

---

## Nata

---

### Client:

LumCAT: 1687-M2

Luminaire: 92.70.125.00+92.70.152.00

Report No: 200915-B018

Voltage(V): 17.9500

Test No: 200914-C018

Current(A): 0.3430

LampCAT: Vesta DW LES6 Gen2 PD

Power (W): 6.1560

Lamp flux(lm): 573.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

---

## Photometric Results

---

Lumens(lm): 501.89, Efficiency(%): 87.62% , Luminous Efficacy(lm/W): 81.53

Central intensity(cd): 894.277, Maximum intensity(cd): 894.277

Angle of maximum intensity: C=0.0 γ=0.0

Beam Angle(50%Imax): [C0/180]Total=31.2

[C90/270]Total=31.2

Field angle(10%Imax): [C0/180]Total=86.0

[C90/270]Total=86.0

Maximum s/h(1/2): C0\_180=0.51 C90\_270=0.51

Maximum s/h(1/4): C0\_180=0.59 C90\_270=0.59

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 87.62%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.458%

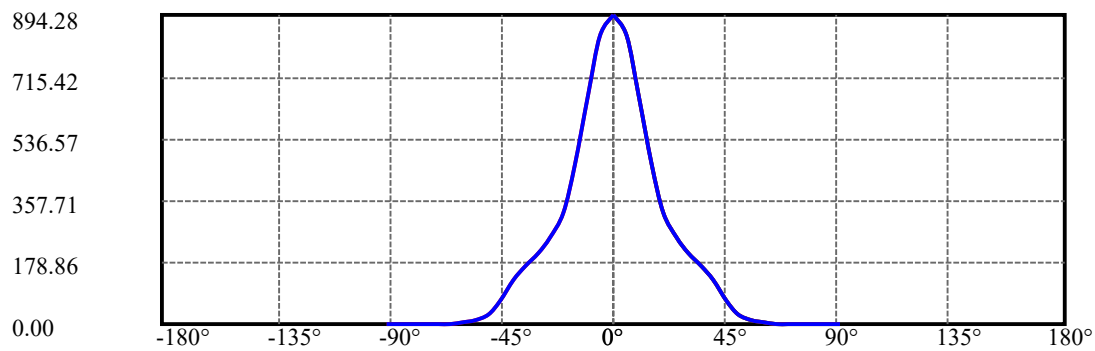
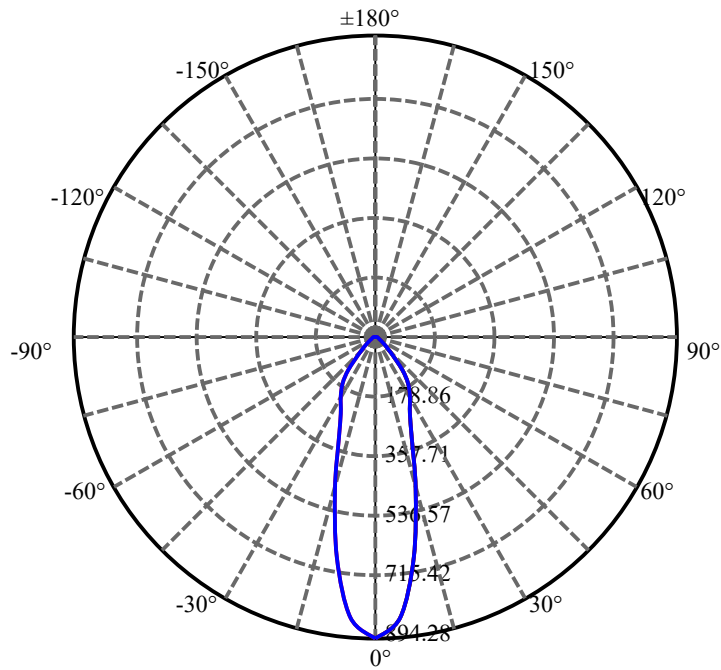
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 894.277       | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 835.516       | 20.679      | 20.679    | 3.610%      | 4.120%     |
| 10.0               | 664.713       | 53.668      | 74.347    | 9.369%      | 14.813%    |
| 15.0               | 463.409       | 66.919      | 141.267   | 11.683%     | 28.147%    |
| 20.0               | 323.255       | 64.832      | 206.099   | 11.318%     | 41.064%    |
| 25.0               | 249.131       | 60.033      | 266.131   | 10.480%     | 53.025%    |
| 30.0               | 205.355       | 57.516      | 323.647   | 10.041%     | 64.485%    |
| 35.0               | 168.448       | 55.045      | 378.692   | 9.610%      | 75.453%    |
| 40.0               | 127.238       | 49.333      | 428.025   | 8.612%      | 85.282%    |
| 45.0               | 65.215        | 35.634      | 463.659   | 6.221%      | 92.382%    |
| 50.0               | 26.093        | 18.450      | 482.109   | 3.221%      | 96.058%    |
| 55.0               | 11.363        | 8.144       | 490.253   | 1.422%      | 97.681%    |
| 60.0               | 5.527         | 3.904       | 494.157   | .682%       | 98.458%    |
| 65.0               | 2.644         | 1.986       | 496.143   | .347%       | 98.854%    |
| 70.0               | 2.138         | 1.211       | 497.354   | .211%       | 99.095%    |
| 75.0               | 2.123         | 1.114       | 498.468   | .194%       | 99.317%    |
| 80.0               | 2.138         | 1.140       | 499.608   | .199%       | 99.545%    |
| 85.0               | 2.109         | 1.154       | 500.762   | .201%       | 99.774%    |
| 90.0               | 2.025         | 1.132       | 501.894   | .198%       | 100.000%   |

## ZONAL LUMEN SUMMARY

| Zone    | Lumens | %Lamp  | %Fixt   |
|---------|--------|--------|---------|
| 0-30    | 323.65 | 56.48% | 64.49%  |
| 0-40    | 428.02 | 74.70% | 85.28%  |
| 0-60    | 494.16 | 86.24% | 98.46%  |
| 0-90    | 500.76 | 87.39% | 99.77%  |
| 0-120   | 500.76 | 87.39% | 99.77%  |
| 0-180   | 501.89 | 87.59% | 100.00% |
| 60-90   | 10.51  | 1.83%  | 2.09%   |
| 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%   |
| 0-37.31 | 401.51 | 70.07% | 80.00%  |

## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 74.35  |
| 10-20   | 131.75 |
| 20-30   | 117.55 |
| 30-40   | 104.38 |
| 40-50   | 54.08  |
| 50-60   | 12.05  |
| 60-70   | 3.20   |
| 70-80   | 2.25   |
| 80-90   | 1.15   |
| 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:

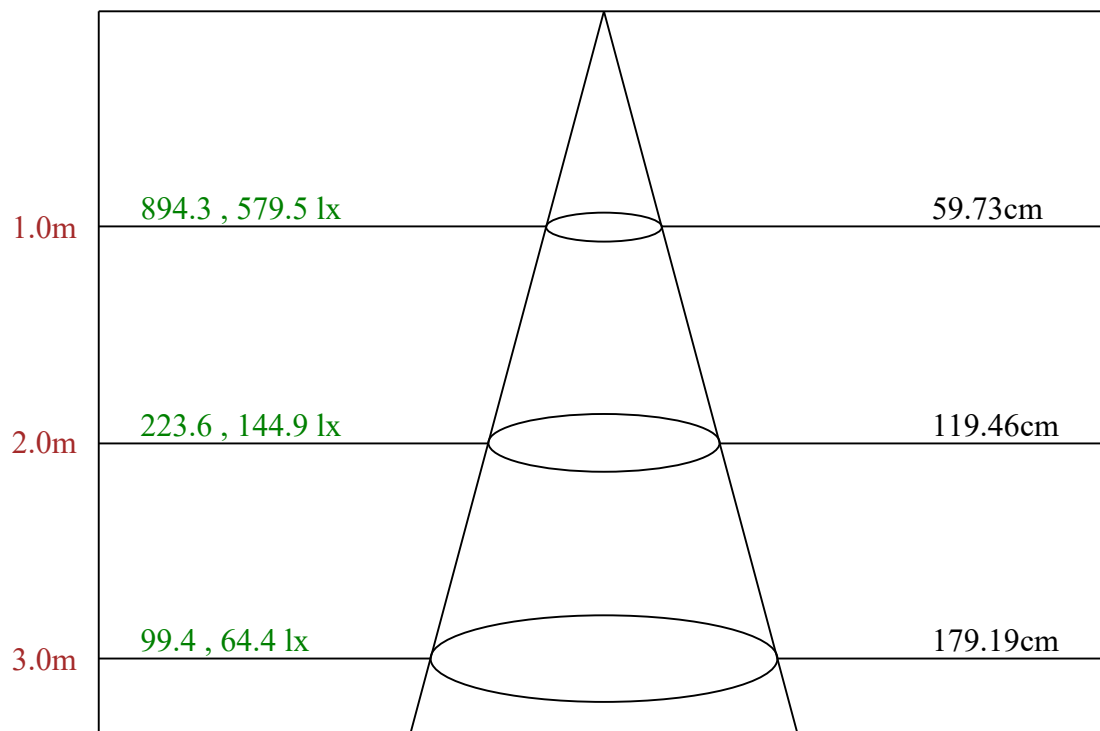
C90/C270:

Field angle(10%Imax):C0/180Left:43.0 Right:43.0

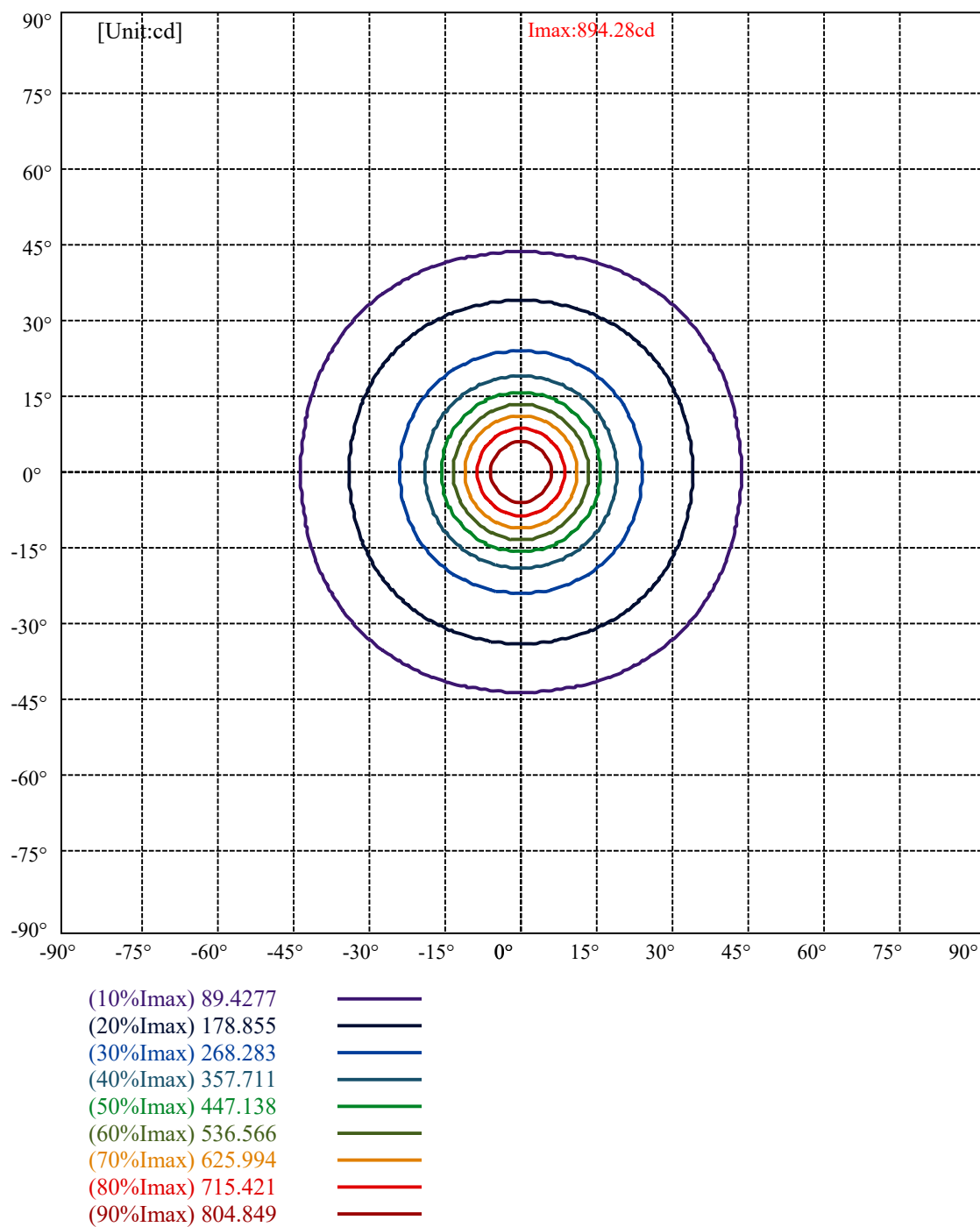
:C90/270Left:43.0 Right:43.0

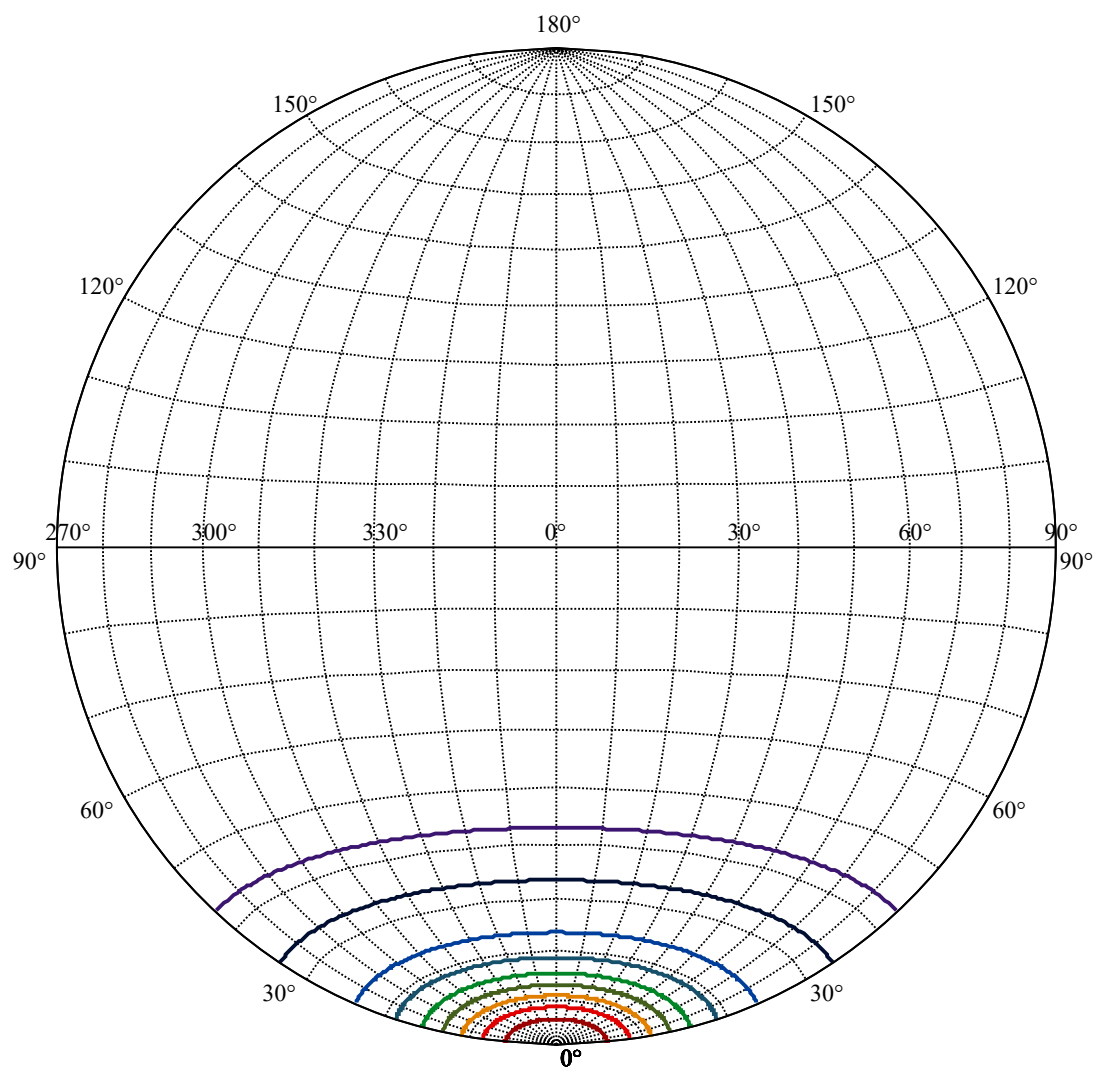
Beam Angle(50%Imax):C0/180Left:15.6 Right:15.6

:C90/270Left:15.6 Right:15.6



Max , Ave      Beam angle of C0 plane 33.26





House

[Unit:cd]

Road

Imax:894.28

(10%Imax) 89.4277

(20%Imax) 178.855

(30%Imax) 268.283

(40%Imax) 357.711

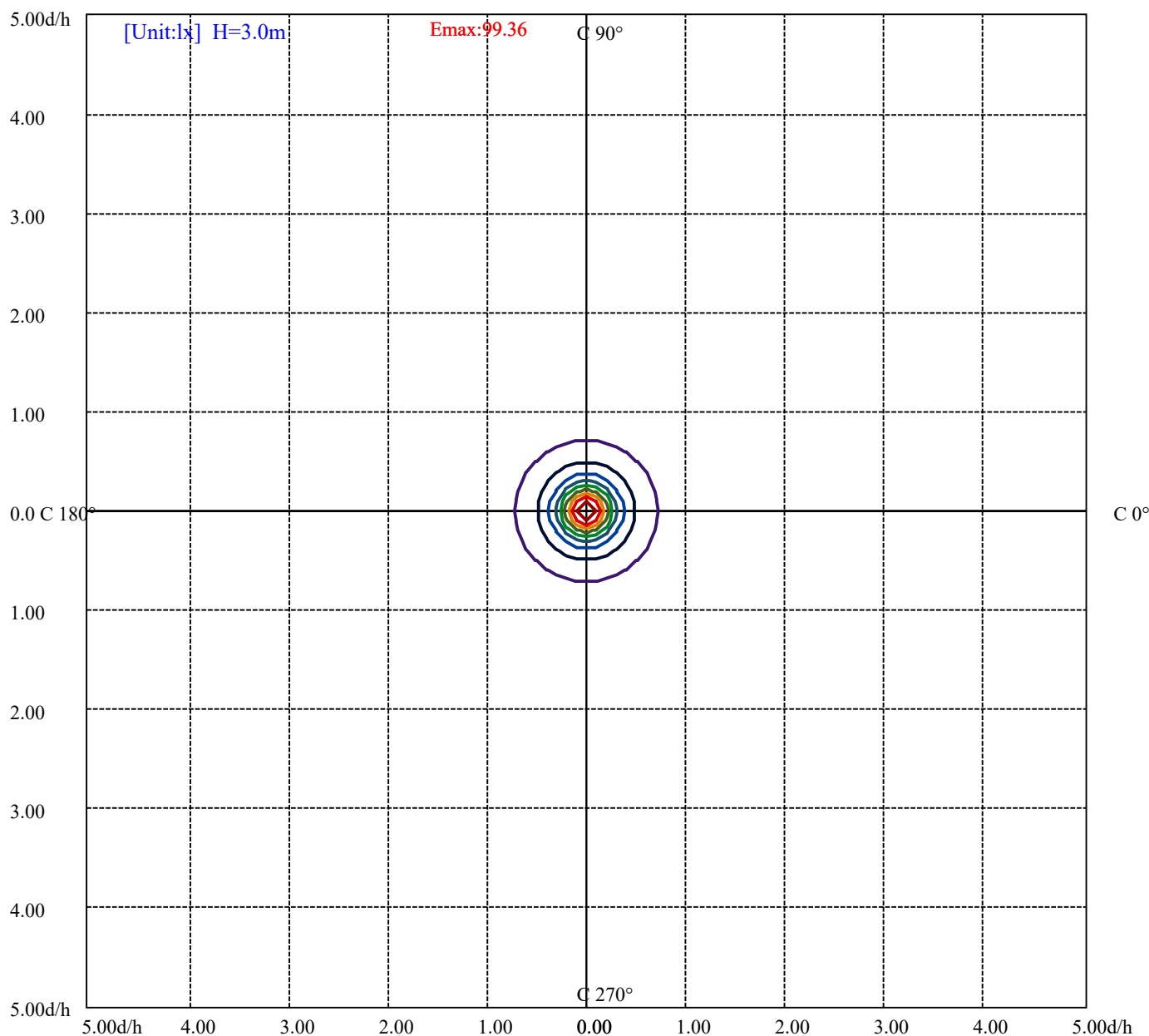
(50%Imax) 447.138

(60%Imax) 536.566

(70%Imax) 625.994

(80%Imax) 715.421

(90%Imax) 804.849



|           |          |   |
|-----------|----------|---|
| (10%Emax) | 9.936389 | — |
| (20%Emax) | 19.87278 | — |
| (30%Emax) | 29.80911 | — |
| (40%Emax) | 39.74556 | — |
| (50%Emax) | 49.68189 | — |
| (60%Emax) | 59.61833 | — |
| (70%Emax) | 69.55466 | — |
| (80%Emax) | 79.49111 | — |
| (90%Emax) | 89.42744 | — |



Luminance Table

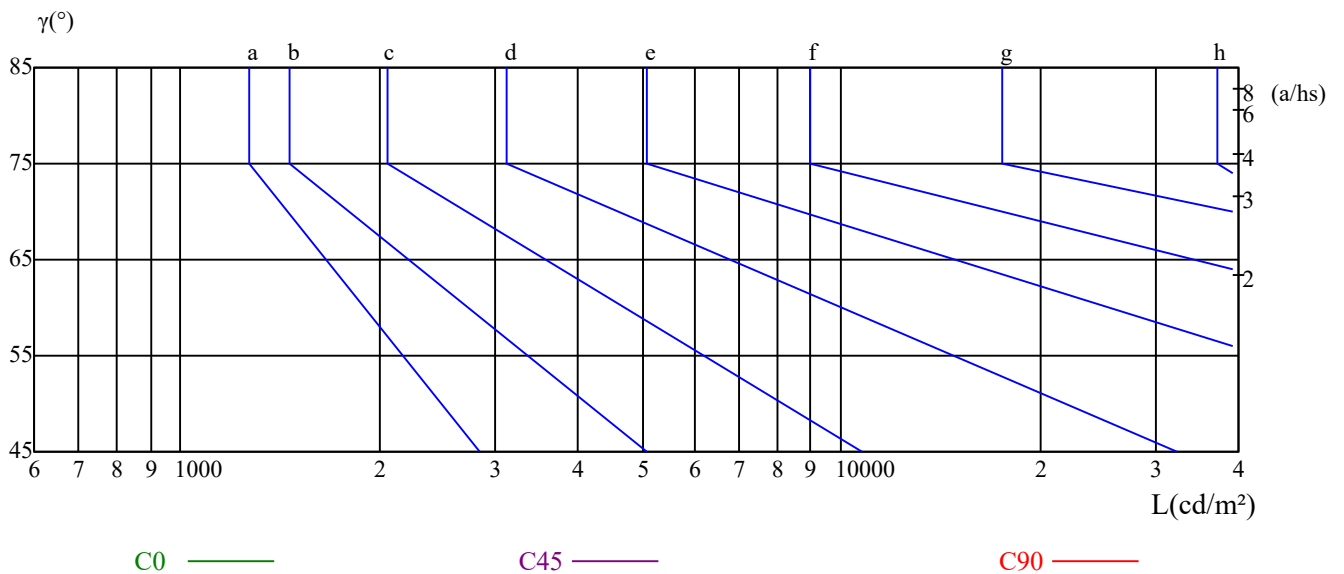
| $\gamma$ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|----|----|----|----|----|----|----|----|----|
| C0       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C45      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C90      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |

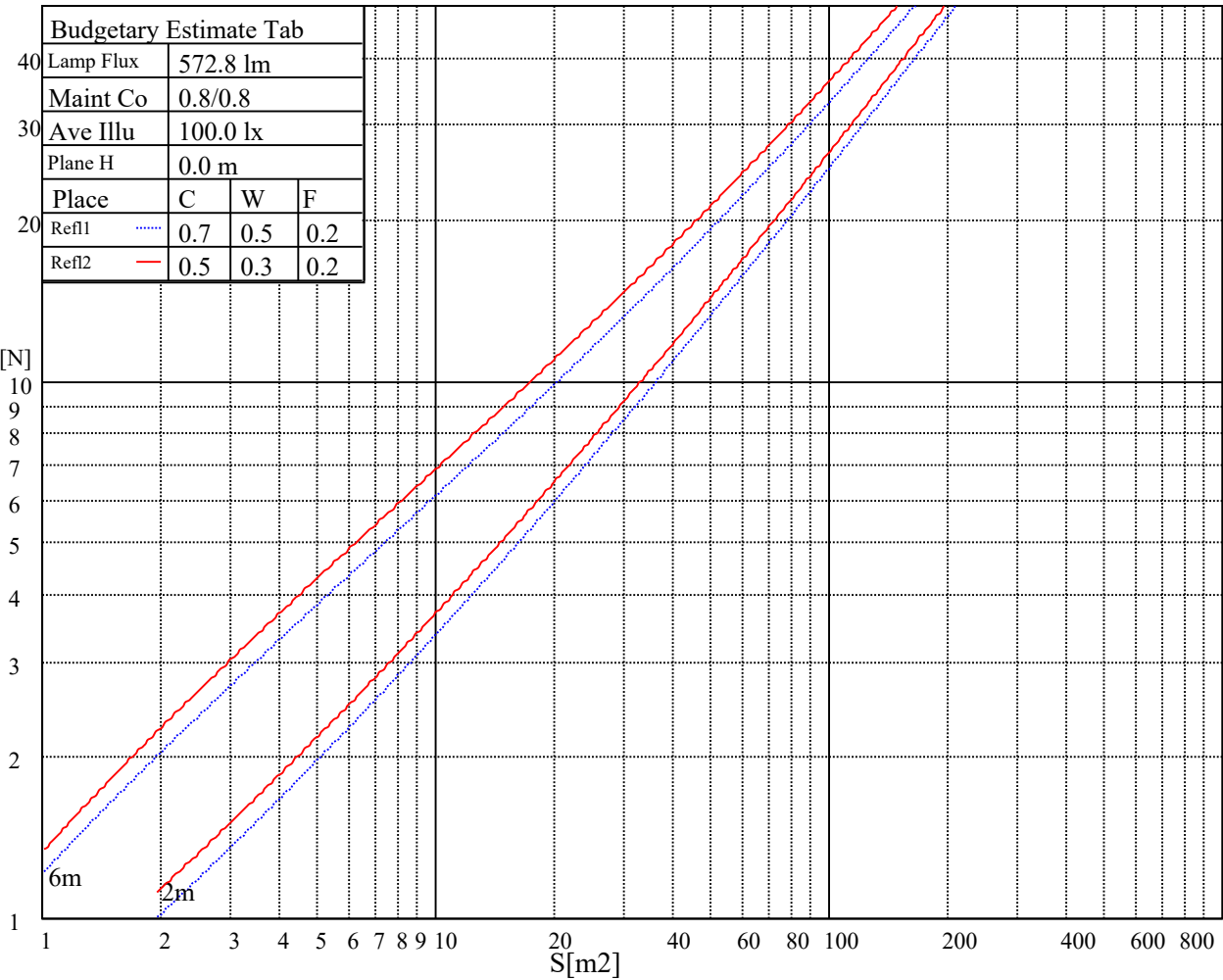
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 0          | 0          | 0       | 0          | 0          | 0       | 0     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





| RHOC | 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    | 1.04                                   | 1.04 | 1.04 | 1.02 | 1.02 | 1.02 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 | 0.89 | 0.89 | 0.89 | 0.88 |
| 1    | 0.97                                   | 0.94 | 0.92 | 0.95 | 0.93 | 0.91 | 0.91 | 0.90 | 0.88 | 0.88 | 0.87 | 0.85 | 0.85 | 0.84 | 0.83 | 0.81 |
| 2    | 0.90                                   | 0.86 | 0.83 | 0.88 | 0.85 | 0.82 | 0.85 | 0.82 | 0.80 | 0.83 | 0.80 | 0.78 | 0.80 | 0.78 | 0.77 | 0.75 |
| 3    | 0.83                                   | 0.79 | 0.75 | 0.82 | 0.78 | 0.75 | 0.80 | 0.76 | 0.73 | 0.78 | 0.75 | 0.72 | 0.76 | 0.73 | 0.71 | 0.70 |
| 4    | 0.78                                   | 0.73 | 0.69 | 0.77 | 0.72 | 0.69 | 0.75 | 0.71 | 0.68 | 0.73 | 0.70 | 0.67 | 0.71 | 0.69 | 0.66 | 0.65 |
| 5    | 0.73                                   | 0.67 | 0.64 | 0.72 | 0.67 | 0.63 | 0.70 | 0.66 | 0.63 | 0.69 | 0.65 | 0.62 | 0.67 | 0.64 | 0.62 | 0.60 |
| 6    | 0.68                                   | 0.63 | 0.59 | 0.67 | 0.62 | 0.59 | 0.66 | 0.62 | 0.58 | 0.65 | 0.61 | 0.58 | 0.64 | 0.60 | 0.58 | 0.56 |
| 7    | 0.64                                   | 0.59 | 0.55 | 0.64 | 0.58 | 0.55 | 0.62 | 0.58 | 0.55 | 0.61 | 0.57 | 0.54 | 0.60 | 0.57 | 0.54 | 0.53 |
| 8    | 0.61                                   | 0.55 | 0.52 | 0.60 | 0.55 | 0.51 | 0.59 | 0.54 | 0.51 | 0.58 | 0.54 | 0.51 | 0.57 | 0.54 | 0.51 | 0.50 |
| 9    | 0.57                                   | 0.52 | 0.48 | 0.57 | 0.52 | 0.48 | 0.56 | 0.51 | 0.48 | 0.55 | 0.51 | 0.48 | 0.54 | 0.51 | 0.48 | 0.47 |
| 10   | 0.54                                   | 0.49 | 0.46 | 0.54 | 0.49 | 0.46 | 0.53 | 0.49 | 0.46 | 0.52 | 0.48 | 0.45 | 0.52 | 0.48 | 0.45 | 0.44 |

## 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    | 892.91 | 840.15 | 636.41 | 438.19 | 301.61 | 239.40 | 195.36 | 156.83 | 111.32 |
| 45.0   | 898.43 | 837.11 | 647.66 | 433.52 | 302.57 | 234.28 | 193.56 | 158.46 | 120.09 |
| 90.0   | 893.59 | 823.28 | 656.33 | 457.09 | 318.09 | 242.78 | 201.71 | 167.23 | 125.78 |
| 135.0  | 892.18 | 860.51 | 747.68 | 553.95 | 378.84 | 274.78 | 219.09 | 178.65 | 144.56 |
| 180.0  | 892.91 | 851.18 | 704.03 | 509.34 | 356.74 | 264.71 | 216.68 | 177.30 | 141.13 |
| 225.0  | 898.43 | 830.93 | 658.63 | 447.53 | 316.97 | 248.01 | 206.21 | 172.74 | 138.21 |
| 270.0  | 893.59 | 835.09 | 662.51 | 457.59 | 315.28 | 250.37 | 207.90 | 174.15 | 129.21 |
| 315.0  | 892.18 | 805.89 | 604.46 | 410.06 | 295.93 | 238.73 | 202.33 | 162.23 | 107.61 |
| 360.0  | 892.91 | 840.15 | 636.41 | 438.19 | 301.61 | 239.40 | 195.36 | 156.83 | 111.32 |
| C/γ(°) | 45.0   | 50.0   | 55.0   | 60.0   | 65.0   | 70.0   | 75.0   | 80.0   | 85.0   |
| 0.0    | 51.36  | 20.31  | 10.01  | 4.50   | 2.25   | 2.08   | 2.14   | 2.14   | 2.25   |
| 45.0   | 61.71  | 24.86  | 10.80  | 5.51   | 2.64   | 2.19   | 2.14   | 2.19   | 2.08   |
| 90.0   | 67.67  | 27.90  | 12.15  | 5.91   | 2.70   | 2.08   | 2.08   | 2.08   | 2.03   |
| 135.0  | 81.51  | 34.09  | 14.01  | 6.98   | 3.21   | 2.14   | 2.08   | 2.08   | 2.08   |
| 180.0  | 72.00  | 30.77  | 13.11  | 6.36   | 2.93   | 2.14   | 2.14   | 2.08   | 2.08   |
| 225.0  | 73.07  | 27.23  | 11.98  | 5.96   | 2.76   | 2.19   | 2.19   | 2.25   | 2.19   |
| 270.0  | 67.61  | 25.20  | 10.74  | 5.29   | 2.53   | 2.14   | 2.14   | 2.14   | 2.08   |
| 315.0  | 46.80  | 18.39  | 8.10   | 3.71   | 2.14   | 2.14   | 2.08   | 2.14   | 2.08   |
| 360.0  | 51.36  | 20.31  | 10.01  | 4.50   | 2.25   | 2.08   | 2.14   | 2.14   | 2.25   |
| C/γ(°) | 90.0   |        |        |        |        |        |        |        |        |
| 0.0    | 2.03   |        |        |        |        |        |        |        |        |
| 45.0   | 2.03   |        |        |        |        |        |        |        |        |
| 90.0   | 2.03   |        |        |        |        |        |        |        |        |
| 135.0  | 2.03   |        |        |        |        |        |        |        |        |
| 180.0  | 2.03   |        |        |        |        |        |        |        |        |
| 225.0  | 2.03   |        |        |        |        |        |        |        |        |
| 270.0  | 2.03   |        |        |        |        |        |        |        |        |
| 315.0  | 2.03   |        |        |        |        |        |        |        |        |
| 360.0  | 2.03   |        |        |        |        |        |        |        |        |