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## Nata

### Client:

LumCAT: 1-0918-M

Luminaire: 92.70.127.00

Report No: nt0100

Test No: NATA07

LampCAT: LUMINUS CLM-9-AA40

Lamp flux(lm): 1234.0

Number of Lamps: 1

Length(mm): 0

Phm Type: C

Voltage(V): 220.5000

Current(A): 0.1010

Power (W): 12.1400

PF: 0.5450

Ballast type: AC

Width(mm): 0

Height(mm): 0

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## Photometric Results

Lumens(lm): 979.32, Efficiency(%): 79.36% , Luminous Efficacy(lm/W): 80.67

Central intensity(cd): 5193.508, Maximum intensity(cd): 5193.508

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

Beam Angle(50%Imax): [C0/180]Total=22.8

[C90/270]Total=22.8

Field angle(10%Imax): [C0/180]Total=43.6

[C90/270]Total=43.6

Maximum s/h(1/2): C0\_180=0.39 C90\_270=0.39

Maximum s/h(1/4): C0\_180=0.39 C90\_270=0.39

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 79.36%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 99.614%

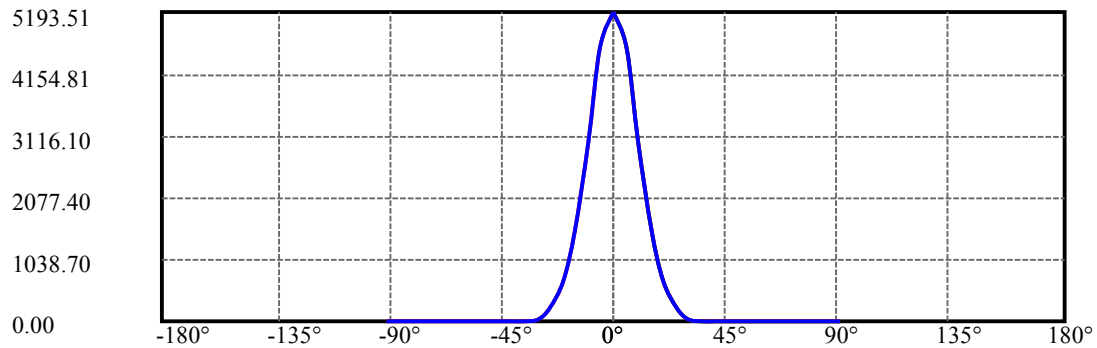
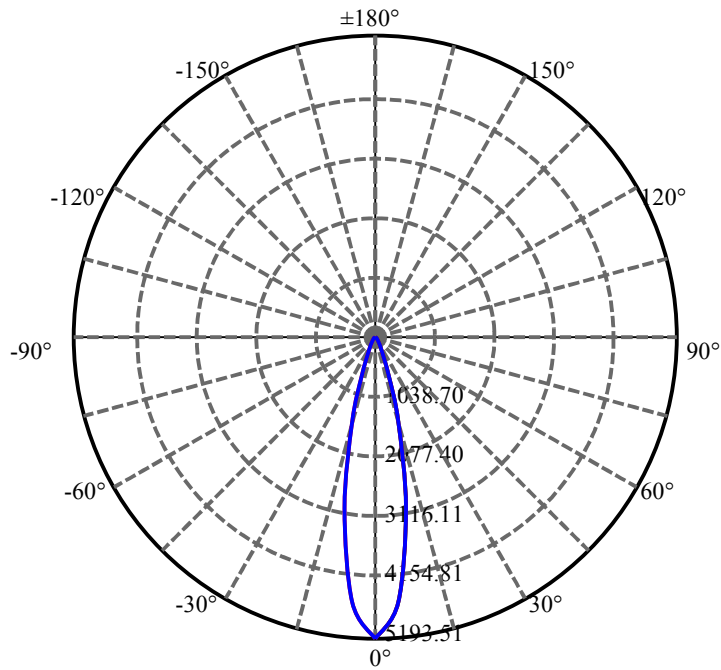
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 5193.509      | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 4580.462      | 116.845     | 116.845   | 9.469%      | 11.931%    |
| 10.0               | 3001.415      | 271.228     | 388.073   | 21.980%     | 39.627%    |
| 15.0               | 1517.233      | 268.043     | 656.116   | 21.721%     | 66.997%    |
| 20.0               | 690.934       | 181.984     | 838.1     | 14.747%     | 85.580%    |
| 25.0               | 217.249       | 95.252      | 933.351   | 7.719%      | 95.306%    |
| 30.0               | 37.558        | 32.246      | 965.597   | 2.613%      | 98.599%    |
| 35.0               | 3.596         | 6.060       | 971.657   | .491%       | 99.218%    |
| 40.0               | 2.500         | 1.017       | 972.675   | .082%       | 99.322%    |
| 45.0               | 1.984         | 0.830       | 973.505   | .067%       | 99.406%    |
| 50.0               | 1.636         | 0.731       | 974.236   | .059%       | 99.481%    |
| 55.0               | 1.433         | 0.667       | 974.903   | .054%       | 99.549%    |
| 60.0               | 1.317         | 0.636       | 975.539   | .052%       | 99.614%    |
| 65.0               | 1.264         | 0.627       | 976.166   | .051%       | 99.678%    |
| 70.0               | 1.218         | 0.629       | 976.795   | .051%       | 99.742%    |
| 75.0               | 1.166         | 0.623       | 977.418   | .050%       | 99.806%    |
| 80.0               | 1.143         | 0.618       | 978.036   | .050%       | 99.869%    |
| 85.0               | 1.166         | 0.627       | 978.663   | .051%       | 99.933%    |
| 90.0               | 1.230         | 0.656       | 979.319   | .053%       | 100.000%   |

## ZONAL LUMEN SUMMARY

| Zone    | Lumens | %Lamp  | %Fixt   |
|---------|--------|--------|---------|
| 0-30    | 965.60 | 78.25% | 98.60%  |
| 0-40    | 972.67 | 78.82% | 99.32%  |
| 0-60    | 975.54 | 79.06% | 99.61%  |
| 0-90    | 978.66 | 79.31% | 99.93%  |
| 0-120   | 978.66 | 79.31% | 99.93%  |
| 0-180   | 979.32 | 79.36% | 100.00% |
| 60-90   | 3.76   | 0.30%  | 0.38%   |
| 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%   |
| 0-18.50 | 783.46 | 63.49% | 80.00%  |

## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 388.07 |
| 10-20   | 450.03 |
| 20-30   | 127.50 |
| 30-40   | 7.08   |
| 40-50   | 1.56   |
| 50-60   | 1.30   |
| 60-70   | 1.26   |
| 70-80   | 1.24   |
| 80-90   | 0.63   |
| 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: —————

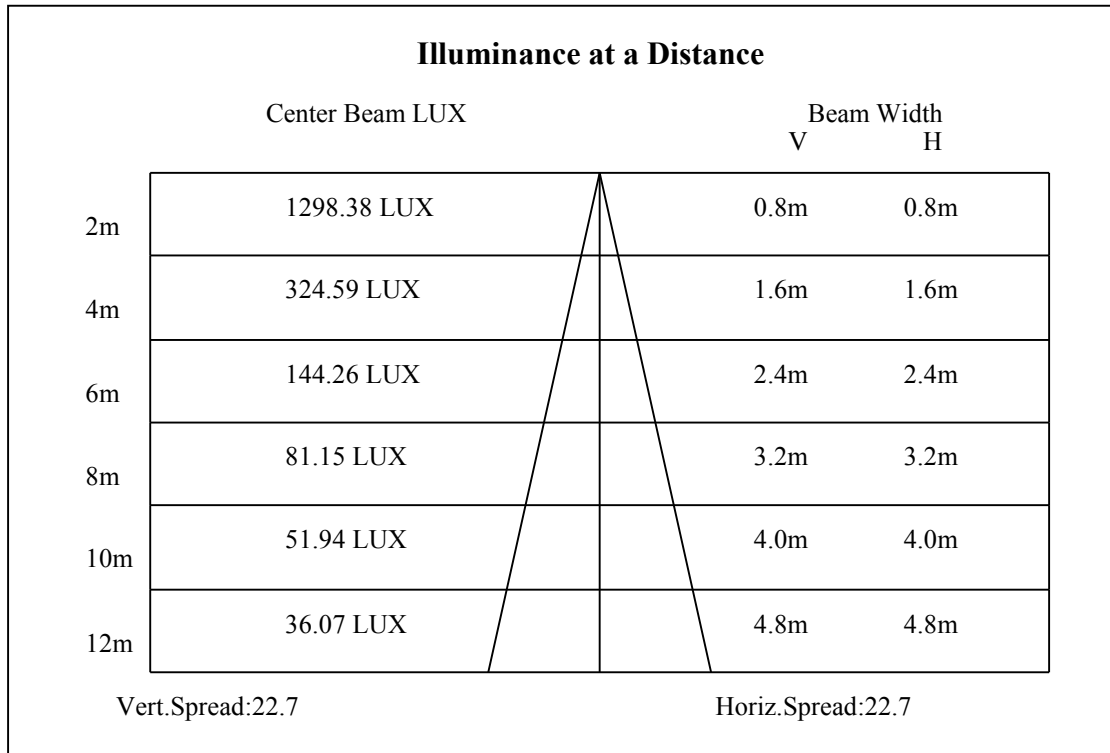
C90/C270: —————

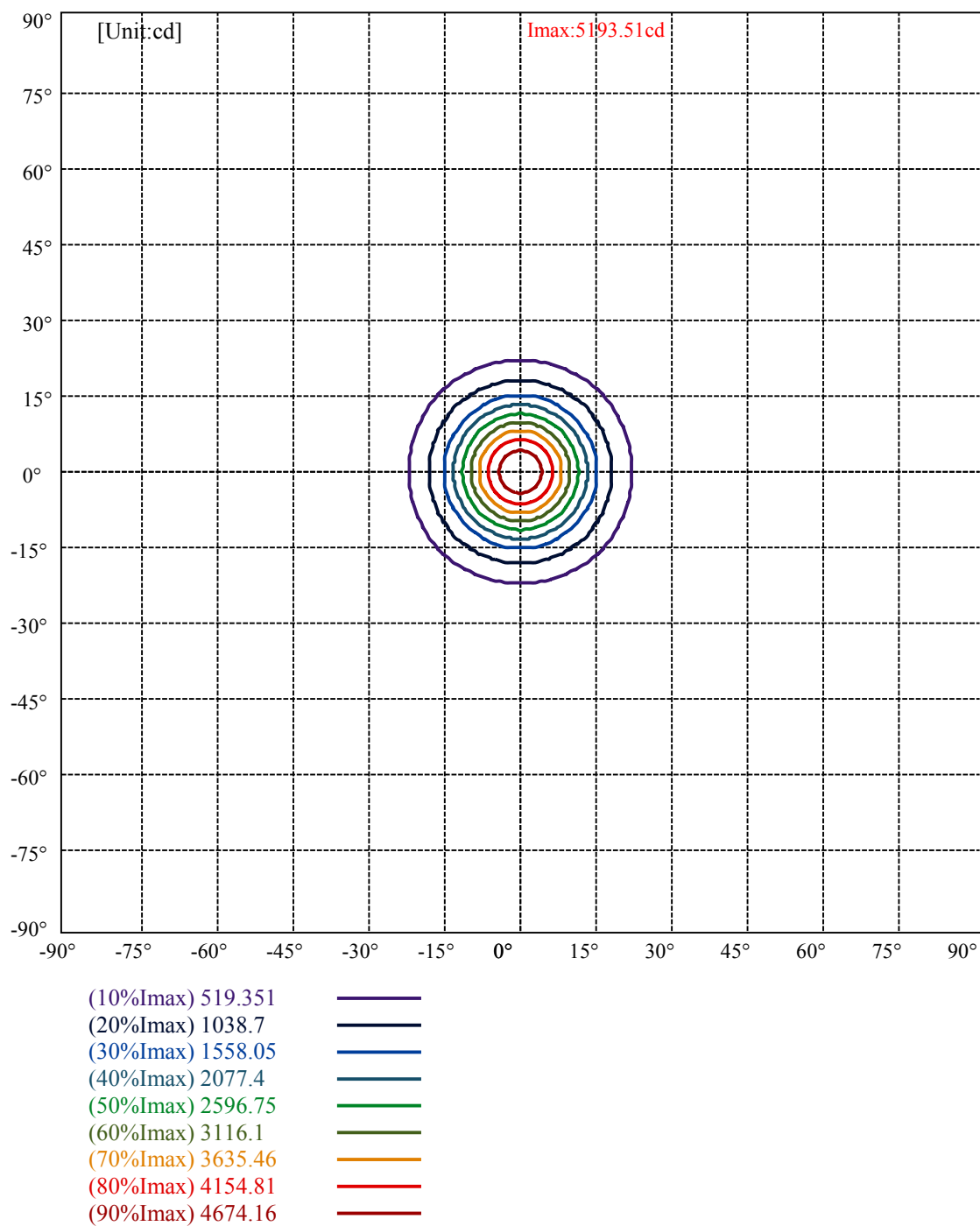
Field angle(10%Imax):C0/180Left:21.8 Right:21.8

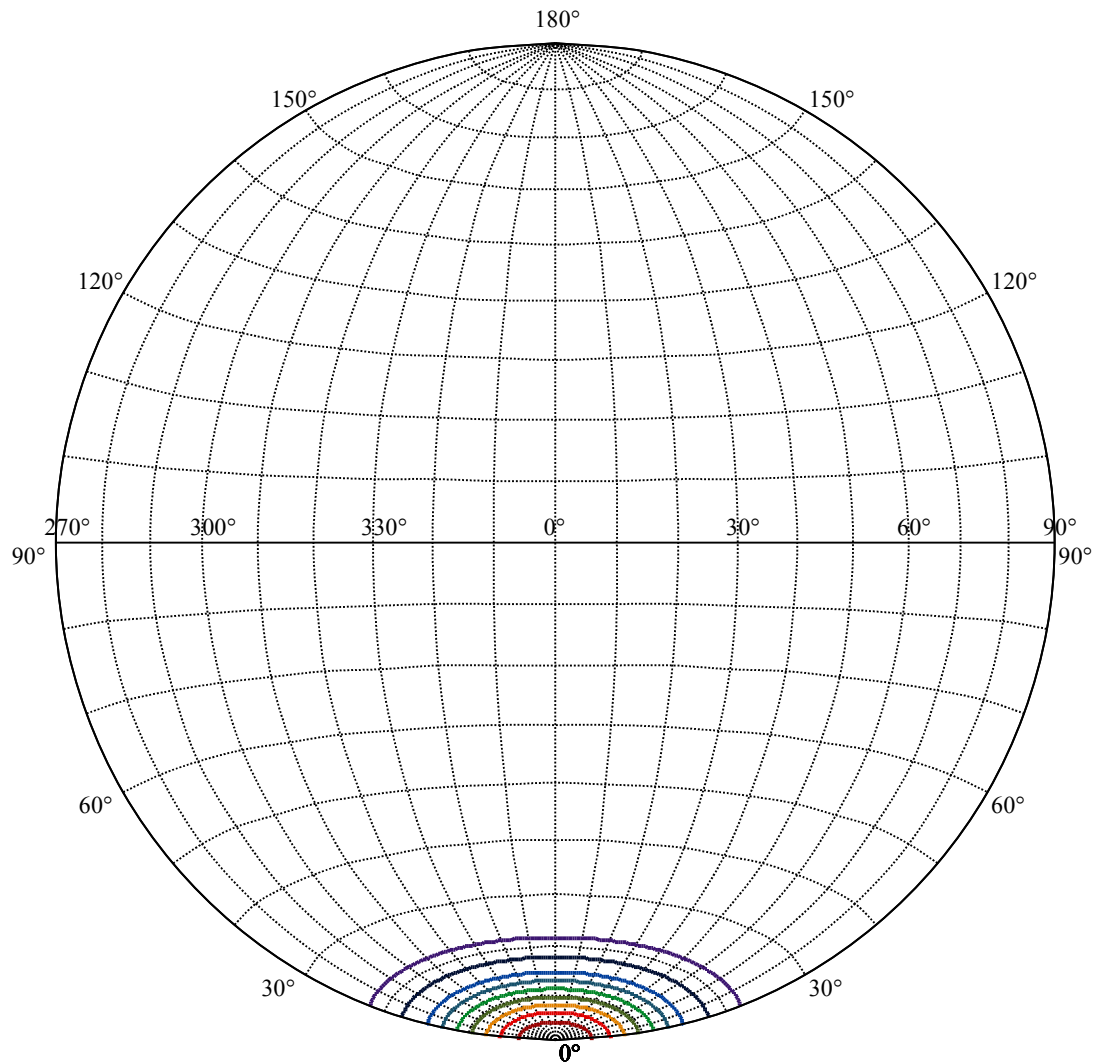
:C90/270Left:21.8 Right:21.8

Beam Angle(50%Imax):C0/180Left:11.4 Right:11.4

:C90/270Left:11.4 Right:11.4







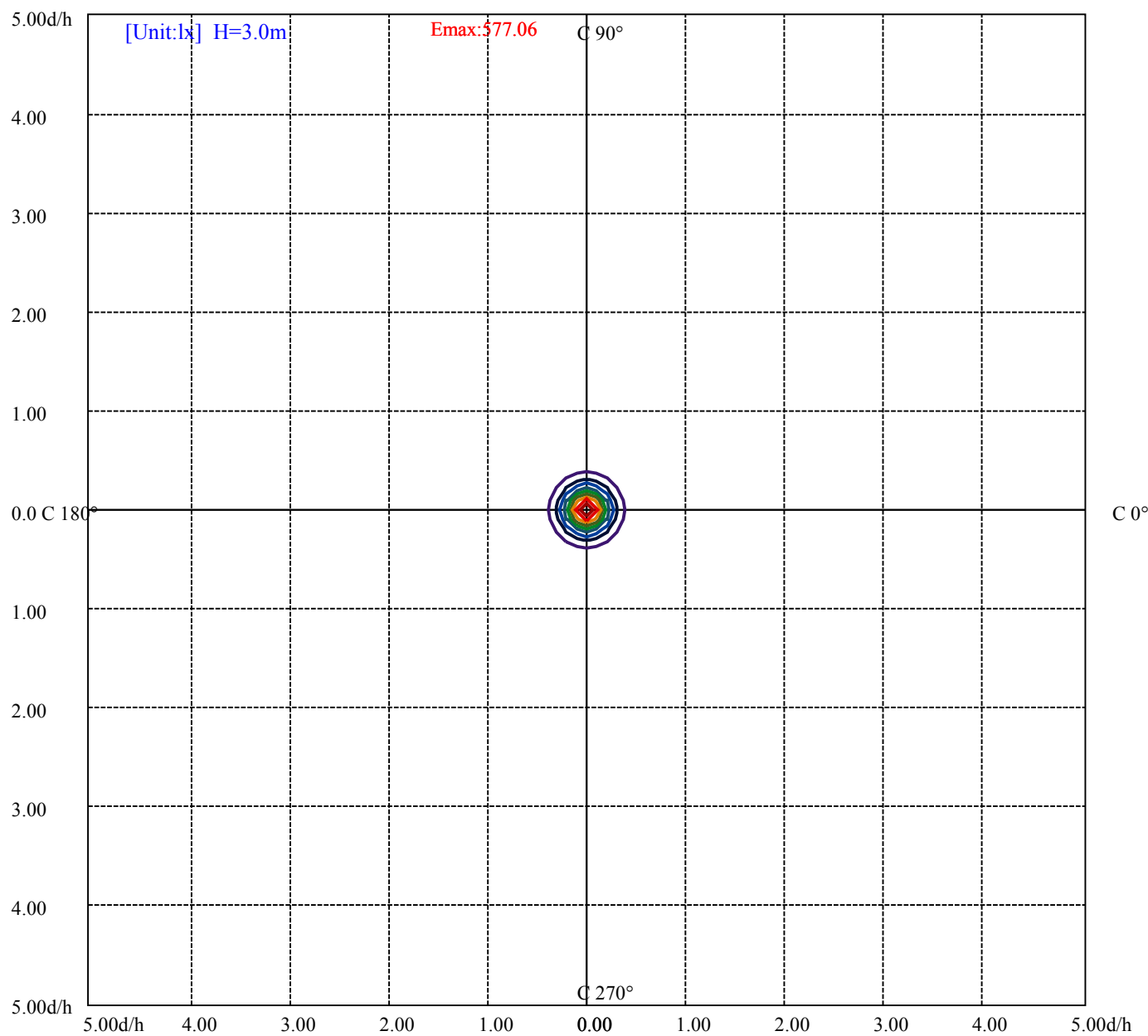
House

[Unit:cd]

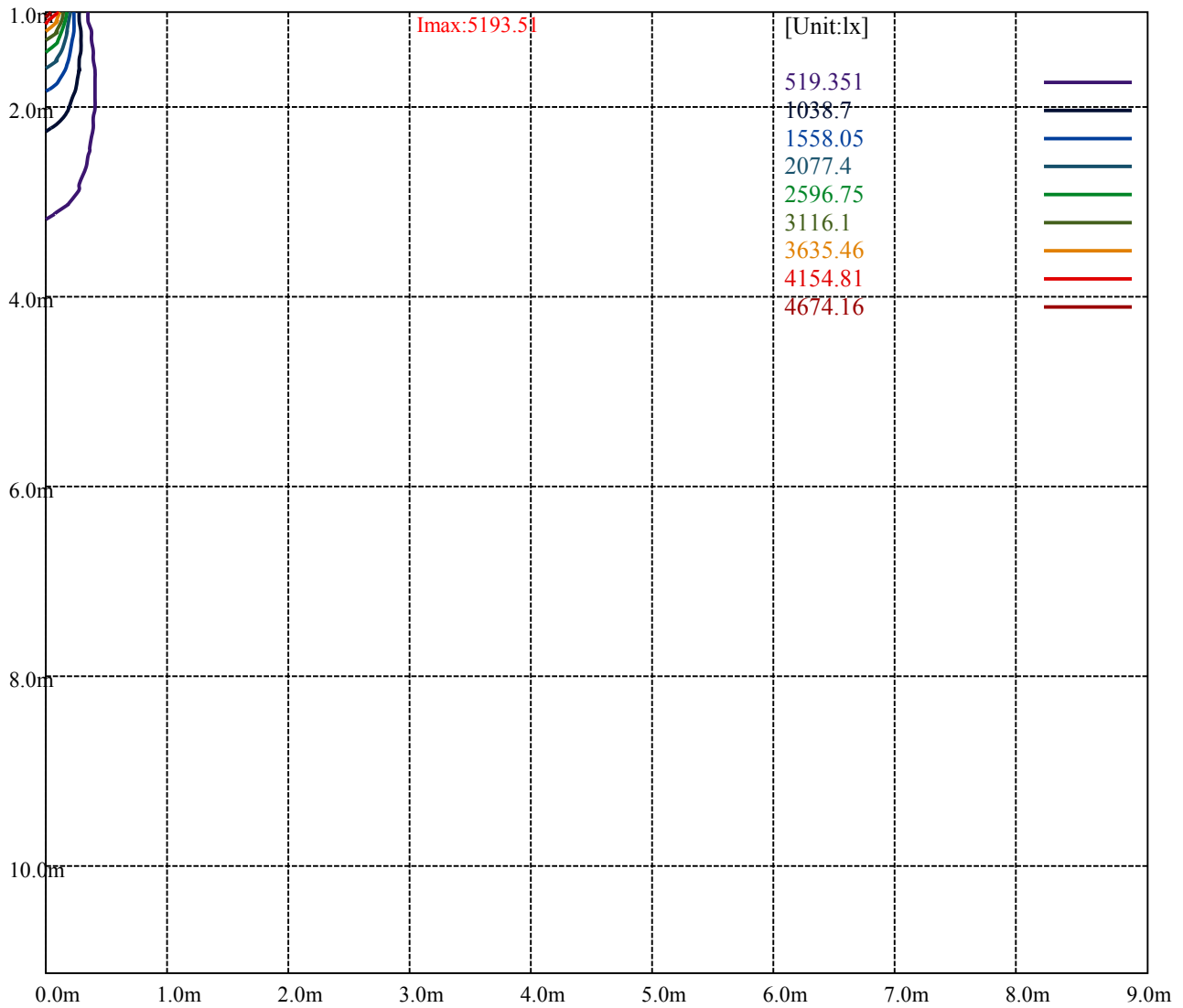
Road

Imax:5193.51  
 (10%Imax) 519.351  
 (20%Imax) 1038.7  
 (30%Imax) 1558.05  
 (40%Imax) 2077.4  
 (50%Imax) 2596.75  
 (60%Imax) 3116.1  
 (70%Imax) 3635.46  
 (80%Imax) 4154.81  
 (90%Imax) 4674.16





|           |          |  |
|-----------|----------|--|
| (10%Emax) | 57.70544 |  |
| (20%Emax) | 115.4111 |  |
| (30%Emax) | 173.1167 |  |
| (40%Emax) | 230.8222 |  |
| (50%Emax) | 288.5267 |  |
| (60%Emax) | 346.2322 |  |
| (70%Emax) | 403.9378 |  |
| (80%Emax) | 461.6433 |  |
| (90%Emax) | 519.3489 |  |



Luminance Table

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

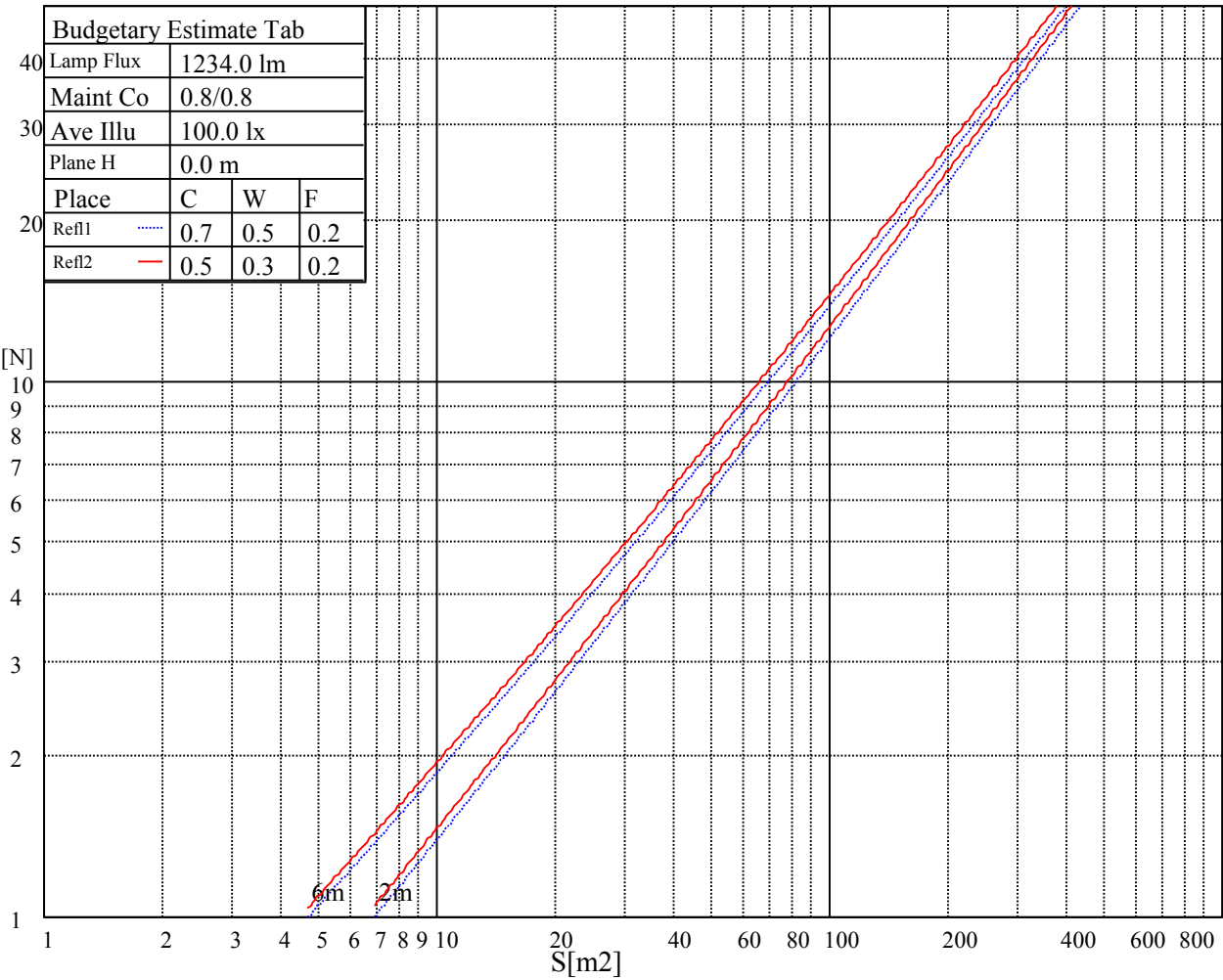
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 0          | 0          | 0       | 0          | 0          | 0       | 0     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

Glare Table

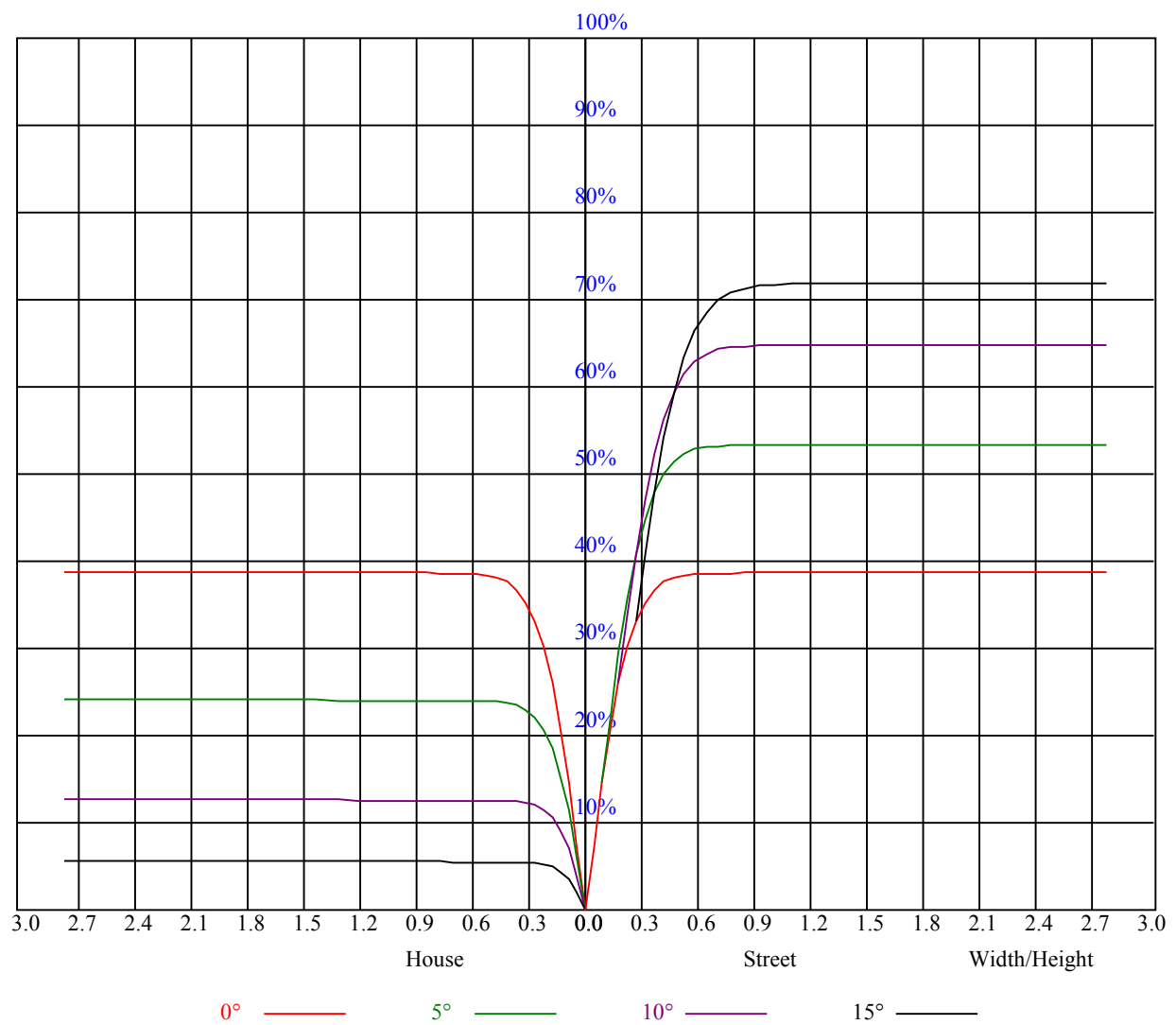
| Glare | Quality | Service Values Illuminance(lx) |      |      |            |            |            |            |            |
|-------|---------|--------------------------------|------|------|------------|------------|------------|------------|------------|
| 1.15  | A       | 2000                           | 1000 | 500  | $\leq 300$ |            |            |            |            |
| 1.5   | B       |                                | 2000 | 1000 | 500        | $\leq 300$ |            |            |            |
| 1.85  | C       |                                |      | 2000 | 1000       | 500        | $\leq 300$ |            |            |
| 2.2   | D       |                                |      |      | 2000       | 1000       | 500        | $\leq 300$ |            |
| 2.55  | E       |                                |      |      |            | 2000       | 1000       | 500        | $\leq 300$ |
|       |         | a                              | b    | c    | d          | e          | f          | g          | h          |

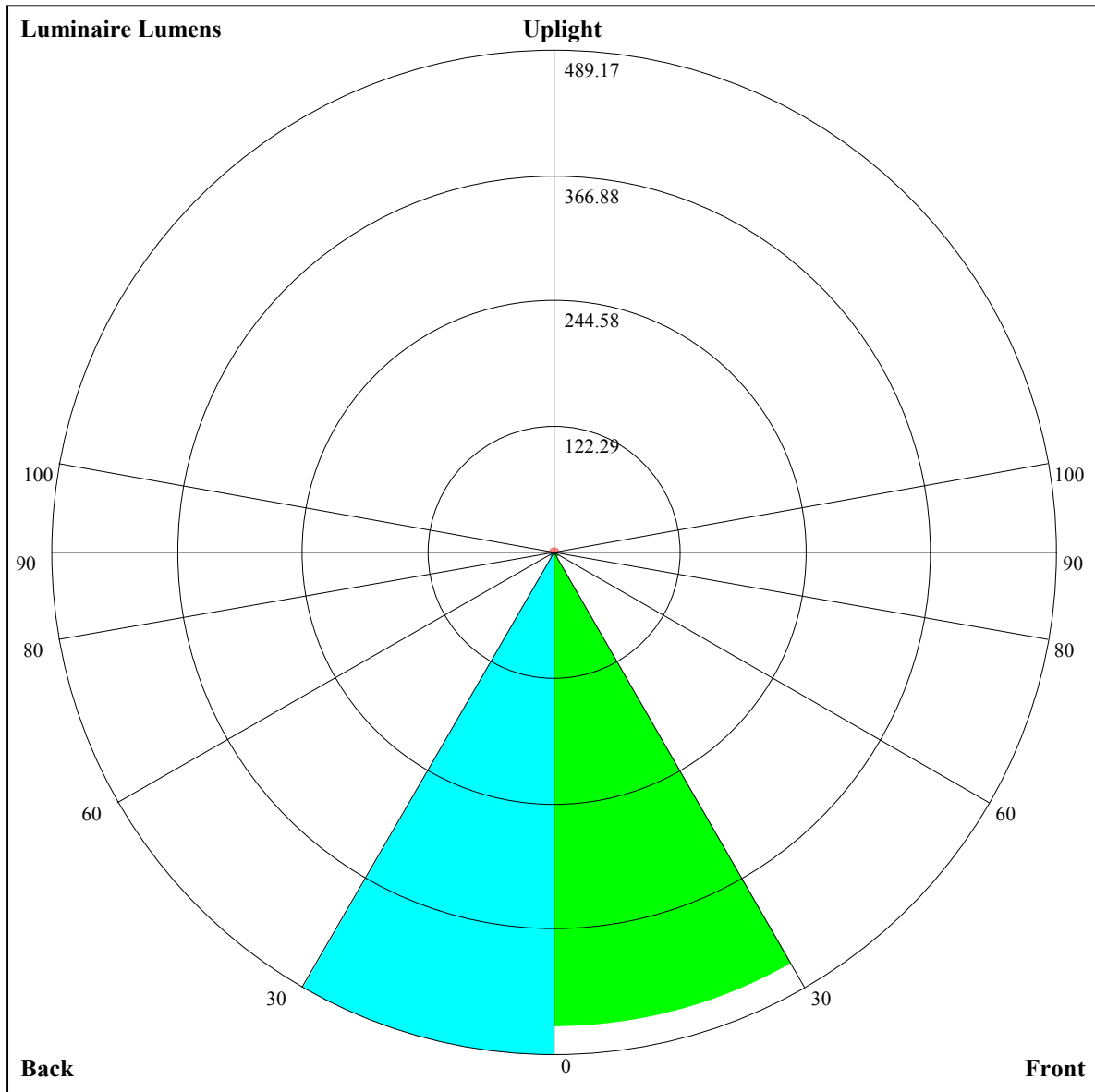
Luminance Limiting Curve





| 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     | 0.94                                    | 0.94 | 0.94 | 0.92 | 0.92 | 0.92 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.84 | 0.81 | 0.81 | 0.81 | 0.79 |
| 1     | 0.90                                    | 0.88 | 0.87 | 0.88 | 0.87 | 0.86 | 0.85 | 0.84 | 0.83 | 0.82 | 0.81 | 0.81 | 0.79 | 0.79 | 0.78 | 0.77 |
| 2     | 0.86                                    | 0.84 | 0.82 | 0.85 | 0.83 | 0.81 | 0.82 | 0.80 | 0.79 | 0.80 | 0.79 | 0.77 | 0.78 | 0.77 | 0.76 | 0.75 |
| 3     | 0.83                                    | 0.80 | 0.78 | 0.82 | 0.79 | 0.77 | 0.80 | 0.78 | 0.76 | 0.78 | 0.76 | 0.75 | 0.76 | 0.75 | 0.74 | 0.73 |
| 4     | 0.80                                    | 0.77 | 0.74 | 0.79 | 0.76 | 0.74 | 0.77 | 0.75 | 0.73 | 0.76 | 0.74 | 0.72 | 0.74 | 0.73 | 0.72 | 0.71 |
| 5     | 0.77                                    | 0.74 | 0.72 | 0.76 | 0.74 | 0.71 | 0.75 | 0.73 | 0.71 | 0.74 | 0.72 | 0.70 | 0.73 | 0.71 | 0.70 | 0.69 |
| 6     | 0.75                                    | 0.72 | 0.69 | 0.74 | 0.71 | 0.69 | 0.73 | 0.71 | 0.69 | 0.72 | 0.70 | 0.68 | 0.71 | 0.69 | 0.68 | 0.67 |
| 7     | 0.73                                    | 0.69 | 0.67 | 0.72 | 0.69 | 0.67 | 0.71 | 0.69 | 0.67 | 0.70 | 0.68 | 0.66 | 0.70 | 0.68 | 0.66 | 0.65 |
| 8     | 0.71                                    | 0.68 | 0.65 | 0.70 | 0.67 | 0.65 | 0.69 | 0.67 | 0.65 | 0.69 | 0.67 | 0.65 | 0.68 | 0.66 | 0.65 | 0.64 |
| 9     | 0.69                                    | 0.66 | 0.64 | 0.68 | 0.66 | 0.64 | 0.68 | 0.65 | 0.63 | 0.67 | 0.65 | 0.63 | 0.67 | 0.65 | 0.63 | 0.62 |
| 10    | 0.67                                    | 0.64 | 0.62 | 0.67 | 0.64 | 0.62 | 0.66 | 0.64 | 0.62 | 0.66 | 0.63 | 0.62 | 0.65 | 0.63 | 0.62 | 0.61 |





Luminaire Lumens:

FL=462.24,FM=6.2,FH=1.25,FVH=0.65

BL=489.17,BM=6.29,BH=1.24,BVH=0.63

UL=1.34,UH=6.38

BUG Rating:B1-U1-G0

Nata 1-0918-M

| Intensity data(cd) |         |         |         |         |         |        |        |      |      | Appendix Page: 15 Total:15 |  |
|--------------------|---------|---------|---------|---------|---------|--------|--------|------|------|----------------------------|--|
| C/ $\gamma$ (°)    | 0.0     | 5.0     | 10.0    | 15.0    | 20.0    | 25.0   | 30.0   | 35.0 | 40.0 |                            |  |
| 0.0                | 5173.09 | 4234.35 | 2557.33 | 921.57  | 528.67  | 79.95  | 5.06   | 3.25 | 2.51 |                            |  |
| 45.0               | 5243.16 | 4667.76 | 3119.74 | 1490.52 | 714.66  | 280.79 | 5.61   | 3.62 | 2.55 |                            |  |
| 90.0               | 5129.47 | 3722.52 | 2064.07 | 806.81  | 391.51  | 16.52  | 4.41   | 2.78 | 2.18 |                            |  |
| 135.0              | 5228.31 | 4724.83 | 2903.04 | 1496.55 | 597.26  | 277.07 | 5.61   | 3.62 | 2.37 |                            |  |
| 180.0              | 5173.09 | 4907.20 | 3341.09 | 1905.37 | 777.77  | 286.82 | 10.07  | 3.99 | 2.69 |                            |  |
| 225.0              | 5243.16 | 4619.50 | 2919.28 | 1542.49 | 698.14  | 128.03 | 5.75   | 3.53 | 2.41 |                            |  |
| 270.0              | 5129.47 | 5148.03 | 4002.33 | 2452.46 | 1115.58 | 470.11 | 257.12 | 4.55 | 2.88 |                            |  |
| 315.0              | 5228.31 | 4619.50 | 3104.43 | 1522.08 | 703.89  | 198.70 | 6.82   | 3.43 | 2.41 |                            |  |
| 360.0              | 5173.09 | 4234.35 | 2557.33 | 921.57  | 528.67  | 79.95  | 5.06   | 3.25 | 2.51 |                            |  |
| C/ $\gamma$ (°)    | 45.0    | 50.0    | 55.0    | 60.0    | 65.0    | 70.0   | 75.0   | 80.0 | 85.0 |                            |  |
| 0.0                | 2.00    | 1.62    | 1.44    | 1.30    | 1.25    | 1.21   | 1.16   | 1.21 | 1.16 |                            |  |
| 45.0               | 2.00    | 1.62    | 1.48    | 1.35    | 1.30    | 1.30   | 1.21   | 1.16 | 1.16 |                            |  |
| 90.0               | 1.81    | 1.53    | 1.35    | 1.25    | 1.25    | 1.16   | 1.16   | 1.11 | 1.21 |                            |  |
| 135.0              | 2.00    | 1.67    | 1.44    | 1.30    | 1.25    | 1.25   | 1.16   | 1.16 | 1.16 |                            |  |
| 180.0              | 2.09    | 1.72    | 1.44    | 1.35    | 1.30    | 1.25   | 1.16   | 1.11 | 1.21 |                            |  |
| 225.0              | 1.90    | 1.62    | 1.44    | 1.30    | 1.21    | 1.16   | 1.16   | 1.11 | 1.11 |                            |  |
| 270.0              | 2.18    | 1.72    | 1.48    | 1.39    | 1.30    | 1.21   | 1.16   | 1.11 | 1.16 |                            |  |
| 315.0              | 1.90    | 1.58    | 1.39    | 1.30    | 1.25    | 1.21   | 1.16   | 1.16 | 1.16 |                            |  |
| 360.0              | 2.00    | 1.62    | 1.44    | 1.30    | 1.25    | 1.21   | 1.16   | 1.21 | 1.16 |                            |  |
| C/ $\gamma$ (°)    | 90.0    |         |         |         |         |        |        |      |      |                            |  |
| 0.0                | 1.35    |         |         |         |         |        |        |      |      |                            |  |
| 45.0               | 1.44    |         |         |         |         |        |        |      |      |                            |  |
| 90.0               | 1.25    |         |         |         |         |        |        |      |      |                            |  |
| 135.0              | 1.21    |         |         |         |         |        |        |      |      |                            |  |
| 180.0              | 1.21    |         |         |         |         |        |        |      |      |                            |  |
| 225.0              | 1.11    |         |         |         |         |        |        |      |      |                            |  |
| 270.0              | 1.11    |         |         |         |         |        |        |      |      |                            |  |
| 315.0              | 1.16    |         |         |         |         |        |        |      |      |                            |  |
| 360.0              | 1.35    |         |         |         |         |        |        |      |      |                            |  |