



NATA LIGHTING CO.,LTD.  
www.nata.cn  
Email:info@nata.com  
Tel:+86-750-3770000 Fax:+86-750-3771111  
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

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## Nata

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### Client:

LumCAT: 3-2328-M

Luminaire: 92.70.131.00

Report No: GC2019091909

Test No: NATA07

LampCAT: TRIDONIC SLE G7 13MM

Lamp flux(lm): 1835.0

Number of Lamps: 1

Length(mm): 78

Phm Type: C

Voltage(V): 220.4000

Current(A): 0.0700

Power (W): 14.3800

PF: 0.9200

Ballast type: AC

Width(mm): 78

Height(mm): 0

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## Photometric Results

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Lumens(lm): 1590.08, Efficiency(%): 86.65% , Luminous Efficacy(lm/W): 110.58

Central intensity(cd): 1965.286, Maximum intensity(cd): 1965.286

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

Beam Angle(50%Imax): [C0/180]Total=57.4

[C90/270]Total=57.4

Field angle(10%Imax): [C0/180]Total=78.8

[C90/270]Total=78.8

Maximum s/h(1/2): C0\_180=0.90 C90\_270=0.90

Maximum s/h(1/4): C0\_180=0.86 C90\_270=0.86

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 86.65%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 99.721%

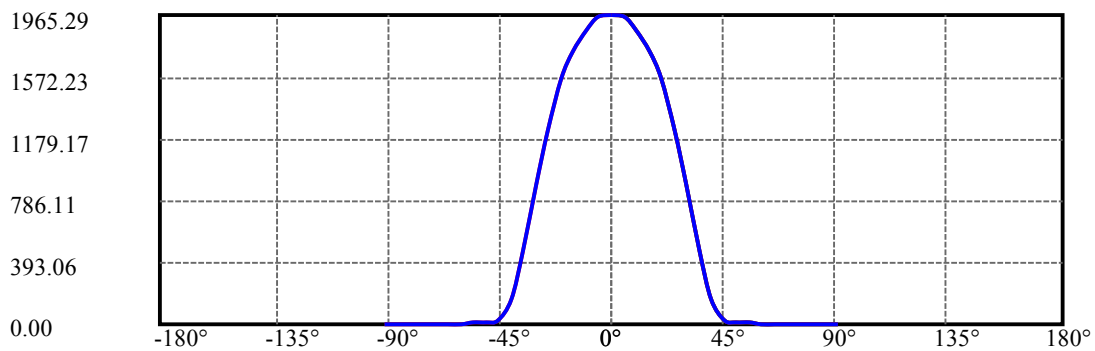
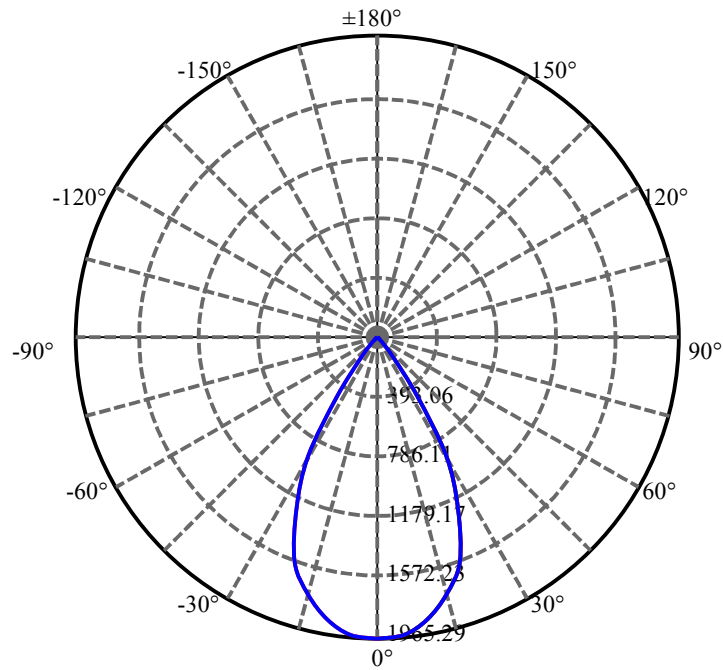
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 1965.286      | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 1947.711      | 46.779      | 46.779    | 2.549%      | 2.942%     |
| 10.0               | 1868.129      | 136.505     | 183.283   | 7.439%      | 11.527%    |
| 15.0               | 1738.548      | 213.946     | 397.229   | 11.659%     | 24.982%    |
| 20.0               | 1558.561      | 271.728     | 668.957   | 14.808%     | 42.071%    |
| 25.0               | 1234.051      | 292.893     | 961.85    | 15.961%     | 60.491%    |
| 30.0               | 894.900       | 269.420     | 1231.271  | 14.682%     | 77.435%    |
| 35.0               | 466.702       | 200.505     | 1431.776  | 10.927%     | 90.044%    |
| 40.0               | 160.718       | 104.680     | 1536.456  | 5.705%      | 96.628%    |
| 45.0               | 27.279        | 34.809      | 1571.266  | 1.897%      | 98.817%    |
| 50.0               | 12.918        | 8.122       | 1579.388  | .443%       | 99.328%    |
| 55.0               | 6.230         | 4.163       | 1583.551  | .227%       | 99.590%    |
| 60.0               | 2.796         | 2.086       | 1585.637  | .114%       | 99.721%    |
| 65.0               | 1.433         | 1.028       | 1586.665  | .056%       | 99.785%    |
| 70.0               | 1.282         | 0.687       | 1587.353  | .037%       | 99.829%    |
| 75.0               | 1.253         | 0.663       | 1588.015  | .036%       | 99.870%    |
| 80.0               | 1.247         | 0.669       | 1588.684  | .036%       | 99.912%    |
| 85.0               | 1.270         | 0.684       | 1589.368  | .037%       | 99.955%    |
| 90.0               | 1.322         | 0.710       | 1590.078  | .039%       | 100.000%   |

## ZONAL LUMEN SUMMARY

| Zone    | Lumens  | %Lamp  | %Fixt   |
|---------|---------|--------|---------|
| 0-30    | 1231.27 | 67.10% | 77.43%  |
| 0-40    | 1536.46 | 83.73% | 96.63%  |
| 0-60    | 1585.64 | 86.41% | 99.72%  |
| 0-90    | 1589.37 | 86.61% | 99.96%  |
| 0-120   | 1589.37 | 86.61% | 99.96%  |
| 0-180   | 1590.08 | 86.65% | 100.00% |
| 60-90   | 5.82    | 0.32%  | 0.37%   |
| 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%   |
| 0-31.02 | 1272.06 | 69.32% | 80.00%  |

## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 183.28 |
| 10-20   | 485.67 |
| 20-30   | 562.31 |
| 30-40   | 305.19 |
| 40-50   | 42.93  |
| 50-60   | 6.25   |
| 60-70   | 1.72   |
| 70-80   | 1.33   |
| 80-90   | 0.68   |
| 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:

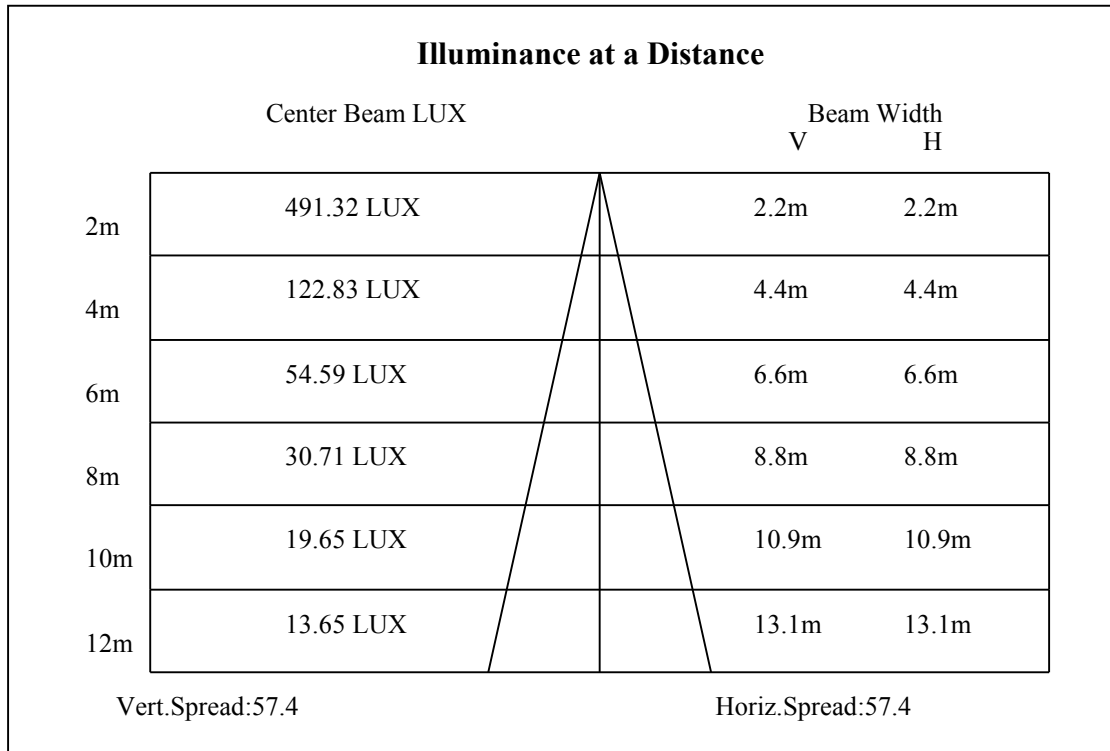
C90/C270:

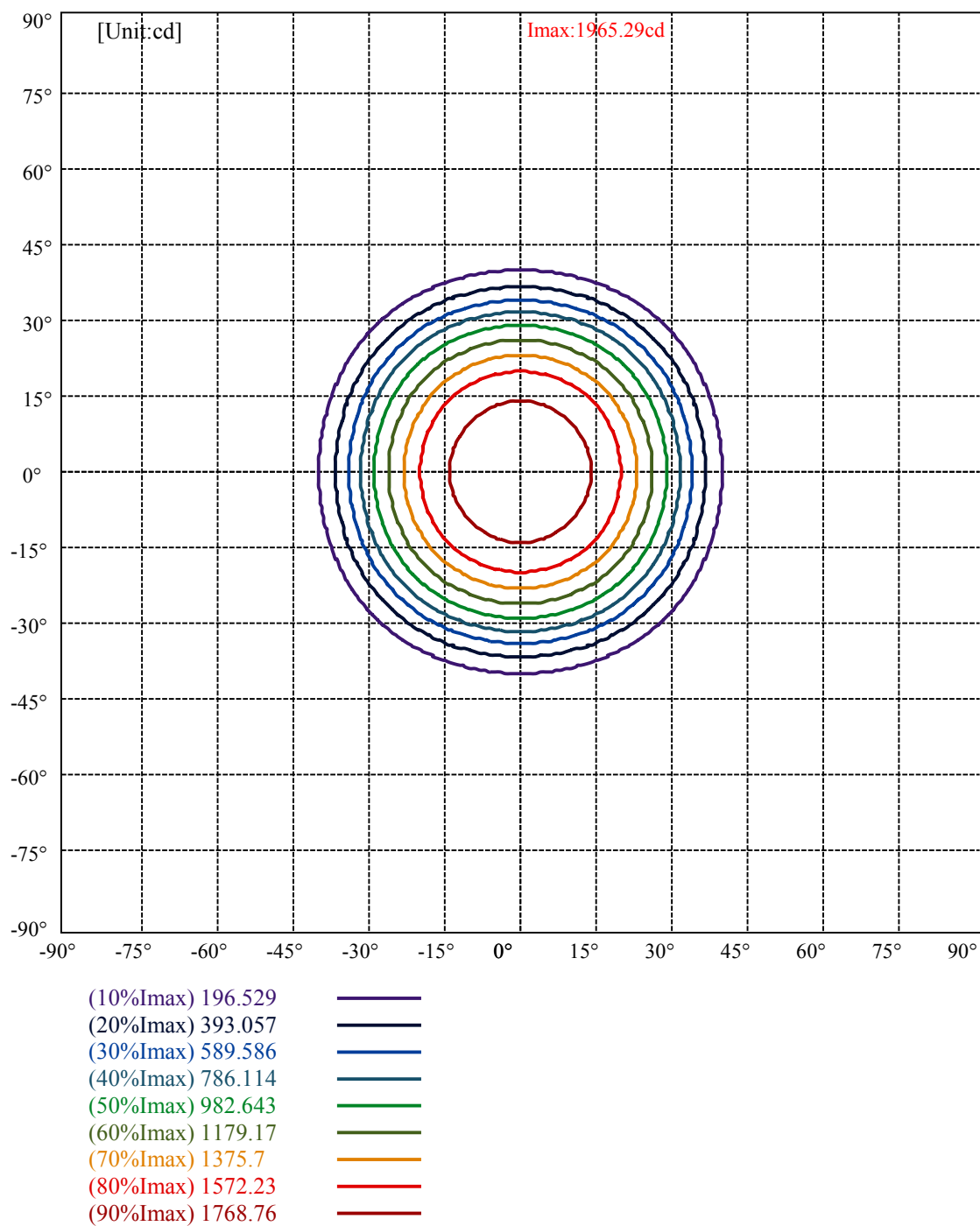
Field angle(10%Imax):C0/180Left:39.4 Right:39.4

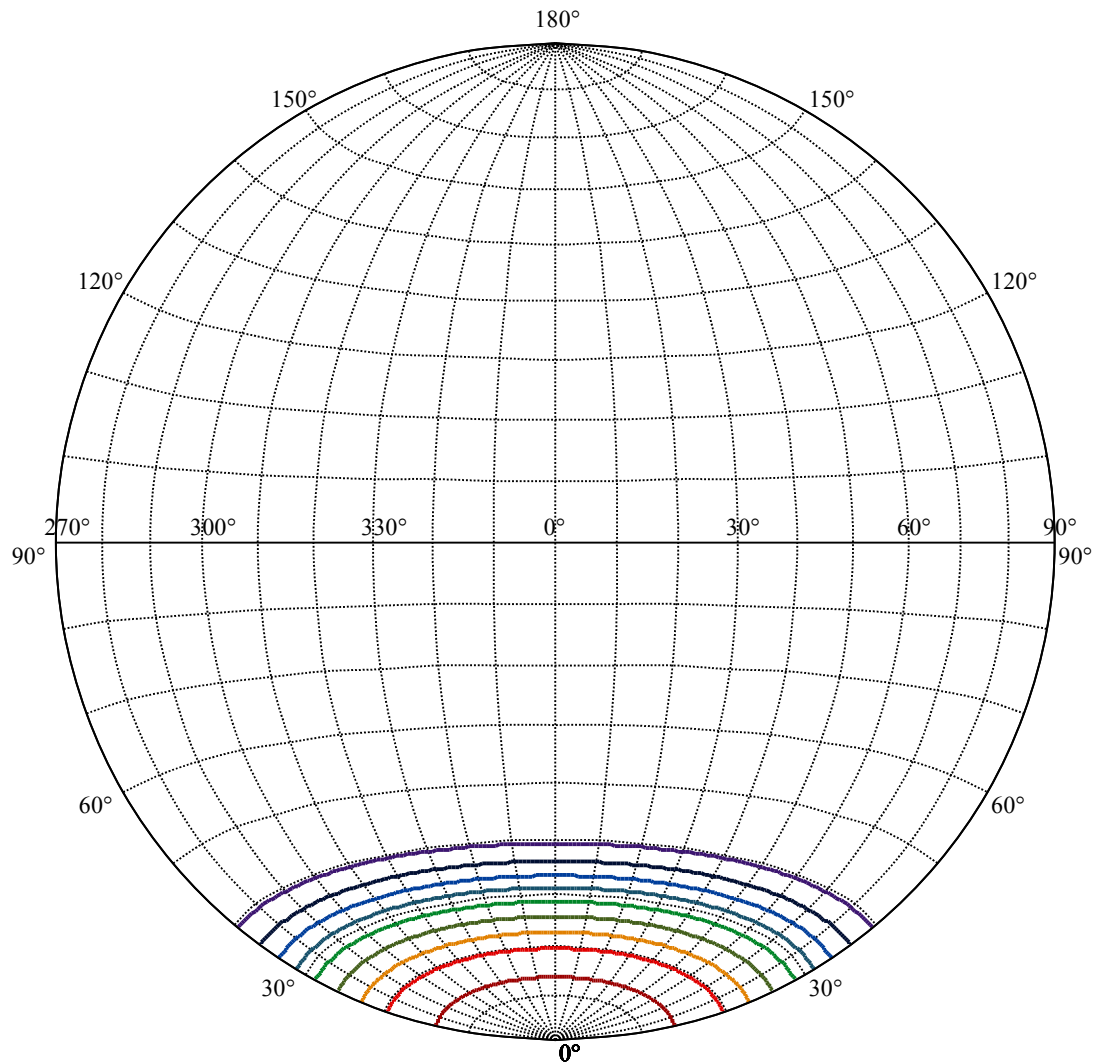
:C90/270Left:39.4 Right:39.4

Beam Angle(50%Imax):C0/180Left:28.7 Right:28.7

:C90/270Left:28.7 Right:28.7







House

[Unit:cd]

Road

Imax:1965.29

(10%Imax) 196.529

(20%Imax) 393.057

(30%Imax) 589.586

(40%Imax) 786.114

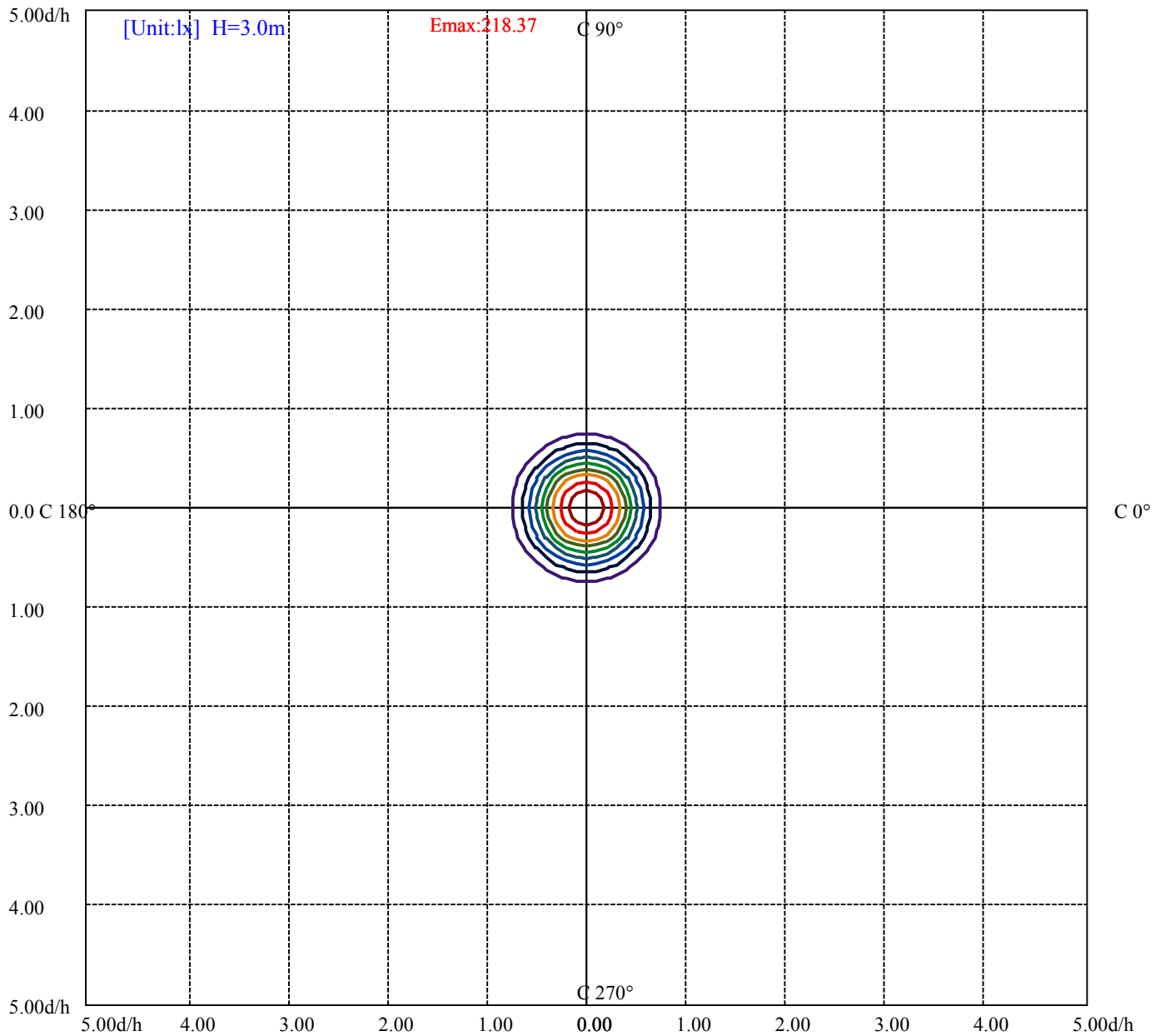
(50%Imax) 982.643

(60%Imax) 1179.17

(70%Imax) 1375.7

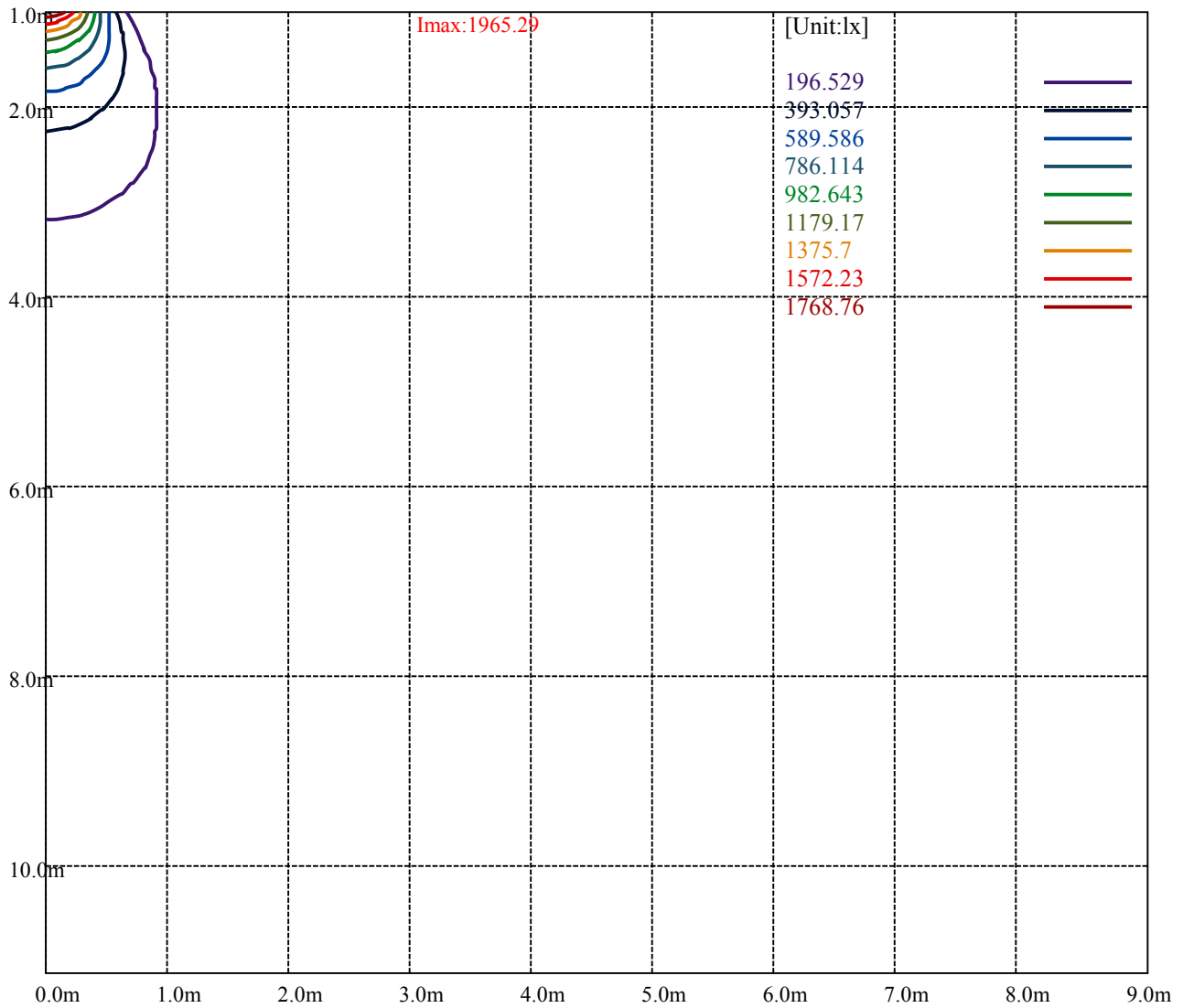
(80%Imax) 1572.23

(90%Imax) 1768.76



|                    |   |
|--------------------|---|
| (10%Emax) 21.83656 | — |
| (20%Emax) 43.673   | — |
| (30%Emax) 65.50955 | — |
| (40%Emax) 87.346   | — |
| (50%Emax) 109.1826 | — |
| (60%Emax) 131.0189 | — |
| (70%Emax) 152.8555 | — |
| (80%Emax) 174.6922 | — |
| (90%Emax) 196.5289 | — |





Luminance Table

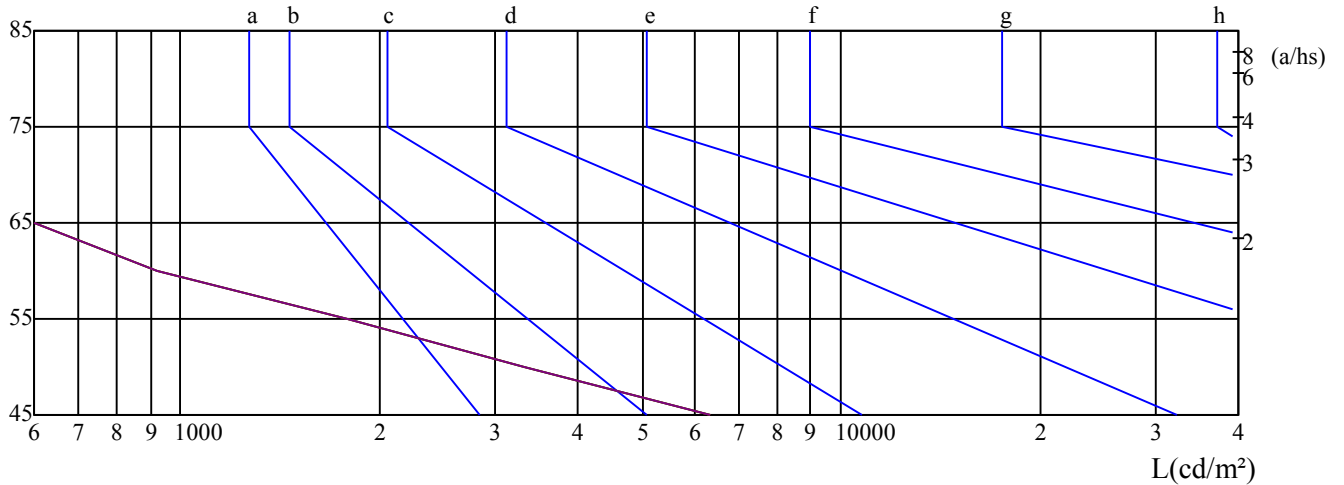
| $\gamma$ | 45   | 50   | 55   | 60  | 65  | 70  | 75  | 80   | 85   |
|----------|------|------|------|-----|-----|-----|-----|------|------|
| C0       | 6341 | 3303 | 1785 | 919 | 557 | 616 | 796 | 1180 | 2396 |
| C45      | 6341 | 3303 | 1785 | 919 | 557 | 616 | 796 | 1180 | 2396 |
| C90      | 6341 | 3303 | 1785 | 919 | 557 | 616 | 796 | 1180 | 2396 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 557        | 557        | 557     | 796        | 796        | 796     | 2396       | 2396       | 2396    |

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          |

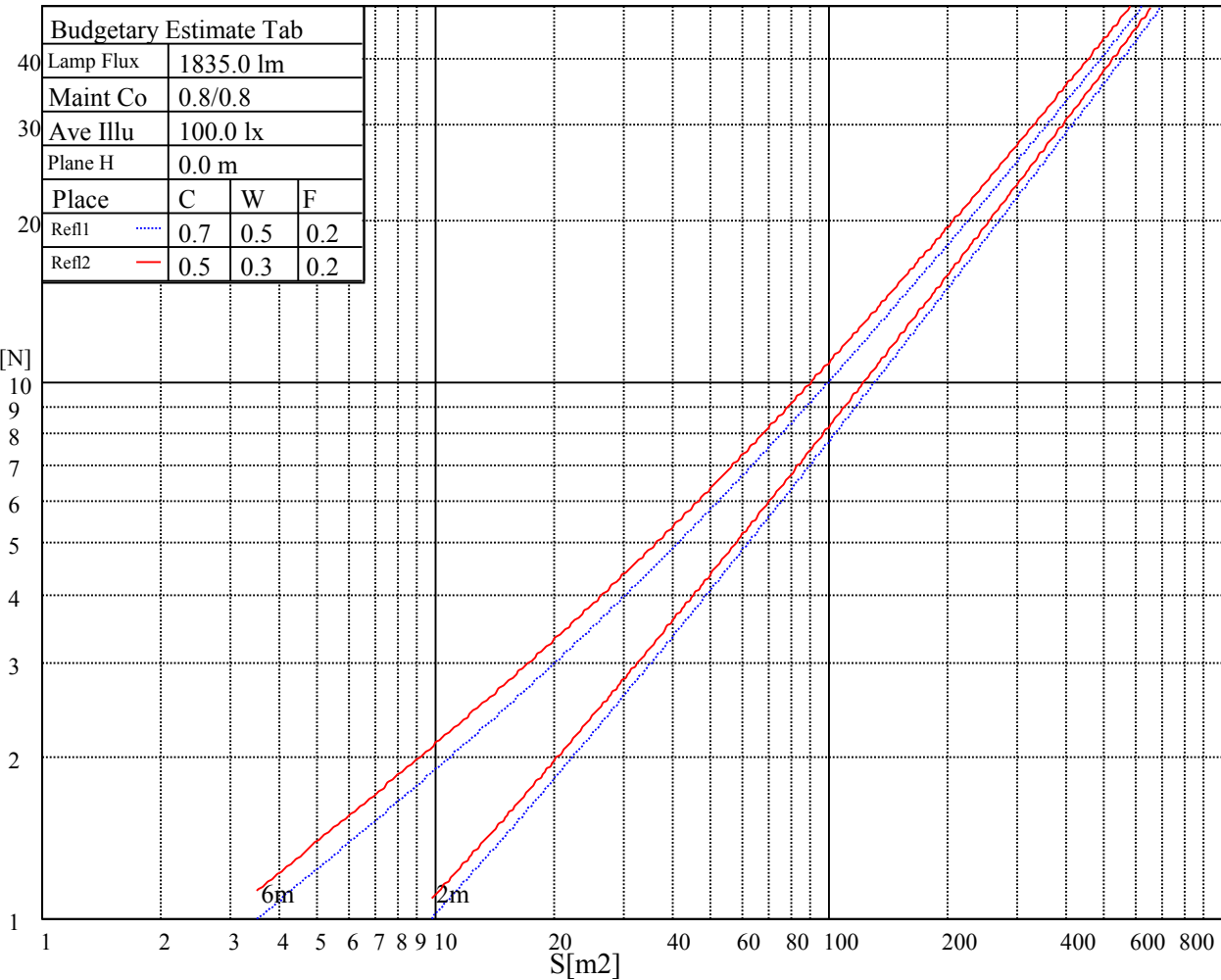
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

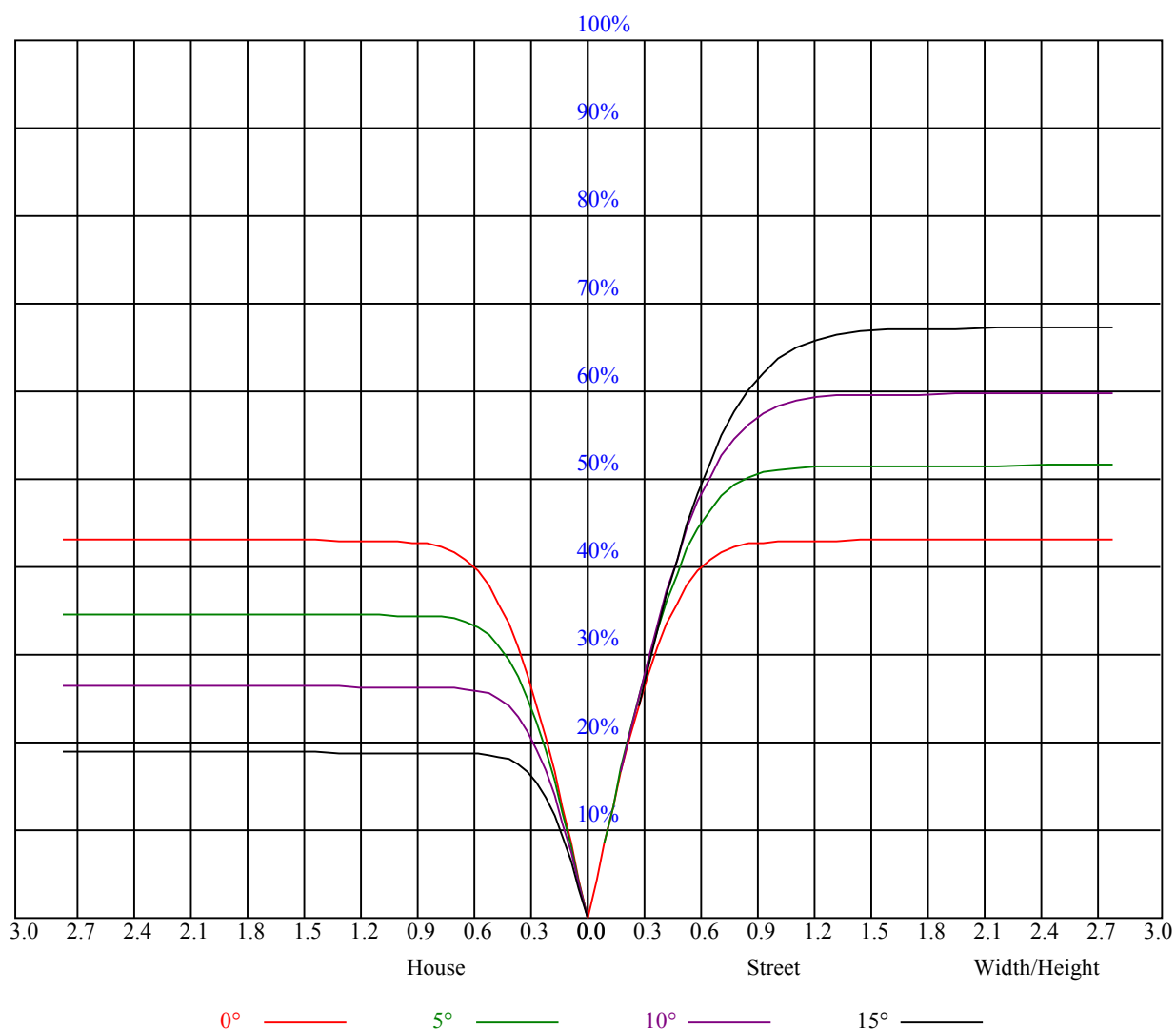
C0 ———

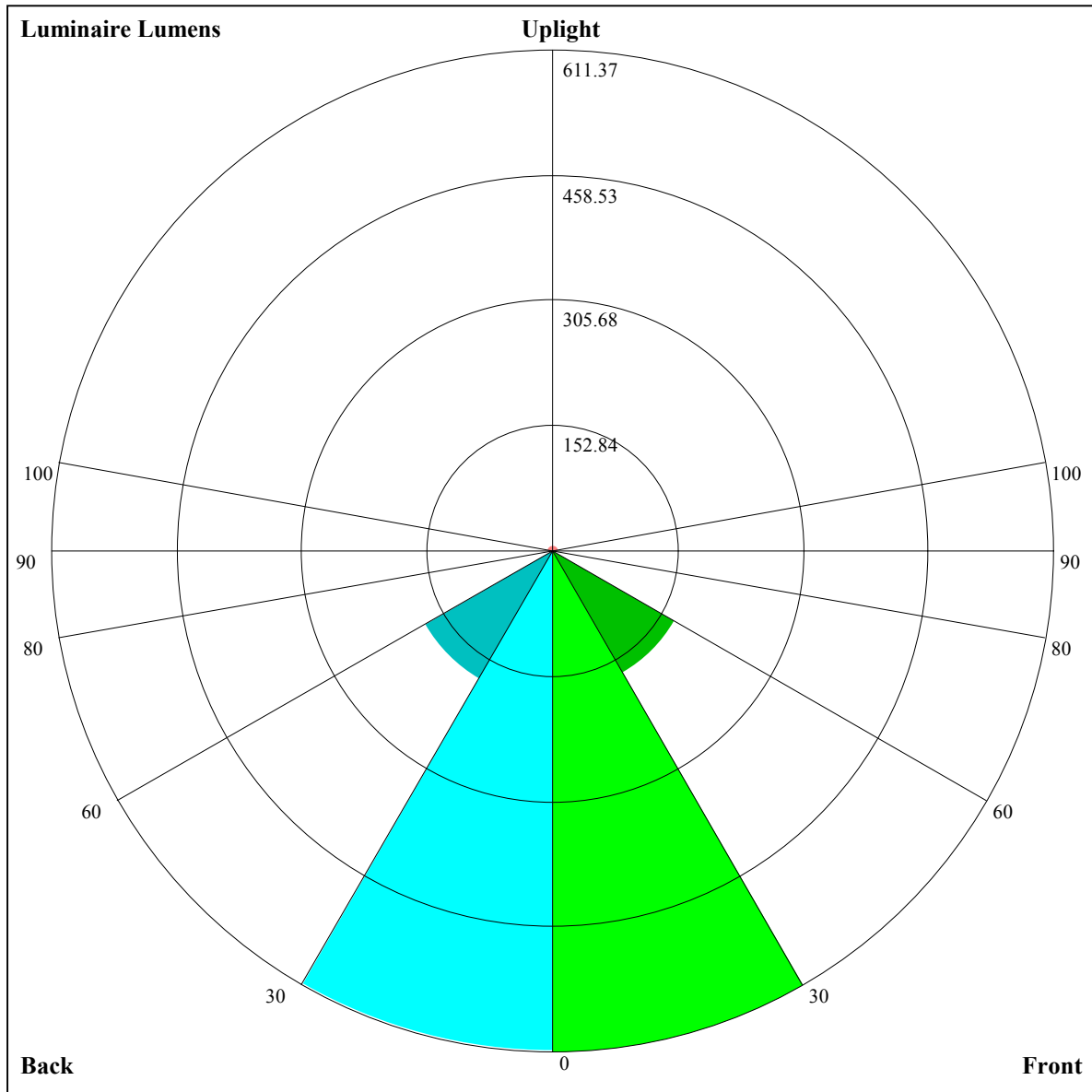
C45 ———

C90 ———



| 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     | 1.03                                    | 1.03 | 1.03 | 1.01 | 1.01 | 1.01 | 0.96 | 0.96 | 0.96 | 0.92 | 0.92 | 0.92 | 0.88 | 0.88 | 0.88 | 0.87 |
| 1     | 0.96                                    | 0.94 | 0.92 | 0.94 | 0.93 | 0.91 | 0.91 | 0.89 | 0.88 | 0.88 | 0.87 | 0.85 | 0.85 | 0.84 | 0.83 | 0.81 |
| 2     | 0.90                                    | 0.87 | 0.84 | 0.88 | 0.85 | 0.83 | 0.86 | 0.83 | 0.81 | 0.83 | 0.81 | 0.79 | 0.81 | 0.79 | 0.78 | 0.76 |
| 3     | 0.84                                    | 0.80 | 0.77 | 0.83 | 0.79 | 0.76 | 0.81 | 0.78 | 0.75 | 0.79 | 0.76 | 0.74 | 0.77 | 0.75 | 0.73 | 0.71 |
| 4     | 0.79                                    | 0.75 | 0.71 | 0.78 | 0.74 | 0.71 | 0.76 | 0.73 | 0.70 | 0.75 | 0.71 | 0.69 | 0.73 | 0.70 | 0.68 | 0.67 |
| 5     | 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 |
| 6     | 0.70                                    | 0.65 | 0.62 | 0.69 | 0.65 | 0.61 | 0.68 | 0.64 | 0.61 | 0.67 | 0.63 | 0.61 | 0.66 | 0.63 | 0.60 | 0.59 |
| 7     | 0.66                                    | 0.61 | 0.58 | 0.66 | 0.61 | 0.58 | 0.64 | 0.60 | 0.57 | 0.63 | 0.60 | 0.57 | 0.63 | 0.59 | 0.57 | 0.55 |
| 8     | 0.63                                    | 0.58 | 0.54 | 0.62 | 0.57 | 0.54 | 0.61 | 0.57 | 0.54 | 0.60 | 0.56 | 0.54 | 0.59 | 0.56 | 0.53 | 0.52 |
| 9     | 0.59                                    | 0.54 | 0.51 | 0.59 | 0.54 | 0.51 | 0.58 | 0.54 | 0.51 | 0.57 | 0.53 | 0.51 | 0.57 | 0.53 | 0.50 | 0.49 |
| 10    | 0.56                                    | 0.51 | 0.48 | 0.56 | 0.51 | 0.48 | 0.55 | 0.51 | 0.48 | 0.54 | 0.51 | 0.48 | 0.54 | 0.50 | 0.48 | 0.47 |





Luminaire Lumens:

FL=611.37,FM=171.33,FH=1.52,FVH=0.69

BL=609.41,BM=179.91,BH=1.53,BVH=0.7

UL=1.44,UH=6.87

BUG Rating:B2-U1-G0

| Intensity data(cd) |         |         |         |         |         |         |         |        |        | Appendix Page: 15 Total:15 |  |
|--------------------|---------|---------|---------|---------|---------|---------|---------|--------|--------|----------------------------|--|
| C/γ(°)             | 0.0     | 5.0     | 10.0    | 15.0    | 20.0    | 25.0    | 30.0    | 35.0   | 40.0   |                            |  |
| 0.0                | 1968.94 | 1958.27 | 1881.70 | 1743.88 | 1537.39 | 1225.09 | 867.56  | 365.80 | 56.80  |                            |  |
| 45.0               | 1961.98 | 1970.80 | 1927.18 | 1789.36 | 1640.40 | 1350.85 | 965.70  | 560.13 | 279.86 |                            |  |
| 90.0               | 1968.01 | 1953.63 | 1856.18 | 1720.68 | 1473.82 | 897.67  | 761.39  | 296.98 | 43.90  |                            |  |
| 135.0              | 1964.76 | 1958.27 | 1890.98 | 1768.94 | 1603.28 | 1333.68 | 898.88  | 540.18 | 267.33 |                            |  |
| 180.0              | 1968.94 | 1944.81 | 1868.25 | 1751.31 | 1604.21 | 1318.83 | 957.81  | 537.86 | 264.55 |                            |  |
| 225.0              | 1956.88 | 1906.30 | 1797.25 | 1668.25 | 1472.89 | 1172.19 | 836.70  | 343.15 | 53.27  |                            |  |
| 270.0              | 1968.01 | 1945.74 | 1878.45 | 1741.56 | 1593.07 | 1368.95 | 1011.64 | 656.19 | 258.51 |                            |  |
| 315.0              | 1964.76 | 1943.88 | 1845.04 | 1724.39 | 1543.42 | 1205.14 | 859.53  | 433.31 | 61.53  |                            |  |
| 360.0              | 1968.94 | 1958.27 | 1881.70 | 1743.88 | 1537.39 | 1225.09 | 867.56  | 365.80 | 56.80  |                            |  |
| C/γ(°)             | 45.0    | 50.0    | 55.0    | 60.0    | 65.0    | 70.0    | 75.0    | 80.0   | 85.0   |                            |  |
| 0.0                | 23.29   | 10.81   | 5.29    | 2.37    | 1.35    | 1.30    | 1.25    | 1.30   | 1.25   |                            |  |
| 45.0               | 32.20   | 16.06   | 7.15    | 3.48    | 1.58    | 1.35    | 1.30    | 1.30   | 1.30   |                            |  |
| 90.0               | 19.86   | 10.44   | 4.50    | 2.09    | 1.30    | 1.25    | 1.25    | 1.25   | 1.30   |                            |  |
| 135.0              | 25.15   | 12.95   | 6.40    | 3.02    | 1.44    | 1.25    | 1.25    | 1.30   | 1.30   |                            |  |
| 180.0              | 28.91   | 13.55   | 6.40    | 3.02    | 1.48    | 1.35    | 1.25    | 1.21   | 1.25   |                            |  |
| 225.0              | 24.08   | 11.97   | 5.52    | 2.46    | 1.35    | 1.25    | 1.25    | 1.21   | 1.30   |                            |  |
| 270.0              | 42.23   | 16.52   | 8.77    | 3.62    | 1.67    | 1.30    | 1.25    | 1.21   | 1.25   |                            |  |
| 315.0              | 22.51   | 11.04   | 5.80    | 2.32    | 1.30    | 1.21    | 1.21    | 1.21   | 1.21   |                            |  |
| 360.0              | 23.29   | 10.81   | 5.29    | 2.37    | 1.35    | 1.30    | 1.25    | 1.30   | 1.25   |                            |  |
| C/γ(°)             | 90.0    |         |         |         |         |         |         |        |        |                            |  |
| 0.0                | 1.48    |         |         |         |         |         |         |        |        |                            |  |
| 45.0               | 1.25    |         |         |         |         |         |         |        |        |                            |  |
| 90.0               | 1.35    |         |         |         |         |         |         |        |        |                            |  |
| 135.0              | 1.44    |         |         |         |         |         |         |        |        |                            |  |
| 180.0              | 1.30    |         |         |         |         |         |         |        |        |                            |  |
| 225.0              | 1.30    |         |         |         |         |         |         |        |        |                            |  |
| 270.0              | 1.25    |         |         |         |         |         |         |        |        |                            |  |
| 315.0              | 1.21    |         |         |         |         |         |         |        |        |                            |  |
| 360.0              | 1.48    |         |         |         |         |         |         |        |        |                            |  |