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## Nata

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LumCAT: 2-2077-M  
Luminaire: 92.70.135.00  
Report No: NATA0100  
Test No: GC2019092303  
LampCAT: LUMILEDS LUXEON CoB 1208  
Lamp flux(lm): 1809.9  
Number of Lamps: 1  
Length(mm): 0  
Phm Type: C

Voltage(V): 32.8400  
Current(A): 0.4470  
Power (W): 14.9000  
PF: 0.0000  
Ballast type: DC  
Width(mm): 0  
Height(mm): 0

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## Photometric Results

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Lumens(lm): 1334.77  
Efficiency(%): 73.75%  
Lumens(lm)/Power(W): 89.58  
Central intensity(cd): 6977.672  
Maximum intensity(cd): 6977.672  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=24.0  
                                  [C90/270]Total=24.0  
Field angle(10%Imax): [C0/180]Total=42.7  
                                  [C90/270]Total=42.7  
Maximum s/h(1/2): C0\_180=0.41 C90\_270=0.41  
Maximum s/h(1/4): C0\_180=0.41 C90\_270=0.41  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 73.75%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.476%

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 6977.672      | 0.000       | 0         | .000%       | .000%      |
| 1.0                | 6951.727      | 6.665       | 6.665     | .368%       | .499%      |
| 2.0                | 6856.242      | 19.819      | 26.483    | 1.095%      | 1.984%     |
| 3.0                | 6698.742      | 32.419      | 58.903    | 1.791%      | 4.413%     |
| 4.0                | 6494.625      | 44.162      | 103.065   | 2.440%      | 7.722%     |
| 5.0                | 6203.109      | 54.625      | 157.69    | 3.018%      | 11.814%    |
| 6.0                | 5895.914      | 63.584      | 221.274   | 3.513%      | 16.578%    |
| 7.0                | 5536.828      | 70.963      | 292.236   | 3.921%      | 21.894%    |
| 8.0                | 5151.727      | 76.496      | 368.732   | 4.227%      | 27.625%    |
| 9.0                | 4732.102      | 80.103      | 448.835   | 4.426%      | 33.627%    |
| 10.0               | 4309.172      | 81.820      | 530.656   | 4.521%      | 39.756%    |
| 11.0               | 3891.516      | 81.942      | 612.597   | 4.527%      | 45.895%    |
| 12.0               | 3485.742      | 80.644      | 693.241   | 4.456%      | 51.937%    |
| 13.0               | 3074.625      | 77.855      | 771.096   | 4.302%      | 57.770%    |
| 14.0               | 2682.703      | 73.693      | 844.79    | 4.072%      | 63.291%    |
| 15.0               | 2334.234      | 68.875      | 913.664   | 3.805%      | 68.451%    |
| 16.0               | 2010.797      | 63.667      | 977.331   | 3.518%      | 73.221%    |
| 17.0               | 1713.023      | 57.990      | 1035.321  | 3.204%      | 77.566%    |
| 18.0               | 1411.151      | 51.511      | 1086.832  | 2.846%      | 81.425%    |
| 19.0               | 1195.573      | 45.352      | 1132.184  | 2.506%      | 84.823%    |
| 20.0               | 931.184       | 38.926      | 1171.109  | 2.151%      | 87.739%    |
| 21.0               | 753.532       | 32.350      | 1203.459  | 1.787%      | 90.163%    |
| 22.0               | 584.304       | 26.884      | 1230.344  | 1.485%      | 92.177%    |
| 23.0               | 429.434       | 21.271      | 1251.614  | 1.175%      | 93.770%    |
| 24.0               | 286.313       | 15.649      | 1267.263  | .865%       | 94.943%    |
| 25.0               | 191.749       | 10.870      | 1278.133  | .601%       | 95.757%    |
| 26.0               | 116.655       | 7.280       | 1285.413  | .402%       | 96.302%    |
| 27.0               | 54.316        | 4.183       | 1289.596  | .231%       | 96.616%    |
| 28.0               | 29.419        | 2.120       | 1291.716  | .117%       | 96.775%    |
| 29.0               | 19.547        | 1.281       | 1292.997  | .071%       | 96.871%    |
| 30.0               | 17.114        | 0.990       | 1293.987  | .055%       | 96.945%    |
| 31.0               | 15.525        | 0.908       | 1294.895  | .050%       | 97.013%    |
| 32.0               | 14.280        | 0.854       | 1295.749  | .047%       | 97.077%    |
| 33.0               | 13.289        | 0.812       | 1296.561  | .045%       | 97.138%    |
| 34.0               | 12.502        | 0.781       | 1297.342  | .043%       | 97.196%    |
| 35.0               | 11.784        | 0.754       | 1298.096  | .042%       | 97.253%    |
| 36.0               | 11.138        | 0.730       | 1298.826  | .040%       | 97.307%    |
| 37.0               | 10.638        | 0.710       | 1299.536  | .039%       | 97.361%    |

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 38.0               | 10.167        | 0.694       | 1300.231  | .038%       | 97.413%    |
| 39.0               | 9.752         | 0.680       | 1300.911  | .038%       | 97.464%    |
| 40.0               | 9.443         | 0.669       | 1301.58   | .037%       | 97.514%    |
| 41.0               | 9.148         | 0.662       | 1302.242  | .037%       | 97.563%    |
| 42.0               | 8.852         | 0.654       | 1302.896  | .036%       | 97.612%    |
| 43.0               | 8.620         | 0.647       | 1303.543  | .036%       | 97.661%    |
| 44.0               | 8.416         | 0.643       | 1304.186  | .036%       | 97.709%    |
| 45.0               | 8.234         | 0.640       | 1304.826  | .035%       | 97.757%    |
| 46.0               | 8.086         | 0.638       | 1305.464  | .035%       | 97.805%    |
| 47.0               | 7.910         | 0.636       | 1306.101  | .035%       | 97.852%    |
| 48.0               | 7.798         | 0.635       | 1306.736  | .035%       | 97.900%    |
| 49.0               | 7.671         | 0.635       | 1307.371  | .035%       | 97.948%    |
| 50.0               | 7.566         | 0.635       | 1308.006  | .035%       | 97.995%    |
| 51.0               | 7.453         | 0.635       | 1308.641  | .035%       | 98.043%    |
| 52.0               | 7.376         | 0.636       | 1309.278  | .035%       | 98.090%    |
| 53.0               | 7.291         | 0.638       | 1309.916  | .035%       | 98.138%    |
| 54.0               | 7.200         | 0.639       | 1310.555  | .035%       | 98.186%    |
| 55.0               | 7.130         | 0.640       | 1311.194  | .035%       | 98.234%    |
| 56.0               | 7.080         | 0.642       | 1311.836  | .035%       | 98.282%    |
| 57.0               | 7.024         | 0.645       | 1312.481  | .036%       | 98.330%    |
| 58.0               | 6.975         | 0.647       | 1313.129  | .036%       | 98.379%    |
| 59.0               | 6.919         | 0.650       | 1313.778  | .036%       | 98.428%    |
| 60.0               | 6.855         | 0.651       | 1314.429  | .036%       | 98.476%    |
| 61.0               | 6.820         | 0.653       | 1315.082  | .036%       | 98.525%    |
| 62.0               | 6.764         | 0.655       | 1315.736  | .036%       | 98.574%    |
| 63.0               | 6.736         | 0.657       | 1316.393  | .036%       | 98.623%    |
| 64.0               | 6.694         | 0.659       | 1317.052  | .036%       | 98.673%    |
| 65.0               | 6.666         | 0.661       | 1317.713  | .037%       | 98.722%    |
| 66.0               | 6.652         | 0.664       | 1318.377  | .037%       | 98.772%    |
| 67.0               | 6.602         | 0.666       | 1319.044  | .037%       | 98.822%    |
| 68.0               | 6.574         | 0.667       | 1319.711  | .037%       | 98.872%    |
| 69.0               | 6.553         | 0.670       | 1320.381  | .037%       | 98.922%    |
| 70.0               | 6.525         | 0.672       | 1321.053  | .037%       | 98.973%    |
| 71.0               | 6.525         | 0.674       | 1321.727  | .037%       | 99.023%    |
| 72.0               | 6.497         | 0.677       | 1322.404  | .037%       | 99.074%    |
| 73.0               | 6.469         | 0.678       | 1323.082  | .037%       | 99.125%    |
| 74.0               | 6.462         | 0.680       | 1323.762  | .038%       | 99.176%    |
| 75.0               | 6.434         | 0.681       | 1324.443  | .038%       | 99.227%    |

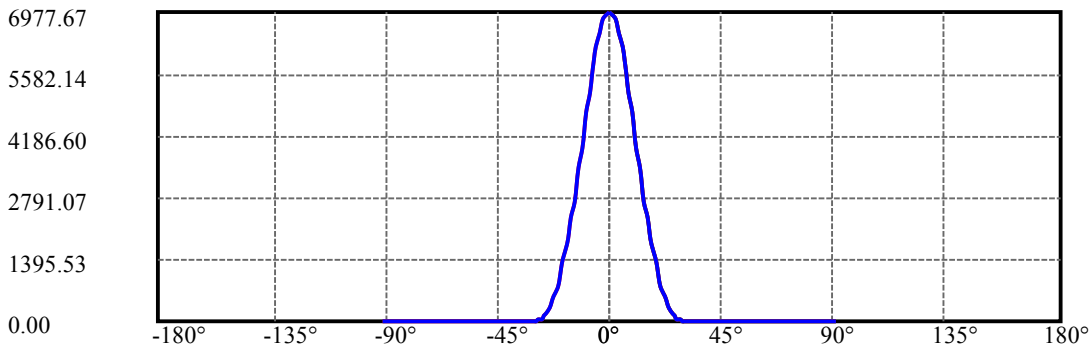
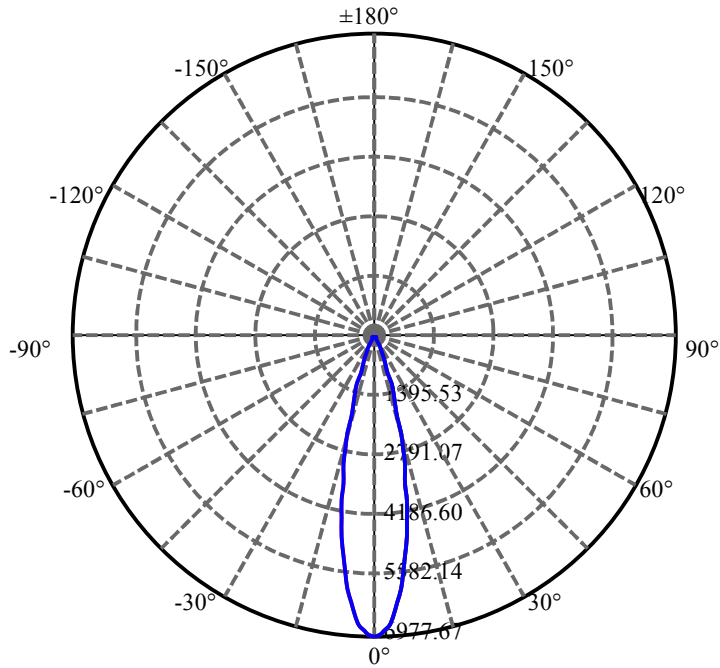
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0               | 6.420         | 0.682       | 1325.126  | .038%       | 99.278%    |
| 77.0               | 6.420         | 0.685       | 1325.81   | .038%       | 99.329%    |
| 78.0               | 6.398         | 0.686       | 1326.496  | .038%       | 99.380%    |
| 79.0               | 6.377         | 0.686       | 1327.183  | .038%       | 99.432%    |
| 80.0               | 6.370         | 0.687       | 1327.87   | .038%       | 99.483%    |
| 81.0               | 6.363         | 0.689       | 1328.559  | .038%       | 99.535%    |
| 82.0               | 6.349         | 0.689       | 1329.248  | .038%       | 99.587%    |
| 83.0               | 6.335         | 0.690       | 1329.937  | .038%       | 99.638%    |
| 84.0               | 6.321         | 0.689       | 1330.627  | .038%       | 99.690%    |
| 85.0               | 6.328         | 0.690       | 1331.317  | .038%       | 99.742%    |
| 86.0               | 6.321         | 0.691       | 1332.009  | .038%       | 99.793%    |
| 87.0               | 6.314         | 0.691       | 1332.7    | .038%       | 99.845%    |
| 88.0               | 6.286         | 0.690       | 1333.39   | .038%       | 99.897%    |
| 89.0               | 6.265         | 0.688       | 1334.078  | .038%       | 99.948%    |
| 90.0               | 6.286         | 0.688       | 1334.766  | .038%       | 100.000%   |

ZONAL LUMEN SUMMARY

| Zone    | Lumens  | %Lamp  | %Fixt   |
|---------|---------|--------|---------|
| 0-30    | 1293.99 | 71.49% | 96.94%  |
| 0-40    | 1301.58 | 71.91% | 97.51%  |
| 0-60    | 1314.43 | 72.62% | 98.48%  |
| 0-90    | 1334.08 | 73.71% | 99.95%  |
| 0-120   | 1334.08 | 73.71% | 99.95%  |
| 0-180   | 1334.77 | 73.75% | 100.00% |
| 60-90   | 20.30   | 1.12%  | 1.52%   |
| 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%   |
| 0-17.63 | 1067.81 | 59.00% | 80.00%  |

ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 530.66 |
| 10-20   | 640.45 |
| 20-30   | 122.88 |
| 30-40   | 7.59   |
| 40-50   | 6.43   |
| 50-60   | 6.42   |
| 60-70   | 6.62   |
| 70-80   | 6.82   |
| 80-90   | 6.21   |
| 90-100  | 0.00   |
| 100-110 | 0.00   |
| 110-120 | 0.00   |
| 120-130 | 0.00   |
| 130-140 | 0.00   |
| 140-150 | 0.00   |
| 150-160 | 0.00   |
| 160-170 | 0.00   |
| 170-180 | 0.00   |



C0(Max): ———

C0/C180: ———

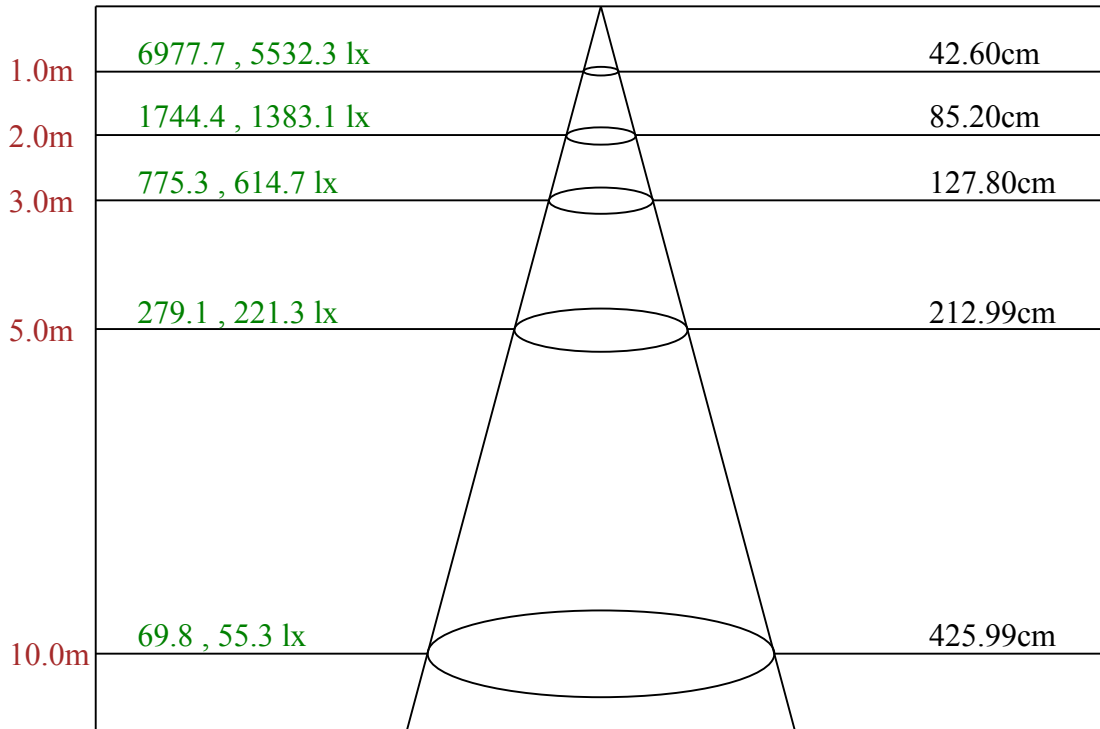
C90/C270: ———

Field angle(10%Imax):C0/180Left:21.3 Right:21.3

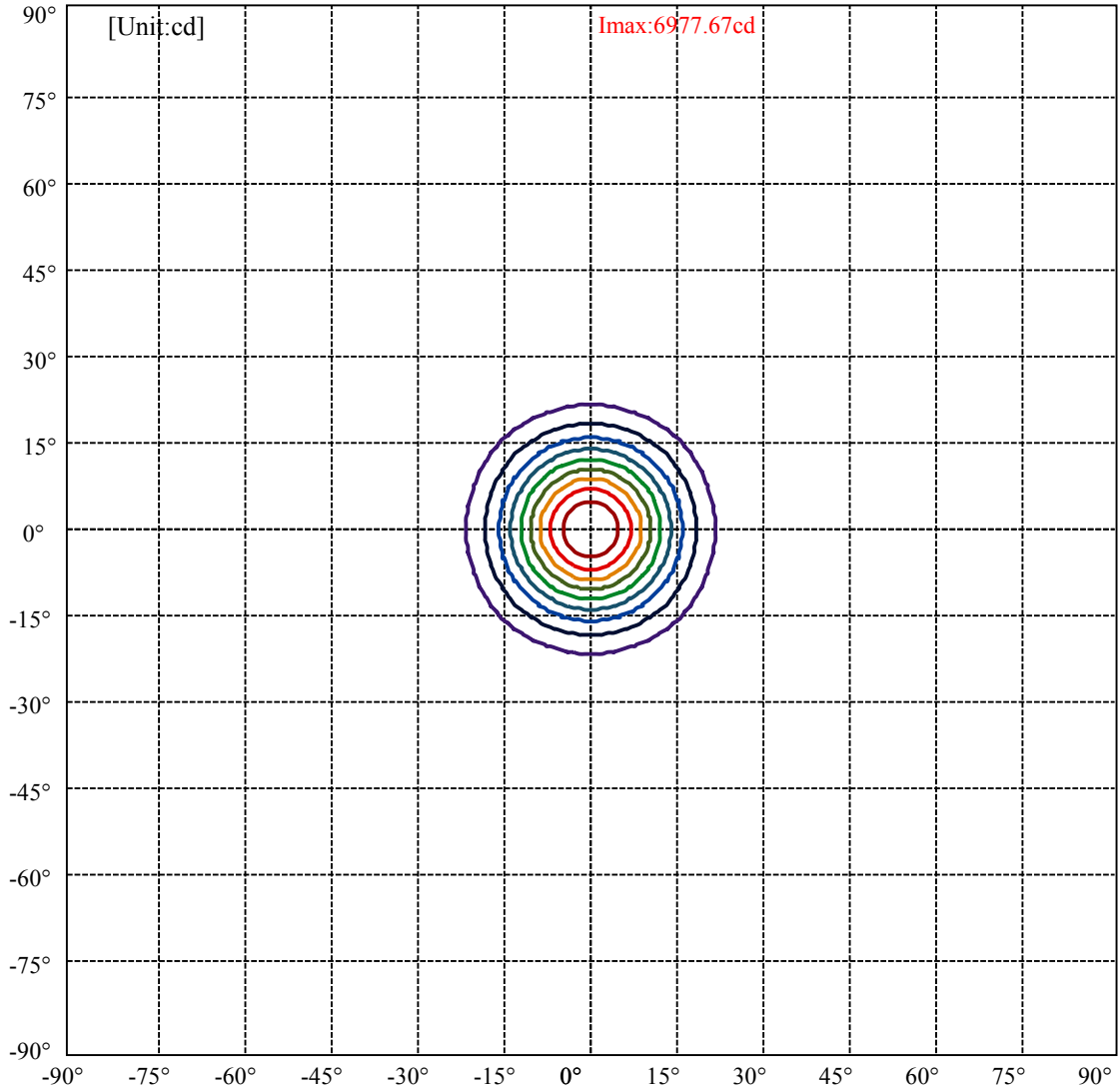
:C90/270Left:21.3 Right:21.3

Beam Angle(50%Imax):C0/180Left:12.0 Right:12.0

:C90/270Left:12.0 Right:12.0

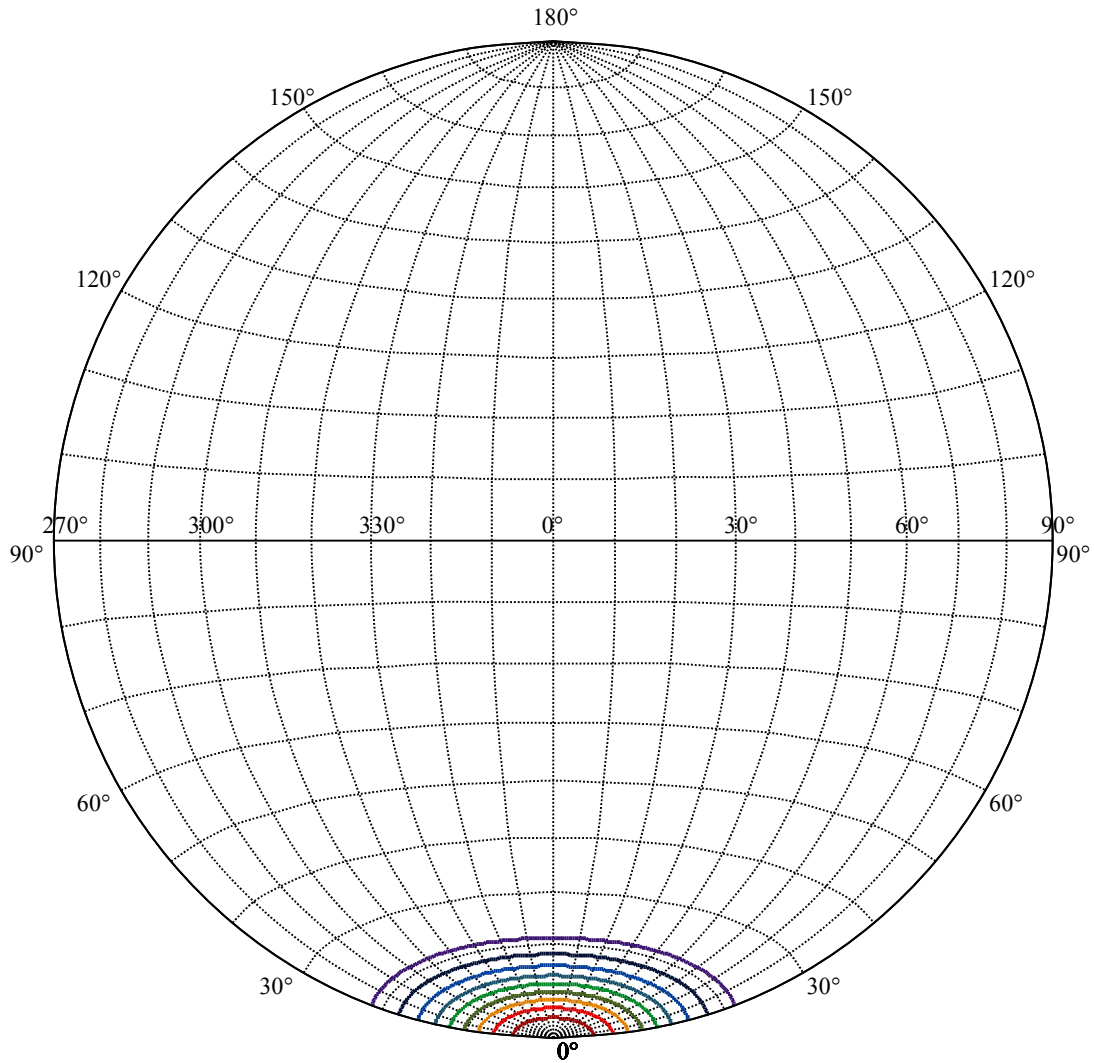


Max , Ave      Beam angle of C0 plane 24.05



|                   |   |
|-------------------|---|
| (10%Imax) 697.767 | — |
| (20%Imax) 1395.53 | — |
| (30%Imax) 2093.3  | — |
| (40%Imax) 2791.07 | — |
| (50%Imax) 3488.84 | — |
| (60%Imax) 4186.6  | — |
| (70%Imax) 4884.37 | — |
| (80%Imax) 5582.14 | — |
| (90%Imax) 6279.9  | — |





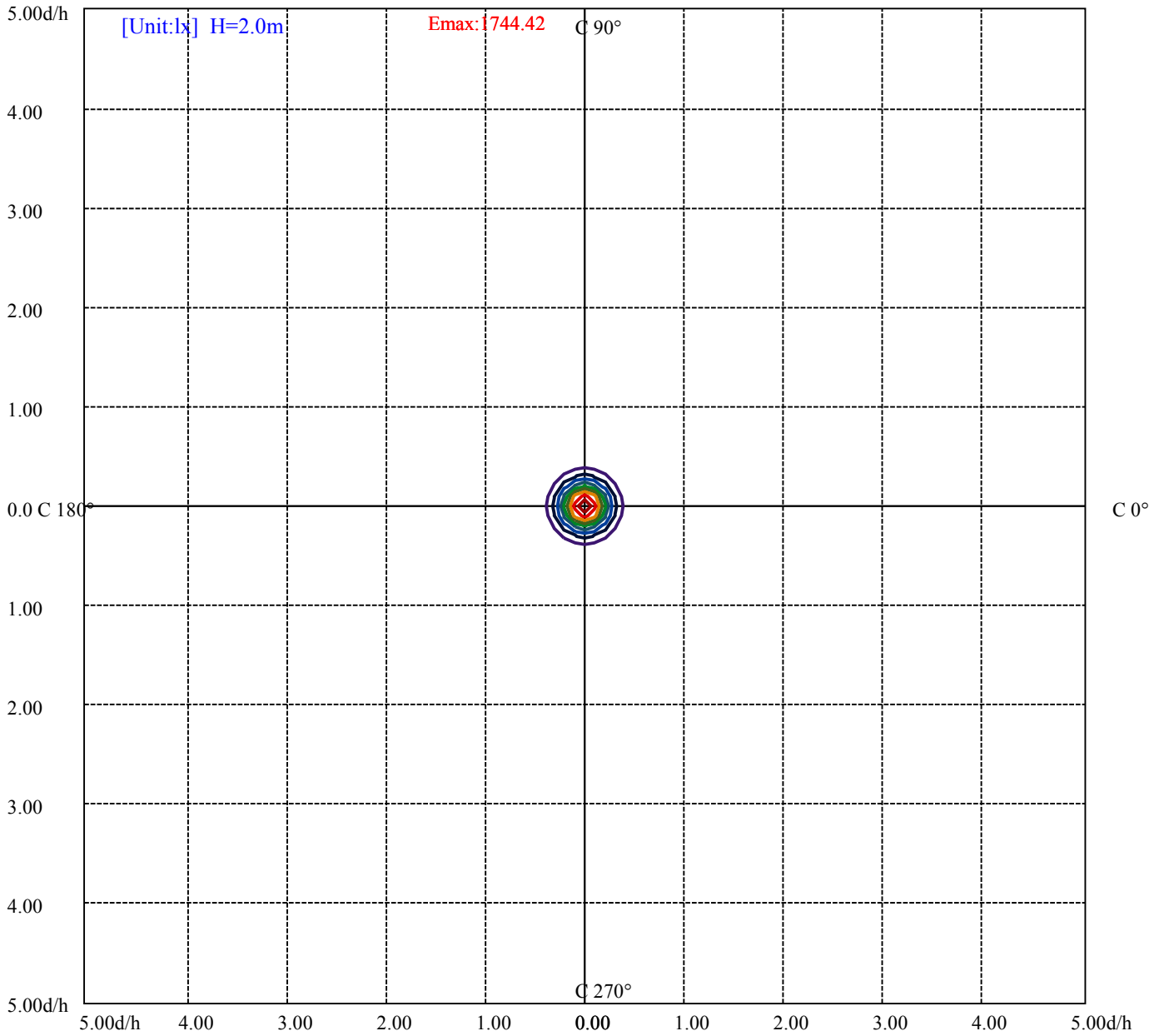
House

[Unit:cd]

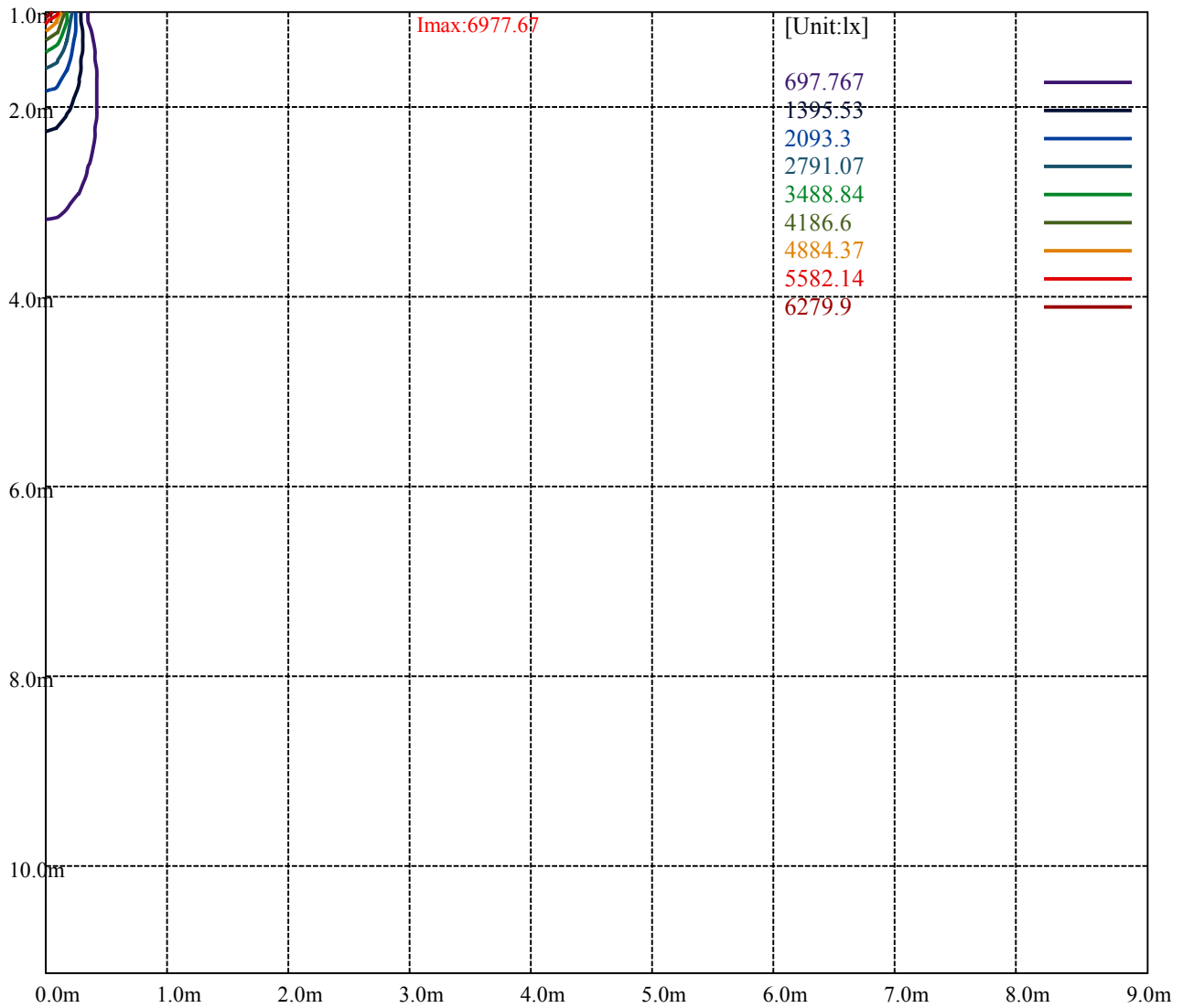
Road

**Imax:6977.67**

|                   |   |
|-------------------|---|
| (10%Imax) 697.767 | — |
| (20%Imax) 1395.53 | — |
| (30%Imax) 2093.3  | — |
| (40%Imax) 2791.07 | — |
| (50%Imax) 3488.84 | — |
| (60%Imax) 4186.6  | — |
| (70%Imax) 4884.37 | — |
| (80%Imax) 5582.14 | — |
| (90%Imax) 6279.9  | — |



- (10%Emax) 174.4418
- (20%Emax) 348.8825
- (30%Emax) 523.325
- (40%Emax) 697.7675
- (50%Emax) 872.2075
- (60%Emax) 1046.65
- (70%Emax) 1221.093
- (80%Emax) 1395.532
- (90%Emax) 1569.975



Luminance Table

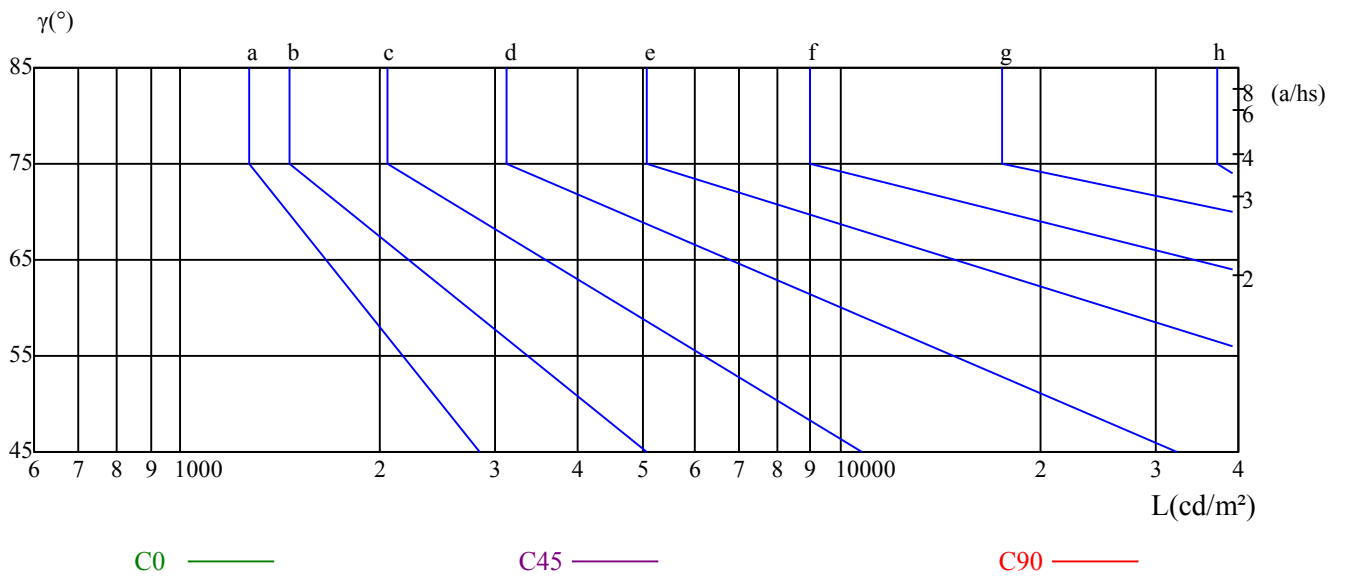
| $\gamma$ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|----|----|----|----|----|----|----|----|----|
| C0       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C45      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C90      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |

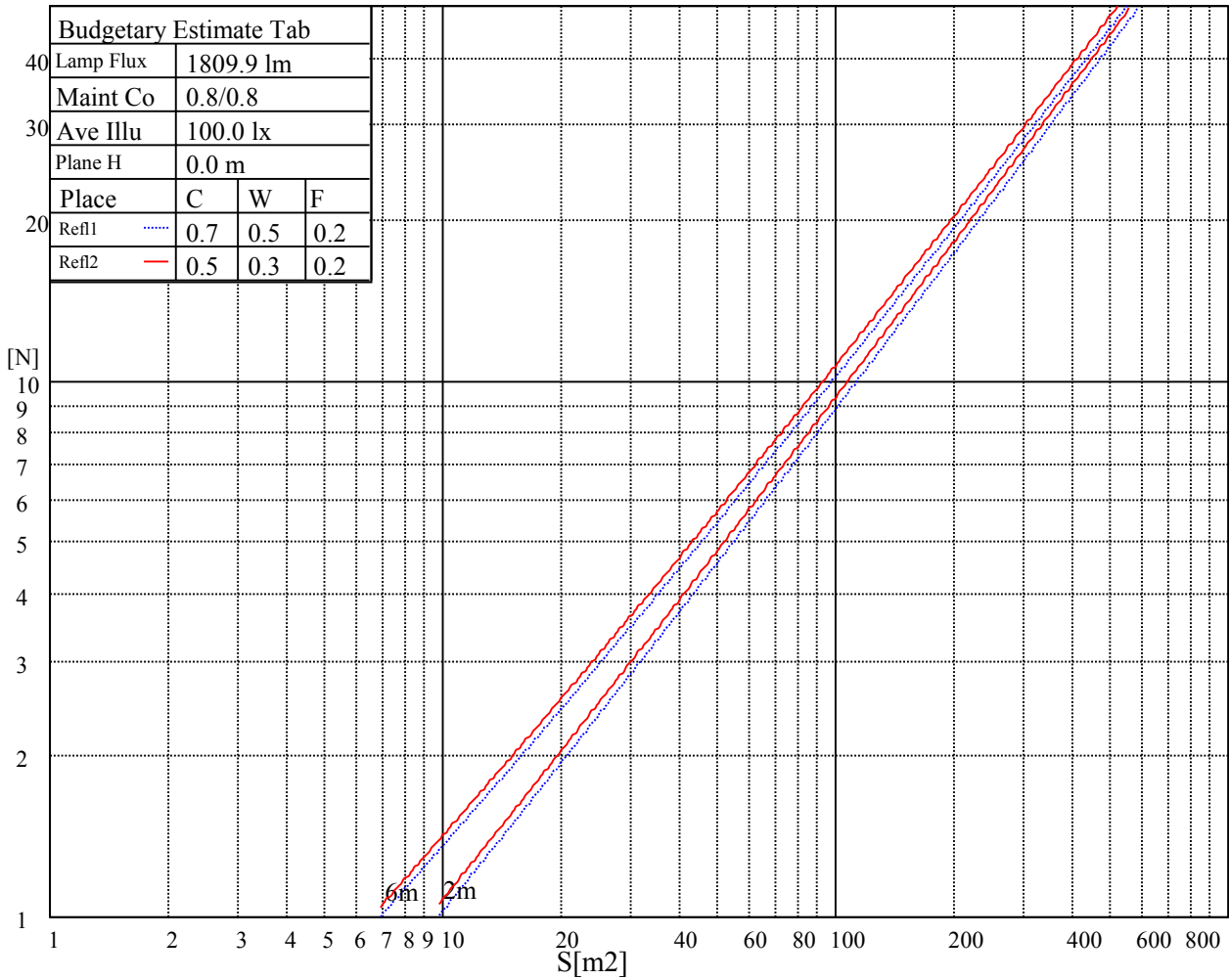
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 0          | 0          | 0       | 0          | 0          | 0       | 0          | 0          | 0       |

Glare Table

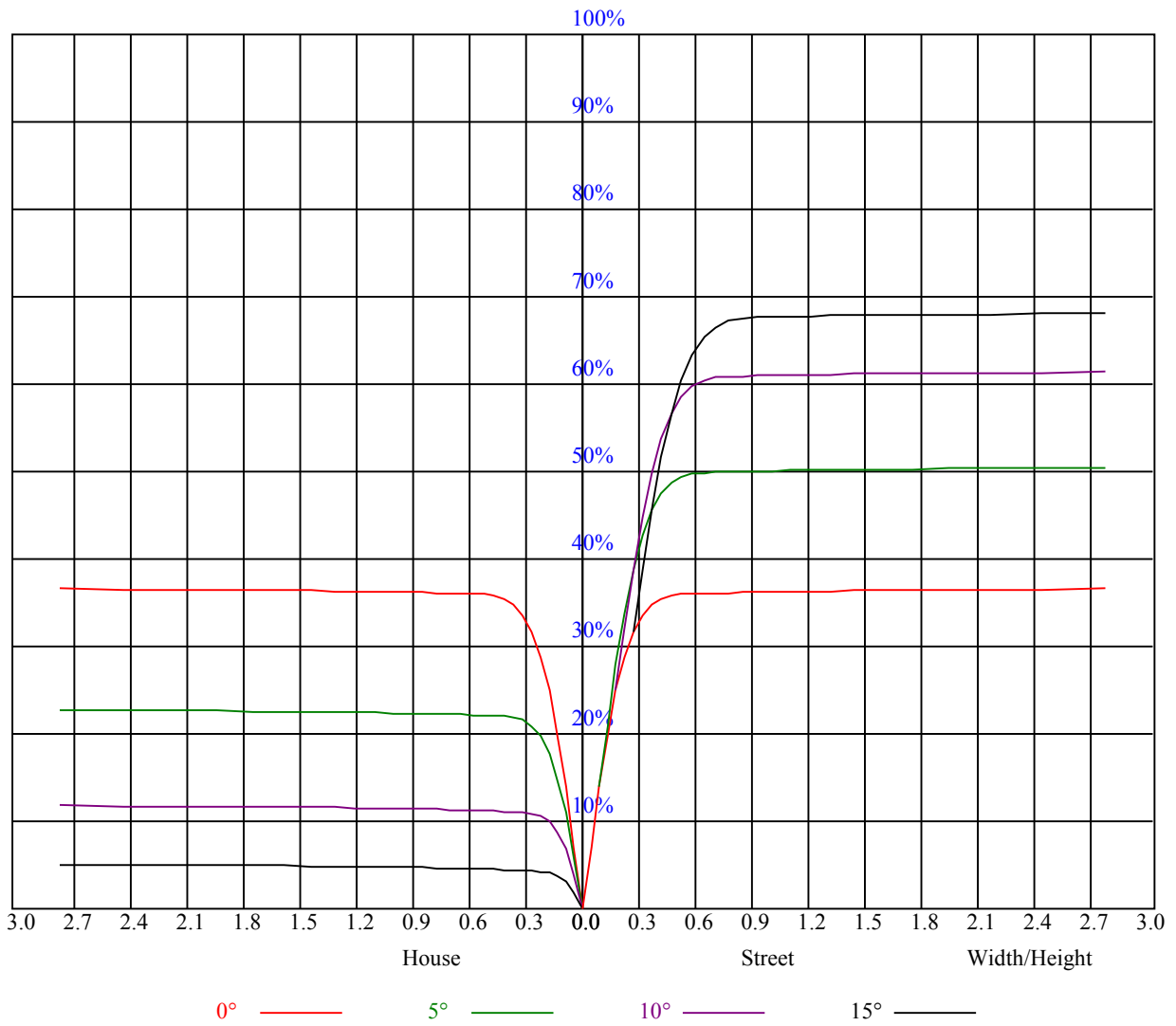
| Glare | Quality | Service Values Illuminance(lx) |      |      |       |       |       |       |       |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15  | A       | 2000                           | 1000 | 500  | <=300 |       |    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





| RHOCC | 80                                      |      |      | 70   |      |      | 50   |      |      | 30   |      |      | 10   |      |      | 0    |
|-------|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| RHOW  | 50                                      | 30   | 10   | 50   | 30   | 10   | 50   | 30   | 10   | 50   | 30   | 10   | 50   | 30   | 10   | 0    |
| RCR   | COEFFICIENTS OF UTILIZATION RHOFC=20 CU |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 0     | 0.88                                    | 0.88 | 0.88 | 0.86 | 0.86 | 0.86 | 0.82 | 0.82 | 0.82 | 0.78 | 0.78 | 0.78 | 0.75 | 0.75 | 0.75 | 0.74 |
| 1     | 0.83                                    | 0.82 | 0.80 | 0.82 | 0.80 | 0.79 | 0.79 | 0.78 | 0.77 | 0.76 | 0.75 | 0.74 | 0.73 | 0.73 | 0.72 | 0.71 |
| 2     | 0.79                                    | 0.77 | 0.75 | 0.78 | 0.76 | 0.75 | 0.76 | 0.74 | 0.73 | 0.74 | 0.73 | 0.71 | 0.72 | 0.71 | 0.70 | 0.69 |
| 3     | 0.76                                    | 0.74 | 0.72 | 0.75 | 0.73 | 0.71 | 0.74 | 0.72 | 0.70 | 0.72 | 0.70 | 0.69 | 0.70 | 0.69 | 0.68 | 0.67 |
| 4     | 0.74                                    | 0.71 | 0.69 | 0.73 | 0.70 | 0.68 | 0.71 | 0.69 | 0.67 | 0.70 | 0.68 | 0.67 | 0.69 | 0.67 | 0.66 | 0.65 |
| 5     | 0.71                                    | 0.68 | 0.66 | 0.71 | 0.68 | 0.66 | 0.69 | 0.67 | 0.65 | 0.68 | 0.66 | 0.65 | 0.67 | 0.66 | 0.64 | 0.63 |
| 6     | 0.69                                    | 0.66 | 0.64 | 0.69 | 0.66 | 0.64 | 0.68 | 0.65 | 0.63 | 0.67 | 0.65 | 0.63 | 0.66 | 0.64 | 0.63 | 0.62 |
| 7     | 0.67                                    | 0.64 | 0.62 | 0.67 | 0.64 | 0.62 | 0.66 | 0.63 | 0.62 | 0.65 | 0.63 | 0.61 | 0.64 | 0.63 | 0.61 | 0.60 |
| 8     | 0.65                                    | 0.62 | 0.61 | 0.65 | 0.62 | 0.60 | 0.64 | 0.62 | 0.60 | 0.64 | 0.62 | 0.60 | 0.63 | 0.61 | 0.60 | 0.59 |
| 9     | 0.64                                    | 0.61 | 0.59 | 0.63 | 0.61 | 0.59 | 0.63 | 0.60 | 0.59 | 0.62 | 0.60 | 0.59 | 0.62 | 0.60 | 0.58 | 0.58 |
| 10    | 0.62                                    | 0.59 | 0.58 | 0.62 | 0.59 | 0.58 | 0.61 | 0.59 | 0.57 | 0.61 | 0.59 | 0.57 | 0.61 | 0.59 | 0.57 | 0.57 |



Intensity data(cd)

|        |         |         |         |         |         |         |         |         |         |
|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| C/γ(°) | 0.0     | 1.0     | 2.0     | 3.0     | 4.0     | 5.0     | 6.0     | 7.0     | 8.0     |
| 0.0    | 6966.00 | 6870.38 | 6678.00 | 6459.19 | 6185.81 | 5784.19 | 5436.00 | 5072.63 | 4644.00 |
| 45.0   | 7032.38 | 6928.88 | 6757.31 | 6518.81 | 6252.75 | 5900.06 | 5506.31 | 5128.88 | 4736.25 |
| 90.0   | 6962.06 | 6851.25 | 6699.38 | 6464.81 | 6202.13 | 5853.38 | 5506.31 | 5082.75 | 4641.19 |
| 135.0  | 6950.25 | 6959.81 | 6895.13 | 6780.38 | 6612.75 | 6332.06 | 6052.50 | 5732.44 | 5334.75 |
| 180.0  | 6966.00 | 7014.94 | 7002.56 | 6914.81 | 6779.25 | 6566.06 | 6321.38 | 5990.06 | 5612.06 |
| 225.0  | 7032.38 | 7088.06 | 7069.50 | 6981.19 | 6822.00 | 6626.25 | 6382.13 | 6013.69 | 5678.44 |
| 270.0  | 6962.06 | 7009.31 | 6987.38 | 6906.94 | 6771.38 | 6554.25 | 6274.13 | 5977.13 | 5688.56 |
| 315.0  | 6950.25 | 6891.19 | 6760.69 | 6563.81 | 6330.94 | 6008.63 | 5688.56 | 5297.06 | 4878.56 |
| 360.0  | 6966.00 | 6870.38 | 6678.00 | 6459.19 | 6185.81 | 5784.19 | 5436.00 | 5072.63 | 4644.00 |
| C/γ(°) | 9.0     | 10.0    | 11.0    | 12.0    | 13.0    | 14.0    | 15.0    | 16.0    | 17.0    |
| 0.0    | 4205.81 | 3810.94 | 3378.94 | 3006.00 | 2610.56 | 2241.56 | 1941.75 | 1631.25 | 1356.19 |
| 45.0   | 4239.56 | 3837.38 | 3443.06 | 3020.63 | 2620.13 | 2291.06 | 1940.63 | 1650.94 | 1404.56 |
| 90.0   | 4239.00 | 3785.06 | 3350.81 | 2986.88 | 2640.94 | 2238.75 | 1945.69 | 1677.94 | 1398.38 |
| 135.0  | 4916.81 | 4529.81 | 4078.69 | 3677.63 | 3242.81 | 2834.44 | 2478.38 | 2145.38 | 1824.75 |
| 180.0  | 5241.94 | 4806.00 | 4366.69 | 3967.88 | 3567.94 | 3090.38 | 2737.13 | 2406.38 | 2019.38 |
| 225.0  | 5315.63 | 4831.88 | 4430.81 | 4025.81 | 3523.50 | 3138.75 | 2775.38 | 2392.31 | 2081.81 |
| 270.0  | 5206.50 | 4826.81 | 4482.00 | 3983.63 | 3540.94 | 3201.75 | 2742.19 | 2358.56 | 2088.56 |
| 315.0  | 4491.56 | 4045.50 | 3601.13 | 3217.50 | 2850.19 | 2424.94 | 2112.75 | 1823.63 | 1530.56 |
| 360.0  | 4205.81 | 3810.94 | 3378.94 | 3006.00 | 2610.56 | 2241.56 | 1941.75 | 1631.25 | 1356.19 |
| C/γ(°) | 18.0    | 19.0    | 20.0    | 21.0    | 22.0    | 23.0    | 24.0    | 25.0    | 26.0    |
| 0.0    | 1132.88 | 927.56  | 694.13  | 531.56  | 389.81  | 297.00  | 142.43  | 72.17   | 32.01   |
| 45.0   | 1144.69 | 933.19  | 725.63  | 536.06  | 388.69  | 293.06  | 139.50  | 73.13   | 31.22   |
| 90.0   | 1111.56 | 926.72  | 712.80  | 523.58  | 381.94  | 249.92  | 155.31  | 75.88   | 30.88   |
| 135.0  | 1562.06 | 1323.00 | 1047.94 | 847.13  | 659.81  | 457.88  | 322.31  | 293.06  | 126.79  |
| 180.0  | 1737.00 | 1479.94 | 1106.16 | 971.38  | 778.05  | 604.01  | 435.21  | 293.63  | 190.46  |
| 225.0  | 1761.75 | 1442.81 | 1105.48 | 1000.13 | 804.94  | 604.13  | 450.68  | 306.51  | 187.99  |
| 270.0  | 1735.31 | 1481.06 | 1250.44 | 986.63  | 796.50  | 621.00  | 432.00  | 303.19  | 288.56  |
| 315.0  | 1103.96 | 1050.30 | 806.91  | 631.80  | 474.69  | 308.48  | 213.08  | 116.44  | 45.34   |
| 360.0  | 1132.88 | 927.56  | 694.13  | 531.56  | 389.81  | 297.00  | 142.43  | 72.17   | 32.01   |
| C/γ(°) | 27.0    | 28.0    | 29.0    | 30.0    | 31.0    | 32.0    | 33.0    | 34.0    | 35.0    |
| 0.0    | 21.38   | 18.68   | 16.71   | 15.47   | 14.23   | 13.33   | 12.49   | 11.76   | 11.14   |
| 45.0   | 20.70   | 18.00   | 16.20   | 14.85   | 13.73   | 12.83   | 11.98   | 11.42   | 10.80   |
| 90.0   | 21.09   | 17.83   | 15.98   | 14.74   | 13.73   | 12.71   | 11.98   | 11.42   | 10.86   |
| 135.0  | 51.36   | 25.03   | 19.80   | 17.21   | 15.53   | 14.40   | 13.33   | 12.54   | 11.87   |
| 180.0  | 101.14  | 47.25   | 23.29   | 18.96   | 16.93   | 15.41   | 14.18   | 13.33   | 12.54   |
| 225.0  | 105.02  | 48.21   | 23.46   | 19.86   | 17.66   | 15.92   | 14.79   | 13.78   | 12.83   |
| 270.0  | 88.43   | 39.77   | 23.46   | 19.58   | 17.38   | 16.03   | 14.68   | 13.61   | 12.77   |
| 315.0  | 25.43   | 20.59   | 17.49   | 16.26   | 15.02   | 13.61   | 12.88   | 12.15   | 11.48   |
| 360.0  | 21.38   | 18.68   | 16.71   | 15.47   | 14.23   | 13.33   | 12.49   | 11.76   | 11.14   |
| C/γ(°) | 36.0    | 37.0    | 38.0    | 39.0    | 40.0    | 41.0    | 42.0    | 43.0    | 44.0    |
| 0.0    | 10.58   | 10.18   | 9.73    | 9.39    | 9.11    | 8.89    | 8.55    | 8.38    | 8.21    |
| 45.0   | 10.35   | 9.90    | 9.56    | 9.23    | 8.94    | 8.72    | 8.49    | 8.27    | 8.10    |
| 90.0   | 10.35   | 9.96    | 9.56    | 9.28    | 9.00    | 8.72    | 8.55    | 8.33    | 8.16    |
| 135.0  | 11.25   | 10.74   | 10.29   | 9.84    | 9.56    | 9.28    | 8.94    | 8.72    | 8.55    |
| 180.0  | 11.76   | 11.19   | 10.69   | 10.18   | 9.84    | 9.51    | 9.17    | 8.89    | 8.66    |
| 225.0  | 11.98   | 11.36   | 10.80   | 10.24   | 9.90    | 9.51    | 9.17    | 8.89    | 8.61    |
| 270.0  | 11.98   | 11.36   | 10.74   | 10.24   | 9.90    | 9.56    | 9.17    | 8.94    | 8.72    |
| 315.0  | 10.86   | 10.41   | 9.96    | 9.62    | 9.28    | 9.00    | 8.78    | 8.55    | 8.33    |
| 360.0  | 10.58   | 10.18   | 9.73    | 9.39    | 9.11    | 8.89    | 8.55    | 8.38    | 8.21    |



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    | 8.04 | 7.88 | 7.76 | 7.65 | 7.54 | 7.43 | 7.37 | 7.26 | 7.20 |
| 45.0   | 7.93 | 7.82 | 7.65 | 7.59 | 7.43 | 7.37 | 7.26 | 7.20 | 7.14 |
| 90.0   | 7.99 | 7.88 | 7.71 | 7.59 | 7.54 | 7.43 | 7.31 | 7.26 | 7.20 |
| 135.0  | 8.33 | 8.16 | 7.99 | 7.88 | 7.76 | 7.65 | 7.54 | 7.48 | 7.37 |
| 180.0  | 8.49 | 8.33 | 8.10 | 7.99 | 7.82 | 7.71 | 7.59 | 7.48 | 7.37 |
| 225.0  | 8.44 | 8.27 | 8.04 | 7.93 | 7.82 | 7.65 | 7.54 | 7.43 | 7.37 |
| 270.0  | 8.49 | 8.33 | 8.16 | 7.99 | 7.82 | 7.76 | 7.59 | 7.54 | 7.43 |
| 315.0  | 8.16 | 8.04 | 7.88 | 7.76 | 7.65 | 7.54 | 7.43 | 7.37 | 7.26 |
| 360.0  | 8.04 | 7.88 | 7.76 | 7.65 | 7.54 | 7.43 | 7.37 | 7.26 | 7.20 |
| C/γ(°) | 54.0 | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
| 0.0    | 7.09 | 7.03 | 7.03 | 6.92 | 6.92 | 6.86 | 6.81 | 6.75 | 6.69 |
| 45.0   | 7.09 | 6.98 | 6.92 | 6.92 | 6.86 | 6.81 | 6.75 | 6.75 | 6.69 |
| 90.0   | 7.09 | 7.03 | 7.03 | 6.98 | 6.92 | 6.86 | 6.81 | 6.75 | 6.69 |
| 135.0  | 7.26 | 7.20 | 7.14 | 7.09 | 7.03 | 6.98 | 6.92 | 6.86 | 6.86 |
| 180.0  | 7.31 | 7.20 | 7.14 | 7.09 | 7.03 | 6.98 | 6.92 | 6.86 | 6.81 |
| 225.0  | 7.26 | 7.20 | 7.09 | 7.03 | 6.98 | 6.92 | 6.86 | 6.86 | 6.75 |
| 270.0  | 7.31 | 7.26 | 7.20 | 7.14 | 7.09 | 7.03 | 6.92 | 6.92 | 6.86 |
| 315.0  | 7.20 | 7.14 | 7.09 | 7.03 | 6.98 | 6.92 | 6.86 | 6.81 | 6.75 |
| 360.0  | 7.09 | 7.03 | 7.03 | 6.92 | 6.92 | 6.86 | 6.81 | 6.75 | 6.69 |
| C/γ(°) | 63.0 | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
| 0.0    | 6.69 | 6.64 | 6.64 | 6.58 | 6.53 | 6.53 | 6.53 | 6.47 | 6.47 |
| 45.0   | 6.64 | 6.58 | 6.58 | 6.58 | 6.53 | 6.47 | 6.47 | 6.41 | 6.41 |
| 90.0   | 6.69 | 6.64 | 6.64 | 6.64 | 6.58 | 6.58 | 6.53 | 6.53 | 6.53 |
| 135.0  | 6.81 | 6.75 | 6.69 | 6.69 | 6.64 | 6.64 | 6.58 | 6.58 | 6.58 |
| 180.0  | 6.75 | 6.75 | 6.69 | 6.69 | 6.64 | 6.58 | 6.58 | 6.53 | 6.53 |
| 225.0  | 6.75 | 6.69 | 6.64 | 6.64 | 6.58 | 6.58 | 6.53 | 6.53 | 6.53 |
| 270.0  | 6.81 | 6.81 | 6.75 | 6.75 | 6.69 | 6.64 | 6.64 | 6.64 | 6.64 |
| 315.0  | 6.75 | 6.69 | 6.69 | 6.64 | 6.64 | 6.58 | 6.58 | 6.53 | 6.53 |
| 360.0  | 6.69 | 6.64 | 6.64 | 6.58 | 6.53 | 6.53 | 6.53 | 6.47 | 6.47 |
| C/γ(°) | 72.0 | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
| 0.0    | 6.41 | 6.41 | 6.41 | 6.36 | 6.36 | 6.36 | 6.36 | 6.30 | 6.30 |
| 45.0   | 6.41 | 6.36 | 6.36 | 6.36 | 6.30 | 6.30 | 6.30 | 6.30 | 6.30 |
| 90.0   | 6.47 | 6.47 | 6.47 | 6.41 | 6.41 | 6.41 | 6.41 | 6.41 | 6.41 |
| 135.0  | 6.58 | 6.53 | 6.53 | 6.47 | 6.47 | 6.47 | 6.47 | 6.41 | 6.41 |
| 180.0  | 6.53 | 6.47 | 6.47 | 6.47 | 6.41 | 6.41 | 6.41 | 6.36 | 6.36 |
| 225.0  | 6.47 | 6.47 | 6.41 | 6.41 | 6.41 | 6.41 | 6.36 | 6.36 | 6.36 |
| 270.0  | 6.58 | 6.53 | 6.53 | 6.53 | 6.53 | 6.53 | 6.47 | 6.47 | 6.47 |
| 315.0  | 6.53 | 6.53 | 6.53 | 6.47 | 6.47 | 6.47 | 6.41 | 6.41 | 6.36 |
| 360.0  | 6.41 | 6.41 | 6.41 | 6.36 | 6.36 | 6.36 | 6.36 | 6.30 | 6.30 |
| C/γ(°) | 81.0 | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
| 0.0    | 6.30 | 6.30 | 6.30 | 6.24 | 6.30 | 6.30 | 6.24 | 6.24 | 6.24 |
| 45.0   | 6.30 | 6.24 | 6.24 | 6.24 | 6.24 | 6.24 | 6.24 | 6.24 | 6.19 |
| 90.0   | 6.41 | 6.41 | 6.36 | 6.36 | 6.36 | 6.36 | 6.36 | 6.30 | 6.30 |
| 135.0  | 6.41 | 6.36 | 6.36 | 6.36 | 6.36 | 6.36 | 6.36 | 6.36 | 6.30 |
| 180.0  | 6.36 | 6.36 | 6.30 | 6.30 | 6.30 | 6.30 | 6.30 | 6.30 | 6.24 |
| 225.0  | 6.30 | 6.36 | 6.30 | 6.30 | 6.30 | 6.30 | 6.30 | 6.24 | 6.24 |
| 270.0  | 6.41 | 6.41 | 6.41 | 6.41 | 6.41 | 6.36 | 6.36 | 6.30 | 6.30 |
| 315.0  | 6.41 | 6.36 | 6.41 | 6.36 | 6.36 | 6.36 | 6.36 | 6.30 | 6.30 |
| 360.0  | 6.30 | 6.30 | 6.30 | 6.24 | 6.30 | 6.30 | 6.24 | 6.24 | 6.24 |

Intensity data(cd)

|        |      |
|--------|------|
| C/γ(°) | 90.0 |
| 0.0    | 6.24 |
| 45.0   | 6.24 |
| 90.0   | 6.30 |
| 135.0  | 6.36 |
| 180.0  | 6.24 |
| 225.0  | 6.24 |
| 270.0  | 6.30 |
| 315.0  | 6.36 |
| 360.0  | 6.24 |