  | 1.26  | 1.16  | 1.10 | 0.95 | 0.84 |
| 270.0  | 1.94  | 1.89  | 1.79  | 1.58  | 1.47  | 1.42  | 1.31 | 1.16 | 1.05 |
| 315.0  | 1.94  | 1.79  | 1.68  | 1.58  | 1.42  | 1.37  | 1.21 | 1.10 | 1.05 |
| 360.0  | 1.79  | 1.68  | 1.52  | 1.37  | 1.31  | 1.21  | 1.10 | 1.00 | 0.95 |
| C/γ(°) | 81.0  | 82.0  | 83.0  | 84.0  | 85.0  | 86.0  | 87.0 | 88.0 | 89.0 |
| 0.0    | 0.84  | 0.79  | 0.63  | 0.58  | 0.53  | 0.47  | 0.37 | 0.32 | 0.26 |
| 45.0   | 0.89  | 0.84  | 0.68  | 0.63  | 0.53  | 0.47  | 0.42 | 0.42 | 0.37 |
| 90.0   | 0.89  | 0.68  | 0.68  | 0.58  | 0.58  | 0.53  | 0.53 | 0.53 | 0.47 |
| 135.0  | 0.79  | 0.79  | 0.68  | 0.58  | 0.47  | 0.37  | 0.37 | 0.32 | 0.32 |
| 180.0  | 0.95  | 0.79  | 0.63  | 0.53  | 0.47  | 0.42  | 0.37 | 0.37 | 0.32 |
| 225.0  | 0.79  | 0.79  | 0.58  | 0.47  | 0.47  | 0.42  | 0.32 | 0.32 | 0.26 |
| 270.0  | 1.00  | 0.89  | 0.84  | 0.79  | 0.63  | 0.58  | 0.53 | 0.47 | 0.42 |
| 315.0  | 0.95  | 1.00  | 0.84  | 0.68  | 0.63  | 0.53  | 0.47 | 0.37 | 0.32 |
| 360.0  | 0.84  | 0.79  | 0.63  | 0.58  | 0.53  | 0.47  | 0.37 | 0.32 | 0.26 |

Intensity data(cd)

Appendix Page: 17 Total:17

|                 |      |
|-----------------|------|
| C/ $\gamma$ (°) | 90.0 |
| 0.0             | 0.26 |
| 45.0            | 0.32 |
| 90.0            | 0.47 |
| 135.0           | 0.26 |
| 180.0           | 0.32 |
| 225.0           | 0.21 |
| 270.0           | 0.37 |
| 315.0           | 0.32 |
| 360.0           | 0.26 |