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## Nata

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LumCAT: LN01D02836DA-N

Luminaire: 92.70.307.00

Report No: 211113-B005

Test No: 211113-C005

LampCAT: CREE CXA1310

Lamp flux(lm): 987.9

Number of Lamps: 1

Length(mm): 111

Phm Type: C

Voltage(V): 33.4400

Current(A): 0.2500

Power (W): 8.3600

PF: 0.0000

Ballast type: DC

Width(mm): 111

Height(mm): 0

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## Photometric Results

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Lumens(lm): 642.92

Efficiency(%): 65.08%

Lumens(lm)/Power(W): 76.90

Central intensity(cd): 1131.705

Maximum intensity(cd): 1131.705

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

Beam Angle(50%Imax): [C0/180]Total=38.4

[C90/270]Total=38.4

Field angle(10%Imax): [C0/180]Total=71.1

[C90/270]Total=71.1

Maximum s/h(1/2): C0\_180=0.63 C90\_270=0.63

Maximum s/h(1/4): C0\_180=0.63 C90\_270=0.63

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 65.08%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 94.591%

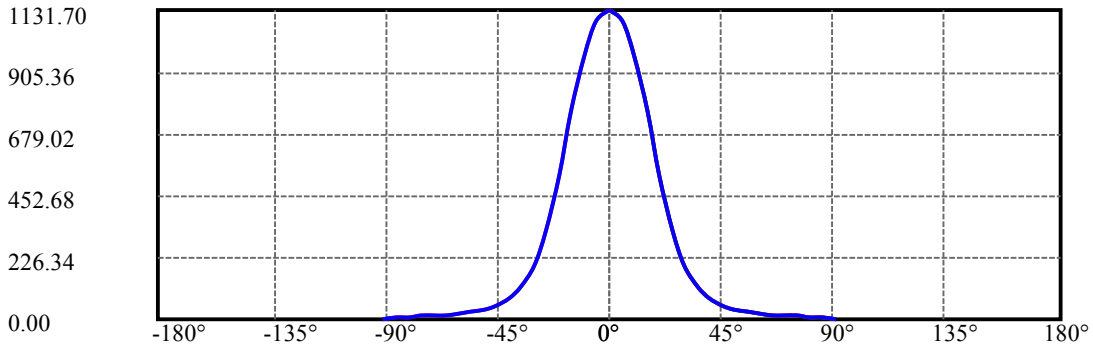
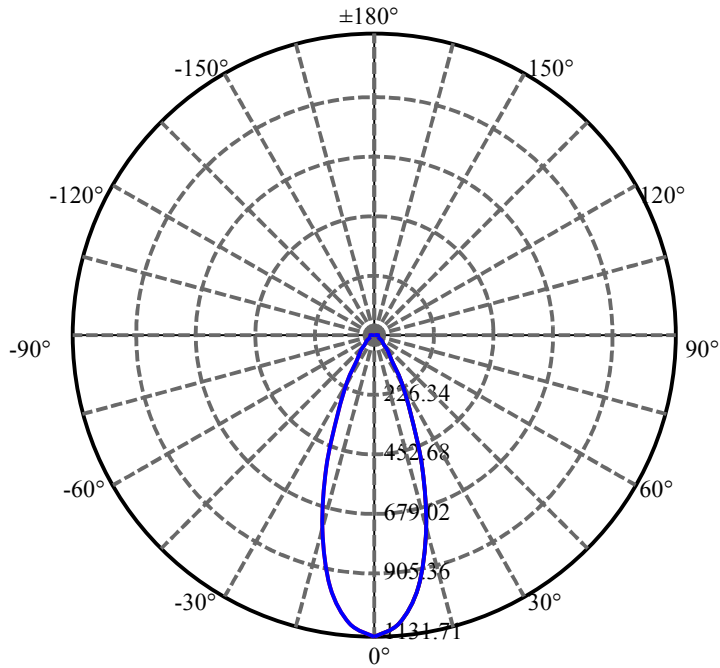
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 1131.705      | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 1087.831      | 26.534      | 26.534    | 2.686%      | 4.127%     |
| 10.0               | 959.639       | 73.244      | 99.778    | 7.415%      | 15.520%    |
| 15.0               | 757.166       | 101.840     | 201.618   | 10.309%     | 31.360%    |
| 20.0               | 528.477       | 105.955     | 307.573   | 10.726%     | 47.840%    |
| 25.0               | 326.565       | 89.678      | 397.251   | 9.078%      | 61.789%    |
| 30.0               | 197.379       | 66.305      | 463.557   | 6.712%      | 72.102%    |
| 35.0               | 117.676       | 46.394      | 509.951   | 4.696%      | 79.318%    |
| 40.0               | 76.140        | 32.337      | 542.287   | 3.273%      | 84.347%    |
| 45.0               | 50.685        | 23.483      | 565.77    | 2.377%      | 88.000%    |
| 50.0               | 36.643        | 17.646      | 583.416   | 1.786%      | 90.745%    |
| 55.0               | 26.762        | 13.786      | 597.203   | 1.396%      | 92.889%    |
| 60.0               | 20.577        | 10.942      | 608.145   | 1.108%      | 94.591%    |
| 65.0               | 15.767        | 8.835       | 616.981   | .894%       | 95.965%    |
| 70.0               | 12.675        | 7.202       | 624.182   | .729%       | 97.085%    |
| 75.0               | 11.256        | 6.255       | 630.438   | .633%       | 98.058%    |
| 80.0               | 10.270        | 5.760       | 636.197   | .583%       | 98.954%    |
| 85.0               | 5.856         | 4.382       | 640.579   | .444%       | 99.636%    |
| 90.0               | 2.696         | 2.342       | 642.921   | .237%       | 100.000%   |

## ZONAL LUMEN SUMMARY

| Zone    | Lumens | %Lamp  | %Fixt   |
|---------|--------|--------|---------|
| 0-30    | 463.56 | 46.93% | 72.10%  |
| 0-40    | 542.29 | 54.90% | 84.35%  |
| 0-60    | 608.15 | 61.56% | 94.59%  |
| 0-90    | 640.58 | 64.85% | 99.64%  |
| 0-120   | 640.58 | 64.85% | 99.64%  |
| 0-180   | 642.92 | 65.08% | 100.00% |
| 60-90   | 43.38  | 4.39%  | 6.75%   |
| 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%   |
| 0-35.68 | 514.34 | 52.07% | 80.00%  |

## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 99.78  |
| 10-20   | 207.79 |
| 20-30   | 155.98 |
| 30-40   | 78.73  |
| 40-50   | 41.13  |
| 50-60   | 24.73  |
| 60-70   | 16.04  |
| 70-80   | 12.01  |
| 80-90   | 4.38   |
| 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: —————

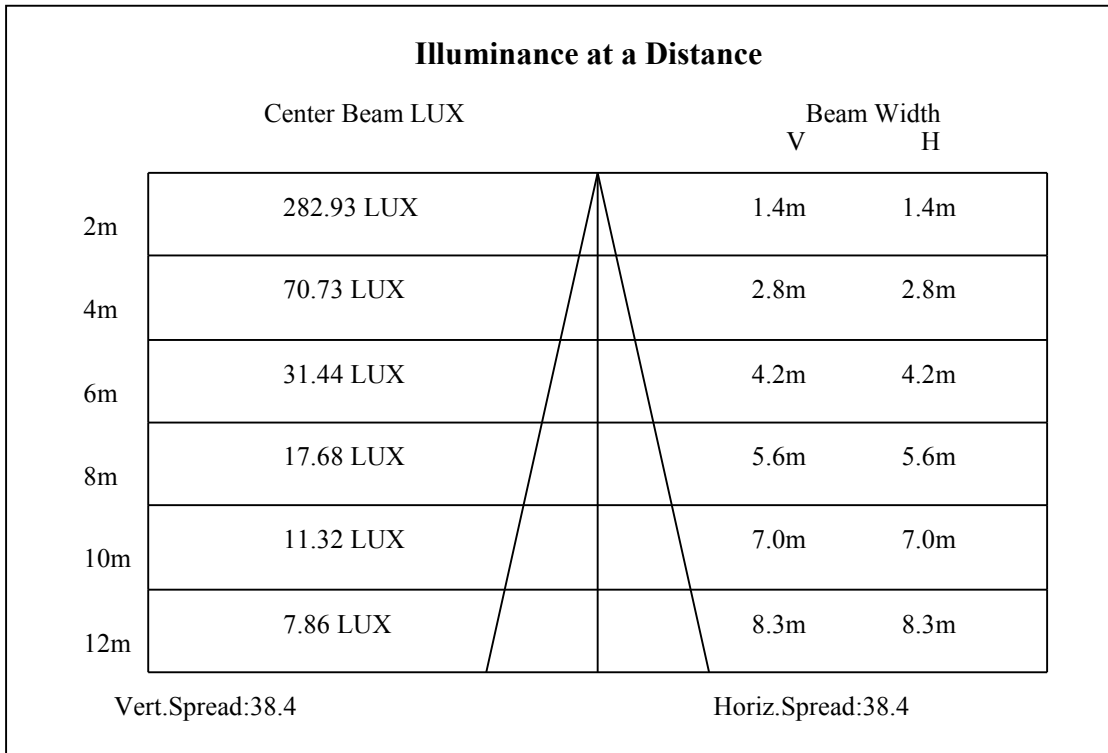
C90/C270: —————

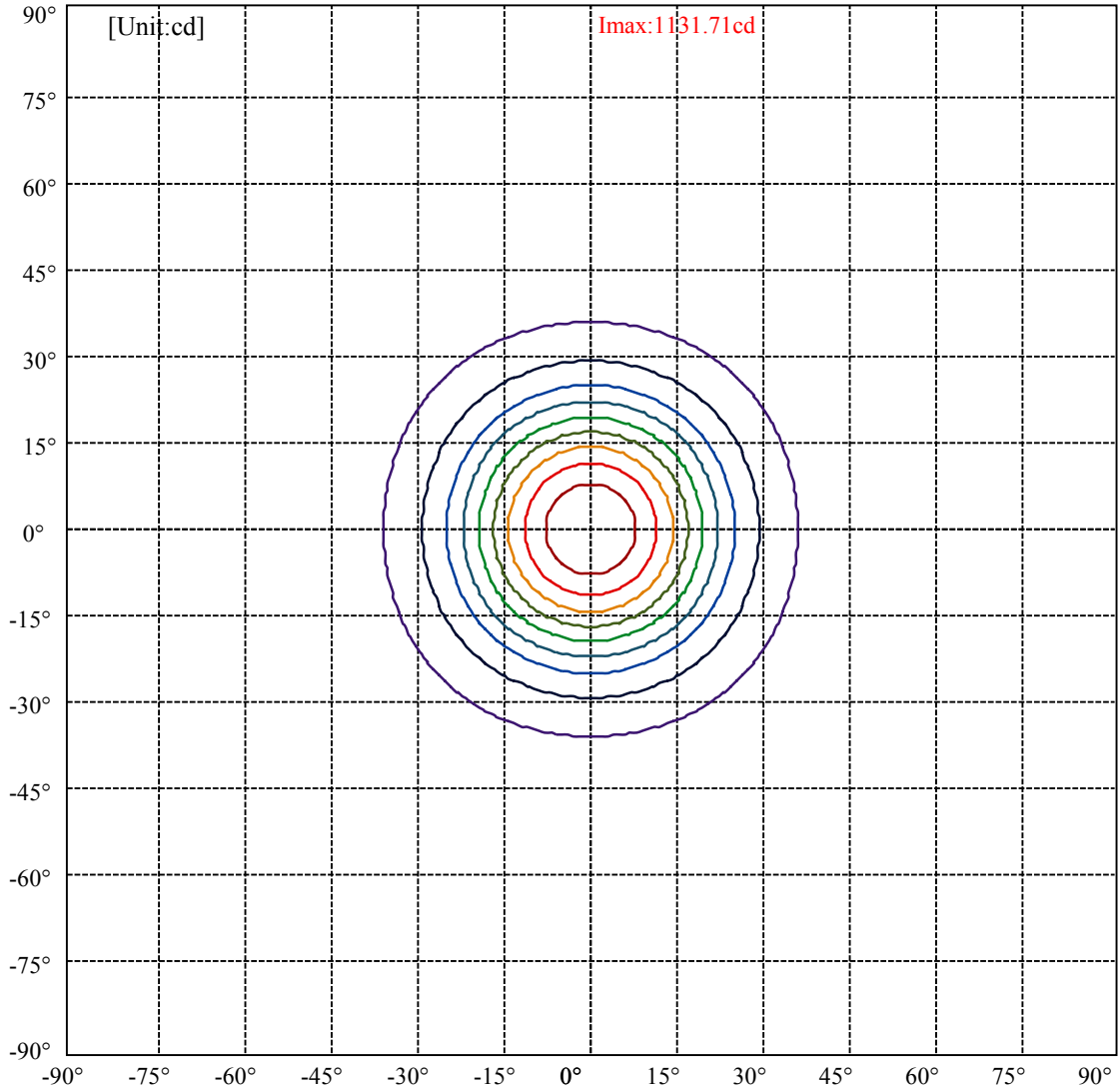
Field angle(10%Imax):C0/180Left:35.5 Right:35.5

:C90/270Left:35.5 Right:35.5

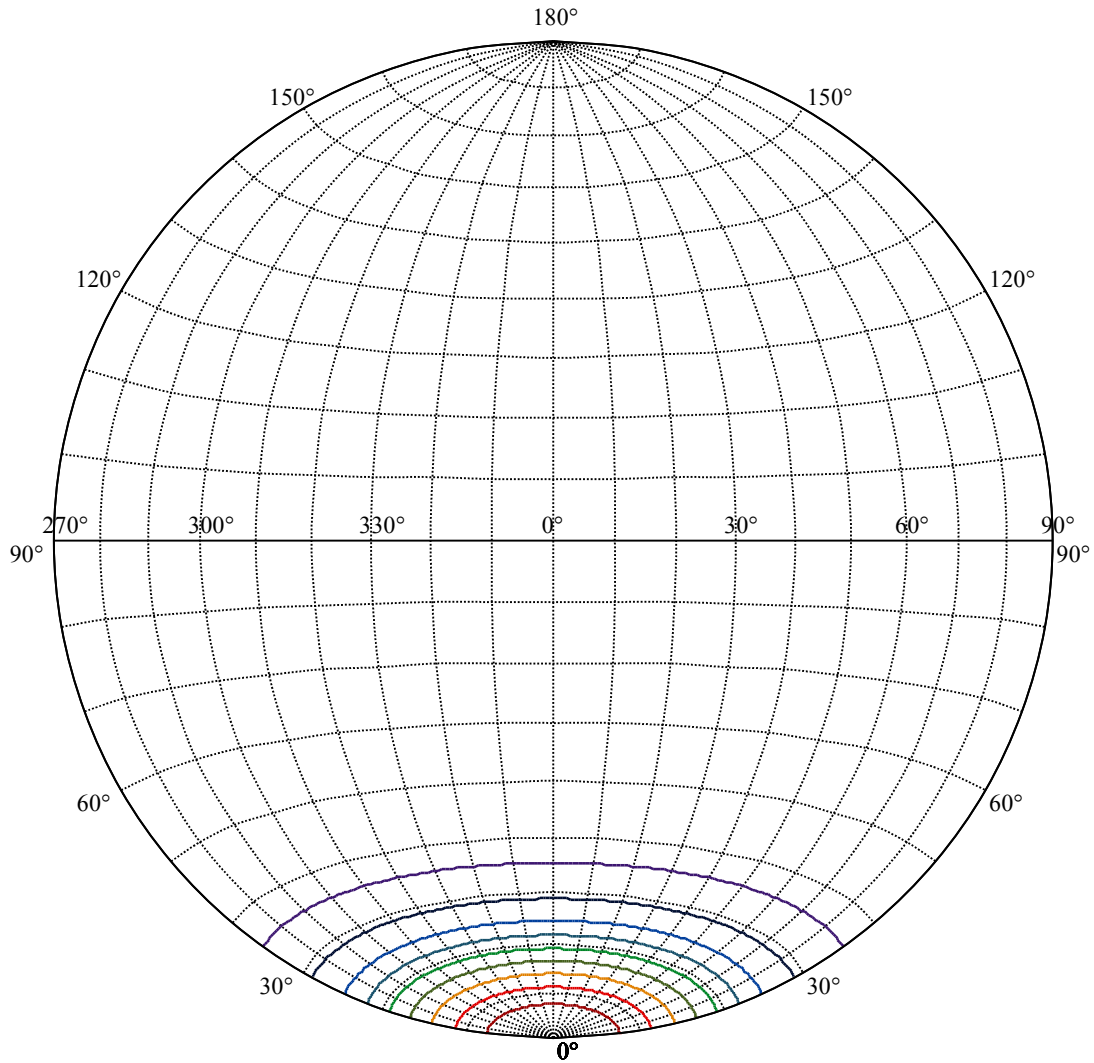
Beam Angle(50%Imax):C0/180Left:19.2 Right:19.2

:C90/270Left:19.2 Right:19.2





|                   |   |
|-------------------|---|
| (10%Imax) 113.17  | — |
| (20%Imax) 226.341 | — |
| (30%Imax) 339.511 | — |
| (40%Imax) 452.682 | — |
| (50%Imax) 565.852 | — |
| (60%Imax) 679.023 | — |
| (70%Imax) 792.193 | — |
| (80%Imax) 905.364 | — |
| (90%Imax) 1018.53 | — |



House

[Unit:cd]

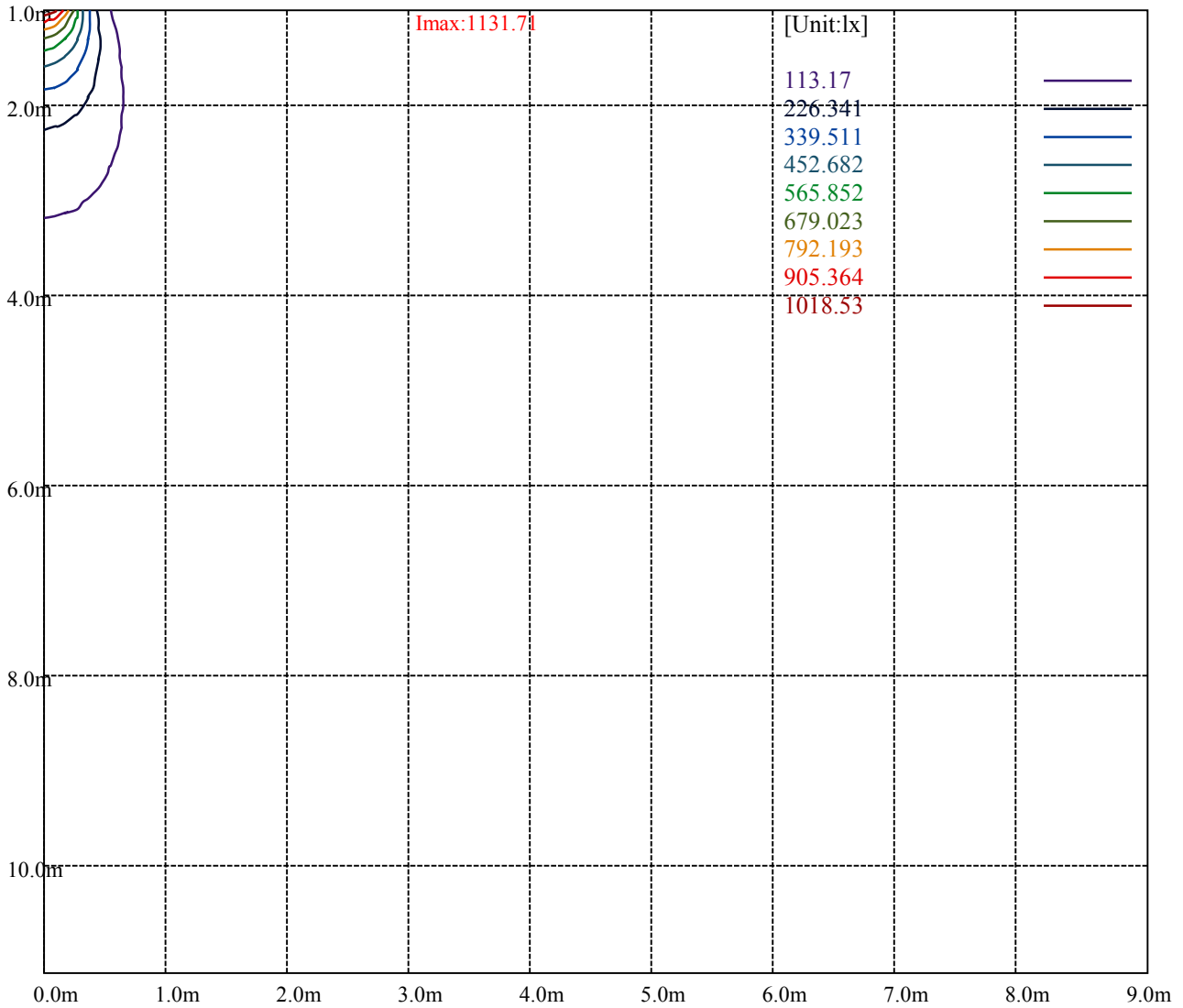
Road

Imax:1131.71

|           |         |   |
|-----------|---------|---|
| (10%Imax) | 113.17  | — |
| (20%Imax) | 226.341 | — |
| (30%Imax) | 339.511 | — |
| (40%Imax) | 452.682 | — |
| (50%Imax) | 565.852 | — |
| (60%Imax) | 679.023 | — |
| (70%Imax) | 792.193 | — |
| (80%Imax) | 905.364 | — |
| (90%Imax) | 1018.53 | — |







Luminance Table

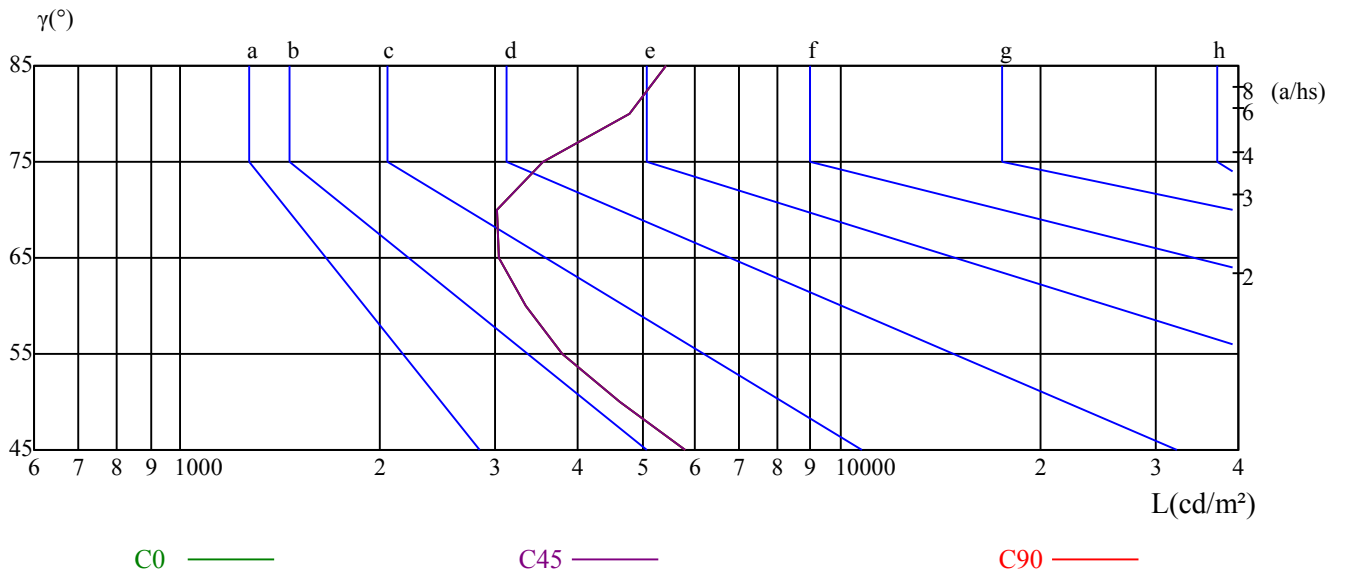
| $\gamma$ | 45   | 50   | 55   | 60   | 65   | 70   | 75   | 80   | 85   |
|----------|------|------|------|------|------|------|------|------|------|
| C0       | 5818 | 4627 | 3787 | 3340 | 3028 | 3008 | 3530 | 4800 | 5453 |
| C45      | 5818 | 4627 | 3787 | 3340 | 3028 | 3008 | 3530 | 4800 | 5453 |
| C90      | 5818 | 4627 | 3787 | 3340 | 3028 | 3008 | 3530 | 4800 | 5453 |

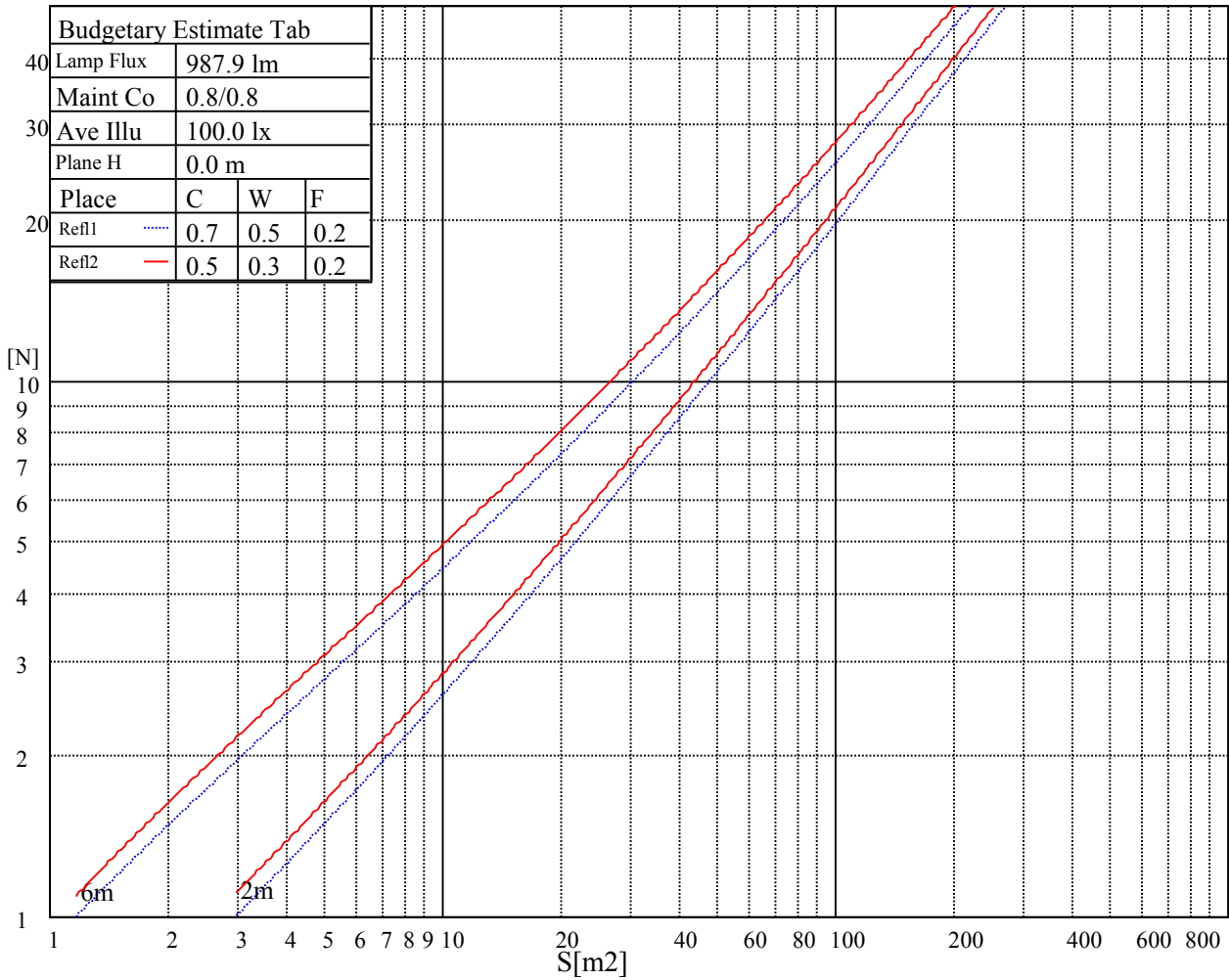
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 3028       | 3028       | 3028    | 3530       | 3530       | 3530    | 5453       | 5453       | 5453    |

Glare Table

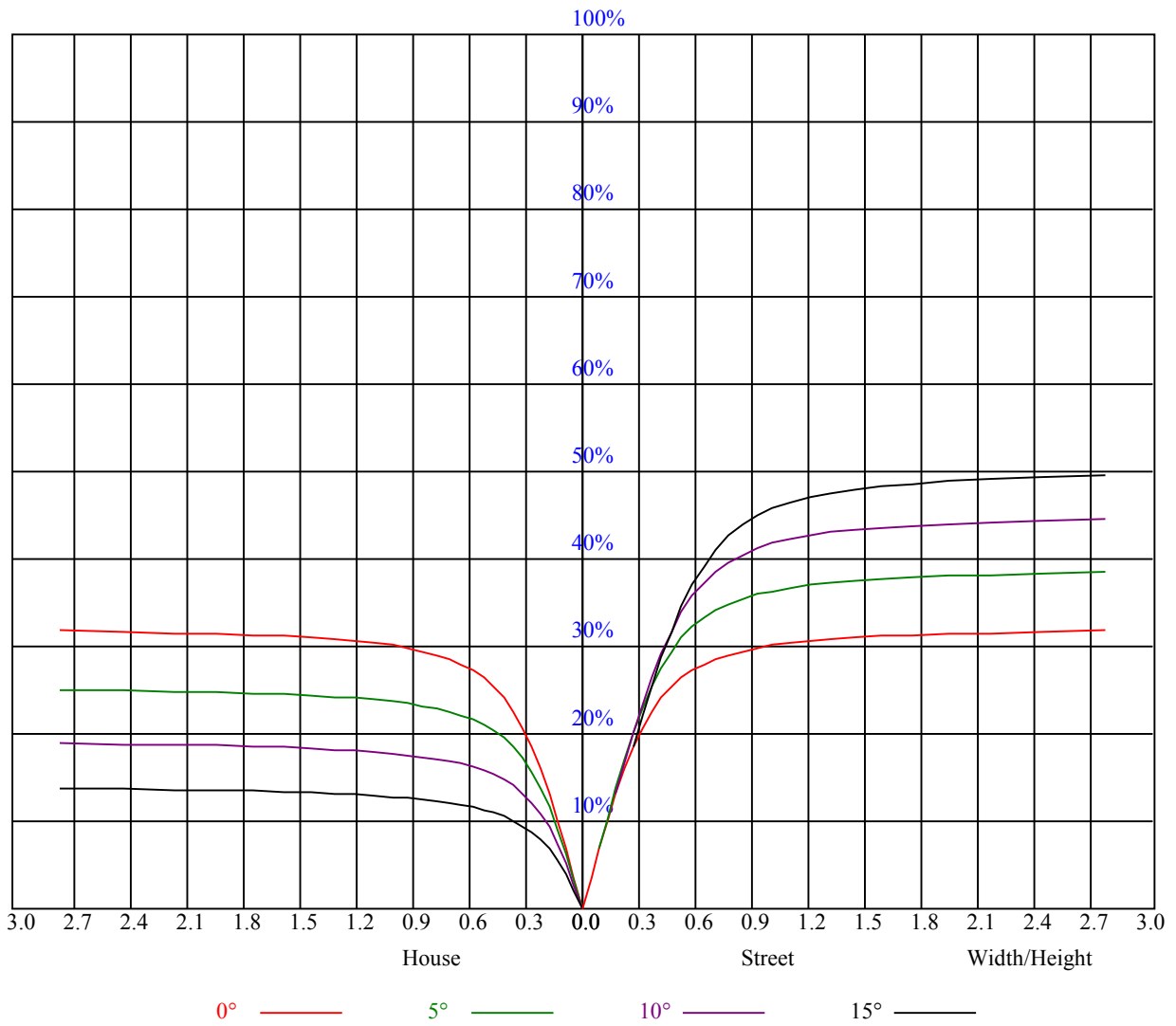
| Glare | Quality | Service Values Illuminance(lx) |      |      |       |       |       |       |       |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15  | A       | 2000                           | 1000 | 500  | <=300 |       |       |       |       |
| 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 RHOFC=20 CU |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 0     | 0.77                                    | 0.77 | 0.77 | 0.76 | 0.76 | 0.76 | 0.72 | 0.72 | 0.72 | 0.69 | 0.69 | 0.69 | 0.66 | 0.66 | 0.66 | 0.65 |
| 1     | 0.71                                    | 0.70 | 0.68 | 0.70 | 0.68 | 0.67 | 0.67 | 0.66 | 0.65 | 0.65 | 0.64 | 0.63 | 0.63 | 0.62 | 0.61 | 0.60 |
| 2     | 0.66                                    | 0.63 | 0.61 | 0.65 | 0.62 | 0.60 | 0.63 | 0.61 | 0.59 | 0.61 | 0.59 | 0.58 | 0.59 | 0.58 | 0.56 | 0.55 |
| 3     | 0.62                                    | 0.58 | 0.55 | 0.61 | 0.58 | 0.55 | 0.59 | 0.56 | 0.54 | 0.57 | 0.55 | 0.53 | 0.56 | 0.54 | 0.52 | 0.51 |
| 4     | 0.58                                    | 0.54 | 0.51 | 0.57 | 0.53 | 0.51 | 0.55 | 0.52 | 0.50 | 0.54 | 0.52 | 0.50 | 0.53 | 0.51 | 0.49 | 0.48 |
| 5     | 0.54                                    | 0.50 | 0.47 | 0.54 | 0.50 | 0.47 | 0.52 | 0.49 | 0.47 | 0.51 | 0.49 | 0.46 | 0.50 | 0.48 | 0.46 | 0.45 |
| 6     | 0.51                                    | 0.47 | 0.44 | 0.51 | 0.47 | 0.44 | 0.50 | 0.46 | 0.44 | 0.49 | 0.46 | 0.44 | 0.48 | 0.45 | 0.43 | 0.42 |
| 7     | 0.48                                    | 0.44 | 0.42 | 0.48 | 0.44 | 0.42 | 0.47 | 0.44 | 0.41 | 0.46 | 0.43 | 0.41 | 0.46 | 0.43 | 0.41 | 0.40 |
| 8     | 0.46                                    | 0.42 | 0.39 | 0.45 | 0.42 | 0.39 | 0.45 | 0.41 | 0.39 | 0.44 | 0.41 | 0.39 | 0.43 | 0.41 | 0.39 | 0.38 |
| 9     | 0.44                                    | 0.40 | 0.37 | 0.43 | 0.40 | 0.37 | 0.43 | 0.39 | 0.37 | 0.42 | 0.39 | 0.37 | 0.42 | 0.39 | 0.37 | 0.36 |
| 10    | 0.42                                    | 0.38 | 0.35 | 0.41 | 0.38 | 0.35 | 0.41 | 0.38 | 0.35 | 0.40 | 0.37 | 0.35 | 0.40 | 0.37 | 0.35 | 0.34 |



Intensity data(cd)

|               |             |             |             |             |             |             |             |             |             |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>C/γ(°)</b> | <b>0.0</b>  | <b>5.0</b>  | <b>10.0</b> | <b>15.0</b> | <b>20.0</b> | <b>25.0</b> | <b>30.0</b> | <b>35.0</b> | <b>40.0</b> |
| <b>0.0</b>    | 1126.94     | 1122.40     | 1026.79     | 851.48      | 635.11      | 392.99      | 234.77      | 138.27      | 89.27       |
| <b>45.0</b>   | 1135.19     | 1100.23     | 979.23      | 769.32      | 533.00      | 334.62      | 198.02      | 116.64      | 74.33       |
| <b>90.0</b>   | 1133.15     | 1068.26     | 919.78      | 706.64      | 475.93      | 285.26      | 175.02      | 104.99      | 67.58       |
| <b>135.0</b>  | 1131.54     | 1084.52     | 934.48      | 714.76      | 483.82      | 300.68      | 179.26      | 107.20      | 70.81       |
| <b>180.0</b>  | 1126.94     | 1042.75     | 880.34      | 664.87      | 441.99      | 264.05      | 158.70      | 99.31       | 66.03       |
| <b>225.0</b>  | 1135.19     | 1076.93     | 948.82      | 734.24      | 508.14      | 308.98      | 191.69      | 114.85      | 73.62       |
| <b>270.0</b>  | 1133.15     | 1106.27     | 999.19      | 815.93      | 575.90      | 369.45      | 221.44      | 131.04      | 86.28       |
| <b>315.0</b>  | 1131.54     | 1101.31     | 988.49      | 800.09      | 573.93      | 356.49      | 220.13      | 129.13      | 81.20       |
| <b>360.0</b>  | 1126.94     | 1122.40     | 1026.79     | 851.48      | 635.11      | 392.99      | 234.77      | 138.27      | 89.27       |
| <b>C/γ(°)</b> | <b>45.0</b> | <b>50.0</b> | <b>55.0</b> | <b>60.0</b> | <b>65.0</b> | <b>70.0</b> | <b>75.0</b> | <b>80.0</b> | <b>85.0</b> |
| <b>0.0</b>    | 59.33       | 45.29       | 34.90       | 28.80       | 23.72       | 19.42       | 20.73       | 25.81       | 18.64       |
| <b>45.0</b>   | 49.65       | 34.96       | 24.98       | 18.82       | 13.92       | 10.70       | 8.37        | 7.17        | 3.59        |
| <b>90.0</b>   | 45.77       | 32.51       | 23.24       | 17.03       | 12.55       | 9.50        | 6.93        | 4.90        | 2.93        |
| <b>135.0</b>  | 46.85       | 33.34       | 24.44       | 18.16       | 13.56       | 10.70       | 8.43        | 6.51        | 3.64        |
| <b>180.0</b>  | 47.98       | 36.93       | 28.26       | 23.66       | 19.42       | 18.11       | 20.26       | 17.51       | 4.24        |
| <b>225.0</b>  | 49.71       | 34.96       | 25.04       | 18.70       | 13.80       | 10.64       | 8.19        | 7.17        | 4.60        |
| <b>270.0</b>  | 54.55       | 37.64       | 26.41       | 19.60       | 14.16       | 10.70       | 8.07        | 5.92        | 3.82        |
| <b>315.0</b>  | 51.63       | 37.52       | 26.83       | 19.84       | 15.00       | 11.65       | 9.08        | 7.17        | 5.38        |
| <b>360.0</b>  | 59.33       | 45.29       | 34.90       | 28.80       | 23.72       | 19.42       | 20.73       | 25.81       | 18.64       |
| <b>C/γ(°)</b> | <b>90.0</b> |             |             |             |             |             |             |             |             |
| <b>0.0</b>    | 2.75        |             |             |             |             |             |             |             |             |
| <b>45.0</b>   | 2.57        |             |             |             |             |             |             |             |             |
| <b>90.0</b>   | 2.57        |             |             |             |             |             |             |             |             |
| <b>135.0</b>  | 2.57        |             |             |             |             |             |             |             |             |
| <b>180.0</b>  | 3.35        |             |             |             |             |             |             |             |             |
| <b>225.0</b>  | 2.63        |             |             |             |             |             |             |             |             |
| <b>270.0</b>  | 2.57        |             |             |             |             |             |             |             |             |
| <b>315.0</b>  | 2.57        |             |             |             |             |             |             |             |             |
| <b>360.0</b>  | 2.75        |             |             |             |             |             |             |             |             |