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## Nata

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LumCAT: LN01D04536DA-N

Luminaire: 97.70.273.00

Report No: 200709-B007

Test No: 200709-C007

LampCAT: NICHIA NTCWS024B-V3

Lamp flux(lm): 737.4

Number of Lamps: 1

Length(mm): 0

Phm Type: C

Voltage(V): 35.4400

Current(A): 0.2000

Power (W): 7.0880

PF: 0.0000

Ballast type: DC

Width(mm): 0

Height(mm): 0

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## Photometric Results

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Lumens(lm): 682.40

Efficiency(%): 92.54%

Lumens(lm)/Power(W): 96.28

Central intensity(cd): 1530.984

Maximum intensity(cd): 1530.984

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

Beam Angle(50%Imax): [C0/180]Total=37.8

[C90/270]Total=37.8

Field angle(10%Imax): [C0/180]Total=59.6

[C90/270]Total=59.6

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

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(%): 92.54%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 96.558%

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 1530.984      | 0.000       | 0         | .000%       | .000%      |
| 1.0                | 1529.016      | 1.464       | 1.464     | .199%       | .215%      |
| 2.0                | 1526.273      | 4.385       | 5.849     | .595%       | .857%      |
| 3.0                | 1522.266      | 7.291       | 13.14     | .989%       | 1.926%     |
| 4.0                | 1515.234      | 10.167      | 23.308    | 1.379%      | 3.416%     |
| 5.0                | 1504.406      | 12.990      | 36.298    | 1.762%      | 5.319%     |
| 6.0                | 1491.469      | 15.744      | 52.042    | 2.135%      | 7.626%     |
| 7.0                | 1471.641      | 18.392      | 70.434    | 2.494%      | 10.322%    |
| 8.0                | 1447.945      | 20.895      | 91.329    | 2.834%      | 13.384%    |
| 9.0                | 1415.602      | 23.207      | 114.537   | 3.147%      | 16.784%    |
| 10.0               | 1375.523      | 25.259      | 139.795   | 3.425%      | 20.486%    |
| 11.0               | 1331.508      | 27.049      | 166.844   | 3.668%      | 24.450%    |
| 12.0               | 1279.547      | 28.543      | 195.387   | 3.871%      | 28.632%    |
| 13.0               | 1219.781      | 29.661      | 225.048   | 4.022%      | 32.979%    |
| 14.0               | 1142.480      | 30.237      | 255.284   | 4.101%      | 37.410%    |
| 15.0               | 1079.965      | 30.511      | 285.795   | 4.138%      | 41.881%    |
| 16.0               | 1001.918      | 30.505      | 316.3     | 4.137%      | 46.351%    |
| 17.0               | 923.407       | 29.982      | 346.283   | 4.066%      | 50.745%    |
| 18.0               | 834.047       | 28.977      | 375.26    | 3.930%      | 54.991%    |
| 19.0               | 756.492       | 27.672      | 402.932   | 3.753%      | 59.046%    |
| 20.0               | 672.286       | 26.151      | 429.082   | 3.546%      | 62.879%    |
| 21.0               | 590.548       | 24.249      | 453.331   | 3.288%      | 66.432%    |
| 22.0               | 523.069       | 22.379      | 475.71    | 3.035%      | 69.712%    |
| 23.0               | 455.716       | 20.538      | 496.247   | 2.785%      | 72.721%    |
| 24.0               | 394.277       | 18.584      | 514.831   | 2.520%      | 75.444%    |
| 25.0               | 338.527       | 16.662      | 531.494   | 2.260%      | 77.886%    |
| 26.0               | 292.598       | 14.898      | 546.391   | 2.020%      | 80.069%    |
| 27.0               | 248.822       | 13.246      | 559.637   | 1.796%      | 82.010%    |
| 28.0               | 211.634       | 11.658      | 571.295   | 1.581%      | 83.719%    |
| 29.0               | 175.170       | 10.120      | 581.415   | 1.372%      | 85.202%    |
| 30.0               | 148.001       | 8.726       | 590.141   | 1.183%      | 86.480%    |
| 31.0               | 124.165       | 7.574       | 597.715   | 1.027%      | 87.590%    |
| 32.0               | 104.379       | 6.548       | 604.262   | .888%       | 88.550%    |
| 33.0               | 88.685        | 5.688       | 609.95    | .771%       | 89.383%    |
| 34.0               | 74.841        | 4.949       | 614.899   | .671%       | 90.109%    |
| 35.0               | 64.195        | 4.318       | 619.216   | .586%       | 90.741%    |
| 36.0               | 55.005        | 3.795       | 623.012   | .515%       | 91.297%    |
| 37.0               | 48.136        | 3.364       | 626.376   | .456%       | 91.790%    |

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 38.0               | 41.948        | 3.007       | 629.383   | .408%       | 92.231%    |
| 39.0               | 36.984        | 2.694       | 632.077   | .365%       | 92.626%    |
| 40.0               | 33.110        | 2.445       | 634.521   | .332%       | 92.984%    |
| 41.0               | 29.714        | 2.237       | 636.759   | .303%       | 93.312%    |
| 42.0               | 26.641        | 2.047       | 638.806   | .278%       | 93.612%    |
| 43.0               | 24.061        | 1.878       | 640.684   | .255%       | 93.887%    |
| 44.0               | 21.895        | 1.735       | 642.419   | .235%       | 94.141%    |
| 45.0               | 19.905        | 1.606       | 644.025   | .218%       | 94.377%    |
| 46.0               | 18.197        | 1.490       | 645.515   | .202%       | 94.595%    |
| 47.0               | 16.587        | 1.383       | 646.899   | .188%       | 94.798%    |
| 48.0               | 15.265        | 1.288       | 648.186   | .175%       | 94.987%    |
| 49.0               | 14.027        | 1.203       | 649.389   | .163%       | 95.163%    |
| 50.0               | 12.916        | 1.123       | 650.513   | .152%       | 95.327%    |
| 51.0               | 11.946        | 1.052       | 651.565   | .143%       | 95.482%    |
| 52.0               | 11.166        | 0.992       | 652.556   | .134%       | 95.627%    |
| 53.0               | 10.336        | 0.935       | 653.492   | .127%       | 95.764%    |
| 54.0               | 9.675         | 0.882       | 654.374   | .120%       | 95.893%    |
| 55.0               | 9.120         | 0.839       | 655.213   | .114%       | 96.016%    |
| 56.0               | 8.571         | 0.799       | 656.012   | .108%       | 96.133%    |
| 57.0               | 8.142         | 0.764       | 656.776   | .104%       | 96.245%    |
| 58.0               | 7.755         | 0.735       | 657.511   | .100%       | 96.353%    |
| 59.0               | 7.432         | 0.710       | 658.221   | .096%       | 96.457%    |
| 60.0               | 7.102         | 0.687       | 658.908   | .093%       | 96.558%    |
| 61.0               | 6.841         | 0.665       | 659.573   | .090%       | 96.655%    |
| 62.0               | 6.616         | 0.648       | 660.222   | .088%       | 96.750%    |
| 63.0               | 6.398         | 0.633       | 660.855   | .086%       | 96.843%    |
| 64.0               | 6.202         | 0.618       | 661.473   | .084%       | 96.934%    |
| 65.0               | 6.054         | 0.607       | 662.08    | .082%       | 97.023%    |
| 66.0               | 5.934         | 0.598       | 662.678   | .081%       | 97.110%    |
| 67.0               | 6.068         | 0.604       | 663.281   | .082%       | 97.199%    |
| 68.0               | 6.384         | 0.631       | 663.912   | .086%       | 97.291%    |
| 69.0               | 7.151         | 0.690       | 664.603   | .094%       | 97.392%    |
| 70.0               | 7.966         | 0.776       | 665.379   | .105%       | 97.506%    |
| 71.0               | 8.902         | 0.872       | 666.251   | .118%       | 97.634%    |
| 72.0               | 9.942         | 0.980       | 667.231   | .133%       | 97.777%    |
| 73.0               | 10.638        | 1.076       | 668.307   | .146%       | 97.935%    |
| 74.0               | 11.334        | 1.155       | 669.462   | .157%       | 98.104%    |
| 75.0               | 11.904        | 1.228       | 670.69    | .167%       | 98.284%    |

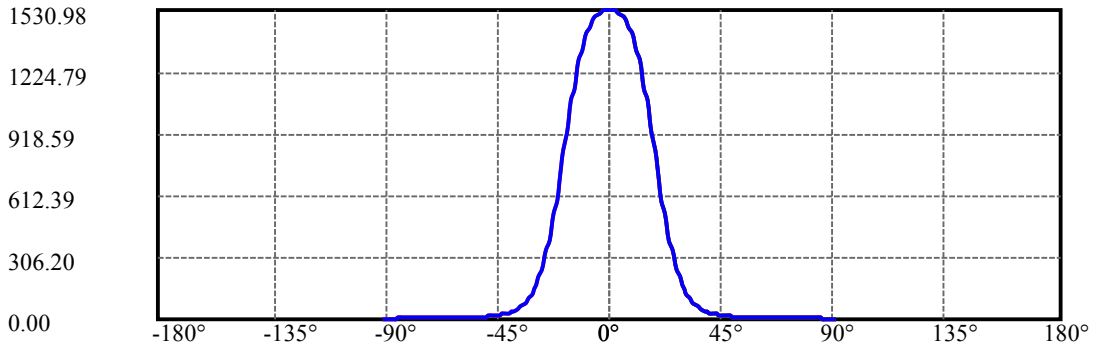
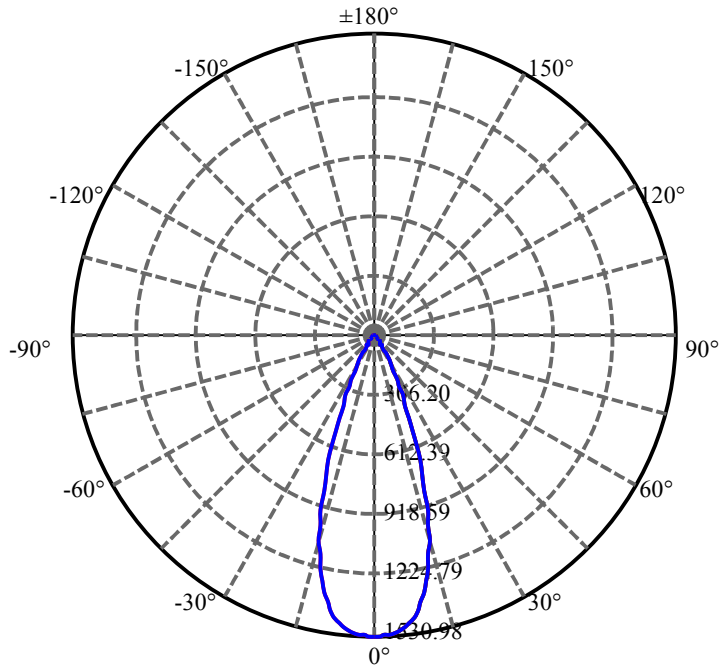
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0               | 12.241        | 1.282       | 671.971   | .174%       | 98.472%    |
| 77.0               | 12.136        | 1.300       | 673.271   | .176%       | 98.663%    |
| 78.0               | 11.552        | 1.268       | 674.539   | .172%       | 98.848%    |
| 79.0               | 10.800        | 1.201       | 675.74    | .163%       | 99.024%    |
| 80.0               | 9.963         | 1.119       | 676.86    | .152%       | 99.188%    |
| 81.0               | 8.817         | 1.016       | 677.875   | .138%       | 99.337%    |
| 82.0               | 7.530         | 0.887       | 678.762   | .120%       | 99.467%    |
| 83.0               | 5.955         | 0.733       | 679.495   | .099%       | 99.575%    |
| 84.0               | 4.781         | 0.585       | 680.08    | .079%       | 99.660%    |
| 85.0               | 3.987         | 0.479       | 680.558   | .065%       | 99.730%    |
| 86.0               | 3.586         | 0.414       | 680.972   | .056%       | 99.791%    |
| 87.0               | 3.361         | 0.380       | 681.352   | .052%       | 99.847%    |
| 88.0               | 3.178         | 0.358       | 681.711   | .049%       | 99.899%    |
| 89.0               | 3.129         | 0.346       | 682.056   | .047%       | 99.950%    |
| 90.0               | 3.101         | 0.342       | 682.398   | .046%       | 100.000%   |

ZONAL LUMEN SUMMARY

| Zone    | Lumens | %Lamp  | %Fixt   |
|---------|--------|--------|---------|
| 0-30    | 590.14 | 80.03% | 86.48%  |
| 0-40    | 634.52 | 86.05% | 92.98%  |
| 0-60    | 658.91 | 89.36% | 96.56%  |
| 0-90    | 682.06 | 92.50% | 99.95%  |
| 0-120   | 682.06 | 92.50% | 99.95%  |
| 0-180   | 682.40 | 92.54% | 100.00% |
| 60-90   | 23.83  | 3.23%  | 3.49%   |
| 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%   |
| 0-25.97 | 545.92 | 74.03% | 80.00%  |

ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 139.80 |
| 10-20   | 289.29 |
| 20-30   | 161.06 |
| 30-40   | 44.38  |
| 40-50   | 15.99  |
| 50-60   | 8.40   |
| 60-70   | 6.47   |
| 70-80   | 11.48  |
| 80-90   | 5.20   |
| 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: —————

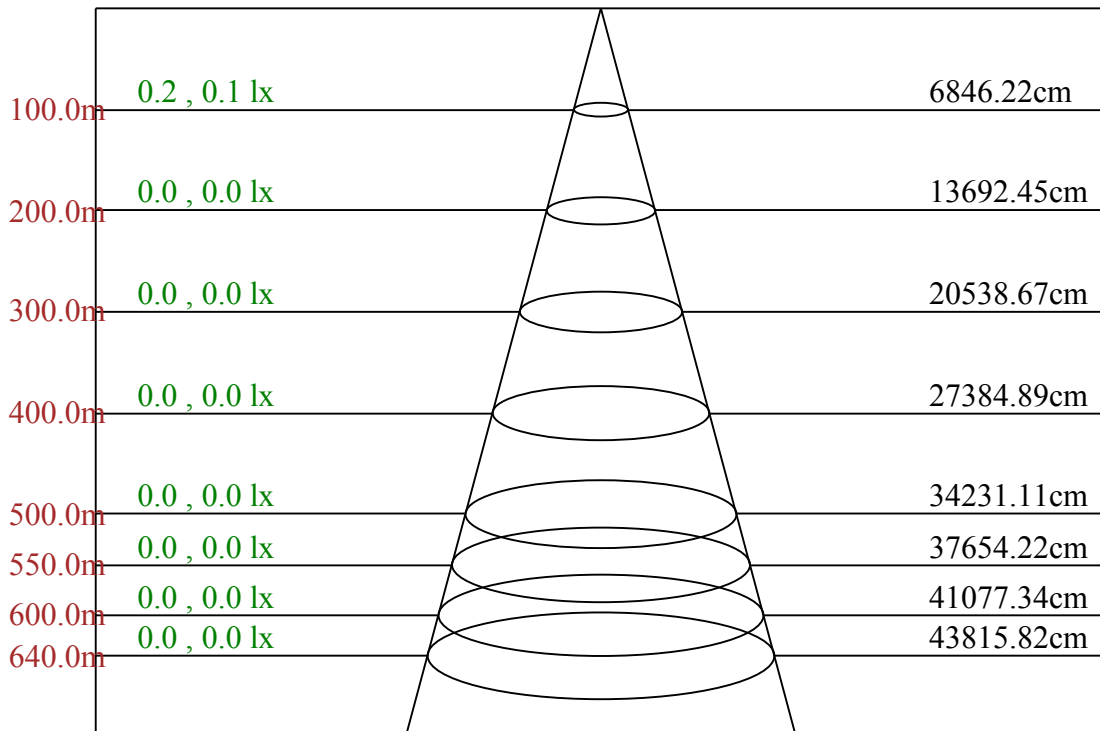
C90/C270: —————

Field angle(10%Imax):C0/180Left:29.8 Right:29.8

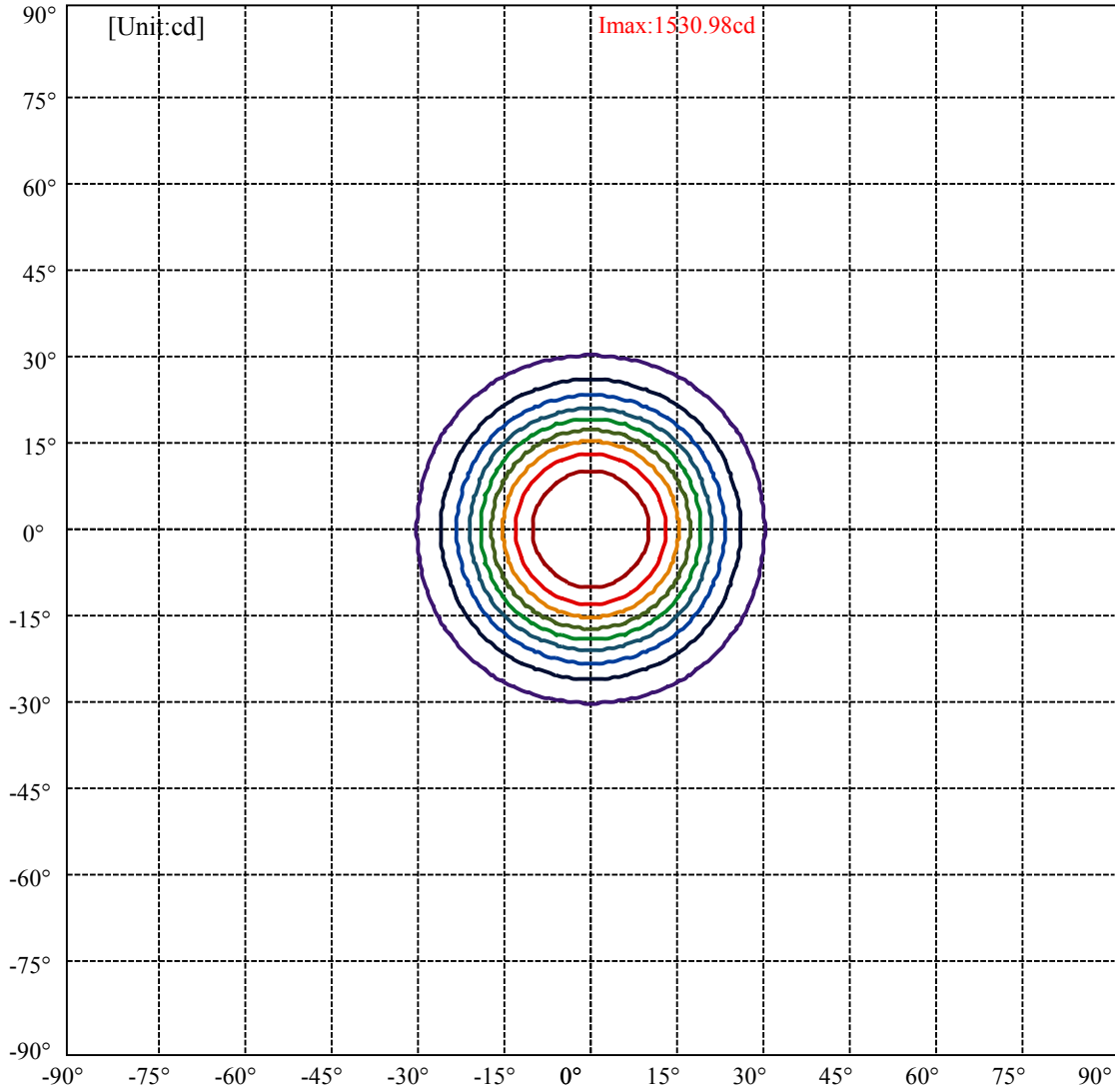
:C90/270Left:29.8 Right:29.8

Beam Angle(50%Imax):C0/180Left:18.9 Right:18.9

:C90/270Left:18.9 Right:18.9

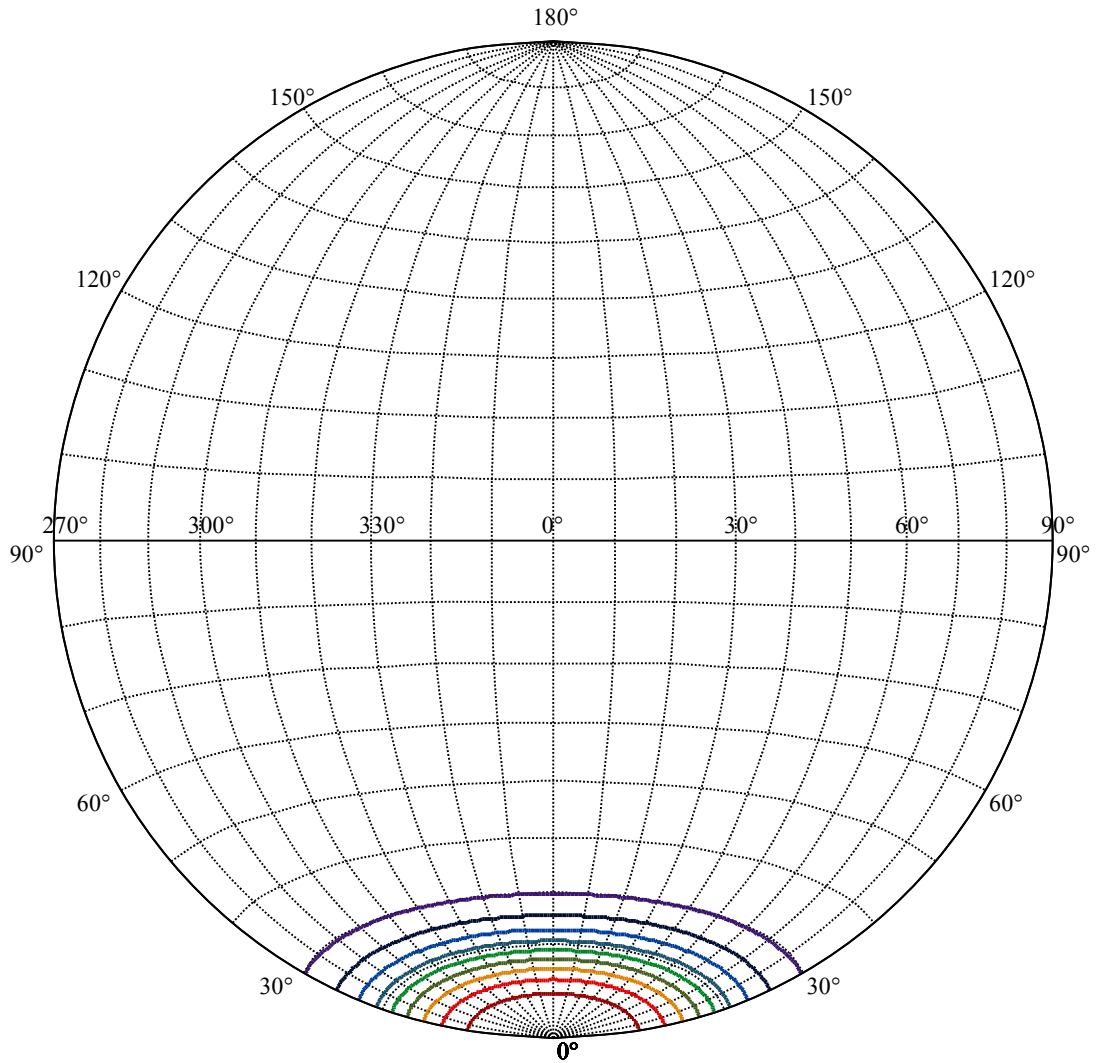


Max , Ave      Beam angle of C0 plane 37.79



|                   |   |
|-------------------|---|
| (10%Imax) 153.098 | — |
| (20%Imax) 306.197 | — |
| (30%Imax) 459.295 | — |
| (40%Imax) 612.394 | — |
| (50%Imax) 765.492 | — |
| (60%Imax) 918.591 | — |
| (70%Imax) 1071.69 | — |
| (80%Imax) 1224.79 | — |
| (90%Imax) 1377.89 | — |





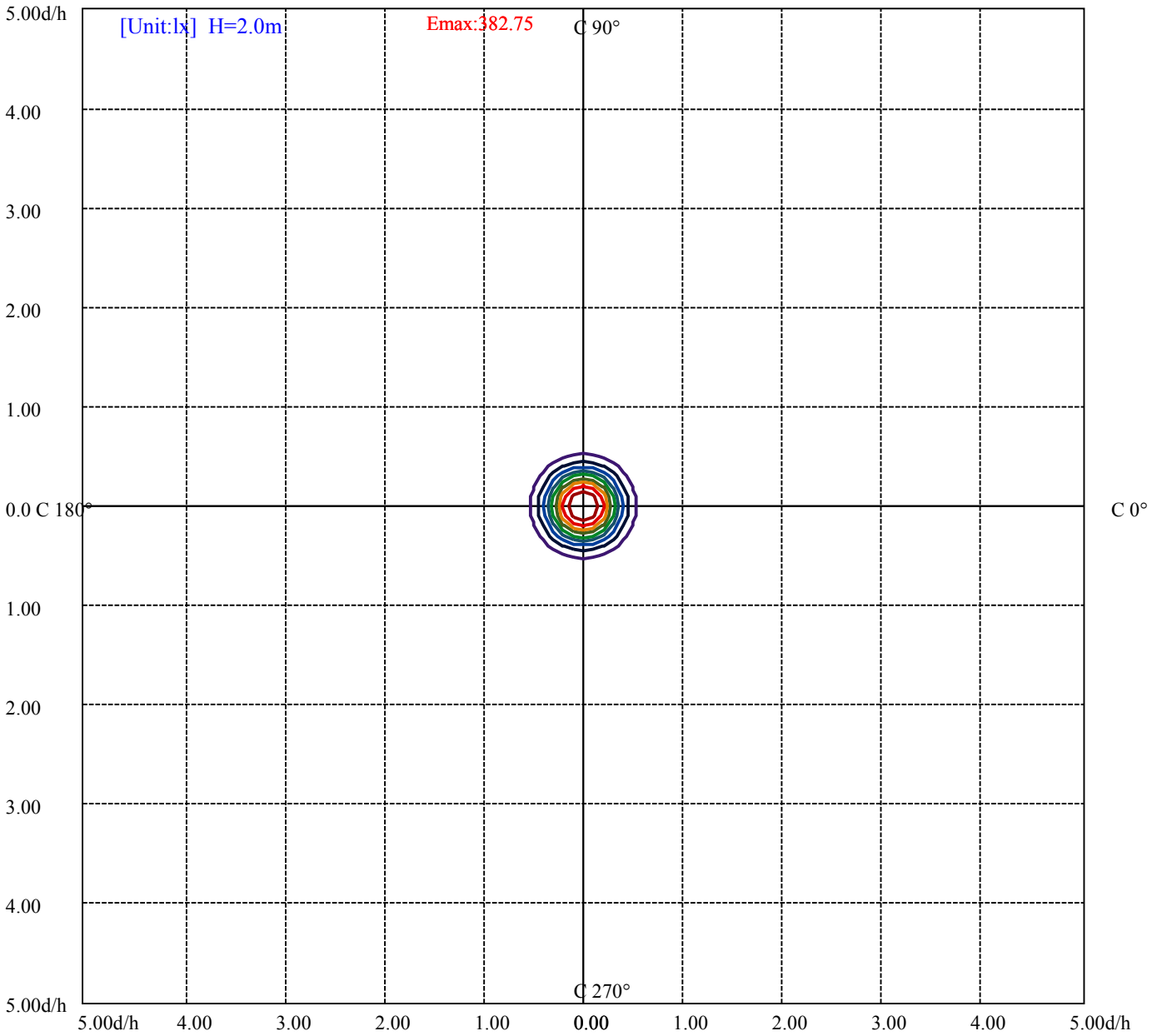
House

[Unit:cd]

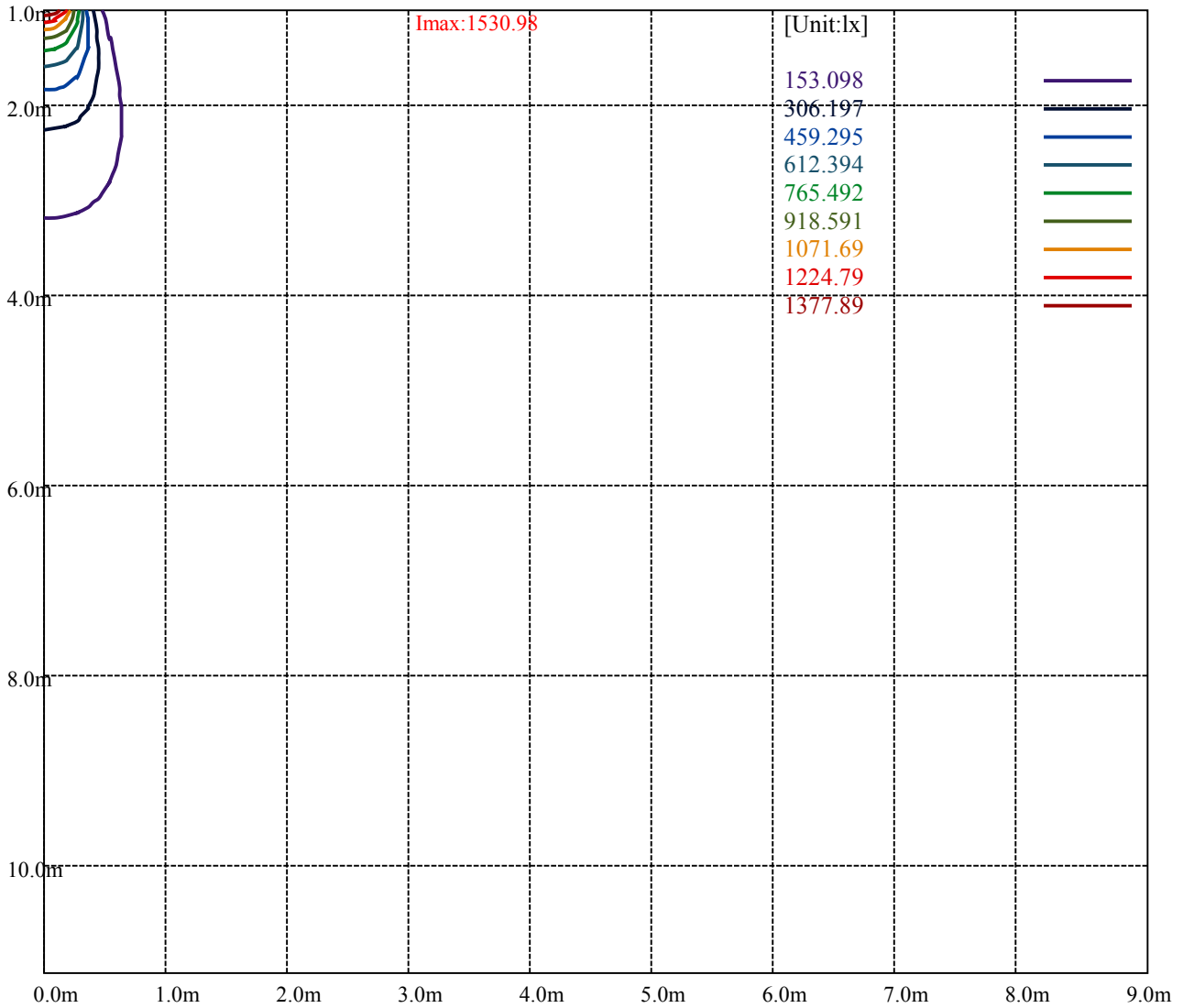
Road

**Imax:1530.98**

|                   |   |
|-------------------|---|
| (10%Imax) 153.098 | — |
| (20%Imax) 306.197 | — |
| (30%Imax) 459.295 | — |
| (40%Imax) 612.394 | — |
| (50%Imax) 765.492 | — |
| (60%Imax) 918.591 | — |
| (70%Imax) 1071.69 | — |
| (80%Imax) 1224.79 | — |
| (90%Imax) 1377.89 | — |



|                    |   |
|--------------------|---|
| (10%Emax) 38.2745  | — |
| (20%Emax) 76.54925 | — |
| (30%Emax) 114.8238 | — |
| (40%Emax) 153.0985 | — |
| (50%Emax) 191.373  | — |
| (60%Emax) 229.6478 | — |
| (70%Emax) 267.9225 | — |
| (80%Emax) 306.1975 | — |
| (90%Emax) 344.4725 | — |



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  |

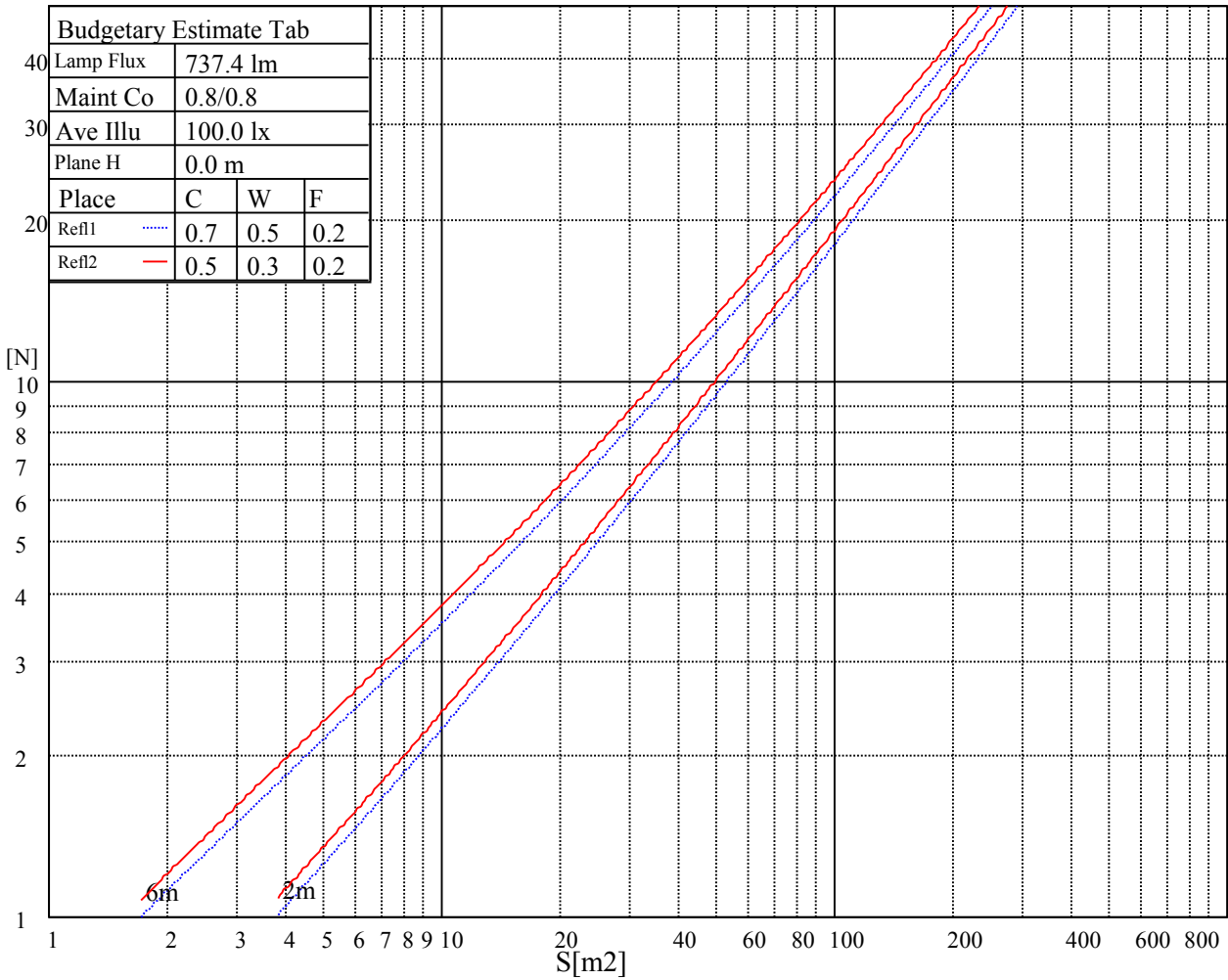
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 0          | 0          | 0       | 0          | 0          | 0       | 0     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

Glare Table

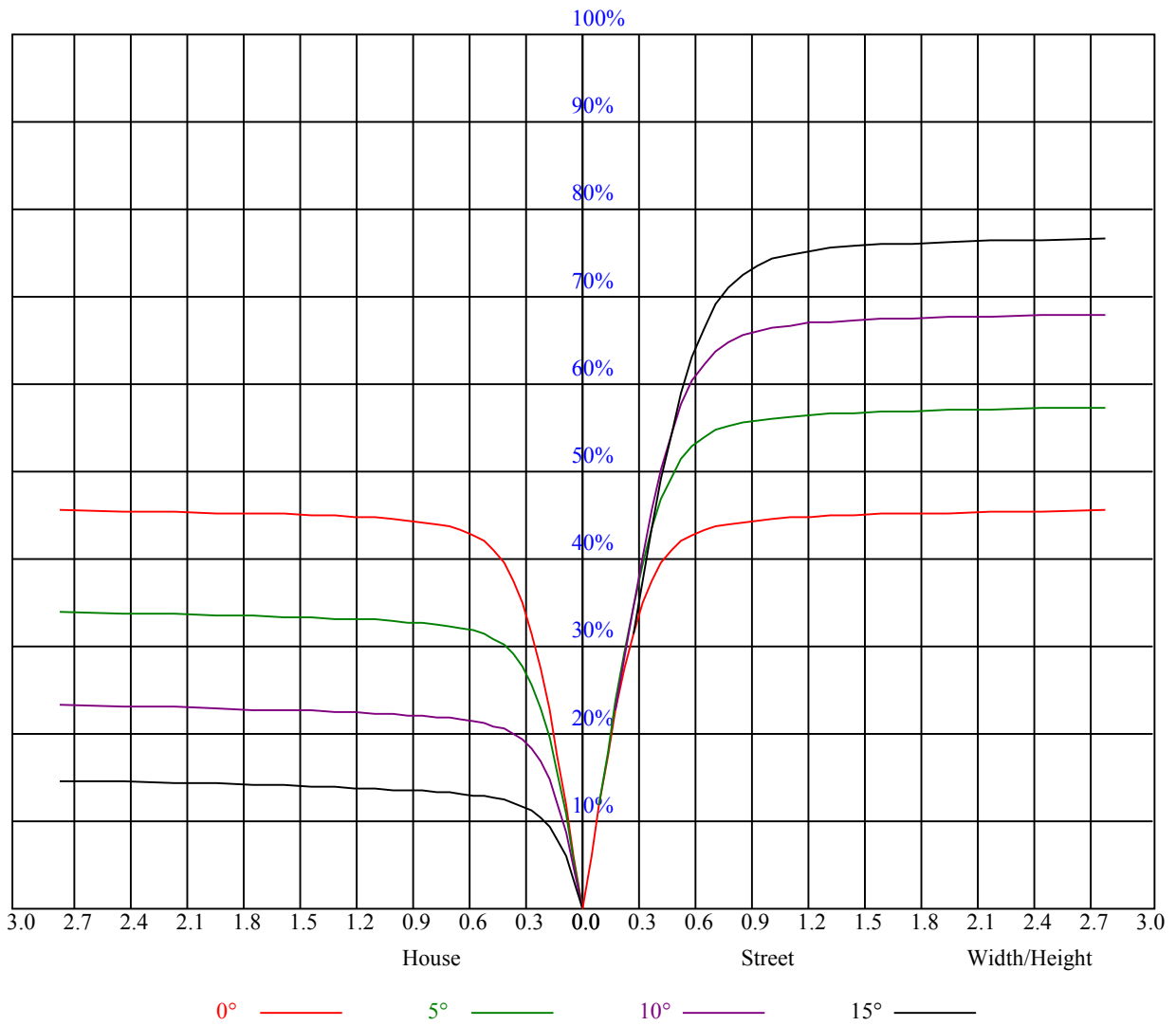
| Glare | Quality | Service Values Illuminance(lx) |      |      |       |       |       |       |       |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15  | A       | 2000                           | 1000 | 500  | <=300 |       |       |       |       |
| 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





| 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     | 1.10                                    | 1.10 | 1.10 | 1.08 | 1.08 | 1.08 | 1.03 | 1.03 | 1.03 | 0.98 | 0.98 | 0.98 | 0.94 | 0.94 | 0.94 | 0.93 |
| 1     | 1.03                                    | 1.00 | 0.98 | 1.01 | 0.99 | 0.97 | 0.97 | 0.95 | 0.94 | 0.94 | 0.92 | 0.91 | 0.90 | 0.89 | 0.88 | 0.87 |
| 2     | 0.96                                    | 0.93 | 0.90 | 0.95 | 0.92 | 0.89 | 0.92 | 0.89 | 0.87 | 0.89 | 0.87 | 0.85 | 0.87 | 0.85 | 0.83 | 0.82 |
| 3     | 0.91                                    | 0.87 | 0.84 | 0.90 | 0.86 | 0.83 | 0.87 | 0.84 | 0.82 | 0.85 | 0.83 | 0.80 | 0.83 | 0.81 | 0.79 | 0.78 |
| 4     | 0.86                                    | 0.82 | 0.78 | 0.85 | 0.81 | 0.78 | 0.83 | 0.80 | 0.77 | 0.82 | 0.79 | 0.76 | 0.80 | 0.77 | 0.75 | 0.74 |
| 5     | 0.82                                    | 0.78 | 0.74 | 0.81 | 0.77 | 0.74 | 0.80 | 0.76 | 0.73 | 0.78 | 0.75 | 0.72 | 0.77 | 0.74 | 0.72 | 0.71 |
| 6     | 0.78                                    | 0.74 | 0.70 | 0.78 | 0.73 | 0.70 | 0.76 | 0.73 | 0.70 | 0.75 | 0.72 | 0.69 | 0.74 | 0.71 | 0.69 | 0.68 |
| 7     | 0.75                                    | 0.70 | 0.67 | 0.75 | 0.70 | 0.67 | 0.73 | 0.69 | 0.66 | 0.72 | 0.69 | 0.66 | 0.71 | 0.68 | 0.66 | 0.65 |
| 8     | 0.72                                    | 0.67 | 0.64 | 0.71 | 0.67 | 0.64 | 0.71 | 0.67 | 0.64 | 0.70 | 0.66 | 0.63 | 0.69 | 0.66 | 0.63 | 0.62 |
| 9     | 0.69                                    | 0.64 | 0.61 | 0.69 | 0.64 | 0.61 | 0.68 | 0.64 | 0.61 | 0.67 | 0.63 | 0.61 | 0.66 | 0.63 | 0.61 | 0.60 |
| 10    | 0.66                                    | 0.62 | 0.59 | 0.66 | 0.62 | 0.59 | 0.65 | 0.61 | 0.59 | 0.65 | 0.61 | 0.59 | 0.64 | 0.61 | 0.58 | 0.57 |



Intensity data(cd)

|        |         |         |         |         |         |         |         |         |         |
|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| C/γ(°) | 0.0     | 1.0     | 2.0     | 3.0     | 4.0     | 5.0     | 6.0     | 7.0     | 8.0     |
| 0.0    | 1539.56 | 1528.31 | 1514.81 | 1504.69 | 1491.19 | 1474.31 | 1458.00 | 1432.13 | 1409.63 |
| 45.0   | 1526.06 | 1515.38 | 1503.00 | 1492.88 | 1485.56 | 1469.25 | 1456.31 | 1441.13 | 1419.19 |
| 90.0   | 1527.75 | 1521.00 | 1515.94 | 1506.94 | 1495.13 | 1481.06 | 1463.06 | 1437.75 | 1414.13 |
| 135.0  | 1530.56 | 1534.50 | 1536.75 | 1534.50 | 1529.44 | 1521.00 | 1510.88 | 1491.19 | 1468.13 |
| 180.0  | 1539.56 | 1545.19 | 1549.69 | 1554.75 | 1552.50 | 1546.88 | 1532.81 | 1511.44 | 1487.81 |
| 225.0  | 1526.06 | 1532.81 | 1540.69 | 1548.00 | 1546.31 | 1546.31 | 1542.94 | 1530.00 | 1504.13 |
| 270.0  | 1527.75 | 1528.88 | 1532.25 | 1532.25 | 1530.00 | 1518.75 | 1509.19 | 1492.31 | 1469.81 |
| 315.0  | 1530.56 | 1526.06 | 1517.06 | 1504.13 | 1491.75 | 1477.69 | 1458.56 | 1437.19 | 1410.75 |
| 360.0  | 1539.56 | 1528.31 | 1514.81 | 1504.69 | 1491.19 | 1474.31 | 1458.00 | 1432.13 | 1409.63 |
| C/γ(°) | 9.0     | 10.0    | 11.0    | 12.0    | 13.0    | 14.0    | 15.0    | 16.0    | 17.0    |
| 0.0    | 1380.38 | 1343.25 | 1307.25 | 1269.56 | 1211.63 | 1162.69 | 1112.06 | 1038.94 | 974.25  |
| 45.0   | 1393.88 | 1366.31 | 1326.94 | 1285.88 | 1231.88 | 1170.56 | 1113.75 | 1041.19 | 965.81  |
| 90.0   | 1378.69 | 1336.50 | 1294.31 | 1240.88 | 1185.19 | 1115.49 | 1039.05 | 967.56  | 890.55  |
| 135.0  | 1436.06 | 1391.06 | 1343.81 | 1289.25 | 1211.63 | 1142.44 | 1068.19 | 968.06  | 887.06  |
| 180.0  | 1446.19 | 1398.94 | 1347.75 | 1283.63 | 1217.81 | 1115.04 | 1045.29 | 961.88  | 875.08  |
| 225.0  | 1472.06 | 1427.06 | 1372.50 | 1313.44 | 1249.31 | 1120.44 | 1079.66 | 996.47  | 910.41  |
| 270.0  | 1442.25 | 1407.94 | 1365.19 | 1314.00 | 1262.25 | 1197.00 | 1135.13 | 1053.56 | 965.25  |
| 315.0  | 1375.31 | 1333.13 | 1294.31 | 1239.75 | 1188.56 | 1116.17 | 1046.59 | 987.69  | 918.84  |
| 360.0  | 1380.38 | 1343.25 | 1307.25 | 1269.56 | 1211.63 | 1162.69 | 1112.06 | 1038.94 | 974.25  |
| C/γ(°) | 18.0    | 19.0    | 20.0    | 21.0    | 22.0    | 23.0    | 24.0    | 25.0    | 26.0    |
| 0.0    | 905.63  | 827.44  | 745.31  | 674.44  | 597.38  | 523.69  | 464.06  | 400.50  | 348.19  |
| 45.0   | 891.56  | 816.19  | 722.25  | 648.56  | 578.81  | 506.81  | 438.75  | 384.19  | 326.25  |
| 90.0   | 792.68  | 714.43  | 637.99  | 549.17  | 484.14  | 424.74  | 364.50  | 310.95  | 268.99  |
| 135.0  | 803.81  | 714.38  | 630.56  | 560.81  | 486.00  | 425.81  | 361.69  | 306.00  | 287.44  |
| 180.0  | 767.03  | 685.01  | 606.94  | 516.83  | 450.62  | 390.99  | 336.60  | 277.54  | 236.76  |
| 225.0  | 805.61  | 722.42  | 643.28  | 552.09  | 483.58  | 420.36  | 356.74  | 301.50  | 253.01  |
| 270.0  | 885.94  | 815.63  | 705.38  | 629.44  | 567.56  | 477.56  | 419.06  | 371.81  | 310.50  |
| 315.0  | 820.13  | 756.45  | 686.59  | 593.04  | 536.46  | 475.76  | 412.82  | 355.73  | 309.66  |
| 360.0  | 905.63  | 827.44  | 745.31  | 674.44  | 597.38  | 523.69  | 464.06  | 400.50  | 348.19  |
| C/γ(°) | 27.0    | 28.0    | 29.0    | 30.0    | 31.0    | 32.0    | 33.0    | 34.0    | 35.0    |
| 0.0    | 295.31  | 285.19  | 215.49  | 185.91  | 154.18  | 132.08  | 113.12  | 93.09   | 79.65   |
| 45.0   | 284.06  | 236.14  | 198.28  | 168.98  | 140.79  | 117.51  | 100.74  | 84.04   | 70.76   |
| 90.0   | 227.93  | 191.42  | 163.41  | 135.96  | 115.37  | 95.74   | 79.99   | 68.57   | 59.23   |
| 135.0  | 216.28  | 180.00  | 153.23  | 128.98  | 105.02  | 89.72   | 77.40   | 65.36   | 56.81   |
| 180.0  | 201.77  | 168.02  | 138.94  | 114.81  | 97.48   | 81.51   | 69.92   | 59.96   | 52.88   |
| 225.0  | 214.43  | 181.58  | 151.26  | 125.33  | 106.20  | 88.54   | 73.91   | 63.17   | 54.68   |
| 270.0  | 288.56  | 224.27  | 188.94  | 162.06  | 135.39  | 112.95  | 96.13   | 80.38   | 67.33   |
| 315.0  | 262.24  | 226.46  | 191.81  | 162.00  | 138.88  | 117.00  | 98.27   | 84.15   | 72.23   |
| 360.0  | 295.31  | 285.19  | 215.49  | 185.91  | 154.18  | 132.08  | 113.12  | 93.09   | 79.65   |
| C/γ(°) | 36.0    | 37.0    | 38.0    | 39.0    | 40.0    | 41.0    | 42.0    | 43.0    | 44.0    |
| 0.0    | 68.18   | 57.66   | 49.28   | 43.31   | 37.80   | 33.86   | 30.04   | 26.94   | 24.36   |
| 45.0   | 61.03   | 53.04   | 45.06   | 39.83   | 35.55   | 31.33   | 27.79   | 25.26   | 22.78   |
| 90.0   | 49.89   | 44.16   | 39.32   | 34.54   | 31.28   | 28.29   | 25.48   | 23.12   | 21.21   |
| 135.0  | 50.01   | 44.72   | 38.93   | 35.04   | 31.89   | 28.52   | 25.71   | 23.40   | 21.26   |
| 180.0  | 46.29   | 40.95   | 36.90   | 32.91   | 29.36   | 26.66   | 24.24   | 21.71   | 19.91   |
| 225.0  | 46.29   | 41.18   | 36.73   | 32.06   | 28.97   | 26.33   | 23.68   | 21.32   | 19.52   |
| 270.0  | 58.05   | 50.68   | 43.09   | 38.48   | 34.59   | 30.88   | 27.73   | 25.20   | 22.89   |
| 315.0  | 60.30   | 52.71   | 46.29   | 39.71   | 35.44   | 31.84   | 28.46   | 25.54   | 23.23   |
| 360.0  | 68.18   | 57.66   | 49.28   | 43.31   | 37.80   | 33.86   | 30.04   | 26.94   | 24.36   |



Intensity data(cd)

|        |       |       |       |       |       |       |       |       |       |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C/γ(°) | 45.0  | 46.0  | 47.0  | 48.0  | 49.0  | 50.0  | 51.0  | 52.0  | 53.0  |
| 0.0    | 22.11 | 19.97 | 18.34 | 16.88 | 15.24 | 14.06 | 12.99 | 12.15 | 11.08 |
| 45.0   | 20.64 | 19.07 | 17.33 | 15.98 | 14.74 | 13.67 | 12.60 | 11.76 | 10.74 |
| 90.0   | 19.29 | 17.78 | 16.26 | 14.91 | 13.84 | 12.77 | 11.81 | 11.03 | 10.41 |
| 135.0  | 19.24 | 17.72 | 16.14 | 14.85 | 13.84 | 12.66 | 11.76 | 11.08 | 10.18 |
| 180.0  | 18.34 | 16.59 | 15.19 | 14.01 | 12.83 | 11.81 | 10.97 | 10.24 | 9.62  |
| 225.0  | 17.61 | 16.14 | 14.68 | 13.50 | 12.49 | 11.48 | 10.58 | 9.96  | 9.34  |
| 270.0  | 20.81 | 19.18 | 17.44 | 16.09 | 14.74 | 13.56 | 12.54 | 11.76 | 10.74 |
| 315.0  | 21.21 | 19.13 | 17.33 | 15.92 | 14.51 | 13.33 | 12.32 | 11.36 | 10.58 |
| 360.0  | 22.11 | 19.97 | 18.34 | 16.88 | 15.24 | 14.06 | 12.99 | 12.15 | 11.08 |
| C/γ(°) | 54.0  | 55.0  | 56.0  | 57.0  | 58.0  | 59.0  | 60.0  | 61.0  | 62.0  |
| 0.0    | 10.35 | 9.73  | 9.11  | 8.66  | 8.21  | 7.82  | 7.43  | 7.14  | 6.86  |
| 45.0   | 10.13 | 9.51  | 8.83  | 8.38  | 7.99  | 7.65  | 7.31  | 7.03  | 6.86  |
| 90.0   | 9.56  | 9.06  | 8.61  | 8.10  | 7.71  | 7.43  | 7.09  | 6.81  | 6.64  |
| 135.0  | 9.62  | 9.17  | 8.49  | 8.16  | 7.82  | 7.48  | 7.14  | 6.92  | 6.64  |
| 180.0  | 9.06  | 8.49  | 8.10  | 7.76  | 7.37  | 7.14  | 6.86  | 6.58  | 6.36  |
| 225.0  | 8.66  | 8.21  | 7.82  | 7.43  | 7.09  | 6.86  | 6.58  | 6.41  | 6.24  |
| 270.0  | 10.13 | 9.51  | 8.89  | 8.38  | 7.99  | 7.59  | 7.20  | 6.92  | 6.69  |
| 315.0  | 9.90  | 9.28  | 8.72  | 8.27  | 7.88  | 7.48  | 7.20  | 6.92  | 6.64  |
| 360.0  | 10.35 | 9.73  | 9.11  | 8.66  | 8.21  | 7.82  | 7.43  | 7.14  | 6.86  |
| C/γ(°) | 63.0  | 64.0  | 65.0  | 66.0  | 67.0  | 68.0  | 69.0  | 70.0  | 71.0  |
| 0.0    | 6.69  | 6.41  | 6.19  | 6.13  | 5.96  | 5.85  | 5.68  | 5.57  | 5.40  |
| 45.0   | 6.58  | 6.41  | 6.30  | 6.13  | 6.86  | 8.27  | 11.19 | 14.51 | 18.68 |
| 90.0   | 6.36  | 6.19  | 6.02  | 5.79  | 5.68  | 5.51  | 5.29  | 5.18  | 5.12  |
| 135.0  | 6.36  | 6.19  | 6.02  | 5.85  | 5.74  | 5.57  | 5.46  | 5.34  | 5.18  |
| 180.0  | 6.24  | 6.02  | 5.91  | 5.74  | 5.63  | 5.51  | 5.34  | 5.23  | 5.18  |
| 225.0  | 6.08  | 5.96  | 5.91  | 6.02  | 7.14  | 9.17  | 13.33 | 17.21 | 21.32 |
| 270.0  | 6.47  | 6.24  | 6.08  | 5.91  | 5.79  | 5.63  | 5.46  | 5.34  | 5.18  |
| 315.0  | 6.41  | 6.19  | 6.02  | 5.91  | 5.74  | 5.57  | 5.46  | 5.34  | 5.18  |
| 360.0  | 6.69  | 6.41  | 6.19  | 6.13  | 5.96  | 5.85  | 5.68  | 5.57  | 5.40  |
| C/γ(°) | 72.0  | 73.0  | 74.0  | 75.0  | 76.0  | 77.0  | 78.0  | 79.0  | 80.0  |
| 0.0    | 5.29  | 5.18  | 5.12  | 5.01  | 4.95  | 4.89  | 4.78  | 4.73  | 4.61  |
| 45.0   | 23.34 | 26.55 | 29.93 | 32.68 | 34.59 | 35.83 | 34.99 | 32.46 | 29.76 |
| 90.0   | 4.95  | 4.89  | 4.78  | 4.73  | 4.67  | 4.50  | 4.39  | 4.28  | 4.11  |
| 135.0  | 5.12  | 5.01  | 5.01  | 4.89  | 4.84  | 4.73  | 4.61  | 4.50  | 4.33  |
| 180.0  | 5.12  | 5.06  | 5.01  | 4.95  | 4.84  | 4.73  | 4.61  | 4.50  | 4.33  |
| 225.0  | 25.48 | 28.41 | 30.99 | 33.19 | 34.43 | 32.96 | 29.76 | 26.94 | 23.79 |
| 270.0  | 5.12  | 5.01  | 4.89  | 4.89  | 4.78  | 4.67  | 4.56  | 4.39  | 4.28  |
| 315.0  | 5.12  | 5.01  | 4.95  | 4.89  | 4.84  | 4.78  | 4.73  | 4.61  | 4.50  |
| 360.0  | 5.29  | 5.18  | 5.12  | 5.01  | 4.95  | 4.89  | 4.78  | 4.73  | 4.61  |
| C/γ(°) | 81.0  | 82.0  | 83.0  | 84.0  | 85.0  | 86.0  | 87.0  | 88.0  | 89.0  |
| 0.0    | 4.50  | 4.39  | 4.22  | 4.11  | 3.94  | 3.71  | 3.49  | 3.32  | 3.15  |
| 45.0   | 26.21 | 23.12 | 17.33 | 10.91 | 5.85  | 4.28  | 3.88  | 3.26  | 3.15  |
| 90.0   | 3.99  | 3.83  | 3.71  | 3.54  | 3.43  | 3.26  | 3.15  | 3.04  | 3.04  |
| 135.0  | 4.28  | 4.16  | 3.99  | 3.83  | 3.66  | 3.43  | 3.32  | 3.21  | 3.21  |
| 180.0  | 4.22  | 3.99  | 3.83  | 3.66  | 3.43  | 3.26  | 3.15  | 3.09  | 3.09  |
| 225.0  | 18.90 | 12.60 | 6.64  | 4.61  | 4.16  | 3.71  | 3.21  | 3.09  | 3.04  |
| 270.0  | 4.11  | 3.94  | 3.83  | 3.66  | 3.54  | 3.38  | 3.26  | 3.09  | 3.09  |
| 315.0  | 4.33  | 4.22  | 4.11  | 3.94  | 3.88  | 3.66  | 3.43  | 3.32  | 3.26  |
| 360.0  | 4.50  | 4.39  | 4.22  | 4.11  | 3.94  | 3.71  | 3.49  | 3.32  | 3.15  |

Intensity data(cd)

|               |             |
|---------------|-------------|
| <b>C/γ(°)</b> | <b>90.0</b> |
| <b>0.0</b>    | <b>3.09</b> |
| <b>45.0</b>   | <b>3.04</b> |
| <b>90.0</b>   | <b>3.04</b> |
| <b>135.0</b>  | <b>3.26</b> |
| <b>180.0</b>  | <b>3.09</b> |
| <b>225.0</b>  | <b>3.04</b> |
| <b>270.0</b>  | <b>3.04</b> |
| <b>315.0</b>  | <b>3.21</b> |
| <b>360.0</b>  | <b>3.09</b> |