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Nata

Client:

LumCAT: 3-2018-A

Luminaire: 92.70.045.00+92.70.089.00

Report No: NT2018031909

Voltage(V): 36.6000

Test No: nata-0100

Current(A): 0.5000

LampCAT: LUMILEDS 1205

Power (W): 18.3000

Lamp flux(lm): 1941.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 82

Width(mm): 82

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1616.37, Efficiency(%): 83.28% , Luminous Efficacy(lm/W): 88.33

Central intensity(cd): 3459.331, Maximum intensity(cd): 3459.331

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=38.6

[C90/270]Total=38.6

Field angle(10%Imax): [C0/180]Total=63.6

[C90/270]Total=63.6

Maximum s/h(1/2): C0_180=0.63 C90_270=0.63

Maximum s/h(1/4): C0_180=0.61 C90_270=0.61

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 84.26%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.653%

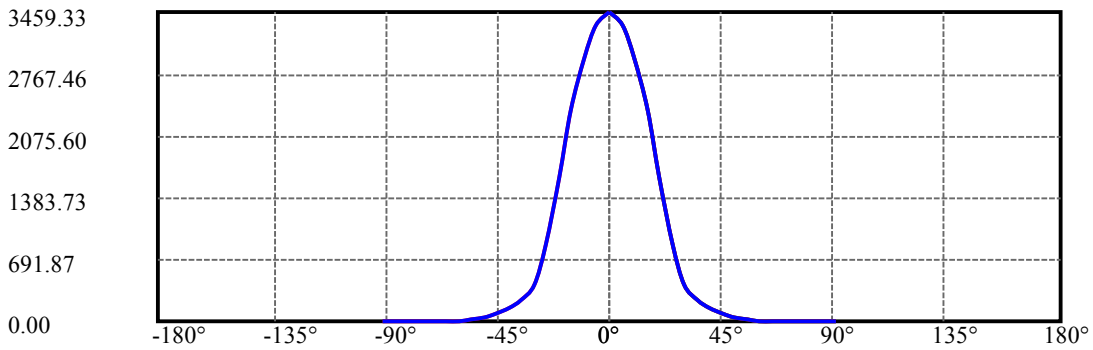
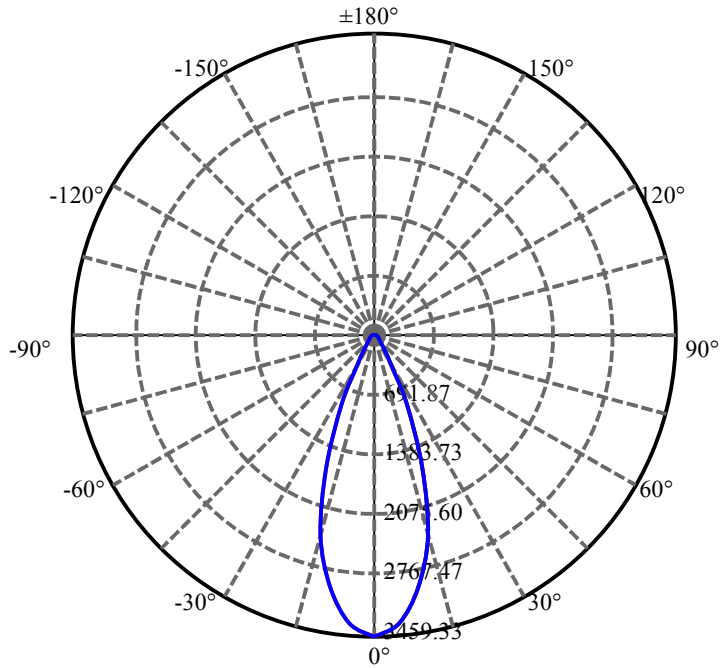
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0 | 3459.331 | 20.687 | 20.687 | 1.066% | 1.280% |
| 5.0 | 3319.419 | 158.580 | 179.267 | 8.170% | 11.091% |
| 10.0 | 2941.663 | 279.997 | 459.264 | 14.425% | 28.413% |
| 15.0 | 2371.348 | 336.419 | 795.683 | 17.332% | 49.226% |
| 20.0 | 1620.172 | 303.740 | 1099.423 | 15.649% | 68.018% |
| 25.0 | 865.177 | 200.421 | 1299.844 | 10.326% | 80.417% |
| 30.0 | 409.867 | 112.332 | 1412.176 | 5.787% | 87.367% |
| 35.0 | 231.161 | 72.677 | 1484.853 | 3.744% | 91.863% |
| 40.0 | 143.346 | 50.506 | 1535.359 | 2.602% | 94.988% |
| 45.0 | 82.282 | 31.892 | 1567.25 | 1.643% | 96.961% |
| 50.0 | 43.164 | 18.125 | 1585.375 | .934% | 98.082% |
| 55.0 | 17.811 | 7.997 | 1593.372 | .412% | 98.577% |
| 60.0 | 7.935 | 3.767 | 1597.139 | .194% | 98.810% |
| 65.0 | 6.779 | 3.368 | 1600.506 | .173% | 99.018% |
| 70.0 | 6.648 | 3.424 | 1603.931 | .176% | 99.230% |
| 75.0 | 6.572 | 3.480 | 1607.41 | .179% | 99.446% |
| 80.0 | 6.572 | 3.548 | 1610.958 | .183% | 99.665% |
| 85.0 | 6.648 | 3.630 | 1614.588 | .187% | 99.890% |
| 90.0 | 6.510 | 1.784 | 1616.373 | .092% | 100.000% |

ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|--------|---------|
| 0-30 | 1412.18 | 72.76% | 87.37% |
| 0-40 | 1535.36 | 79.10% | 94.99% |
| 0-60 | 1597.14 | 82.28% | 98.81% |
| 0-90 | 1614.59 | 83.18% | 99.89% |
| 0-120 | 1614.59 | 83.18% | 99.89% |
| 0-180 | 1616.37 | 83.28% | 100.00% |
| 60-90 | 21.22 | 1.09% | 1.31% |
| 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% |
| 0-24.83 | 1293.10 | 66.62% | 80.00% |

ZONAL LUMEN SUMMARY

| | |
|---------|--------|
| 0-10 | 459.26 |
| 10-20 | 640.16 |
| 20-30 | 312.75 |
| 30-40 | 123.18 |
| 40-50 | 50.02 |
| 50-60 | 11.76 |
| 60-70 | 6.79 |
| 70-80 | 7.03 |
| 80-90 | 3.63 |
| 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: —————

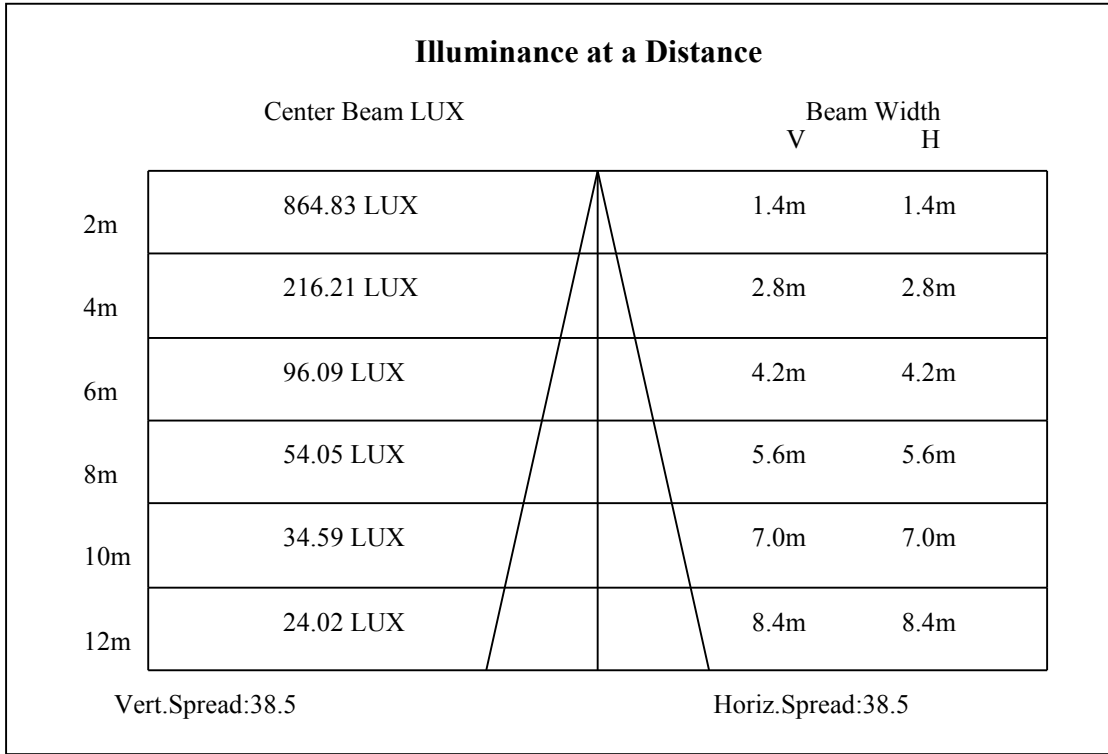
C90/C270: —————

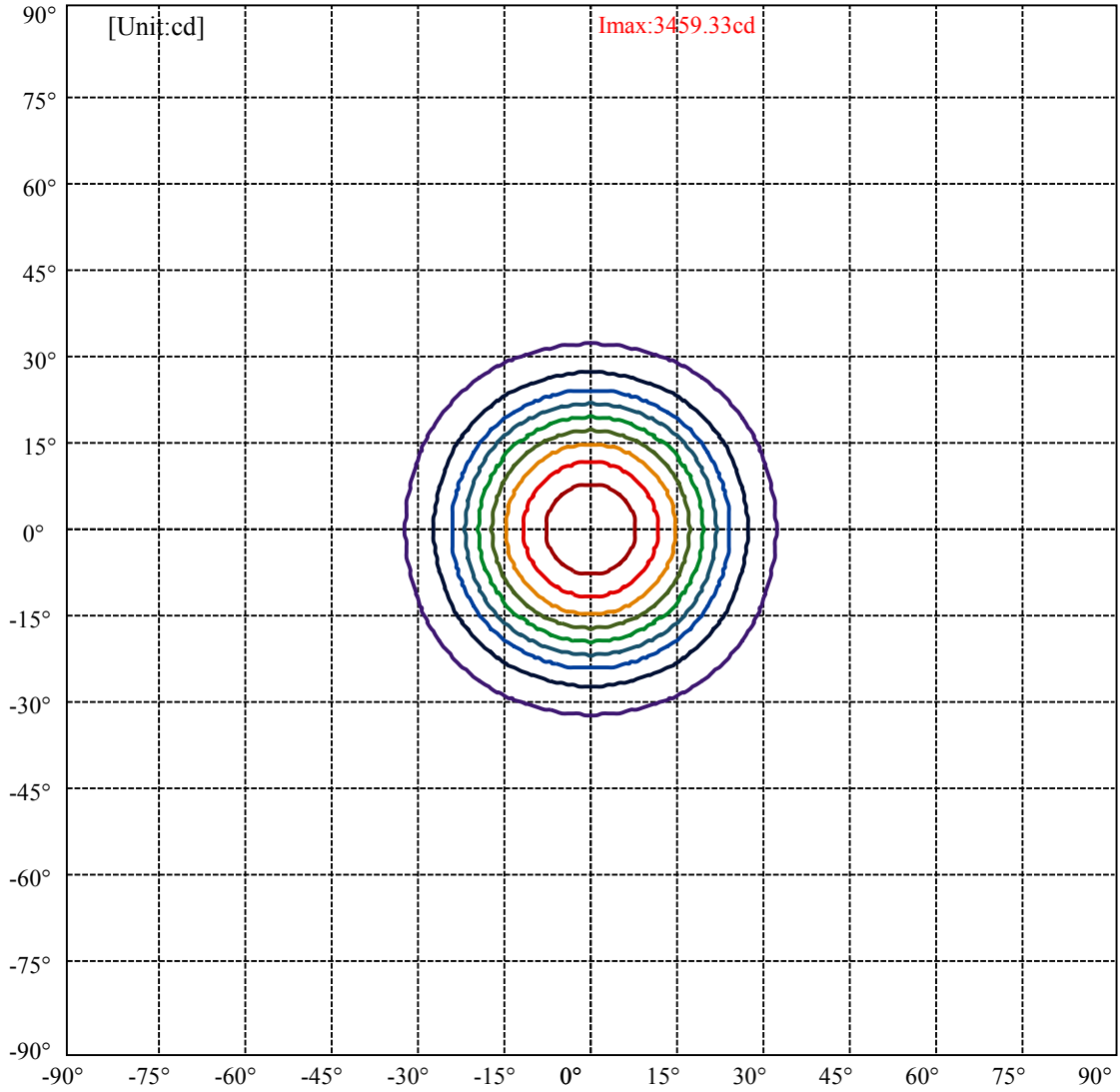
Field angle(10%Imax):C0/180Left:31.8 Right:31.8

:C90/270Left:31.8 Right:31.8

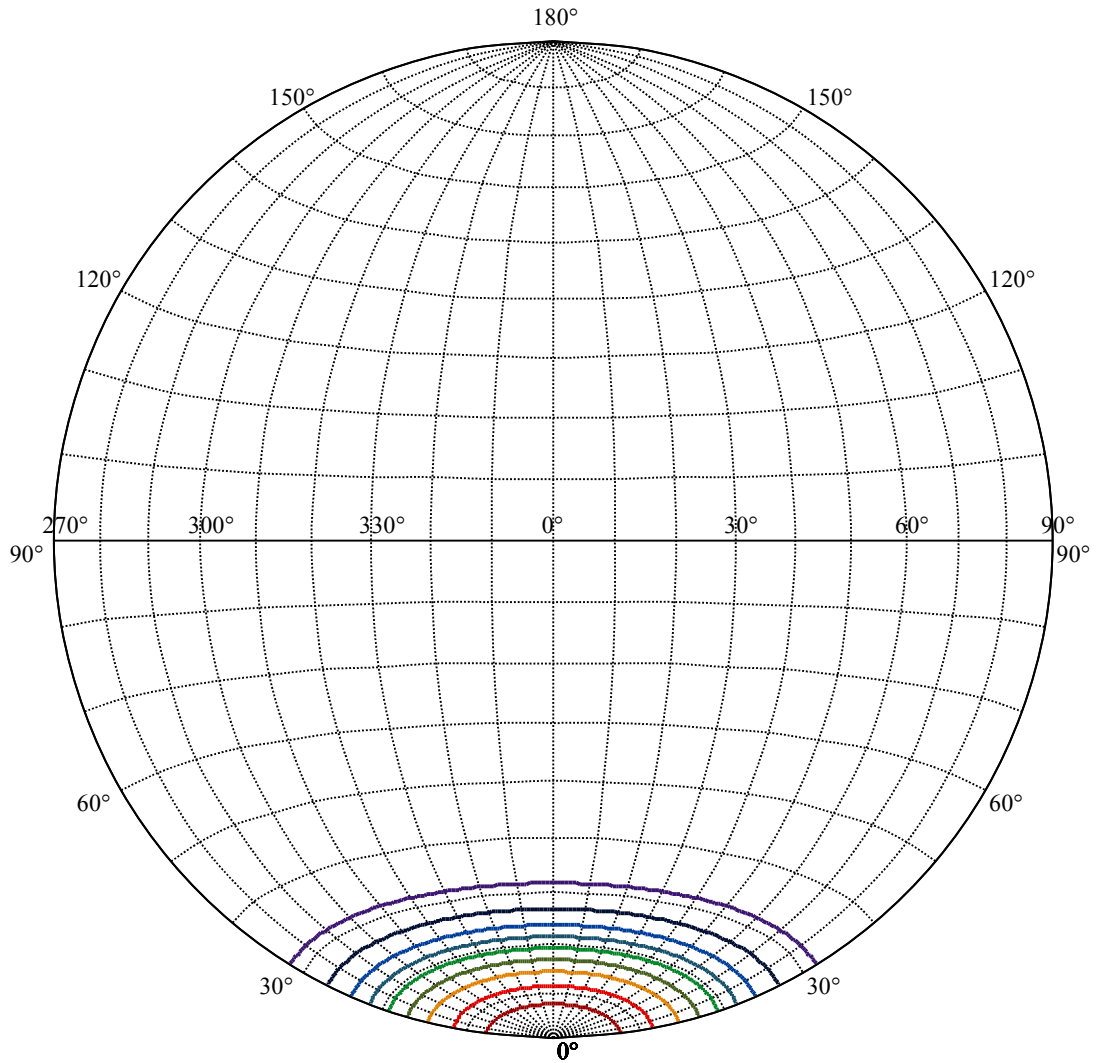
Beam Angle(50%Imax):C0/180Left:19.3 Right:19.3

:C90/270Left:19.3 Right:19.3





| | |
|-------------------|---|
| (10%Imax) 345.933 | — |
| (20%Imax) 691.866 | — |
| (30%Imax) 1037.8 | — |
| (40%Imax) 1383.73 | — |
| (50%Imax) 1729.67 | — |
| (60%Imax) 2075.6 | — |
| (70%Imax) 2421.53 | — |
| (80%Imax) 2767.46 | — |
| (90%Imax) 3113.4 | — |



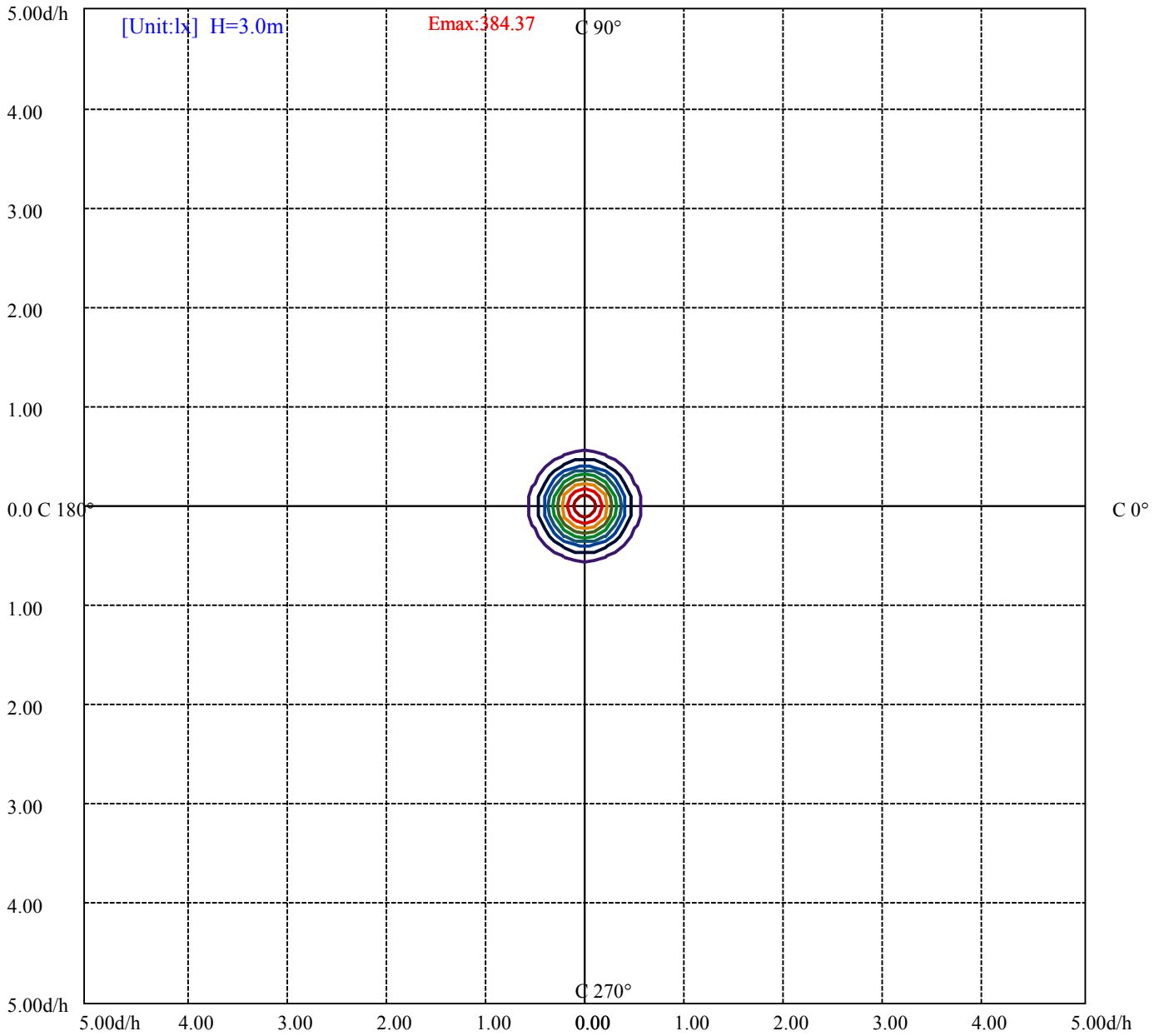
House

[Unit:cd]

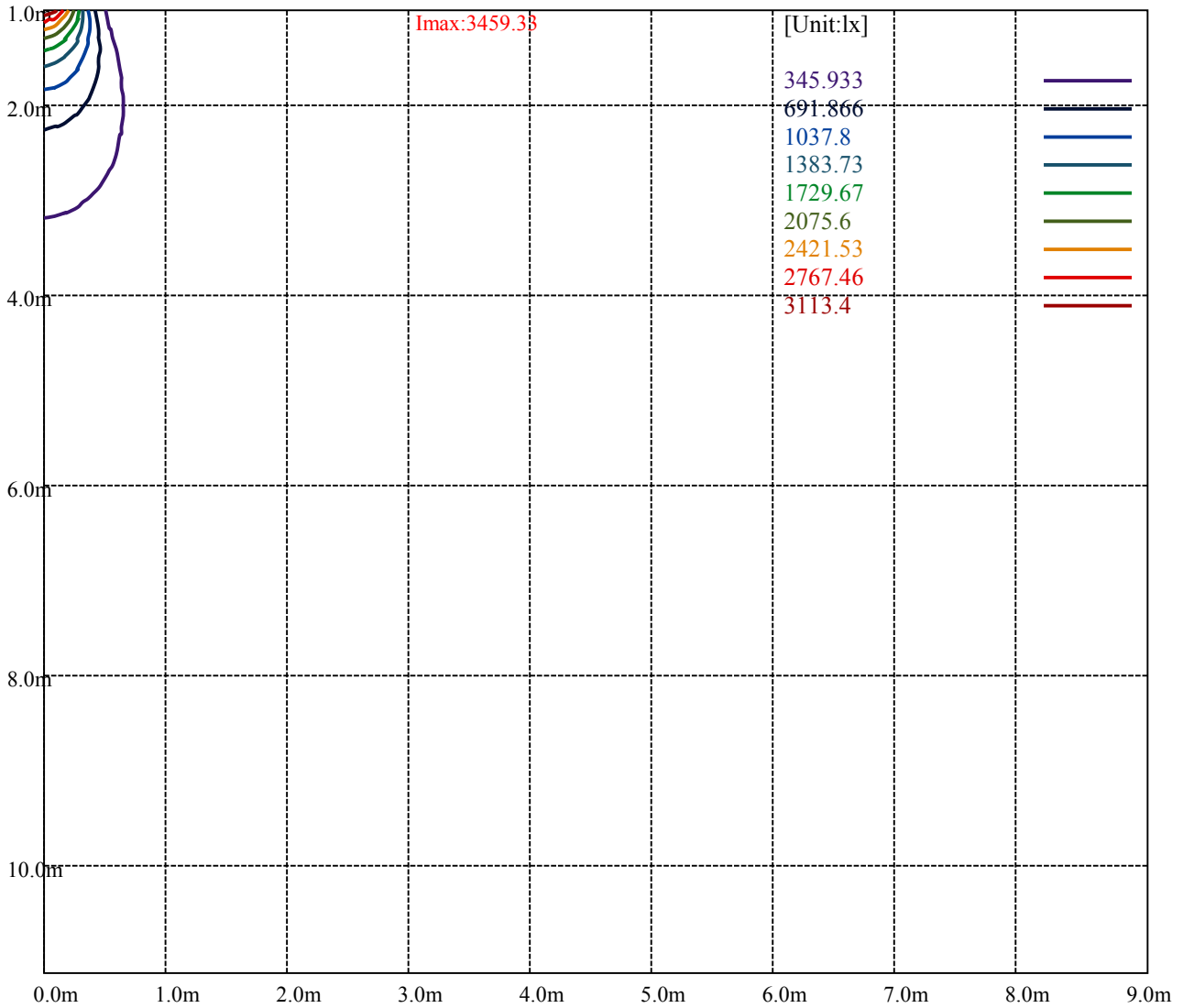
Road

I_{max}:3459.33

| | | |
|------------------------|---------|---|
| (10%I _{max}) | 345.933 | — |
| (20%I _{max}) | 691.866 | — |
| (30%I _{max}) | 1037.8 | — |
| (40%I _{max}) | 1383.73 | — |
| (50%I _{max}) | 1729.67 | — |
| (60%I _{max}) | 2075.6 | — |
| (70%I _{max}) | 2421.53 | — |
| (80%I _{max}) | 2767.46 | — |
| (90%I _{max}) | 3113.4 | — |



- (10%Emax) 38.437
- (20%Emax) 76.87389
- (30%Emax) 115.3111
- (40%Emax) 153.7478
- (50%Emax) 192.1844
- (60%Emax) 230.6222
- (70%Emax) 269.0589
- (80%Emax) 307.4955
- (90%Emax) 345.9322



Luminance Table

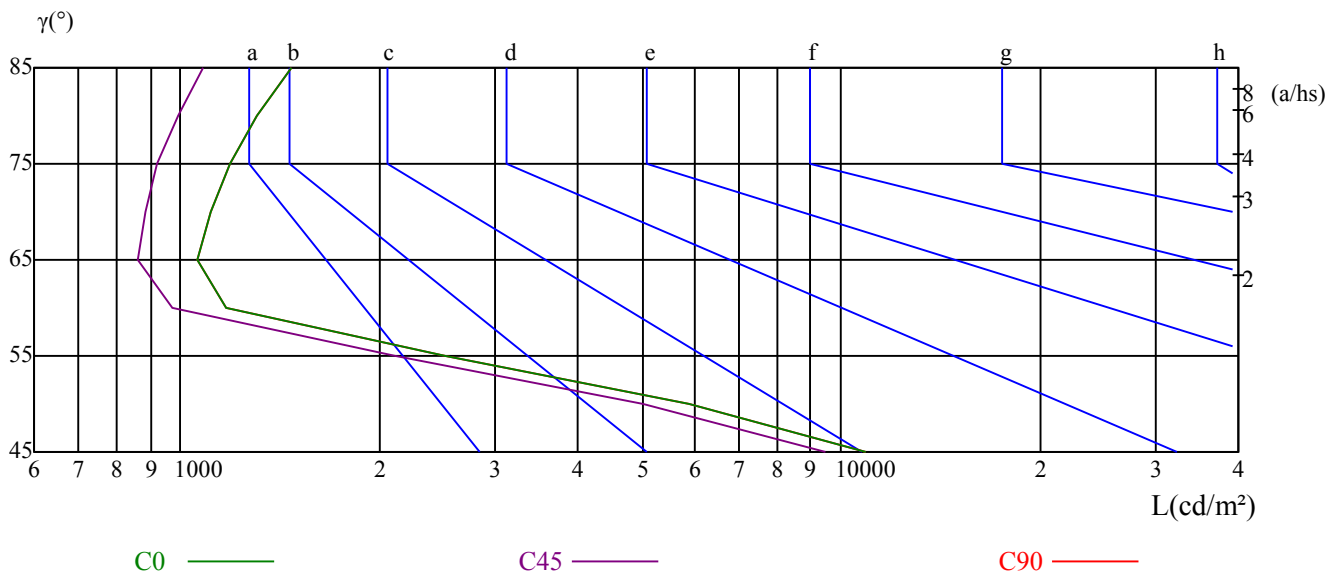
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|-------|------|------|------|------|------|------|------|------|
| C0 | 10916 | 5883 | 2515 | 1172 | 1058 | 1108 | 1186 | 1303 | 1475 |
| C45 | 9468 | 5027 | 2116 | 970 | 860 | 883 | 923 | 988 | 1084 |
| C90 | 10916 | 5883 | 2515 | 1172 | 1058 | 1108 | 1186 | 1303 | 1475 |

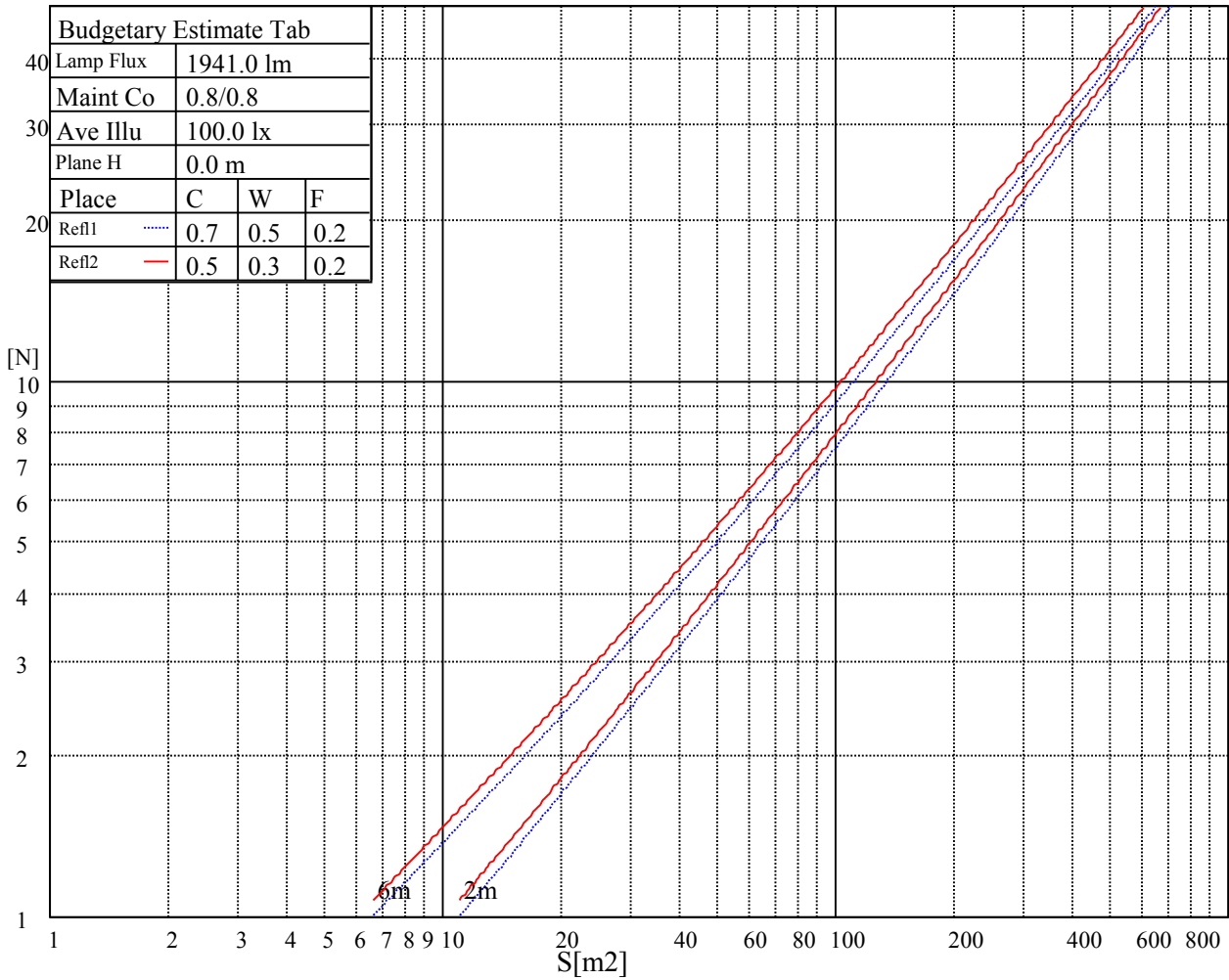
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 2385 | 2385 | 2385 | 3777 | 3777 | 3777 | 11344 | 11344 | 11344 |

Glare Table

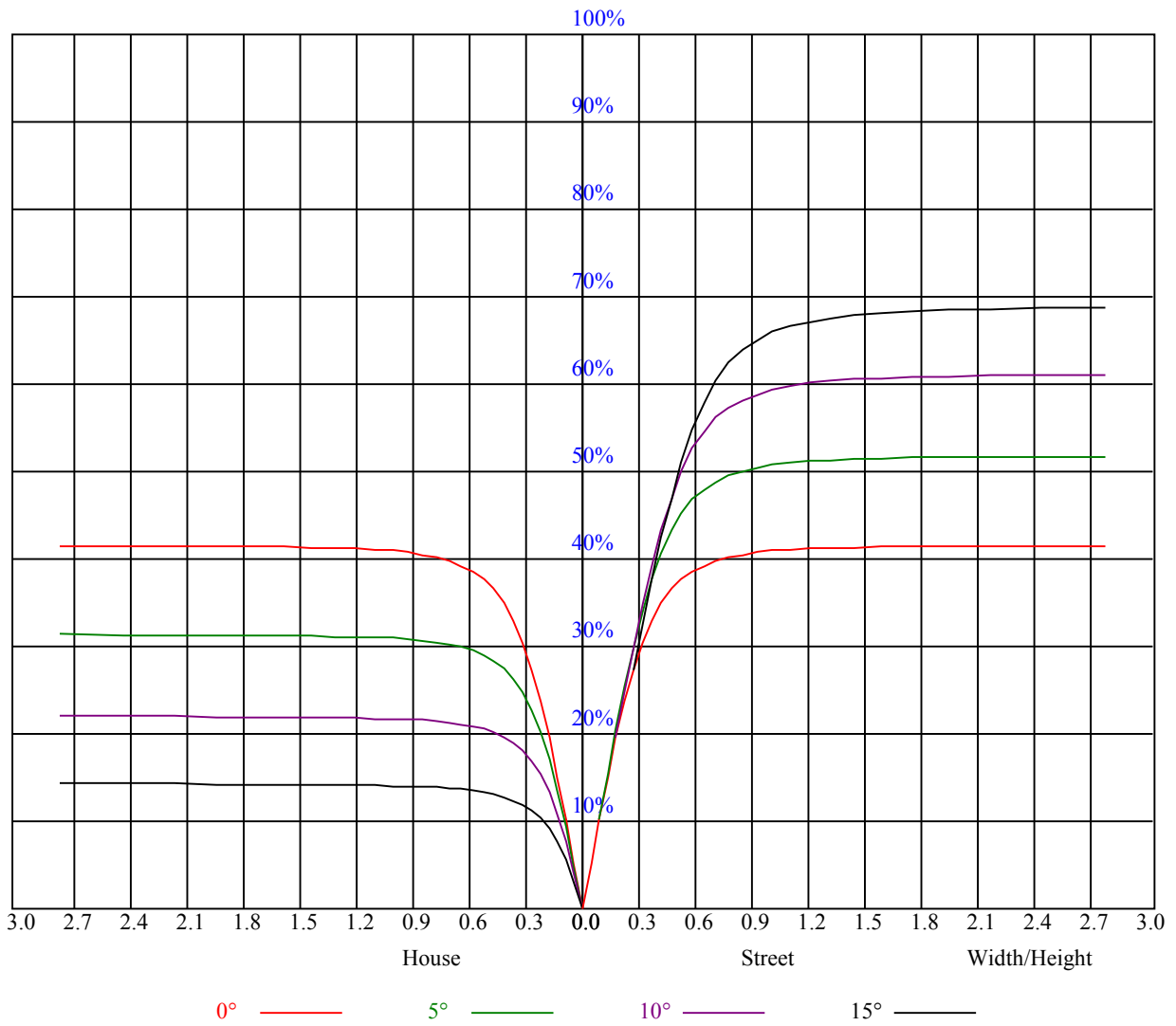
| Glare | Quality | Service Values Illuminance(lx) | | | | | | | |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15 | A | 2000 | 1000 | 500 | <=300 | | | | |
| 1.5 | B | | 2000 | 1000 | 500 | <=300 | | | |
| 1.85 | C | | | 2000 | 1000 |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

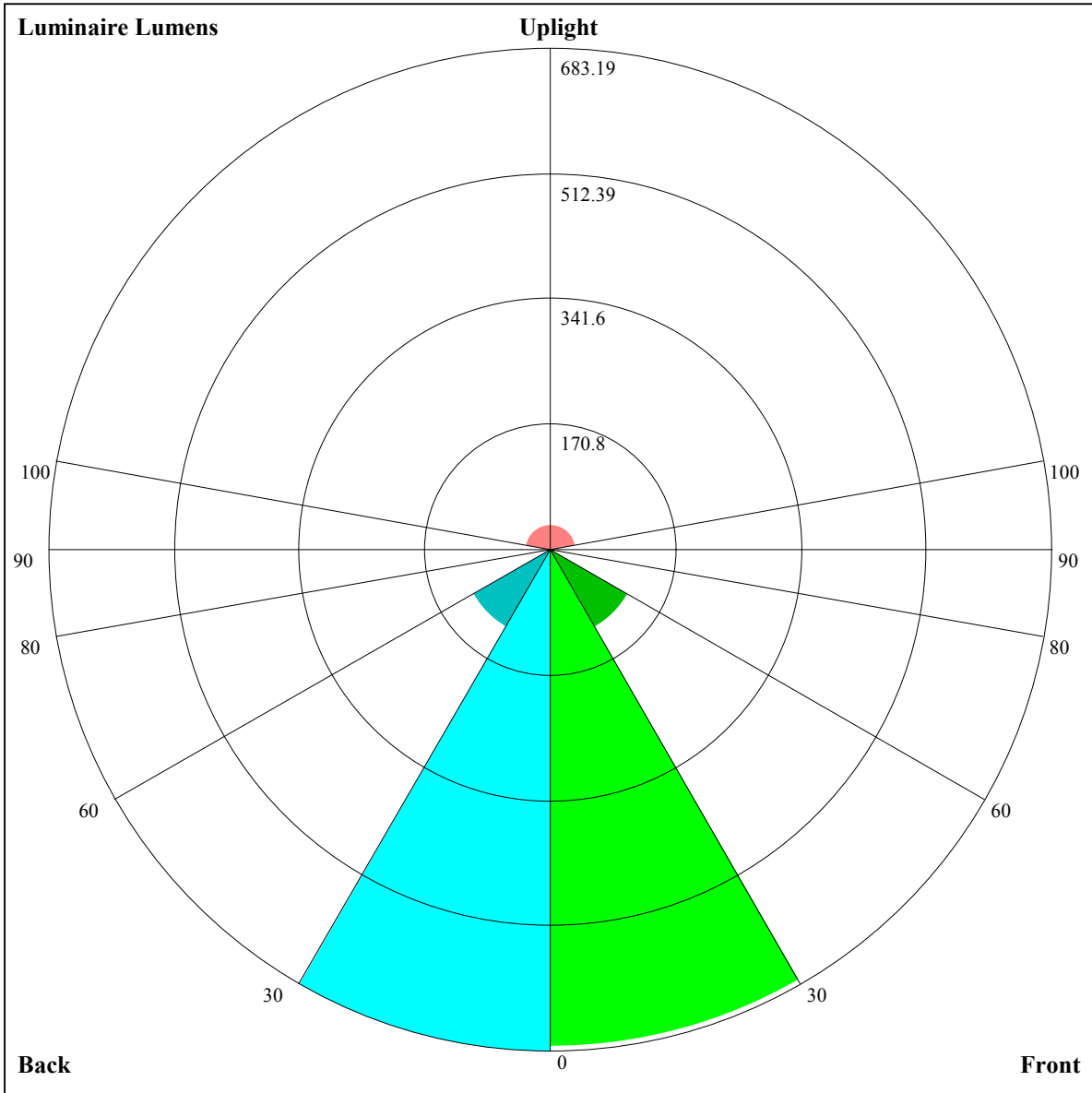
Luminance Limiting Curve





| 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 | 1.00 | 1.00 | 1.00 | 0.98 | 0.98 | 0.98 | 0.94 | 0.94 | 0.94 | 0.90 | 0.90 | 0.90 | 0.86 | 0.86 | 0.86 | 0.84 |
| 1 | 0.93 | 0.91 | 0.89 | 0.91 | 0.89 | 0.87 | 0.88 | 0.86 | 0.85 | 0.85 | 0.83 | 0.82 | 0.82 | 0.81 | 0.80 | 0.78 |
| 2 | 0.88 | 0.85 | 0.82 | 0.86 | 0.83 | 0.81 | 0.84 | 0.81 | 0.79 | 0.81 | 0.79 | 0.78 | 0.79 | 0.77 | 0.76 | 0.75 |
| 3 | 0.83 | 0.80 | 0.77 | 0.82 | 0.79 | 0.76 | 0.80 | 0.77 | 0.75 | 0.78 | 0.76 | 0.74 | 0.76 | 0.74 | 0.72 | 0.71 |
| 4 | 0.79 | 0.75 | 0.72 | 0.78 | 0.75 | 0.72 | 0.77 | 0.73 | 0.71 | 0.75 | 0.72 | 0.70 | 0.73 | 0.71 | 0.69 | 0.68 |
| 5 | 0.76 | 0.72 | 0.68 | 0.75 | 0.71 | 0.68 | 0.74 | 0.70 | 0.68 | 0.72 | 0.69 | 0.67 | 0.71 | 0.68 | 0.66 | 0.65 |
| 6 | 0.73 | 0.68 | 0.65 | 0.72 | 0.68 | 0.65 | 0.71 | 0.67 | 0.65 | 0.70 | 0.67 | 0.64 | 0.69 | 0.66 | 0.64 | 0.63 |
| 7 | 0.70 | 0.65 | 0.62 | 0.69 | 0.65 | 0.62 | 0.68 | 0.65 | 0.62 | 0.67 | 0.64 | 0.62 | 0.66 | 0.64 | 0.61 | 0.60 |
| 8 | 0.67 | 0.63 | 0.60 | 0.67 | 0.63 | 0.60 | 0.66 | 0.62 | 0.60 | 0.65 | 0.62 | 0.59 | 0.64 | 0.61 | 0.59 | 0.58 |
| 9 | 0.65 | 0.60 | 0.58 | 0.64 | 0.60 | 0.58 | 0.63 | 0.60 | 0.57 | 0.63 | 0.60 | 0.57 | 0.62 | 0.59 | 0.57 | 0.56 |
| 10 | 0.62 | 0.58 | 0.56 | 0.62 | 0.58 | 0.56 | 0.61 | 0.58 | 0.55 | 0.61 | 0.58 | 0.55 | 0.60 | 0.57 | 0.55 | 0.54 |





Luminaire Lumens:

FL=677.21,FM=122.31,FH=6.96,FVH=3.61

BL=683.19,BM=121.61,BH=7.03,BVH=3.61

UL=7.1,UH=33.8

BUG Rating:B2-U2-G0

Intensity data(cd)

| | | | | | | | | | |
|--------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| C/γ(°) | 0.0 | 5.0 | 10.0 | 15.0 | 20.0 | 25.0 | 30.0 | 35.0 | 40.0 |
| 0.0 | 3456.99 | 3361.74 | 2993.97 | 2452.76 | 1708.95 | 888.61 | 432.74 | 282.44 | 147.39 |
| 45.0 | 3464.15 | 3249.98 | 2845.31 | 2192.35 | 1380.26 | 682.70 | 322.08 | 194.68 | 131.03 |
| 90.0 | 3451.49 | 3203.18 | 2736.85 | 2118.02 | 1067.54 | 574.68 | 301.76 | 185.26 | 113.25 |
| 135.0 | 3464.70 | 3289.62 | 2895.42 | 2296.95 | 1570.76 | 757.58 | 350.71 | 205.69 | 131.14 |
| 180.0 | 3456.99 | 3267.05 | 2867.89 | 2269.98 | 1530.02 | 788.46 | 355.39 | 201.56 | 130.98 |
| 225.0 | 3464.15 | 3388.17 | 3066.64 | 2549.66 | 1864.76 | 1057.30 | 501.67 | 250.67 | 158.95 |
| 270.0 | 3451.49 | 3423.41 | 3126.65 | 2659.77 | 2107.56 | 1253.63 | 588.00 | 289.05 | 181.96 |
| 315.0 | 3464.70 | 3372.20 | 3000.57 | 2431.29 | 1731.52 | 918.45 | 426.58 | 239.94 | 152.07 |
| 360.0 | 3456.99 | 3361.74 | 2993.97 | 2452.76 | 1708.95 | 888.61 | 432.74 | 282.44 | 147.39 |
| C/γ(°) | 45.0 | 50.0 | 55.0 | 60.0 | 65.0 | 70.0 | 75.0 | 80.0 | 85.0 |
| 0.0 | 86.93 | 43.99 | 17.62 | 7.60 | 6.77 | 6.66 | 6.61 | 6.55 | 6.66 |
| 45.0 | 66.73 | 31.44 | 11.45 | 6.88 | 6.66 | 6.55 | 6.50 | 6.50 | 6.50 |
| 90.0 | 58.19 | 29.01 | 10.24 | 6.88 | 6.72 | 6.61 | 6.55 | 6.55 | 7.10 |
| 135.0 | 74.99 | 39.86 | 15.75 | 7.16 | 6.88 | 6.72 | 6.66 | 6.66 | 6.66 |
| 180.0 | 75.43 | 39.42 | 15.47 | 7.21 | 6.77 | 6.66 | 6.61 | 6.61 | 6.61 |
| 225.0 | 97.78 | 55.00 | 24.11 | 9.63 | 6.72 | 6.55 | 6.50 | 6.50 | 6.44 |
| 270.0 | 109.51 | 60.89 | 27.91 | 10.57 | 6.88 | 6.72 | 6.61 | 6.61 | 6.61 |
| 315.0 | 88.70 | 45.70 | 19.93 | 7.54 | 6.83 | 6.72 | 6.55 | 6.61 | 6.61 |
| 360.0 | 86.93 | 43.99 | 17.62 | 7.60 | 6.77 | 6.66 | 6.61 | 6.55 | 6.66 |
| C/γ(°) | 90.0 | | | | | | | | |
| 0.0 | 6.55 | | | | | | | | |
| 45.0 | 6.44 | | | | | | | | |
| 90.0 | 6.50 | | | | | | | | |
| 135.0 | 6.61 | | | | | | | | |
| 180.0 | 6.50 | | | | | | | | |
| 225.0 | 6.44 | | | | | | | | |
| 270.0 | 6.50 | | | | | | | | |
| 315.0 | 6.55 | | | | | | | | |
| 360.0 | 6.55 | | | | | | | | |