



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: LM01D03050AE

Luminaire:

Report No: GC2019091909

Voltage(V): 220.5000

Test No: NATA07

Current(A): 0.0440

LampCAT: BRIDGELUX V4-HD

Power (W): 8.8800

Lamp flux(lm): 656.0

PF: 0.9060

Number of Lamps: 1

Ballast type: AC

Length(mm): 30

Width(mm): 30

Phm Type: C

Height(mm): 0

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## Photometric Results

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Lumens(lm): 544.79, Efficiency(%): 83.05% , Luminous Efficacy(lm/W): 61.35

Central intensity(cd): 562.965, Maximum intensity(cd): 562.965

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

Beam Angle(50%Imax): [C0/180]Total=49.6

[C90/270]Total=49.6

Field angle(10%Imax): [C0/180]Total=98.6

[C90/270]Total=98.6

Maximum s/h(1/2): C0\_180=0.78 C90\_270=0.78

Maximum s/h(1/4): C0\_180=0.80 C90\_270=0.80

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 83.05%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 90.321%

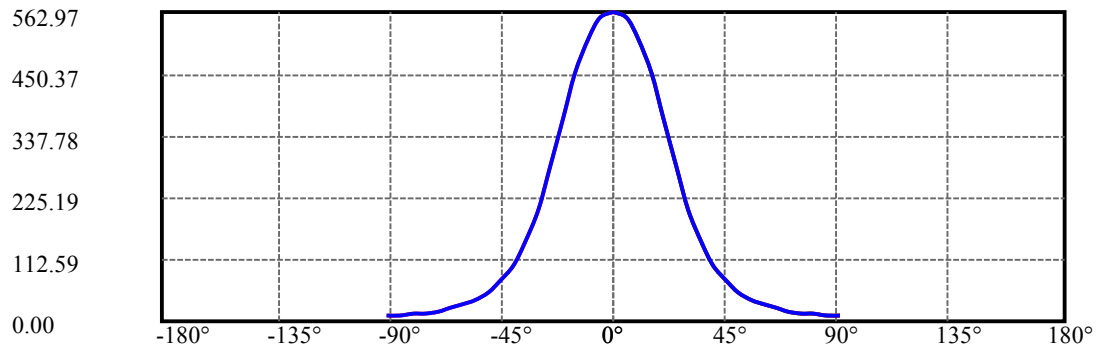
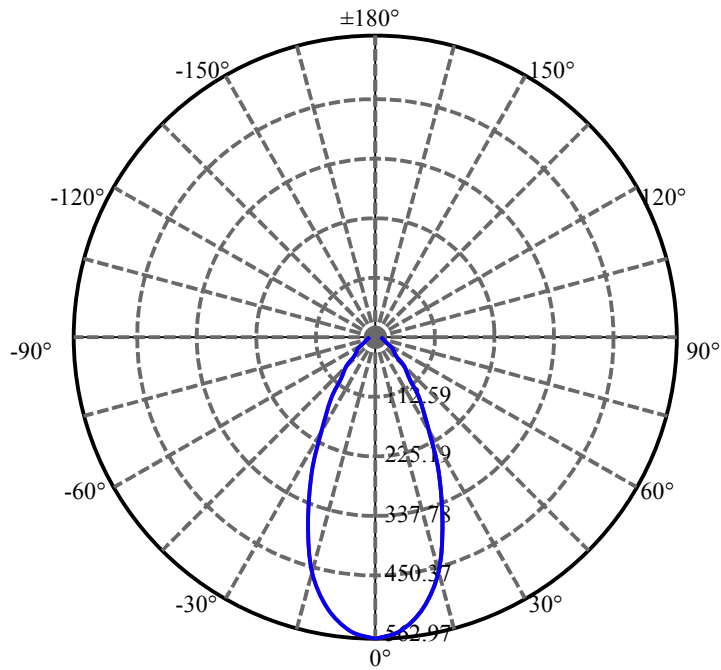
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 562.965       | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 550.854       | 13.315      | 13.315    | 2.030%      | 2.444%     |
| 10.0               | 515.176       | 38.135      | 51.451    | 5.813%      | 9.444%     |
| 15.0               | 452.728       | 57.415      | 108.866   | 8.752%      | 19.983%    |
| 20.0               | 371.412       | 67.921      | 176.787   | 10.354%     | 32.450%    |
| 25.0               | 278.403       | 68.154      | 244.94    | 10.389%     | 44.960%    |
| 30.0               | 201.292       | 60.706      | 305.646   | 9.254%      | 56.103%    |
| 35.0               | 141.617       | 50.496      | 356.142   | 7.698%      | 65.372%    |
| 40.0               | 102.969       | 40.807      | 396.949   | 6.221%      | 72.862%    |
| 45.0               | 74.025        | 32.772      | 429.721   | 4.996%      | 78.878%    |
| 50.0               | 53.201        | 25.708      | 455.429   | 3.919%      | 83.597%    |
| 55.0               | 40.005        | 20.266      | 475.695   | 3.089%      | 87.317%    |
| 60.0               | 30.800        | 16.367      | 492.062   | 2.495%      | 90.321%    |
| 65.0               | 24.327        | 13.402      | 505.463   | 2.043%      | 92.781%    |
| 70.0               | 18.666        | 10.886      | 516.349   | 1.659%      | 94.779%    |
| 75.0               | 14.530        | 8.677       | 525.026   | 1.323%      | 96.372%    |
| 80.0               | 13.190        | 7.417       | 532.443   | 1.131%      | 97.733%    |
| 85.0               | 11.183        | 6.623       | 539.066   | 1.010%      | 98.949%    |
| 90.0               | 9.733         | 5.727       | 544.793   | .873%       | 100.000%   |

## ZONAL LUMEN SUMMARY

| Zone    | Lumens | %Lamp  | %Fixt   |
|---------|--------|--------|---------|
| 0-30    | 305.65 | 46.59% | 56.10%  |
| 0-40    | 396.95 | 60.51% | 72.86%  |
| 0-60    | 492.06 | 75.01% | 90.32%  |
| 0-90    | 539.07 | 82.17% | 98.95%  |
| 0-120   | 539.07 | 82.17% | 98.95%  |
| 0-180   | 544.79 | 83.05% | 100.00% |
| 60-90   | 63.37  | 9.66%  | 11.63%  |
| 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%   |
| 0-46.19 | 435.83 | 66.44% | 80.00%  |

## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 51.45  |
| 10-20   | 125.34 |
| 20-30   | 128.86 |
| 30-40   | 91.30  |
| 40-50   | 58.48  |
| 50-60   | 36.63  |
| 60-70   | 24.29  |
| 70-80   | 16.09  |
| 80-90   | 6.62   |
| 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: —————

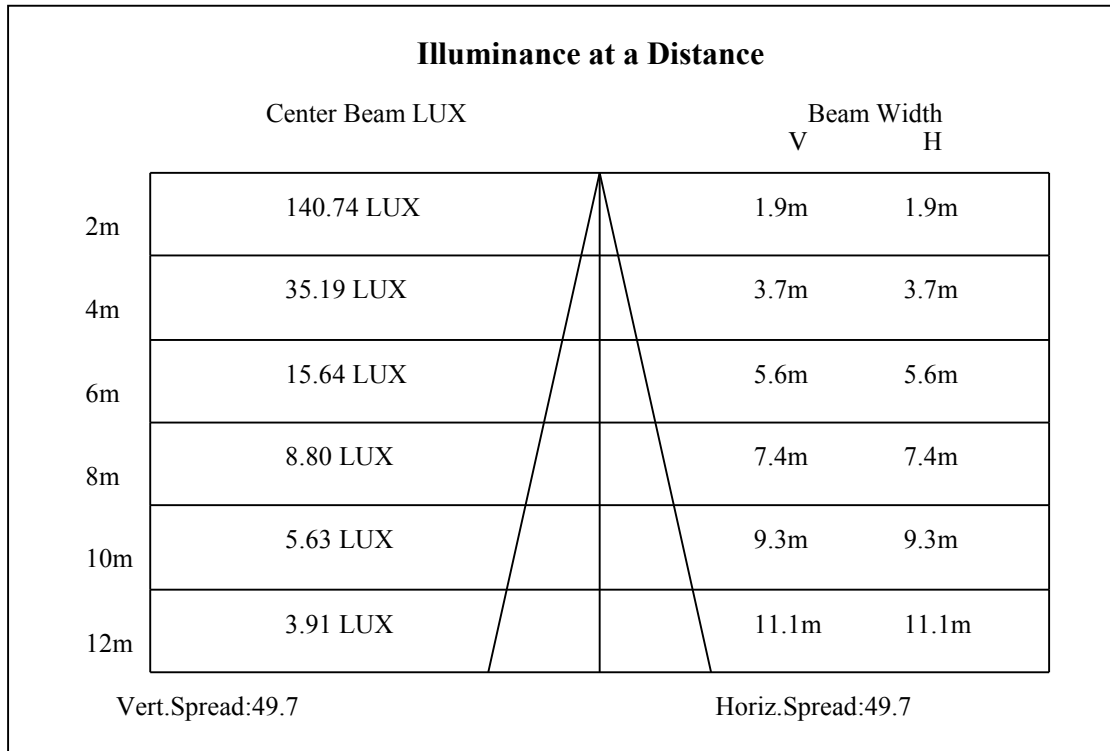
C90/C270: —————

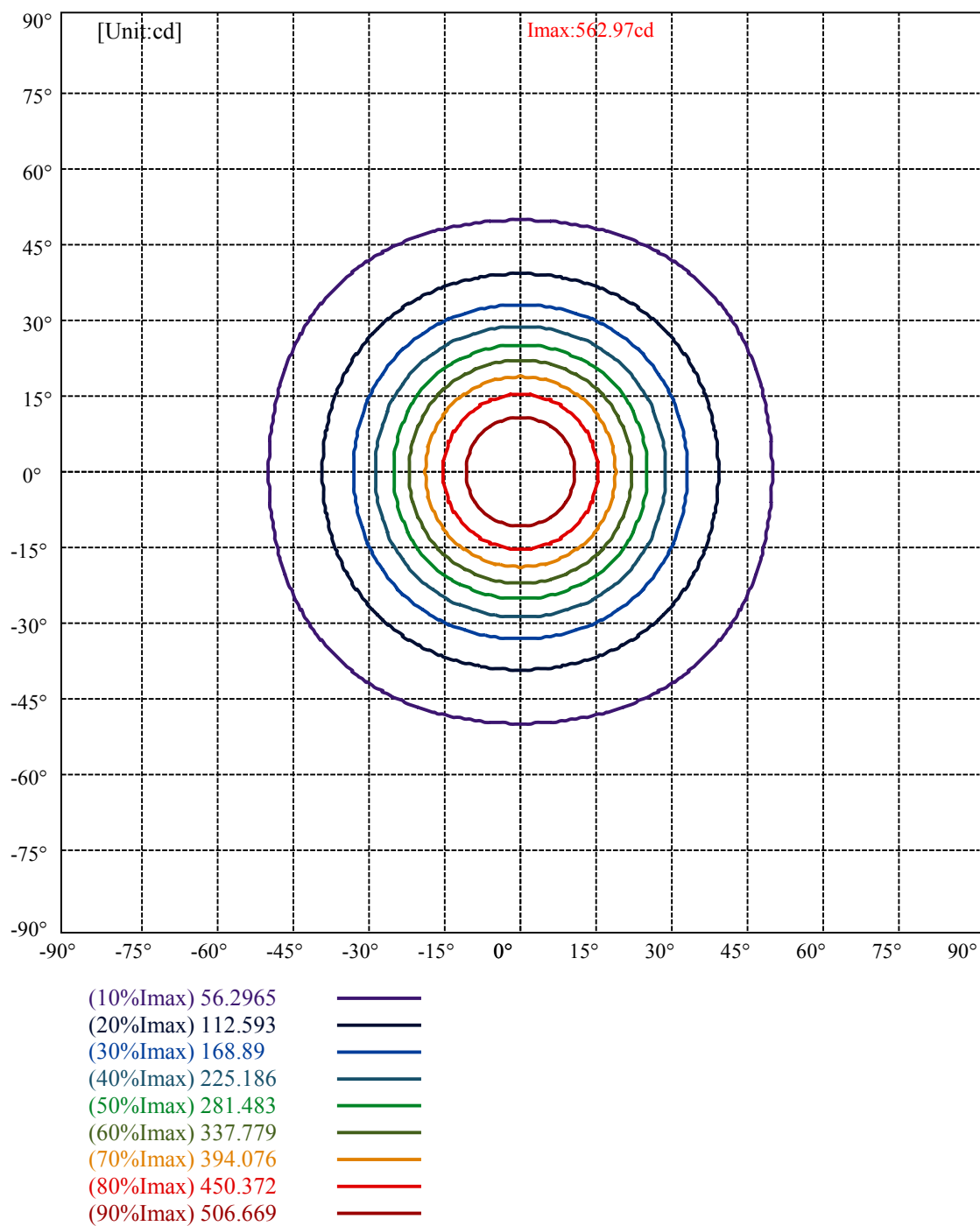
Field angle(10%Imax):C0/180Left:49.3 Right:49.3

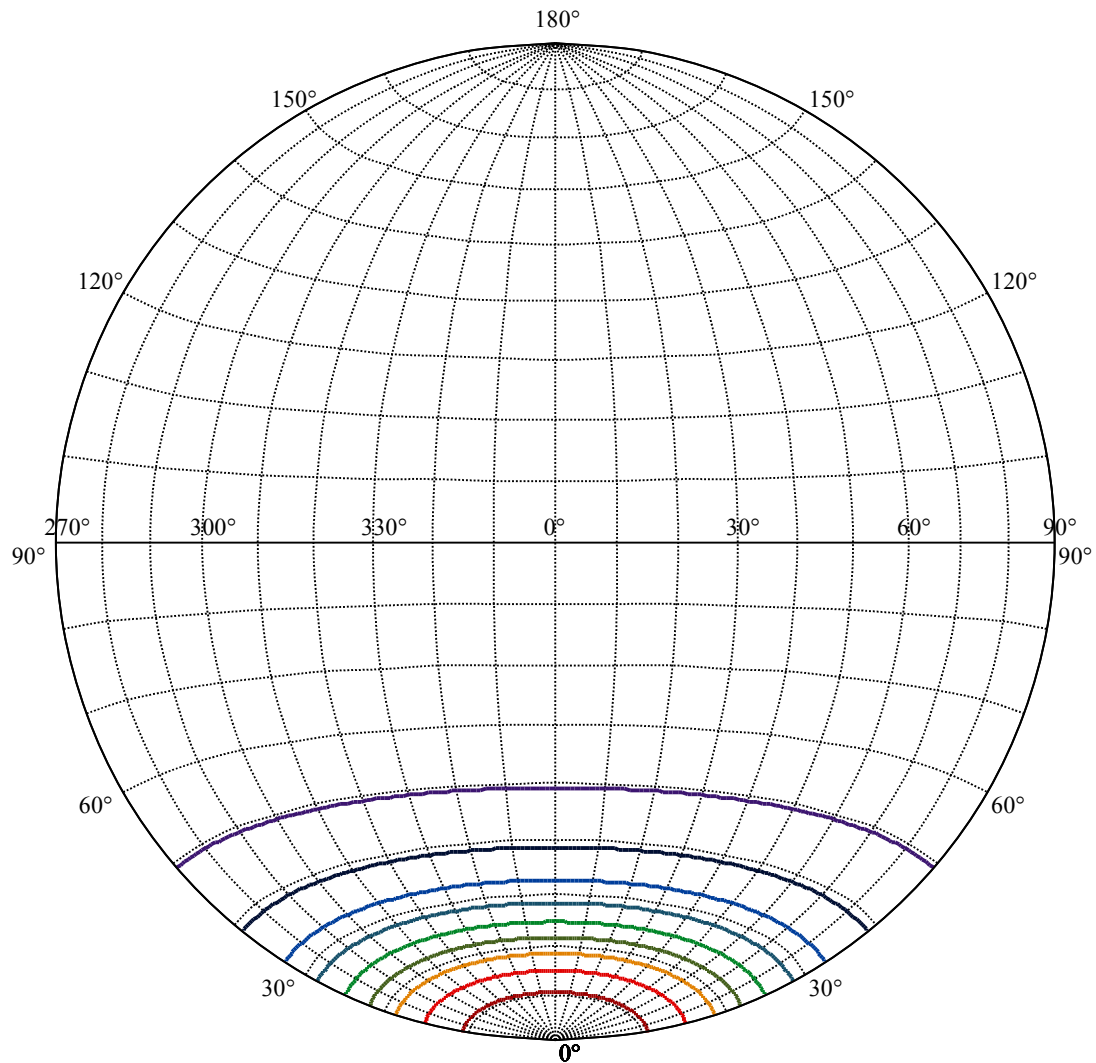
:C90/270Left:49.3 Right:49.3

Beam Angle(50%Imax):C0/180Left:24.8 Right:24.8

:C90/270Left:24.8 Right:24.8







House

[Unit:cd]

Road

**Imax:562.97**

(10%Imax) 56.2965

(20%Imax) 112.593

(30%Imax) 168.89

(40%Imax) 225.186

(50%Imax) 281.483

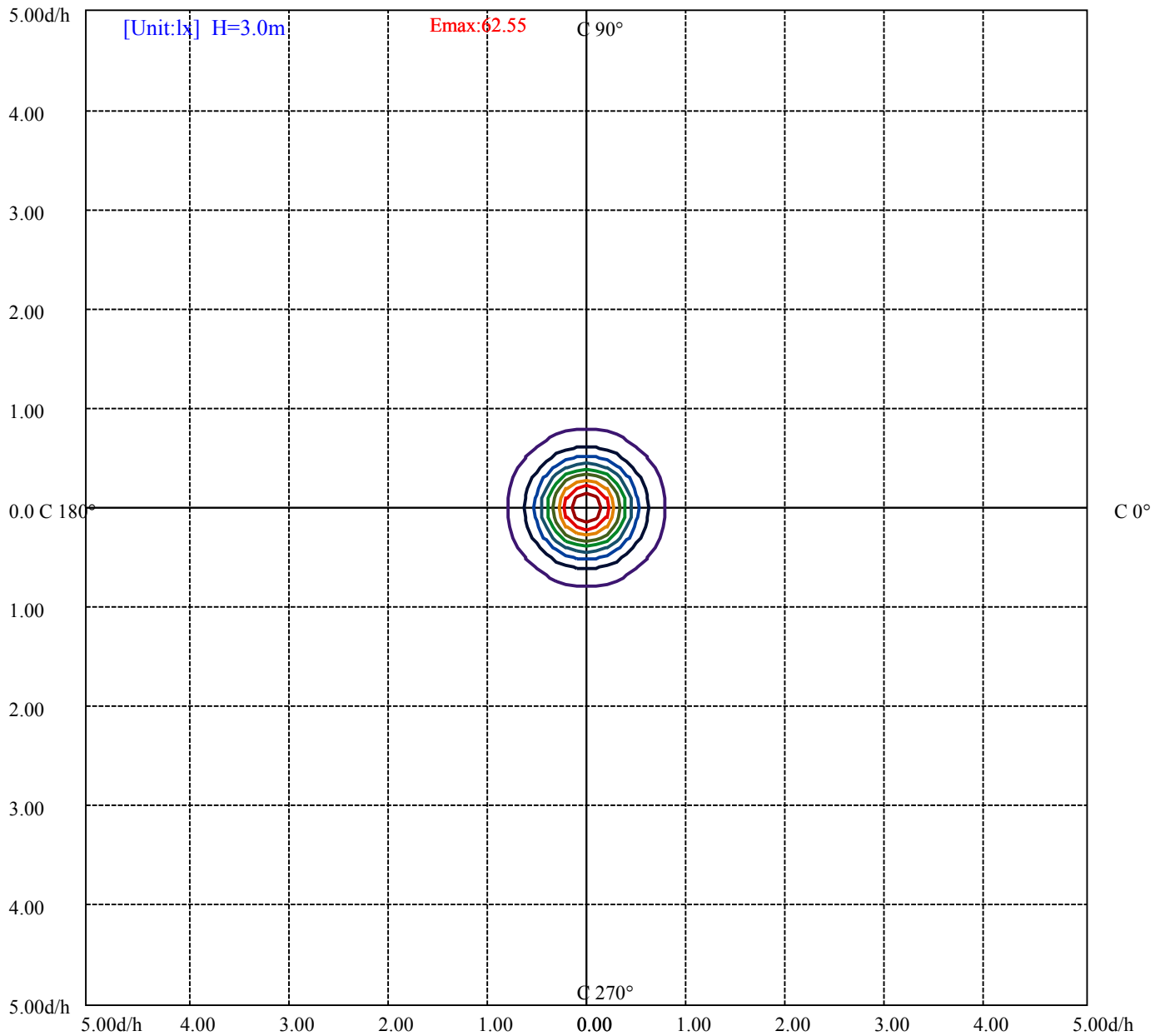
(60%Imax) 337.779

(70%Imax) 394.076

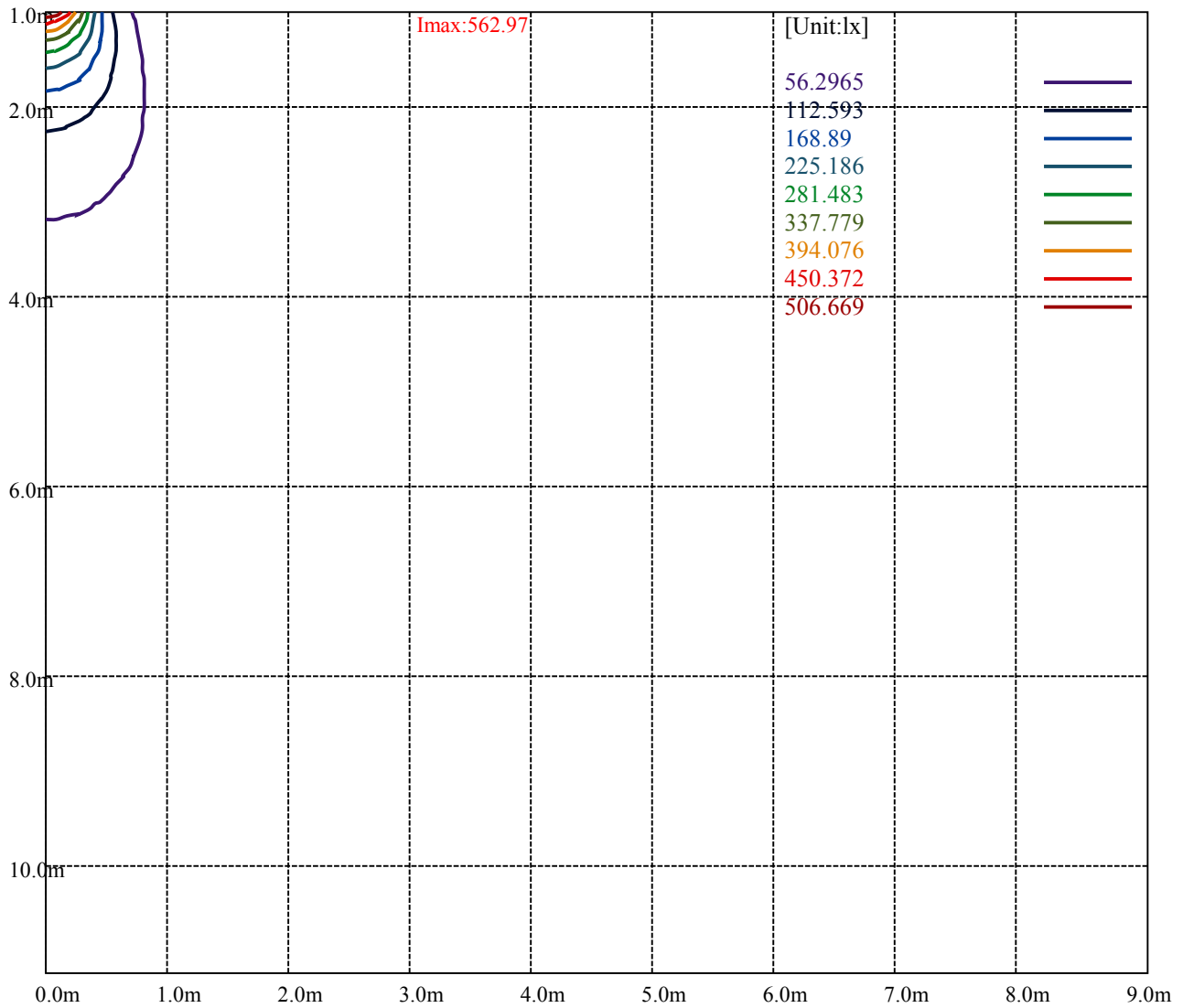
(80%Imax) 450.372

(90%Imax) 506.669





|                    |   |
|--------------------|---|
| (10%Emax) 6.255167 | — |
| (20%Emax) 12.51033 | — |
| (30%Emax) 18.76545 | — |
| (40%Emax) 25.02067 | — |
| (50%Emax) 31.27578 | — |
| (60%Emax) 37.531   | — |
| (70%Emax) 43.78611 | — |
| (80%Emax) 50.04134 | — |
| (90%Emax) 56.29644 | — |



Luminance Table

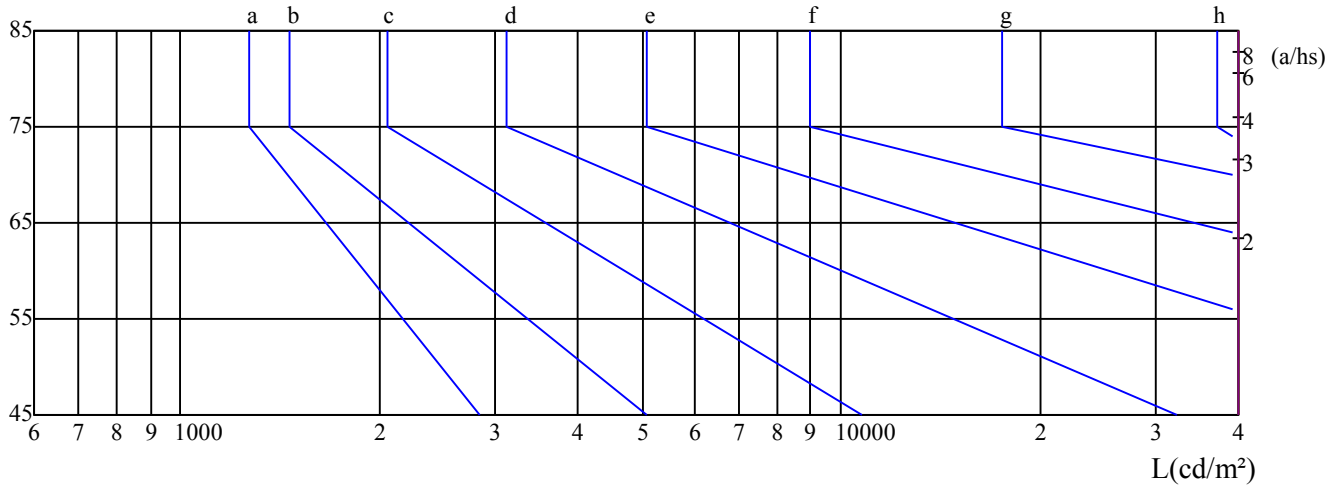
| $\gamma$ | 45     | 50    | 55    | 60    | 65    | 70    | 75    | 80    | 85     |
|----------|--------|-------|-------|-------|-------|-------|-------|-------|--------|
| C0       | 116319 | 91963 | 77497 | 68445 | 63958 | 60639 | 62378 | 84399 | 142570 |
| C45      | 116319 | 91963 | 77497 | 68445 | 63958 | 60639 | 62378 | 84399 | 142570 |
| C90      | 116319 | 91963 | 77497 | 68445 | 63958 | 60639 | 62378 | 84399 | 142570 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 63958      | 63958      | 63958   | 62378      | 62378      | 62378   | 142570     | 142570     | 142570  |

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          |

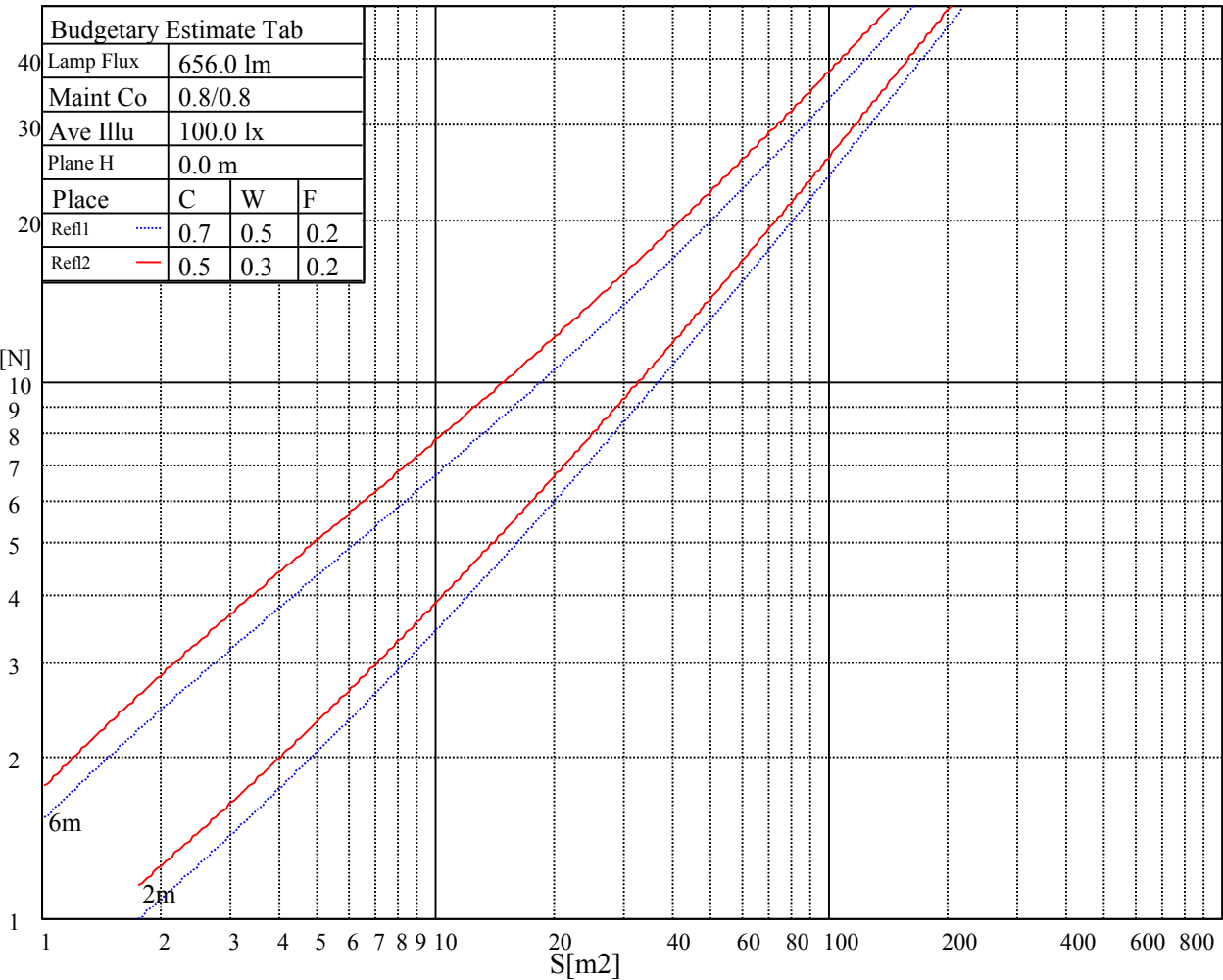
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

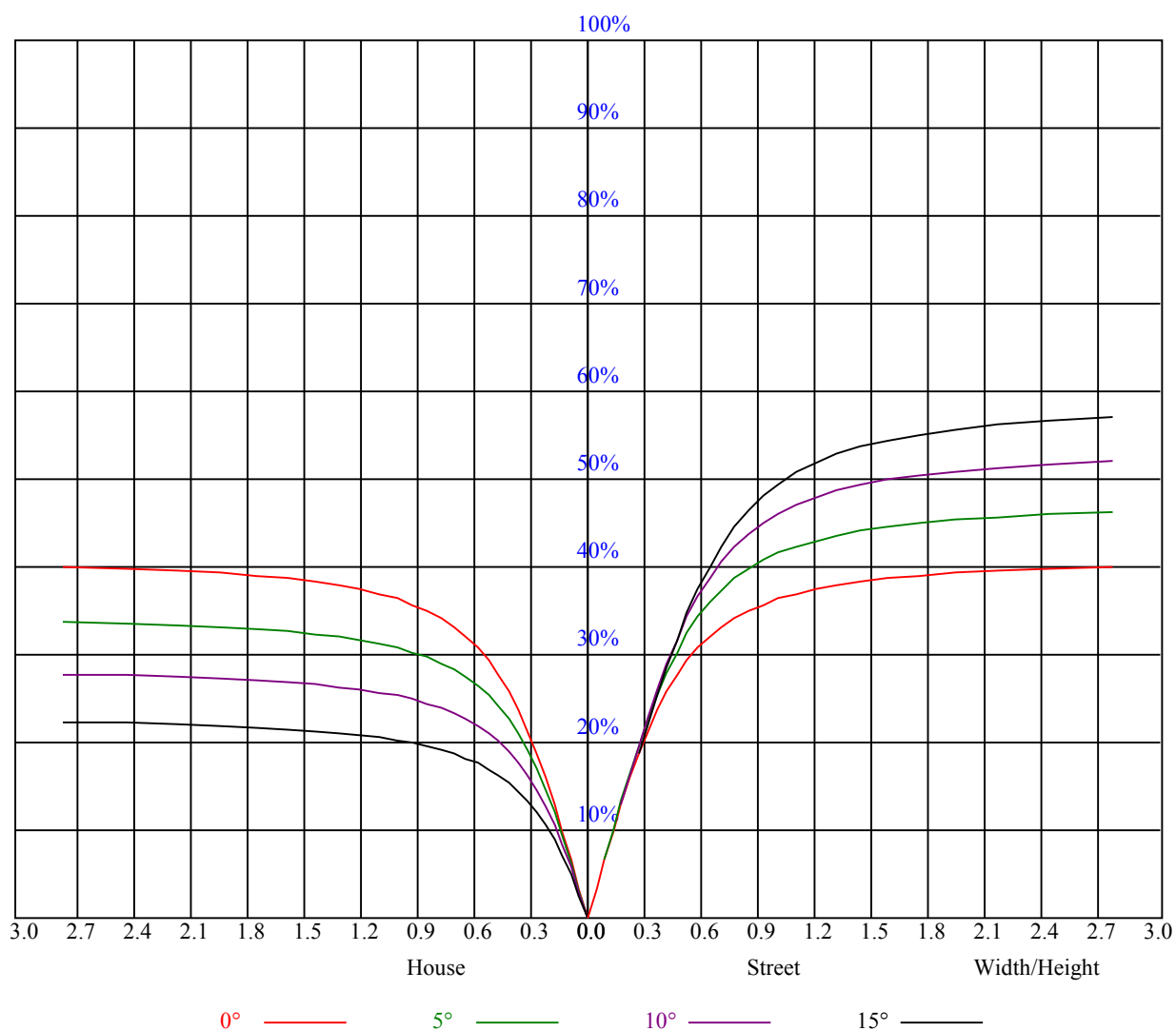
C0 ———

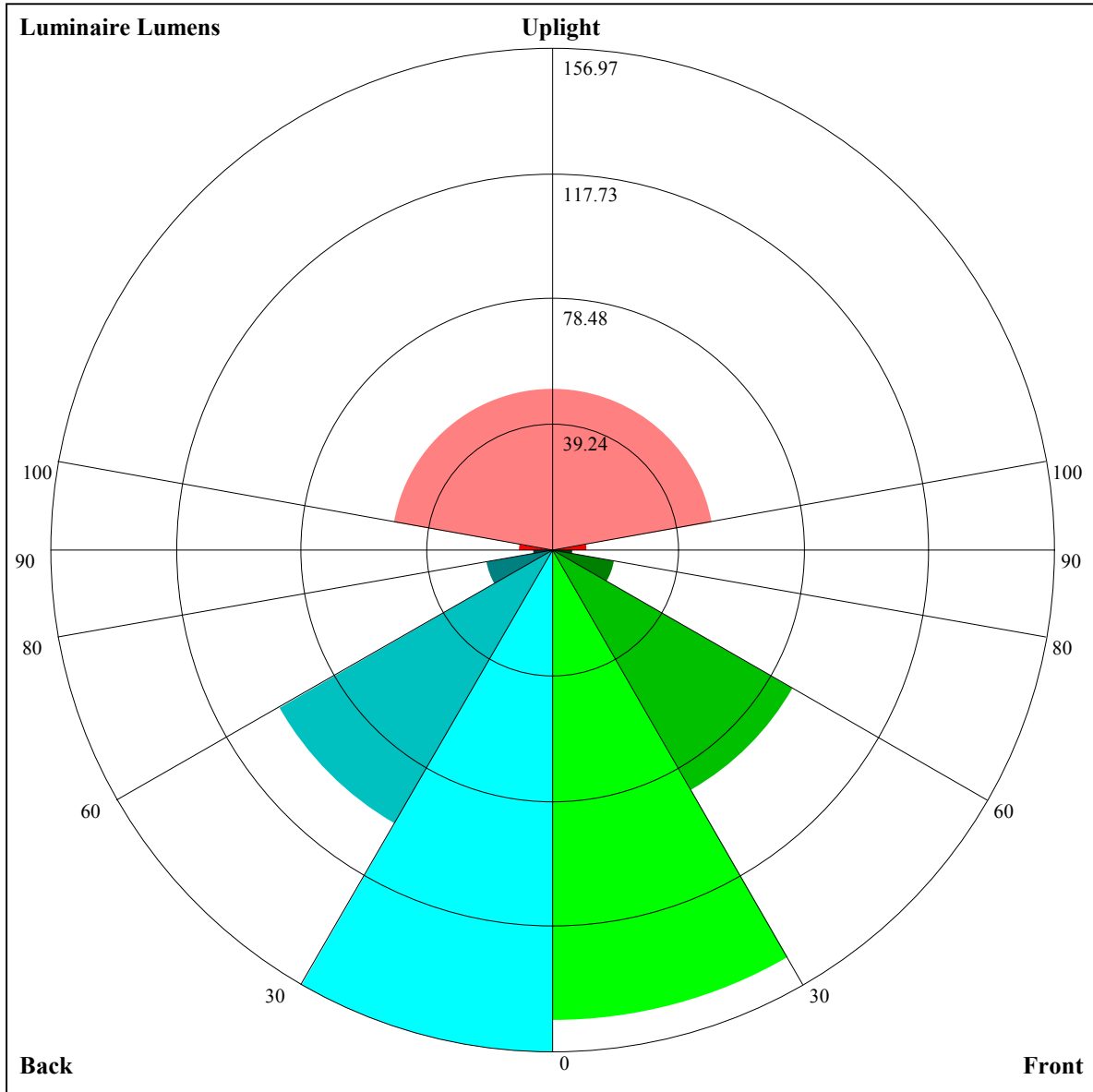
C45 ———

C90 ———



| 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 RHOFC=20 CU |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 0    | 0.99                                    | 0.99 | 0.99 | 0.97 | 0.97 | 0.97 | 0.92 | 0.92 | 0.92 | 0.88 | 0.88 | 0.88 | 0.85 | 0.85 | 0.85 | 0.83 |
| 1    | 0.89                                    | 0.86 | 0.84 | 0.87 | 0.85 | 0.83 | 0.84 | 0.82 | 0.80 | 0.81 | 0.79 | 0.78 | 0.78 | 0.77 | 0.75 | 0.74 |
| 2    | 0.81                                    | 0.77 | 0.73 | 0.80 | 0.76 | 0.72 | 0.77 | 0.74 | 0.71 | 0.74 | 0.72 | 0.69 | 0.72 | 0.70 | 0.68 | 0.66 |
| 3    | 0.74                                    | 0.69 | 0.65 | 0.73 | 0.68 | 0.64 | 0.71 | 0.67 | 0.63 | 0.69 | 0.65 | 0.62 | 0.67 | 0.64 | 0.61 | 0.60 |
| 4    | 0.68                                    | 0.63 | 0.58 | 0.67 | 0.62 | 0.58 | 0.65 | 0.61 | 0.57 | 0.64 | 0.60 | 0.57 | 0.62 | 0.59 | 0.56 | 0.54 |
| 5    | 0.63                                    | 0.57 | 0.53 | 0.62 | 0.57 | 0.53 | 0.61 | 0.56 | 0.52 | 0.59 | 0.55 | 0.52 | 0.58 | 0.54 | 0.51 | 0.50 |
| 6    | 0.59                                    | 0.53 | 0.49 | 0.58 | 0.53 | 0.49 | 0.57 | 0.52 | 0.48 | 0.55 | 0.51 | 0.48 | 0.54 | 0.50 | 0.47 | 0.46 |
| 7    | 0.55                                    | 0.49 | 0.45 | 0.54 | 0.49 | 0.45 | 0.53 | 0.48 | 0.45 | 0.52 | 0.48 | 0.44 | 0.51 | 0.47 | 0.44 | 0.43 |
| 8    | 0.51                                    | 0.46 | 0.42 | 0.51 | 0.45 | 0.42 | 0.50 | 0.45 | 0.41 | 0.49 | 0.45 | 0.41 | 0.48 | 0.44 | 0.41 | 0.40 |
| 9    | 0.48                                    | 0.43 | 0.39 | 0.48 | 0.43 | 0.39 | 0.47 | 0.42 | 0.39 | 0.46 | 0.42 | 0.39 | 0.45 | 0.41 | 0.38 | 0.37 |
| 10   | 0.46                                    | 0.40 | 0.37 | 0.45 | 0.40 | 0.36 | 0.44 | 0.40 | 0.36 | 0.44 | 0.39 | 0.36 | 0.43 | 0.39 | 0.36 | 0.35 |





Luminaire Lumens:

FL=147.08,FM=86.69,FH=19.48,FVH=6.11

BL=156.97,BM=99.03,BH=21.18,BVH=6.41

UL=10.62,UH=50.54

BUG Rating:B1-U2-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                | 562.41 | 536.89 | 493.50 | 422.08 | 332.99 | 237.17 | 166.87 | 115.59 | 84.22  |                            |  |
| 45.0               | 563.75 | 553.50 | 517.40 | 450.07 | 368.54 | 285.15 | 203.20 | 141.11 | 101.16 |                            |  |
| 90.0               | 562.97 | 546.07 | 501.76 | 436.38 | 345.06 | 258.23 | 180.42 | 129.74 | 96.57  |                            |  |
| 135.0              | 562.73 | 559.53 | 530.67 | 479.16 | 412.53 | 309.28 | 232.30 | 165.24 | 120.14 |                            |  |
| 180.0              | 562.41 | 560.88 | 539.39 | 489.93 | 418.14 | 320.69 | 235.73 | 167.75 | 124.87 |                            |  |
| 225.0              | 563.75 | 550.11 | 510.85 | 441.25 | 357.86 | 274.89 | 198.19 | 138.61 | 100.56 |                            |  |
| 270.0              | 562.97 | 555.26 | 529.46 | 475.22 | 390.90 | 299.44 | 217.59 | 150.53 | 107.84 |                            |  |
| 315.0              | 562.73 | 544.59 | 498.37 | 427.75 | 345.29 | 242.36 | 176.05 | 124.36 | 88.40  |                            |  |
| 360.0              | 562.41 | 536.89 | 493.50 | 422.08 | 332.99 | 237.17 | 166.87 | 115.59 | 84.22  |                            |  |
| C/γ(°)             | 45.0   | 50.0   | 55.0   | 60.0   | 65.0   | 70.0   | 75.0   | 80.0   | 85.0   |                            |  |
| 0.0                | 62.78  | 42.78  | 32.85  | 27.19  | 21.81  | 17.03  | 13.55  | 11.79  | 10.16  |                            |  |
| 45.0               | 71.97  | 49.61  | 37.08  | 28.03  | 21.25  | 16.24  | 12.67  | 12.99  | 9.84   |                            |  |
| 90.0               | 67.28  | 51.09  | 38.42  | 30.16  | 23.43  | 17.82  | 13.78  | 15.22  | 10.77  |                            |  |
| 135.0              | 84.64  | 61.58  | 46.50  | 33.13  | 26.36  | 19.35  | 15.68  | 12.90  | 10.81  |                            |  |
| 180.0              | 87.28  | 65.85  | 49.28  | 36.57  | 29.00  | 22.41  | 17.54  | 14.11  | 11.69  |                            |  |
| 225.0              | 73.13  | 52.11  | 38.93  | 30.58  | 22.41  | 16.89  | 12.90  | 12.53  | 12.34  |                            |  |
| 270.0              | 80.51  | 55.64  | 42.78  | 33.13  | 27.15  | 20.79  | 15.78  | 13.92  | 13.50  |                            |  |
| 315.0              | 64.59  | 46.96  | 34.20  | 27.61  | 23.20  | 18.79  | 14.34  | 12.06  | 10.35  |                            |  |
| 360.0              | 62.78  | 42.78  | 32.85  | 27.19  | 21.81  | 17.03  | 13.55  | 11.79  | 10.16  |                            |  |
| C/γ(°)             | 90.0   |        |        |        |        |        |        |        |        |                            |  |
| 0.0                | 10.53  |        |        |        |        |        |        |        |        |                            |  |
| 45.0               | 9.28   |        |        |        |        |        |        |        |        |                            |  |
| 90.0               | 10.26  |        |        |        |        |        |        |        |        |                            |  |
| 135.0              | 10.39  |        |        |        |        |        |        |        |        |                            |  |
| 180.0              | 10.44  |        |        |        |        |        |        |        |        |                            |  |
| 225.0              | 8.26   |        |        |        |        |        |        |        |        |                            |  |
| 270.0              | 8.68   |        |        |        |        |        |        |        |        |                            |  |
| 315.0              | 10.02  |        |        |        |        |        |        |        |        |                            |  |
| 360.0              | 10.53  |        |        |        |        |        |        |        |        |                            |  |