
Nata

Client:

LumCAT: 3-2115-N

Luminaire: 92.70.135.00

Report No: nata-0100

Test No: GC2018052807

LampCAT: NICHIA NFDWJ130B-V3

Lamp flux(lm): 2340.9

Number of Lamps: 1

Length(mm): 81

Phm Type: C

Voltage(V): 36.3000

Current(A): 0.4900

Power (W): 17.7380

PF: 0.0000

Ballast type: DC

Width(mm): 81

Height(mm): 0

Photometric Results

Lumens(lm): 2013.93, Efficiency(%): 86.03% , Luminous Efficacy(lm/W): 113.54

Central intensity(cd): 12420.720, Maximum intensity(cd): 12420.720

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=15.8

[C90/270]Total=15.8

Field angle(10%Imax): [C0/180]Total=43.4

[C90/270]Total=43.4

Maximum s/h(1/2): C0_180=0.27 C90_270=0.27

Maximum s/h(1/4): C0_180=0.32 C90_270=0.32

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 86.53%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.623%

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0 | 12420.724 | 11.886 | 11.886 | .508% | .590% |
| 2.0 | 11878.556 | 90.918 | 102.804 | 3.884% | 5.105% |
| 4.0 | 10262.857 | 157.007 | 259.81 | 6.707% | 12.901% |
| 6.0 | 8060.395 | 184.780 | 444.591 | 7.894% | 22.076% |
| 8.0 | 6105.755 | 186.363 | 630.954 | 7.961% | 31.330% |
| 10.0 | 4548.140 | 173.209 | 804.162 | 7.399% | 39.930% |
| 12.0 | 3564.902 | 162.552 | 966.714 | 6.944% | 48.001% |
| 14.0 | 2785.991 | 147.816 | 1114.53 | 6.315% | 55.341% |
| 16.0 | 2193.998 | 132.629 | 1247.159 | 5.666% | 61.927% |
| 18.0 | 1749.417 | 118.561 | 1365.72 | 5.065% | 67.814% |
| 20.0 | 1435.286 | 107.660 | 1473.38 | 4.599% | 73.160% |
| 22.0 | 1203.471 | 98.873 | 1572.253 | 4.224% | 78.069% |
| 24.0 | 1012.322 | 90.302 | 1662.555 | 3.858% | 82.553% |
| 26.0 | 850.752 | 81.792 | 1744.346 | 3.494% | 86.614% |
| 28.0 | 679.706 | 69.983 | 1814.33 | 2.990% | 90.089% |
| 30.0 | 500.882 | 54.925 | 1869.255 | 2.346% | 92.816% |
| 32.0 | 304.138 | 35.346 | 1904.602 | 1.510% | 94.572% |
| 34.0 | 157.537 | 19.320 | 1923.922 | .825% | 95.531% |
| 36.0 | 73.693 | 9.500 | 1933.421 | .406% | 96.003% |
| 38.0 | 44.740 | 6.041 | 1939.462 | .258% | 96.303% |
| 40.0 | 34.431 | 4.854 | 1944.316 | .207% | 96.544% |
| 42.0 | 28.175 | 4.135 | 1948.451 | .177% | 96.749% |
| 44.0 | 24.142 | 3.678 | 1952.129 | .157% | 96.931% |
| 46.0 | 21.589 | 3.406 | 1955.535 | .145% | 97.101% |
| 48.0 | 20.047 | 3.267 | 1958.802 | .140% | 97.263% |
| 50.0 | 18.884 | 3.173 | 1961.975 | .136% | 97.420% |
| 52.0 | 18.100 | 3.128 | 1965.103 | .134% | 97.576% |
| 54.0 | 17.398 | 3.087 | 1968.19 | .132% | 97.729% |
| 56.0 | 16.847 | 3.063 | 1971.253 | .131% | 97.881% |
| 58.0 | 16.421 | 3.054 | 1974.307 | .130% | 98.033% |
| 60.0 | 16.118 | 3.061 | 1977.368 | .131% | 98.185% |
| 62.0 | 16.056 | 3.109 | 1980.477 | .133% | 98.339% |
| 64.0 | 15.815 | 3.117 | 1983.595 | .133% | 98.494% |
| 66.0 | 15.161 | 3.038 | 1986.632 | .130% | 98.645% |
| 68.0 | 14.081 | 2.863 | 1989.495 | .122% | 98.787% |
| 70.0 | 13.158 | 2.712 | 1992.207 | .116% | 98.922% |
| 72.0 | 12.401 | 2.587 | 1994.794 | .111% | 99.050% |
| 74.0 | 11.892 | 2.507 | 1997.301 | .107% | 99.174% |

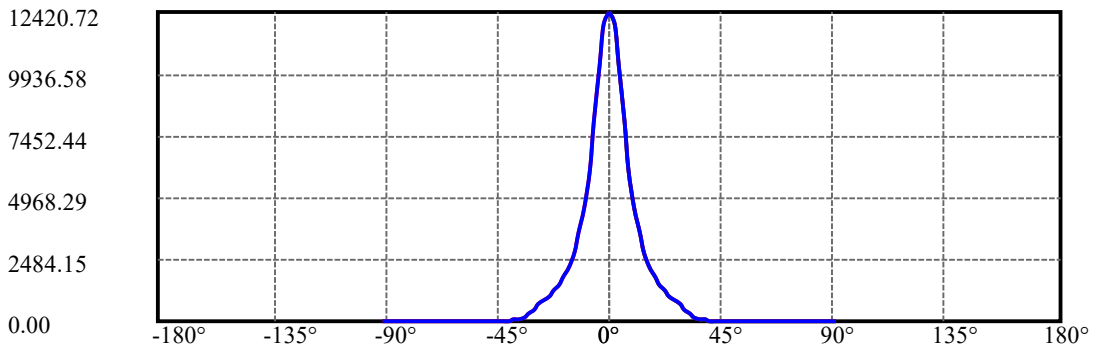
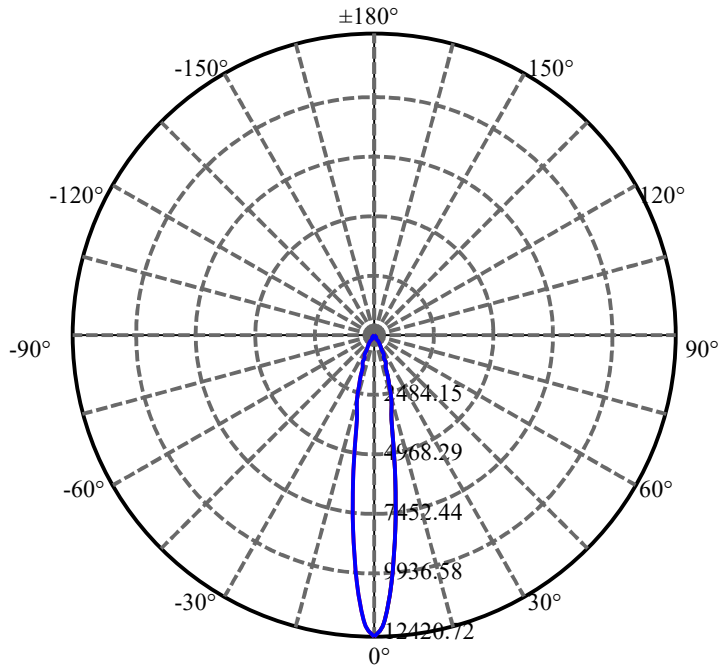
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0 | 11.472 | 2.441 | 1999.742 | .104% | 99.296% |
| 78.0 | 11.094 | 2.380 | 2002.122 | .102% | 99.414% |
| 80.0 | 10.653 | 2.301 | 2004.423 | .098% | 99.528% |
| 82.0 | 10.282 | 2.233 | 2006.656 | .095% | 99.639% |
| 84.0 | 9.931 | 2.166 | 2008.822 | .093% | 99.747% |
| 86.0 | 9.607 | 2.102 | 2010.924 | .090% | 99.851% |
| 88.0 | 9.236 | 2.024 | 2012.948 | .086% | 99.951% |
| 90.0 | 8.926 | 0.979 | 2013.927 | .042% | 100.000% |

ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|--------|---------|
| 0-30 | 1869.26 | 79.85% | 92.82% |
| 0-40 | 1944.32 | 83.06% | 96.54% |
| 0-60 | 1977.37 | 84.47% | 98.18% |
| 0-90 | 2012.95 | 85.99% | 99.95% |
| 0-120 | 2012.95 | 85.99% | 99.95% |
| 0-180 | 2013.93 | 86.03% | 100.00% |
| 60-90 | 38.64 | 1.65% | 1.92% |
| 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% |
| 0-22.86 | 1611.14 | 68.83% | 80.00% |

ZONAL LUMEN SUMMARY

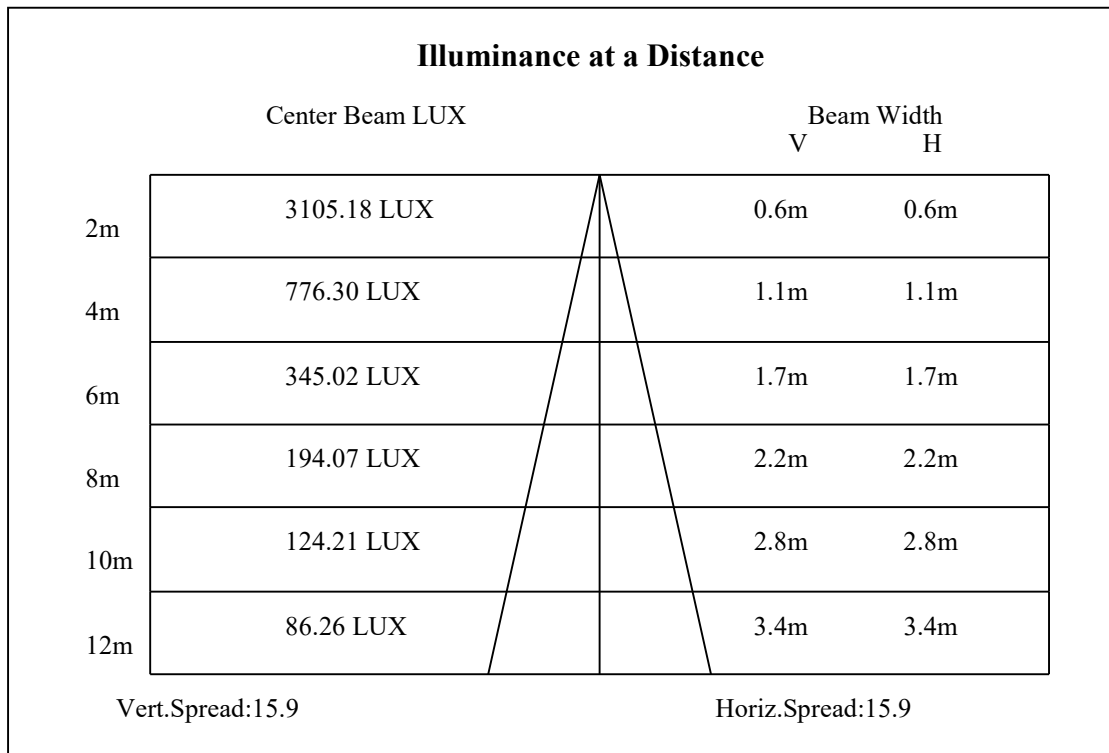
| | |
|---------|--------|
| 0-10 | 804.16 |
| 10-20 | 669.22 |
| 20-30 | 395.88 |
| 30-40 | 75.06 |
| 40-50 | 17.66 |
| 50-60 | 15.39 |
| 60-70 | 14.84 |
| 70-80 | 12.22 |
| 80-90 | 8.53 |
| 90-100 | 0.00 |
| 100-110 | 0.00 |
| 110-120 | 0.00 |
| 120-130 | 0.00 |
| 130-140 | 0.00 |
| 140-150 | 0.00 |
| 150-160 | 0.00 |
| 160-170 | 0.00 |
| 170-180 | 0.00 |

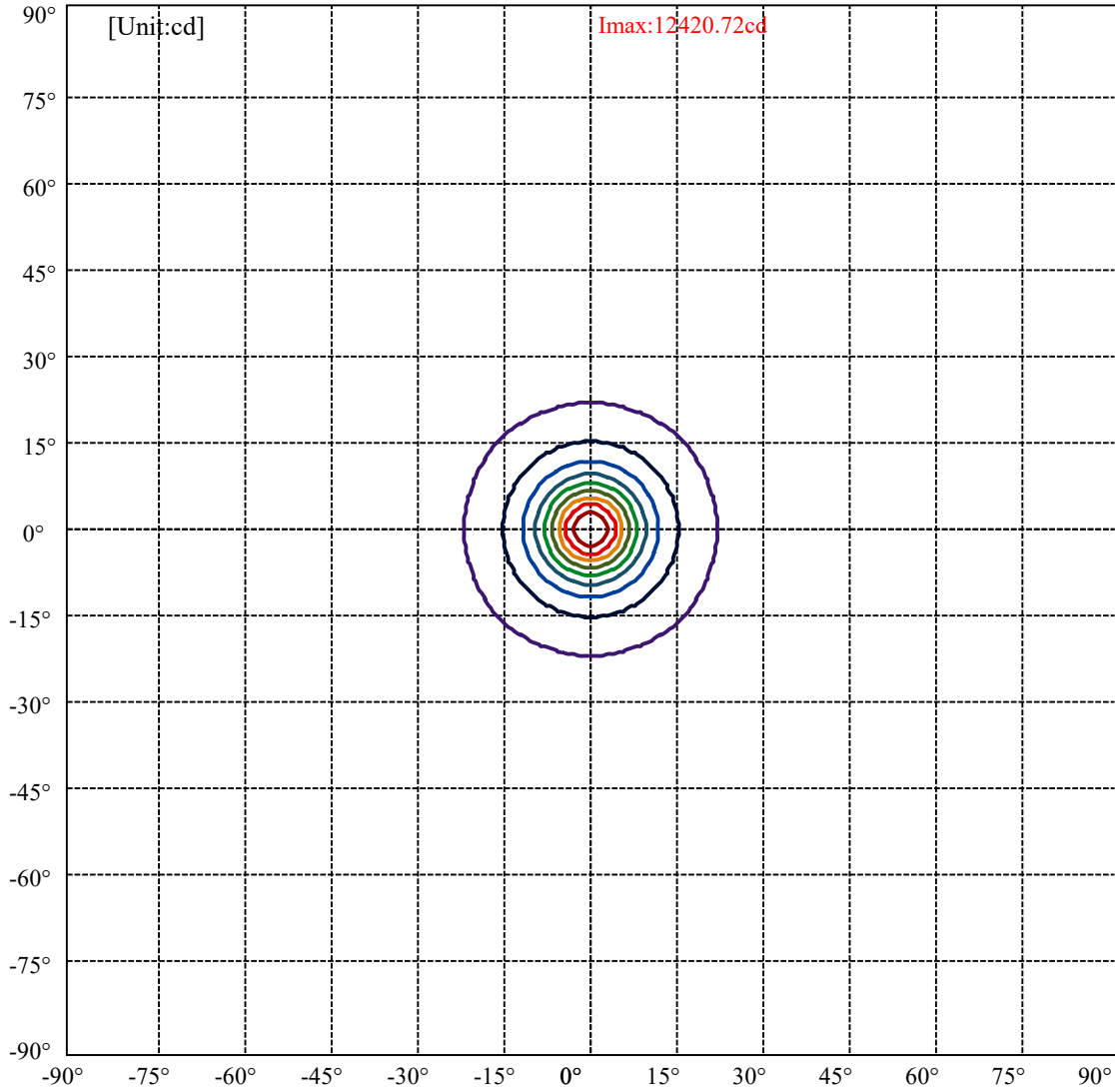


C0(Max): —————
C0/C180: —————
C90/C270: —————

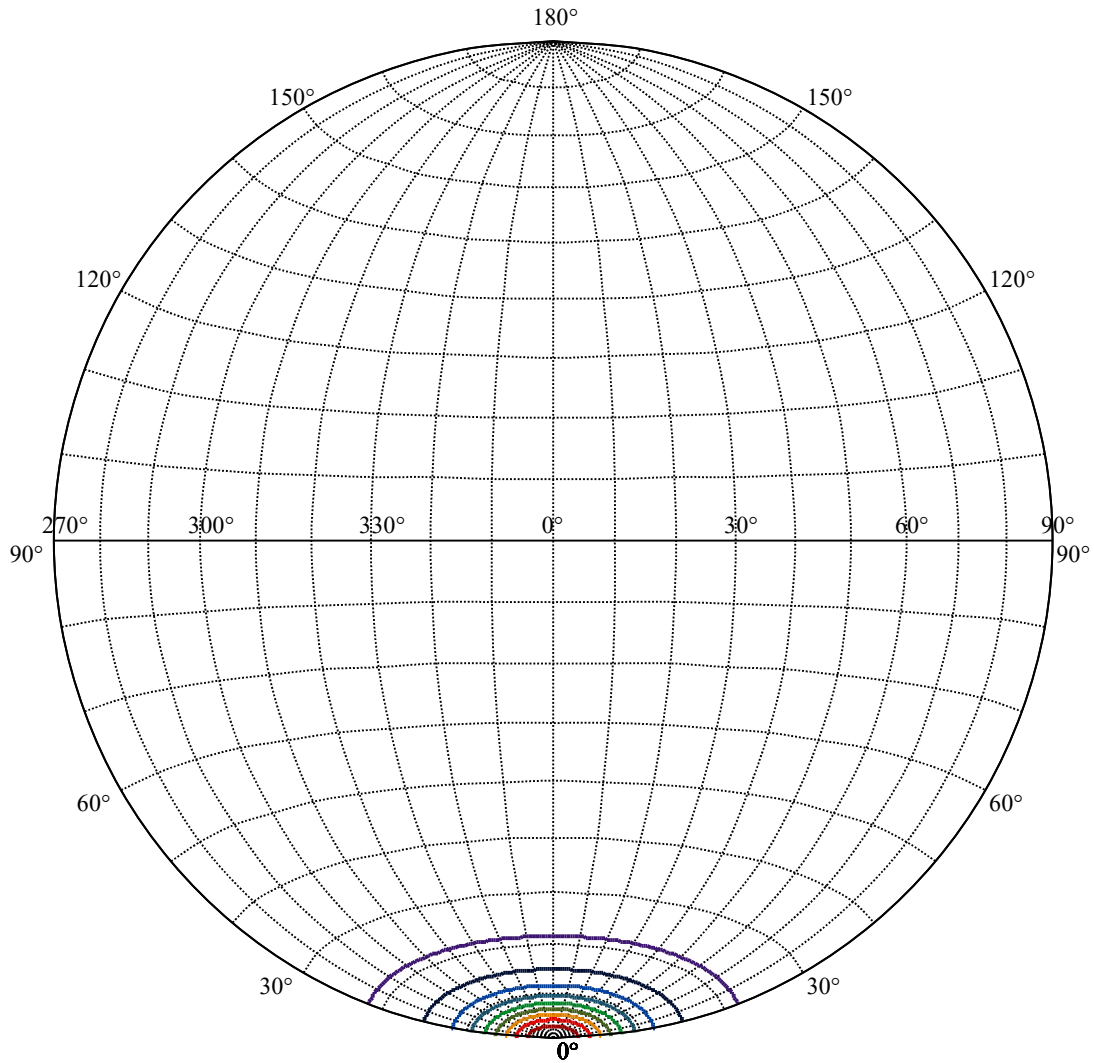
Field angle(10%Imax):C0/180Left:21.7 Right:21.7
:C90/270Left:21.7 Right:21.7

Beam Angle(50%Imax):C0/180Left:7.9 Right:7.9
:C90/270Left:7.9 Right:7.9





| | |
|-------------------|---|
| (10%Imax) 1242.07 | — |
| (20%Imax) 2484.15 | — |
| (30%Imax) 3726.22 | — |
| (40%Imax) 4968.29 | — |
| (50%Imax) 6210.36 | — |
| (60%Imax) 7452.43 | — |
| (70%Imax) 8694.51 | — |
| (80%Imax) 9936.58 | — |
| (90%Imax) 11178.7 | — |



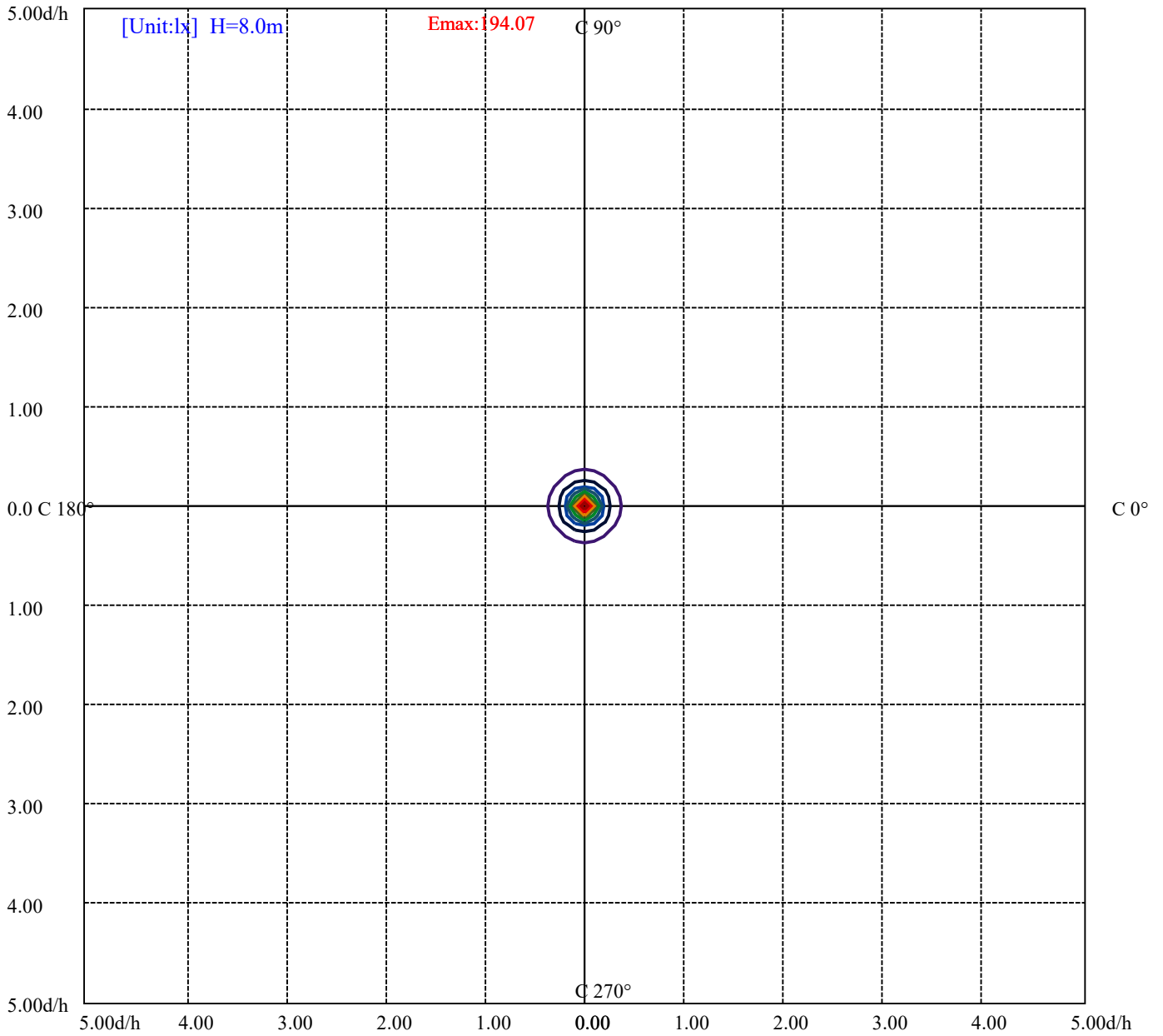
House

[Unit:cd]

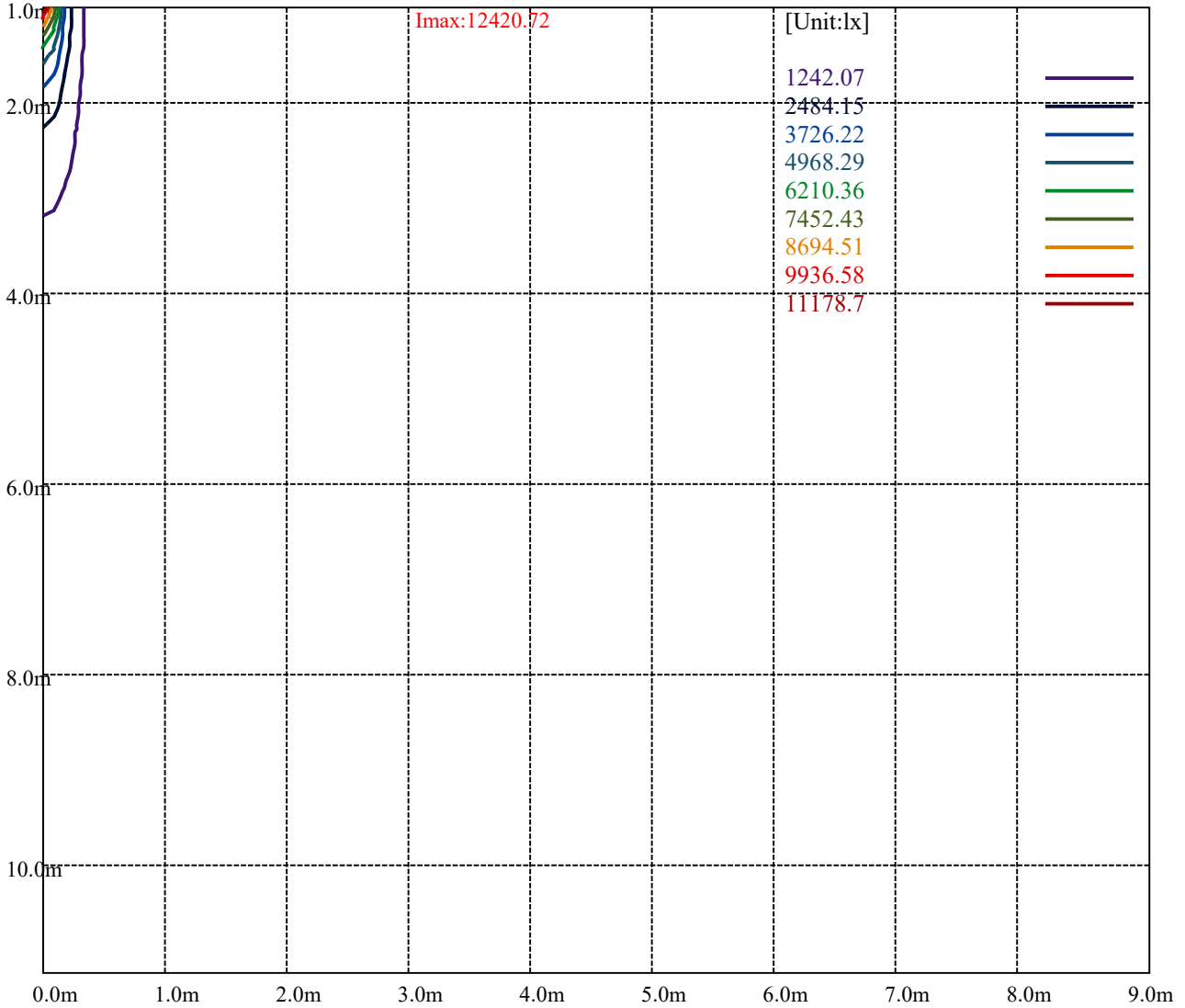
Road

Imax:12420.72

| | |
|-------------------|---|
| (10%Imax) 1242.07 | — |
| (20%Imax) 2484.15 | — |
| (30%Imax) 3726.22 | — |
| (40%Imax) 4968.29 | — |
| (50%Imax) 6210.36 | — |
| (60%Imax) 7452.43 | — |
| (70%Imax) 8694.51 | — |
| (80%Imax) 9936.58 | — |
| (90%Imax) 11178.7 | — |



- (10%E_{max}) 19.40734
- (20%E_{max}) 38.81469
- (30%E_{max}) 58.22203
- (40%E_{max}) 77.62922
- (50%E_{max}) 97.03656
- (60%E_{max}) 116.4439
- (70%E_{max}) 135.8513
- (80%E_{max}) 155.2586
- (90%E_{max}) 174.6656



Luminance Table

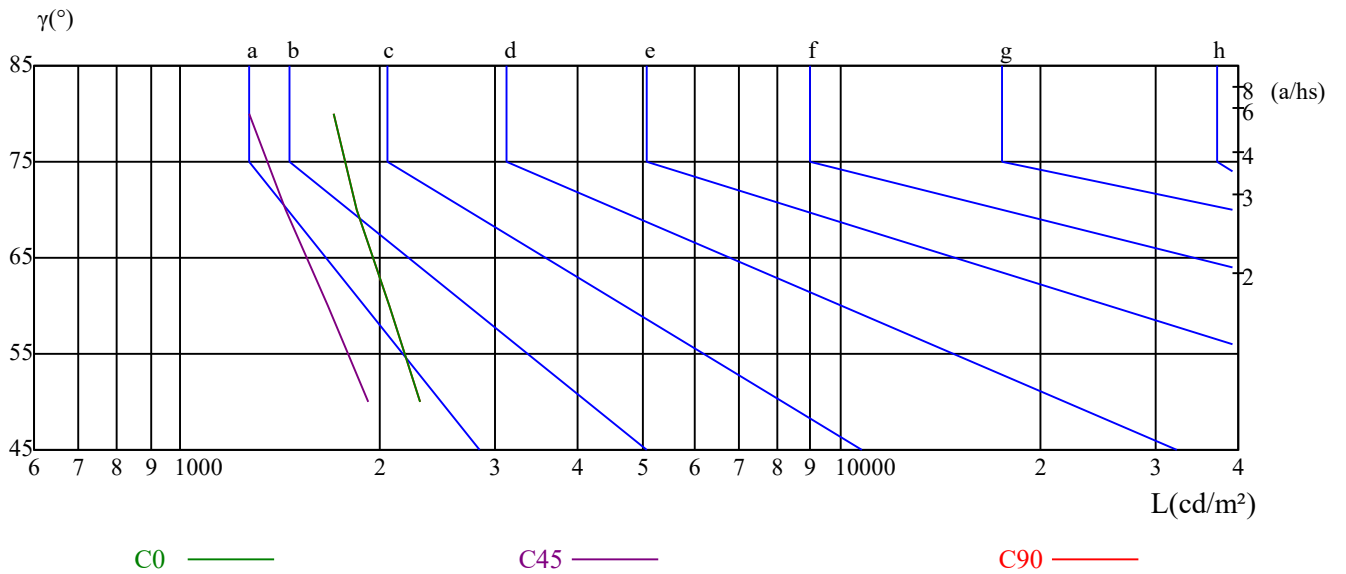
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|----|------|----|------|----|------|----|------|----|
| C0 | 0 | 2306 | 0 | 2074 | 0 | 1849 | 0 | 1706 | 0 |
| C45 | 0 | 1920 | 0 | 1674 | 0 | 1441 | 0 | 1274 | 0 |
| C90 | 0 | 2306 | 0 | 2074 | 0 | 1849 | 0 | 1706 | 0 |

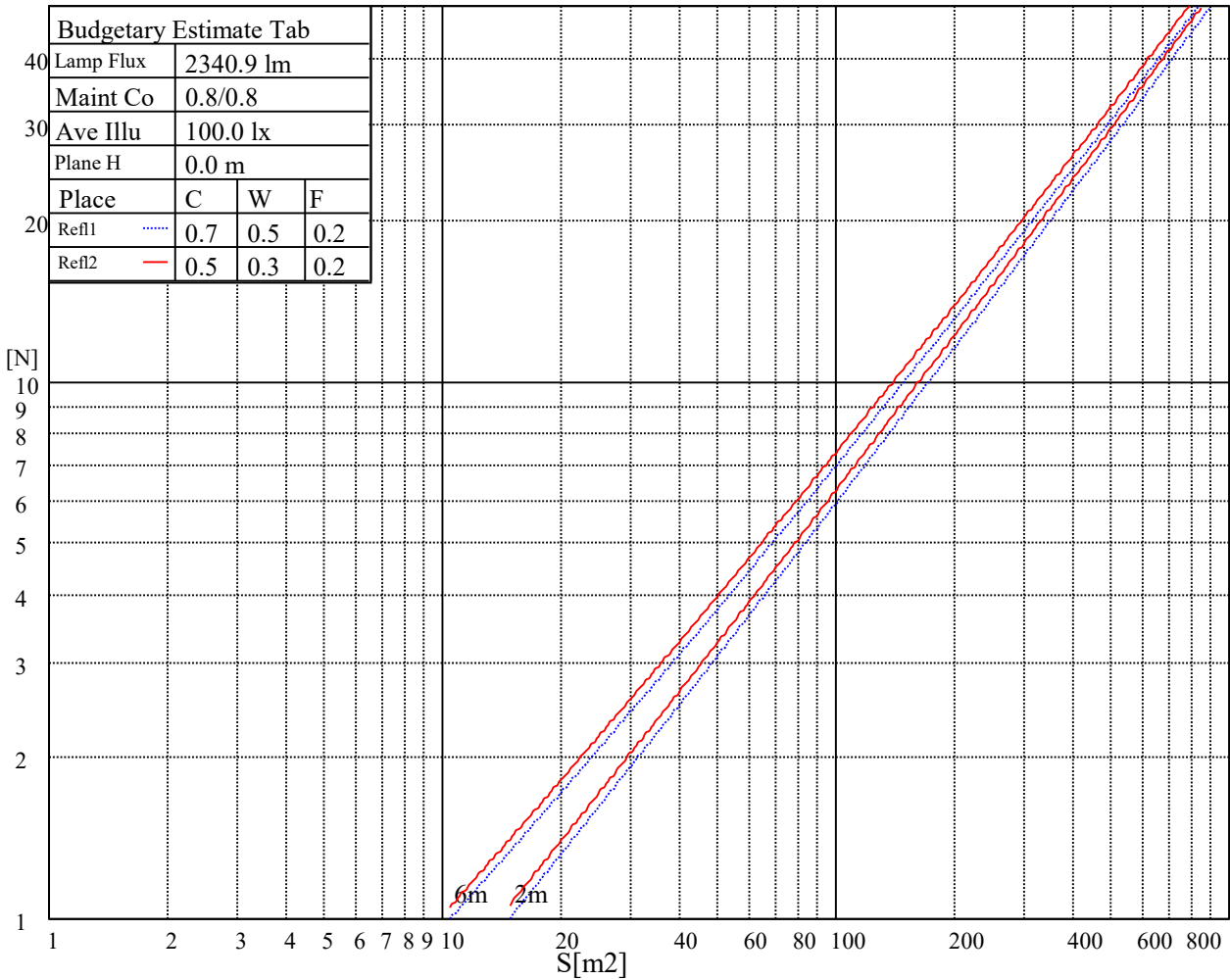
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 7148 | 7148 | 7148 | 9082 | 9082 | 9082 | 19377 | 19377 | 19377 |

Glare Table

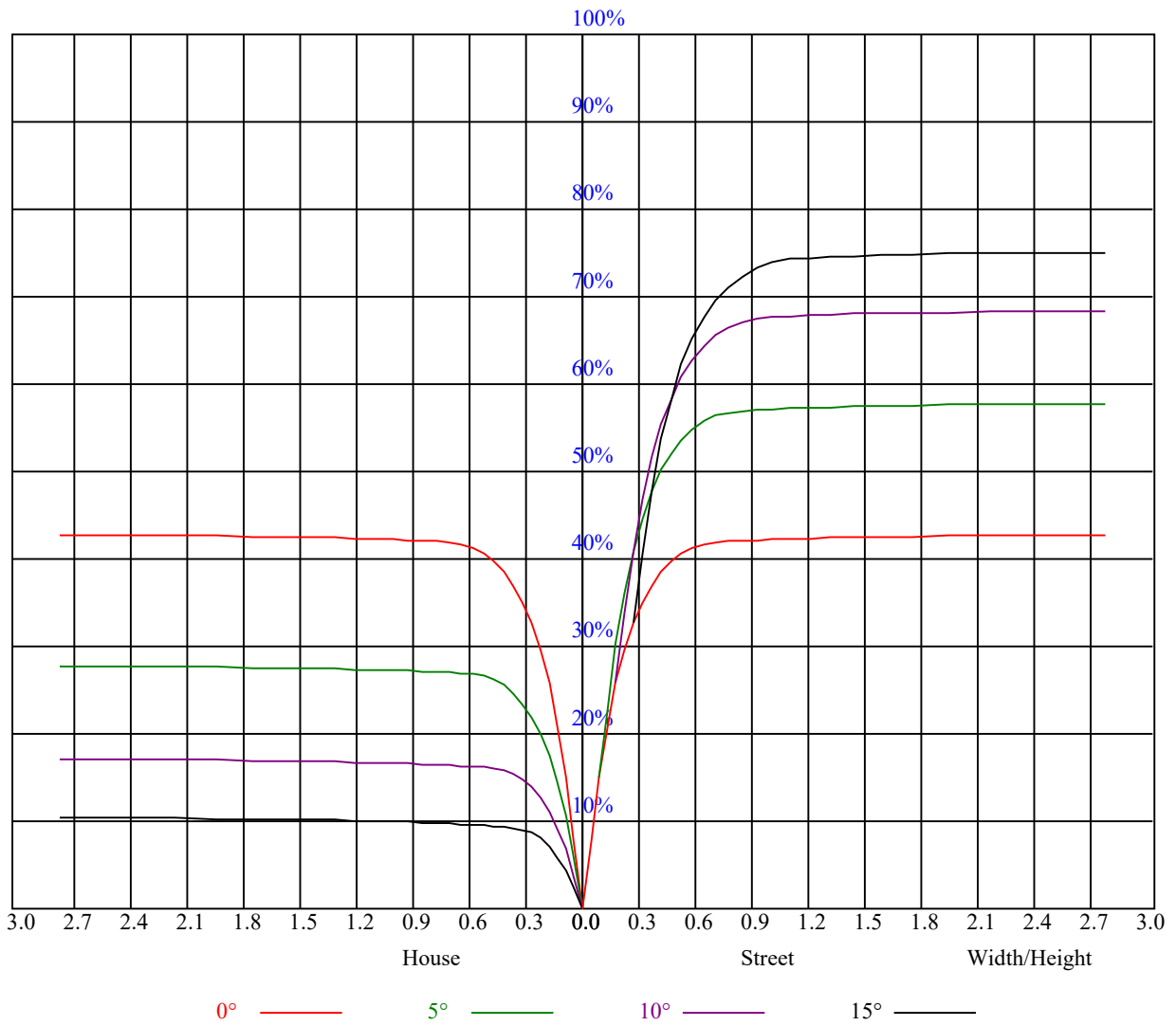
| Glare | Quality | Service Values Illuminance(lx) | | | | | | | |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15 | A | 2000 | 1000 | 500 | <=300 | | | | |
| 1.5 | B | | 2000 | 1000 | 500 | <=300 | | | |
| 1.85 | C | | | 2000 | 1000 | 500 | <=300 | | |
| 2.2 | D | | | | 2000 | 1000 | 500 | <=300 | |
| 2.55 | E | | | | | 2000 | 1000 | 500 | <=300 |
| | | a | b | c | d | e | f | g | h |

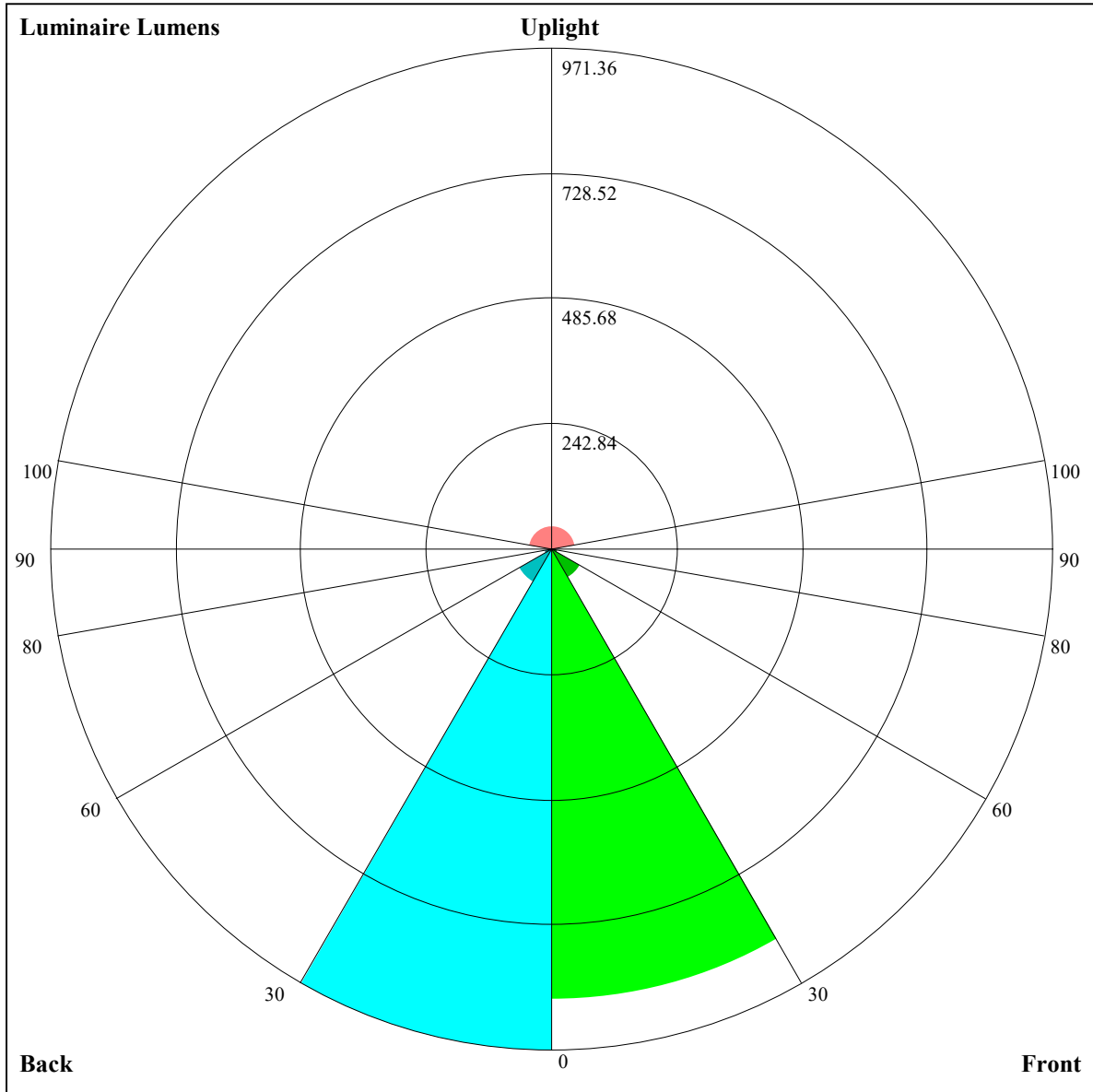
Luminance Limiting Curve





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





Luminaire Lumens:

FL=875.01,FM=64.39,FH=13.65,FVH=5.31

BL=971.36,BM=75.02,BH=13.87,BVH=5.37

UL=9.74,UH=46.34

BUG Rating:B2-U2-G0

Intensity data(cd)

| | | | | | | | | | |
|--------|----------|----------|----------|----------|---------|---------|---------|---------|---------|
| C/γ(°) | 0.0 | 2.0 | 4.0 | 6.0 | 8.0 | 10.0 | 12.0 | 14.0 | 16.0 |
| 0.0 | 12668.48 | 11947.24 | 9992.74 | 7383.06 | 5560.70 | 4206.31 | 3286.87 | 2813.38 | 2046.45 |
| 45.0 | 12277.58 | 10537.79 | 8115.31 | 5885.53 | 4514.62 | 3413.50 | 2829.90 | 2155.46 | 1753.00 |
| 90.0 | 12211.51 | 10819.68 | 8385.09 | 6262.67 | 4694.66 | 3533.52 | 2772.64 | 2135.64 | 1695.19 |
| 135.0 | 12525.33 | 11969.26 | 10234.98 | 7862.05 | 5835.98 | 4338.44 | 3380.46 | 2791.36 | 2093.79 |
| 180.0 | 12668.48 | 12327.13 | 10722.78 | 8469.33 | 6220.82 | 4613.73 | 3613.90 | 2785.30 | 2245.75 |
| 225.0 | 12277.58 | 12756.57 | 12299.60 | 10600.01 | 8216.62 | 6030.33 | 4653.92 | 3540.13 | 2772.64 |
| 270.0 | 12211.51 | 12585.89 | 11963.76 | 10152.40 | 7834.53 | 5802.94 | 4564.18 | 3396.98 | 2802.37 |
| 315.0 | 12525.33 | 12084.88 | 10388.59 | 7868.11 | 5968.11 | 4446.35 | 3417.35 | 2669.68 | 2142.80 |
| 360.0 | 12668.48 | 11947.24 | 9992.74 | 7383.06 | 5560.70 | 4206.31 | 3286.87 | 2813.38 | 2046.45 |
| C/γ(°) | 18.0 | 20.0 | 22.0 | 24.0 | 26.0 | 28.0 | 30.0 | 32.0 | 34.0 |
| 0.0 | 1636.83 | 1384.12 | 1160.59 | 971.19 | 847.32 | 667.28 | 467.43 | 284.64 | 114.52 |
| 45.0 | 1461.75 | 1194.17 | 997.07 | 873.19 | 720.14 | 508.17 | 334.74 | 136.32 | 58.52 |
| 90.0 | 1366.50 | 1098.10 | 947.03 | 807.29 | 673.95 | 480.37 | 312.78 | 155.81 | 65.68 |
| 135.0 | 1703.45 | 1398.98 | 1179.86 | 978.90 | 836.86 | 668.38 | 485.60 | 282.99 | 139.62 |
| 180.0 | 1789.88 | 1481.57 | 1250.88 | 1027.57 | 867.80 | 719.53 | 514.06 | 306.06 | 152.89 |
| 225.0 | 2203.91 | 1782.18 | 1457.89 | 1222.25 | 1008.74 | 851.67 | 701.14 | 493.09 | 297.63 |
| 270.0 | 2104.26 | 1683.07 | 1404.49 | 1189.22 | 968.99 | 819.24 | 663.98 | 458.62 | 290.15 |
| 315.0 | 1728.77 | 1460.10 | 1229.96 | 1028.95 | 882.22 | 723.00 | 527.33 | 315.58 | 141.27 |
| 360.0 | 1636.83 | 1384.12 | 1160.59 | 971.19 | 847.32 | 667.28 | 467.43 | 284.64 | 114.52 |
| C/γ(°) | 36.0 | 38.0 | 40.0 | 42.0 | 44.0 | 46.0 | 48.0 | 50.0 | 52.0 |
| 0.0 | 63.09 | 45.42 | 34.52 | 27.91 | 24.61 | 22.35 | 21.20 | 19.93 | 18.88 |
| 45.0 | 42.28 | 33.36 | 27.03 | 23.67 | 21.36 | 20.21 | 19.43 | 18.61 | 17.78 |
| 90.0 | 47.73 | 37.71 | 30.06 | 26.10 | 22.96 | 21.03 | 19.99 | 19.32 | 19.21 |
| 135.0 | 56.21 | 41.57 | 33.20 | 26.59 | 23.12 | 20.76 | 19.05 | 17.84 | 17.12 |
| 180.0 | 60.34 | 43.27 | 33.58 | 27.09 | 23.07 | 20.70 | 19.10 | 17.89 | 17.07 |
| 225.0 | 130.92 | 54.95 | 39.48 | 31.55 | 25.44 | 21.91 | 19.71 | 18.11 | 17.07 |
| 270.0 | 128.28 | 56.54 | 42.17 | 33.03 | 27.42 | 23.62 | 21.25 | 19.66 | 18.61 |
| 315.0 | 60.67 | 45.09 | 35.40 | 29.46 | 25.16 | 22.13 | 20.65 | 19.71 | 19.05 |
| 360.0 | 63.09 | 45.42 | 34.52 | 27.91 | 24.61 | 22.35 | 21.20 | 19.93 | 18.88 |
| C/γ(°) | 54.0 | 56.0 | 58.0 | 60.0 | 62.0 | 64.0 | 66.0 | 68.0 | 70.0 |
| 0.0 | 17.84 | 17.01 | 16.41 | 16.13 | 16.08 | 16.02 | 15.42 | 14.09 | 13.10 |
| 45.0 | 17.07 | 16.35 | 15.97 | 15.75 | 16.02 | 15.14 | 13.87 | 12.83 | 12.06 |
| 90.0 | 18.94 | 18.22 | 17.51 | 16.90 | 16.63 | 15.47 | 14.20 | 13.16 | 12.50 |
| 135.0 | 16.63 | 16.41 | 16.13 | 15.97 | 15.91 | 15.91 | 15.09 | 13.82 | 12.88 |
| 180.0 | 16.46 | 16.19 | 15.97 | 15.86 | 15.75 | 15.86 | 15.36 | 14.20 | 13.38 |
| 225.0 | 16.24 | 15.86 | 15.64 | 15.47 | 15.42 | 15.47 | 15.86 | 15.36 | 14.15 |
| 270.0 | 17.73 | 17.23 | 17.07 | 16.79 | 16.90 | 16.68 | 16.46 | 15.25 | 14.20 |
| 315.0 | 18.28 | 17.51 | 16.68 | 16.08 | 15.75 | 15.97 | 15.03 | 13.93 | 12.99 |
| 360.0 | 17.84 | 17.01 | 16.41 | 16.13 | 16.08 | 16.02 | 15.42 | 14.09 | 13.10 |
| C/γ(°) | 72.0 | 74.0 | 76.0 | 78.0 | 80.0 | 82.0 | 84.0 | 86.0 | 88.0 |
| 0.0 | 12.39 | 11.89 | 11.45 | 11.07 | 10.68 | 10.30 | 9.91 | 9.69 | 9.19 |
| 45.0 | 11.67 | 11.23 | 10.85 | 10.52 | 10.13 | 9.80 | 9.52 | 9.19 | 8.86 |
| 90.0 | 11.95 | 11.56 | 11.12 | 10.68 | 10.19 | 9.86 | 9.47 | 9.14 | 8.92 |
| 135.0 | 12.17 | 11.73 | 11.34 | 10.96 | 10.52 | 10.13 | 9.80 | 9.47 | 9.08 |
| 180.0 | 12.61 | 12.11 | 11.73 | 11.29 | 10.79 | 10.35 | 10.02 | 9.74 | 9.30 |
| 225.0 | 13.05 | 12.22 | 11.73 | 11.40 | 10.96 | 10.57 | 10.19 | 9.86 | 9.58 |
| 270.0 | 13.10 | 12.55 | 12.17 | 11.78 | 11.29 | 10.96 | 10.57 | 10.02 | 9.69 |
| 315.0 | 12.28 | 11.84 | 11.40 | 11.07 | 10.68 | 10.30 | 9.97 | 9.74 | 9.25 |
| 360.0 | 12.39 | 11.89 | 11.45 | 11.07 | 10.68 | 10.30 | 9.91 | 9.69 | 9.19 |

Intensity data(cd)

| | |
|-----------------|------|
| C/ γ (°) | 90.0 |
| 0.0 | 8.92 |
| 45.0 | 8.81 |
| 90.0 | 8.86 |
| 135.0 | 8.86 |
| 180.0 | 8.75 |
| 225.0 | 9.19 |
| 270.0 | 9.03 |
| 315.0 | 8.97 |
| 360.0 | 8.92 |