



NATA LIGHTING CO.,LED  
www.nata.cn  
Email:info@nata.cn  
Tel:+86 0750-377 0000 ( 10 lines ) Fax:+86 0750-377 1111  
Address:380 JinOu Road, JiangMen City, GuangDong, China 529040

NT

Client:

LumCAT: 2-2897-L

Luminaire: 92.70.411.00 LED HOLDER

Report No: 20250320-B001

Ballast type: AC

Test No: 20250320-C001

Voltage(V): 34.360

LampCAT: LUMILEDS LUXEON 1208

Current(A): 0.576

Lamp flux(lm): 2834.5

Power (W): 19.791

Number of Lamps: 1

PF: 0.000

Length(mm): 69

Width(mm): 69

Phm Type: C

Height(mm): 44

#### Photometric Results

Lumens(lm): 2720.27, Efficiency(%): 95.97% , Luminous Efficacy(lm/W): 137.45

Central intensity(cd): 3997.730, Maximum intensity(cd): 4060.935

Angle of maximum intensity: C=270.0  $\gamma$ =4.0

Beam Angle(50%Imax): [C0/180]Total=50.9

[C90/270]Total=49.6

Field angle(10%Imax): [C0/180]Total=72.9

[C90/270]Total=72.7

Maximum s/h(1/2): C0\_180=0.82 C90\_270=0.79

Maximum s/h(1/4): C0\_180=0.80 C90\_270=0.77

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 95.91%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 98.399%

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 4004.168      | 0.000       | 0         | 0.00%       | 0.00%      |
| 1.0                | 4002.120      | 3.831       | 3.831     | 0.14%       | 0.14%      |
| 2.0                | 4001.169      | 11.487      | 15.318    | 0.41%       | 0.56%      |
| 3.0                | 4005.192      | 19.149      | 34.467    | 0.68%       | 1.27%      |
| 4.0                | 3997.072      | 26.786      | 61.253    | 0.94%       | 2.25%      |
| 5.0                | 3975.638      | 34.298      | 95.551    | 1.21%       | 3.51%      |
| 6.0                | 3945.572      | 41.628      | 137.179   | 1.47%       | 5.04%      |
| 7.0                | 3904.241      | 48.724      | 185.903   | 1.72%       | 6.83%      |
| 8.0                | 3864.665      | 55.601      | 241.503   | 1.96%       | 8.88%      |
| 9.0                | 3822.236      | 62.298      | 303.801   | 2.20%       | 11.17%     |
| 10.0               | 3777.101      | 68.771      | 372.573   | 2.43%       | 13.70%     |
| 11.0               | 3718.724      | 74.899      | 447.471   | 2.64%       | 16.45%     |
| 12.0               | 3659.544      | 80.655      | 528.126   | 2.85%       | 19.41%     |
| 13.0               | 3590.487      | 86.040      | 614.166   | 3.04%       | 22.58%     |
| 14.0               | 3511.555      | 90.906      | 705.071   | 3.21%       | 25.92%     |
| 15.0               | 3422.089      | 95.188      | 800.26    | 3.36%       | 29.42%     |
| 16.0               | 3319.455      | 98.782      | 899.042   | 3.48%       | 33.05%     |
| 17.0               | 3195.533      | 101.456     | 1000.498  | 3.58%       | 36.78%     |
| 18.0               | 3068.905      | 103.287     | 1103.785  | 3.64%       | 40.58%     |
| 19.0               | 2928.012      | 104.334     | 1208.119  | 3.68%       | 44.41%     |
| 20.0               | 2771.977      | 104.326     | 1312.445  | 3.68%       | 48.25%     |
| 21.0               | 2627.353      | 103.678     | 1416.123  | 3.66%       | 52.06%     |
| 22.0               | 2482.583      | 102.686     | 1518.809  | 3.62%       | 55.83%     |
| 23.0               | 2337.520      | 101.139     | 1619.948  | 3.57%       | 59.55%     |
| 24.0               | 2195.676      | 99.112      | 1719.06   | 3.50%       | 63.19%     |
| 25.0               | 2058.222      | 96.724      | 1815.784  | 3.41%       | 66.75%     |
| 26.0               | 1927.204      | 94.076      | 1909.861  | 3.32%       | 70.21%     |
| 27.0               | 1793.993      | 91.040      | 2000.9    | 3.21%       | 73.56%     |
| 28.0               | 1661.293      | 87.481      | 2088.381  | 3.09%       | 76.77%     |
| 29.0               | 1437.598      | 81.076      | 2169.457  | 2.86%       | 79.75%     |
| 30.0               | 1287.290      | 73.571      | 2243.028  | 2.60%       | 82.46%     |
| 31.0               | 1199.155      | 69.194      | 2312.222  | 2.44%       | 85.00%     |
| 32.0               | 1041.181      | 64.183      | 2376.405  | 2.26%       | 87.36%     |
| 33.0               | 884.816       | 56.741      | 2433.146  | 2.00%       | 89.45%     |
| 34.0               | 740.471       | 49.186      | 2482.332  | 1.74%       | 91.25%     |
| 35.0               | 589.709       | 41.310      | 2523.642  | 1.46%       | 92.77%     |
| 36.0               | 462.021       | 33.487      | 2557.13   | 1.18%       | 94.00%     |
| 37.0               | 332.686       | 25.919      | 2583.048  | 0.91%       | 94.96%     |

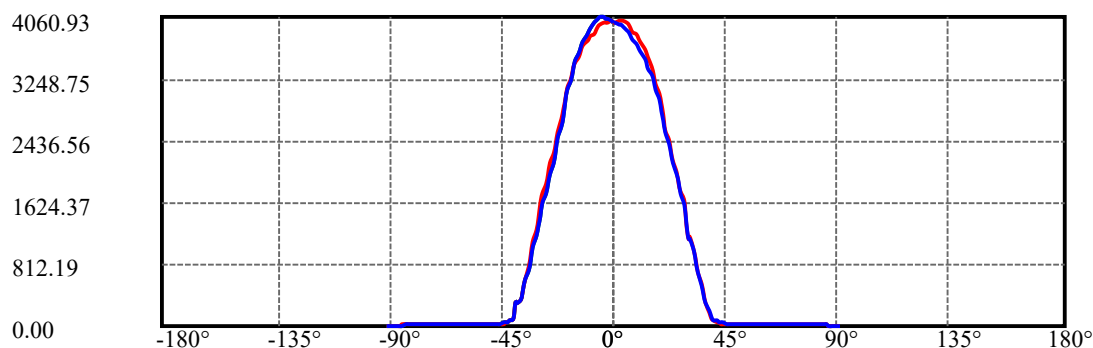
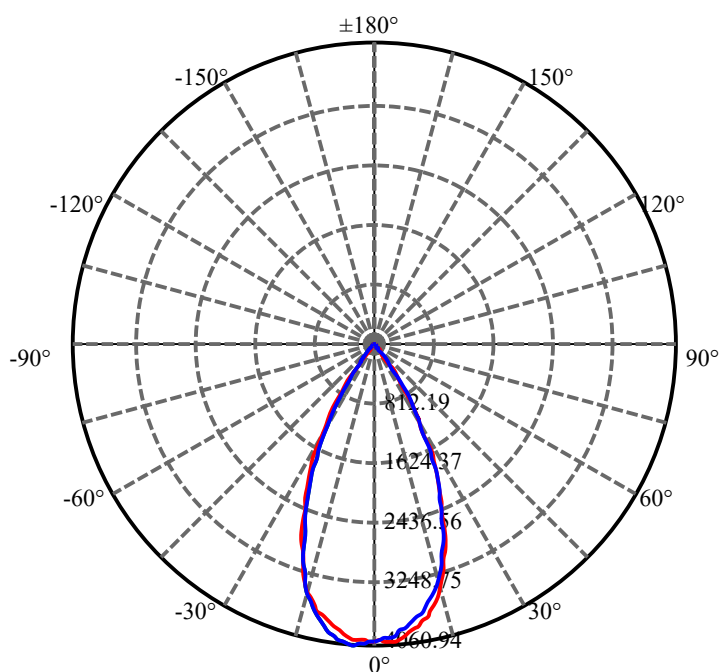
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 38.0               | 243.022       | 19.216      | 2602.265  | 0.68%       | 95.66%     |
| 39.0               | 207.535       | 15.379      | 2617.644  | 0.54%       | 96.23%     |
| 40.0               | 96.825        | 10.615      | 2628.259  | 0.37%       | 96.62%     |
| 41.0               | 65.077        | 5.765       | 2634.024  | 0.20%       | 96.83%     |
| 42.0               | 50.754        | 4.208       | 2638.232  | 0.15%       | 96.98%     |
| 43.0               | 41.083        | 3.402       | 2641.634  | 0.12%       | 97.11%     |
| 44.0               | 35.004        | 2.872       | 2644.506  | 0.10%       | 97.21%     |
| 45.0               | 31.302        | 2.548       | 2647.054  | 0.09%       | 97.31%     |
| 46.0               | 28.742        | 2.348       | 2649.402  | 0.08%       | 97.39%     |
| 47.0               | 26.584        | 2.200       | 2651.603  | 0.08%       | 97.48%     |
| 48.0               | 25.026        | 2.086       | 2653.689  | 0.07%       | 97.55%     |
| 49.0               | 23.797        | 2.005       | 2655.694  | 0.07%       | 97.63%     |
| 50.0               | 22.765        | 1.941       | 2657.635  | 0.07%       | 97.70%     |
| 51.0               | 21.902        | 1.890       | 2659.525  | 0.07%       | 97.77%     |
| 52.0               | 21.141        | 1.847       | 2661.372  | 0.07%       | 97.83%     |
| 53.0               | 20.461        | 1.810       | 2663.182  | 0.06%       | 97.90%     |
| 54.0               | 19.839        | 1.776       | 2664.958  | 0.06%       | 97.97%     |
| 55.0               | 19.312        | 1.748       | 2666.706  | 0.06%       | 98.03%     |
| 56.0               | 18.866        | 1.725       | 2668.431  | 0.06%       | 98.09%     |
| 57.0               | 18.435        | 1.705       | 2670.136  | 0.06%       | 98.16%     |
| 58.0               | 18.062        | 1.688       | 2671.824  | 0.06%       | 98.22%     |
| 59.0               | 17.718        | 1.673       | 2673.497  | 0.06%       | 98.28%     |
| 60.0               | 17.418        | 1.660       | 2675.157  | 0.06%       | 98.34%     |
| 61.0               | 17.125        | 1.648       | 2676.805  | 0.06%       | 98.40%     |
| 62.0               | 16.869        | 1.638       | 2678.443  | 0.06%       | 98.46%     |
| 63.0               | 16.657        | 1.631       | 2680.074  | 0.06%       | 98.52%     |
| 64.0               | 16.533        | 1.629       | 2681.702  | 0.06%       | 98.58%     |
| 65.0               | 16.445        | 1.632       | 2683.334  | 0.06%       | 98.64%     |
| 66.0               | 16.342        | 1.636       | 2684.97   | 0.06%       | 98.70%     |
| 67.0               | 16.211        | 1.637       | 2686.607  | 0.06%       | 98.76%     |
| 68.0               | 16.050        | 1.634       | 2688.241  | 0.06%       | 98.82%     |
| 69.0               | 15.838        | 1.627       | 2689.868  | 0.06%       | 98.88%     |
| 70.0               | 15.567        | 1.613       | 2691.481  | 0.06%       | 98.94%     |
| 71.0               | 15.318        | 1.596       | 2693.077  | 0.06%       | 99.00%     |
| 72.0               | 15.055        | 1.579       | 2694.657  | 0.06%       | 99.06%     |
| 73.0               | 14.821        | 1.562       | 2696.219  | 0.06%       | 99.12%     |
| 74.0               | 14.557        | 1.544       | 2697.763  | 0.05%       | 99.17%     |
| 75.0               | 14.272        | 1.523       | 2699.287  | 0.05%       | 99.23%     |

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0               | 14.060        | 1.504       | 2700.791  | 0.05%       | 99.28%     |
| 77.0               | 13.855        | 1.488       | 2702.279  | 0.05%       | 99.34%     |
| 78.0               | 13.702        | 1.475       | 2703.754  | 0.05%       | 99.39%     |
| 79.0               | 13.555        | 1.465       | 2705.219  | 0.05%       | 99.45%     |
| 80.0               | 13.387        | 1.453       | 2706.671  | 0.05%       | 99.50%     |
| 81.0               | 13.241        | 1.440       | 2708.111  | 0.05%       | 99.55%     |
| 82.0               | 13.094        | 1.428       | 2709.539  | 0.05%       | 99.61%     |
| 83.0               | 12.912        | 1.414       | 2710.953  | 0.05%       | 99.66%     |
| 84.0               | 12.751        | 1.398       | 2712.351  | 0.05%       | 99.71%     |
| 85.0               | 12.546        | 1.381       | 2713.731  | 0.05%       | 99.76%     |
| 86.0               | 12.239        | 1.355       | 2715.086  | 0.05%       | 99.81%     |
| 87.0               | 11.982        | 1.326       | 2716.412  | 0.05%       | 99.86%     |
| 88.0               | 11.778        | 1.302       | 2717.713  | 0.05%       | 99.91%     |
| 89.0               | 11.631        | 1.283       | 2718.996  | 0.05%       | 99.95%     |
| 90.0               | 11.544        | 1.271       | 2720.267  | 0.04%       | 100.00%    |

| ZONAL LUMEN SUMMARY |         |        |         |
|---------------------|---------|--------|---------|
| Zone                | Lumens  | %Lamp  | %Fixt   |
| 0-30                | 2243.03 | 79.13% | 82.46%  |
| 0-40                | 2628.26 | 92.72% | 96.62%  |
| 0-60                | 2675.16 | 94.38% | 98.34%  |
| 0-90                | 2719.00 | 95.92% | 99.95%  |
| 0-120               | 2719.00 | 95.92% | 99.95%  |
| 0-180               | 2720.27 | 95.97% | 100.00% |
| 60-90               | 43.84   | 1.55%  | 1.61%   |
| 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%   |
| 0-29.09             | 2176.21 | 76.78% | 80.00%  |

ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 372.57 |
| 10-20   | 939.87 |
| 20-30   | 930.58 |
| 30-40   | 385.23 |
| 40-50   | 29.38  |
| 50-60   | 17.52  |
| 60-70   | 16.32  |
| 70-80   | 15.19  |
| 80-90   | 12.33  |
| 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   |

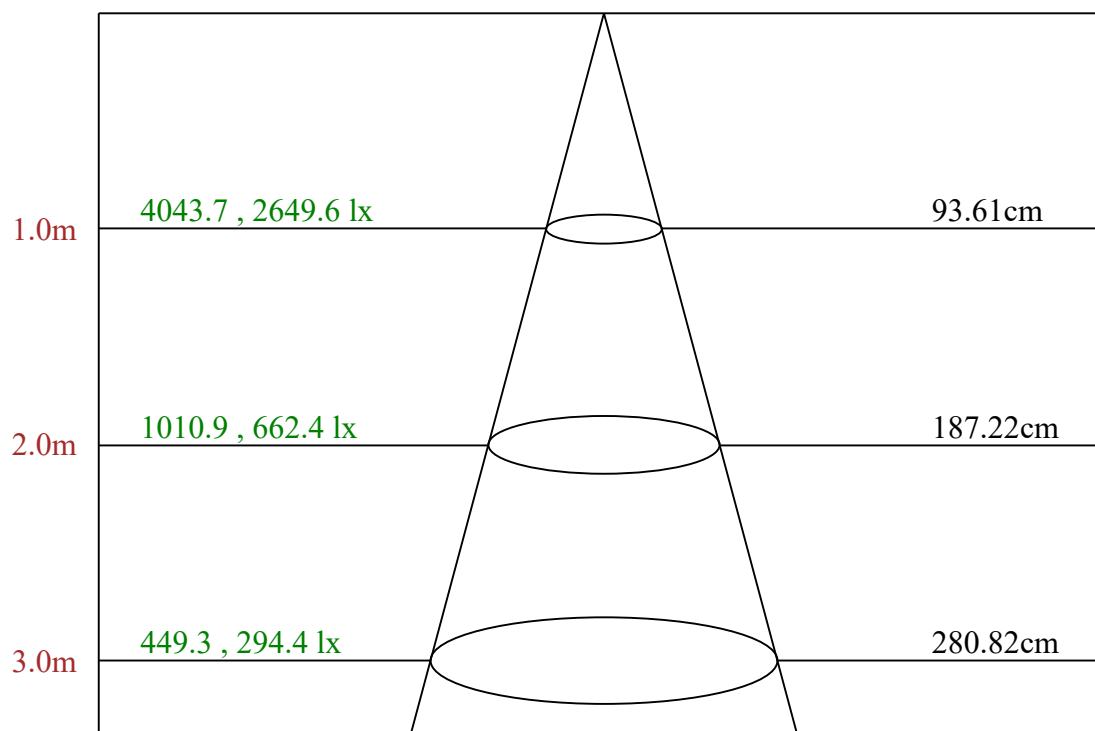
C270(Max): —————C0/C180: —————C90/C270: —————

Field angle(10%Imax):C0/180Left:39.7 Right:33.2

:C90/270Left:32.6 Right:40.0

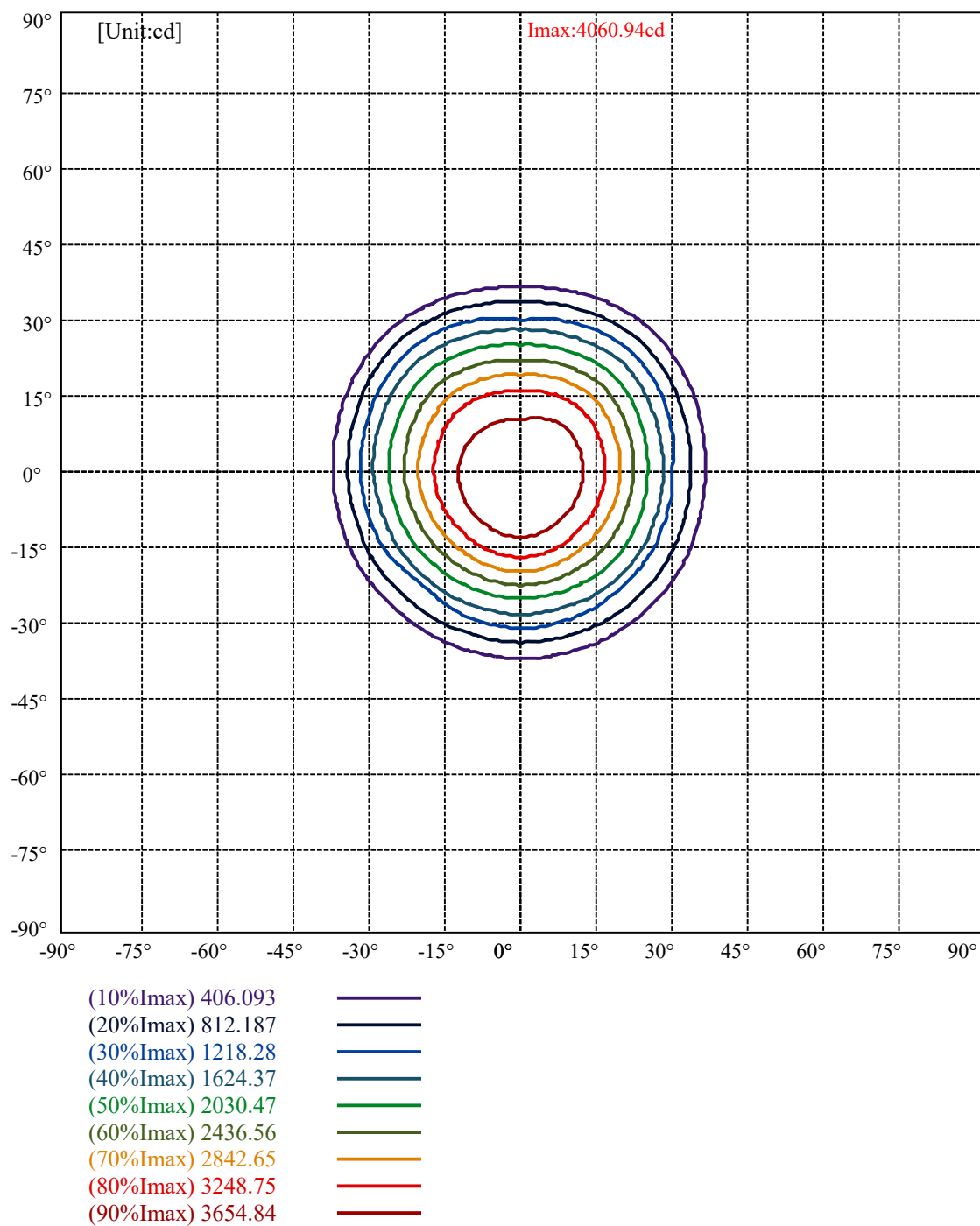
Beam Angle(50%Imax):C0/180Left:28.9 Right:22.0

:C90/270Left:20.8 Right:28.8

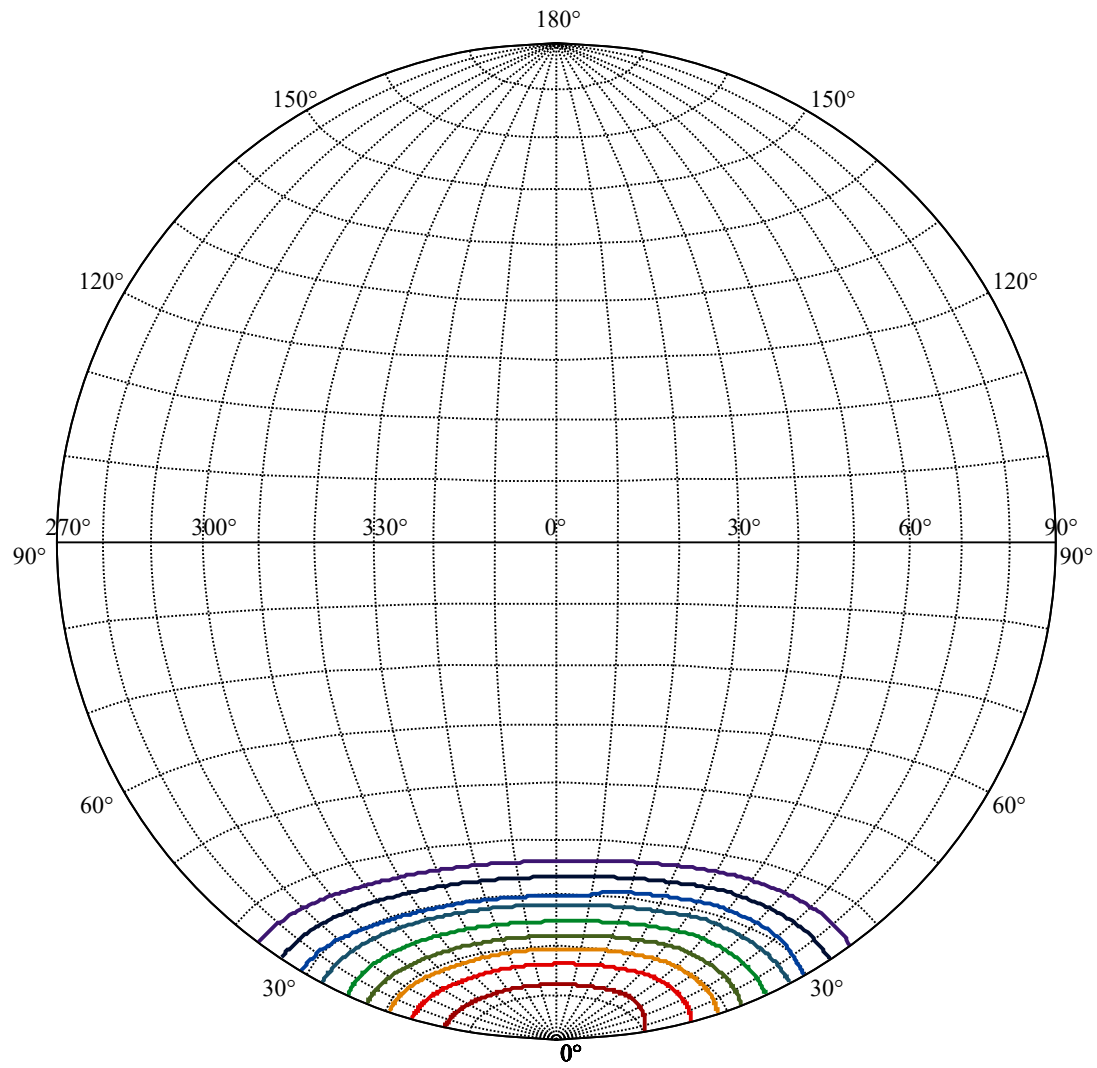


Max , Ave

Beam angle of C270 plane 50.16





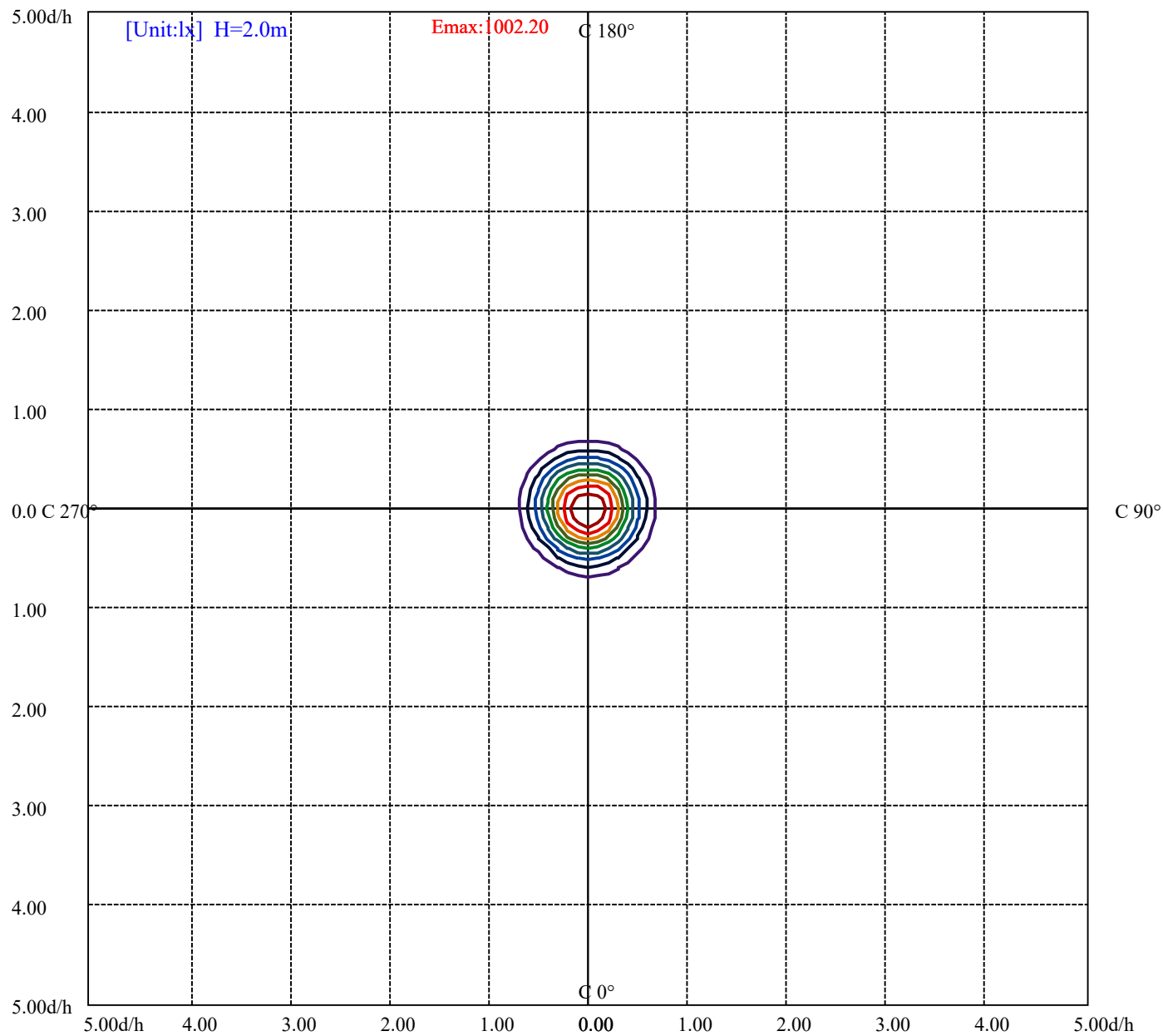


House

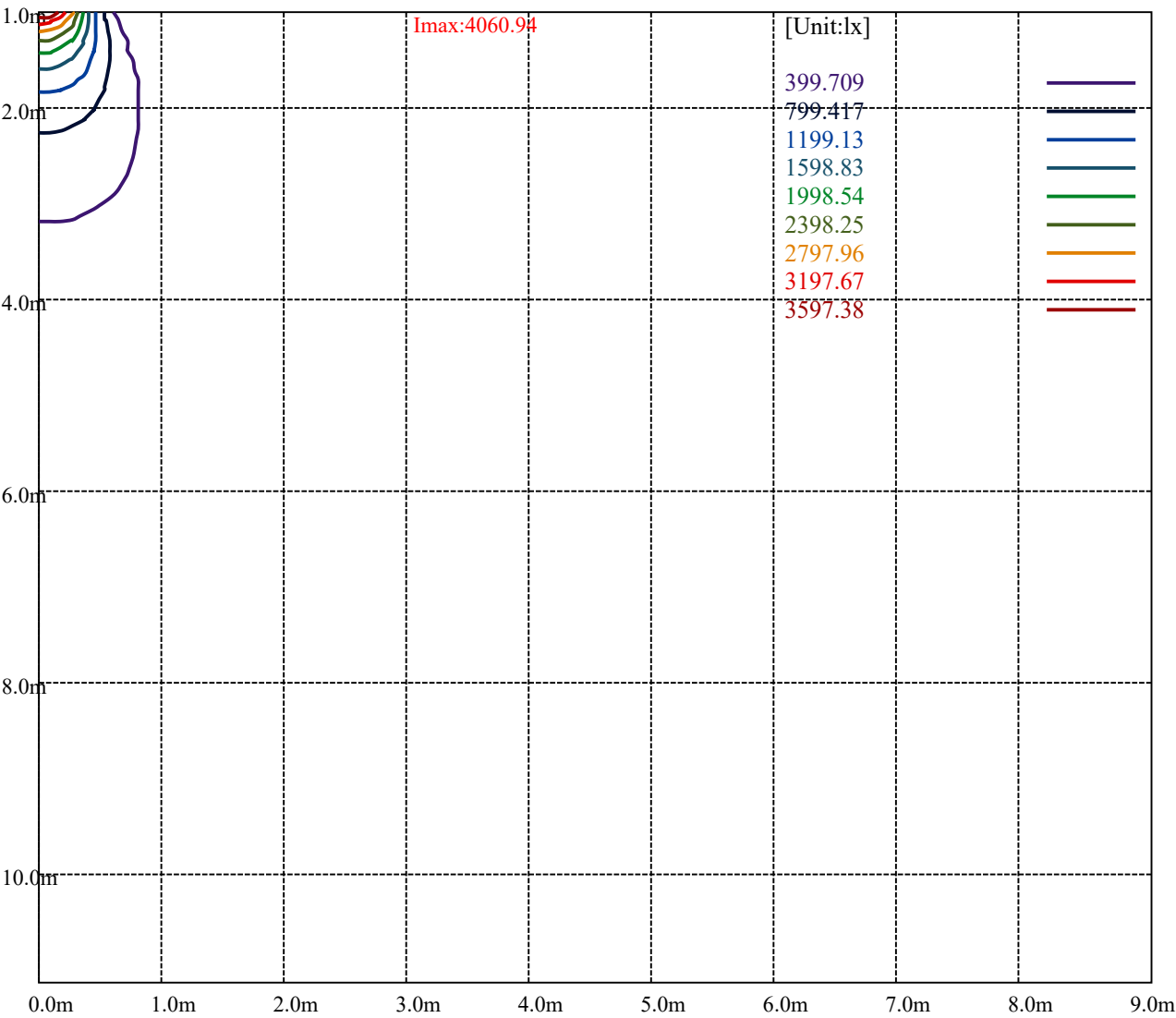
[Unit:cd]

Road

|                   |   |
|-------------------|---|
| Imax:4060.94      |   |
| (10%Imax) 406.146 | — |
| (20%Imax) 812.292 | — |
| (30%Imax) 1218.44 | — |
| (40%Imax) 1624.58 | — |
| (50%Imax) 2030.73 | — |
| (60%Imax) 2436.88 | — |
| (70%Imax) 2843.02 | — |
| (80%Imax) 3249.17 | — |
| (90%Imax) 3655.32 | — |



|                    |   |
|--------------------|---|
| (10%Emax) 100.2197 | — |
| (20%Emax) 200.4395 | — |
| (30%Emax) 300.66   | — |
| (40%Emax) 400.88   | — |
| (50%Emax) 501.0975 | — |
| (60%Emax) 601.3175 | — |
| (70%Emax) 701.5375 | — |
| (80%Emax) 801.7575 | — |
| (90%Emax) 901.9775 | — |



Luminance Table

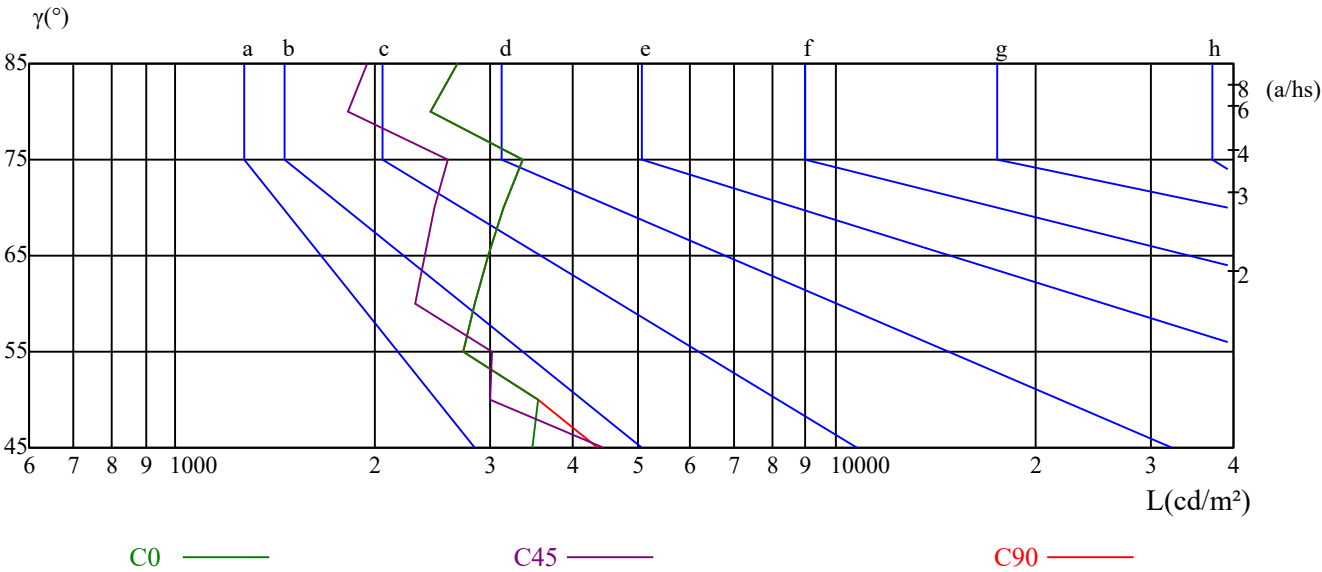
| $\gamma$ | 45   | 50   | 55   | 60   | 65   | 70   | 75   | 80   | 85   |
|----------|------|------|------|------|------|------|------|------|------|
| C0       | 3476 | 3545 | 2734 | 2836 | 2970 | 3141 | 3361 | 2430 | 2675 |
| C45      | 4457 | 2986 | 3023 | 2313 | 2380 | 2470 | 2588 | 1826 | 1956 |
| C90      | 4345 | 3545 | 2734 | 2836 | 2970 | 3141 | 3361 | 2430 | 2675 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 7385       | 7385       | 7385    | 12059      | 12059      | 12059   | 23875      | 23875      | 23875   |

Glare Table

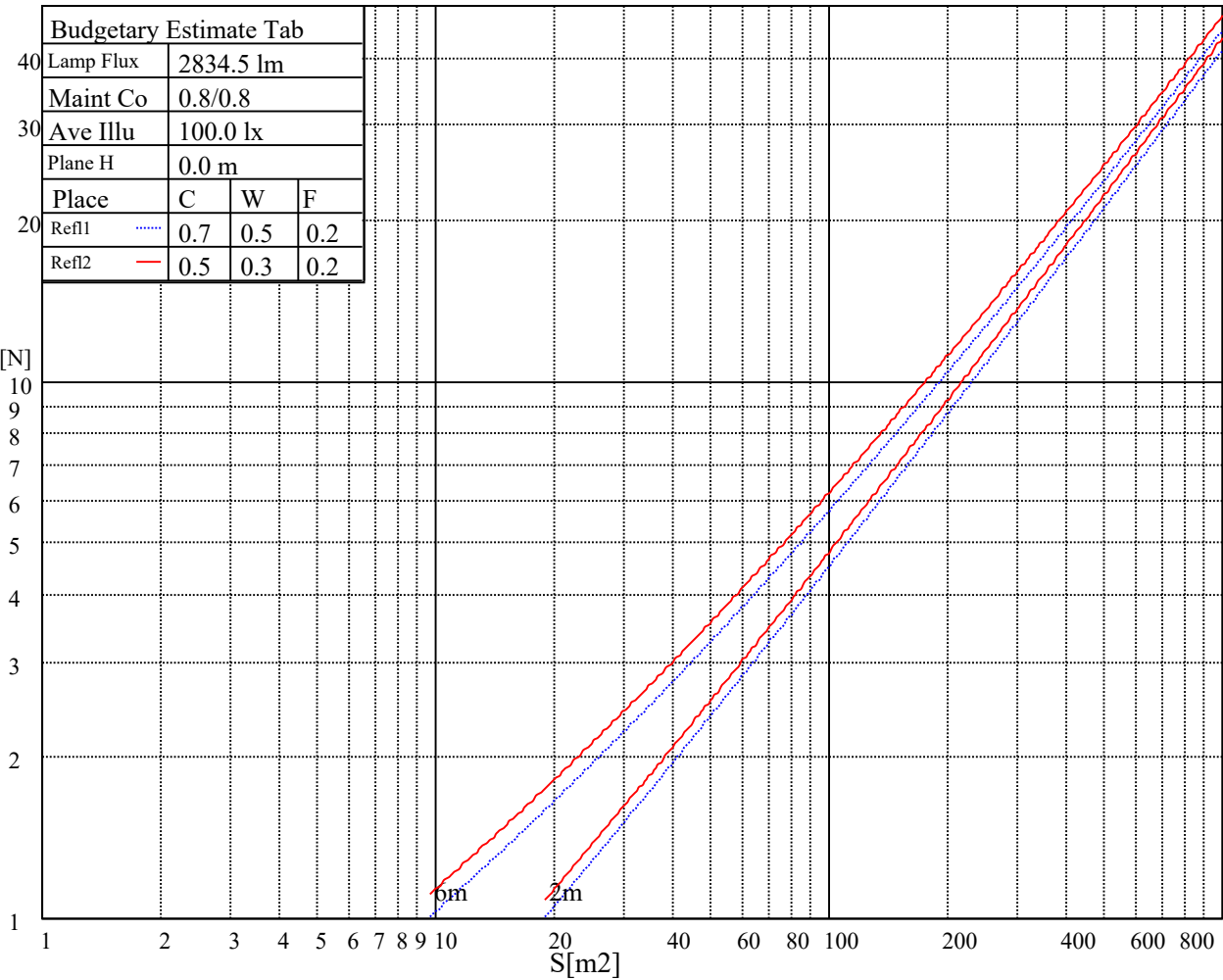
| Glare | Quality | Service Values Illuminance(lx) |      |      |            |            |            |            |            |
|-------|---------|--------------------------------|------|------|------------|------------|------------|------------|------------|
| 1.15  | A       | 2000            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

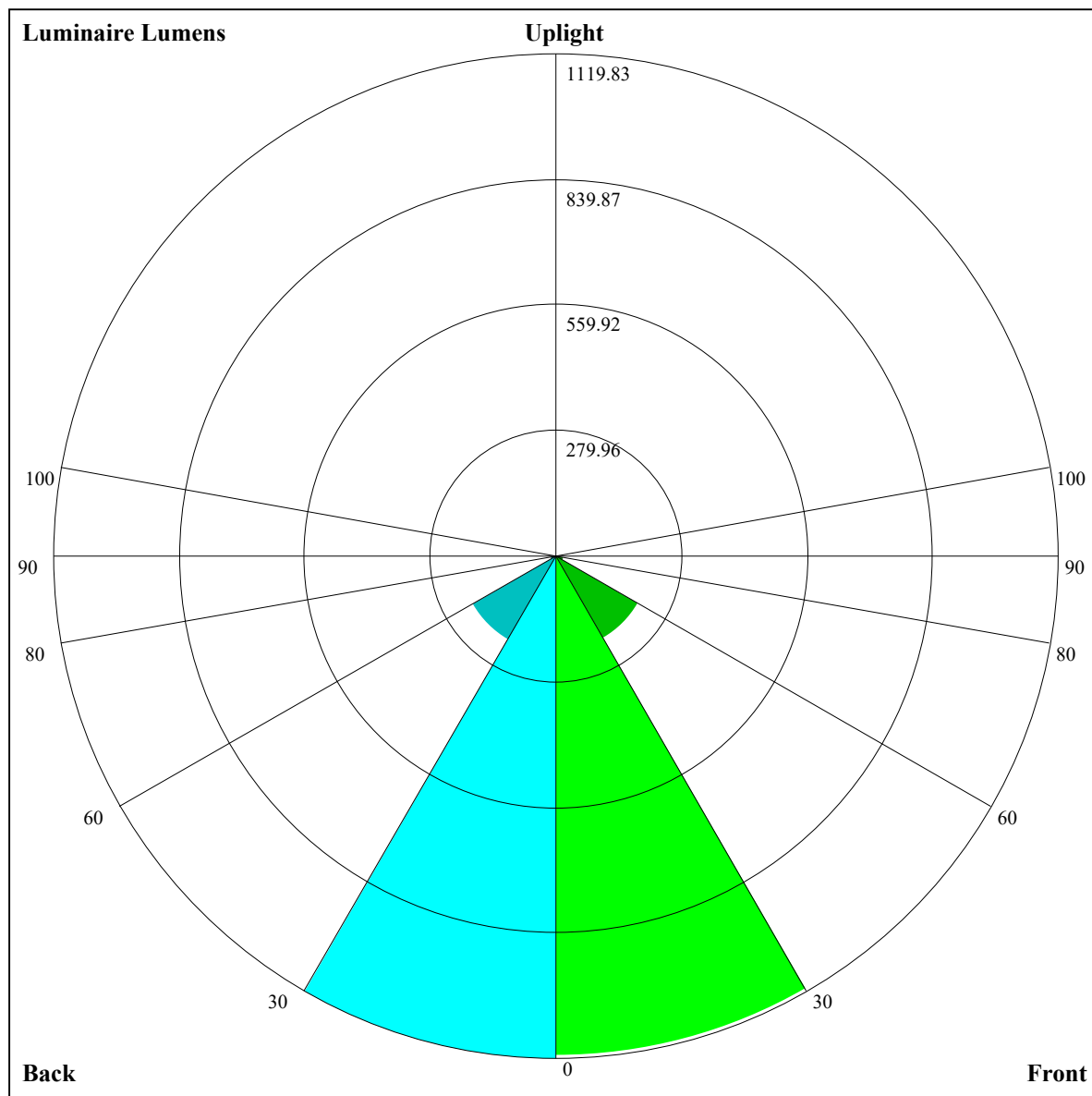


| Illumination assessment according UGR             |     |                  |     |     |     |     |                |     |     |     |  |
|---------------------------------------------------|-----|------------------|-----|-----|-----|-----|----------------|-----|-----|-----|--|
| Rf of Ceiling                                     | 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



| 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     | 1.14                                   | 1.14 | 1.14 | 1.12 | 1.12 | 1.12 | 1.07 | 1.07 | 1.07 | 1.02 | 1.02 | 1.02 | 0.98 | 0.98 | 0.98 | 0.96 |
| 1     | 1.06                                   | 1.04 | 1.02 | 1.04 | 1.02 | 1.00 | 1.01 | 0.99 | 0.97 | 0.97 | 0.96 | 0.94 | 0.94 | 0.93 | 0.92 | 0.90 |
| 2     | 1.00                                   | 0.96 | 0.93 | 0.98 | 0.95 | 0.92 | 0.95 | 0.92 | 0.90 | 0.92 | 0.90 | 0.88 | 0.90 | 0.88 | 0.86 | 0.85 |
| 3     | 0.94                                   | 0.89 | 0.86 | 0.92 | 0.88 | 0.85 | 0.90 | 0.86 | 0.84 | 0.88 | 0.85 | 0.82 | 0.85 | 0.83 | 0.81 | 0.80 |
| 4     | 0.88                                   | 0.83 | 0.80 | 0.87 | 0.83 | 0.79 | 0.85 | 0.81 | 0.78 | 0.83 | 0.80 | 0.77 | 0.82 | 0.79 | 0.76 | 0.75 |
| 5     | 0.83                                   | 0.78 | 0.74 | 0.83 | 0.78 | 0.74 | 0.81 | 0.77 | 0.73 | 0.79 | 0.76 | 0.73 | 0.78 | 0.75 | 0.72 | 0.71 |
| 6     | 0.79                                   | 0.74 | 0.70 | 0.78 | 0.73 | 0.70 | 0.77 | 0.72 | 0.69 | 0.75 | 0.72 | 0.69 | 0.74 | 0.71 | 0.68 | 0.67 |
| 7     | 0.75                                   | 0.70 | 0.66 | 0.74 | 0.69 | 0.66 | 0.73 | 0.69 | 0.65 | 0.72 | 0.68 | 0.65 | 0.71 | 0.67 | 0.65 | 0.63 |
| 8     | 0.71                                   | 0.66 | 0.62 | 0.71 | 0.66 | 0.62 | 0.70 | 0.65 | 0.62 | 0.69 | 0.65 | 0.62 | 0.68 | 0.64 | 0.61 | 0.60 |
| 9     | 0.68                                   | 0.62 | 0.59 | 0.67 | 0.62 | 0.59 | 0.66 | 0.62 | 0.59 | 0.66 | 0.61 | 0.58 | 0.65 | 0.61 | 0.58 | 0.57 |
| 10    | 0.65                                   | 0.59 | 0.56 | 0.64 | 0.59 | 0.56 | 0.63 | 0.59 | 0.56 | 0.63 | 0.59 | 0.56 | 0.62 | 0.58 | 0.55 | 0.54 |



Luminaire Lumens:

FL=1113.72,FM=212.46,FH=15.98,FVH=6.82

BL=1119.83,BM=214.97,BH=15.62,BVH=6.77

UL=0,UH=0

BUG Rating:B3-U0-G0



## NT 2-2897-L

| Intensity data(cd) |         |         |         |         |         |         |         |         | Appendix Page: 17 Total:19 |
|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|----------------------------|
| C/γ(°)             | 0.0     | 1.0     | 2.0     | 3.0     | 4.0     | 5.0     | 6.0     | 7.0     | 8.0                        |
| 0.0                | 3997.73 | 3993.63 | 4000.66 | 4012.36 | 4008.85 | 3992.46 | 3966.13 | 3921.65 | 3871.32                    |
| 45.0               | 4008.26 | 3990.12 | 3984.27 | 3974.91 | 3971.98 | 3962.62 | 3942.13 | 3896.49 | 3863.13                    |
| 90.0               | 3996.56 | 3976.08 | 3962.03 | 3953.84 | 3930.43 | 3880.10 | 3847.33 | 3801.09 | 3748.42                    |
| 135.0              | 4014.12 | 4003.00 | 3982.51 | 3976.08 | 3958.52 | 3921.65 | 3875.42 | 3830.36 | 3802.85                    |
| 180.0              | 3997.73 | 4004.75 | 3987.78 | 3993.05 | 3984.86 | 3961.45 | 3926.92 | 3884.78 | 3844.99                    |
| 225.0              | 4008.26 | 4018.80 | 4027.58 | 4029.92 | 4015.29 | 4004.75 | 3951.50 | 3928.67 | 3900.58                    |
| 270.0              | 3996.56 | 4012.36 | 4026.41 | 4041.04 | 4060.93 | 4049.23 | 4032.84 | 4003.00 | 3976.08                    |
| 315.0              | 4014.12 | 4018.21 | 4038.11 | 4060.35 | 4045.72 | 4032.84 | 4022.31 | 3967.88 | 3909.95                    |
| 360.0              | 3997.73 | 3993.63 | 4000.66 | 4012.36 | 4008.85 | 3992.46 | 3966.13 | 3921.65 | 3871.32                    |
| C/γ(°)             | 9.0     | 10.0    | 11.0    | 12.0    | 13.0    | 14.0    | 15.0    | 16.0    | 17.0                       |
| 0.0                | 3838.55 | 3794.66 | 3742.57 | 3667.66 | 3607.39 | 3530.72 | 3416.60 | 3313.60 | 3179.00                    |
| 45.0               | 3822.75 | 3785.88 | 3738.48 | 3686.98 | 3624.94 | 3544.77 | 3465.76 | 3380.90 | 3251.57                    |
| 90.0               | 3712.73 | 3665.91 | 3596.27 | 3543.60 | 3478.05 | 3387.93 | 3310.68 | 3216.46 | 3107.60                    |
| 135.0              | 3761.88 | 3721.50 | 3667.66 | 3625.53 | 3572.86 | 3514.33 | 3424.80 | 3345.20 | 3200.40                    |
| 180.0              | 3797.00 | 3763.06 | 3722.67 | 3672.35 | 3597.44 | 3524.87 | 3455.81 | 3371.54 | 3248.06                    |
| 225.0              | 3861.96 | 3798.75 | 3737.31 | 3678.20 | 3606.80 | 3516.09 | 3413.09 | 3302.48 | 3153.25                    |
| 270.0              | 3919.90 | 3870.15 | 3799.92 | 3725.60 | 3649.52 | 3574.03 | 3485.07 | 3351.64 | 3224.65                    |
| 315.0              | 3863.13 | 3816.90 | 3744.91 | 3676.44 | 3586.90 | 3499.70 | 3404.90 | 3273.81 | 3149.74                    |
| 360.0              | 3838.55 | 3794.66 | 3742.57 | 3667.66 | 3607.39 | 3530.72 | 3416.60 | 3313.60 | 3179.00                    |
| C/γ(°)             | 18.0    | 19.0    | 20.0    | 21.0    | 22.0    | 23.0    | 24.0    | 25.0    | 26.0                       |
| 0.0                | 3050.84 | 2917.41 | 2765.83 | 2582.66 | 2439.28 | 2303.50 | 2170.07 | 2007.38 | 1876.29                    |
| 45.0               | 3139.79 | 3029.77 | 2864.73 | 2723.70 | 2578.56 | 2442.20 | 2272.49 | 2142.57 | 2014.99                    |
| 90.0               | 2964.81 | 2825.52 | 2694.43 | 2559.25 | 2401.24 | 2280.68 | 2147.83 | 2003.87 | 1883.90                    |
| 135.0              | 3121.06 | 3010.46 | 2861.81 | 2722.53 | 2594.95 | 2472.05 | 2312.87 | 2191.73 | 2071.76                    |
| 180.0              | 3137.45 | 2977.10 | 2845.42 | 2712.58 | 2542.86 | 2406.50 | 2273.07 | 2147.83 | 1986.31                    |
| 225.0              | 3015.14 | 2874.68 | 2691.51 | 2544.62 | 2402.41 | 2230.94 | 2097.50 | 1968.76 | 1839.42                    |
| 270.0              | 3101.17 | 2949.01 | 2759.98 | 2621.87 | 2480.24 | 2299.41 | 2153.69 | 1992.16 | 1858.73                    |
| 315.0              | 3020.99 | 2840.16 | 2692.09 | 2551.64 | 2421.13 | 2264.88 | 2137.89 | 2011.48 | 1886.24                    |
| 360.0              | 3050.84 | 2917.41 | 2765.83 | 2582.66 | 2439.28 | 2303.50 | 2170.07 | 2007.38 | 1876.29                    |
| C/γ(°)             | 27.0    | 28.0    | 29.0    | 30.0    | 31.0    | 32.0    | 33.0    | 34.0    | 35.0                       |
| 0.0                | 1757.49 | 1630.50 | 1346.66 | 1166.12 | 1166.12 | 991.20  | 850.74  | 710.81  | 543.38                     |
| 45.0               | 1886.82 | 1736.42 | 1615.28 | 1440.30 | 1292.82 | 1148.27 | 973.29  | 834.59  | 698.23                     |
| 90.0               | 1731.15 | 1597.72 | 1354.27 | 1165.18 | 1127.38 | 985.28  | 840.56  | 699.23  | 531.68                     |
| 135.0              | 1944.76 | 1793.19 | 1655.66 | 1507.01 | 1353.10 | 1167.00 | 1017.18 | 870.87  | 691.21                     |
| 180.0              | 1861.66 | 1741.10 | 1604.75 | 1416.30 | 1261.22 | 1113.16 | 929.98  | 781.92  | 609.86                     |
| 225.0              | 1691.36 | 1558.51 | 1146.57 | 1146.57 | 1072.72 | 924.07  | 779.34  | 609.75  | 483.57                     |
| 270.0              | 1737.59 | 1619.38 | 1447.32 | 1314.47 | 1177.53 | 1036.49 | 865.61  | 734.52  | 607.52                     |
| 315.0              | 1741.10 | 1613.52 | 1330.27 | 1142.36 | 1142.36 | 963.98  | 821.83  | 682.08  | 552.22                     |
| 360.0              | 1757.49 | 1630.50 | 1346.66 | 1166.12 | 1166.12 | 991.20  | 850.74  | 710.81  | 543.38                     |
| C/γ(°)             | 36.0    | 37.0    | 38.0    | 39.0    | 40.0    | 41.0    | 42.0    | 43.0    | 44.0                       |
| 0.0                | 420.84  | 307.77  | 182.47  | 111.95  | 74.97   | 56.83   | 42.14   | 34.53   | 30.90                      |
| 45.0               | 570.07  | 412.06  | 295.01  | 295.01  | 175.98  | 67.42   | 52.55   | 43.66   | 36.64                      |
| 90.0               | 411.59  | 304.08  | 209.16  | 121.73  | 86.96   | 69.06   | 53.43   | 45.30   | 38.98                      |
| 135.0              | 554.27  | 400.35  | 311.98  | 311.98  | 103.58  | 74.67   | 58.23   | 46.58   | 37.51                      |
| 180.0              | 484.04  | 364.07  | 306.72  | 306.72  | 89.71   | 65.31   | 50.91   | 38.57   | 33.01                      |
| 225.0              | 365.47  | 234.68  | 150.34  | 92.70   | 60.75   | 48.05   | 39.03   | 32.89   | 28.97                      |
| 270.0              | 491.65  | 351.78  | 297.35  | 297.35  | 100.83  | 74.97   | 59.28   | 45.41   | 38.86                      |
| 315.0              | 398.25  | 286.70  | 191.13  | 122.84  | 81.81   | 64.32   | 50.45   | 41.73   | 35.17                      |
| 360.0              | 420.84  | 307.77  | 182.47  | 111.95  | 74.97   | 56.83   | 42.14   | 34.53   | 30.90                      |

## Intensity data(cd)

Appendix Page: 18 Total:19

| C/γ(°) | 45.0  | 46.0  | 47.0  | 48.0  | 49.0  | 50.0  | 51.0  | 52.0  | 53.0  |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.0    | 28.44 | 26.16 | 24.87 | 23.70 | 22.82 | 22.06 | 21.36 | 20.78 | 20.31 |
| 45.0   | 32.07 | 29.55 | 27.10 | 25.69 | 24.52 | 23.53 | 22.47 | 21.71 | 20.83 |
| 90.0   | 35.11 | 32.13 | 28.97 | 26.86 | 25.52 | 24.11 | 22.94 | 22.06 | 21.24 |
| 135.0  | 33.42 | 30.31 | 28.09 | 25.98 | 24.76 | 23.70 | 22.77 | 21.83 | 21.19 |
| 180.0  | 29.79 | 27.45 | 25.46 | 24.23 | 22.94 | 22.06 | 21.42 | 20.48 | 19.96 |
| 225.0  | 26.80 | 25.05 | 23.70 | 22.53 | 21.65 | 20.66 | 19.96 | 19.37 | 18.79 |
| 270.0  | 33.12 | 30.02 | 27.45 | 25.46 | 23.64 | 22.47 | 21.54 | 20.83 | 20.19 |
| 315.0  | 31.66 | 29.26 | 27.04 | 25.75 | 24.52 | 23.53 | 22.77 | 22.06 | 21.19 |
| 360.0  | 28.44 | 26.16 | 24.87 | 23.70 | 22.82 | 22.06 | 21.36 | 20.78 | 20.31 |
| C/γ(°) | 54.0  | 55.0  | 56.0  | 57.0  | 58.0  | 59.0  | 60.0  | 61.0  | 62.0  |
| 0.0    | 19.66 | 19.20 | 18.79 | 18.38 | 17.91 | 17.62 | 17.32 | 17.09 | 16.74 |
| 45.0   | 20.31 | 19.72 | 19.25 | 18.79 | 18.49 | 18.14 | 17.85 | 17.50 | 17.21 |
| 90.0   | 20.48 | 19.78 | 19.20 | 18.73 | 18.20 | 17.79 | 17.50 | 17.15 | 16.91 |
| 135.0  | 20.42 | 19.90 | 19.49 | 18.96 | 18.55 | 18.20 | 17.91 | 17.50 | 17.21 |
| 180.0  | 19.43 | 18.79 | 18.43 | 18.02 | 17.67 | 17.32 | 16.97 | 16.74 | 16.56 |
| 225.0  | 18.26 | 17.85 | 17.44 | 17.09 | 16.85 | 16.56 | 16.27 | 16.04 | 15.86 |
| 270.0  | 19.55 | 19.14 | 18.73 | 18.38 | 18.08 | 17.73 | 17.50 | 17.26 | 16.97 |
| 315.0  | 20.60 | 20.13 | 19.61 | 19.14 | 18.73 | 18.38 | 18.02 | 17.73 | 17.50 |
| 360.0  | 19.66 | 19.20 | 18.79 | 18.38 | 17.91 | 17.62 | 17.32 | 17.09 | 16.74 |
| C/γ(°) | 63.0  | 64.0  | 65.0  | 66.0  | 67.0  | 68.0  | 69.0  | 70.0  | 71.0  |
| 0.0    | 16.62 | 16.56 | 16.50 | 16.39 | 16.21 | 15.86 | 15.57 | 15.27 | 14.92 |
| 45.0   | 16.97 | 16.80 | 16.74 | 16.85 | 16.97 | 17.03 | 16.97 | 16.85 | 16.74 |
| 90.0   | 16.74 | 16.68 | 16.97 | 16.91 | 16.91 | 17.03 | 17.03 | 17.03 | 16.91 |
| 135.0  | 16.97 | 16.74 | 16.68 | 16.56 | 16.44 | 16.33 | 16.15 | 15.74 | 15.45 |
| 180.0  | 16.33 | 16.21 | 16.04 | 15.92 | 15.74 | 15.45 | 15.27 | 14.92 | 14.57 |
| 225.0  | 15.68 | 15.51 | 15.39 | 15.22 | 14.98 | 14.86 | 14.63 | 14.40 | 14.28 |
| 270.0  | 16.74 | 16.56 | 16.39 | 16.21 | 16.04 | 15.80 | 15.51 | 15.10 | 14.81 |
| 315.0  | 17.21 | 17.21 | 16.85 | 16.68 | 16.39 | 16.04 | 15.57 | 15.22 | 14.86 |
| 360.0  | 16.62 | 16.56 | 16.50 | 16.39 | 16.21 | 15.86 | 15.57 | 15.27 | 14.92 |
| C/γ(°) | 72.0  | 73.0  | 74.0  | 75.0  | 76.0  | 77.0  | 78.0  | 79.0  | 80.0  |
| 0.0    | 14.69 | 14.51 | 14.34 | 14.16 | 14.05 | 13.87 | 13.75 | 13.64 | 13.52 |
| 45.0   | 16.74 | 16.74 | 15.92 | 15.10 | 14.63 | 14.28 | 14.05 | 13.93 | 13.69 |
| 90.0   | 16.33 | 15.57 | 15.16 | 14.69 | 14.40 | 14.16 | 13.99 | 13.81 | 13.64 |
| 135.0  | 15.10 | 14.81 | 14.63 | 14.46 | 14.28 | 14.05 | 13.81 | 13.69 | 13.52 |
| 180.0  | 14.34 | 14.22 | 14.10 | 13.99 | 13.81 | 13.64 | 13.58 | 13.46 | 13.28 |
| 225.0  | 14.10 | 13.93 | 13.87 | 13.69 | 13.58 | 13.46 | 13.34 | 13.17 | 13.05 |
| 270.0  | 14.51 | 14.34 | 14.22 | 14.05 | 13.87 | 13.69 | 13.52 | 13.34 | 13.17 |
| 315.0  | 14.63 | 14.46 | 14.22 | 14.05 | 13.87 | 13.69 | 13.58 | 13.40 | 13.23 |
| 360.0  | 14.69 | 14.51 | 14.34 | 14.16 | 14.05 | 13.87 | 13.75 | 13.64 | 13.52 |
| C/γ(°) | 81.0  | 82.0  | 83.0  | 84.0  | 85.0  | 86.0  | 87.0  | 88.0  | 89.0  |
| 0.0    | 13.34 | 13.23 | 13.05 | 12.87 | 12.70 | 12.52 | 12.06 | 11.88 | 11.70 |
| 45.0   | 13.58 | 13.46 | 13.28 | 13.11 | 12.99 | 12.82 | 12.41 | 11.94 | 11.76 |
| 90.0   | 13.40 | 13.23 | 13.11 | 12.87 | 12.70 | 12.06 | 11.82 | 11.65 | 11.53 |
| 135.0  | 13.34 | 13.23 | 13.05 | 12.87 | 12.70 | 12.23 | 12.00 | 11.82 | 11.70 |
| 180.0  | 13.17 | 13.05 | 12.82 | 12.70 | 12.35 | 12.17 | 12.00 | 11.82 | 11.76 |
| 225.0  | 12.93 | 12.76 | 12.58 | 12.47 | 12.23 | 12.00 | 11.88 | 11.70 | 11.59 |
| 270.0  | 13.05 | 12.87 | 12.70 | 12.52 | 12.35 | 12.11 | 11.88 | 11.70 | 11.53 |
| 315.0  | 13.11 | 12.93 | 12.70 | 12.58 | 12.35 | 12.00 | 11.82 | 11.70 | 11.47 |
| 360.0  | 13.34 | 13.23 | 13.05 | 12.87 | 12.70 | 12.52 | 12.06 | 11.88 | 11.70 |

## Intensity data(cd)

Appendix Page: 19 Total:19

|                 |       |
|-----------------|-------|
| C/ $\gamma$ (°) | 90.0  |
| 0.0             | 11.59 |
| 45.0            | 11.59 |
| 90.0            | 11.53 |
| 135.0           | 11.65 |
| 180.0           | 11.53 |
| 225.0           | 11.53 |
| 270.0           | 11.47 |
| 315.0           | 11.47 |
| 360.0           | 11.59 |