



NATA LIGHTING CO.,LTD  
www.nata.cn  
Email:info@nata.cn  
Tel:+86 0750-377 0000(10 lines) Fax:+86 0750-377 1111  
Address:380JinOu Road,Gaoxin Zone,Jiang Men City,Guangdong,China

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## Nata

Client: NT

LumCAT: 2-2061-LM4

Luminaire: 92.70.121.00 LED HOLDER

Report No: 20251107-B023

Ballast type: DC

Test No: 20251107-C023

Voltage(V): 36.450

LampCAT: CITIZEN CLU038 LES14.5

Current(A): 0.714

Lamp flux(lm): 3661.5

Power (W): 26.030

Number of Lamps: 1

PF: 0.000

Length(mm): 75

Width(mm): 75

Phm Type: C

Height(mm): 43

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## Photometric Results

Lumens(lm): 3544.52, Efficiency(%): 96.80% , Luminous Efficacy(lm/W): 136.17

Central intensity(cd): 13326.690, Maximum intensity(cd): 13326.690

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

Beam Angle(50%Imax): [C0/180]Total=25.6

[C90/270]Total=25.6

Field angle(10%Imax): [C0/180]Total=53.4

[C90/270]Total=53.4

Maximum s/h(1/2): C0\_180=0.43 C90\_270=0.43

Maximum s/h(1/4): C0\_180=0.42 C90\_270=0.42

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 96.80%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 98.952%

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 13326.693     | 0.000       | 0         | 0.00%       | 0.00%      |
| 1.0                | 13294.076     | 12.738      | 12.738    | 0.35%       | 0.36%      |
| 2.0                | 13180.615     | 37.999      | 50.737    | 1.04%       | 1.43%      |
| 3.0                | 12967.902     | 62.539      | 113.275   | 1.71%       | 3.20%      |
| 4.0                | 12690.386     | 85.886      | 199.162   | 2.35%       | 5.62%      |
| 5.0                | 12311.465     | 107.557     | 306.718   | 2.94%       | 8.65%      |
| 6.0                | 11844.380     | 126.945     | 433.664   | 3.47%       | 12.23%     |
| 7.0                | 11285.041     | 143.564     | 577.228   | 3.92%       | 16.29%     |
| 8.0                | 10603.091     | 156.649     | 733.877   | 4.28%       | 20.70%     |
| 9.0                | 9896.597      | 166.139     | 900.016   | 4.54%       | 25.39%     |
| 10.0               | 9055.436      | 171.509     | 1071.525  | 4.68%       | 30.23%     |
| 11.0               | 8241.402      | 172.831     | 1244.355  | 4.72%       | 35.11%     |
| 12.0               | 7357.289      | 170.516     | 1414.871  | 4.66%       | 39.92%     |
| 13.0               | 6500.734      | 164.460     | 1579.331  | 4.49%       | 44.56%     |
| 14.0               | 5674.966      | 155.848     | 1735.179  | 4.26%       | 48.95%     |
| 15.0               | 4866.529      | 144.718     | 1879.897  | 3.95%       | 53.04%     |
| 16.0               | 4140.982      | 131.985     | 2011.883  | 3.60%       | 56.76%     |
| 17.0               | 3465.813      | 118.458     | 2130.341  | 3.24%       | 60.10%     |
| 18.0               | 2961.375      | 105.970     | 2236.311  | 2.89%       | 63.09%     |
| 19.0               | 2480.963      | 94.686      | 2330.997  | 2.59%       | 65.76%     |
| 20.0               | 2171.626      | 85.155      | 2416.152  | 2.33%       | 68.17%     |
| 21.0               | 1930.365      | 78.767      | 2494.919  | 2.15%       | 70.39%     |
| 22.0               | 1739.075      | 73.739      | 2568.658  | 2.01%       | 72.47%     |
| 23.0               | 1635.345      | 70.804      | 2639.462  | 1.93%       | 74.47%     |
| 24.0               | 1533.198      | 69.276      | 2708.738  | 1.89%       | 76.42%     |
| 25.0               | 1447.015      | 67.764      | 2776.501  | 1.85%       | 78.33%     |
| 26.0               | 1375.182      | 66.618      | 2843.12   | 1.82%       | 80.21%     |
| 27.0               | 1314.511      | 65.804      | 2908.924  | 1.80%       | 82.07%     |
| 28.0               | 1252.452      | 64.990      | 2973.914  | 1.77%       | 83.90%     |
| 29.0               | 1185.980      | 63.796      | 3037.71   | 1.74%       | 85.70%     |
| 30.0               | 1116.062      | 62.155      | 3099.864  | 1.70%       | 87.46%     |
| 31.0               | 1023.593      | 59.543      | 3159.408  | 1.63%       | 89.14%     |
| 32.0               | 923.458       | 55.781      | 3215.189  | 1.52%       | 90.71%     |
| 33.0               | 813.528       | 51.172      | 3266.361  | 1.40%       | 92.15%     |
| 34.0               | 687.935       | 45.439      | 3311.8    | 1.24%       | 93.43%     |
| 35.0               | 569.307       | 39.045      | 3350.845  | 1.07%       | 94.54%     |
| 36.0               | 475.858       | 33.278      | 3384.123  | 0.91%       | 95.47%     |
| 37.0               | 327.691       | 26.207      | 3410.33   | 0.72%       | 96.21%     |

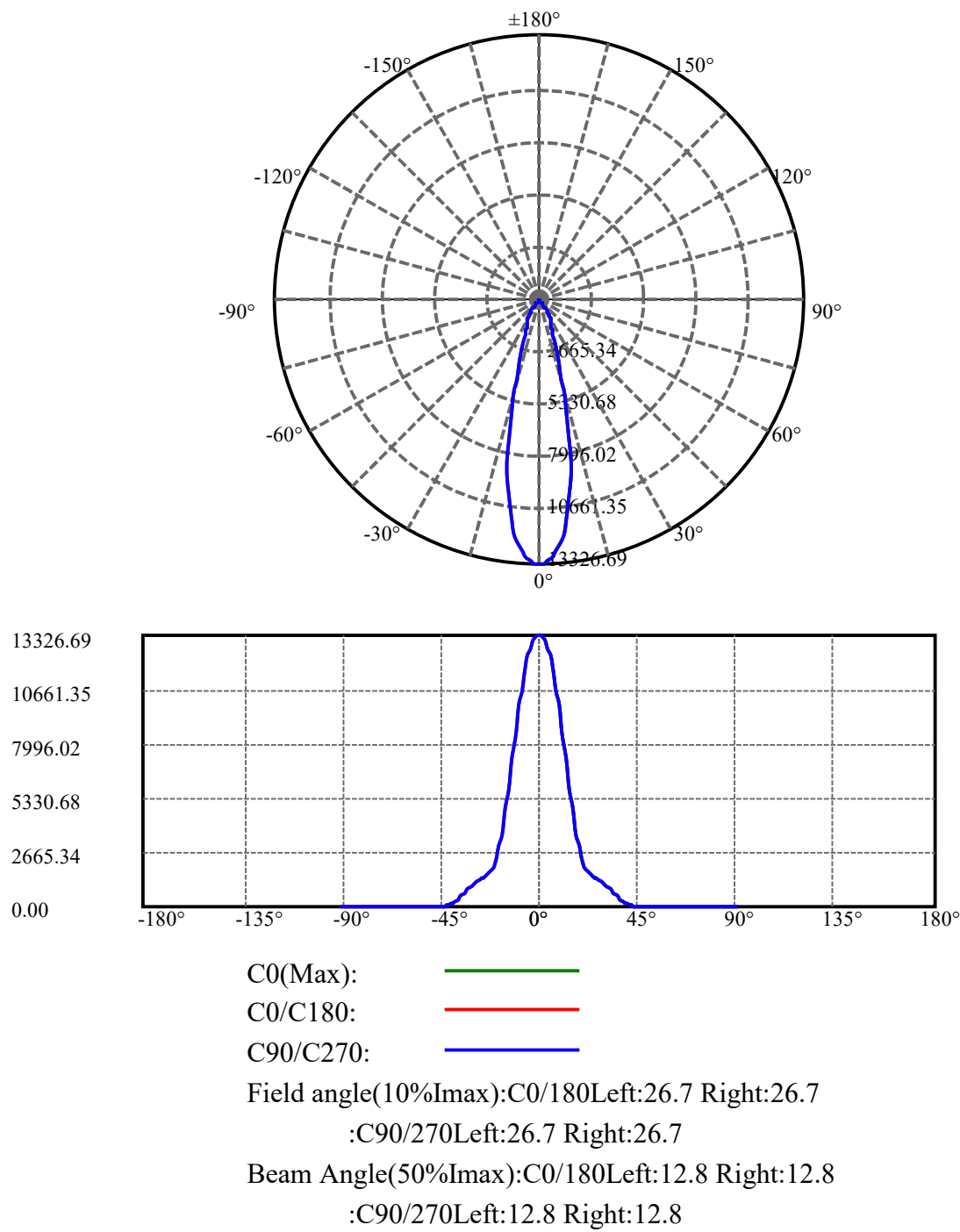
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 38.0               | 245.664       | 19.138      | 3429.468  | 0.52%       | 96.75%     |
| 39.0               | 192.593       | 14.959      | 3444.427  | 0.41%       | 97.18%     |
| 40.0               | 132.859       | 11.351      | 3455.778  | 0.31%       | 97.50%     |
| 41.0               | 68.034        | 7.154       | 3462.931  | 0.20%       | 97.70%     |
| 42.0               | 49.421        | 4.267       | 3467.199  | 0.12%       | 97.82%     |
| 43.0               | 39.873        | 3.308       | 3470.507  | 0.09%       | 97.91%     |
| 44.0               | 35.685        | 2.852       | 3473.358  | 0.08%       | 97.99%     |
| 45.0               | 32.219        | 2.610       | 3475.968  | 0.07%       | 98.07%     |
| 46.0               | 29.442        | 2.411       | 3478.379  | 0.07%       | 98.13%     |
| 47.0               | 27.838        | 2.278       | 3480.658  | 0.06%       | 98.20%     |
| 48.0               | 26.923        | 2.214       | 3482.871  | 0.06%       | 98.26%     |
| 49.0               | 26.223        | 2.182       | 3485.054  | 0.06%       | 98.32%     |
| 50.0               | 25.556        | 2.159       | 3487.213  | 0.06%       | 98.38%     |
| 51.0               | 24.877        | 2.134       | 3489.346  | 0.06%       | 98.44%     |
| 52.0               | 24.221        | 2.107       | 3491.453  | 0.06%       | 98.50%     |
| 53.0               | 23.500        | 2.076       | 3493.529  | 0.06%       | 98.56%     |
| 54.0               | 22.832        | 2.042       | 3495.571  | 0.06%       | 98.62%     |
| 55.0               | 22.208        | 2.011       | 3497.582  | 0.05%       | 98.68%     |
| 56.0               | 21.809        | 1.989       | 3499.571  | 0.05%       | 98.73%     |
| 57.0               | 21.433        | 1.977       | 3501.548  | 0.05%       | 98.79%     |
| 58.0               | 21.002        | 1.962       | 3503.51   | 0.05%       | 98.84%     |
| 59.0               | 20.550        | 1.943       | 3505.453  | 0.05%       | 98.90%     |
| 60.0               | 20.109        | 1.921       | 3507.373  | 0.05%       | 98.95%     |
| 61.0               | 19.689        | 1.899       | 3509.273  | 0.05%       | 99.01%     |
| 62.0               | 19.151        | 1.872       | 3511.144  | 0.05%       | 99.06%     |
| 63.0               | 18.634        | 1.838       | 3512.982  | 0.05%       | 99.11%     |
| 64.0               | 17.923        | 1.794       | 3514.776  | 0.05%       | 99.16%     |
| 65.0               | 17.288        | 1.743       | 3516.518  | 0.05%       | 99.21%     |
| 66.0               | 16.621        | 1.692       | 3518.21   | 0.05%       | 99.26%     |
| 67.0               | 15.867        | 1.634       | 3519.844  | 0.04%       | 99.30%     |
| 68.0               | 15.125        | 1.570       | 3521.414  | 0.04%       | 99.35%     |
| 69.0               | 14.210        | 1.496       | 3522.91   | 0.04%       | 99.39%     |
| 70.0               | 13.434        | 1.420       | 3524.33   | 0.04%       | 99.43%     |
| 71.0               | 12.573        | 1.344       | 3525.674  | 0.04%       | 99.47%     |
| 72.0               | 11.863        | 1.271       | 3526.945  | 0.03%       | 99.50%     |
| 73.0               | 11.142        | 1.203       | 3528.148  | 0.03%       | 99.54%     |
| 74.0               | 10.560        | 1.141       | 3529.289  | 0.03%       | 99.57%     |
| 75.0               | 10.151        | 1.094       | 3530.383  | 0.03%       | 99.60%     |

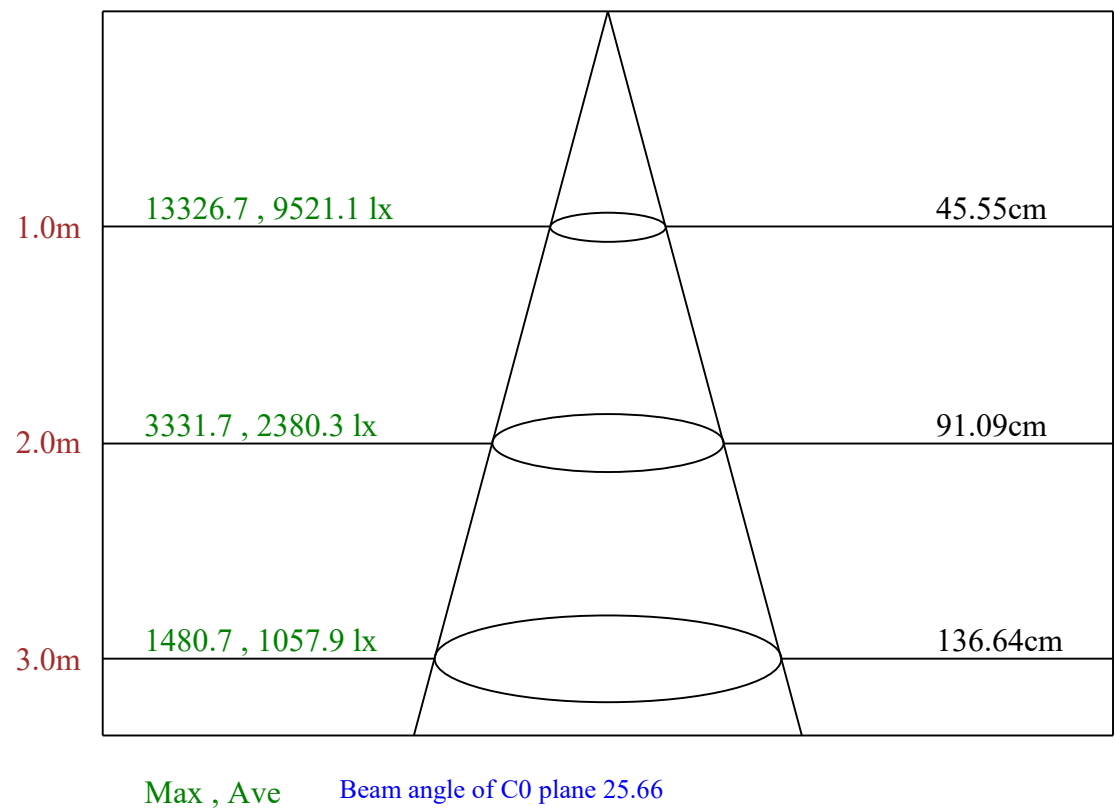
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0               | 9.774         | 1.058       | 3531.441  | 0.03%       | 99.63%     |
| 77.0               | 9.548         | 1.030       | 3532.471  | 0.03%       | 99.66%     |
| 78.0               | 9.398         | 1.014       | 3533.485  | 0.03%       | 99.69%     |
| 79.0               | 9.236         | 1.001       | 3534.486  | 0.03%       | 99.72%     |
| 80.0               | 9.085         | 0.988       | 3535.474  | 0.03%       | 99.74%     |
| 81.0               | 8.935         | 0.975       | 3536.449  | 0.03%       | 99.77%     |
| 82.0               | 8.816         | 0.963       | 3537.411  | 0.03%       | 99.80%     |
| 83.0               | 8.644         | 0.949       | 3538.36   | 0.03%       | 99.83%     |
| 84.0               | 8.472         | 0.932       | 3539.293  | 0.03%       | 99.85%     |
| 85.0               | 8.300         | 0.915       | 3540.208  | 0.02%       | 99.88%     |
| 86.0               | 8.117         | 0.897       | 3541.105  | 0.02%       | 99.90%     |
| 87.0               | 7.934         | 0.878       | 3541.984  | 0.02%       | 99.93%     |
| 88.0               | 7.740         | 0.859       | 3542.842  | 0.02%       | 99.95%     |
| 89.0               | 7.621         | 0.842       | 3543.684  | 0.02%       | 99.98%     |
| 90.0               | 7.557         | 0.832       | 3544.517  | 0.02%       | 100.00%    |

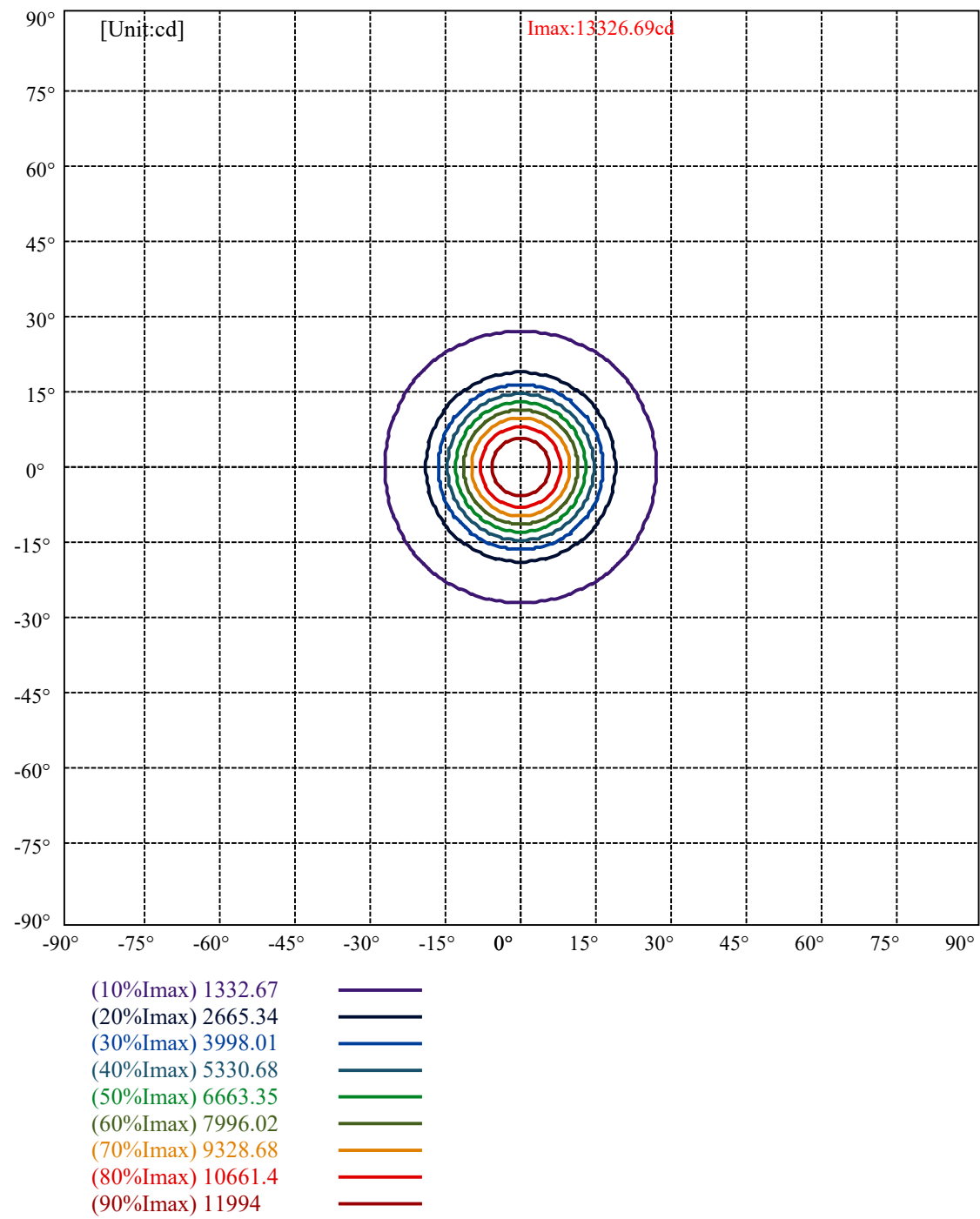
| ZONAL LUMEN SUMMARY |         |        |         |
|---------------------|---------|--------|---------|
| Zone                | Lumens  | %Lamp  | %Fixt   |
| 0-30                | 3099.86 | 84.66% | 87.46%  |
| 0-40                | 3455.78 | 94.38% | 97.50%  |
| 0-60                | 3507.37 | 95.79% | 98.95%  |
| 0-90                | 3543.68 | 96.78% | 99.98%  |
| 0-120               | 3543.68 | 96.78% | 99.98%  |
| 0-180               | 3544.52 | 96.80% | 100.00% |
| 60-90               | 36.31   | 0.99%  | 1.02%   |
| 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%   |
| 0-25.89             | 2835.61 | 77.44% | 80.00%  |

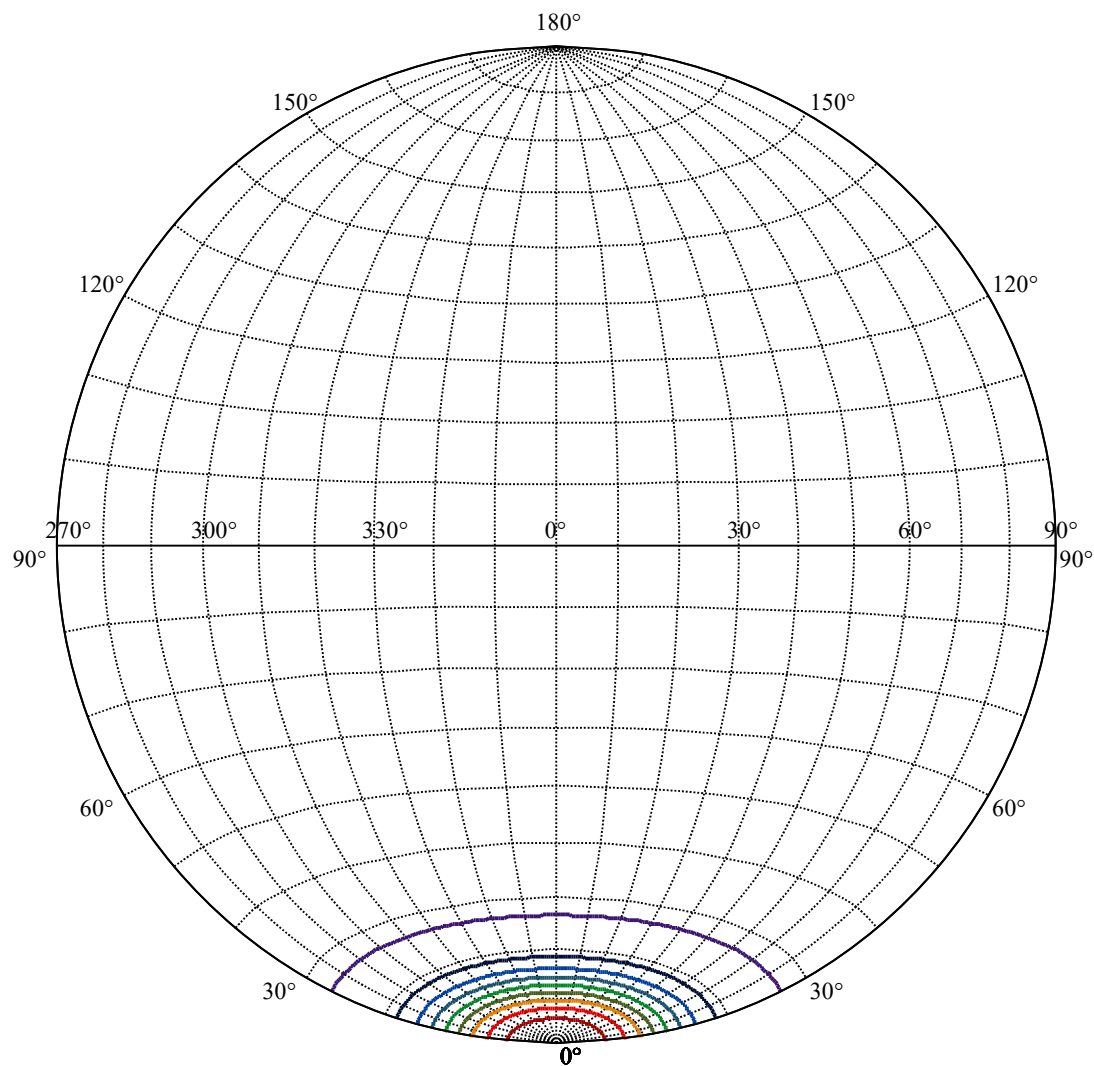
ZONAL LUMEN SUMMARY

|         |         |
|---------|---------|
| 0-10    | 1071.52 |
| 10-20   | 1344.63 |
| 20-30   | 683.71  |
| 30-40   | 355.91  |
| 40-50   | 31.43   |
| 50-60   | 20.16   |
| 60-70   | 16.96   |
| 70-80   | 11.14   |
| 80-90   | 8.21    |
| 90-100  | 0.00    |
| 100-110 | 0.00    |
| 110-120 | 0.00    |
| 120-130 | 0.00    |
| 130-140 | 0.00    |
| 140-150 | 0.00    |
| 150-160 | 0.00    |
| 160-170 | 0.00    |
| 170-180 | 0.00    |







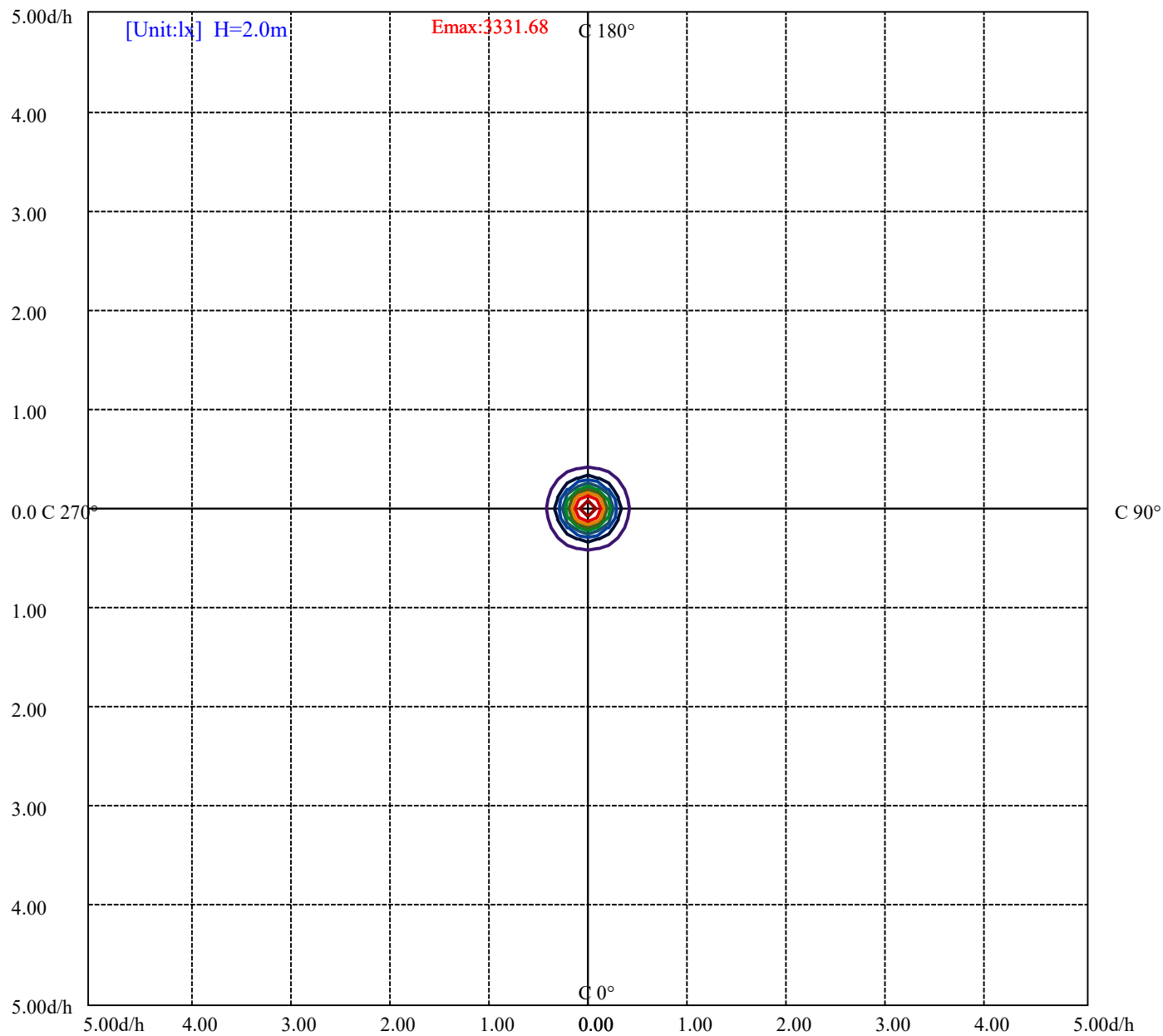


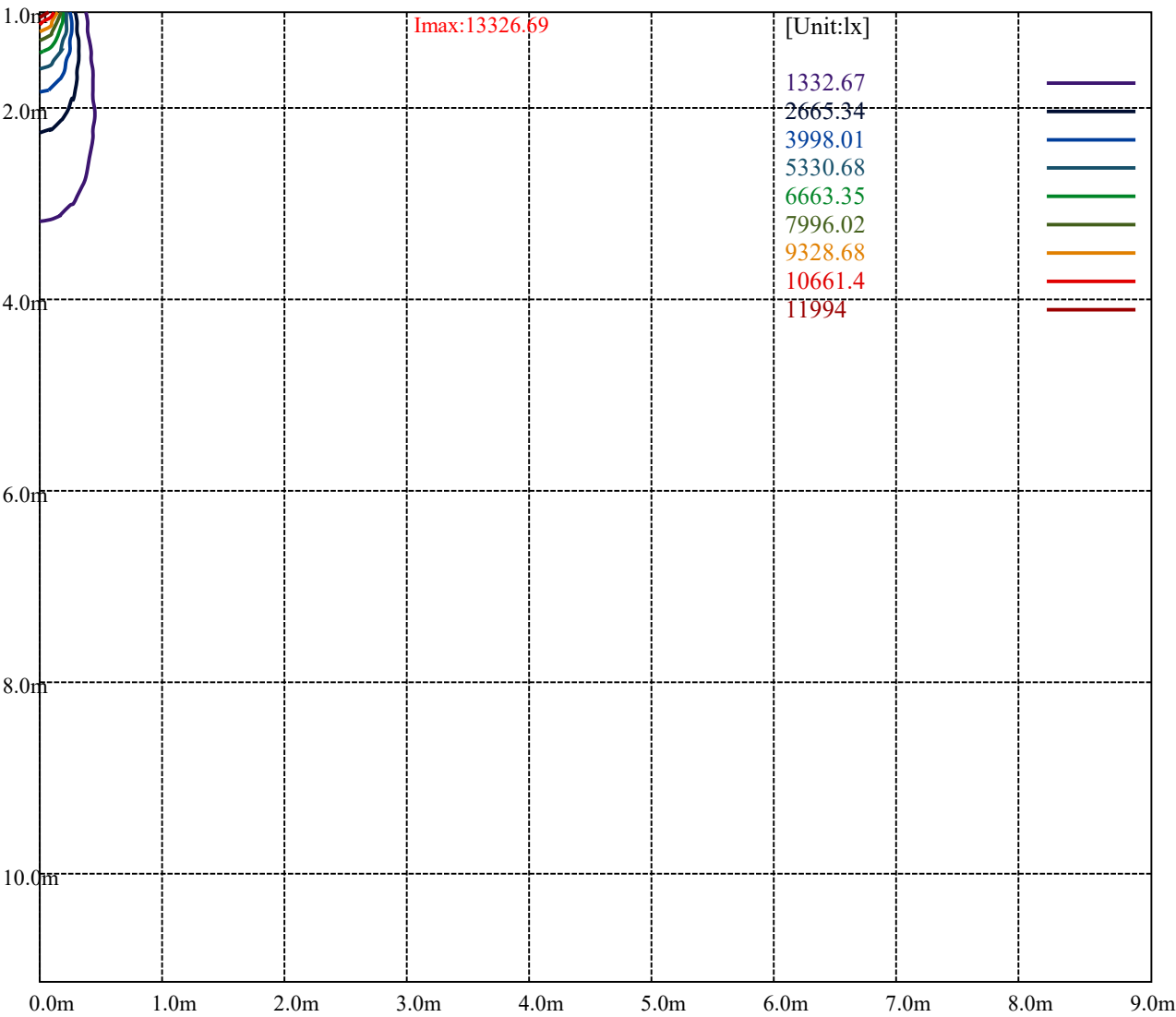
House

[Unit:cd]

Road

|               |         |
|---------------|---------|
| Imax:13326.69 |         |
| (10%Imax)     | 1332.67 |
| (20%Imax)     | 2665.34 |
| (30%Imax)     | 3998.01 |
| (40%Imax)     | 5330.68 |
| (50%Imax)     | 6663.35 |
| (60%Imax)     | 7996.02 |
| (70%Imax)     | 9328.68 |
| (80%Imax)     | 10661.4 |
| (90%Imax)     | 11994   |





Luminance Table

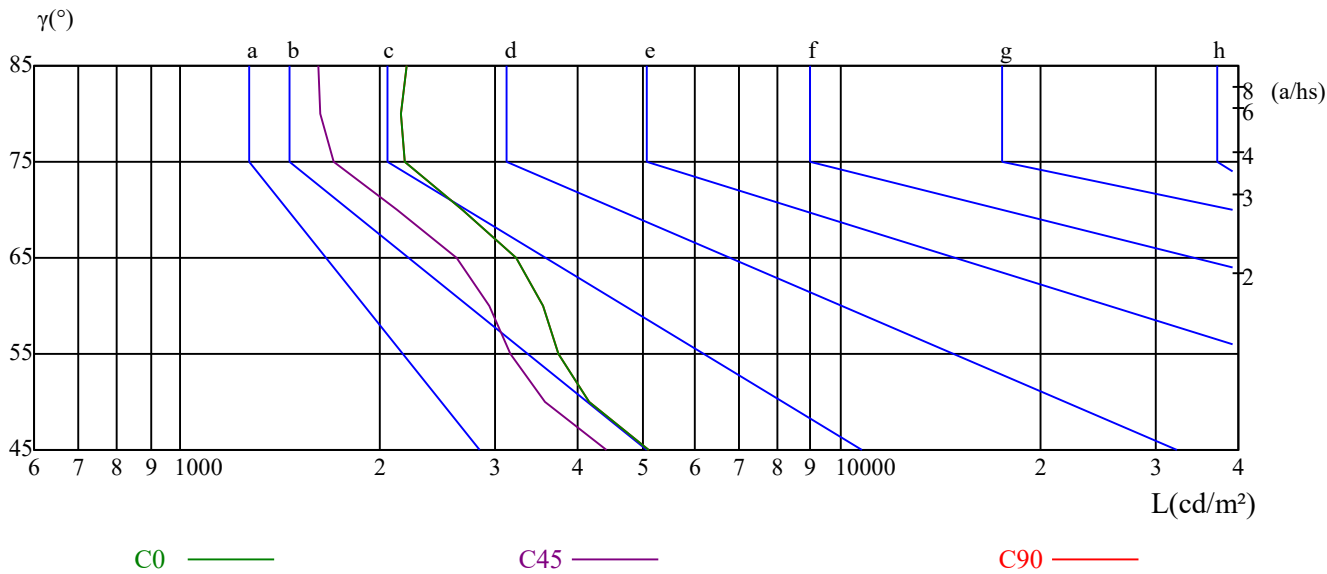
| $\gamma$ | 45   | 50   | 55   | 60   | 65   | 70   | 75   | 80   | 85   |
|----------|------|------|------|------|------|------|------|------|------|
| C0       | 5105 | 4160 | 3745 | 3546 | 3221 | 2674 | 2186 | 2150 | 2197 |
| C45      | 4427 | 3554 | 3150 | 2934 | 2617 | 2129 | 1702 | 1630 | 1615 |
| C90      | 5105 | 4160 | 3745 | 3546 | 3221 | 2674 | 2186 | 2150 | 2197 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 7272       | 7272       | 7272    | 6973       | 6973       | 6973    | 16929      | 16929      | 16929   |

Glare Table

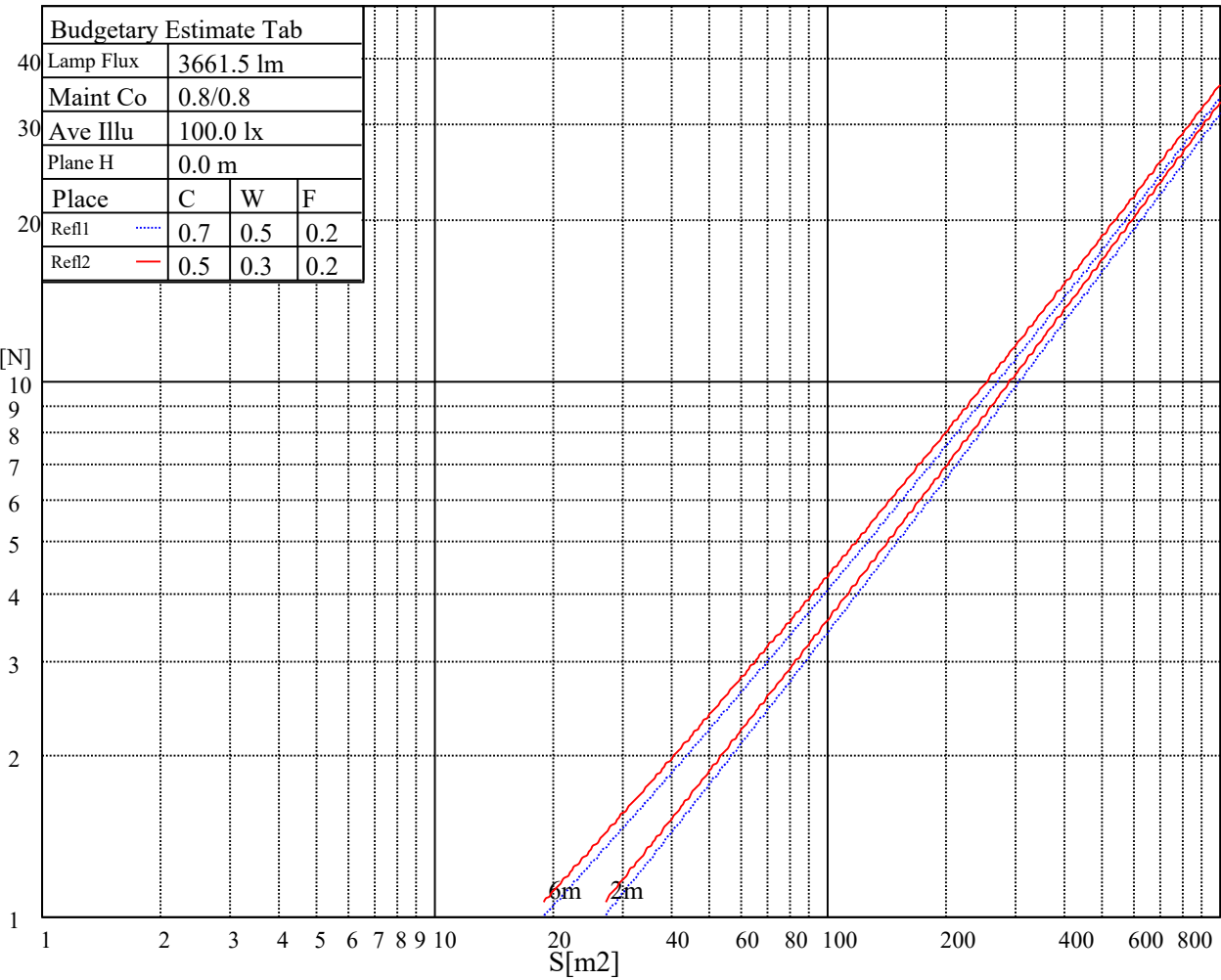
| Glare | Quality | Service Values Illuminance(lx) |      |      |       |       |       |       |       |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15  | A       | 2000                           | 1000 | 500  | <=300 |       |       |       |       |
| 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  | 17.35            | 18.27 | 17.72 | 18.58 | 18.90 | 16.81          | 17.72 | 17.17 | 18.03 | 18.35 |
|                                                   | 3H  | 17.22            | 18.04 | 17.61 | 18.37 | 18.72 | 16.73          | 17.54 | 17.11 | 17.88 | 18.22 |
|                                                   | 4H  | 17.16            | 17.91 | 17.56 | 18.27 | 18.63 | 16.67          | 17.43 | 17.07 | 17.78 | 18.15 |
|                                                   | 6H  | 17.12            | 17.81 | 17.54 | 18.18 | 18.58 | 16.65          | 17.34 | 17.07 | 17.71 | 18.11 |
|                                                   | 8H  | 17.08            | 17.73 | 17.50 | 18.12 | 18.53 | 16.62          | 17.27 | 17.04 | 17.66 | 18.07 |
|                                                   | 12H | 17.05            | 17.67 | 17.48 | 18.06 | 18.48 | 16.60          | 17.22 | 17.03 | 17.61 | 18.03 |
| 4H                                                | 2H  | 17.07            | 17.82 | 17.47 | 18.17 | 18.54 | 16.53          | 17.28 | 16.93 | 17.63 | 18.00 |
|                                                   | 3H  | 16.94            | 17.57 | 17.36 | 17.96 | 18.38 | 16.46          | 17.09 | 16.88 | 17.48 | 17.90 |
|                                                   | 4H  | 16.93            | 17.47 | 17.36 | 17.89 | 18.34 | 16.46          | 17.01 | 16.90 | 17.43 | 17.88 |
|                                                   | 6H  | 16.87            | 17.35 | 17.35 | 17.81 | 18.26 | 16.43          | 16.91 | 16.91 | 17.37 | 17.82 |
|                                                   | 8H  | 16.87            | 17.32 | 17.36 | 17.78 | 18.25 | 16.45          | 16.90 | 16.94 | 17.36 | 17.83 |
|                                                   | 12H | 16.90            | 17.30 | 17.39 | 17.76 | 18.28 | 16.49          | 16.90 | 16.98 | 17.35 | 17.88 |
| 8H                                                | 4H  | 16.76            | 17.20 | 17.25 | 17.66 | 18.14 | 16.30          | 16.75 | 16.79 | 17.21 | 17.68 |
|                                                   | 6H  | 16.73            | 17.09 | 17.24 | 17.57 | 18.09 | 16.31          | 16.67 | 16.81 | 17.15 | 17.66 |
|                                                   | 8H  | 16.81            | 17.11 | 17.35 | 17.64 | 18.13 | 16.41          | 16.71 | 16.95 | 17.23 | 17.73 |
|                                                   | 12H | 16.88            | 17.11 | 17.43 | 17.62 | 18.15 | 16.50          | 16.73 | 17.05 | 17.25 | 17.77 |
| 12H                                               | 4H  | 16.71            | 17.12 | 17.21 | 17.58 | 18.10 | 16.26          | 16.67 | 16.75 | 17.12 | 17.64 |
|                                                   | 6H  | 16.74            | 17.04 | 17.27 | 17.56 | 18.06 | 16.31          | 16.61 | 16.85 | 17.14 | 17.64 |
|                                                   | 8H  | 16.79            | 17.02 | 17.34 | 17.54 | 18.06 | 16.40          | 16.62 | 16.94 | 17.14 | 17.67 |
| Variation with the observer position at spacings: |     |                  |       |       |       |       |                |       |       |       |       |
| S = 1.0H                                          |     | 5.8/-6.9         |       |       |       |       | 5.8/-6.9       |       |       |       |       |
| S = 1.5H                                          |     | 8.3/-6.0         |       |       |       |       | 8.3/-6.0       |       |       |       |       |
| S = 2.0H                                          |     | 10.1/-5.5        |       |       |       |       | 10.1/-5.5      |       |       |       |       |
| Standard tables:                                  |     | BK1              |       |       |       |       | BK1            |       |       |       |       |
| Uncorrected UGR                                   |     | -2.9             |       |       |       |       | -2.9           |       |       |       |       |

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     | 1.15                                   | 1.15 | 1.15 | 1.13 | 1.13 | 1.13 | 1.08 | 1.08 | 1.08 | 1.03 | 1.03 | 1.03 | 0.99 | 0.99 | 0.99 | 0.97 |
| 1     | 1.09                                   | 1.07 | 1.05 | 1.06 | 1.05 | 1.03 | 1.03 | 1.01 | 1.00 | 0.99 | 0.98 | 0.97 | 0.96 | 0.95 | 0.94 | 0.92 |
| 2     | 1.03                                   | 1.00 | 0.97 | 1.01 | 0.98 | 0.96 | 0.98 | 0.96 | 0.94 | 0.95 | 0.93 | 0.92 | 0.93 | 0.91 | 0.90 | 0.88 |
| 3     | 0.98                                   | 0.94 | 0.91 | 0.96 | 0.93 | 0.90 | 0.94 | 0.91 | 0.89 | 0.92 | 0.89 | 0.87 | 0.90 | 0.88 | 0.86 | 0.85 |
| 4     | 0.93                                   | 0.89 | 0.86 | 0.92 | 0.88 | 0.85 | 0.90 | 0.87 | 0.84 | 0.88 | 0.86 | 0.83 | 0.87 | 0.84 | 0.82 | 0.81 |
| 5     | 0.89                                   | 0.85 | 0.82 | 0.88 | 0.84 | 0.81 | 0.87 | 0.83 | 0.81 | 0.85 | 0.82 | 0.80 | 0.84 | 0.81 | 0.79 | 0.78 |
| 6     | 0.86                                   | 0.81 | 0.78 | 0.85 | 0.81 | 0.78 | 0.84 | 0.80 | 0.77 | 0.82 | 0.79 | 0.77 | 0.81 | 0.78 | 0.76 | 0.75 |
| 7     | 0.82                                   | 0.78 | 0.75 | 0.82 | 0.78 | 0.75 | 0.81 | 0.77 | 0.74 | 0.80 | 0.76 | 0.74 | 0.79 | 0.76 | 0.73 | 0.72 |
| 8     | 0.79                                   | 0.75 | 0.72 | 0.79 | 0.75 | 0.72 | 0.78 | 0.74 | 0.71 | 0.77 | 0.74 | 0.71 | 0.76 | 0.73 | 0.71 | 0.70 |
| 9     | 0.77                                   | 0.72 | 0.69 | 0.76 | 0.72 | 0.69 | 0.75 | 0.72 | 0.69 | 0.75 | 0.71 | 0.69 | 0.74 | 0.71 | 0.69 | 0.67 |
| 10    | 0.74                                   | 0.70 | 0.67 | 0.74 | 0.70 | 0.67 | 0.73 | 0.69 | 0.67 | 0.72 | 0.69 | 0.66 | 0.72 | 0.69 | 0.66 | 0.65 |

## Intensity data(cd)

| C/ $\gamma$ (°) | 0.0      | 1.0      | 2.0      | 3.0      | 4.0      | 5.0      | 6.0      | 7.0      | 8.0      |
|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.0             | 13357.05 | 13450.06 | 13421.64 | 13278.68 | 13077.17 | 12741.30 | 12393.39 | 11954.18 | 11435.75 |
| 45.0            | 13245.10 | 13358.77 | 13421.64 | 13382.89 | 13288.16 | 13120.22 | 12872.20 | 12438.17 | 12032.55 |
| 90.0            | 13399.25 | 13410.44 | 13357.91 | 13221.84 | 13016.88 | 12734.41 | 12265.07 | 11802.61 | 11268.68 |
| 135.0           | 13305.38 | 13407.00 | 13413.03 | 13325.19 | 13169.31 | 12957.46 | 12649.16 | 12160.87 | 11694.96 |
| 180.0           | 13357.05 | 13245.10 | 13045.30 | 12786.08 | 12360.66 | 11950.74 | 11430.58 | 10809.67 | 9913.18  |
| 225.0           | 13245.10 | 13049.61 | 12737.86 | 12407.16 | 11995.52 | 11354.80 | 10723.55 | 9989.82  | 8971.04  |
| 270.0           | 13399.25 | 13294.18 | 13140.03 | 12843.78 | 12527.73 | 12027.38 | 11519.28 | 10927.65 | 10079.38 |
| 315.0           | 13305.38 | 13137.45 | 12907.51 | 12497.59 | 12087.66 | 11605.40 | 10901.81 | 10197.37 | 9429.19  |
| 360.0           | 13357.05 | 13450.06 | 13421.64 | 13278.68 | 13077.17 | 12741.30 | 12393.39 | 11954.18 | 11435.75 |
| C/ $\gamma$ (°) | 9.0      | 10.0     | 11.0     | 12.0     | 13.0     | 14.0     | 15.0     | 16.0     | 17.0     |
| 0.0             | 10685.66 | 9985.51  | 9212.17  | 8395.77  | 7360.63  | 6532.17  | 5736.43  | 4964.81  | 4070.90  |
| 45.0            | 11533.06 | 10791.58 | 10112.97 | 9348.24  | 8327.74  | 7491.53  | 6666.51  | 5657.20  | 4884.72  |
| 90.0            | 10646.04 | 9720.27  | 8903.01  | 7856.67  | 7017.87  | 6221.28  | 5230.92  | 4467.91  | 3753.99  |
| 135.0           | 11128.31 | 10468.64 | 9548.89  | 8755.74  | 7922.98  | 7087.63  | 6054.21  | 5250.72  | 4324.09  |
| 180.0           | 9121.75  | 8271.76  | 7420.05  | 6371.99  | 5565.06  | 4624.64  | 3944.31  | 3350.95  | 2743.82  |
| 225.0           | 8121.05  | 7083.32  | 6260.89  | 5469.47  | 4717.65  | 4030.43  | 3270.00  | 2790.32  | 2419.15  |
| 270.0           | 9318.96  | 8497.39  | 7667.21  | 6652.73  | 5859.58  | 5082.79  | 4352.51  | 3526.63  | 2959.11  |
| 315.0           | 8617.95  | 7625.01  | 6806.02  | 6007.71  | 5234.36  | 4329.26  | 3677.34  | 3119.29  | 2570.72  |
| 360.0           | 10685.66 | 9985.51  | 9212.17  | 8395.77  | 7360.63  | 6532.17  | 5736.43  | 4964.81  | 4070.90  |
| C/ $\gamma$ (°) | 18.0     | 19.0     | 20.0     | 21.0     | 22.0     | 23.0     | 24.0     | 25.0     | 26.0     |
| 0.0             | 3461.18  | 2846.30  | 2483.74  | 2212.47  | 1704.28  | 1704.28  | 1674.74  | 1574.07  | 1473.23  |
| 45.0            | 4158.74  | 3511.99  | 2872.13  | 2494.94  | 2215.91  | 2002.34  | 1803.41  | 1676.81  | 1556.25  |
| 90.0            | 3150.30  | 2562.11  | 2230.55  | 1684.99  | 1684.99  | 1622.56  | 1506.64  | 1420.18  | 1349.91  |
| 135.0           | 3657.53  | 3090.88  | 2544.88  | 2229.69  | 2006.64  | 1836.99  | 1678.53  | 1575.19  | 1495.10  |
| 180.0           | 2391.59  | 2137.54  | 1945.50  | 1758.62  | 1639.78  | 1542.47  | 1464.96  | 1388.31  | 1333.20  |
| 225.0           | 2097.07  | 1696.79  | 1696.79  | 1637.63  | 1519.39  | 1443.95  | 1382.20  | 1315.37  | 1272.92  |
| 270.0           | 2512.16  | 2127.21  | 1909.33  | 1734.51  | 1560.55  | 1454.63  | 1347.84  | 1278.94  | 1223.83  |
| 315.0           | 2262.42  | 1874.88  | 1690.07  | 1690.07  | 1581.05  | 1475.55  | 1407.26  | 1347.24  | 1297.03  |
| 360.0           | 3461.18  | 2846.30  | 2483.74  | 2212.47  | 1704.28  | 1704.28  | 1674.74  | 1574.07  | 1473.23  |
| C/ $\gamma$ (°) | 27.0     | 28.0     | 29.0     | 30.0     | 31.0     | 32.0     | 33.0     | 34.0     | 35.0     |
| 0.0             | 1407.17  | 1350.51  | 1302.89  | 1250.44  | 1190.85  | 1111.79  | 1012.41  | 867.04   | 739.76   |
| 45.0            | 1476.16  | 1408.98  | 1336.64  | 1293.58  | 1253.97  | 1174.74  | 1085.18  | 982.70   | 867.30   |
| 90.0            | 1280.49  | 1229.00  | 1180.34  | 1136.33  | 1063.13  | 952.30   | 860.06   | 748.80   | 608.94   |
| 135.0           | 1430.51  | 1359.90  | 1311.67  | 1271.19  | 1207.47  | 1130.82  | 1032.65  | 894.00   | 777.74   |
| 180.0           | 1291.00  | 1230.72  | 1157.52  | 1064.51  | 931.03   | 820.79   | 666.64   | 533.16   | 436.71   |
| 225.0           | 1209.36  | 1130.99  | 1032.56  | 925.34   | 783.94   | 665.61   | 548.49   | 434.81   | 299.09   |
| 270.0           | 1180.77  | 1124.79  | 1061.93  | 985.28   | 898.30   | 787.21   | 678.70   | 563.30   | 453.93   |
| 315.0           | 1240.62  | 1184.73  | 1104.30  | 1001.82  | 860.06   | 744.41   | 624.10   | 479.68   | 371.00   |
| 360.0           | 1407.17  | 1350.51  | 1302.89  | 1250.44  | 1190.85  | 1111.79  | 1012.41  | 867.04   | 739.76   |
| C/ $\gamma$ (°) | 36.0     | 37.0     | 38.0     | 39.0     | 40.0     | 41.0     | 42.0     | 43.0     | 44.0     |
| 0.0             | 572.17   | 445.40   | 331.21   | 205.13   | 126.51   | 78.54    | 52.53    | 43.32    | 37.89    |
| 45.0            | 744.15   | 590.86   | 471.15   | 443.60   | 443.60   | 132.88   | 81.38    | 51.67    | 45.99    |
| 90.0            | 497.59   | 389.17   | 295.21   | 189.80   | 120.22   | 76.47    | 58.13    | 50.03    | 43.75    |
| 135.0           | 654.59   | 501.30   | 442.73   | 442.73   | 176.11   | 91.89    | 61.75    | 49.95    | 44.95    |
| 180.0           | 436.71   | 174.56   | 109.89   | 66.74    | 49.17    | 42.54    | 37.12    | 32.55    | 29.28    |
| 225.0           | 202.98   | 124.61   | 65.79    | 49.26    | 44.26    | 36.77    | 32.12    | 29.37    | 28.59    |
| 270.0           | 453.93   | 238.29   | 158.37   | 87.24    | 60.28    | 48.74    | 41.85    | 36.17    | 31.95    |
| 315.0           | 244.75   | 157.34   | 90.94    | 56.24    | 42.71    | 36.43    | 30.49    | 25.92    | 23.08    |
| 360.0           | 572.17   | 445.40   | 331.21   | 205.13   | 126.51   | 78.54    | 52.53    | 43.32    | 37.89    |

## 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    | 32.81 | 28.85 | 26.35 | 25.49 | 24.89 | 24.20 | 23.60 | 22.99 | 22.30 |
| 45.0   | 41.08 | 35.14 | 31.78 | 30.31 | 29.19 | 28.51 | 27.73 | 26.78 | 25.92 |
| 90.0   | 37.98 | 33.07 | 31.00 | 29.45 | 28.59 | 27.82 | 26.70 | 26.35 | 25.23 |
| 135.0  | 37.89 | 33.59 | 31.00 | 30.31 | 29.88 | 29.45 | 28.59 | 27.90 | 27.39 |
| 180.0  | 27.99 | 27.30 | 26.78 | 26.35 | 26.09 | 25.66 | 25.32 | 24.89 | 24.37 |
| 225.0  | 28.16 | 27.73 | 27.13 | 26.18 | 25.75 | 25.23 | 24.72 | 23.94 | 23.42 |
| 270.0  | 29.37 | 27.82 | 27.04 | 26.52 | 25.40 | 24.37 | 23.77 | 22.91 | 21.87 |
| 315.0  | 22.48 | 22.05 | 21.62 | 20.75 | 19.98 | 19.20 | 18.60 | 18.00 | 17.48 |
| 360.0  | 32.81 | 28.85 | 26.35 | 25.49 | 24.89 | 24.20 | 23.60 | 22.99 | 22.30 |
| C/γ(°) | 54.0  | 55.0  | 56.0  | 57.0  | 58.0  | 59.0  | 60.0  | 61.0  | 62.0  |
| 0.0    | 21.70 | 21.01 | 20.58 | 20.24 | 19.72 | 19.20 | 18.77 | 18.26 | 17.74 |
| 45.0   | 25.32 | 24.54 | 23.94 | 23.42 | 22.91 | 22.39 | 21.96 | 21.53 | 20.75 |
| 90.0   | 23.85 | 22.91 | 23.17 | 23.60 | 23.42 | 23.60 | 23.77 | 24.20 | 24.11 |
| 135.0  | 26.87 | 26.35 | 25.84 | 25.23 | 24.72 | 24.11 | 23.77 | 23.08 | 22.30 |
| 180.0  | 23.77 | 23.34 | 22.99 | 22.48 | 22.05 | 21.62 | 21.10 | 20.41 | 19.81 |
| 225.0  | 22.91 | 22.22 | 21.70 | 20.93 | 20.32 | 19.72 | 18.86 | 18.26 | 17.74 |
| 270.0  | 21.19 | 20.58 | 19.89 | 19.38 | 18.86 | 18.17 | 17.48 | 16.97 | 16.36 |
| 315.0  | 17.05 | 16.71 | 16.36 | 16.19 | 16.02 | 15.59 | 15.16 | 14.81 | 14.38 |
| 360.0  | 21.70 | 21.01 | 20.58 | 20.24 | 19.72 | 19.20 | 18.77 | 18.26 | 17.74 |
| C/γ(°) | 63.0  | 64.0  | 65.0  | 66.0  | 67.0  | 68.0  | 69.0  | 70.0  | 71.0  |
| 0.0    | 17.14 | 16.71 | 16.45 | 16.02 | 15.59 | 15.24 | 14.47 | 13.87 | 13.00 |
| 45.0   | 20.32 | 19.72 | 19.03 | 18.34 | 17.65 | 17.14 | 16.45 | 15.50 | 14.64 |
| 90.0   | 23.60 | 22.22 | 21.27 | 20.50 | 19.55 | 18.26 | 16.62 | 15.59 | 14.55 |
| 135.0  | 21.70 | 20.84 | 19.98 | 19.12 | 18.26 | 17.40 | 16.36 | 15.33 | 14.30 |
| 180.0  | 19.20 | 18.60 | 17.83 | 17.05 | 15.93 | 15.07 | 14.04 | 13.09 | 11.97 |
| 225.0  | 17.22 | 16.36 | 15.59 | 14.90 | 14.04 | 13.00 | 12.31 | 11.63 | 10.76 |
| 270.0  | 15.76 | 15.24 | 14.81 | 14.21 | 13.78 | 13.26 | 12.40 | 11.80 | 11.11 |
| 315.0  | 14.12 | 13.69 | 13.35 | 12.83 | 12.14 | 11.63 | 11.02 | 10.68 | 10.25 |
| 360.0  | 17.14 | 16.71 | 16.45 | 16.02 | 15.59 | 15.24 | 14.47 | 13.87 | 13.00 |
| C/γ(°) | 72.0  | 73.0  | 74.0  | 75.0  | 76.0  | 77.0  | 78.0  | 79.0  | 80.0  |
| 0.0    | 12.14 | 11.45 | 10.76 | 10.25 | 9.82  | 9.65  | 9.47  | 9.30  | 9.04  |
| 45.0   | 13.87 | 13.00 | 11.97 | 11.20 | 10.42 | 9.90  | 9.65  | 9.39  | 9.30  |
| 90.0   | 13.52 | 12.06 | 11.37 | 10.68 | 10.16 | 9.99  | 9.90  | 9.82  | 9.73  |
| 135.0  | 13.52 | 12.57 | 11.45 | 10.76 | 10.08 | 9.73  | 9.56  | 9.39  | 9.21  |
| 180.0  | 11.11 | 10.42 | 9.99  | 9.73  | 9.56  | 9.39  | 9.21  | 9.04  | 8.87  |
| 225.0  | 10.25 | 9.90  | 9.65  | 9.47  | 9.30  | 9.13  | 9.04  | 8.87  | 8.70  |
| 270.0  | 10.59 | 10.16 | 9.90  | 9.82  | 9.73  | 9.65  | 9.56  | 9.47  | 9.30  |
| 315.0  | 9.90  | 9.56  | 9.39  | 9.30  | 9.13  | 8.96  | 8.78  | 8.61  | 8.53  |
| 360.0  | 12.14 | 11.45 | 10.76 | 10.25 | 9.82  | 9.65  | 9.47  | 9.30  | 9.04  |
| C/γ(°) | 81.0  | 82.0  | 83.0  | 84.0  | 85.0  | 86.0  | 87.0  | 88.0  | 89.0  |
| 0.0    | 8.87  | 8.78  | 8.61  | 8.53  | 8.44  | 8.27  | 8.18  | 8.01  | 7.92  |
| 45.0   | 9.13  | 8.96  | 8.78  | 8.61  | 8.44  | 8.27  | 8.10  | 8.10  | 7.84  |
| 90.0   | 9.56  | 9.47  | 9.21  | 9.04  | 8.70  | 8.35  | 8.10  | 7.84  | 7.75  |
| 135.0  | 8.96  | 8.78  | 8.70  | 8.61  | 8.53  | 8.35  | 8.10  | 8.01  | 7.75  |
| 180.0  | 8.78  | 8.70  | 8.53  | 8.44  | 8.27  | 8.18  | 8.01  | 7.58  | 7.49  |
| 225.0  | 8.70  | 8.61  | 8.44  | 8.18  | 8.10  | 7.92  | 7.75  | 7.49  | 7.41  |
| 270.0  | 9.13  | 8.96  | 8.78  | 8.44  | 8.10  | 7.92  | 7.75  | 7.58  | 7.49  |
| 315.0  | 8.35  | 8.27  | 8.10  | 7.92  | 7.84  | 7.66  | 7.49  | 7.32  | 7.32  |
| 360.0  | 8.87  | 8.78  | 8.61  | 8.53  | 8.44  | 8.27  | 8.18  | 8.01  | 7.92  |

Intensity data(cd)

|                       |      |
|-----------------------|------|
| C/ $\gamma(^{\circ})$ | 90.0 |
| 0.0                   | 7.84 |
| 45.0                  | 7.66 |
| 90.0                  | 7.58 |
| 135.0                 | 7.66 |
| 180.0                 | 7.49 |
| 225.0                 | 7.49 |
| 270.0                 | 7.41 |
| 315.0                 | 7.32 |
| 360.0                 | 7.84 |