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Nata

LumCAT: 3-2040-M
Luminaire: 92.70.135.00
Report No: NATA0100
Test No: GC2018070408
LampCAT: NICHIA NFCWD096B-V3
Lamp flux(lm): 2202.0
Number of Lamps: 1
Length(mm): 79
Phm Type: C

Voltage(V): 34.0000
Current(A): 0.5000
Power (W): 17.0000
PF: 0.0000
Ballast type: DC
Width(mm): 79
Height(mm): 0

Photometric Results

Lumens(lm): 1981.83
Efficiency(%): 90.00%
Lumens(lm)/Power(W): 116.58
Central intensity(cd): 9551.075
Maximum intensity(cd): 9551.075
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=20.1
 [C90/270]Total=20.1
Field angle(10%Imax): [C0/180]Total=44.5
 [C90/270]Total=44.5
Maximum s/h(1/2): C0_180=0.34 C90_270=0.34
Maximum s/h(1/4): C0_180=0.36 C90_270=0.36
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.40%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.238%

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0 | 9551.074 | 9.140 | 9.14 | .415% | .461% |
| 2.0 | 9204.604 | 70.451 | 79.591 | 3.199% | 4.016% |
| 4.0 | 8349.193 | 127.730 | 207.322 | 5.801% | 10.461% |
| 6.0 | 7266.013 | 166.570 | 373.891 | 7.564% | 18.866% |
| 8.0 | 6080.098 | 185.580 | 559.471 | 8.428% | 28.230% |
| 10.0 | 4790.953 | 182.456 | 741.927 | 8.286% | 37.436% |
| 12.0 | 3669.729 | 167.332 | 909.259 | 7.599% | 45.880% |
| 14.0 | 2681.467 | 142.270 | 1051.529 | 6.461% | 53.058% |
| 16.0 | 1947.125 | 117.706 | 1169.234 | 5.345% | 58.998% |
| 18.0 | 1471.437 | 99.722 | 1268.956 | 4.529% | 64.030% |
| 20.0 | 1154.918 | 86.630 | 1355.586 | 3.934% | 68.401% |
| 22.0 | 970.424 | 79.726 | 1435.312 | 3.621% | 72.424% |
| 24.0 | 835.591 | 74.537 | 1509.849 | 3.385% | 76.185% |
| 26.0 | 754.273 | 72.516 | 1582.365 | 3.293% | 79.844% |
| 28.0 | 708.686 | 72.967 | 1655.333 | 3.314% | 83.526% |
| 30.0 | 680.387 | 74.609 | 1729.942 | 3.388% | 87.290% |
| 32.0 | 631.882 | 73.436 | 1803.378 | 3.335% | 90.996% |
| 34.0 | 508.831 | 62.402 | 1865.78 | 2.834% | 94.144% |
| 36.0 | 330.393 | 42.591 | 1908.371 | 1.934% | 96.293% |
| 38.0 | 166.986 | 22.547 | 1930.918 | 1.024% | 97.431% |
| 40.0 | 46.302 | 6.527 | 1937.445 | .296% | 97.760% |
| 42.0 | 18.334 | 2.690 | 1940.136 | .122% | 97.896% |
| 44.0 | 13.158 | 2.005 | 1942.141 | .091% | 97.997% |
| 46.0 | 10.736 | 1.694 | 1943.834 | .077% | 98.083% |
| 48.0 | 10.185 | 1.660 | 1945.494 | .075% | 98.167% |
| 50.0 | 9.910 | 1.665 | 1947.159 | .076% | 98.251% |
| 52.0 | 9.690 | 1.675 | 1948.834 | .076% | 98.335% |
| 54.0 | 9.415 | 1.670 | 1950.504 | .076% | 98.419% |
| 56.0 | 9.249 | 1.682 | 1952.186 | .076% | 98.504% |
| 58.0 | 9.139 | 1.700 | 1953.886 | .077% | 98.590% |
| 60.0 | 8.974 | 1.704 | 1955.59 | .077% | 98.676% |
| 62.0 | 8.919 | 1.727 | 1957.317 | .078% | 98.763% |
| 64.0 | 8.864 | 1.747 | 1959.065 | .079% | 98.851% |
| 66.0 | 8.809 | 1.765 | 1960.83 | .080% | 98.940% |
| 68.0 | 8.699 | 1.769 | 1962.598 | .080% | 99.030% |
| 70.0 | 8.644 | 1.781 | 1964.38 | .081% | 99.120% |
| 72.0 | 8.644 | 1.803 | 1966.183 | .082% | 99.211% |
| 74.0 | 8.589 | 1.811 | 1967.993 | .082% | 99.302% |

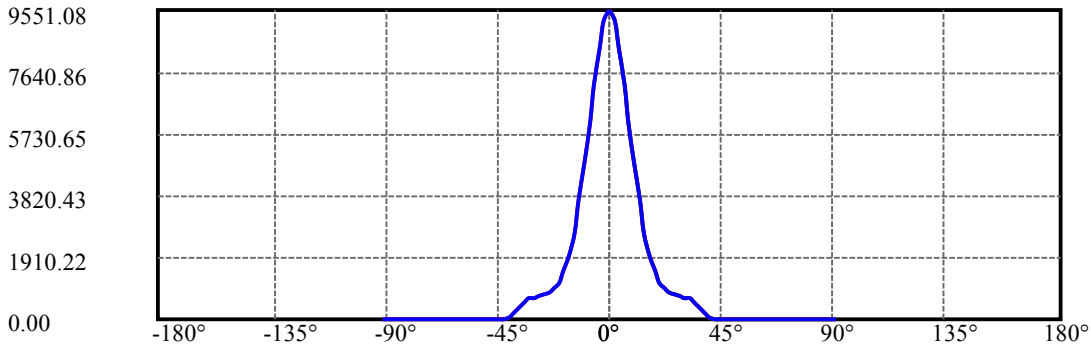
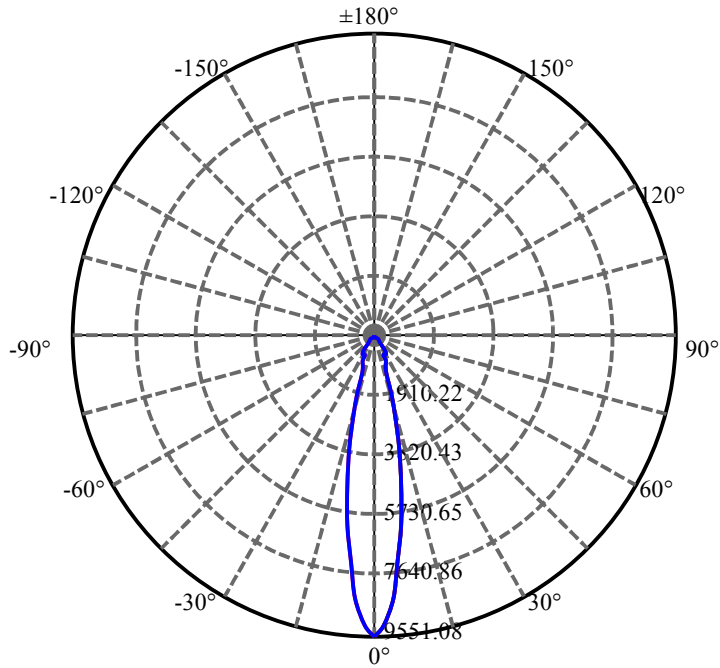
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0 | 8.589 | 1.828 | 1969.821 | .083% | 99.394% |
| 78.0 | 8.534 | 1.831 | 1971.652 | .083% | 99.486% |
| 80.0 | 8.534 | 1.843 | 1973.495 | .084% | 99.579% |
| 82.0 | 8.479 | 1.841 | 1975.336 | .084% | 99.672% |
| 84.0 | 8.479 | 1.849 | 1977.186 | .084% | 99.766% |
| 86.0 | 8.479 | 1.855 | 1979.041 | .084% | 99.859% |
| 88.0 | 8.479 | 1.858 | 1980.899 | .084% | 99.953% |
| 90.0 | 8.479 | 0.930 | 1981.829 | .042% | 100.000% |

ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|--------|---------|
| 0-30 | 1729.94 | 78.56% | 87.29% |
| 0-40 | 1937.45 | 87.99% | 97.76% |
| 0-60 | 1955.59 | 88.81% | 98.68% |
| 0-90 | 1980.90 | 89.96% | 99.95% |
| 0-120 | 1980.90 | 89.96% | 99.95% |
| 0-180 | 1981.83 | 90.00% | 100.00% |
| 60-90 | 27.01 | 1.23% | 1.36% |
| 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% |
| 0-26.08 | 1585.46 | 72.00% | 80.00% |

ZONAL LUMEN SUMMARY

| | |
|---------|--------|
| 0-10 | 741.93 |
| 10-20 | 613.66 |
| 20-30 | 374.36 |
| 30-40 | 207.50 |
| 40-50 | 9.71 |
| 50-60 | 8.43 |
| 60-70 | 8.79 |
| 70-80 | 9.12 |
| 80-90 | 7.40 |
| 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 |



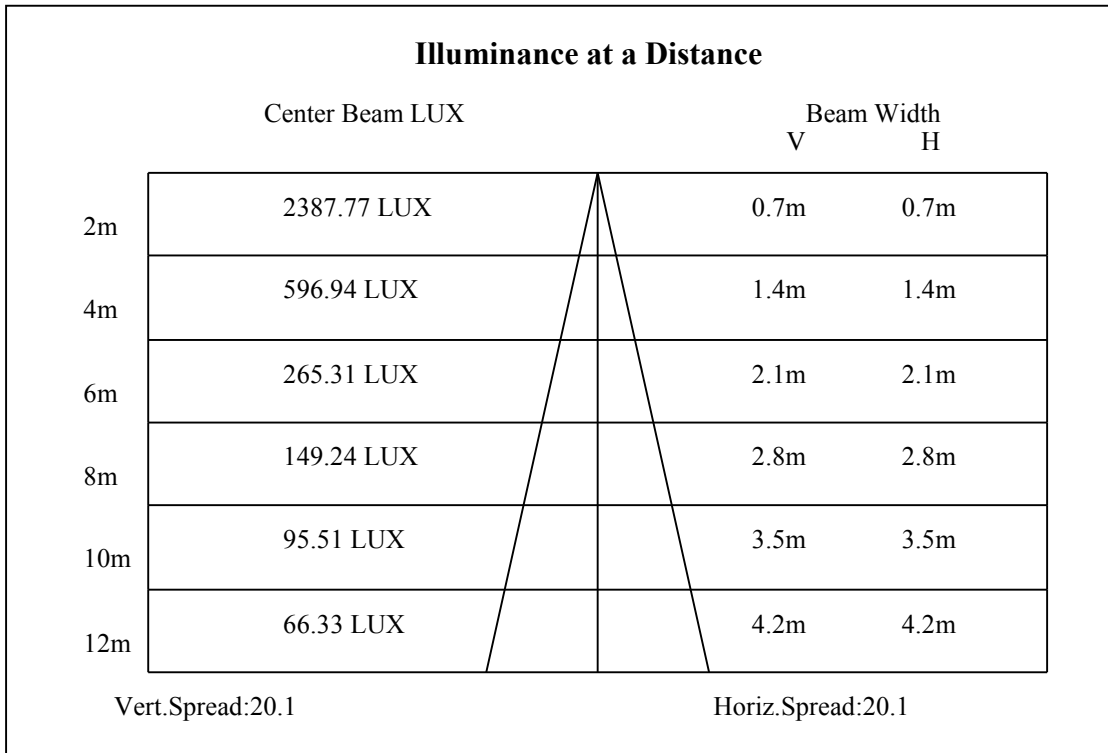
C0(Max): —————

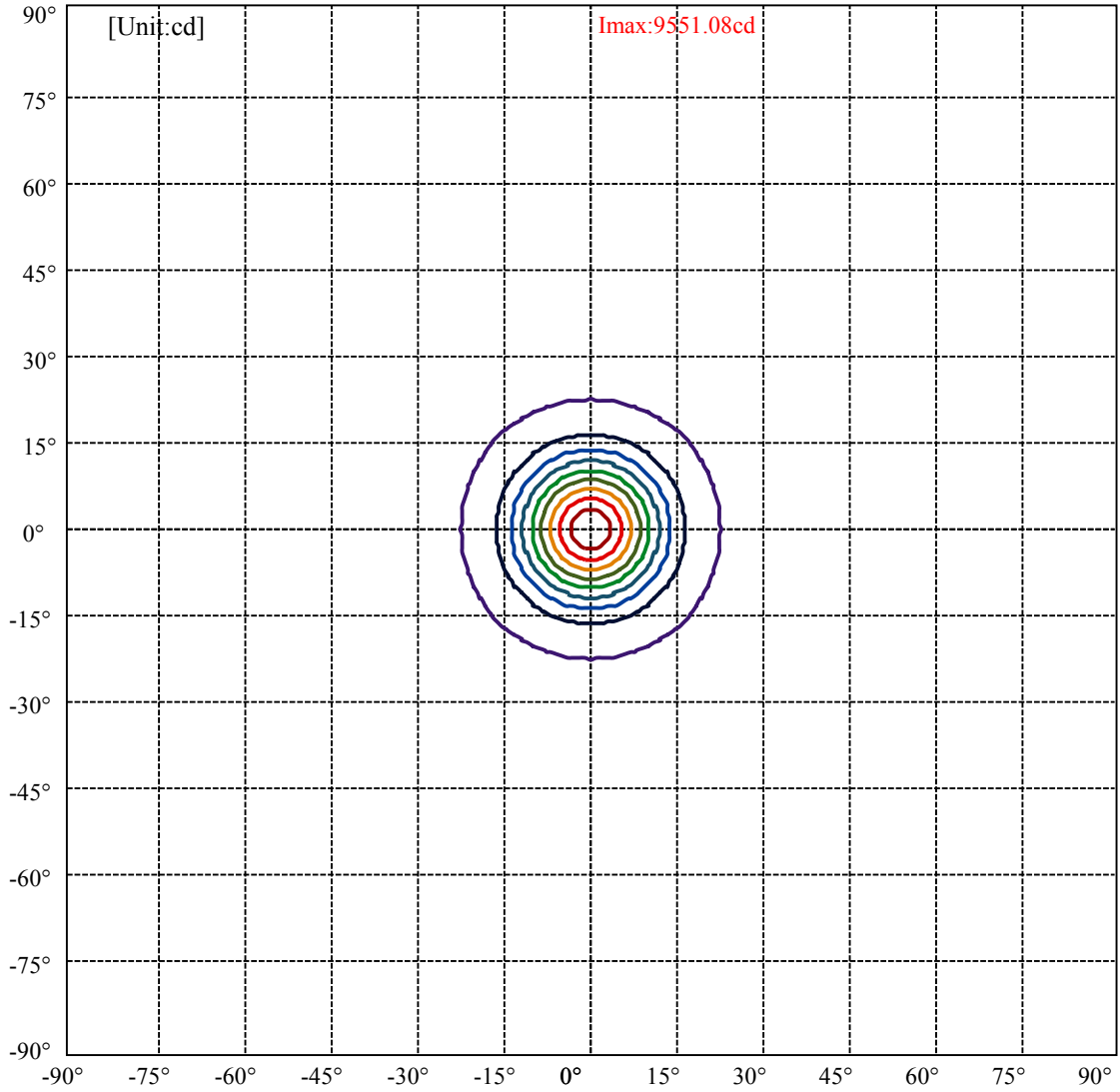
C0/C180: —————

C90/C270: —————

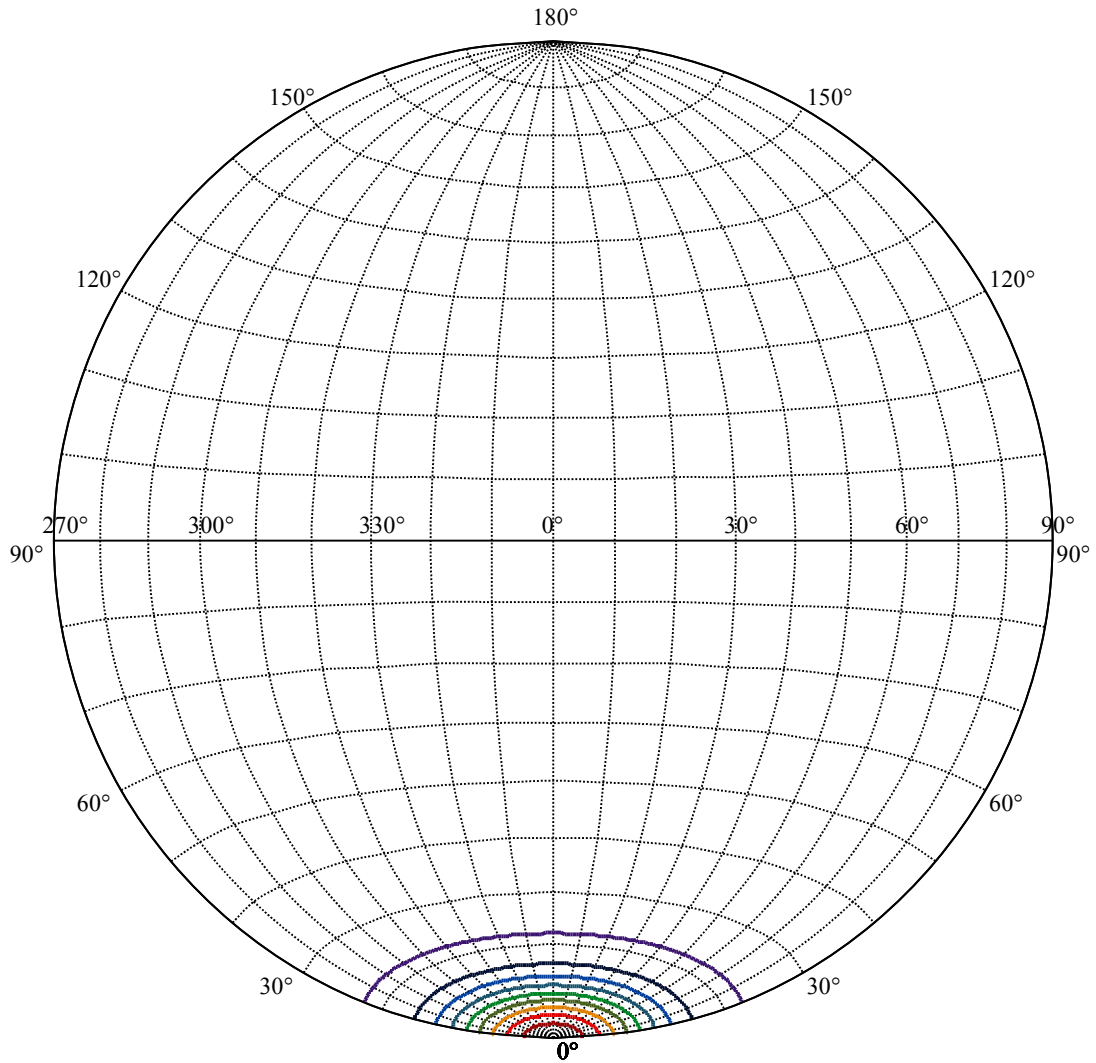
Field angle(10%Imax):C0/180Left:22.2 Right:22.2
:C90/270Left:22.2 Right:22.2

Beam Angle(50%Imax):C0/180Left:10.0 Right:10.0
:C90/270Left:10.0 Right:10.0





| | |
|-------------------|---|
| (10%Imax) 955.108 | — |
| (20%Imax) 1910.22 | — |
| (30%Imax) 2865.32 | — |
| (40%Imax) 3820.43 | — |
| (50%Imax) 4775.54 | — |
| (60%Imax) 5730.65 | — |
| (70%Imax) 6685.75 | — |
| (80%Imax) 7640.86 | — |
| (90%Imax) 8595.97 | — |



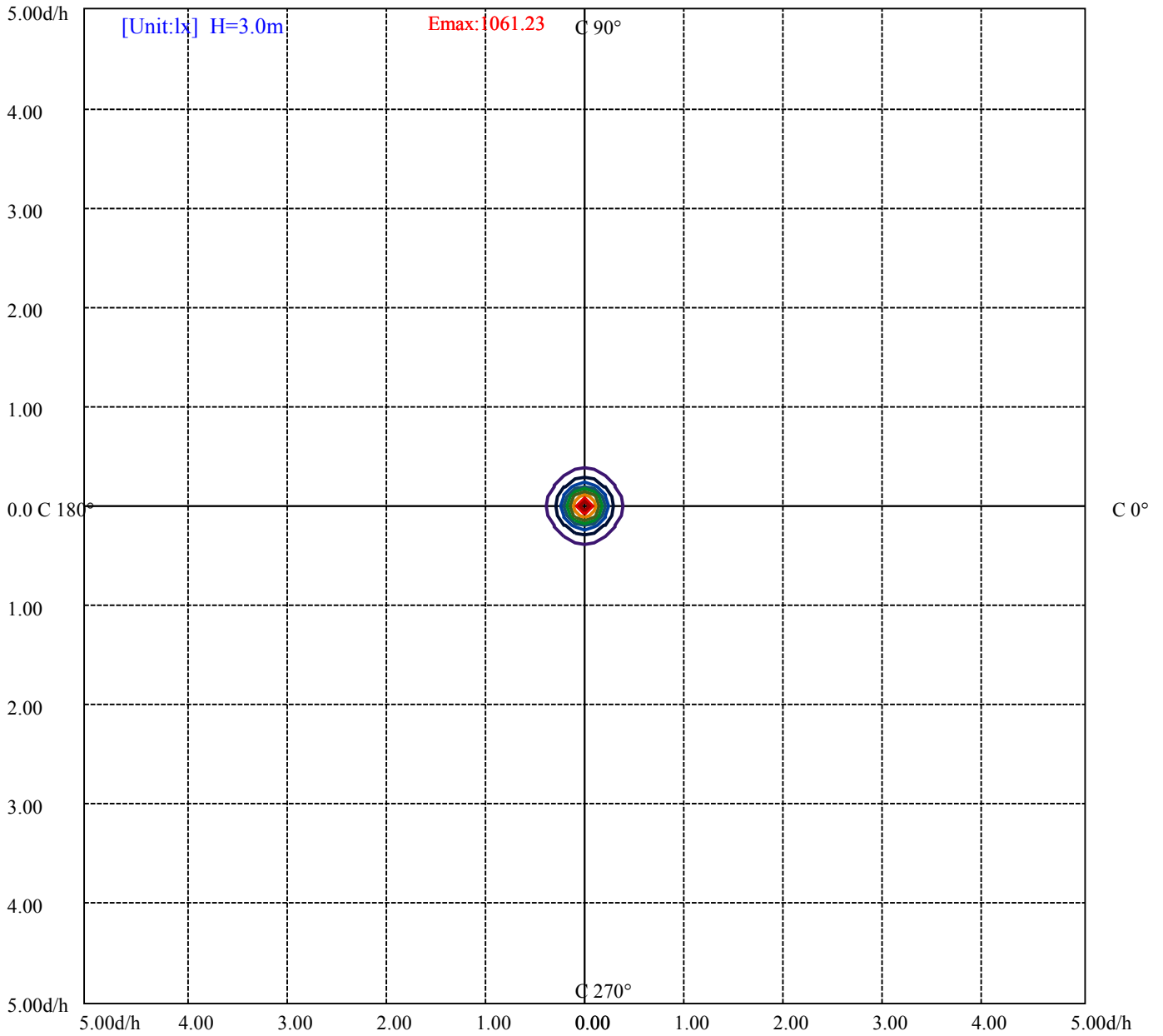
House

[Unit:cd]

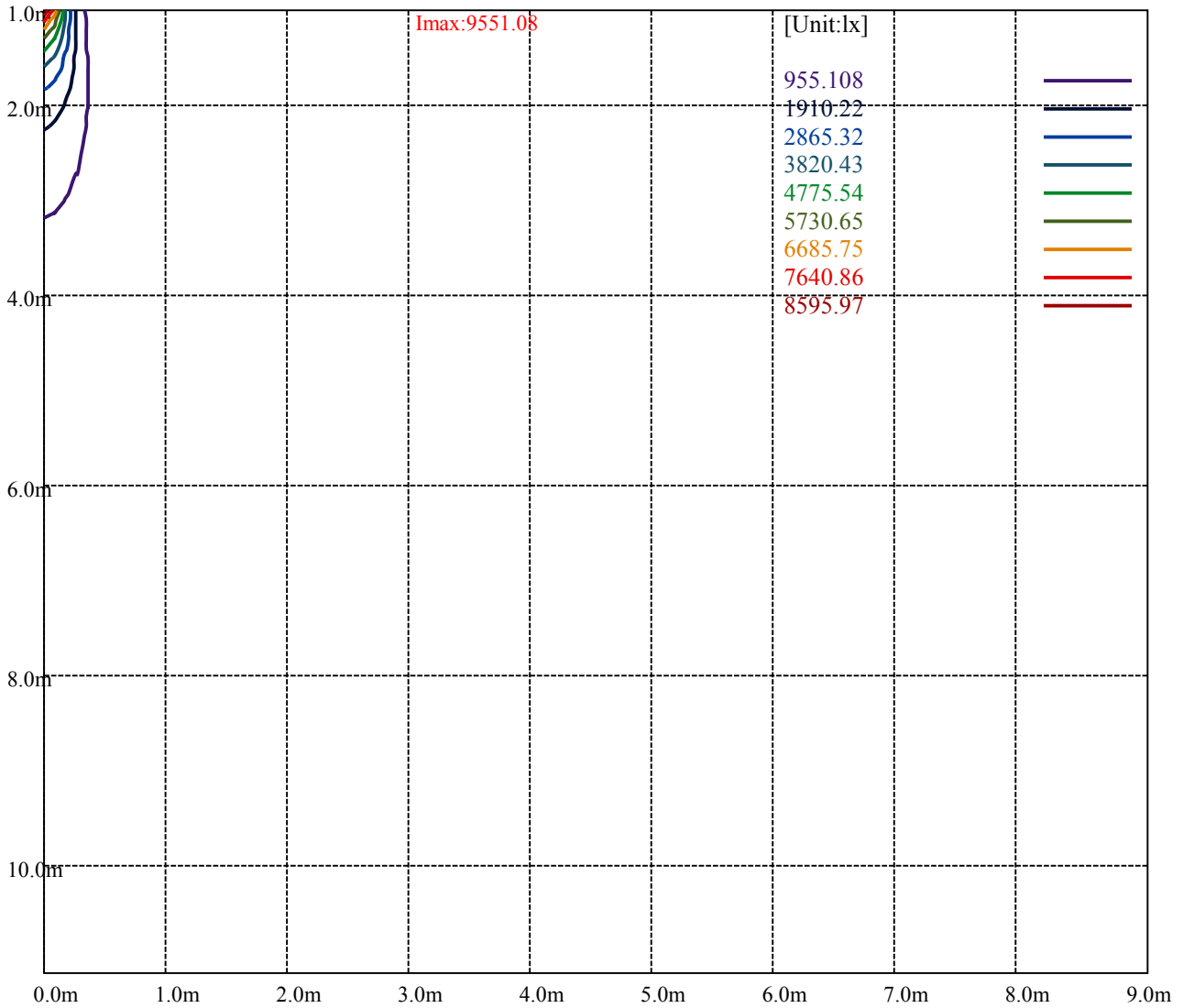
Road

Imax:9551.08

| | |
|-------------------|---|
| (10%Imax) 955.108 | — |
| (20%Imax) 1910.22 | — |
| (30%Imax) 2865.32 | — |
| (40%Imax) 3820.43 | — |
| (50%Imax) 4775.54 | — |
| (60%Imax) 5730.65 | — |
| (70%Imax) 6685.75 | — |
| (80%Imax) 7640.86 | — |
| (90%Imax) 8595.97 | — |



| | |
|--------------------|---|
| (10%Emax) 106.1228 | — |
| (20%Emax) 212.2455 | — |
| (30%Emax) 318.3678 | — |
| (40%Emax) 424.4911 | — |
| (50%Emax) 530.6133 | — |
| (60%Emax) 636.7366 | — |
| (70%Emax) 742.8589 | — |
| (80%Emax) 848.9822 | — |
| (90%Emax) 955.1045 | — |



Luminance Table

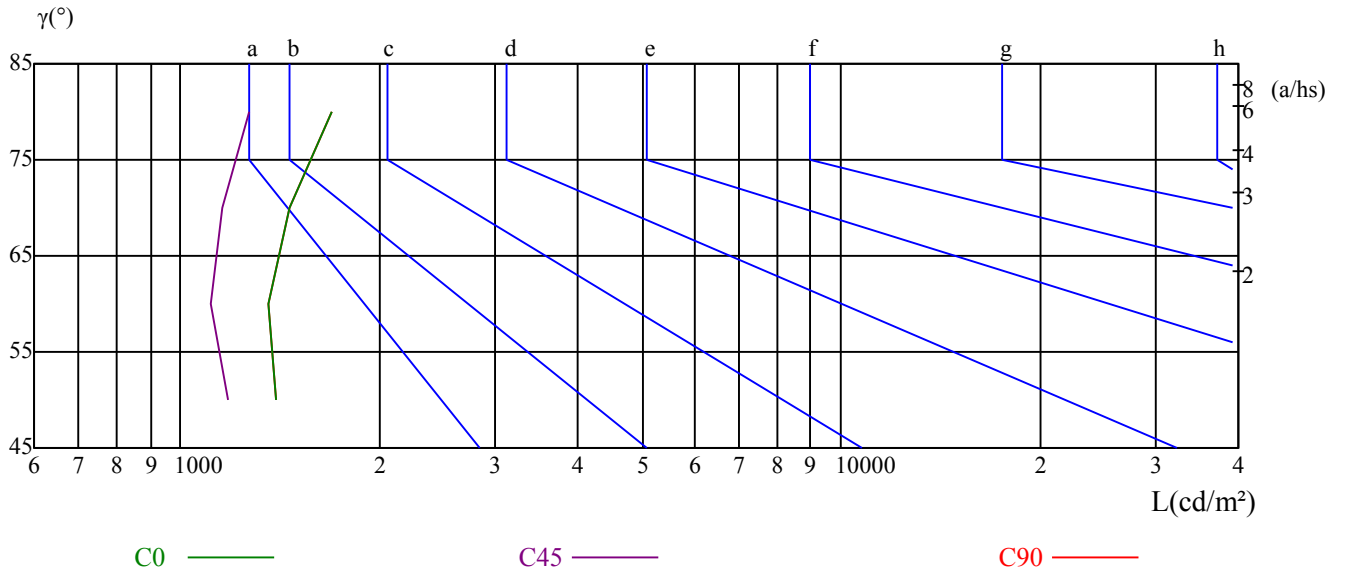
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|----------|----|------|----|------|----|------|----|------|----|
| C0 | 0 | 1396 | 0 | 1358 | 0 | 1460 | 0 | 1689 | 0 |
| C45 | 0 | 1183 | 0 | 1114 | 0 | 1154 | 0 | 1275 | 0 |
| C90 | 0 | 1396 | 0 | 1358 | 0 | 1460 | 0 | 1689 | 0 |

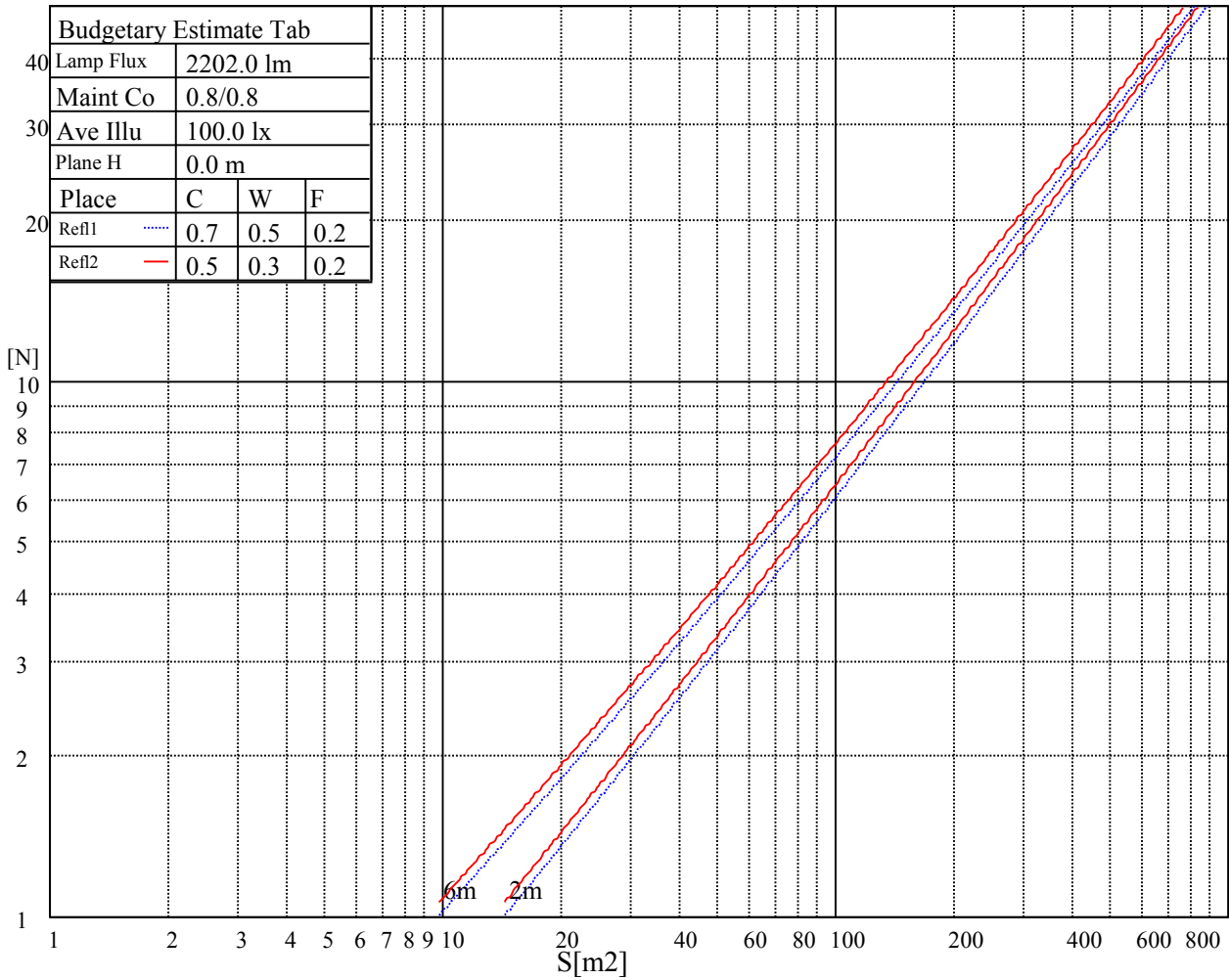
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 3486 | 3486 | 3486 | 5419 | 5419 | 5419 | 15790 | 15790 | 15790 |

Glare Table

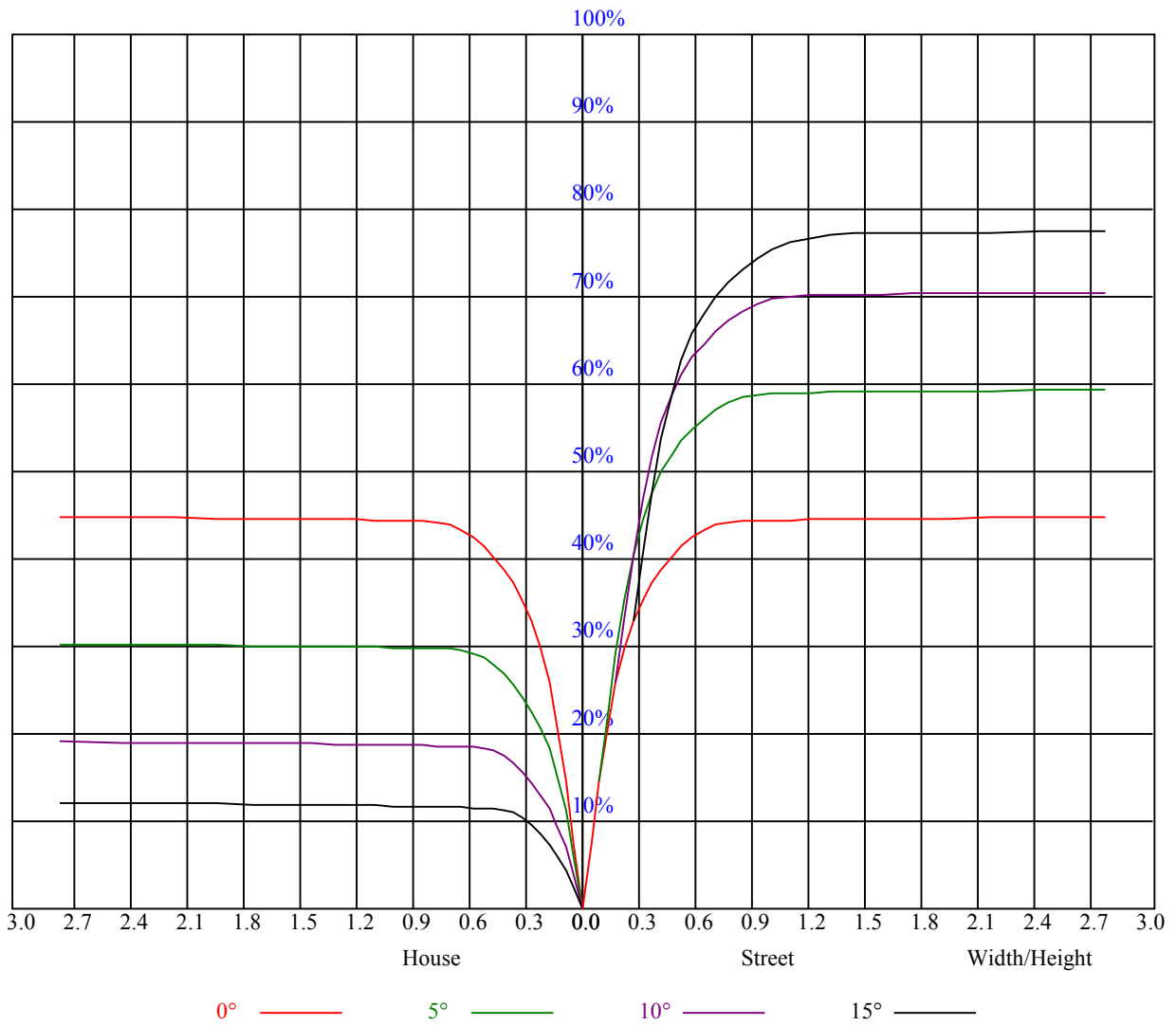
| Glare | Quality | Service Values Illuminance(lx) | | | | | | | |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15 | A | 2000 | 1000 | 500 | <=300 | | | | |
| 1.5 | B | | 2000 | 1000 | 500 | <=300 | | | |
| 1.85 | C | | | 2000 | 1000 | 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 | 1.08 | 1.08 | 1.08 | 1.05 | 1.05 | 1.05 | 1.00 | 1.00 | 1.00 | 0.96 | 0.96 | 0.96 | 0.92 | 0.92 | 0.92 | 0.90 |
| 1 | 1.01 | 0.99 | 0.97 | 0.99 | 0.97 | 0.96 | 0.95 | 0.94 | 0.93 | 0.92 | 0.91 | 0.90 | 0.89 | 0.88 | 0.87 | 0.86 |
| 2 | 0.96 | 0.93 | 0.90 | 0.94 | 0.91 | 0.89 | 0.91 | 0.89 | 0.87 | 0.89 | 0.87 | 0.85 | 0.86 | 0.85 | 0.84 | 0.82 |
| 3 | 0.91 | 0.88 | 0.85 | 0.90 | 0.87 | 0.84 | 0.88 | 0.85 | 0.83 | 0.86 | 0.83 | 0.81 | 0.84 | 0.82 | 0.80 | 0.79 |
| 4 | 0.87 | 0.83 | 0.80 | 0.86 | 0.83 | 0.80 | 0.84 | 0.81 | 0.79 | 0.83 | 0.80 | 0.78 | 0.81 | 0.79 | 0.77 | 0.76 |
| 5 | 0.84 | 0.80 | 0.77 | 0.83 | 0.79 | 0.76 | 0.81 | 0.78 | 0.76 | 0.80 | 0.77 | 0.75 | 0.79 | 0.76 | 0.74 | 0.73 |
| 6 | 0.80 | 0.76 | 0.73 | 0.80 | 0.76 | 0.73 | 0.79 | 0.75 | 0.73 | 0.77 | 0.74 | 0.72 | 0.76 | 0.74 | 0.72 | 0.71 |
| 7 | 0.78 | 0.73 | 0.71 | 0.77 | 0.73 | 0.70 | 0.76 | 0.73 | 0.70 | 0.75 | 0.72 | 0.70 | 0.74 | 0.71 | 0.69 | 0.68 |
| 8 | 0.75 | 0.71 | 0.68 | 0.75 | 0.71 | 0.68 | 0.74 | 0.70 | 0.68 | 0.73 | 0.70 | 0.67 | 0.72 | 0.69 | 0.67 | 0.66 |
| 9 | 0.73 | 0.69 | 0.66 | 0.72 | 0.68 | 0.66 | 0.71 | 0.68 | 0.66 | 0.71 | 0.68 | 0.65 | 0.70 | 0.67 | 0.65 | 0.64 |
| 10 | 0.70 | 0.66 | 0.64 | 0.70 | 0.66 | 0.64 | 0.69 | 0.66 | 0.64 | 0.69 | 0.66 | 0.63 | 0.68 | 0.65 | 0.63 | 0.62 |



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 | 9551.07 | 9204.60 | 8349.19 | 7266.01 | 6080.10 | 4790.95 | 3669.73 | 2681.47 | 1947.12 |
| 45.0 | 9551.07 | 9204.60 | 8349.19 | 7266.01 | 6080.10 | 4790.95 | 3669.73 | 2681.47 | 1947.12 |
| 90.0 | 9551.07 | 9204.60 | 8349.19 | 7266.01 | 6080.10 | 4790.95 | 3669.73 | 2681.47 | 1947.12 |
| 135.0 | 9551.07 | 9204.60 | 8349.19 | 7266.01 | 6080.10 | 4790.95 | 3669.73 | 2681.47 | 1947.12 |
| 180.0 | 9551.07 | 9204.60 | 8349.19 | 7266.01 | 6080.10 | 4790.95 | 3669.73 | 2681.47 | 1947.12 |
| 225.0 | 9551.07 | 9204.60 | 8349.19 | 7266.01 | 6080.10 | 4790.95 | 3669.73 | 2681.47 | 1947.12 |
| 270.0 | 9551.07 | 9204.60 | 8349.19 | 7266.01 | 6080.10 | 4790.95 | 3669.73 | 2681.47 | 1947.12 |
| 315.0 | 9551.07 | 9204.60 | 8349.19 | 7266.01 | 6080.10 | 4790.95 | 3669.73 | 2681.47 | 1947.12 |
| 360.0 | 9551.07 | 9204.60 | 8349.19 | 7266.01 | 6080.10 | 4790.95 | 3669.73 | 2681.47 | 1947.12 |
| C/γ(°) | 18.0 | 20.0 | 22.0 | 24.0 | 26.0 | 28.0 | 30.0 | 32.0 | 34.0 |
| 0.0 | 1471.44 | 1154.92 | 970.42 | 835.59 | 754.27 | 708.69 | 680.39 | 631.88 | 508.83 |
| 45.0 | 1471.44 | 1154.92 | 970.42 | 835.59 | 754.27 | 708.69 | 680.39 | 631.88 | 508.83 |
| 90.0 | 1471.44 | 1154.92 | 970.42 | 835.59 | 754.27 | 708.69 | 680.39 | 631.88 | 508.83 |
| 135.0 | 1471.44 | 1154.92 | 970.42 | 835.59 | 754.27 | 708.69 | 680.39 | 631.88 | 508.83 |
| 180.0 | 1471.44 | 1154.92 | 970.42 | 835.59 | 754.27 | 708.69 | 680.39 | 631.88 | 508.83 |
| 225.0 | 1471.44 | 1154.92 | 970.42 | 835.59 | 754.27 | 708.69 | 680.39 | 631.88 | 508.83 |
| 270.0 | 1471.44 | 1154.92 | 970.42 | 835.59 | 754.27 | 708.69 | 680.39 | 631.88 | 508.83 |
| 315.0 | 1471.44 | 1154.92 | 970.42 | 835.59 | 754.27 | 708.69 | 680.39 | 631.88 | 508.83 |
| 360.0 | 1471.44 | 1154.92 | 970.42 | 835.59 | 754.27 | 708.69 | 680.39 | 631.88 | 508.83 |
| C/γ(°) | 36.0 | 38.0 | 40.0 | 42.0 | 44.0 | 46.0 | 48.0 | 50.0 | 52.0 |
| 0.0 | 330.39 | 166.99 | 46.30 | 18.33 | 13.16 | 10.74 | 10.19 | 9.91 | 9.69 |
| 45.0 | 330.39 | 166.99 | 46.30 | 18.33 | 13.16 | 10.74 | 10.19 | 9.91 | 9.69 |
| 90.0 | 330.39 | 166.99 | 46.30 | 18.33 | 13.16 | 10.74 | 10.19 | 9.91 | 9.69 |
| 135.0 | 330.39 | 166.99 | 46.30 | 18.33 | 13.16 | 10.74 | 10.19 | 9.91 | 9.69 |
| 180.0 | 330.39 | 166.99 | 46.30 | 18.33 | 13.16 | 10.74 | 10.19 | 9.91 | 9.69 |
| 225.0 | 330.39 | 166.99 | 46.30 | 18.33 | 13.16 | 10.74 | 10.19 | 9.91 | 9.69 |
| 270.0 | 330.39 | 166.99 | 46.30 | 18.33 | 13.16 | 10.74 | 10.19 | 9.91 | 9.69 |
| 315.0 | 330.39 | 166.99 | 46.30 | 18.33 | 13.16 | 10.74 | 10.19 | 9.91 | 9.69 |
| 360.0 | 330.39 | 166.99 | 46.30 | 18.33 | 13.16 | 10.74 | 10.19 | 9.91 | 9.69 |
| C/γ(°) | 54.0 | 56.0 | 58.0 | 60.0 | 62.0 | 64.0 | 66.0 | 68.0 | 70.0 |
| 0.0 | 9.41 | 9.25 | 9.14 | 8.97 | 8.92 | 8.86 | 8.81 | 8.70 | 8.64 |
| 45.0 | 9.41 | 9.25 | 9.14 | 8.97 | 8.92 | 8.86 | 8.81 | 8.70 | 8.64 |
| 90.0 | 9.41 | 9.25 | 9.14 | 8.97 | 8.92 | 8.86 | 8.81 | 8.70 | 8.64 |
| 135.0 | 9.41 | 9.25 | 9.14 | 8.97 | 8.92 | 8.86 | 8.81 | 8.70 | 8.64 |
| 180.0 | 9.41 | 9.25 | 9.14 | 8.97 | 8.92 | 8.86 | 8.81 | 8.70 | 8.64 |
| 225.0 | 9.41 | 9.25 | 9.14 | 8.97 | 8.92 | 8.86 | 8.81 | 8.70 | 8.64 |
| 270.0 | 9.41 | 9.25 | 9.14 | 8.97 | 8.92 | 8.86 | 8.81 | 8.70 | 8.64 |
| 315.0 | 9.41 | 9.25 | 9.14 | 8.97 | 8.92 | 8.86 | 8.81 | 8.70 | 8.64 |
| 360.0 | 9.41 | 9.25 | 9.14 | 8.97 | 8.92 | 8.86 | 8.81 | 8.70 | 8.64 |
| C/γ(°) | 72.0 | 74.0 | 76.0 | 78.0 | 80.0 | 82.0 | 84.0 | 86.0 | 88.0 |
| 0.0 | 8.64 | 8.59 | 8.59 | 8.53 | 8.53 | 8.48 | 8.48 | 8.48 | 8.48 |
| 45.0 | 8.64 | 8.59 | 8.59 | 8.53 | 8.53 | 8.48 | 8.48 | 8.48 | 8.48 |
| 90.0 | 8.64 | 8.59 | 8.59 | 8.53 | 8.53 | 8.48 | 8.48 | 8.48 | 8.48 |
| 135.0 | 8.64 | 8.59 | 8.59 | 8.53 | 8.53 | 8.48 | 8.48 | 8.48 | 8.48 |
| 180.0 | 8.64 | 8.59 | 8.59 | 8.53 | 8.53 | 8.48 | 8.48 | 8.48 | 8.48 |
| 225.0 | 8.64 | 8.59 | 8.59 | 8.53 | 8.53 | 8.48 | 8.48 | 8.48 | 8.48 |
| 270.0 | 8.64 | 8.59 | 8.59 | 8.53 | 8.53 | 8.48 | 8.48 | 8.48 | 8.48 |
| 315.0 | 8.64 | 8.59 | 8.59 | 8.53 | 8.53 | 8.48 | 8.48 | 8.48 | 8.48 |
| 360.0 | 8.64 | 8.59 | 8.59 | 8.53 | 8.53 | 8.48 | 8.48 | 8.48 | 8.48 |

Intensity data(cd)

| | |
|--------|------|
| C/γ(°) | 90.0 |
| 0.0 | 8.48 |
| 45.0 | 8.48 |
| 90.0 | 8.48 |
| 135.0 | 8.48 |
| 180.0 | 8.48 |
| 225.0 | 8.48 |
| 270.0 | 8.48 |
| 315.0 | 8.48 |
| 360.0 | 8.48 |