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Nata

LumCAT: 3-2035-M
Luminaire: 92.70.131.00
Report No: NATA0100
Test No: GC2018091019
LampCAT: LUMINUS CXM-11-AC30
Lamp flux(lm): 2547.0
Number of Lamps: 1
Length(mm): 78
Phm Type: C

Voltage(V): 34.6000
Current(A): 0.5000
Power (W): 17.3000
PF: 0.0000
Ballast type: DC
Width(mm): 78
Height(mm): 0

Photometric Results

Lumens(lm): 2267.80
Efficiency(%): 89.04%
Lumens(lm)/Power(W): 132.31
Central intensity(cd): 3888.281
Maximum intensity(cd): 3888.281
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=43.1
 [C90/270]Total=43.1
Field angle(10%Imax): [C0/180]Total=74.1
 [C90/270]Total=74.1
Maximum s/h(1/2): C0_180=0.69 C90_270=0.69
Maximum s/h(1/4): C0_180=0.71 C90_270=0.71
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.87%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.746%

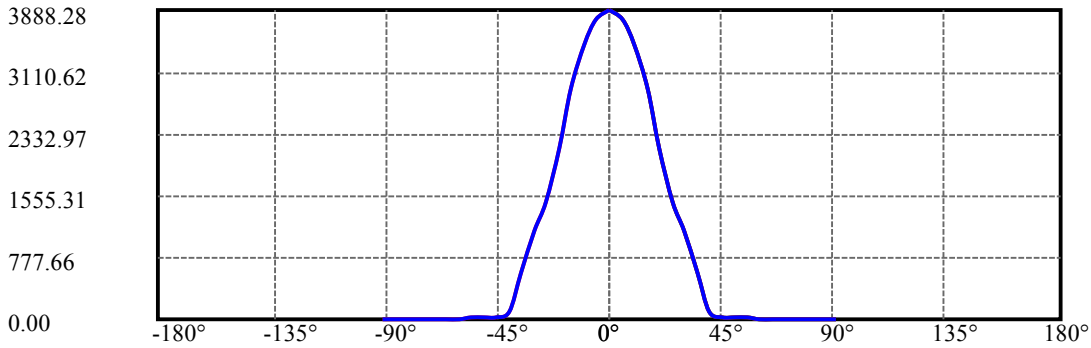
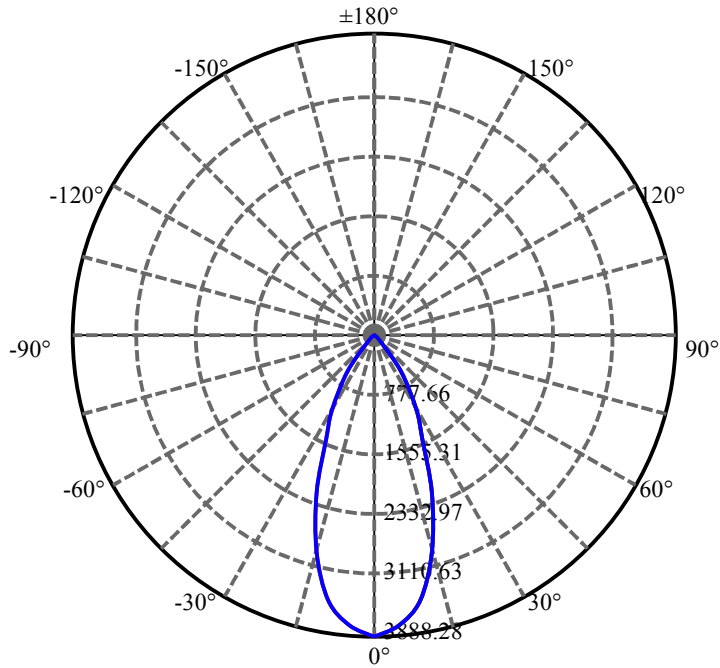
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0 | 3888.281 | 23.253 | 23.253 | .913% | 1.025% |
| 5.0 | 3762.070 | 179.727 | 202.979 | 7.056% | 8.950% |
| 10.0 | 3462.961 | 329.615 | 532.595 | 12.941% | 23.485% |
| 15.0 | 2903.273 | 411.883 | 944.477 | 16.171% | 41.647% |
| 20.0 | 2157.680 | 404.509 | 1348.986 | 15.882% | 59.484% |
| 25.0 | 1472.203 | 341.040 | 1690.026 | 13.390% | 74.523% |
| 30.0 | 1104.574 | 302.729 | 1992.755 | 11.886% | 87.872% |
| 35.0 | 585.963 | 184.226 | 2176.982 | 7.233% | 95.995% |
| 40.0 | 105.497 | 37.170 | 2214.152 | 1.459% | 97.634% |
| 45.0 | 16.425 | 6.366 | 2220.518 | .250% | 97.915% |
| 50.0 | 13.444 | 5.645 | 2226.163 | .222% | 98.164% |
| 55.0 | 12.389 | 5.563 | 2231.726 | .218% | 98.409% |
| 60.0 | 11.756 | 5.581 | 2237.307 | .219% | 98.655% |
| 65.0 | 11.187 | 5.557 | 2242.864 | .218% | 98.900% |
| 70.0 | 10.758 | 5.541 | 2248.405 | .218% | 99.145% |
| 75.0 | 10.455 | 5.536 | 2253.941 | .217% | 99.389% |
| 80.0 | 10.287 | 5.553 | 2259.494 | .218% | 99.634% |
| 85.0 | 10.153 | 5.544 | 2265.038 | .218% | 99.878% |
| 90.0 | 10.083 | 2.763 | 2267.801 | .108% | 100.000% |

ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|--------|---------|
| 0-30 | 1992.76 | 78.24% | 87.87% |
| 0-40 | 2214.15 | 86.93% | 97.63% |
| 0-60 | 2237.31 | 87.84% | 98.66% |
| 0-90 | 2265.04 | 88.93% | 99.88% |
| 0-120 | 2265.04 | 88.93% | 99.88% |
| 0-180 | 2267.80 | 89.04% | 100.00% |
| 60-90 | 33.31 | 1.31% | 1.47% |
| 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% |
| 0-27.05 | 1814.24 | 71.23% | 80.00% |

ZONAL LUMEN SUMMARY

| | |
|---------|--------|
| 0-10 | 532.59 |
| 10-20 | 816.39 |
| 20-30 | 643.77 |
| 30-40 | 221.40 |
| 40-50 | 12.01 |
| 50-60 | 11.14 |
| 60-70 | 11.10 |
| 70-80 | 11.09 |
| 80-90 | 5.54 |
| 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: —————

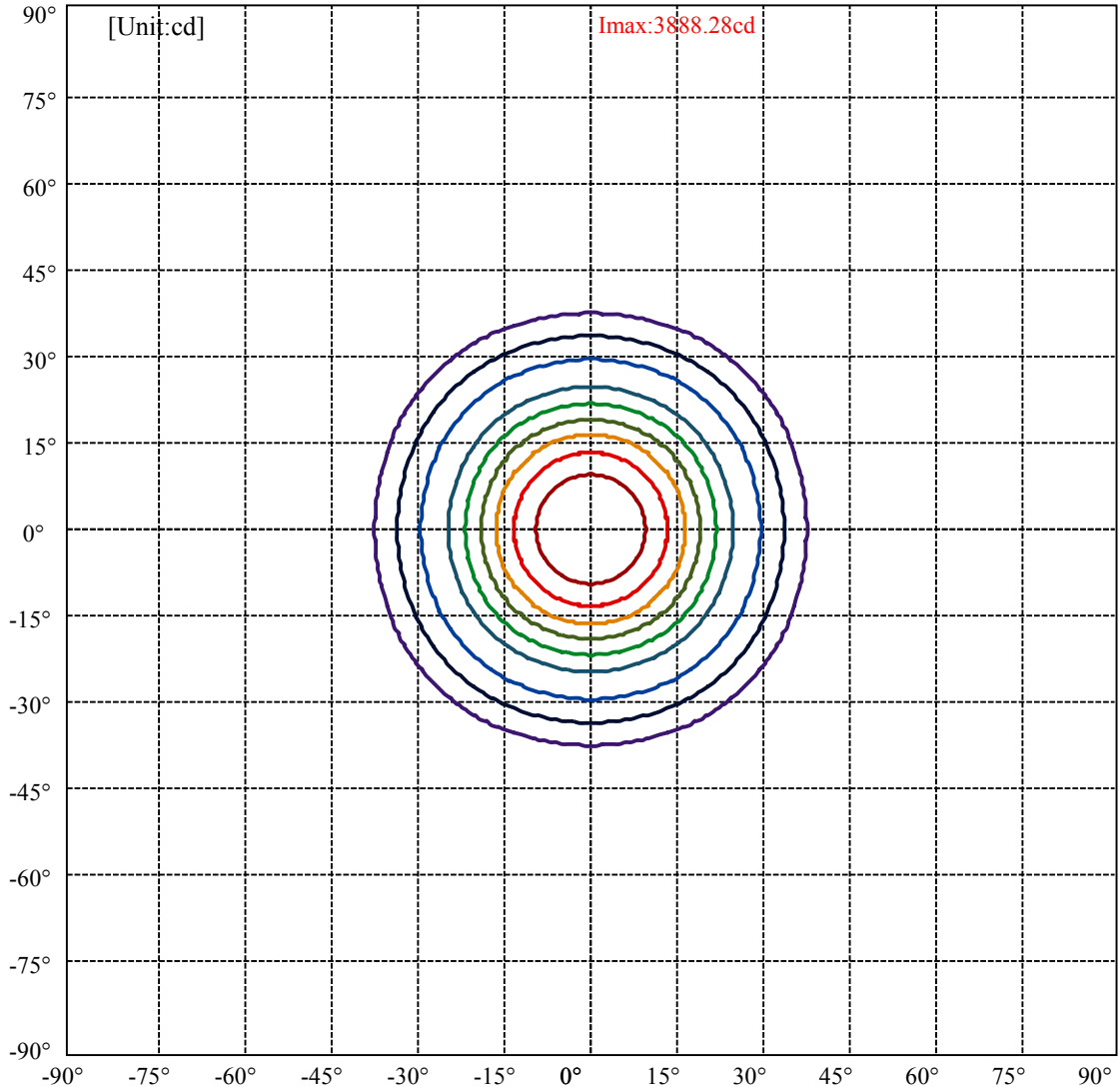
C90/C270: —————

Field angle(10%Imax):C0/180Left:37.1 Right:37.1

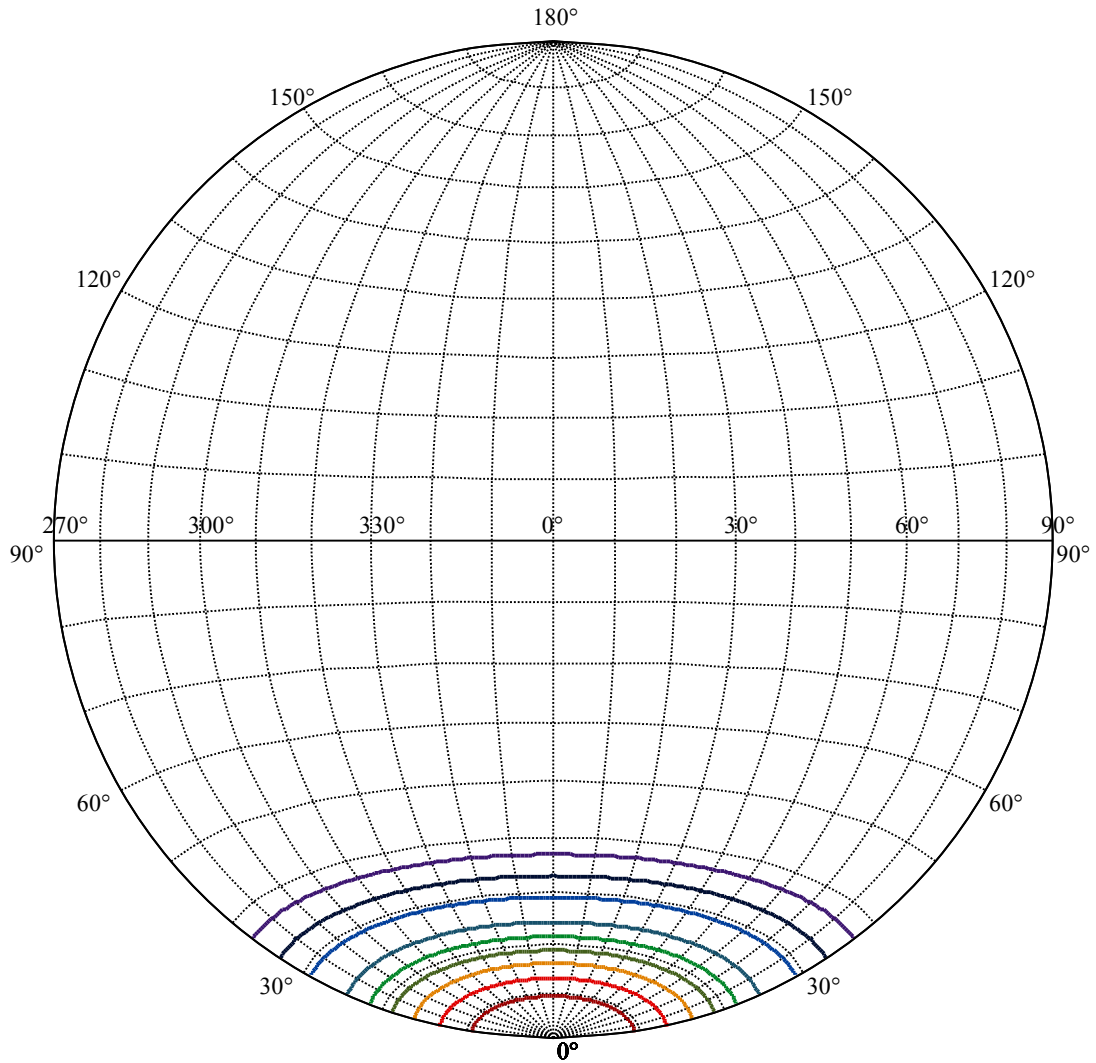
:C90/270Left:37.1 Right:37.1

Beam Angle(50%Imax):C0/180Left:21.6 Right:21.6

:C90/270Left:21.6 Right:21.6



| | |
|-------------------|---|
| (10%Imax) 388.828 | — |
| (20%Imax) 777.656 | — |
| (30%Imax) 1166.48 | — |
| (40%Imax) 1555.31 | — |
| (50%Imax) 1944.14 | — |
| (60%Imax) 2332.97 | — |
| (70%Imax) 2721.8 | — |
| (80%Imax) 3110.62 | — |
| (90%Imax) 3499.45 | — |



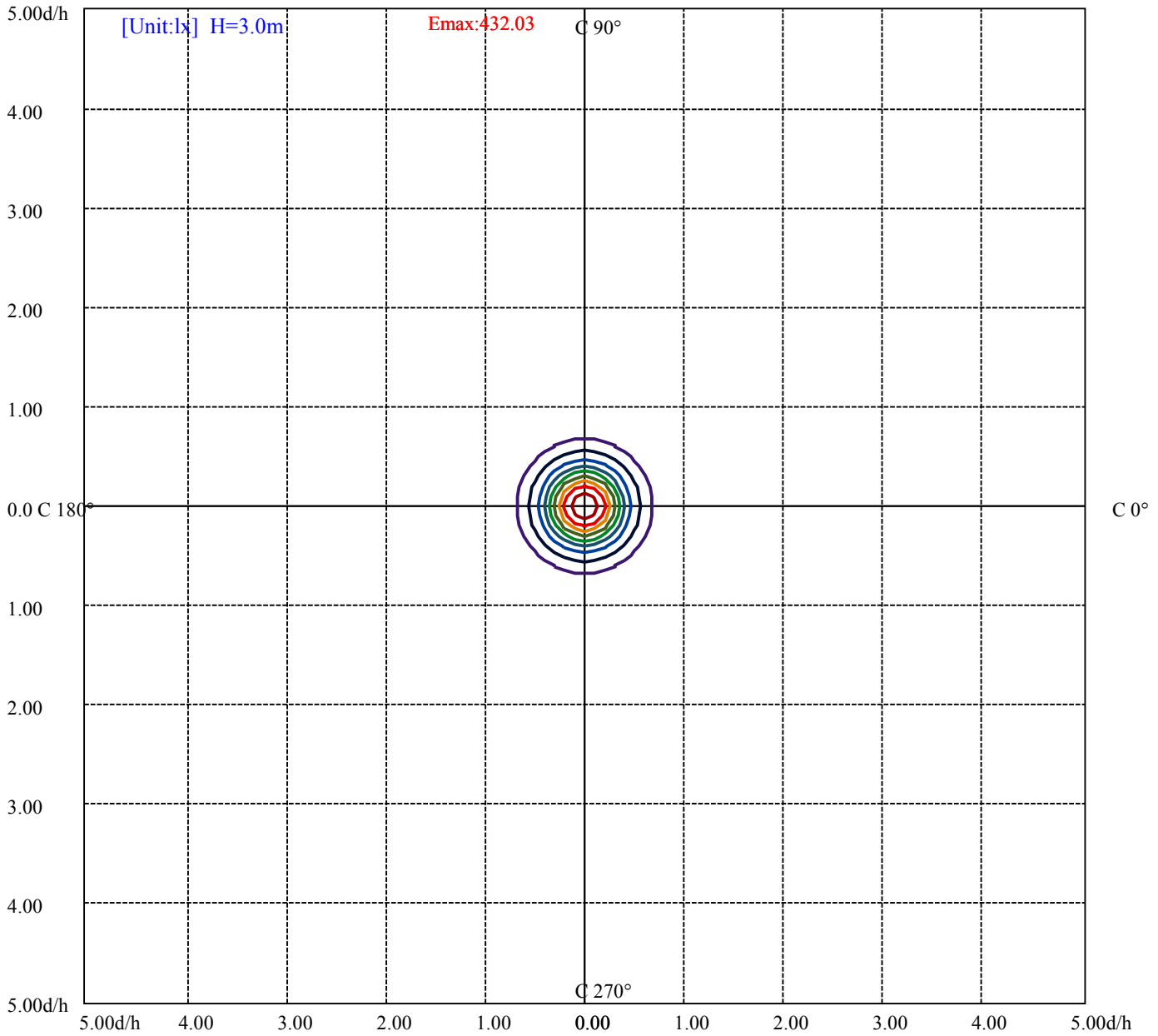
House

[Unit:cd]

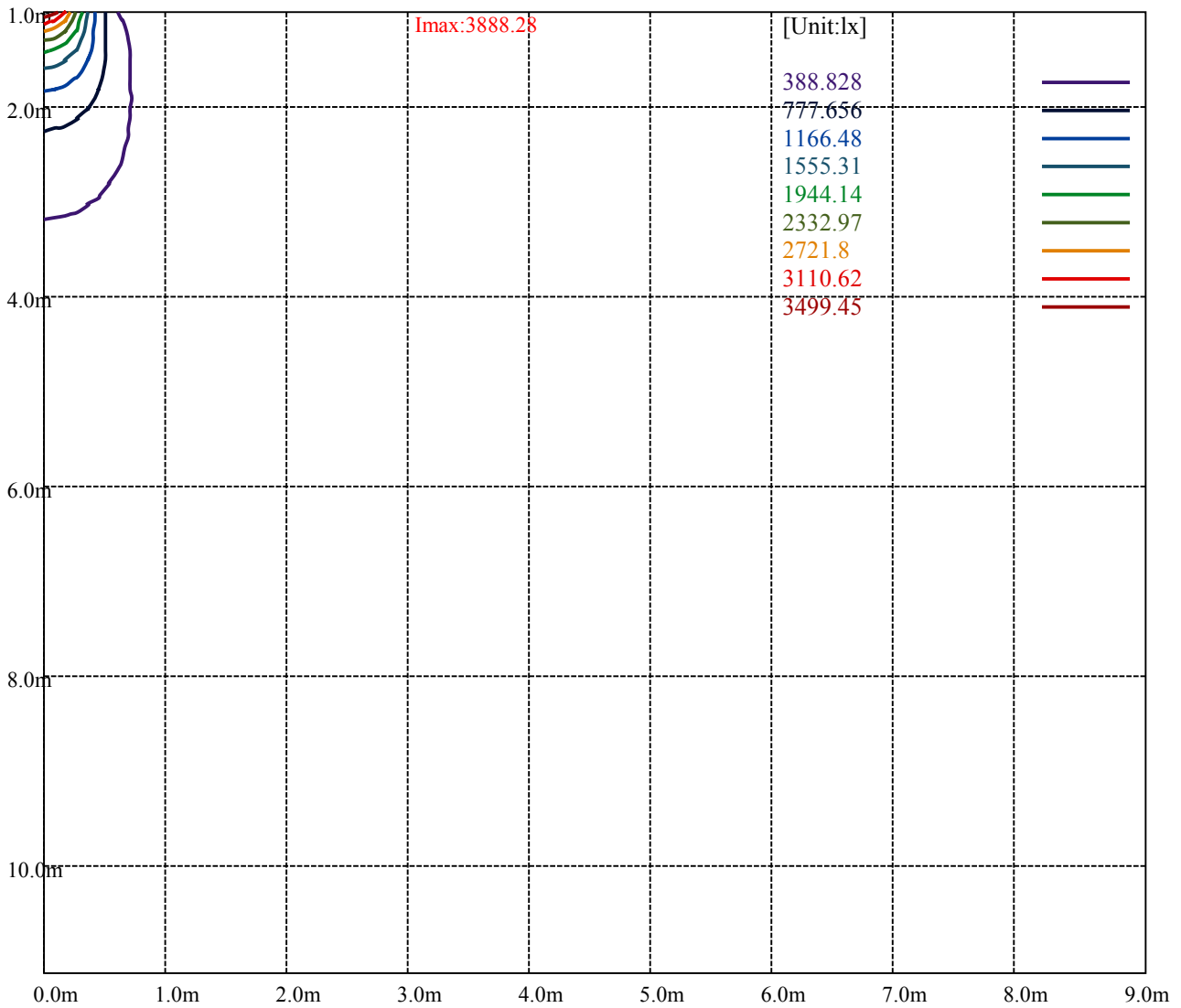
Road

Imax:3888.28

| | |
|-------------------|---|
| (10%Imax) 388.828 | — |
| (20%Imax) 777.656 | — |
| (30%Imax) 1166.48 | — |
| (40%Imax) 1555.31 | — |
| (50%Imax) 1944.14 | — |
| (60%Imax) 2332.97 | — |
| (70%Imax) 2721.8 | — |
| (80%Imax) 3110.62 | — |
| (90%Imax) 3499.45 | — |



- (10%Emax) 43.20311
- (20%Emax) 86.40611
- (30%Emax) 129.6089
- (40%Emax) 172.8122
- (50%Emax) 216.0156
- (60%Emax) 259.2189
- (70%Emax) 302.4211
- (80%Emax) 345.6245
- (90%Emax) 388.8278



Luminance Table

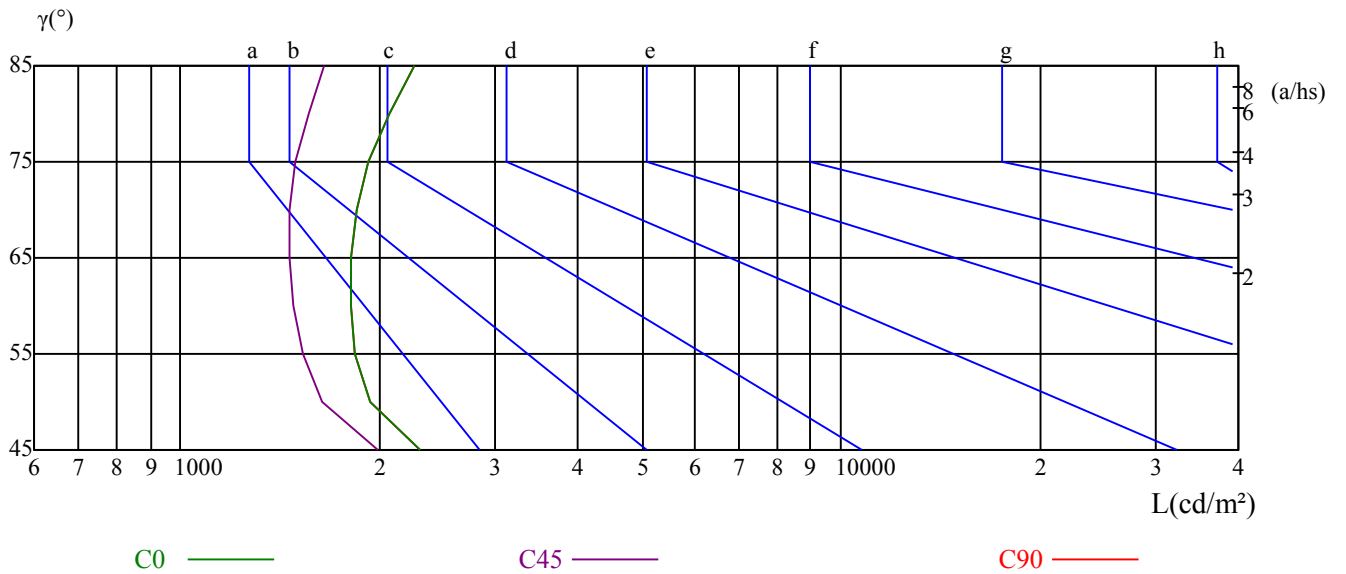
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|------|------|------|------|------|------|------|------|------|
| C0 | 2309 | 1932 | 1836 | 1812 | 1811 | 1849 | 1930 | 2068 | 2260 |
| C45 | 1984 | 1635 | 1530 | 1485 | 1459 | 1460 | 1492 | 1559 | 1655 |
| C90 | 2309 | 1932 | 1836 | 1812 | 1811 | 1849 | 1930 | 2068 | 2260 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 4351 | 4351 | 4351 | 6640 | 6640 | 6640 | 19148 | 19148 | 19148 |

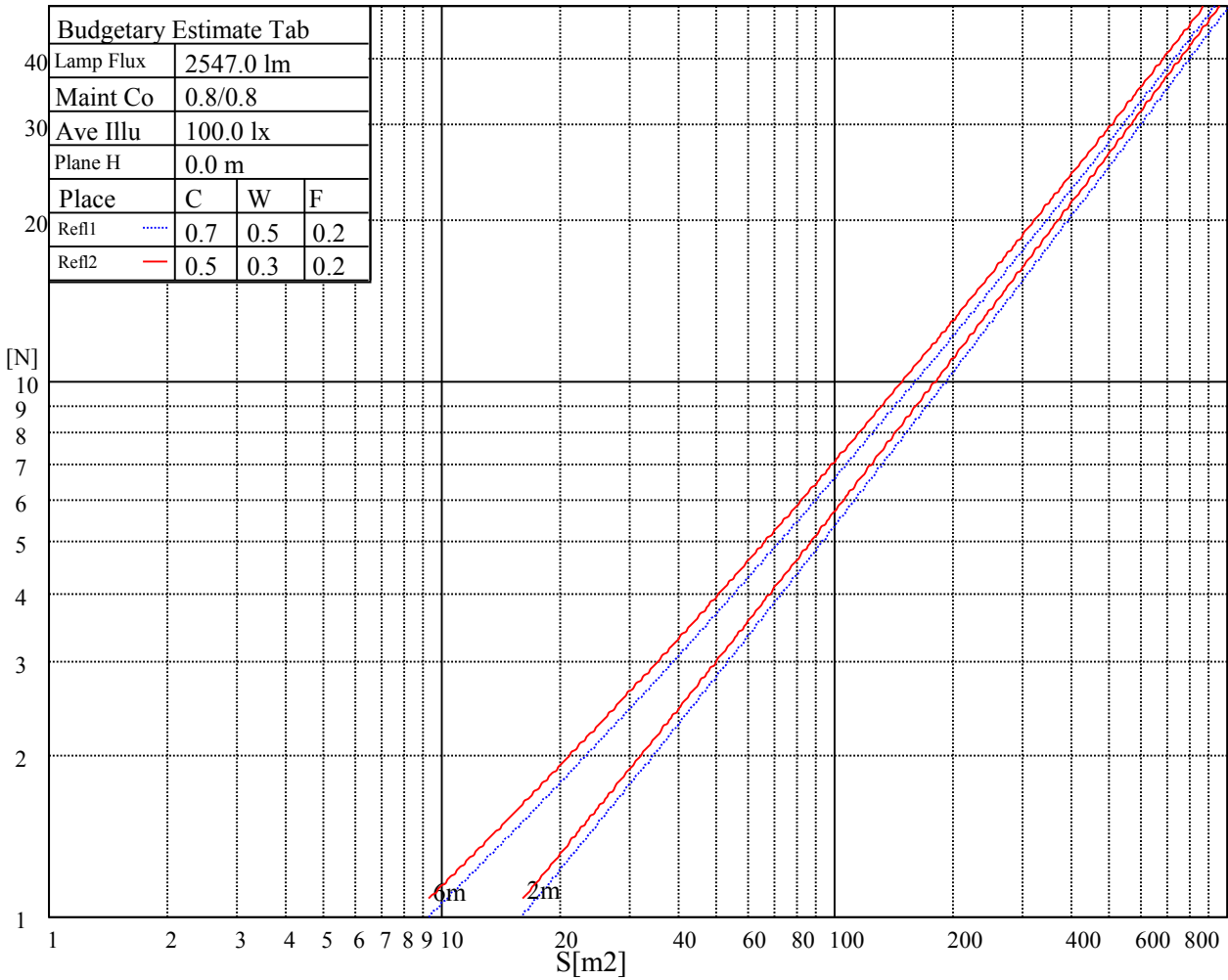
Glare Table

| Glare | Quality | Service Values Illuminance(lx) | | | | | | | |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| | | a | b | c | d | e | f | g | h |
| 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 |

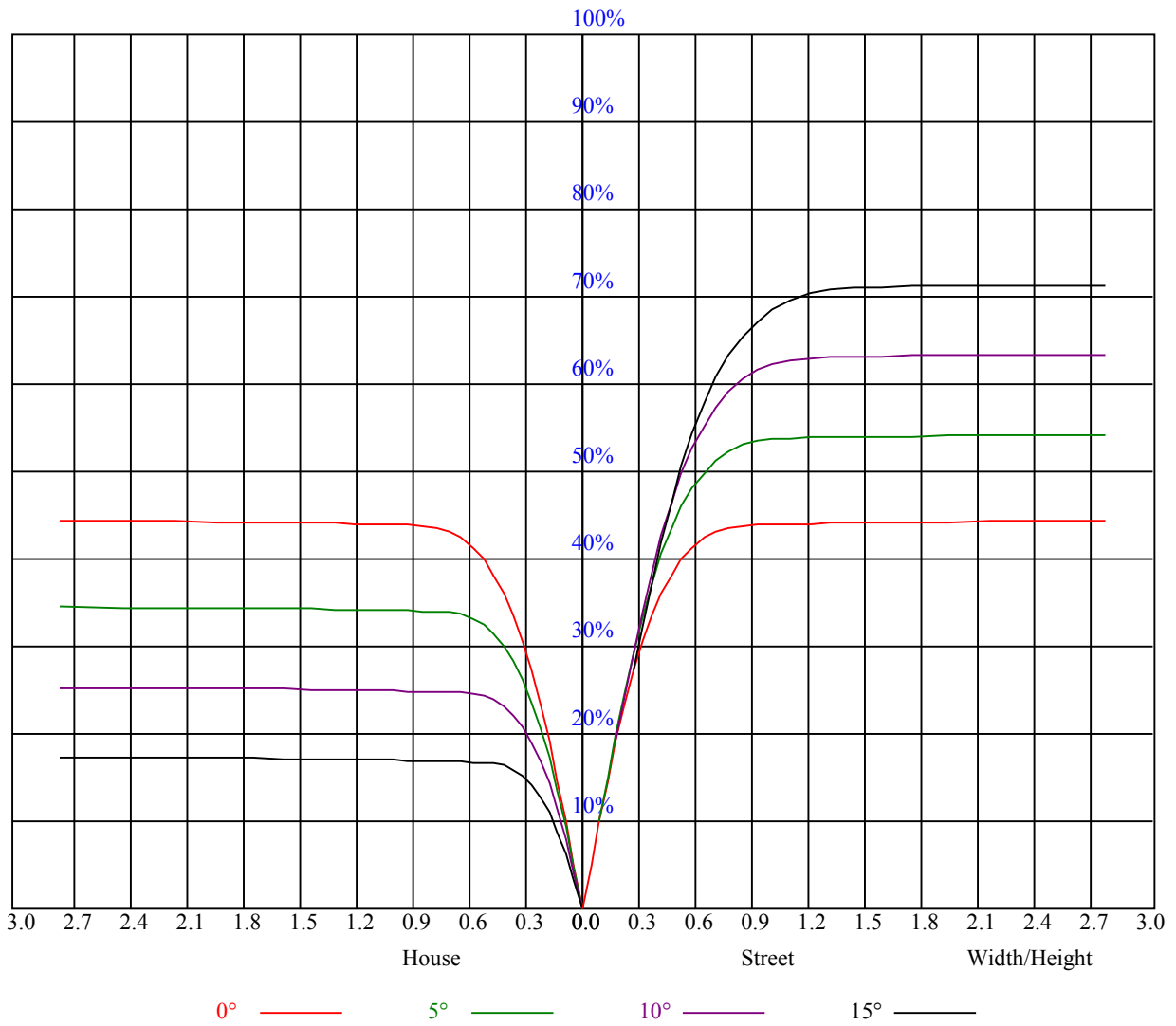
Luminance Limiting Curve



| Illumination assessment according UGR | | | | | | | | | | | |
|---|-----|------------------|------|------|------|-------|----------------|------|------|------|-------|
| Rf of Ceiling | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 | |
| Rf of Wall | 50 | 30 | 50 | 30 | 30 | 50 | 30 | 50 | 30 | 30 | |
| Rf of Floor | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | |
| Room dimensions | | Viewed crosswise | | | | | Viewed endwise | | | | |
| X | Y | | | | | | | | | | |
| 2H | 2H | 0.77 | 1.69 | 1.14 | 2.00 | 2.31 | 0.82 | 1.74 | 1.19 | 2.05 | 2.36 |
| | 3H | 2.91 | 3.72 | 3.30 | 4.05 | 4.42 | 2.92 | 3.73 | 3.31 | 4.07 | 4.43 |
| | 4H | 4.07 | 4.82 | 4.48 | 5.17 | 5.56 | 4.07 | 4.82 | 4.48 | 5.17 | 5.56 |
| | 6H | 5.29 | 5.98 | 5.71 | 6.35 | 6.75 | 5.29 | 5.97 | 5.71 | 6.35 | 6.75 |
| | 8H | 5.91 | 6.55 | 6.35 | 6.94 | 7.35 | 5.90 | 6.54 | 6.34 | 6.94 | 7.35 |
| | 12H | 6.87 | 7.48 | 7.31 | 7.87 | 8.30 | 6.86 | 7.48 | 7.30 | 7.86 | 8.29 |
| 4H | 2H | 1.23 | 1.98 | 1.64 | 2.33 | 2.72 | 1.27 | 2.02 | 1.68 | 2.37 | 2.76 |
| | 3H | 3.66 | 4.27 | 4.08 | 4.68 | 5.09 | 3.67 | 4.28 | 4.08 | 4.69 | 5.10 |
| | 4H | 4.99 | 5.54 | 5.43 | 5.96 | 6.41 | 4.99 | 5.54 | 5.43 | 5.96 | 6.41 |
| | 6H | 6.32 | 6.79 | 6.79 | 7.24 | 7.71 | 6.31 | 6.78 | 6.79 | 7.24 | 7.71 |
| | 8H | 7.04 | 7.48 | 7.52 | 7.93 | 8.41 | 7.04 | 7.48 | 7.52 | 7.93 | 8.41 |
| | 12H | 8.01 | 8.38 | 8.50 | 8.87 | 9.35 | 8.01 | 8.38 | 8.50 | 8.87 | 9.35 |
| 8H | 4H | 5.40 | 5.84 | 5.88 | 6.29 | 6.76 | 5.40 | 5.83 | 5.87 | 6.29 | 6.76 |
| | 6H | 6.97 | 7.31 | 7.48 | 7.82 | 8.30 | 6.96 | 7.31 | 7.47 | 7.81 | 8.30 |
| | 8H | 7.85 | 8.15 | 8.38 | 8.68 | 9.18 | 7.84 | 8.15 | 8.38 | 8.67 | 9.17 |
| | 12H | 8.95 | 9.21 | 9.48 | 9.71 | 10.30 | 8.95 | 9.21 | 9.47 | 9.71 | 10.29 |
| 12H | 4H | 5.48 | 5.86 | 5.97 | 6.35 | 6.82 | 5.48 | 5.85 | 5.97 | 6.34 | 6.82 |
| | 6H | 7.34 | 7.44 | 7.67 | 7.91 | 8.46 | 7.33 | 7.43 | 7.66 | 7.91 | 8.46 |
| | 8H | 8.11 | 8.37 | 8.63 | 8.87 | 9.45 | 8.10 | 8.37 | 8.63 | 8.87 | 9.45 |
| Variation with the observer position at spacings: | | | | | | | | | | | |
| S = 1.0H | | 5.8/-8.9 | | | | | 5.8/-8.9 | | | | |
| S = 1.5H | | 8.3/-7.2 | | | | | 8.3/-7.2 | | | | |
| S = 2.0H | | 10.0/-5.9 | | | | | 10.0/-5.9 | | | | |
| Standard tables: | | BK1 | | | | | BK1 | | | | |
| Uncorrected UGR | | -2.0 | | | | | -2.0 | | | | |



| 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 | 1.07 | 1.07 | 1.07 | 1.04 | 1.04 | 1.04 | 1.00 | 1.00 | 1.00 | 0.96 | 0.96 | 0.96 | 0.92 | 0.92 | 0.92 | 0.90 |
| 1 | 0.99 | 0.97 | 0.95 | 0.97 | 0.95 | 0.93 | 0.94 | 0.92 | 0.90 | 0.90 | 0.89 | 0.88 | 0.87 | 0.86 | 0.85 | 0.84 |
| 2 | 0.93 | 0.90 | 0.87 | 0.92 | 0.89 | 0.86 | 0.89 | 0.87 | 0.84 | 0.86 | 0.84 | 0.83 | 0.84 | 0.82 | 0.81 | 0.79 |
| 3 | 0.88 | 0.84 | 0.81 | 0.87 | 0.83 | 0.80 | 0.85 | 0.82 | 0.79 | 0.83 | 0.80 | 0.78 | 0.81 | 0.79 | 0.77 | 0.75 |
| 4 | 0.84 | 0.80 | 0.76 | 0.83 | 0.79 | 0.76 | 0.81 | 0.78 | 0.75 | 0.79 | 0.76 | 0.74 | 0.78 | 0.75 | 0.73 | 0.72 |
| 5 | 0.80 | 0.75 | 0.72 | 0.79 | 0.75 | 0.72 | 0.78 | 0.74 | 0.71 | 0.76 | 0.73 | 0.70 | 0.75 | 0.72 | 0.70 | 0.69 |
| 6 | 0.76 | 0.72 | 0.68 | 0.76 | 0.71 | 0.68 | 0.74 | 0.70 | 0.68 | 0.73 | 0.70 | 0.67 | 0.72 | 0.69 | 0.67 | 0.66 |
| 7 | 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 |
| 8 | 0.70 | 0.65 | 0.62 | 0.69 | 0.65 | 0.62 | 0.68 | 0.65 | 0.62 | 0.68 | 0.64 | 0.62 | 0.67 | 0.64 | 0.61 | 0.60 |
| 9 | 0.67 | 0.63 | 0.60 | 0.67 | 0.62 | 0.59 | 0.66 | 0.62 | 0.59 | 0.65 | 0.62 | 0.59 | 0.64 | 0.61 | 0.59 | 0.58 |
| 10 | 0.64 | 0.60 | 0.57 | 0.64 | 0.60 | 0.57 | 0.63 | 0.60 | 0.57 | 0.63 | 0.59 | 0.57 | 0.62 | 0.59 | 0.57 | 0.56 |



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 | 3901.50 | 3759.75 | 3414.94 | 2846.25 | 2078.44 | 1436.06 | 1114.88 | 533.25 | 41.01 |
| 45.0 | 3876.75 | 3816.00 | 3551.06 | 3040.88 | 2336.06 | 1620.56 | 1212.75 | 741.94 | 297.00 |
| 90.0 | 3886.31 | 3766.50 | 3480.75 | 2949.75 | 2226.94 | 1479.38 | 1118.42 | 662.57 | 66.54 |
| 135.0 | 3888.56 | 3816.00 | 3571.31 | 3135.38 | 2413.13 | 1601.44 | 1182.38 | 791.44 | 301.50 |
| 180.0 | 3901.50 | 3758.63 | 3503.81 | 2947.50 | 2188.13 | 1527.75 | 1106.33 | 605.98 | 51.86 |
| 225.0 | 3876.75 | 3705.19 | 3387.94 | 2739.38 | 1962.56 | 1349.44 | 1042.82 | 403.65 | 27.28 |
| 270.0 | 3886.31 | 3759.19 | 3461.06 | 2886.19 | 2130.75 | 1428.75 | 1057.50 | 533.25 | 30.83 |
| 315.0 | 3888.56 | 3715.31 | 3332.81 | 2680.88 | 1925.44 | 1334.25 | 1001.53 | 415.63 | 27.96 |
| 360.0 | 3901.50 | 3759.75 | 3414.94 | 2846.25 | 2078.44 | 1436.06 | 1114.88 | 533.25 | 41.01 |

| C/γ(°) | 45.0 | 50.0 | 55.0 | 60.0 | 65.0 | 70.0 | 75.0 | 80.0 | 85.0 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.0 | 16.65 | 13.61 | 12.43 | 11.81 | 11.19 | 10.69 | 10.41 | 10.24 | 10.13 |
| 45.0 | 18.56 | 14.12 | 12.94 | 12.21 | 11.48 | 10.97 | 10.58 | 10.41 | 10.35 |
| 90.0 | 16.88 | 13.44 | 12.32 | 11.70 | 11.19 | 10.80 | 10.46 | 10.24 | 10.13 |
| 135.0 | 18.68 | 13.67 | 12.60 | 11.87 | 11.31 | 10.86 | 10.46 | 10.29 | 10.13 |
| 180.0 | 16.03 | 13.39 | 12.32 | 11.76 | 11.14 | 10.69 | 10.41 | 10.24 | 10.13 |
| 225.0 | 14.63 | 12.99 | 12.09 | 11.53 | 11.08 | 10.69 | 10.46 | 10.35 | 10.13 |
| 270.0 | 15.08 | 13.16 | 12.26 | 11.59 | 11.08 | 10.69 | 10.46 | 10.29 | 10.13 |
| 315.0 | 14.91 | 13.16 | 12.15 | 11.59 | 11.03 | 10.69 | 10.41 | 10.24 | 10.13 |
| 360.0 | 16.65 | 13.61 | 12.43 | 11.81 | 11.19 | 10.69 | 10.41 | 10.24 | 10.13 |

| C/γ(°) | 90.0 |
|--------|-------|
| 0.0 | 10.13 |
| 45.0 | 10.13 |
| 90.0 | 10.07 |
| 135.0 | 10.07 |
| 180.0 | 10.07 |
| 225.0 | 10.07 |
| 270.0 | 10.07 |
| 315.0 | 10.07 |
| 360.0 | 10.13 |