
Nata

Client:

LumCAT: 3-2019-A

Luminaire: 92.70.045.00+92.70.089.00

Report No: NT2018032104

Test No: nata-0100

LampCAT: NICHIA NEVWJ048Z-V1

Lamp flux(lm): 3055.0

Number of Lamps: 1

Length(mm): 86

Phm Type: C

Voltage(V): 43.8000

Current(A): 0.5000

Power (W): 21.9000

PF: 0.0000

Ballast type: DC

Width(mm): 86

Height(mm): 0

Photometric Results

Lumens(lm): 2539.01, Efficiency(%): 83.11% , Luminous Efficacy(lm/W): 115.94

Central intensity(cd): 17970.410, Maximum intensity(cd): 17970.410

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=16.8

[C90/270]Total=16.8

Field angle(10%Imax): [C0/180]Total=35.2

[C90/270]Total=35.2

Maximum s/h(1/2): C0_180=0.29 C90_270=0.29

Maximum s/h(1/4): C0_180=0.31 C90_270=0.31

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 86.55%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 94.905%

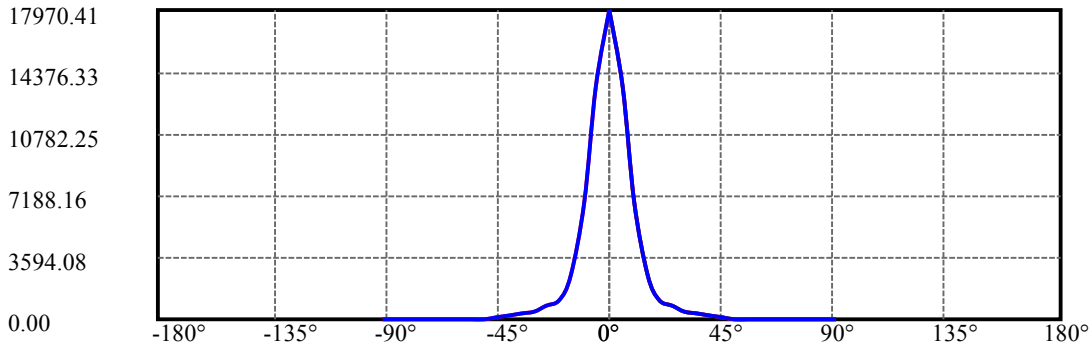
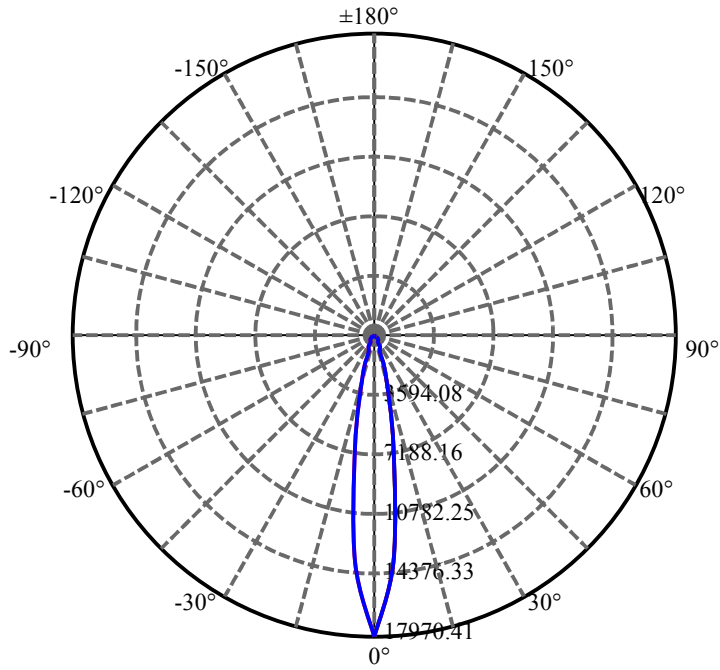
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0 | 17970.408 | 107.467 | 107.467 | 3.518% | 4.233% |
| 5.0 | 13512.699 | 645.546 | 753.013 | 21.131% | 29.658% |
| 10.0 | 6782.191 | 645.550 | 1398.563 | 21.131% | 55.083% |
| 15.0 | 2540.853 | 360.467 | 1759.03 | 11.799% | 69.280% |
| 20.0 | 1124.568 | 210.827 | 1969.857 | 6.901% | 77.584% |
| 25.0 | 737.026 | 170.734 | 2140.591 | 5.589% | 84.308% |
| 30.0 | 492.252 | 134.911 | 2275.502 | 4.416% | 89.622% |
| 35.0 | 307.456 | 96.664 | 2372.166 | 3.164% | 93.429% |
| 40.0 | 190.220 | 67.021 | 2439.187 | 2.194% | 96.068% |
| 45.0 | 99.329 | 38.499 | 2477.686 | 1.260% | 97.585% |
| 50.0 | 46.894 | 19.691 | 2497.377 | .645% | 98.360% |
| 55.0 | 15.443 | 6.934 | 2504.311 | .227% | 98.633% |
| 60.0 | 10.598 | 5.031 | 2509.342 | .165% | 98.831% |
| 65.0 | 10.330 | 5.132 | 2514.474 | .168% | 99.034% |
| 70.0 | 10.240 | 5.275 | 2519.748 | .173% | 99.241% |
| 75.0 | 10.234 | 5.418 | 2525.167 | .177% | 99.455% |
| 80.0 | 10.234 | 5.524 | 2530.691 | .181% | 99.672% |
| 85.0 | 10.234 | 5.588 | 2536.279 | .183% | 99.892% |
| 90.0 | 9.972 | 2.733 | 2539.012 | .089% | 100.000% |

ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|--------|---------|
| 0-30 | 2275.50 | 74.48% | 89.62% |
| 0-40 | 2439.19 | 79.84% | 96.07% |
| 0-60 | 2509.34 | 82.14% | 98.83% |
| 0-90 | 2536.28 | 83.02% | 99.89% |
| 0-120 | 2536.28 | 83.02% | 99.89% |
| 0-180 | 2539.01 | 83.11% | 100.00% |
| 60-90 | 31.97 | 1.05% | 1.26% |
| 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% |
| 0-21.80 | 2031.21 | 66.49% | 80.00% |

ZONAL LUMEN SUMMARY

| | |
|---------|---------|
| 0-10 | 1398.56 |
| 10-20 | 571.29 |
| 20-30 | 305.65 |
| 30-40 | 163.68 |
| 40-50 | 58.19 |
| 50-60 | 11.97 |
| 60-70 | 10.41 |
| 70-80 | 10.94 |
| 80-90 | 5.59 |
| 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 |



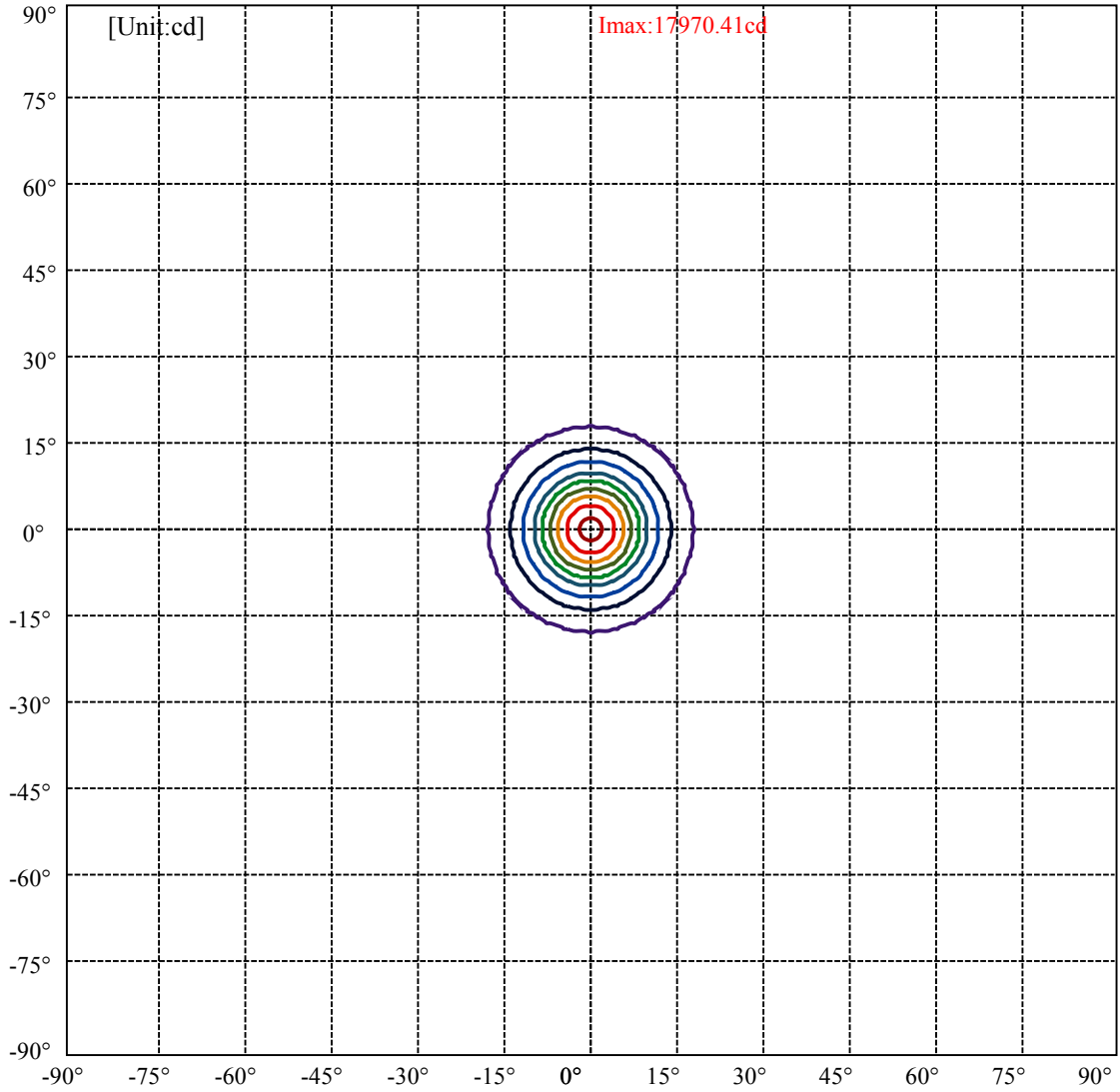
C0(Max): —————

C0/C180: —————

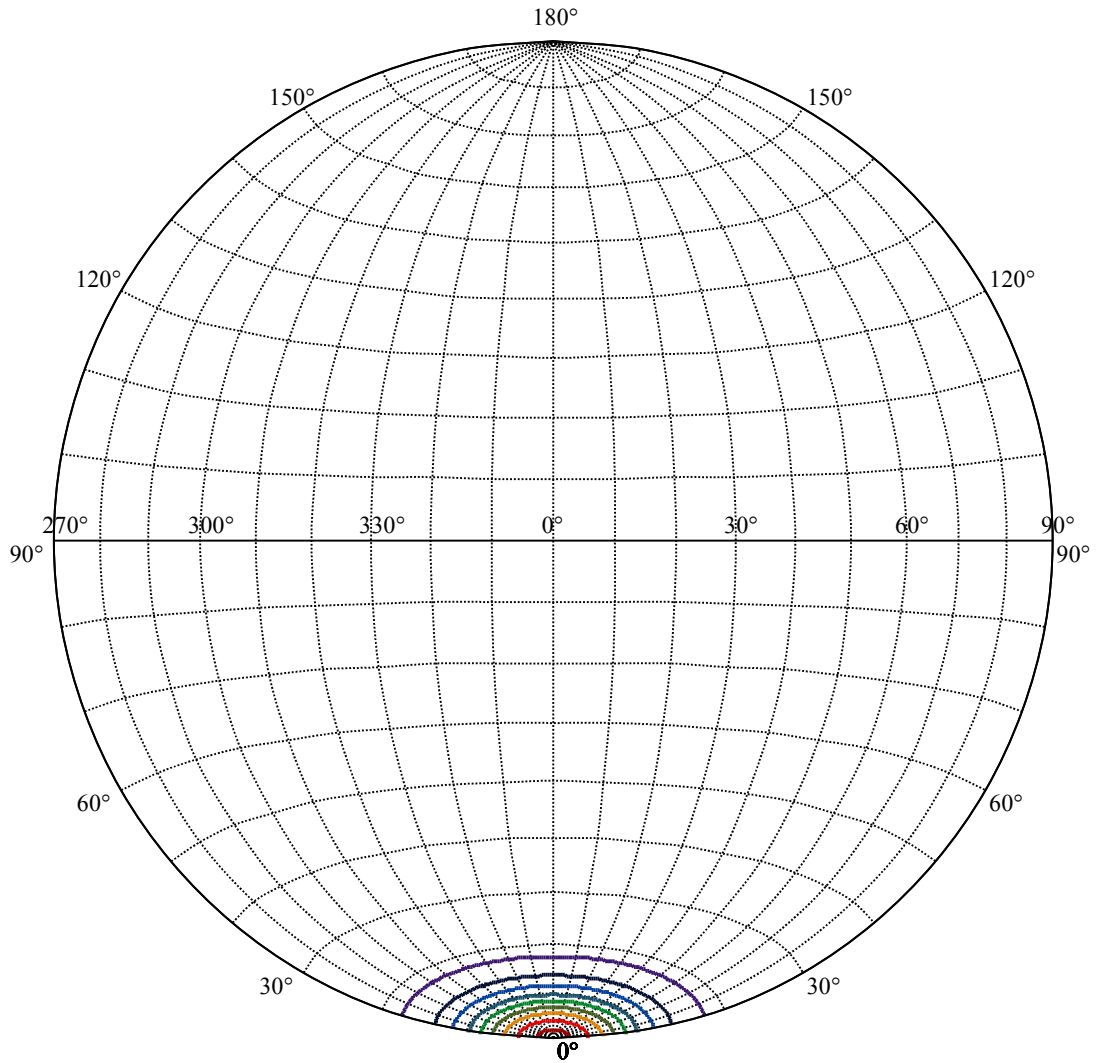
C90/C270: —————

Field angle(10%Imax):C0/180Left:17.6 Right:17.6
:C90/270Left:17.6 Right:17.6

Beam Angle(50%Imax):C0/180Left:8.4 Right:8.4
:C90/270Left:8.4 Right:8.4



| | |
|--------------------------------|---|
| (10%I _{max}) 1797.04 | — |
| (20%I _{max}) 3594.08 | — |
| (30%I _{max}) 5391.12 | — |
| (40%I _{max}) 7188.16 | — |
| (50%I _{max}) 8985.21 | — |
| (60%I _{max}) 10782.2 | — |
| (70%I _{max}) 12579.3 | — |
| (80%I _{max}) 14376.3 | — |
| (90%I _{max}) 16173.4 | — |



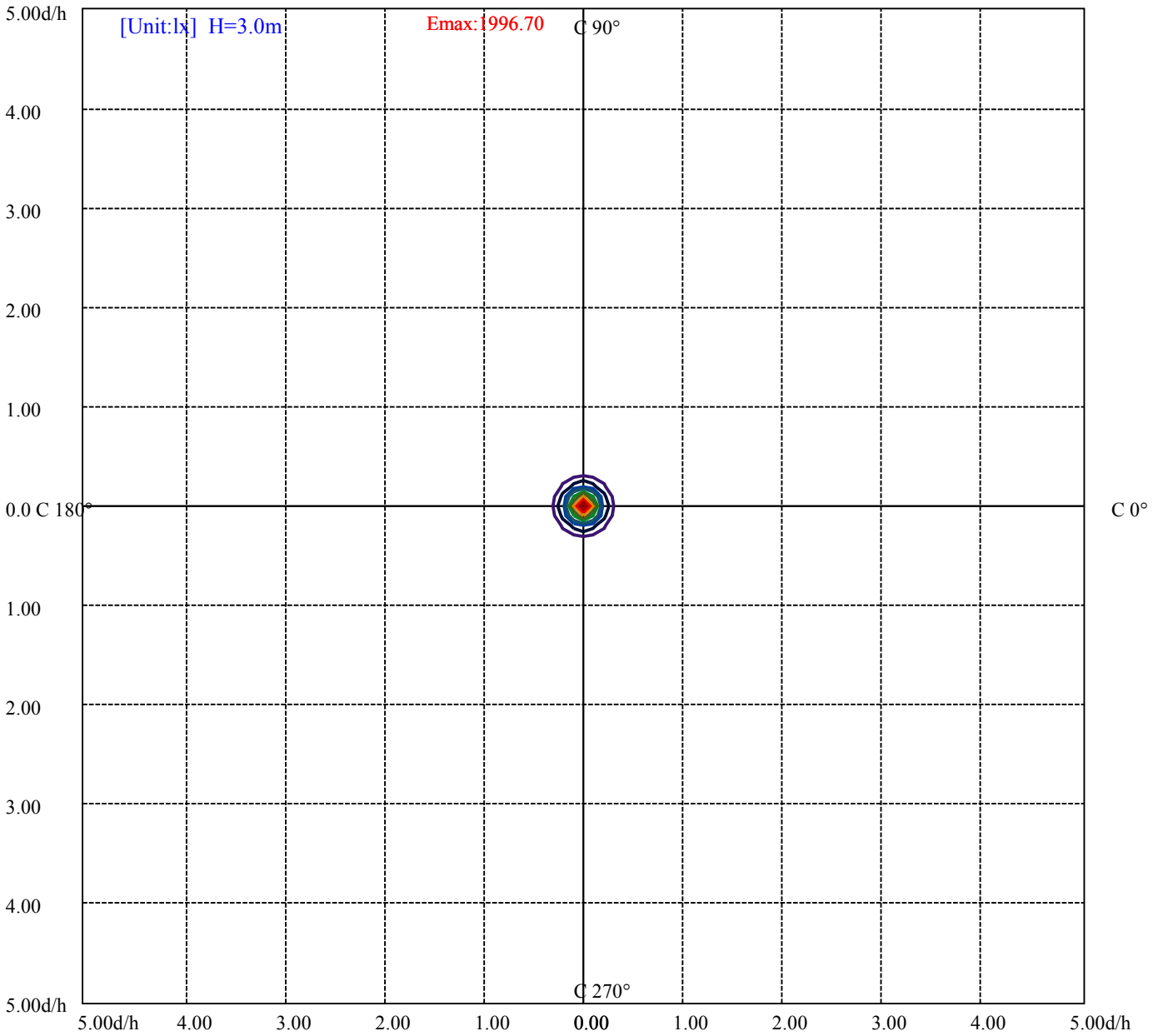
House

[Unit:cd]

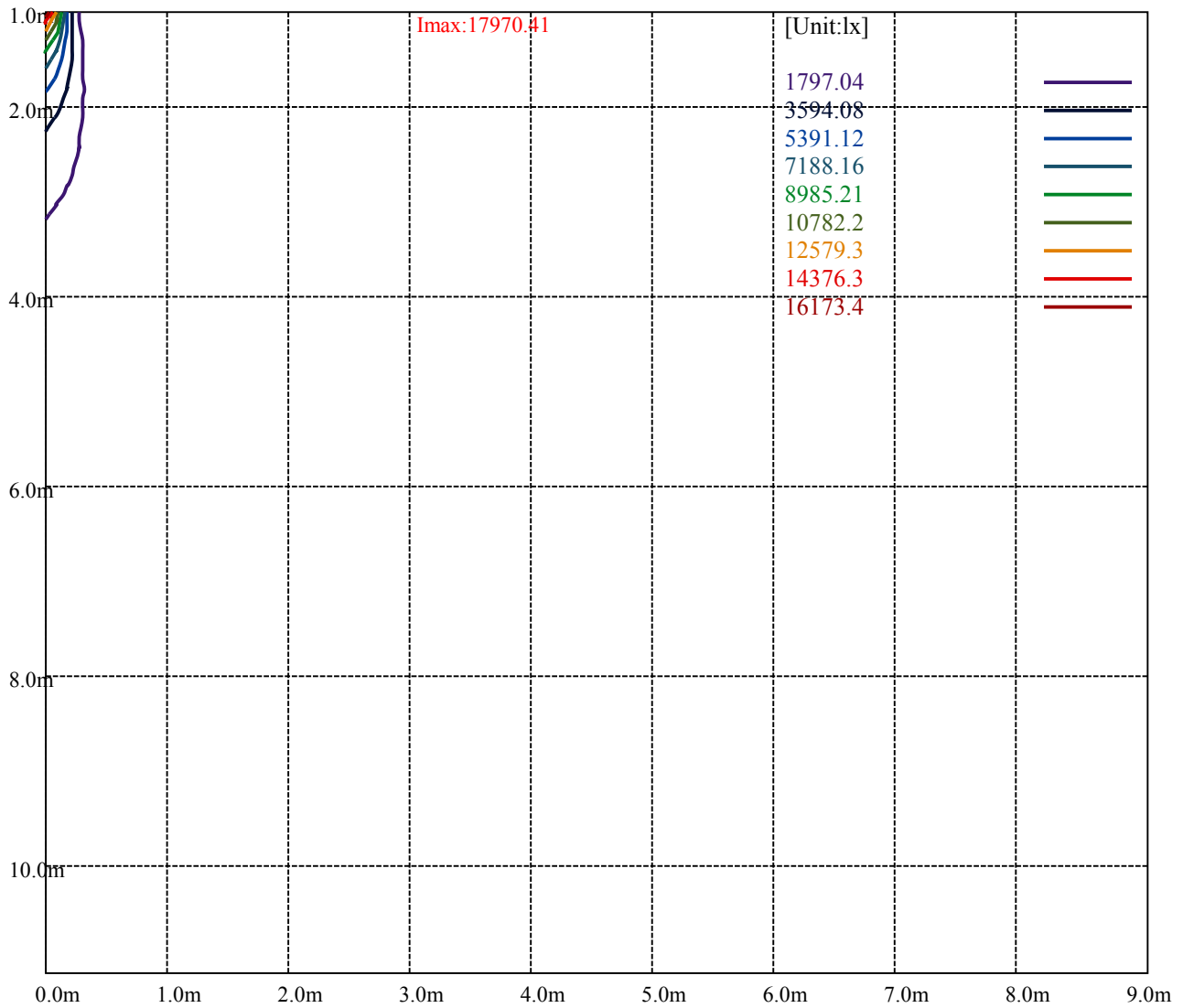
Road

Imax:17970.41

| | | |
|-----------|---------|---|
| (10%Imax) | 1797.04 | — |
| (20%Imax) | 3594.08 | — |
| (30%Imax) | 5391.12 | — |
| (40%Imax) | 7188.16 | — |
| (50%Imax) | 8985.21 | — |
| (60%Imax) | 10782.2 | — |
| (70%Imax) | 12579.3 | — |
| (80%Imax) | 14376.3 | — |
| (90%Imax) | 16173.4 | — |



- (10%Emax) 199.67
- (20%Emax) 399.34
- (30%Emax) 599.0089
- (40%Emax) 798.6789
- (50%Emax) 998.3489
- (60%Emax) 1198.022
- (70%Emax) 1397.689
- (80%Emax) 1597.356
- (90%Emax) 1797.022



Luminance Table

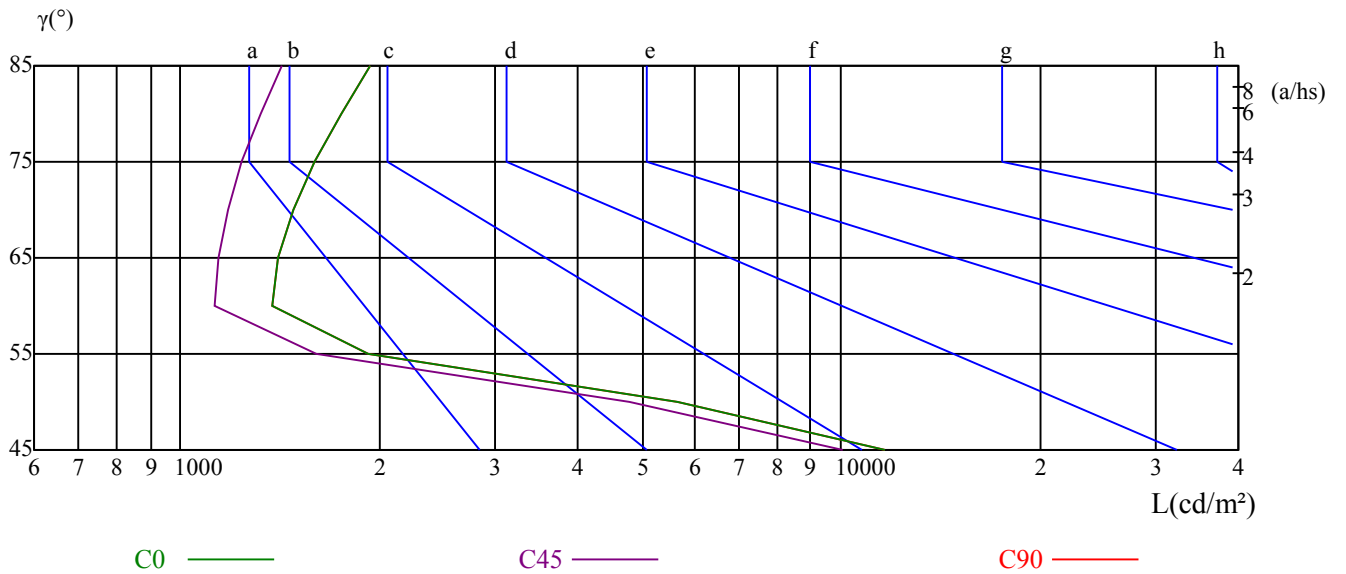
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|-------|------|------|------|------|------|------|------|------|
| C0 | 11667 | 5642 | 1919 | 1373 | 1408 | 1486 | 1599 | 1747 | 1942 |
| C45 | 10060 | 4792 | 1605 | 1129 | 1138 | 1177 | 1239 | 1320 | 1424 |
| C90 | 11667 | 5642 | 1919 | 1373 | 1408 | 1486 | 1599 | 1747 | 1942 |

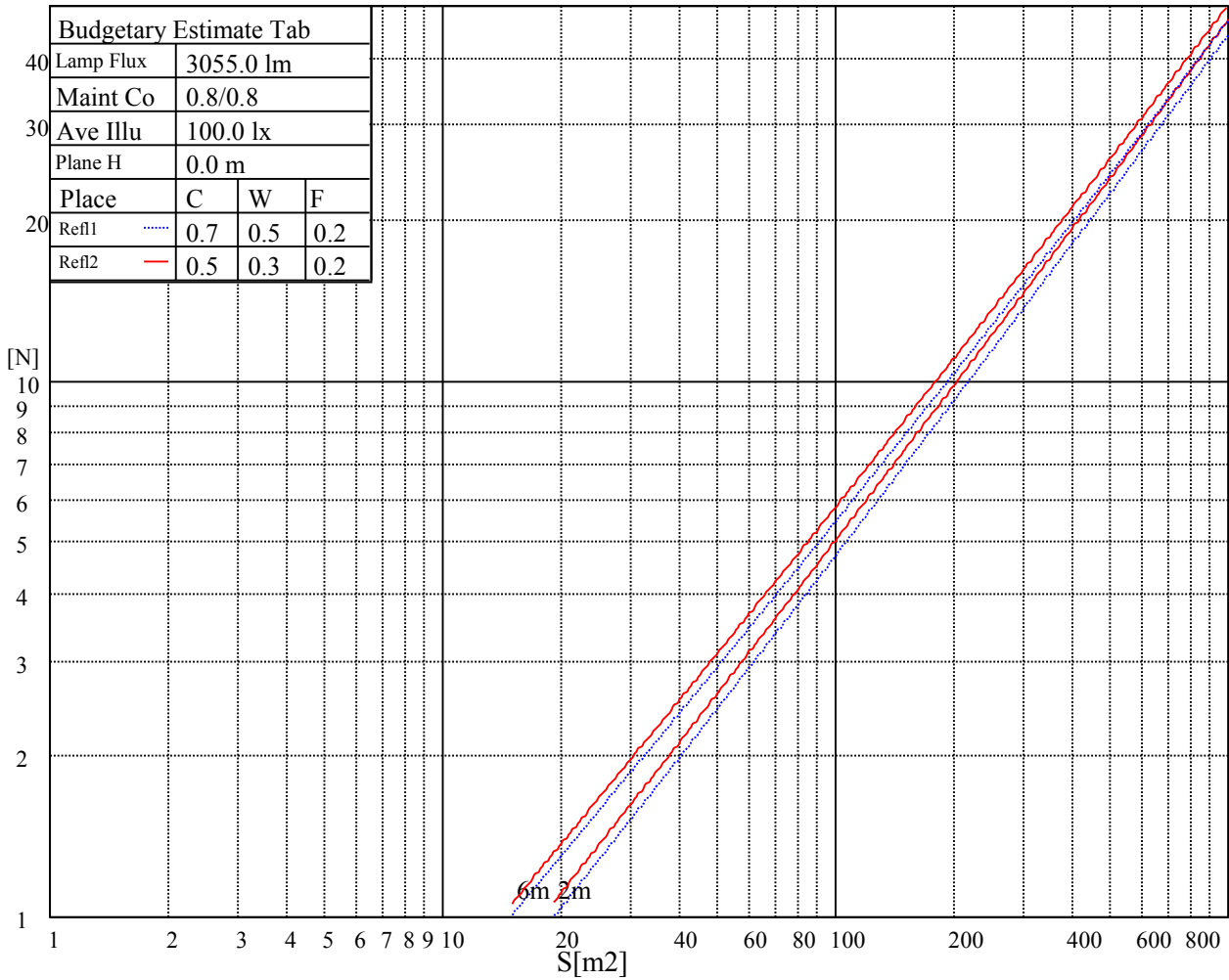
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 3305 | 3305 | 3305 | 5346 | 5346 | 5346 | 15876 | 15876 | 15876 |

Glare Table

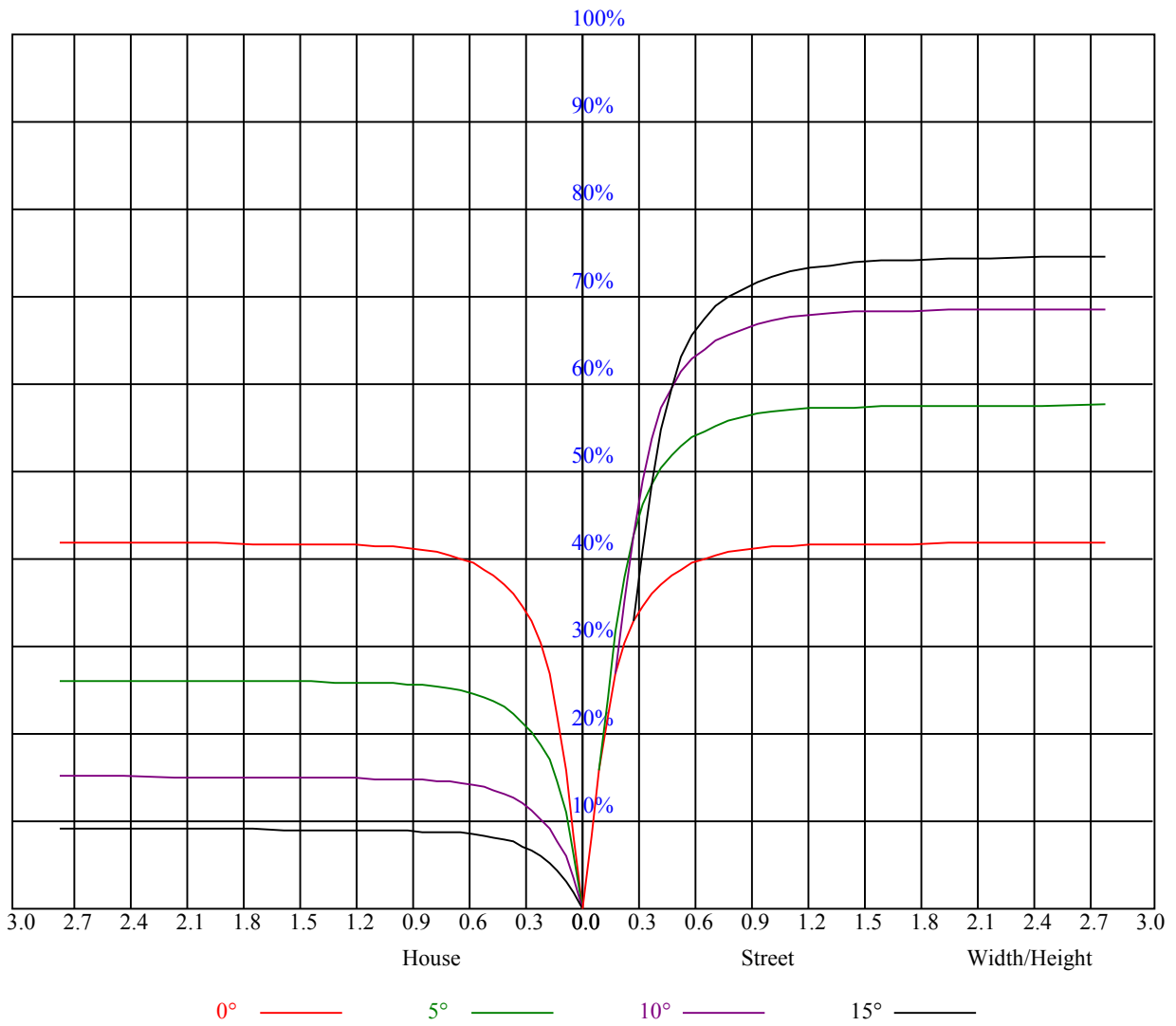
| Glare | Quality | Service Values Illuminance(lx) | | | | | | | |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15 | A | 2000 | 1000 | 500 | <=300 | | | | |
| 1.5 | B | | 2000 | 1000 | 500 | <=300 | | | |
| 1.85 | C | | | 2000 | 1000 |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

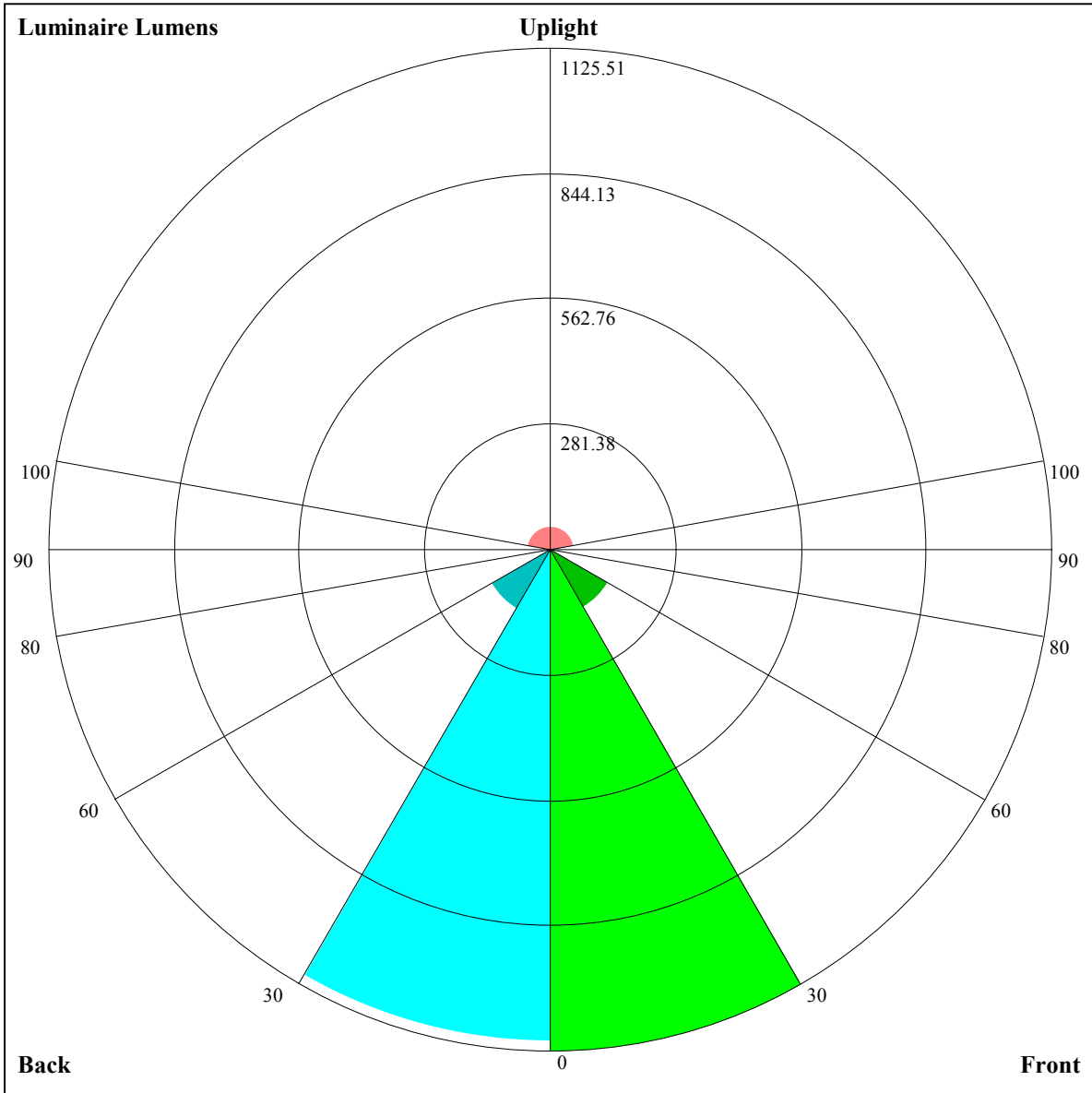
Luminance Limiting Curve





| 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 | 0.93 | 0.90 | 0.88 | 0.91 | 0.88 | 0.86 | 0.88 | 0.85 | 0.83 | 0.84 | 0.82 | 0.81 | 0.81 | 0.80 | 0.79 | 0.77 |
| 2 | 0.89 | 0.85 | 0.82 | 0.87 | 0.84 | 0.81 | 0.84 | 0.81 | 0.79 | 0.82 | 0.79 | 0.77 | 0.79 | 0.77 | 0.76 | 0.74 |
| 3 | 0.85 | 0.81 | 0.78 | 0.84 | 0.80 | 0.77 | 0.81 | 0.78 | 0.76 | 0.79 | 0.77 | 0.75 | 0.77 | 0.75 | 0.73 | 0.72 |
| 4 | 0.81 | 0.77 | 0.74 | 0.81 | 0.77 | 0.74 | 0.79 | 0.76 | 0.73 | 0.77 | 0.74 | 0.72 | 0.76 | 0.73 | 0.71 | 0.70 |
| 5 | 0.79 | 0.75 | 0.71 | 0.78 | 0.74 | 0.71 | 0.76 | 0.73 | 0.71 | 0.75 | 0.72 | 0.70 | 0.74 | 0.71 | 0.69 | 0.68 |
| 6 | 0.76 | 0.72 | 0.69 | 0.76 | 0.72 | 0.69 | 0.74 | 0.71 | 0.68 | 0.73 | 0.70 | 0.68 | 0.72 | 0.70 | 0.68 | 0.67 |
| 7 | 0.74 | 0.70 | 0.67 | 0.73 | 0.70 | 0.67 | 0.72 | 0.69 | 0.67 | 0.72 | 0.69 | 0.66 | 0.71 | 0.68 | 0.66 | 0.65 |
| 8 | 0.72 | 0.68 | 0.65 | 0.72 | 0.68 | 0.65 | 0.71 | 0.67 | 0.65 | 0.70 | 0.67 | 0.65 | 0.69 | 0.67 | 0.65 | 0.64 |
| 9 | 0.70 | 0.66 | 0.64 | 0.70 | 0.66 | 0.64 | 0.69 | 0.66 | 0.64 | 0.68 | 0.66 | 0.63 | 0.68 | 0.65 | 0.63 | 0.62 |
| 10 | 0.69 | 0.65 | 0.63 | 0.68 | 0.65 | 0.62 | 0.68 | 0.64 | 0.62 | 0.67 | 0.64 | 0.62 | 0.67 | 0.64 | 0.62 | 0.61 |





Luminaire Lumens:

FL=1125.51,FM=149.48,FH=10.55,FVH=5.52

BL=1103.57,BM=153.01,BH=10.58,BVH=5.56

UL=10.88,UH=51.78

BUG Rating:B3-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 | 18030.97 | 15503.88 | 7823.51 | 2824.39 | 1206.84 | 761.43 | 497.16 | 322.63 | 196.06 |
| 45.0 | 18075.02 | 13345.67 | 5753.39 | 2879.45 | 1071.95 | 663.43 | 438.80 | 278.59 | 163.96 |
| 90.0 | 17651.08 | 10891.26 | 4801.47 | 1625.26 | 984.52 | 636.78 | 410.12 | 259.26 | 155.64 |
| 135.0 | 18124.57 | 13797.13 | 6882.05 | 2890.46 | 1134.16 | 741.61 | 492.20 | 301.71 | 190.55 |
| 180.0 | 18030.97 | 10931.45 | 5454.99 | 1889.54 | 1076.74 | 698.34 | 468.81 | 291.30 | 178.22 |
| 225.0 | 18075.02 | 14920.28 | 7671.01 | 2651.52 | 1093.03 | 807.79 | 553.48 | 342.84 | 217.80 |
| 270.0 | 17651.08 | 15823.21 | 8748.46 | 3325.41 | 1349.43 | 842.36 | 584.15 | 358.42 | 222.70 |
| 315.0 | 18124.57 | 12888.70 | 7122.65 | 2240.80 | 1079.88 | 744.47 | 493.31 | 304.90 | 196.83 |
| 360.0 | 18030.97 | 15503.88 | 7823.51 | 2824.39 | 1206.84 | 761.43 | 497.16 | 322.63 | 196.06 |

| C/γ(°) | 45.0 | 50.0 | 55.0 | 60.0 | 65.0 | 70.0 | 75.0 | 80.0 | 85.0 |
|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.0 | 105.38 | 55.00 | 18.17 | 10.57 | 10.24 | 10.13 | 10.13 | 10.13 | 10.19 |
| 45.0 | 82.47 | 37.05 | 12.50 | 10.57 | 10.30 | 10.24 | 10.19 | 10.19 | 10.08 |
| 90.0 | 76.97 | 33.91 | 11.07 | 10.46 | 10.30 | 10.24 | 10.24 | 10.30 | 10.08 |
| 135.0 | 94.37 | 43.38 | 13.21 | 10.63 | 10.35 | 10.35 | 10.30 | 10.35 | 10.57 |
| 180.0 | 86.77 | 40.63 | 12.11 | 10.52 | 10.30 | 10.19 | 10.24 | 10.24 | 10.41 |
| 225.0 | 118.59 | 55.66 | 18.72 | 10.74 | 10.41 | 10.24 | 10.24 | 10.24 | 10.24 |
| 270.0 | 128.28 | 62.21 | 22.52 | 10.74 | 10.41 | 10.30 | 10.30 | 10.13 | 10.13 |
| 315.0 | 101.80 | 47.29 | 15.25 | 10.57 | 10.35 | 10.24 | 10.24 | 10.30 | 10.19 |
| 360.0 | 105.38 | 55.00 | 18.17 | 10.57 | 10.24 | 10.13 | 10.13 | 10.13 | 10.19 |

| C/γ(°) | 90.0 |
|--------|-------|
| 0.0 | 9.97 |
| 45.0 | 9.97 |
| 90.0 | 10.02 |
| 135.0 | 9.97 |
| 180.0 | 9.91 |
| 225.0 | 9.97 |
| 270.0 | 10.02 |
| 315.0 | 9.97 |
| 360.0 | 9.97 |