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## Nata

Client:

LumCAT: 2-2748-L

Luminaire: 92.70.412.00

Report No: 2024815-B008

Ballast type: AC

Test No: 2024817-C008

Voltage(V): 36.510

LampCAT: CREE CXA1830 LES14

Current(A): 0.795

Lamp flux(lm): 3731.0

Power (W): 29.020

Number of Lamps: 1

PF: 0.000

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

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## Photometric Results

Lumens(lm): 3445.33, Efficiency(%): 92.34% , Luminous Efficacy(lm/W): 118.72

Central intensity(cd): 18022.000, Maximum intensity(cd): 18022.000

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

Beam Angle(50%Imax): [C0/180]Total=17.8

[C90/270]Total=17.8

Field angle(10%Imax): [C0/180]Total=46.8

[C90/270]Total=46.8

Maximum s/h(1/2): C0\_180=0.30 C90\_270=0.30

Maximum s/h(1/4): C0\_180=0.33 C90\_270=0.33

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 92.34%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 99.203%

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Equipment: GMS 1800  
Temperature(°C): 25.0

Date: 2024/8/17  
Humidity(%): 60.0%

Operator: NT  
Distance(m): 7.25

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 18021.998     | 0.000       | 0         | 0.00%       | 0.00%      |
| 1.0                | 17896.639     | 17.186      | 17.186    | 0.46%       | 0.50%      |
| 2.0                | 17553.285     | 50.881      | 68.067    | 1.36%       | 1.98%      |
| 3.0                | 16880.514     | 82.354      | 150.422   | 2.21%       | 4.37%      |
| 4.0                | 15994.624     | 110.044     | 260.465   | 2.95%       | 7.56%      |
| 5.0                | 14566.232     | 131.471     | 391.937   | 3.52%       | 11.38%     |
| 6.0                | 12956.177     | 144.638     | 536.574   | 3.88%       | 15.57%     |
| 7.0                | 11656.142     | 152.768     | 689.342   | 4.09%       | 20.01%     |
| 8.0                | 10197.000     | 156.399     | 845.741   | 4.19%       | 24.55%     |
| 9.0                | 8884.528      | 154.645     | 1000.387  | 4.14%       | 29.04%     |
| 10.0               | 7544.769      | 148.679     | 1149.066  | 3.98%       | 33.35%     |
| 11.0               | 6569.380      | 141.029     | 1290.095  | 3.78%       | 37.44%     |
| 12.0               | 5735.239      | 134.507     | 1424.602  | 3.61%       | 41.35%     |
| 13.0               | 5062.537      | 128.142     | 1552.745  | 3.43%       | 45.07%     |
| 14.0               | 4524.041      | 122.707     | 1675.452  | 3.29%       | 48.63%     |
| 15.0               | 4052.891      | 117.748     | 1793.2    | 3.16%       | 52.05%     |
| 16.0               | 3634.868      | 112.647     | 1905.847  | 3.02%       | 55.32%     |
| 17.0               | 3262.758      | 107.415     | 2013.262  | 2.88%       | 58.43%     |
| 18.0               | 2962.593      | 102.643     | 2115.904  | 2.75%       | 61.41%     |
| 19.0               | 2703.303      | 98.575      | 2214.479  | 2.64%       | 64.27%     |
| 20.0               | 2535.950      | 95.893      | 2310.372  | 2.57%       | 67.06%     |
| 21.0               | 2327.980      | 93.397      | 2403.769  | 2.50%       | 69.77%     |
| 22.0               | 2043.065      | 87.838      | 2491.607  | 2.35%       | 72.32%     |
| 23.0               | 1867.979      | 82.064      | 2573.672  | 2.20%       | 74.70%     |
| 24.0               | 1717.059      | 78.382      | 2652.053  | 2.10%       | 76.98%     |
| 25.0               | 1583.886      | 75.056      | 2727.11   | 2.01%       | 79.15%     |
| 26.0               | 1463.892      | 71.943      | 2799.053  | 1.93%       | 81.24%     |
| 27.0               | 1331.704      | 68.395      | 2867.448  | 1.83%       | 83.23%     |
| 28.0               | 1200.061      | 64.099      | 2931.547  | 1.72%       | 85.09%     |
| 29.0               | 1135.015      | 61.092      | 2992.639  | 1.64%       | 86.86%     |
| 30.0               | 1029.233      | 58.434      | 3051.073  | 1.57%       | 88.56%     |
| 31.0               | 902.091       | 53.746      | 3104.819  | 1.44%       | 90.12%     |
| 32.0               | 789.686       | 48.467      | 3153.286  | 1.30%       | 91.52%     |
| 33.0               | 668.707       | 42.965      | 3196.251  | 1.15%       | 92.77%     |
| 34.0               | 548.345       | 36.832      | 3233.083  | 0.99%       | 93.84%     |
| 35.0               | 447.110       | 30.915      | 3263.998  | 0.83%       | 94.74%     |
| 36.0               | 347.195       | 25.291      | 3289.289  | 0.68%       | 95.47%     |
| 37.0               | 269.987       | 20.129      | 3309.418  | 0.54%       | 96.06%     |

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 38.0               | 216.117       | 16.226      | 3325.643  | 0.43%       | 96.53%     |
| 39.0               | 156.840       | 12.730      | 3338.373  | 0.34%       | 96.90%     |
| 40.0               | 98.206        | 8.895       | 3347.268  | 0.24%       | 97.15%     |
| 41.0               | 81.524        | 6.400       | 3353.668  | 0.17%       | 97.34%     |
| 42.0               | 71.058        | 5.544       | 3359.212  | 0.15%       | 97.50%     |
| 43.0               | 64.008        | 5.003       | 3364.215  | 0.13%       | 97.65%     |
| 44.0               | 57.359        | 4.581       | 3368.796  | 0.12%       | 97.78%     |
| 45.0               | 51.945        | 4.201       | 3372.997  | 0.11%       | 97.90%     |
| 46.0               | 47.273        | 3.880       | 3376.877  | 0.10%       | 98.01%     |
| 47.0               | 43.509        | 3.611       | 3380.488  | 0.10%       | 98.12%     |
| 48.0               | 40.237        | 3.385       | 3383.873  | 0.09%       | 98.22%     |
| 49.0               | 37.438        | 3.190       | 3387.063  | 0.09%       | 98.31%     |
| 50.0               | 35.322        | 3.034       | 3390.096  | 0.08%       | 98.40%     |
| 51.0               | 33.233        | 2.900       | 3392.997  | 0.08%       | 98.48%     |
| 52.0               | 32.043        | 2.801       | 3395.798  | 0.08%       | 98.56%     |
| 53.0               | 31.189        | 2.751       | 3398.548  | 0.07%       | 98.64%     |
| 54.0               | 30.598        | 2.723       | 3401.272  | 0.07%       | 98.72%     |
| 55.0               | 30.276        | 2.717       | 3403.989  | 0.07%       | 98.80%     |
| 56.0               | 30.171        | 2.731       | 3406.72   | 0.07%       | 98.88%     |
| 57.0               | 30.217        | 2.761       | 3409.481  | 0.07%       | 98.96%     |
| 58.0               | 30.085        | 2.789       | 3412.27   | 0.07%       | 99.04%     |
| 59.0               | 29.823        | 2.801       | 3415.071  | 0.08%       | 99.12%     |
| 60.0               | 29.185        | 2.788       | 3417.859  | 0.07%       | 99.20%     |
| 61.0               | 27.786        | 2.719       | 3420.577  | 0.07%       | 99.28%     |
| 62.0               | 25.874        | 2.586       | 3423.163  | 0.07%       | 99.36%     |
| 63.0               | 23.633        | 2.408       | 3425.571  | 0.06%       | 99.43%     |
| 64.0               | 20.828        | 2.182       | 3427.752  | 0.06%       | 99.49%     |
| 65.0               | 17.845        | 1.914       | 3429.666  | 0.05%       | 99.55%     |
| 66.0               | 15.315        | 1.654       | 3431.321  | 0.04%       | 99.59%     |
| 67.0               | 12.930        | 1.420       | 3432.741  | 0.04%       | 99.63%     |
| 68.0               | 11.327        | 1.229       | 3433.97   | 0.03%       | 99.67%     |
| 69.0               | 10.020        | 1.089       | 3435.059  | 0.03%       | 99.70%     |
| 70.0               | 9.021         | 0.978       | 3436.037  | 0.03%       | 99.73%     |
| 71.0               | 8.371         | 0.899       | 3436.936  | 0.02%       | 99.76%     |
| 72.0               | 7.694         | 0.835       | 3437.771  | 0.02%       | 99.78%     |
| 73.0               | 7.221         | 0.780       | 3438.551  | 0.02%       | 99.80%     |
| 74.0               | 6.761         | 0.735       | 3439.286  | 0.02%       | 99.82%     |
| 75.0               | 6.340         | 0.692       | 3439.978  | 0.02%       | 99.84%     |

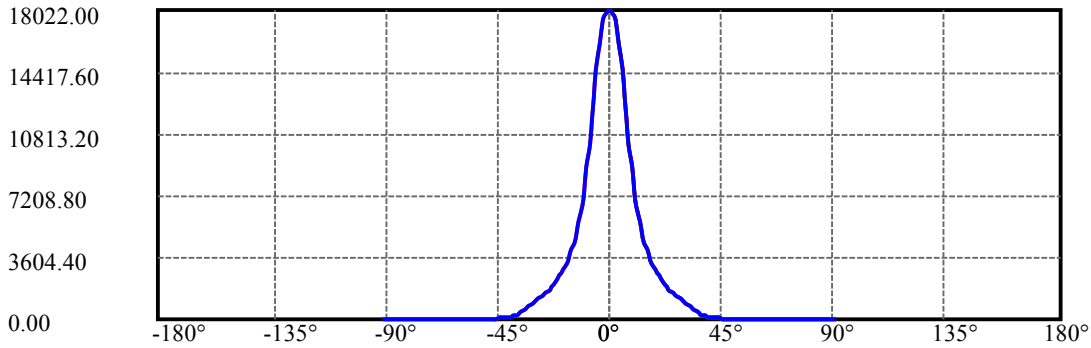
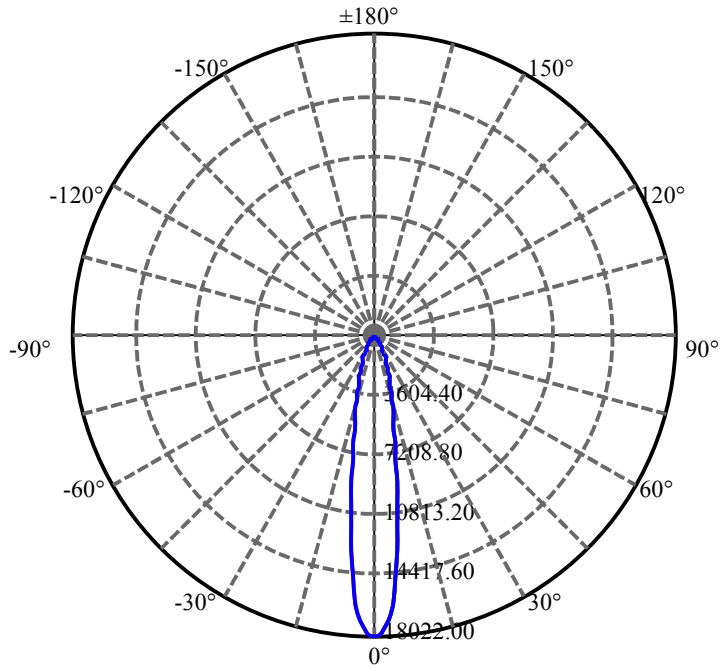
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0               | 5.920         | 0.651       | 3440.629  | 0.02%       | 99.86%     |
| 77.0               | 5.519         | 0.610       | 3441.239  | 0.02%       | 99.88%     |
| 78.0               | 5.099         | 0.568       | 3441.807  | 0.02%       | 99.90%     |
| 79.0               | 4.698         | 0.526       | 3442.334  | 0.01%       | 99.91%     |
| 80.0               | 4.231         | 0.481       | 3442.815  | 0.01%       | 99.93%     |
| 81.0               | 3.778         | 0.433       | 3443.248  | 0.01%       | 99.94%     |
| 82.0               | 3.331         | 0.386       | 3443.634  | 0.01%       | 99.95%     |
| 83.0               | 2.924         | 0.340       | 3443.974  | 0.01%       | 99.96%     |
| 84.0               | 2.510         | 0.296       | 3444.27   | 0.01%       | 99.97%     |
| 85.0               | 2.175         | 0.256       | 3444.525  | 0.01%       | 99.98%     |
| 86.0               | 1.859         | 0.221       | 3444.746  | 0.01%       | 99.98%     |
| 87.0               | 1.557         | 0.187       | 3444.933  | 0.01%       | 99.99%     |
| 88.0               | 1.307         | 0.157       | 3445.09   | 0.00%       | 99.99%     |
| 89.0               | 1.064         | 0.130       | 3445.22   | 0.00%       | 100.00%    |
| 90.0               | 0.979         | 0.112       | 3445.332  | 0.00%       | 100.00%    |

ZONAL LUMEN SUMMARY

| Zone    | Lumens  | %Lamp  | %Fixt   |
|---------|---------|--------|---------|
| 0-30    | 3051.07 | 81.78% | 88.56%  |
| 0-40    | 3347.27 | 89.72% | 97.15%  |
| 0-60    | 3417.86 | 91.61% | 99.20%  |
| 0-90    | 3445.22 | 92.34% | 100.00% |
| 0-120   | 3445.22 | 92.34% | 100.00% |
| 0-180   | 3445.33 | 92.34% | 100.00% |
| 60-90   | 27.36   | 0.73%  | 0.79%   |
| 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%   |
| 0-25.41 | 2756.27 | 73.87% | 80.00%  |

ZONAL LUMEN SUMMARY

|         |         |
|---------|---------|
| 0-10    | 1149.07 |
| 10-20   | 1161.31 |
| 20-30   | 740.70  |
| 30-40   | 296.20  |
| 40-50   | 42.83   |
| 50-60   | 27.76   |
| 60-70   | 18.18   |
| 70-80   | 6.78    |
| 80-90   | 2.40    |
| 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    |



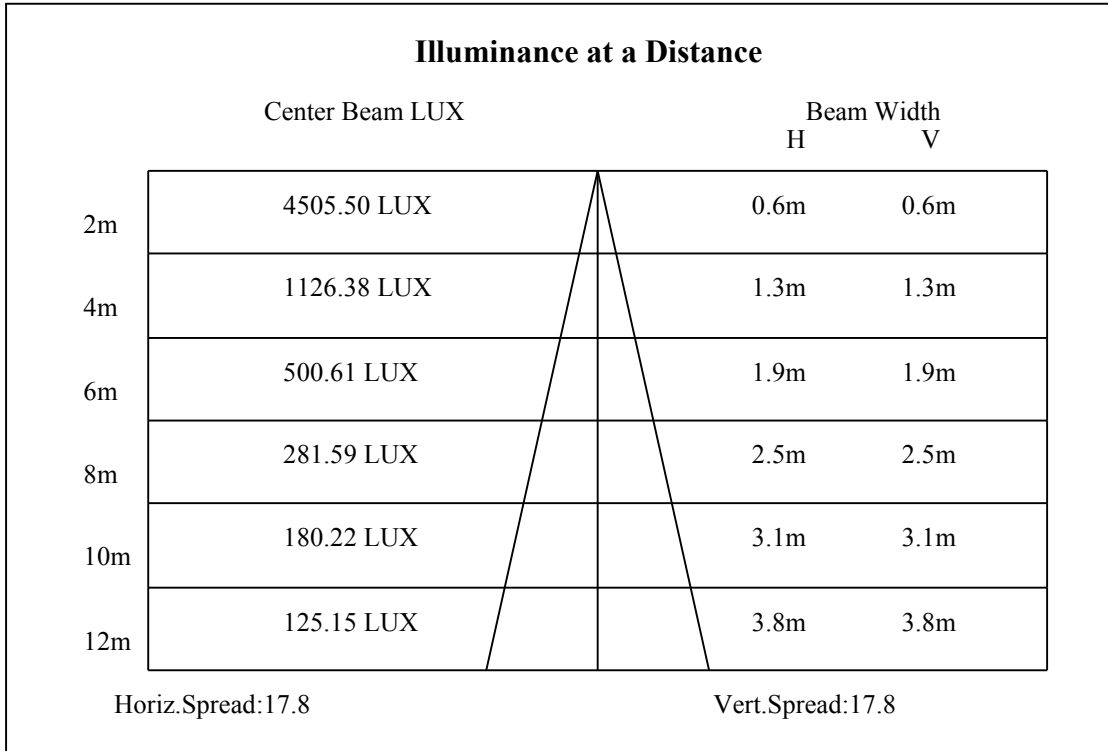
C0(Max): —————

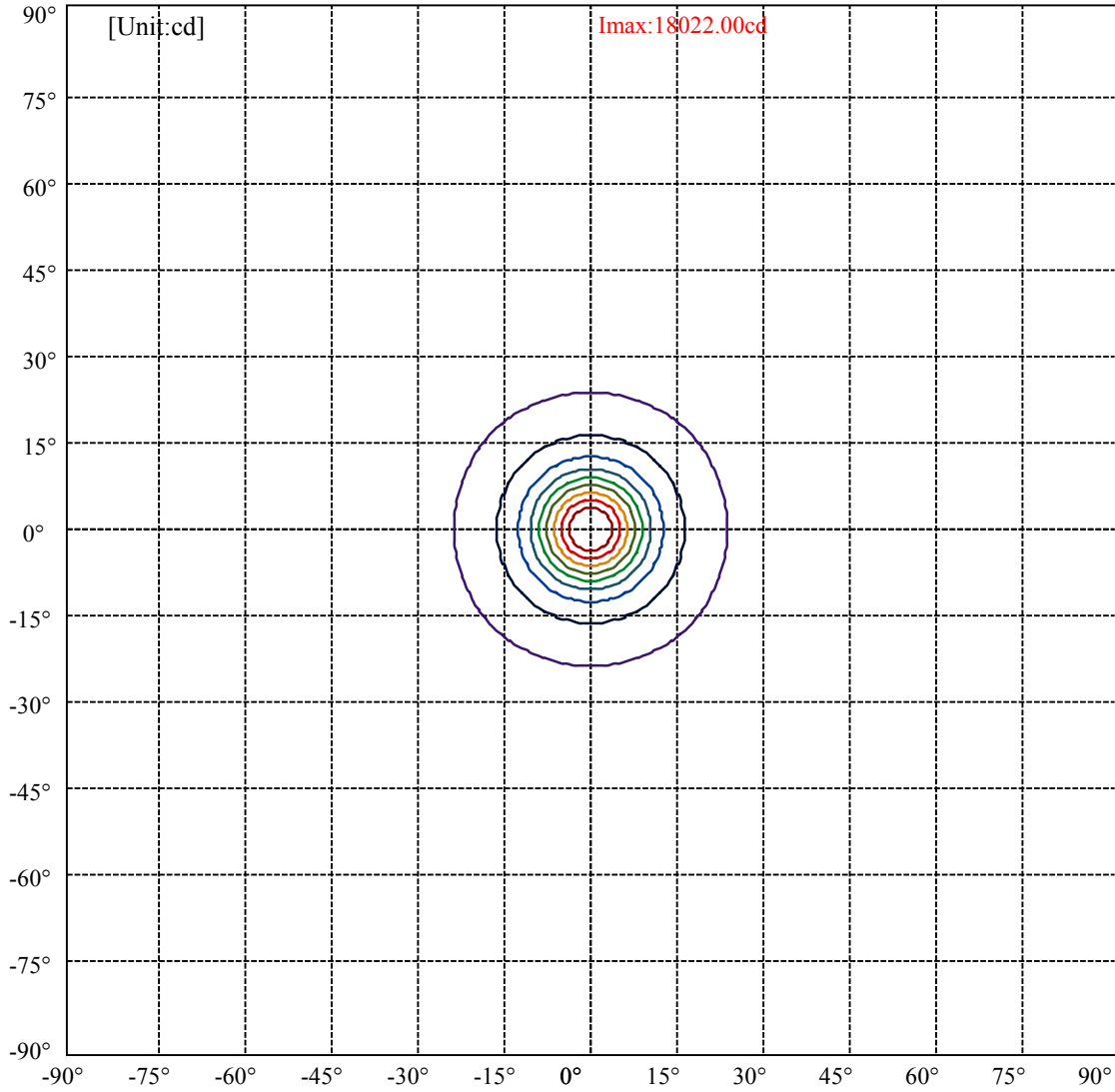
C0/C180: —————

C90/C270: —————

Field angle(10%Imax):C0/180Left:23.4 Right:23.4  
:C90/270Left:23.4 Right:23.4

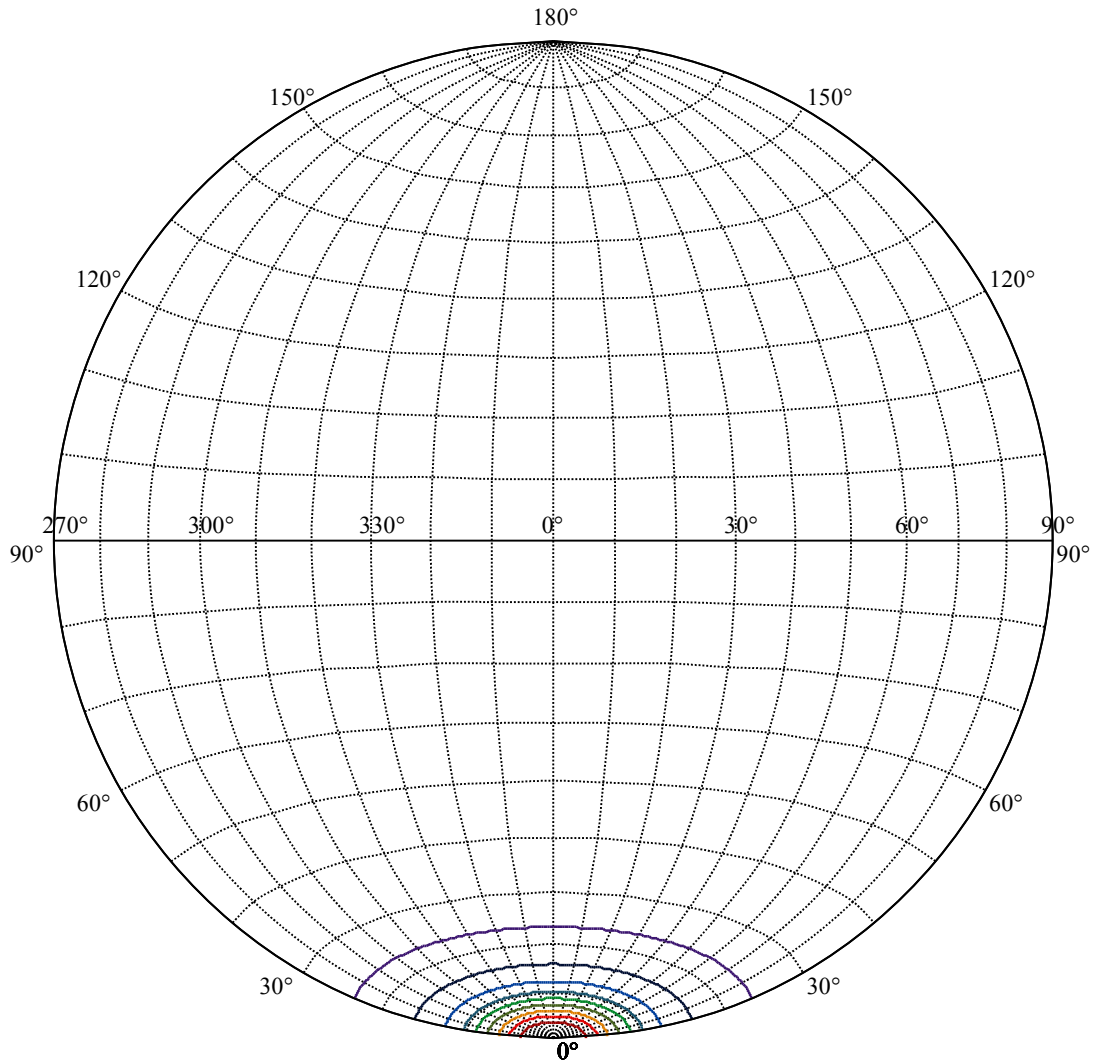
Beam Angle(50%Imax):C0/180Left:8.9 Right:8.9  
:C90/270Left:8.9 Right:8.9





|                   |   |
|-------------------|---|
| (10%Imax) 1802.2  | — |
| (20%Imax) 3604.4  | — |
| (30%Imax) 5406.6  | — |
| (40%Imax) 7208.8  | — |
| (50%Imax) 9011    | — |
| (60%Imax) 10813.2 | — |
| (70%Imax) 12615.4 | — |
| (80%Imax) 14417.6 | — |
| (90%Imax) 16219.8 | — |





House

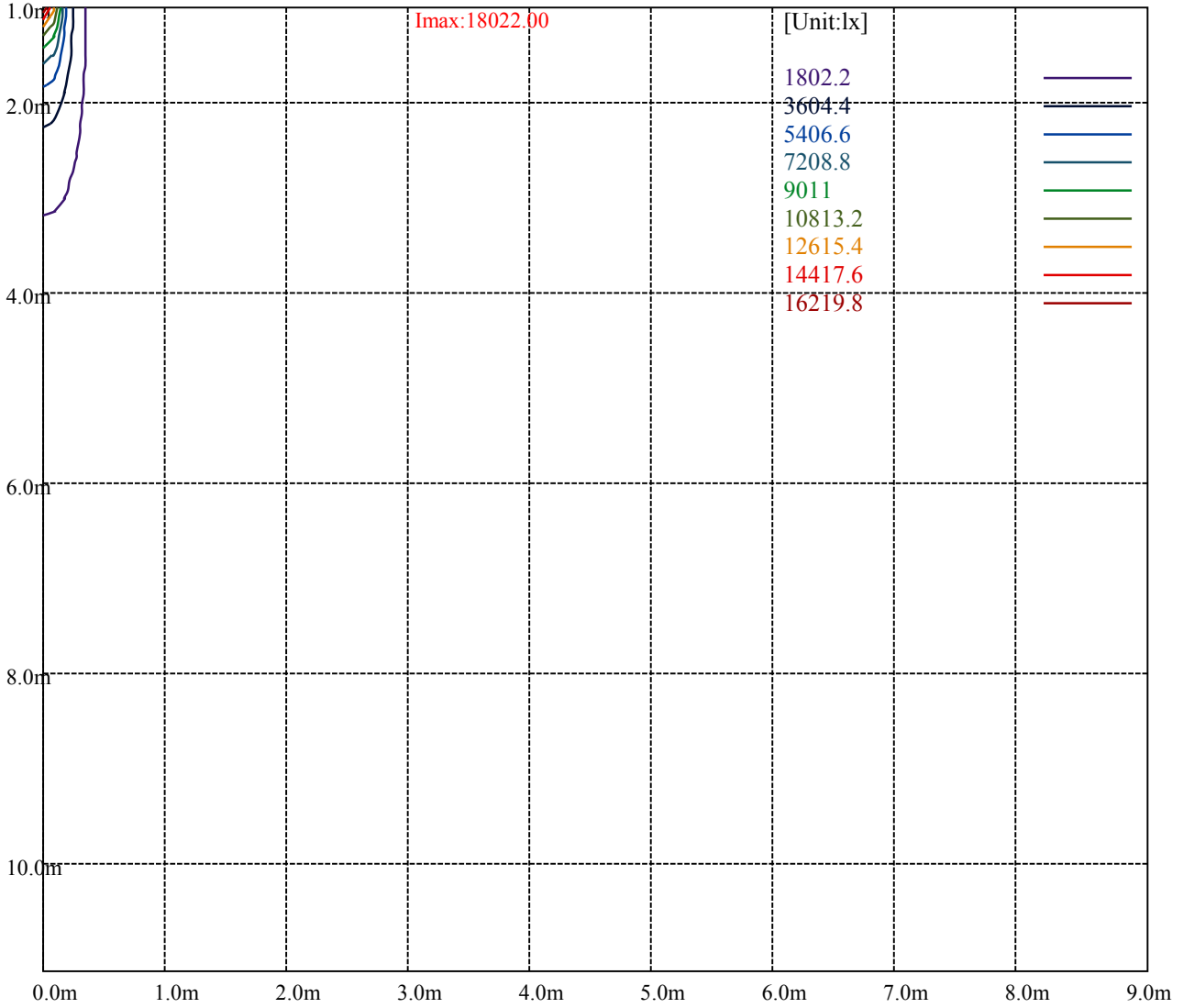
[Unit:cd]

Road

**Imax:18022.00**

|                   |   |
|-------------------|---|
| (10%Imax) 1802.2  | — |
| (20%Imax) 3604.4  | — |
| (30%Imax) 5406.6  | — |
| (40%Imax) 7208.8  | — |
| (50%Imax) 9011    | — |
| (60%Imax) 10813.2 | — |
| (70%Imax) 12615.4 | — |
| (80%Imax) 14417.6 | — |
| (90%Imax) 16219.8 | — |





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  | <=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



| Illumination assessment according UGR             |                  |    |    |    |    |                |    |    |    |    |  |
|---|------------------|----|----|----|----|----------------|----|----|----|----|--|
| Rf of Ceiling                                     | 70               | 70 | 50 | 50 | 30 | 70             | 70 | 50 | 50 | 30 |  |
| Rf of Wall  | 50               | 30 | 50 | 30 | 30 | 50             | 30 | 50 | 30 | 30 |  |
| Rf of Floor                                       | 20               | 20 | 20 | 20 | 20 | 20             | 20 | 20 | 20 | 20 |  |
| Room dimensions                                   | Viewed crosswise |    |    |    |    | Viewed endwise |    |    |    |    |  |
| X   | Y                |    |    |    |    |                |    |    |    |    |  |
| 2H  | 2H               |    |    |    |    |                |    |    |    |    |  |
|   | 3H               |    |    |    |    |                |    |    |    |    |  |
|   | 4H               |    |    |    |    |                |    |    |    |    |  |
|   | 6H               |    |    |    |    |                |    |    |    |    |  |
|   | 8H               |    |    |    |    |                |    |    |    |    |  |
|   | 12H              |    |    |    |    |                |    |    |    |    |  |
| 4H  | 2H               |    |    |    |    |                |    |    |    |    |  |
|   | 3H               |    |    |    |    |                |    |    |    |    |  |
|   | 4H               |    |    |    |    |                |    |    |    |    |  |
|   | 6H               |    |    |    |    |                |    |    |    |    |  |
|   | 8H               |    |    |    |    |                |    |    |    |    |  |
|   | 12H              |    |    |    |    |                |    |    |    |    |  |
| 8H  | 4H               |    |    |    |    |                |    |    |    |    |  |
|   | 6H               |    |    |    |    |                |    |    |    |    |  |
|   | 8H               |    |    |    |    |                |    |    |    |    |  |
|   | 12H              |    |    |    |    |                |    |    |    |    |  |
| 12H   | 4H               |    |    |    |    |                |    |    |    |    |  |
|   | 6H               |    |    |    |    |                |    |    |    |    |  |
|   | 8H               |    |    |    |    |                |    |    |    |    |  |
| Variation with the observer position at spacings: |                  |    |    |    |    |                |    |    |    |    |  |
| S = 1.0H  |                  |    |    |    |    |                |    |    |    |    |  |
| S = 1.5H  |                  |    |    |    |    |                |    |    |    |    |  |
| S = 2.0H  |                  |    |    |    |    |                |    |    |    |    |  |
| Standard tables:                                  |                  |    |    |    |    |                |    |    |    |    |  |
| Uncorrected UGR                                   |                  |    |    |    |    |                |    |    |    |    |  |
|   |                  |    |    |    |    |                |    |    |    |    |  |