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Nata

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LumCAT: 2-1051-M

Luminaire:

Report No: NT2015092202

Voltage(V): 17.2000

Test No: GC2015092202

Current(A): 0.4500

LampCAT: XTM LES19

Power (W): 7.7400

Lamp flux(lm): 862.7

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

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Photometric Results

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Lumens(lm): 764.34

Efficiency(%): 88.60%

Lumens(lm)/Power(W): 98.75

Central intensity(cd): 1829.746

Maximum intensity(cd): 1829.746

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

Beam Angle(50%Imax): [C0/180]Total=32.5

[C90/270]Total=32.5

Field angle(10%Imax): [C0/180]Total=66.2

[C90/270]Total=66.2

Maximum s/h(1/2): C0\_180=0.53 C90\_270=0.53

Maximum s/h(1/4): C0\_180=0.56 C90\_270=0.56

Up flux rate of lamp(%): 2.88%

Down flux rate of lamp(%): 85.72%

Up flux rate of LUM(%): 3.25%

Down flux rate of LUM(%): 96.75%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 95.203%

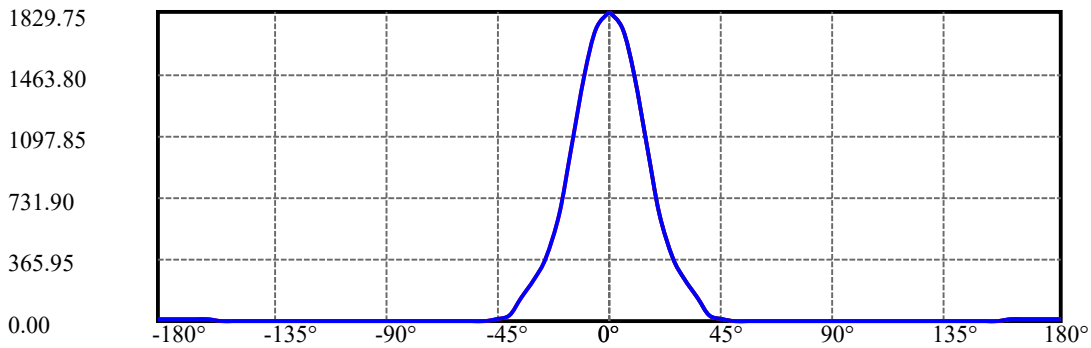
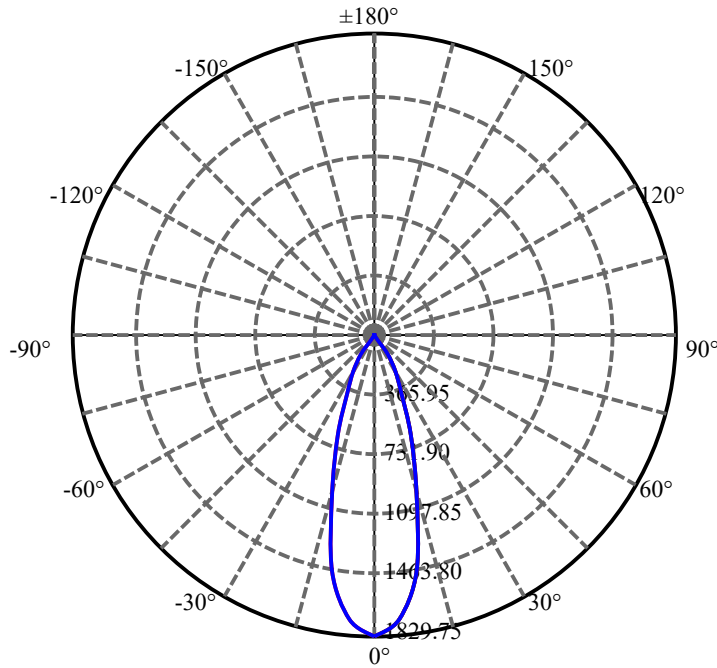
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 1829.746      | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 1728.476      | 42.538      | 42.538    | 4.931%      | 5.565%     |
| 10.0               | 1459.914      | 114.059     | 156.596   | 13.221%     | 20.488%    |
| 15.0               | 1007.443      | 146.362     | 302.958   | 16.966%     | 39.637%    |
| 20.0               | 638.954       | 135.686     | 438.644   | 15.728%     | 57.389%    |
| 25.0               | 380.687       | 106.941     | 545.586   | 12.396%     | 71.380%    |
| 30.0               | 254.015       | 80.322      | 625.908   | 9.311%      | 81.889%    |
| 35.0               | 139.820       | 57.995      | 683.903   | 6.723%      | 89.476%    |
| 40.0               | 39.333        | 29.890      | 713.793   | 3.465%      | 93.387%    |
| 45.0               | 6.210         | 8.433       | 722.226   | .977%       | 94.490%    |
| 50.0               | 3.861         | 2.035       | 724.261   | .236%       | 94.756%    |
| 55.0               | 3.805         | 1.667       | 725.928   | .193%       | 94.974%    |
| 60.0               | 3.749         | 1.746       | 727.673   | .202%       | 95.203%    |
| 65.0               | 3.749         | 1.823       | 729.496   | .211%       | 95.441%    |
| 70.0               | 3.693         | 1.884       | 731.38    | .218%       | 95.688%    |
| 75.0               | 3.693         | 1.930       | 733.311   | .224%       | 95.940%    |
| 80.0               | 3.749         | 1.991       | 735.302   | .231%       | 96.201%    |
| 85.0               | 4.028         | 2.113       | 737.415   | .245%       | 96.477%    |
| 90.0               | 3.637         | 2.099       | 739.514   | .243%       | 96.752%    |
| 95.0               | 3.637         | 1.992       | 741.505   | .231%       | 97.013%    |
| 100.0              | 3.637         | 1.976       | 743.482   | .229%       | 97.271%    |
| 105.0              | 3.637         | 1.946       | 745.428   | .226%       | 97.526%    |
| 110.0              | 3.637         | 1.901       | 747.329   | .220%       | 97.774%    |
| 115.0              | 3.637         | 1.842       | 749.171   | .213%       | 98.015%    |
| 120.0              | 3.637         | 1.768       | 750.939   | .205%       | 98.247%    |
| 125.0              | 3.637         | 1.681       | 752.62    | .195%       | 98.467%    |
| 130.0              | 3.693         | 1.594       | 754.214   | .185%       | 98.675%    |
| 135.0              | 3.693         | 1.492       | 755.706   | .173%       | 98.870%    |
| 140.0              | 3.749         | 1.378       | 757.084   | .160%       | 99.051%    |
| 145.0              | 3.917         | 1.279       | 758.363   | .148%       | 99.218%    |
| 150.0              | 4.364         | 1.219       | 759.583   | .141%       | 99.378%    |
| 155.0              | 5.036         | 1.190       | 760.772   | .138%       | 99.533%    |
| 160.0              | 5.707         | 1.127       | 761.899   | .131%       | 99.681%    |
| 165.0              | 6.322         | 0.991       | 762.89    | .115%       | 99.810%    |
| 170.0              | 6.826         | 0.780       | 763.67    | .090%       | 99.912%    |
| 175.0              | 7.106         | 0.498       | 764.168   | .058%       | 99.978%    |
| 180.0              | 7.218         | 0.171       | 764.34    | .020%       | 100.000%   |

## ZONAL LUMEN SUMMARY

| Zone    | Lumens | %Lamp  | %Fixt   |
|---------|--------|--------|---------|
| 0-30    | 625.91 | 72.55% | 81.89%  |
| 0-40    | 713.79 | 82.74% | 93.39%  |
| 0-60    | 727.67 | 84.35% | 95.20%  |
| 0-90    | 739.51 | 85.72% | 96.75%  |
| 0-120   | 750.94 | 87.05% | 98.25%  |
| 0-180   | 764.34 | 88.60% | 100.00% |
| 60-90   | 13.59  | 1.57%  | 1.78%   |
| 90-120  | 13.52  | 1.57%  | 1.77%   |
| 90-130  | 16.80  | 1.95%  | 2.20%   |
| 90-150  | 22.17  | 2.57%  | 2.90%   |
| 90-180  | 26.75  | 3.10%  | 3.50%   |
| 0-29.10 | 611.47 | 70.88% | 80.00%  |

## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 156.60 |
| 10-20   | 282.05 |
| 20-30   | 187.26 |
| 30-40   | 87.89  |
| 40-50   | 10.47  |
| 50-60   | 3.41   |
| 60-70   | 3.71   |
| 70-80   | 3.92   |
| 80-90   | 4.21   |
| 90-100  | 3.97   |
| 100-110 | 3.85   |
| 110-120 | 3.61   |
| 120-130 | 3.27   |
| 130-140 | 2.87   |
| 140-150 | 2.50   |
| 150-160 | 2.32   |
| 160-170 | 1.77   |
| 170-180 | 0.50   |



C0(Max): —————

C0/C180: —————

C90/C270: —————

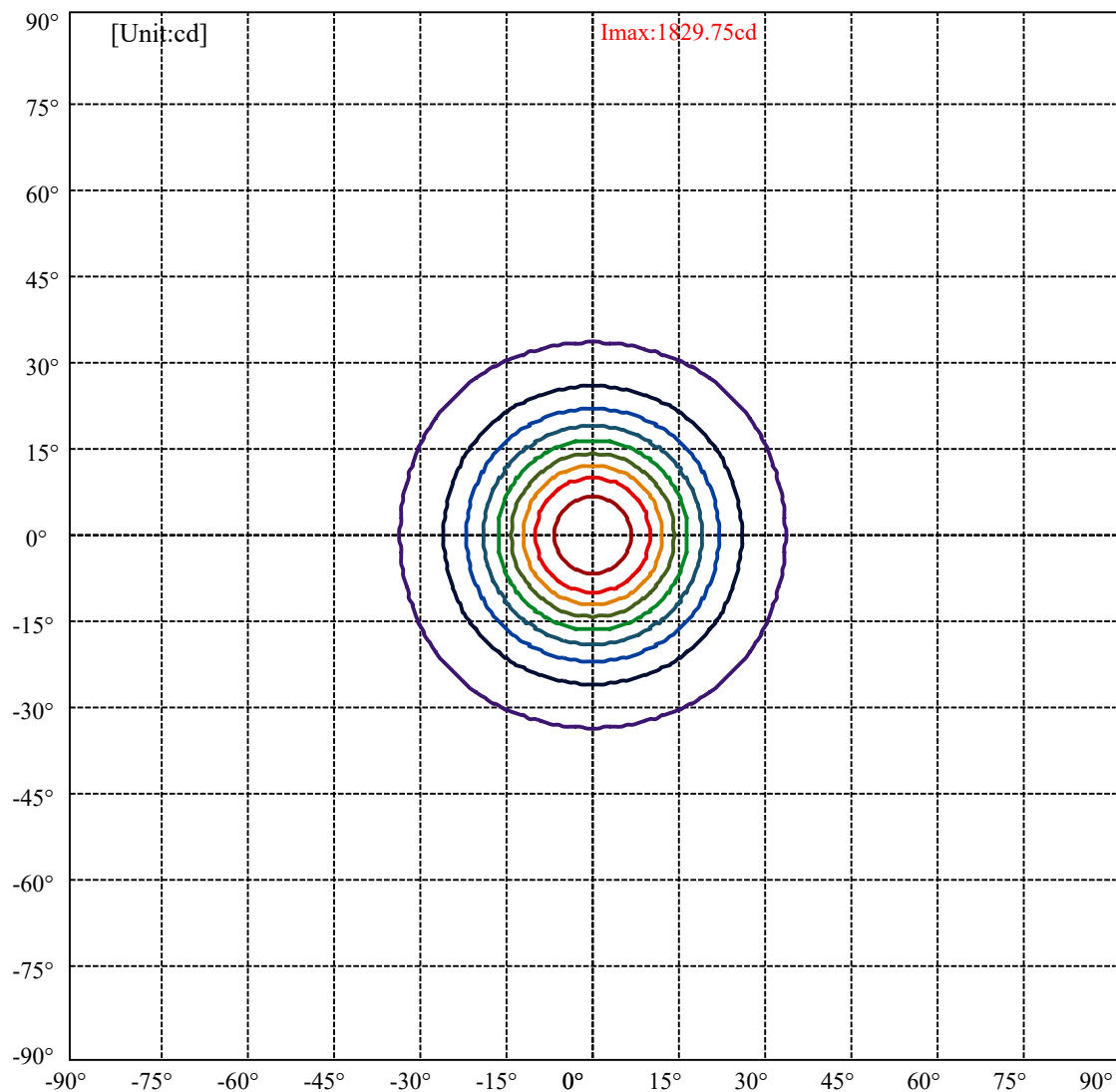
Field angle(10%Imax):C0/180Left:33.1 Right:33.1

:C90/270Left:33.1 Right:33.1

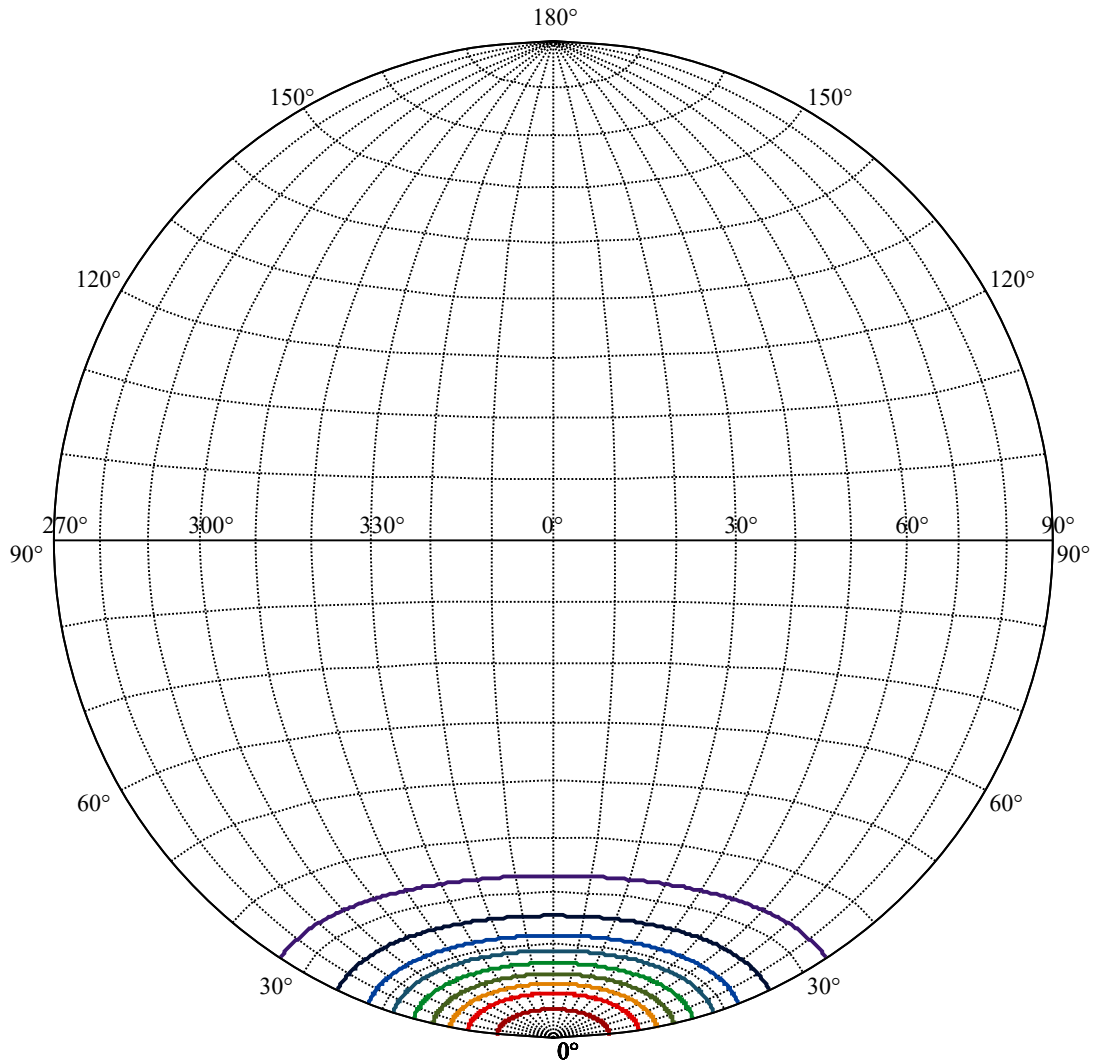
Beam Angle(50%Imax):C0/180Left:16.3 Right:16.3

:C90/270Left:16.3 Right:16.3





|           |         |   |
|-----------|---------|---|
| (10%Imax) | 182.975 | — |
| (20%Imax) | 365.949 | — |
| (30%Imax) | 548.924 | — |
| (40%Imax) | 731.898 | — |
| (50%Imax) | 914.873 | — |
| (60%Imax) | 1097.85 | — |
| (70%Imax) | 1280.82 | — |
| (80%Imax) | 1463.8  | — |
| (90%Imax) | 1646.77 | — |



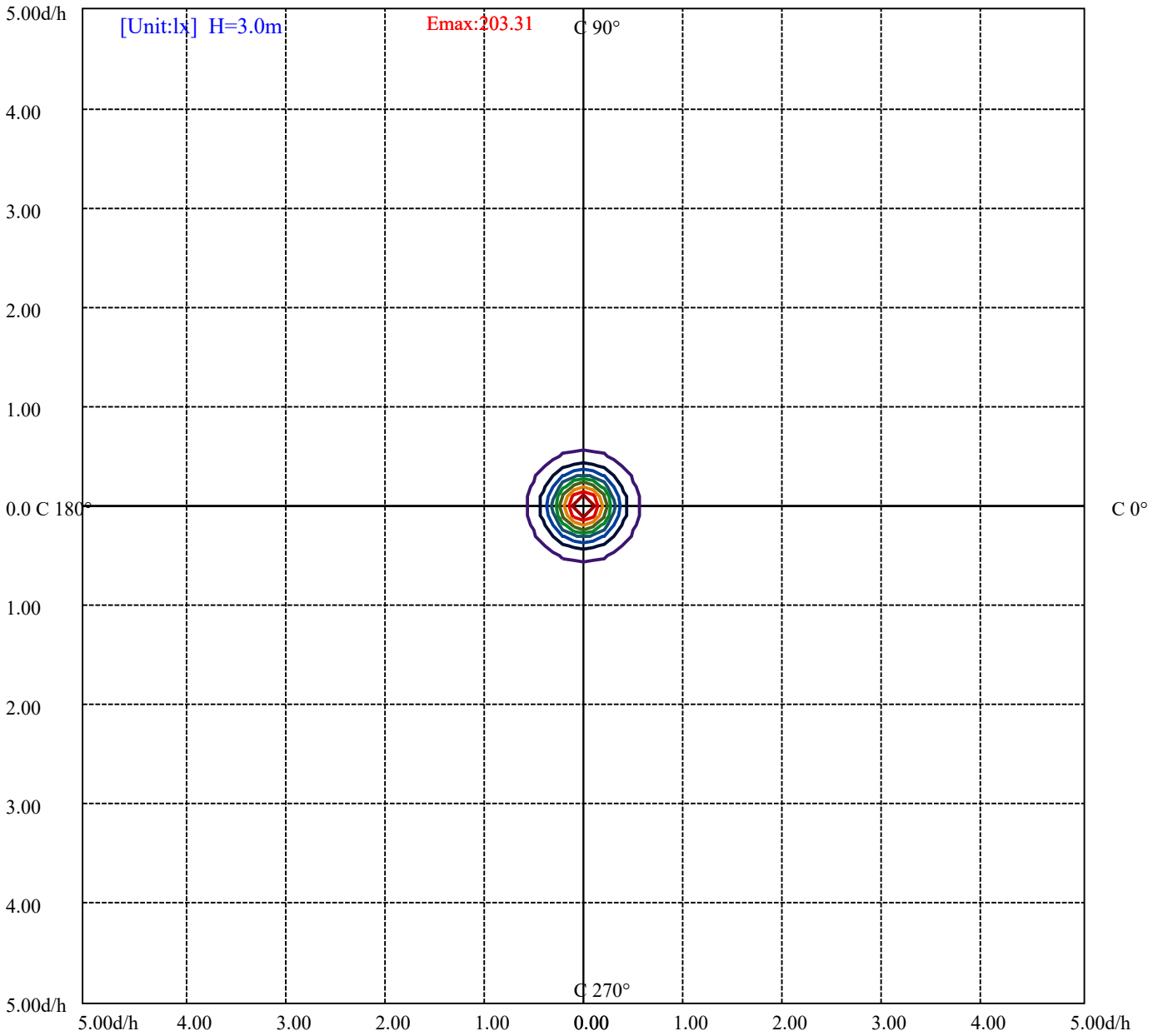
House

[Unit:cd]

Road

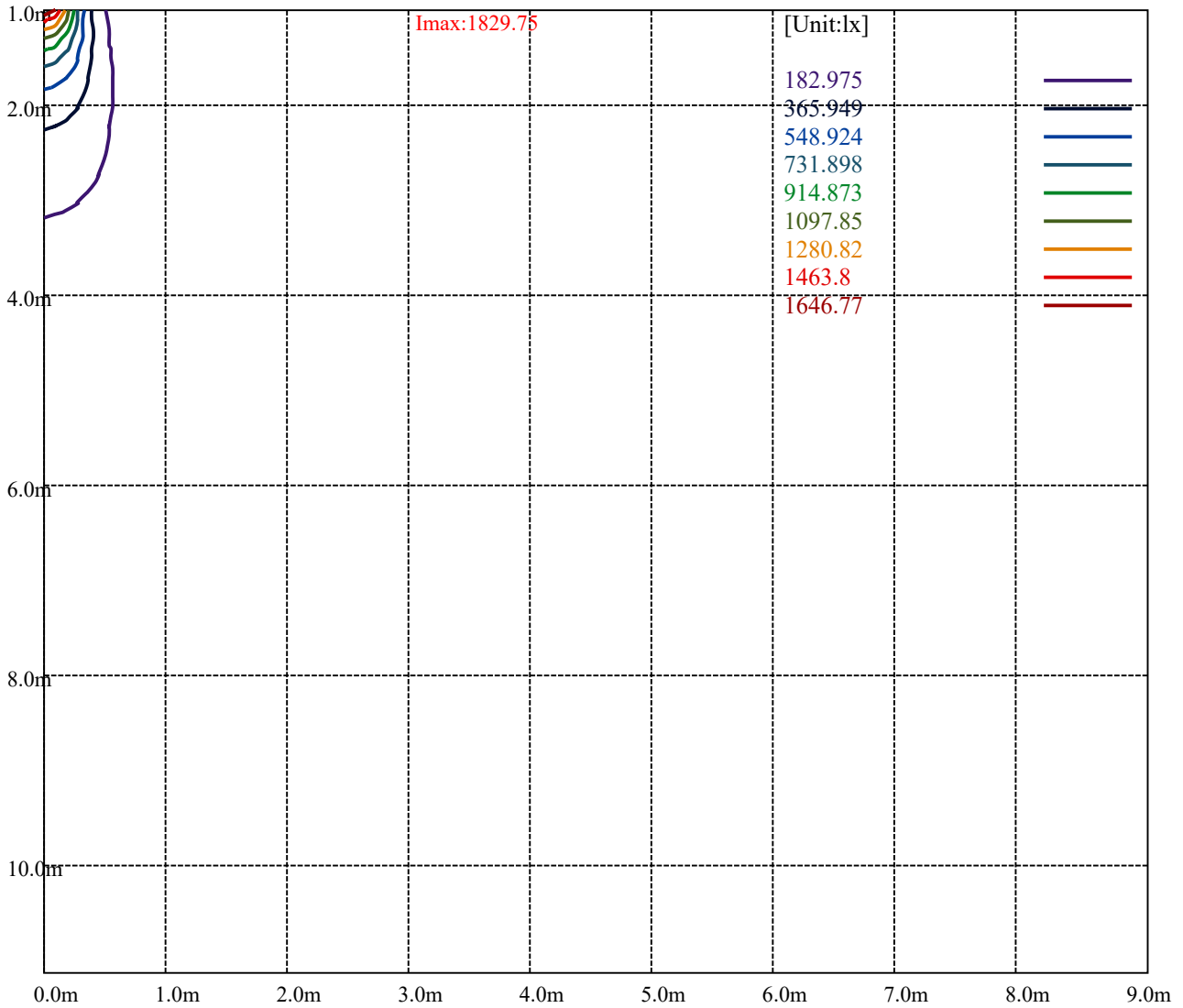
Imax:1829.75

|           |         |   |
|-----------|---------|---|
| (10%Imax) | 182.975 | — |
| (20%Imax) | 365.949 | — |
| (30%Imax) | 548.924 | — |
| (40%Imax) | 731.898 | — |
| (50%Imax) | 914.873 | — |
| (60%Imax) | 1097.85 | — |
| (70%Imax) | 1280.82 | — |
| (80%Imax) | 1463.8  | — |
| (90%Imax) | 1646.77 | — |



- (10%Emax) 20.33044
- (20%Emax) 40.661
- (30%Emax) 60.99144
- (40%Emax) 81.32188
- (50%Emax) 101.6523
- (60%Emax) 121.9833
- (70%Emax) 142.3133
- (80%Emax) 162.6433
- (90%Emax) 182.9744





Luminance Table

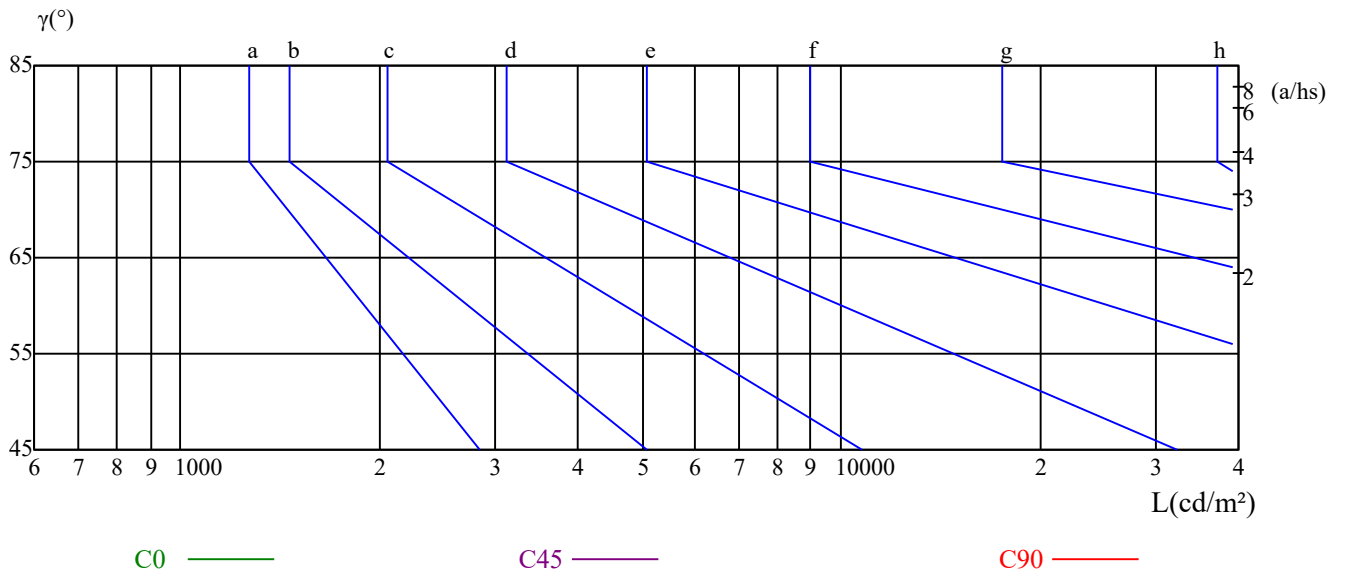
| $\gamma$ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|----|----|----|----|----|----|----|----|----|
| C0       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C45      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C90      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |

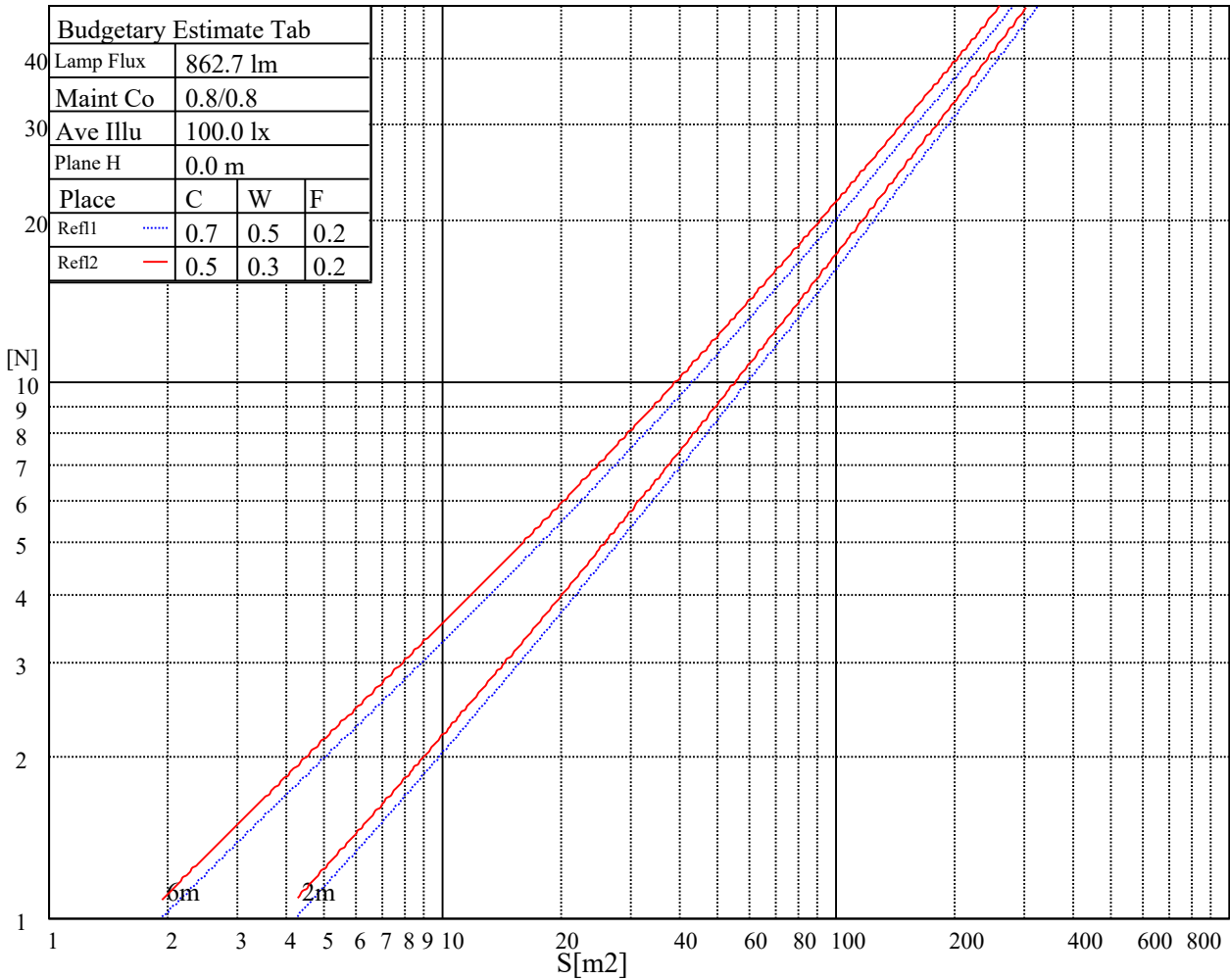
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 0          | 0          | 0       | 0          | 0          | 0       | 0          | 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 RHOF=20 CU |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 0     | 1.05                                   | 1.05 | 1.05 | 1.02 | 1.02 | 1.02 | 0.97 | 0.97 | 0.97 | 0.92 | 0.92 | 0.92 | 0.88 | 0.88 | 0.88 | 0.86 |
| 1     | 0.98                                   | 0.96 | 0.94 | 0.96 | 0.94 | 0.92 | 0.92 | 0.90 | 0.89 | 0.88 | 0.87 | 0.86 | 0.84 | 0.84 | 0.83 | 0.81 |
| 2     | 0.92                                   | 0.89 | 0.86 | 0.90 | 0.87 | 0.85 | 0.87 | 0.85 | 0.83 | 0.84 | 0.82 | 0.80 | 0.81 | 0.80 | 0.78 | 0.77 |
| 3     | 0.87                                   | 0.83 | 0.80 | 0.85 | 0.82 | 0.79 | 0.83 | 0.80 | 0.77 | 0.80 | 0.78 | 0.76 | 0.78 | 0.76 | 0.74 | 0.73 |
| 4     | 0.82                                   | 0.78 | 0.75 | 0.81 | 0.77 | 0.74 | 0.79 | 0.75 | 0.73 | 0.77 | 0.74 | 0.72 | 0.75 | 0.73 | 0.71 | 0.69 |
| 5     | 0.78                                   | 0.74 | 0.70 | 0.77 | 0.73 | 0.70 | 0.75 | 0.72 | 0.69 | 0.74 | 0.70 | 0.68 | 0.72 | 0.69 | 0.67 | 0.66 |
| 6     | 0.74                                   | 0.70 | 0.66 | 0.74 | 0.69 | 0.66 | 0.72 | 0.68 | 0.65 | 0.71 | 0.67 | 0.65 | 0.69 | 0.66 | 0.64 | 0.63 |
| 7     | 0.71                                   | 0.66 | 0.63 | 0.70 | 0.66 | 0.63 | 0.69 | 0.65 | 0.62 | 0.68 | 0.64 | 0.62 | 0.67 | 0.64 | 0.61 | 0.60 |
| 8     | 0.68                                   | 0.63 | 0.60 | 0.67 | 0.63 | 0.60 | 0.66 | 0.62 | 0.60 | 0.65 | 0.62 | 0.59 | 0.64 | 0.61 | 0.59 | 0.58 |
| 9     | 0.65                                   | 0.60 | 0.57 | 0.64 | 0.60 | 0.57 | 0.63 | 0.60 | 0.57 | 0.63 | 0.59 | 0.57 | 0.62 | 0.59 | 0.56 | 0.55 |
| 10    | 0.62                                   | 0.58 | 0.55 | 0.62 | 0.58 | 0.55 | 0.61 | 0.57 | 0.55 | 0.60 | 0.57 | 0.54 | 0.59 | 0.56 | 0.54 | 0.53 |

Intensity data(cd)

|        |         |         |         |         |        |        |        |        |       |
|--------|---------|---------|---------|---------|--------|--------|--------|--------|-------|
| C/γ(°) | 0.0     | 5.0     | 10.0    | 15.0    | 20.0   | 25.0   | 30.0   | 35.0   | 40.0  |
| 0.0    | 1829.75 | 1728.48 | 1459.91 | 1007.44 | 638.95 | 380.69 | 254.01 | 139.82 | 39.33 |
| 45.0   | 1829.75 | 1728.48 | 1459.91 | 1007.44 | 638.95 | 380.69 | 254.01 | 139.82 | 39.33 |
| 90.0   | 1829.75 | 1728.48 | 1459.91 | 1007.44 | 638.95 | 380.69 | 254.01 | 139.82 | 39.33 |
| 135.0  | 1829.75 | 1728.48 | 1459.91 | 1007.44 | 638.95 | 380.69 | 254.01 | 139.82 | 39.33 |
| 180.0  | 1829.75 | 1728.48 | 1459.91 | 1007.44 | 638.95 | 380.69 | 254.01 | 139.82 | 39.33 |
| 225.0  | 1829.75 | 1728.48 | 1459.91 | 1007.44 | 638.95 | 380.69 | 254.01 | 139.82 | 39.33 |
| 270.0  | 1829.75 | 1728.48 | 1459.91 | 1007.44 | 638.95 | 380.69 | 254.01 | 139.82 | 39.33 |
| 315.0  | 1829.75 | 1728.48 | 1459.91 | 1007.44 | 638.95 | 380.69 | 254.01 | 139.82 | 39.33 |
| 360.0  | 1829.75 | 1728.48 | 1459.91 | 1007.44 | 638.95 | 380.69 | 254.01 | 139.82 | 39.33 |
| C/γ(°) | 45.0    | 50.0    | 55.0    | 60.0    | 65.0   | 70.0   | 75.0   | 80.0   | 85.0  |
| 0.0    | 6.21    | 3.86    | 3.80    | 3.75    | 3.75   | 3.69   | 3.69   | 3.75   | 4.03  |
| 45.0   | 6.21    | 3.86    | 3.80    | 3.75    | 3.75   | 3.69   | 3.69   | 3.75   | 4.03  |
| 90.0   | 6.21    | 3.86    | 3.80    | 3.75    | 3.75   | 3.69   | 3.69   | 3.75   | 4.03  |
| 135.0  | 6.21    | 3.86    | 3.80    | 3.75    | 3.75   | 3.69   | 3.69   | 3.75   | 4.03  |
| 180.0  | 6.21    | 3.86    | 3.80    | 3.75    | 3.75   | 3.69   | 3.69   | 3.75   | 4.03  |
| 225.0  | 6.21    | 3.86    | 3.80    | 3.75    | 3.75   | 3.69   | 3.69   | 3.75   | 4.03  |
| 270.0  | 6.21    | 3.86    | 3.80    | 3.75    | 3.75   | 3.69   | 3.69   | 3.75   | 4.03  |
| 315.0  | 6.21    | 3.86    | 3.80    | 3.75    | 3.75   | 3.69   | 3.69   | 3.75   | 4.03  |
| 360.0  | 6.21    | 3.86    | 3.80    | 3.75    | 3.75   | 3.69   | 3.69   | 3.75   | 4.03  |
| C/γ(°) | 90.0    | 95.0    | 100.0   | 105.0   | 110.0  | 115.0  | 120.0  | 125.0  | 130.0 |
| 0.0    | 3.64    | 3.64    | 3.64    | 3.64    | 3.64   | 3.64   | 3.64   | 3.64   | 3.69  |
| 45.0   | 3.64    | 3.64    | 3.64    | 3.64    | 3.64   | 3.64   | 3.64   | 3.64   | 3.69  |
| 90.0   | 3.64    | 3.64    | 3.64    | 3.64    | 3.64   | 3.64   | 3.64   | 3.64   | 3.69  |
| 135.0  | 3.64    | 3.64    | 3.64    | 3.64    | 3.64   | 3.64   | 3.64   | 3.64   | 3.69  |
| 180.0  | 3.64    | 3.64    | 3.64    | 3.64    | 3.64   | 3.64   | 3.64   | 3.64   | 3.69  |
| 225.0  | 3.64    | 3.64    | 3.64    | 3.64    | 3.64   | 3.64   | 3.64   | 3.64   | 3.69  |
| 270.0  | 3.64    | 3.64    | 3.64    | 3.64    | 3.64   | 3.64   | 3.64   | 3.64   | 3.69  |
| 315.0  | 3.64    | 3.64    | 3.64    | 3.64    | 3.64   | 3.64   | 3.64   | 3.64   | 3.69  |
| 360.0  | 3.64    | 3.64    | 3.64    | 3.64    | 3.64   | 3.64   | 3.64   | 3.64   | 3.69  |
| C/γ(°) | 135.0   | 140.0   | 145.0   | 150.0   | 155.0  | 160.0  | 165.0  | 170.0  | 175.0 |
| 0.0    | 3.69    | 3.75    | 3.92    | 4.36    | 5.04   | 5.71   | 6.32   | 6.83   | 7.11  |
| 45.0   | 3.69    | 3.75    | 3.92    | 4.36    | 5.04   | 5.71   | 6.32   | 6.83   | 7.11  |
| 90.0   | 3.69    | 3.75    | 3.92    | 4.36    | 5.04   | 5.71   | 6.32   | 6.83   | 7.11  |
| 135.0  | 3.69    | 3.75    | 3.92    | 4.36    | 5.04   | 5.71   | 6.32   | 6.83   | 7.11  |
| 180.0  | 3.69    | 3.75    | 3.92    | 4.36    | 5.04   | 5.71   | 6.32   | 6.83   | 7.11  |
| 225.0  | 3.69    | 3.75    | 3.92    | 4.36    | 5.04   | 5.71   | 6.32   | 6.83   | 7.11  |
| 270.0  | 3.69    | 3.75    | 3.92    | 4.36    | 5.04   | 5.71   | 6.32   | 6.83   | 7.11  |
| 315.0  | 3.69    | 3.75    | 3.92    | 4.36    | 5.04   | 5.71   | 6.32   | 6.83   | 7.11  |
| 360.0  | 3.69    | 3.75    | 3.92    | 4.36    | 5.04   | 5.71   | 6.32   | 6.83   | 7.11  |
| C/γ(°) | 180.0   |         |         |         |        |        |        |        |       |
| 0.0    | 7.22    |         |         |         |        |        |        |        |       |
| 45.0   | 7.22    |         |         |         |        |        |        |        |       |
| 90.0   | 7.22    |         |         |         |        |        |        |        |       |
| 135.0  | 7.22    |         |         |         |        |        |        |        |       |
| 180.0  | 7.22    |         |         |         |        |        |        |        |       |
| 225.0  | 7.22    |         |         |         |        |        |        |        |       |
| 270.0  | 7.22    |         |         |         |        |        |        |        |       |
| 315.0  | 7.22    |         |         |         |        |        |        |        |       |
| 360.0  | 7.22    |         |         |         |        |        |        |        |       |