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NT

Client:

LumCAT: 2-2681-L

Luminaire: 92.70.411.00

Report No: 2024423-B014

Ballast type: AC

Test No: 2024423-C014

LampCAT: NICHIA NFCWJ130B-V3

Lamp flux(lm): 2920.0

Number of Lamps: 1

Length(mm): 0

Phm Type: C

Voltage(V): 36.250

Current(A): 0.576

Power (W): 20.880

PF: 0.000

Width(mm): 0

Height(mm): 0

#### Photometric Results

Lumens(lm): 2417.23, Efficiency(%): 82.78% , Luminous Efficacy(lm/W): 115.77

Central intensity(cd): 4363.496, Maximum intensity(cd): 4363.496

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

Beam Angle(50%Imax): [C0/180]Total=44.0

[C90/270]Total=44.0

Field angle(10%Imax): [C0/180]Total=68.2

[C90/270]Total=68.2

Maximum s/h(1/2): C0\_180=0.71 C90\_270=0.71

Maximum s/h(1/4): C0\_180=0.70 C90\_270=0.70

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 82.78%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 97.723%

Equipment: GMS1980  
Temperature(°C): 25.0

Date: 2024/4/23  
Humidity(%): 60.0%

Operator: NT07  
Distance(m): 7.65

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 4363.496      | 0.000       | 0         | 0.00%       | 0.00%      |
| 1.0                | 4358.229      | 4.173       | 4.173     | 0.14%       | 0.17%      |
| 2.0                | 4337.893      | 12.481      | 16.655    | 0.43%       | 0.69%      |
| 3.0                | 4308.778      | 20.680      | 37.335    | 0.71%       | 1.54%      |
| 4.0                | 4267.080      | 28.706      | 66.041    | 0.98%       | 2.73%      |
| 5.0                | 4214.995      | 36.489      | 102.53    | 1.25%       | 4.24%      |
| 6.0                | 4156.912      | 43.997      | 146.527   | 1.51%       | 6.06%      |
| 7.0                | 4084.783      | 51.156      | 197.683   | 1.75%       | 8.18%      |
| 8.0                | 4009.654      | 57.930      | 255.613   | 1.98%       | 10.57%     |
| 9.0                | 3923.919      | 64.297      | 319.911   | 2.20%       | 13.23%     |
| 10.0               | 3825.382      | 70.128      | 390.039   | 2.40%       | 16.14%     |
| 11.0               | 3724.430      | 75.438      | 465.477   | 2.58%       | 19.26%     |
| 12.0               | 3623.699      | 80.326      | 545.803   | 2.75%       | 22.58%     |
| 13.0               | 3504.971      | 84.599      | 630.402   | 2.90%       | 26.08%     |
| 14.0               | 3388.438      | 88.235      | 718.637   | 3.02%       | 29.73%     |
| 15.0               | 3255.519      | 91.211      | 809.848   | 3.12%       | 33.50%     |
| 16.0               | 3118.796      | 93.402      | 903.25    | 3.20%       | 37.37%     |
| 17.0               | 2988.803      | 95.112      | 998.361   | 3.26%       | 41.30%     |
| 18.0               | 2832.109      | 95.974      | 1094.336  | 3.29%       | 45.27%     |
| 19.0               | 2677.756      | 95.860      | 1190.196  | 3.28%       | 49.24%     |
| 20.0               | 2509.796      | 94.947      | 1285.143  | 3.25%       | 53.17%     |
| 21.0               | 2347.323      | 93.267      | 1378.409  | 3.19%       | 57.02%     |
| 22.0               | 2189.019      | 91.160      | 1469.569  | 3.12%       | 60.80%     |
| 23.0               | 2028.741      | 88.500      | 1558.069  | 3.03%       | 64.46%     |
| 24.0               | 1880.972      | 85.480      | 1643.549  | 2.93%       | 67.99%     |
| 25.0               | 1735.982      | 82.242      | 1725.791  | 2.82%       | 71.40%     |
| 26.0               | 1576.435      | 78.190      | 1803.981  | 2.68%       | 74.63%     |
| 27.0               | 1319.024      | 70.838      | 1874.819  | 2.43%       | 77.56%     |
| 28.0               | 1241.555      | 64.828      | 1939.647  | 2.22%       | 80.24%     |
| 29.0               | 1105.475      | 61.405      | 2001.052  | 2.10%       | 82.78%     |
| 30.0               | 954.531       | 55.620      | 2056.672  | 1.90%       | 85.08%     |
| 31.0               | 809.234       | 49.083      | 2105.755  | 1.68%       | 87.11%     |
| 32.0               | 682.233       | 42.729      | 2148.484  | 1.46%       | 88.88%     |
| 33.0               | 559.943       | 36.595      | 2185.079  | 1.25%       | 90.40%     |
| 34.0               | 444.888       | 30.409      | 2215.488  | 1.04%       | 91.65%     |
| 35.0               | 342.188       | 24.444      | 2239.932  | 0.84%       | 92.67%     |
| 36.0               | 263.746       | 19.293      | 2259.225  | 0.66%       | 93.46%     |
| 37.0               | 230.359       | 16.115      | 2275.34   | 0.55%       | 94.13%     |

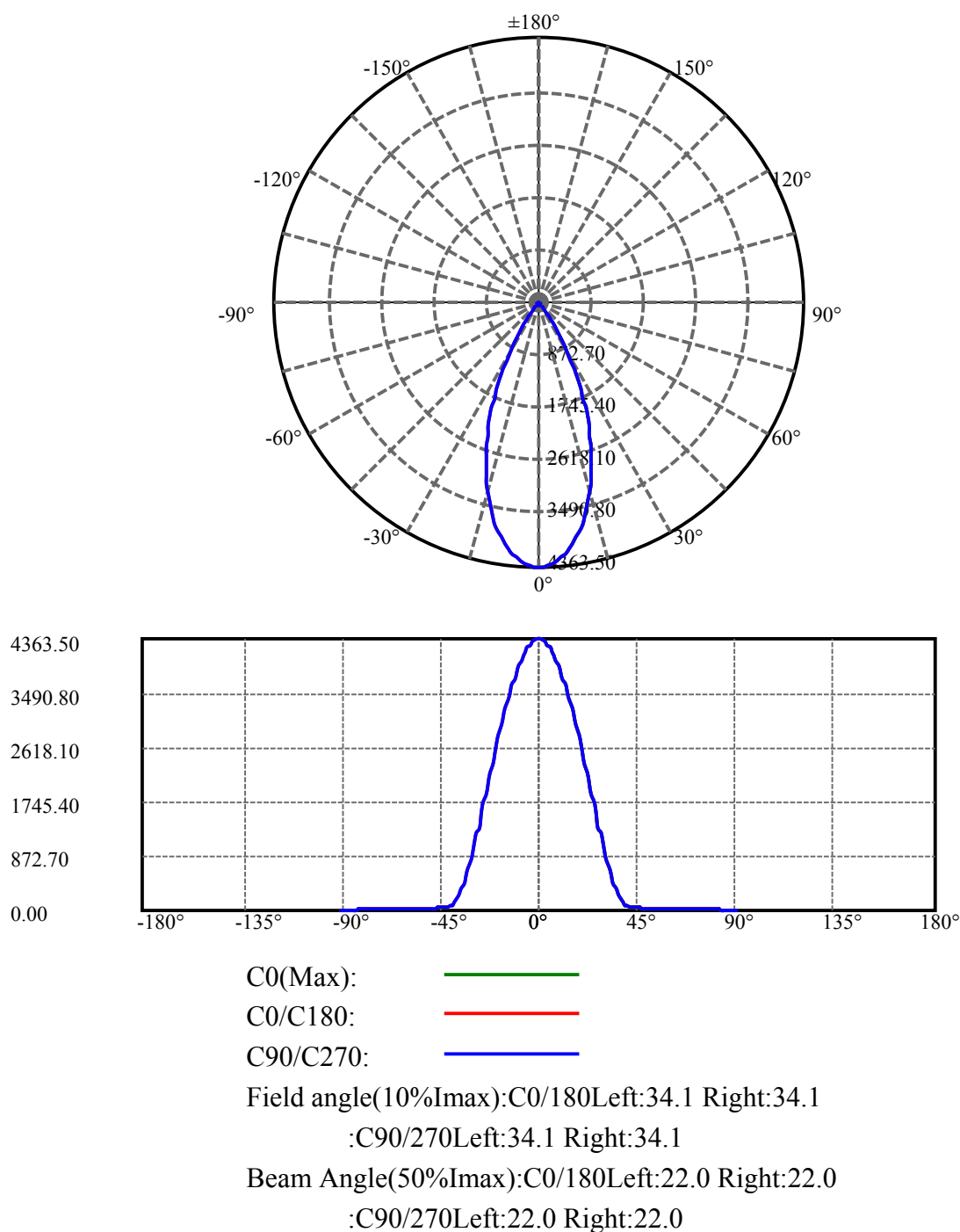
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 38.0               | 126.650       | 11.916      | 2287.256  | 0.41%       | 94.62%     |
| 39.0               | 87.038        | 7.294       | 2294.55   | 0.25%       | 94.92%     |
| 40.0               | 69.254        | 5.451       | 2300.001  | 0.19%       | 95.15%     |
| 41.0               | 60.095        | 4.606       | 2304.607  | 0.16%       | 95.34%     |
| 42.0               | 53.877        | 4.141       | 2308.748  | 0.14%       | 95.51%     |
| 43.0               | 49.342        | 3.824       | 2312.571  | 0.13%       | 95.67%     |
| 44.0               | 46.108        | 3.603       | 2316.174  | 0.12%       | 95.82%     |
| 45.0               | 43.468        | 3.443       | 2319.616  | 0.12%       | 95.96%     |
| 46.0               | 41.193        | 3.311       | 2322.927  | 0.11%       | 96.10%     |
| 47.0               | 39.305        | 3.202       | 2326.129  | 0.11%       | 96.23%     |
| 48.0               | 37.674        | 3.112       | 2329.241  | 0.11%       | 96.36%     |
| 49.0               | 36.152        | 3.032       | 2332.272  | 0.10%       | 96.49%     |
| 50.0               | 34.879        | 2.962       | 2335.234  | 0.10%       | 96.61%     |
| 51.0               | 33.650        | 2.899       | 2338.133  | 0.10%       | 96.73%     |
| 52.0               | 32.560        | 2.841       | 2340.975  | 0.10%       | 96.85%     |
| 53.0               | 31.631        | 2.792       | 2343.767  | 0.10%       | 96.96%     |
| 54.0               | 30.724        | 2.748       | 2346.515  | 0.09%       | 97.07%     |
| 55.0               | 29.868        | 2.705       | 2349.22   | 0.09%       | 97.19%     |
| 56.0               | 29.100        | 2.665       | 2351.885  | 0.09%       | 97.30%     |
| 57.0               | 28.354        | 2.627       | 2354.512  | 0.09%       | 97.41%     |
| 58.0               | 27.725        | 2.593       | 2357.105  | 0.09%       | 97.51%     |
| 59.0               | 27.037        | 2.560       | 2359.665  | 0.09%       | 97.62%     |
| 60.0               | 26.342        | 2.522       | 2362.187  | 0.09%       | 97.72%     |
| 61.0               | 25.677        | 2.482       | 2364.669  | 0.09%       | 97.83%     |
| 62.0               | 25.055        | 2.445       | 2367.114  | 0.08%       | 97.93%     |
| 63.0               | 24.397        | 2.405       | 2369.519  | 0.08%       | 98.03%     |
| 64.0               | 23.760        | 2.363       | 2371.882  | 0.08%       | 98.12%     |
| 65.0               | 23.094        | 2.319       | 2374.201  | 0.08%       | 98.22%     |
| 66.0               | 22.421        | 2.271       | 2376.472  | 0.08%       | 98.31%     |
| 67.0               | 21.748        | 2.221       | 2378.693  | 0.08%       | 98.41%     |
| 68.0               | 21.075        | 2.169       | 2380.862  | 0.07%       | 98.50%     |
| 69.0               | 20.556        | 2.124       | 2382.986  | 0.07%       | 98.58%     |
| 70.0               | 20.102        | 2.088       | 2385.074  | 0.07%       | 98.67%     |
| 71.0               | 19.751        | 2.060       | 2387.134  | 0.07%       | 98.75%     |
| 72.0               | 19.510        | 2.041       | 2389.175  | 0.07%       | 98.84%     |
| 73.0               | 19.144        | 2.021       | 2391.197  | 0.07%       | 98.92%     |
| 74.0               | 18.756        | 1.993       | 2393.189  | 0.07%       | 99.01%     |
| 75.0               | 18.325        | 1.959       | 2395.149  | 0.07%       | 99.09%     |

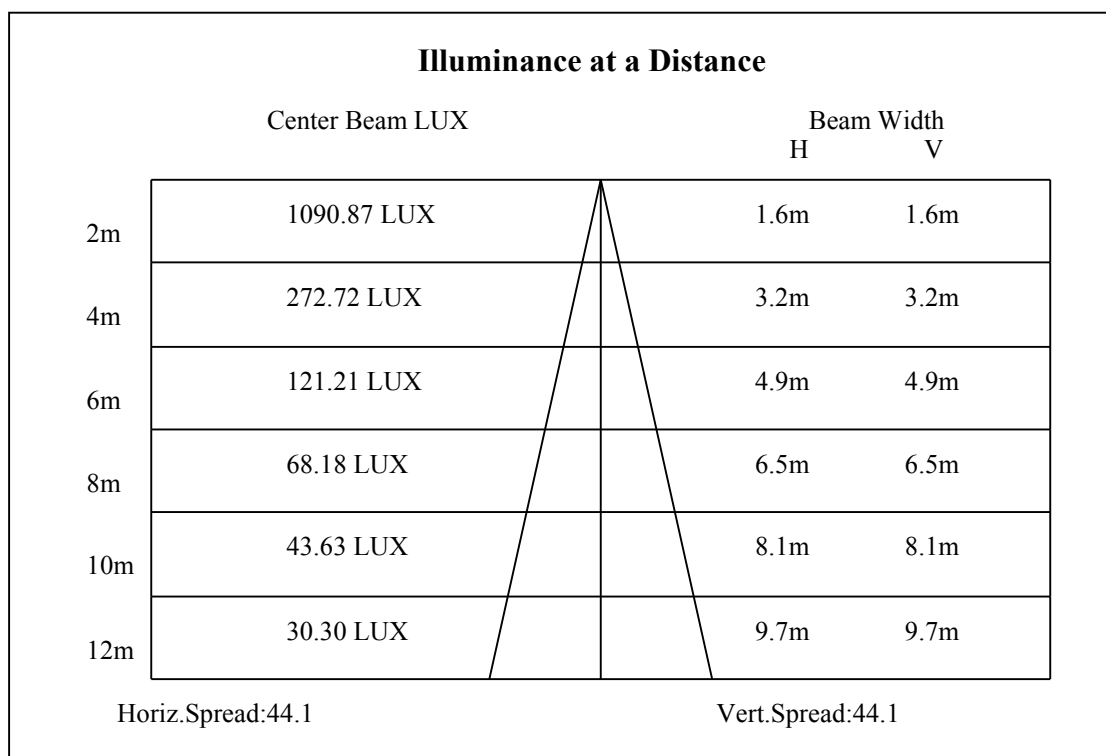
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0               | 17.864        | 1.921       | 2397.07   | 0.07%       | 99.17%     |
| 77.0               | 17.425        | 1.881       | 2398.951  | 0.06%       | 99.24%     |
| 78.0               | 16.876        | 1.836       | 2400.787  | 0.06%       | 99.32%     |
| 79.0               | 16.145        | 1.774       | 2402.561  | 0.06%       | 99.39%     |
| 80.0               | 15.472        | 1.705       | 2404.266  | 0.06%       | 99.46%     |
| 81.0               | 14.528        | 1.622       | 2405.888  | 0.06%       | 99.53%     |
| 82.0               | 13.577        | 1.524       | 2407.412  | 0.05%       | 99.59%     |
| 83.0               | 12.948        | 1.442       | 2408.854  | 0.05%       | 99.65%     |
| 84.0               | 12.202        | 1.370       | 2410.225  | 0.05%       | 99.71%     |
| 85.0               | 11.390        | 1.288       | 2411.512  | 0.04%       | 99.76%     |
| 86.0               | 10.768        | 1.211       | 2412.723  | 0.04%       | 99.81%     |
| 87.0               | 10.468        | 1.162       | 2413.886  | 0.04%       | 99.86%     |
| 88.0               | 10.249        | 1.135       | 2415.02   | 0.04%       | 99.91%     |
| 89.0               | 10.059        | 1.113       | 2416.133  | 0.04%       | 99.95%     |
| 90.0               | 10.015        | 1.101       | 2417.234  | 0.04%       | 100.00%    |

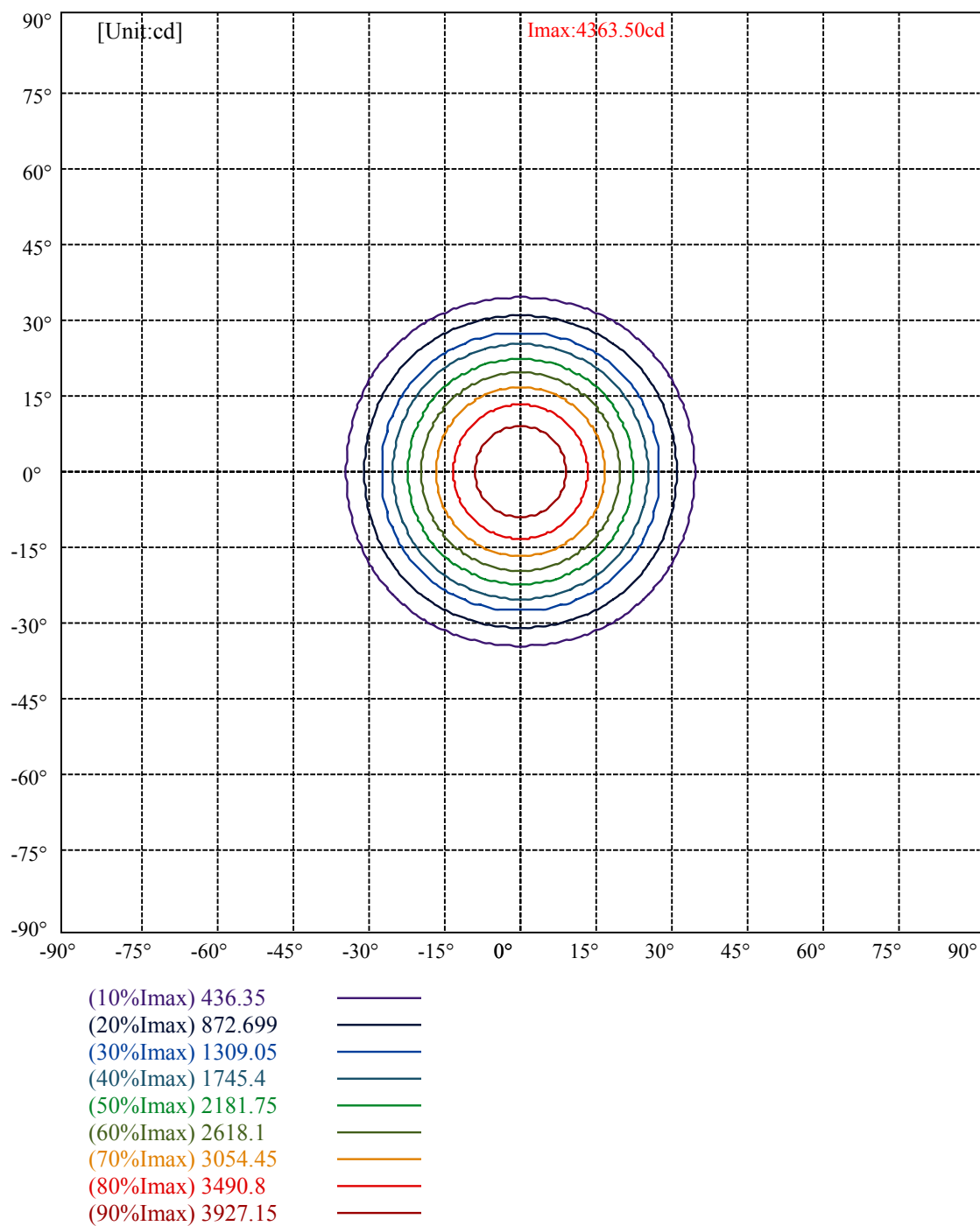
| ZONAL LUMEN SUMMARY |         |        |         |
|---------------------|---------|--------|---------|
| Zone                | Lumens  | %Lamp  | %Fixt   |
| 0-30                | 2056.67 | 70.43% | 85.08%  |
| 0-40                | 2300.00 | 78.77% | 95.15%  |
| 0-60                | 2362.19 | 80.90% | 97.72%  |
| 0-90                | 2416.13 | 82.74% | 99.95%  |
| 0-120               | 2416.13 | 82.74% | 99.95%  |
| 0-180               | 2417.23 | 82.78% | 100.00% |
| 60-90               | 53.95   | 1.85%  | 2.23%   |
| 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%   |
| 0-27.91             | 1933.79 | 66.23% | 80.00%  |

ZONAL LUMEN SUMMARY

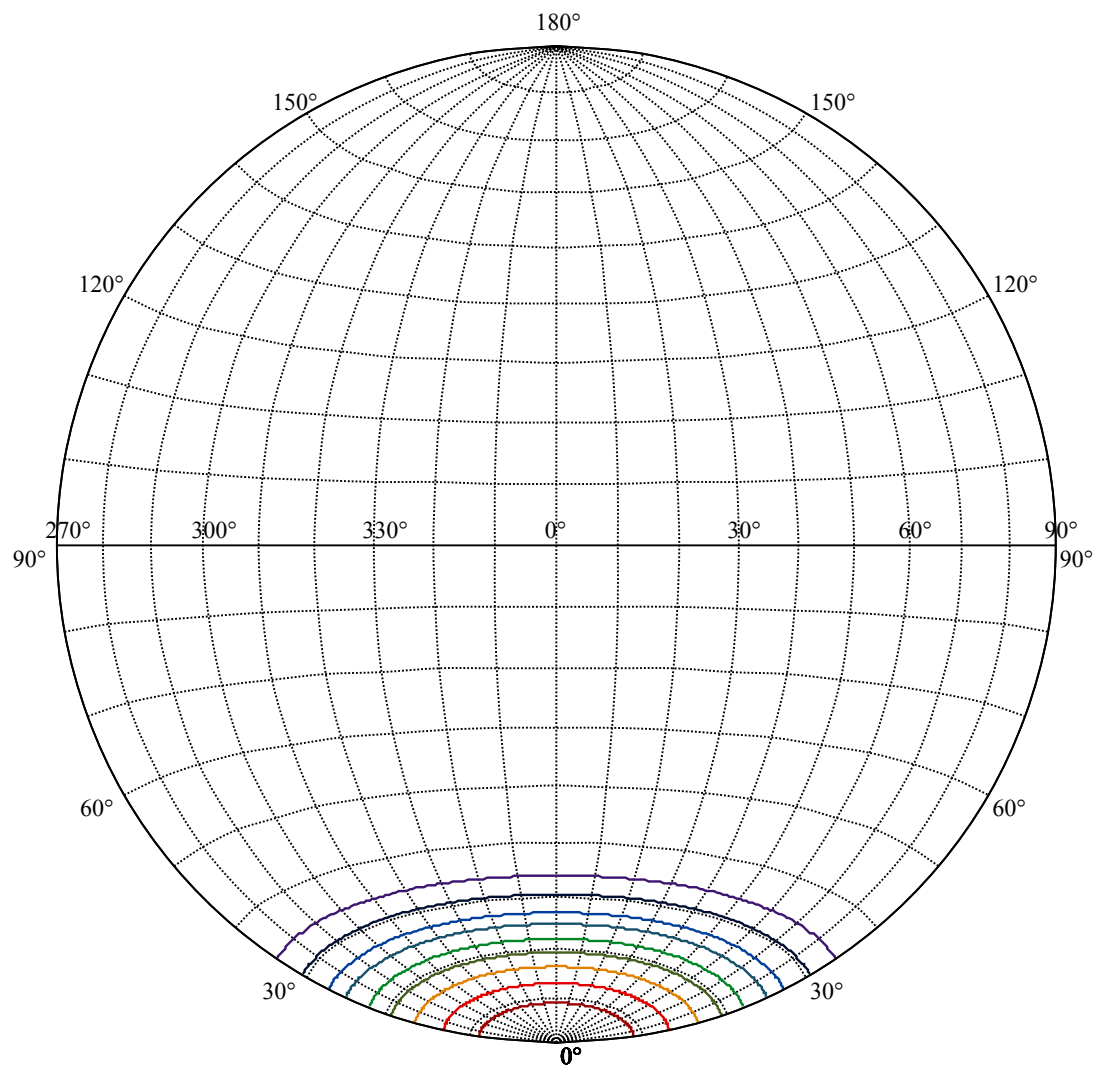
|         |        |
|---------|--------|
| 0-10    | 390.04 |
| 10-20   | 895.10 |
| 20-30   | 771.53 |
| 30-40   | 243.33 |
| 40-50   | 35.23  |
| 50-60   | 26.95  |
| 60-70   | 22.89  |
| 70-80   | 19.19  |
| 80-90   | 11.87  |
| 90-100  | 0.00   |
| 100-110 | 0.00   |
| 110-120 | 0.00   |
| 120-130 | 0.00   |
| 130-140 | 0.00   |
| 140-150 | 0.00   |
| 150-160 | 0.00   |
| 160-170 | 0.00   |
| 170-180 | 0.00   |











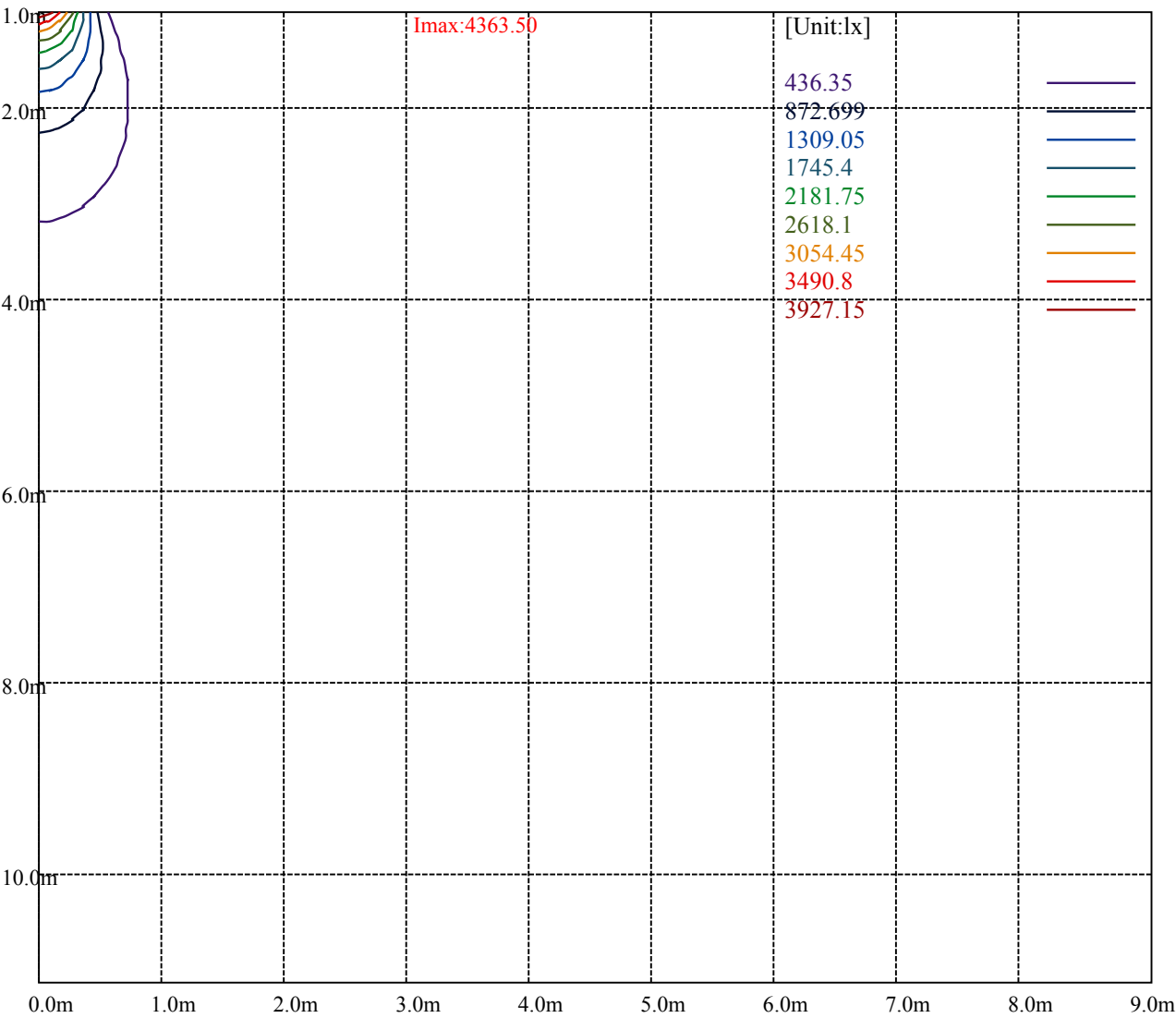
House

[Unit:cd]

Road

|                   |       |
|-------------------|-------|
| Imax:4363.50      |       |
| (10%Imax) 436.35  | _____ |
| (20%Imax) 872.699 | _____ |
| (30%Imax) 1309.05 | _____ |
| (40%Imax) 1745.4  | _____ |
| (50%Imax) 2181.75 | _____ |
| (60%Imax) 2618.1  | _____ |
| (70%Imax) 3054.45 | _____ |
| (80%Imax) 3490.8  | _____ |
| (90%Imax) 3927.15 | _____ |





Luminance Limiting Curve(no luminous side)

Luminance Table

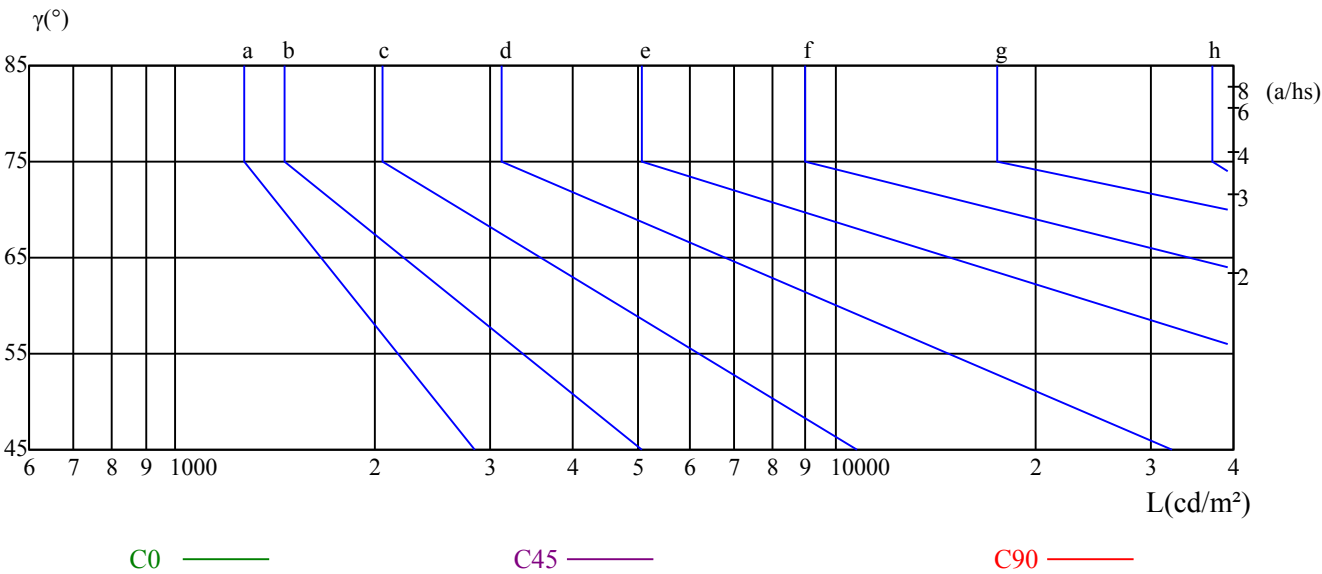
| $\gamma$ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|----|----|----|----|----|----|----|----|----|
| C0       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C45      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| C90      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |

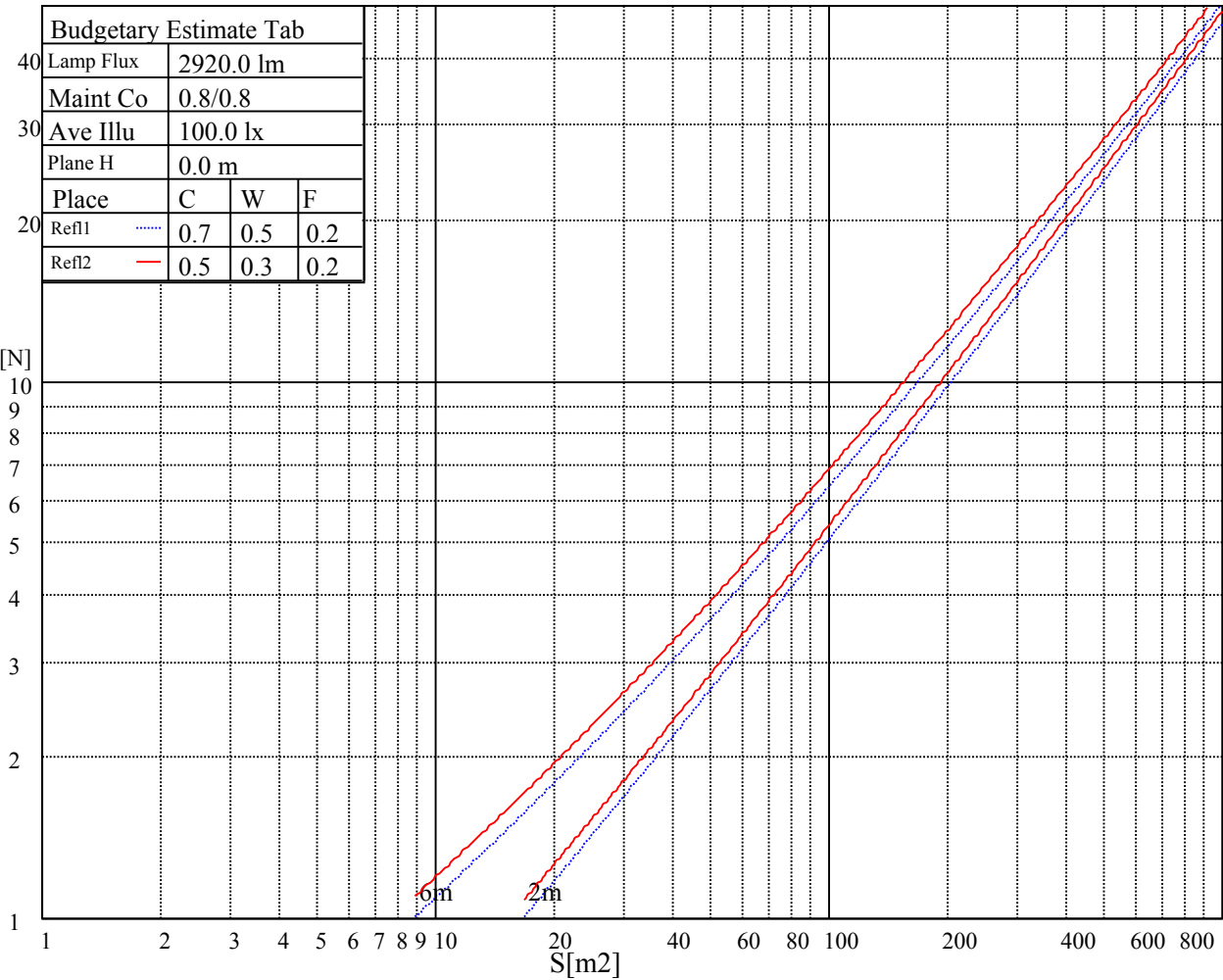
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 0          | 0          | 0       | 0          | 0          | 0       | 0     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

Glare Table

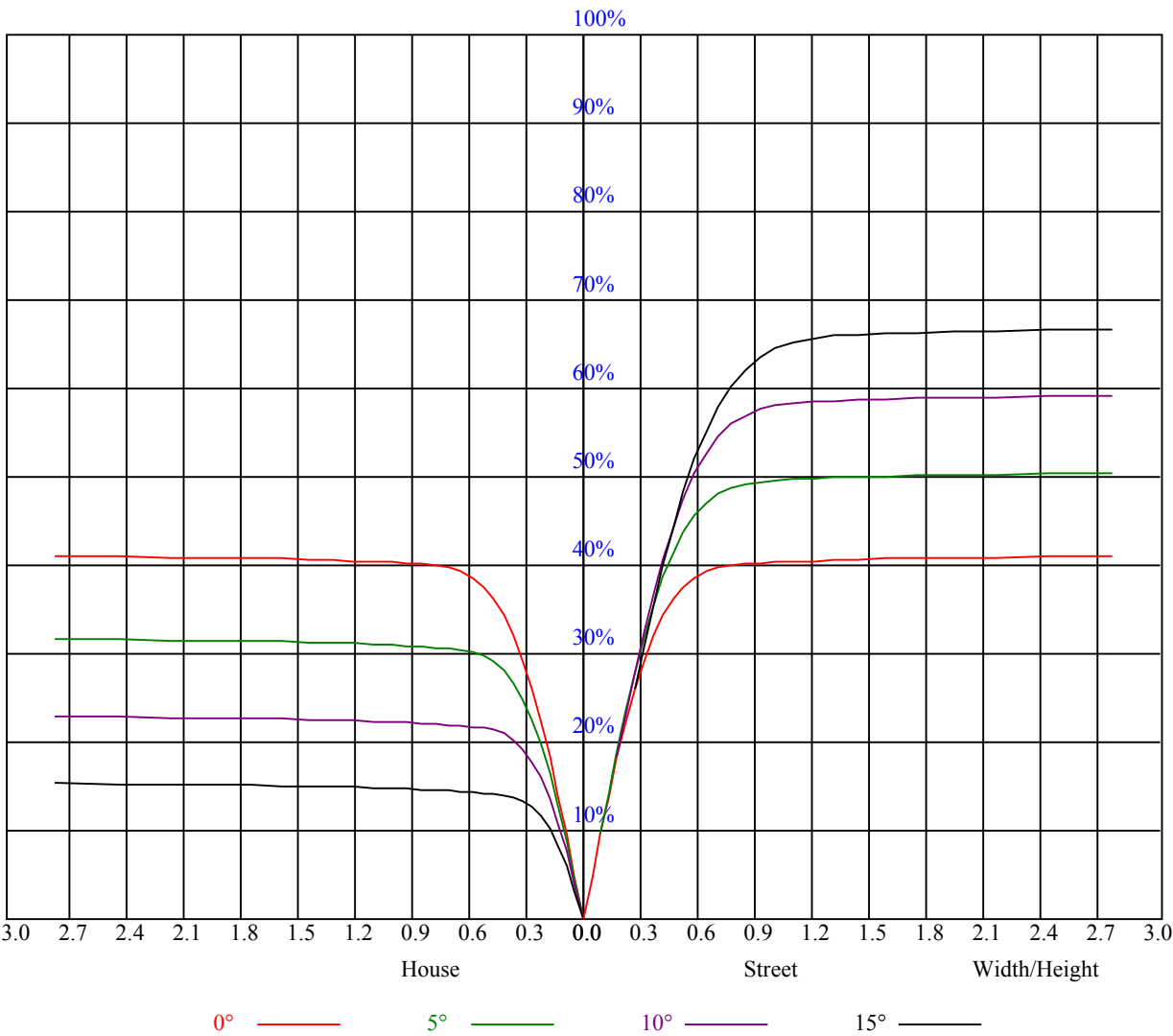
| Glare | Quality | Service Values Illuminance(lx) |      |      |            |            |            |            |            |
|-------|---------|--------------------------------|------|------|------------|------------|------------|------------|------------|
| 1.15  | A       | 2000                           | 1000 | 500  | $\leq 300$ |            |            |            |            |
| 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          |

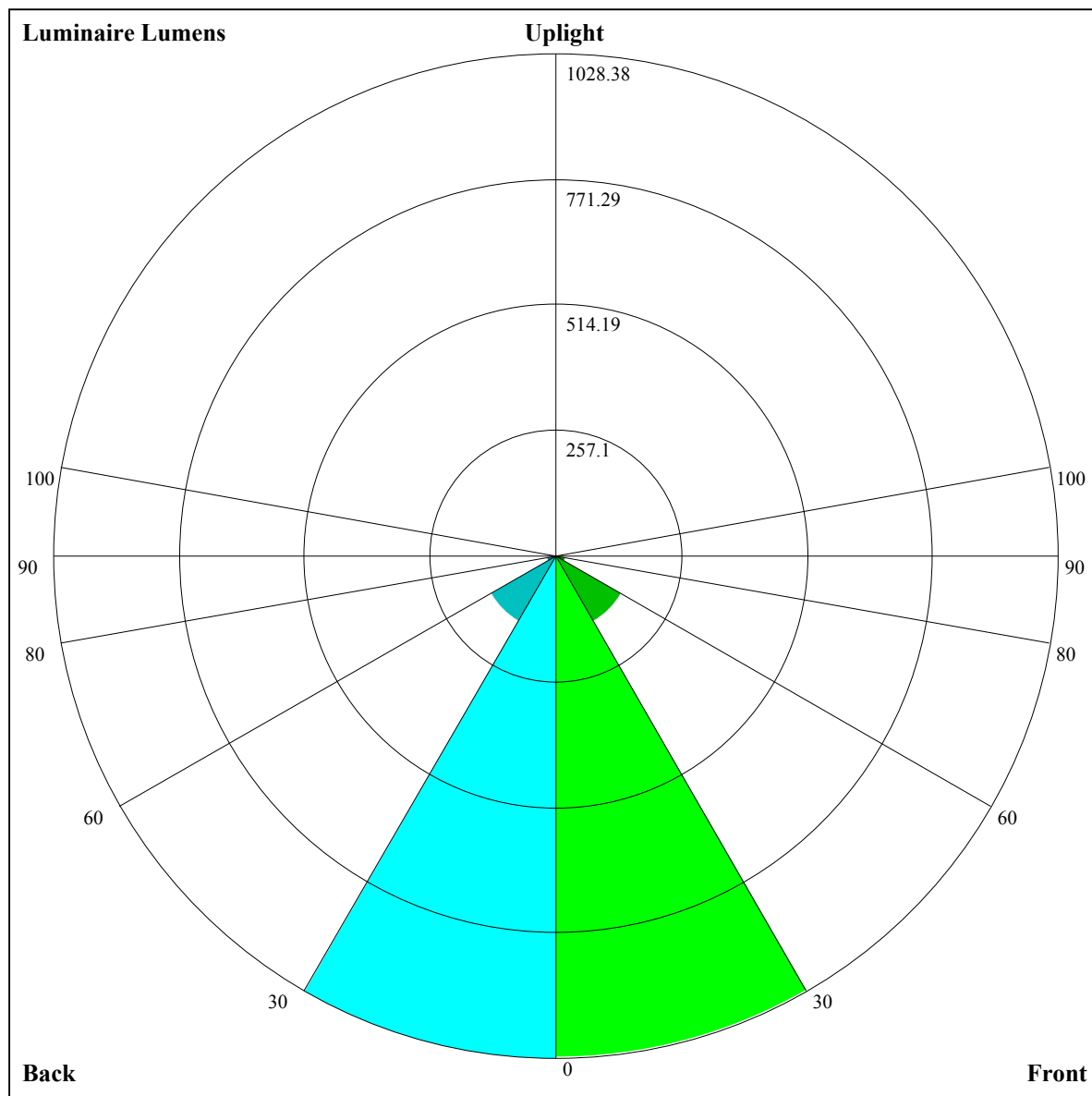
Luminance Limiting Curve





| 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     | 0.99                                    | 0.99 | 0.99 | 0.96 | 0.96 | 0.96 | 0.92 | 0.92 | 0.92 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.84 | 0.83 |
| 1     | 0.92                                    | 0.90 | 0.88 | 0.90 | 0.88 | 0.87 | 0.87 | 0.85 | 0.84 | 0.84 | 0.83 | 0.82 | 0.81 | 0.80 | 0.79 | 0.78 |
| 2     | 0.86                                    | 0.83 | 0.80 | 0.85 | 0.82 | 0.79 | 0.82 | 0.80 | 0.78 | 0.80 | 0.78 | 0.76 | 0.77 | 0.76 | 0.75 | 0.73 |
| 3     | 0.81                                    | 0.77 | 0.74 | 0.80 | 0.76 | 0.74 | 0.78 | 0.75 | 0.73 | 0.76 | 0.73 | 0.71 | 0.74 | 0.72 | 0.70 | 0.69 |
| 4     | 0.77                                    | 0.72 | 0.69 | 0.76 | 0.72 | 0.69 | 0.74 | 0.71 | 0.68 | 0.72 | 0.70 | 0.67 | 0.71 | 0.68 | 0.67 | 0.65 |
| 5     | 0.73                                    | 0.68 | 0.65 | 0.72 | 0.68 | 0.65 | 0.70 | 0.67 | 0.64 | 0.69 | 0.66 | 0.64 | 0.68 | 0.65 | 0.63 | 0.62 |
| 6     | 0.69                                    | 0.64 | 0.61 | 0.68 | 0.64 | 0.61 | 0.67 | 0.63 | 0.61 | 0.66 | 0.63 | 0.60 | 0.65 | 0.62 | 0.60 | 0.59 |
| 7     | 0.66                                    | 0.61 | 0.58 | 0.65 | 0.61 | 0.58 | 0.64 | 0.60 | 0.58 | 0.63 | 0.60 | 0.57 | 0.62 | 0.59 | 0.57 | 0.56 |
| 8     | 0.63                                    | 0.58 | 0.55 | 0.62 | 0.58 | 0.55 | 0.61 | 0.57 | 0.55 | 0.60 | 0.57 | 0.54 | 0.60 | 0.57 | 0.54 | 0.53 |
| 9     | 0.60                                    | 0.55 | 0.52 | 0.59 | 0.55 | 0.52 | 0.59 | 0.55 | 0.52 | 0.58 | 0.54 | 0.52 | 0.57 | 0.54 | 0.52 | 0.51 |
| 10    | 0.57                                    | 0.53 | 0.50 | 0.57 | 0.53 | 0.50 | 0.56 | 0.52 | 0.50 | 0.56 | 0.52 | 0.50 | 0.55 | 0.52 | 0.50 | 0.49 |





Luminaire Lumens:

FL=1025.3,FM=155.43,FH=20.98,FVH=6.5

BL=1028.38,BM=154.25,BH=20.96,BVH=6.5

UL=0,UH=0

BUG Rating:B3-U0-G0



## Intensity data(cd)

Appendix Page: 17 Total:19

| C/γ(°) | 0.0     | 1.0     | 2.0     | 3.0     | 4.0     | 5.0     | 6.0     | 7.0     | 8.0     |
|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0.0    | 4372.27 | 4363.50 | 4336.58 | 4299.71 | 4262.25 | 4190.27 | 4132.33 | 4065.03 | 3988.95 |
| 45.0   | 4364.08 | 4367.59 | 4357.06 | 4337.75 | 4299.71 | 4257.57 | 4203.73 | 4132.33 | 4063.86 |
| 90.0   | 4359.98 | 4347.11 | 4315.51 | 4280.39 | 4238.26 | 4187.34 | 4111.26 | 4042.79 | 3968.47 |
| 135.0  | 4357.64 | 4357.06 | 4342.43 | 4311.41 | 4274.54 | 4230.06 | 4177.98 | 4119.46 | 4035.77 |
| 180.0  | 4372.27 | 4369.93 | 4355.30 | 4328.97 | 4292.68 | 4237.67 | 4187.93 | 4122.38 | 4052.74 |
| 225.0  | 4364.08 | 4350.62 | 4316.68 | 4286.25 | 4228.31 | 4177.39 | 4116.53 | 4028.75 | 3949.16 |
| 270.0  | 4359.98 | 4362.91 | 4351.21 | 4330.14 | 4297.37 | 4246.45 | 4193.20 | 4119.46 | 4048.65 |
| 315.0  | 4357.64 | 4347.11 | 4328.38 | 4295.61 | 4243.52 | 4193.20 | 4132.33 | 4048.06 | 3969.64 |
| 360.0  | 4372.27 | 4363.50 | 4336.58 | 4299.71 | 4262.25 | 4190.27 | 4132.33 | 4065.03 | 3988.95 |

| C/γ(°) | 9.0     | 10.0    | 11.0    | 12.0    | 13.0    | 14.0    | 15.0    | 16.0    | 17.0    |
|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0.0    | 3883.03 | 3792.90 | 3696.34 | 3592.17 | 3459.32 | 3341.11 | 3222.89 | 3064.88 | 2930.87 |
| 45.0   | 3988.37 | 3883.61 | 3789.39 | 3695.17 | 3564.66 | 3452.89 | 3337.01 | 3182.51 | 3051.42 |
| 90.0   | 3883.61 | 3768.32 | 3672.35 | 3572.27 | 3433.57 | 3318.87 | 3165.54 | 3032.11 | 2896.34 |
| 135.0  | 3961.45 | 3852.59 | 3762.47 | 3665.32 | 3534.23 | 3426.55 | 3305.99 | 3152.08 | 3021.58 |
| 180.0  | 3955.59 | 3869.57 | 3775.93 | 3651.86 | 3550.03 | 3435.33 | 3291.95 | 3165.54 | 3041.47 |
| 225.0  | 3859.62 | 3743.74 | 3640.74 | 3546.52 | 3436.50 | 3288.44 | 3165.54 | 3036.79 | 2908.04 |
| 270.0  | 3971.98 | 3892.98 | 3776.52 | 3682.88 | 3581.05 | 3476.88 | 3335.84 | 3220.55 | 3097.65 |
| 315.0  | 3887.71 | 3799.34 | 3681.71 | 3583.39 | 3480.39 | 3367.44 | 3219.38 | 3095.90 | 2963.05 |
| 360.0  | 3883.03 | 3792.90 | 3696.34 | 3592.17 | 3459.32 | 3341.11 | 3222.89 | 3064.88 | 2930.87 |

| C/γ(°) | 18.0    | 19.0    | 20.0    | 21.0    | 22.0    | 23.0    | 24.0    | 25.0    | 26.0    |
|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0.0    | 2789.83 | 2605.48 | 2450.98 | 2299.41 | 2115.06 | 1974.61 | 1835.32 | 1690.77 | 1507.01 |
| 45.0   | 2916.23 | 2775.78 | 2593.19 | 2441.62 | 2289.46 | 2108.62 | 1971.68 | 1832.98 | 1654.49 |
| 90.0   | 2751.79 | 2565.68 | 2408.26 | 2256.10 | 2108.62 | 1932.47 | 1789.68 | 1643.96 | 1496.48 |
| 135.0  | 2883.46 | 2742.42 | 2555.74 | 2398.31 | 2246.15 | 2100.43 | 1928.37 | 1786.17 | 1599.48 |
| 180.0  | 2871.76 | 2725.45 | 2568.61 | 2371.39 | 2220.40 | 2076.44 | 1938.91 | 1769.19 | 1623.47 |
| 225.0  | 2725.45 | 2577.39 | 2417.04 | 2270.15 | 2089.31 | 1919.60 | 1781.48 | 1635.18 | 1487.70 |
| 270.0  | 2932.62 | 2788.07 | 2635.33 | 2446.30 | 2295.90 | 2145.49 | 1969.34 | 1836.49 | 1694.28 |
| 315.0  | 2785.73 | 2641.76 | 2449.23 | 2295.31 | 2147.25 | 1972.27 | 1832.98 | 1693.11 | 1548.56 |
| 360.0  | 2789.83 | 2605.48 | 2450.98 | 2299.41 | 2115.06 | 1974.61 | 1835.32 | 1690.77 | 1507.01 |

| C/γ(°) | 27.0    | 28.0    | 29.0    | 30.0    | 31.0   | 32.0   | 33.0   | 34.0   | 35.0   |
|--------|---------|---------|---------|---------|--------|--------|--------|--------|--------|
| 0.0    | 1133.87 | 1133.87 | 1063.53 | 899.02  | 770.33 | 650.18 | 537.41 | 410.83 | 320.00 |
| 45.0   | 1504.09 | 1351.93 | 1205.62 | 1032.40 | 898.96 | 773.73 | 656.10 | 520.91 | 419.08 |
| 90.0   | 1161.79 | 1161.79 | 1021.86 | 853.02  | 728.31 | 609.75 | 471.57 | 373.61 | 286.53 |
| 135.0  | 1447.32 | 1295.75 | 1112.57 | 977.97  | 847.46 | 723.40 | 582.36 | 475.26 | 377.53 |
| 180.0  | 1468.39 | 1328.52 | 1144.17 | 996.70  | 829.32 | 706.43 | 586.45 | 453.02 | 357.63 |
| 225.0  | 1152.48 | 1152.48 | 1009.63 | 874.74  | 713.39 | 595.76 | 486.26 | 386.48 | 279.15 |
| 270.0  | 1543.88 | 1367.73 | 1218.50 | 1071.02 | 924.13 | 759.10 | 633.27 | 515.64 | 386.31 |
| 315.0  | 1140.37 | 1140.37 | 1067.92 | 931.39  | 761.96 | 639.53 | 526.12 | 423.35 | 311.28 |
| 360.0  | 1133.87 | 1133.87 | 1063.53 | 899.02  | 770.33 | 650.18 | 537.41 | 410.83 | 320.00 |

| C/γ(°) | 36.0   | 37.0   | 38.0   | 39.0   | 40.0  | 41.0  | 42.0  | 43.0  | 44.0  |
|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|
| 0.0    | 222.97 | 160.76 | 103.06 | 76.37  | 65.78 | 58.46 | 52.14 | 48.63 | 45.88 |
| 45.0   | 327.78 | 306.72 | 212.32 | 109.91 | 76.43 | 65.08 | 57.76 | 51.32 | 47.75 |
| 90.0   | 194.88 | 137.00 | 95.33  | 73.74  | 62.21 | 55.30 | 50.68 | 46.29 | 43.54 |
| 135.0  | 310.81 | 310.81 | 130.91 | 91.47  | 71.69 | 60.92 | 54.54 | 49.16 | 46.06 |
| 180.0  | 314.32 | 314.32 | 127.52 | 90.83  | 71.10 | 62.56 | 54.43 | 50.15 | 46.94 |
| 225.0  | 205.59 | 145.08 | 94.05  | 73.68  | 64.26 | 55.71 | 51.09 | 47.58 | 44.24 |
| 270.0  | 298.52 | 298.52 | 140.63 | 98.90  | 76.31 | 63.85 | 56.88 | 51.97 | 48.34 |
| 315.0  | 235.08 | 169.66 | 109.38 | 81.40  | 66.25 | 58.87 | 53.49 | 49.63 | 46.12 |
| 360.0  | 222.97 | 160.76 | 103.06 | 76.37  | 65.78 | 58.46 | 52.14 | 48.63 | 45.88 |

## Intensity data(cd)

Appendix Page: 18 Total:19

| C/γ(°) | 45.0  | 46.0  | 47.0  | 48.0  | 49.0  | 50.0  | 51.0  | 52.0  | 53.0  |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.0    | 43.54 | 41.08 | 39.39 | 37.92 | 36.58 | 35.05 | 33.94 | 32.71 | 31.89 |
| 45.0   | 44.95 | 42.55 | 40.09 | 38.45 | 36.87 | 35.52 | 34.00 | 32.95 | 32.07 |
| 90.0   | 41.26 | 38.86 | 37.28 | 35.87 | 34.29 | 33.18 | 32.30 | 31.13 | 30.26 |
| 135.0  | 43.42 | 40.79 | 38.98 | 37.45 | 35.76 | 34.53 | 33.47 | 32.54 | 31.49 |
| 180.0  | 43.83 | 41.67 | 39.91 | 37.98 | 36.52 | 35.29 | 33.94 | 32.95 | 32.07 |
| 225.0  | 42.02 | 40.20 | 38.10 | 36.69 | 35.41 | 34.24 | 32.95 | 32.01 | 31.13 |
| 270.0  | 44.95 | 42.60 | 40.67 | 38.92 | 37.04 | 35.70 | 34.53 | 33.18 | 32.13 |
| 315.0  | 43.77 | 41.79 | 40.03 | 38.10 | 36.75 | 35.52 | 34.06 | 33.01 | 32.01 |
| 360.0  | 43.54 | 41.08 | 39.39 | 37.92 | 36.58 | 35.05 | 33.94 | 32.71 | 31.89 |
| C/γ(°) | 54.0  | 55.0  | 56.0  | 57.0  | 58.0  | 59.0  | 60.0  | 61.0  | 62.0  |
| 0.0    | 31.08 | 29.90 | 29.09 | 28.38 | 27.74 | 26.98 | 26.39 | 25.75 | 25.16 |
| 45.0   | 31.02 | 30.26 | 29.32 | 28.68 | 27.97 | 27.10 | 26.34 | 25.69 | 25.11 |
| 90.0   | 29.44 | 28.79 | 27.97 | 27.33 | 26.69 | 26.16 | 25.34 | 24.81 | 24.23 |
| 135.0  | 30.67 | 29.90 | 29.20 | 28.44 | 27.86 | 27.15 | 26.39 | 25.81 | 25.11 |
| 180.0  | 31.25 | 30.31 | 29.67 | 28.97 | 28.38 | 27.56 | 26.98 | 26.28 | 25.52 |
| 225.0  | 30.37 | 29.44 | 28.73 | 27.92 | 27.33 | 26.74 | 25.93 | 25.28 | 24.70 |
| 270.0  | 31.02 | 30.20 | 29.38 | 28.56 | 27.92 | 27.27 | 26.69 | 25.93 | 25.34 |
| 315.0  | 30.96 | 30.14 | 29.44 | 28.56 | 27.92 | 27.33 | 26.69 | 25.87 | 25.28 |
| 360.0  | 31.08 | 29.90 | 29.09 | 28.38 | 27.74 | 26.98 | 26.39 | 25.75 | 25.16 |
| C/γ(°) | 63.0  | 64.0  | 65.0  | 66.0  | 67.0  | 68.0  | 69.0  | 70.0  | 71.0  |
| 0.0    | 24.40 | 23.82 | 23.17 | 22.36 | 21.77 | 21.07 | 20.95 | 21.24 | 21.65 |
| 45.0   | 24.35 | 23.82 | 23.29 | 22.65 | 21.89 | 21.24 | 20.72 | 19.90 | 19.31 |
| 90.0   | 23.53 | 22.94 | 22.18 | 21.54 | 20.95 | 20.37 | 19.66 | 19.08 | 18.49 |
| 135.0  | 24.46 | 23.88 | 23.35 | 22.59 | 22.00 | 21.36 | 20.78 | 20.07 | 19.49 |
| 180.0  | 24.93 | 24.11 | 23.53 | 22.88 | 22.06 | 21.42 | 20.95 | 20.95 | 21.42 |
| 225.0  | 24.11 | 23.35 | 22.65 | 22.06 | 21.48 | 20.66 | 20.07 | 19.49 | 18.79 |
| 270.0  | 24.76 | 24.17 | 23.41 | 22.77 | 22.06 | 21.30 | 20.66 | 20.13 | 19.43 |
| 315.0  | 24.64 | 23.99 | 23.17 | 22.53 | 21.77 | 21.19 | 20.66 | 19.96 | 19.43 |
| 360.0  | 24.40 | 23.82 | 23.17 | 22.36 | 21.77 | 21.07 | 20.95 | 21.24 | 21.65 |
| C/γ(°) | 72.0  | 73.0  | 74.0  | 75.0  | 76.0  | 77.0  | 78.0  | 79.0  | 80.0  |
| 0.0    | 22.24 | 22.00 | 21.36 | 20.66 | 19.55 | 18.73 | 17.91 | 16.91 | 16.09 |
| 45.0   | 18.73 | 17.91 | 17.32 | 16.68 | 16.04 | 15.63 | 15.22 | 14.86 | 14.34 |
| 90.0   | 18.14 | 18.38 | 18.55 | 18.61 | 18.43 | 18.26 | 17.91 | 16.50 | 15.57 |
| 135.0  | 19.08 | 18.79 | 19.08 | 19.20 | 19.25 | 19.20 | 18.73 | 17.91 | 16.91 |
| 180.0  | 21.89 | 21.77 | 21.19 | 20.07 | 19.08 | 18.08 | 16.91 | 16.04 | 15.33 |
| 225.0  | 18.14 | 17.32 | 16.80 | 16.27 | 15.86 | 15.33 | 14.98 | 14.57 | 14.28 |
| 270.0  | 18.84 | 18.32 | 17.56 | 17.21 | 16.97 | 16.62 | 16.21 | 15.86 | 15.39 |
| 315.0  | 19.02 | 18.67 | 18.20 | 17.91 | 17.73 | 17.56 | 17.15 | 16.50 | 15.86 |
| 360.0  | 22.24 | 22.00 | 21.36 | 20.66 | 19.55 | 18.73 | 17.91 | 16.91 | 16.09 |
| C/γ(°) | 81.0  | 82.0  | 83.0  | 84.0  | 85.0  | 86.0  | 87.0  | 88.0  | 89.0  |
| 0.0    | 14.75 | 13.64 | 12.93 | 12.06 | 11.18 | 10.77 | 10.48 | 10.24 | 10.07 |
| 45.0   | 13.99 | 13.58 | 13.11 | 12.52 | 11.88 | 11.24 | 10.59 | 10.30 | 10.12 |
| 90.0   | 13.99 | 12.93 | 12.47 | 11.82 | 11.06 | 10.53 | 10.36 | 10.18 | 10.01 |
| 135.0  | 15.92 | 13.75 | 12.99 | 12.41 | 11.59 | 10.83 | 10.48 | 10.30 | 10.07 |
| 180.0  | 14.46 | 13.99 | 13.28 | 12.58 | 11.59 | 10.71 | 10.53 | 10.30 | 10.07 |
| 225.0  | 13.87 | 13.34 | 12.82 | 11.76 | 10.89 | 10.59 | 10.36 | 10.18 | 10.01 |
| 270.0  | 14.40 | 13.81 | 13.17 | 12.52 | 11.70 | 10.83 | 10.53 | 10.30 | 10.12 |
| 315.0  | 14.86 | 13.58 | 12.82 | 11.94 | 11.24 | 10.65 | 10.42 | 10.18 | 10.01 |
| 360.0  | 14.75 | 13.64 | 12.93 | 12.06 | 11.18 | 10.77 | 10.48 | 10.24 | 10.07 |

## Intensity data(cd)

Appendix Page: 19 Total:19

|                 |       |
|-----------------|-------|
| C/ $\gamma$ (°) | 90.0  |
| 0.0             | 10.07 |
| 45.0            | 10.01 |
| 90.0            | 10.01 |
| 135.0           | 10.01 |
| 180.0           | 10.01 |
| 225.0           | 10.01 |
| 270.0           | 10.01 |
| 315.0           | 10.01 |
| 360.0           | 10.07 |