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NATA

Client:

LumCAT: 1-0788-M

Luminaire: 92.70.127.00

Report No: nt0100

Voltage(V): 34.6000

Test No: GC2020011017

Current(A): 0.3490

LampCAT: LUMINUS CLM-9-AA40

Power (W): 12.0750

Lamp flux(lm): 1442.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 1331.40, Efficiency(%): 92.33% , Luminous Efficacy(lm/W): 110.26

Central intensity(cd): 2150.578, Maximum intensity(cd): 2150.578

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=37.8

[C90/270]Total=37.8

Field angle(10%Imax): [C0/180]Total=86.0

[C90/270]Total=86.0

Maximum s/h(1/2): C0_180=0.60 C90_270=0.60

Maximum s/h(1/4): C0_180=0.67 C90_270=0.67

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 92.33%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.739%

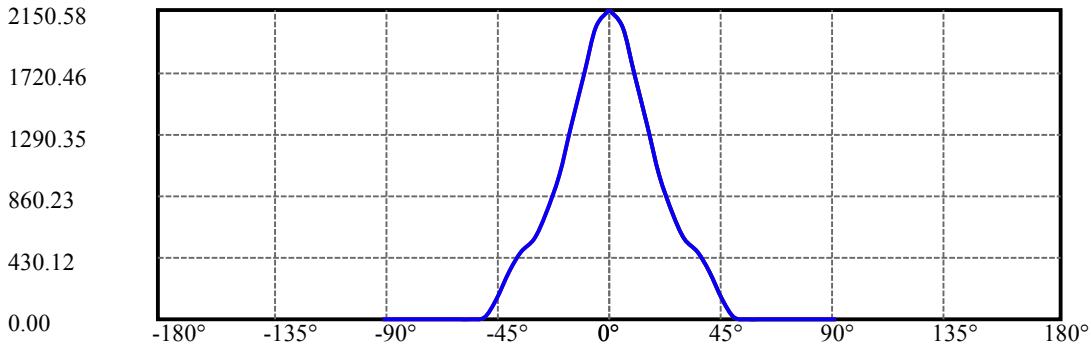
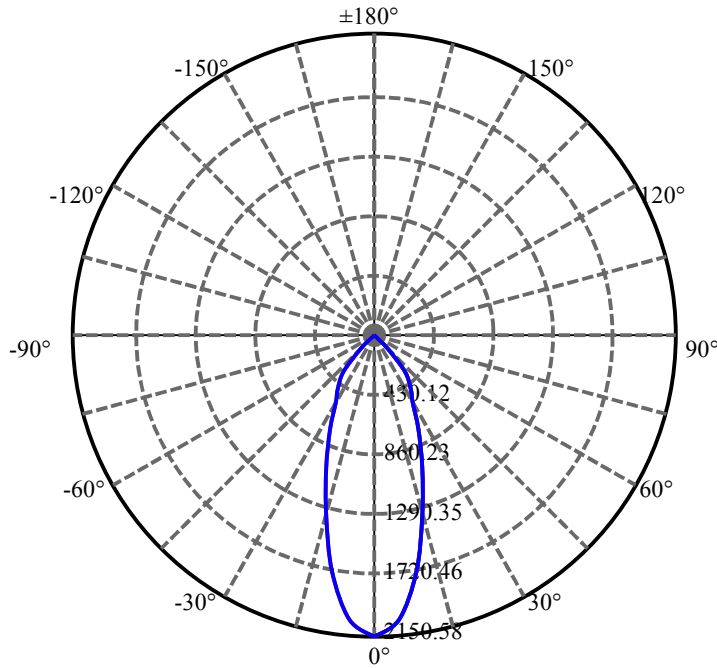
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0 | 2150.578 | 0.000 | 0 | .000% | .000% |
| 5.0 | 2031.047 | 49.990 | 49.99 | 3.467% | 3.755% |
| 10.0 | 1714.078 | 133.975 | 183.965 | 9.291% | 13.817% |
| 15.0 | 1329.089 | 180.519 | 364.484 | 12.519% | 27.376% |
| 20.0 | 1006.320 | 192.470 | 556.954 | 13.347% | 41.832% |
| 25.0 | 734.266 | 182.555 | 739.509 | 12.660% | 55.544% |
| 30.0 | 559.568 | 163.736 | 903.245 | 11.355% | 67.842% |
| 35.0 | 462.143 | 150.454 | 1053.699 | 10.434% | 79.142% |
| 40.0 | 336.853 | 133.306 | 1187.006 | 9.245% | 89.155% |
| 45.0 | 137.159 | 87.767 | 1274.773 | 6.086% | 95.747% |
| 50.0 | 18.738 | 31.501 | 1306.274 | 2.185% | 98.113% |
| 55.0 | 6.567 | 5.502 | 1311.776 | .382% | 98.526% |
| 60.0 | 5.688 | 2.833 | 1314.609 | .196% | 98.739% |
| 65.0 | 5.456 | 2.709 | 1317.318 | .188% | 98.943% |
| 70.0 | 5.351 | 2.736 | 1320.055 | .190% | 99.148% |
| 75.0 | 5.280 | 2.779 | 1322.834 | .193% | 99.357% |
| 80.0 | 5.266 | 2.822 | 1325.656 | .196% | 99.569% |
| 85.0 | 5.266 | 2.862 | 1328.518 | .198% | 99.784% |
| 90.0 | 5.245 | 2.878 | 1331.396 | .200% | 100.000% |

ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|--------|---------|
| 0-30 | 903.25 | 62.64% | 67.84% |
| 0-40 | 1187.01 | 82.32% | 89.15% |
| 0-60 | 1314.61 | 91.17% | 98.74% |
| 0-90 | 1328.52 | 92.13% | 99.78% |
| 0-120 | 1328.52 | 92.13% | 99.78% |
| 0-180 | 1331.40 | 92.33% | 100.00% |
| 60-90 | 16.74 | 1.16% | 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% |
| 0-35.43 | 1065.12 | 73.86% | 80.00% |

ZONAL LUMEN SUMMARY

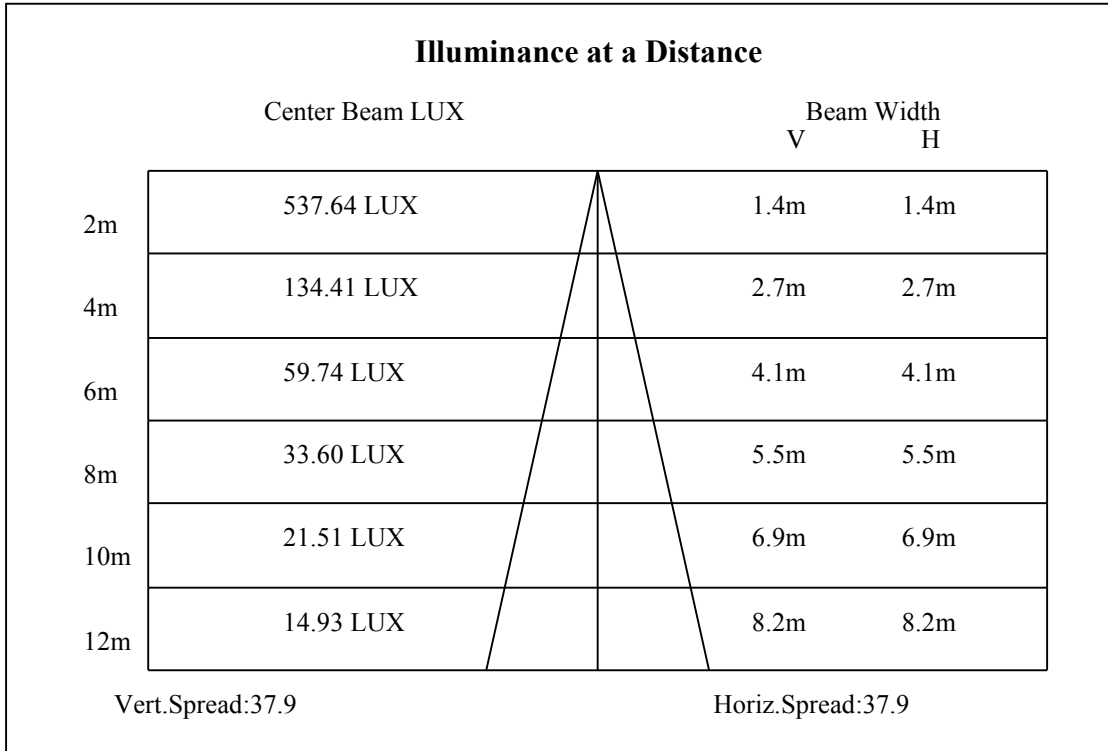
| | |
|---------|--------|
| 0-10 | 183.97 |
| 10-20 | 372.99 |
| 20-30 | 346.29 |
| 30-40 | 283.76 |
| 40-50 | 119.27 |
| 50-60 | 8.34 |
| 60-70 | 5.45 |
| 70-80 | 5.60 |
| 80-90 | 2.86 |
| 90-100 | 0.00 |
| 100-110 | 0.00 |
| 110-120 | 0.00 |
| 120-130 | 0.00 |
| 130-140 | 0.00 |
| 140-150 | 0.00 |
| 150-160 | 0.00 |
| 160-170 | 0.00 |
| 170-180 | 0.00 |

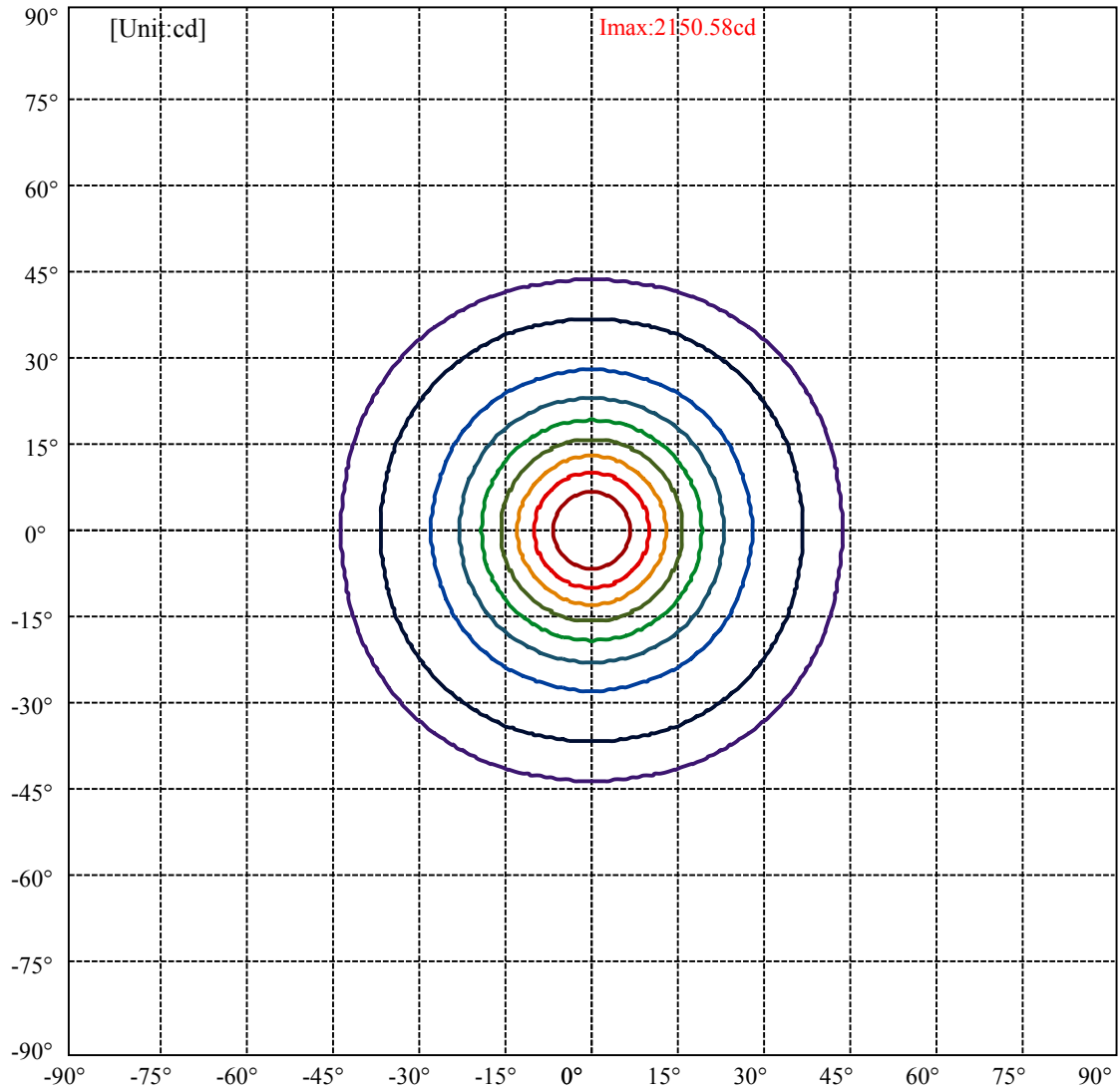


C0(Max): —————
C0/C180: —————
C90/C270: —————

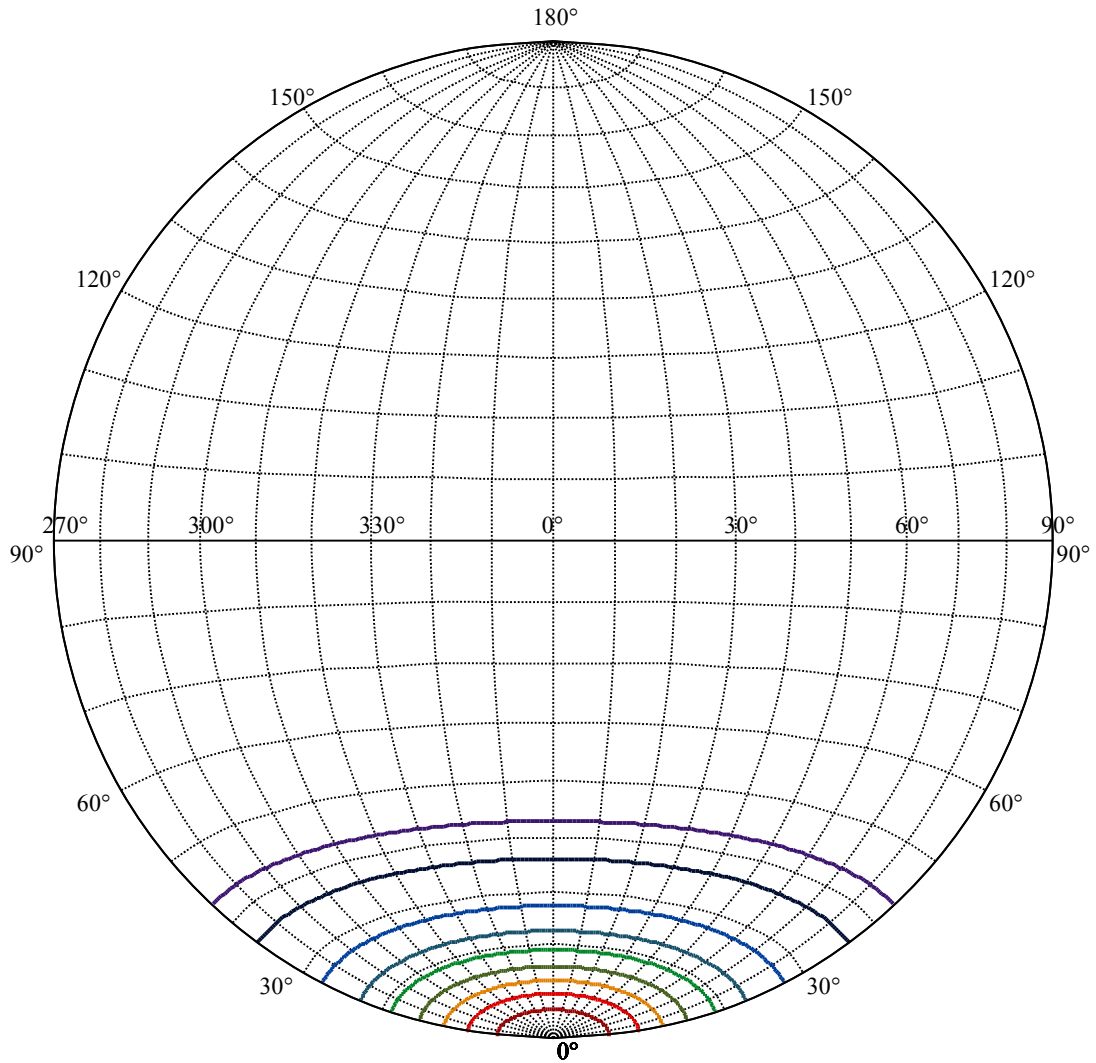
Field angle(10%Imax):C0/180Left:43.0 Right:43.0
:C90/270Left:43.0 Right:43.0

Beam Angle(50%Imax):C0/180Left:18.9 Right:18.9
:C90/270Left:18.9 Right:18.9





| | |
|-------------------|---|
| (10%Imax) 215.058 | — |
| (20%Imax) 430.116 | — |
| (30%Imax) 645.173 | — |
| (40%Imax) 860.231 | — |
| (50%Imax) 1075.29 | — |
| (60%Imax) 1290.35 | — |
| (70%Imax) 1505.4 | — |
| (80%Imax) 1720.46 | — |
| (90%Imax) 1935.52 | — |



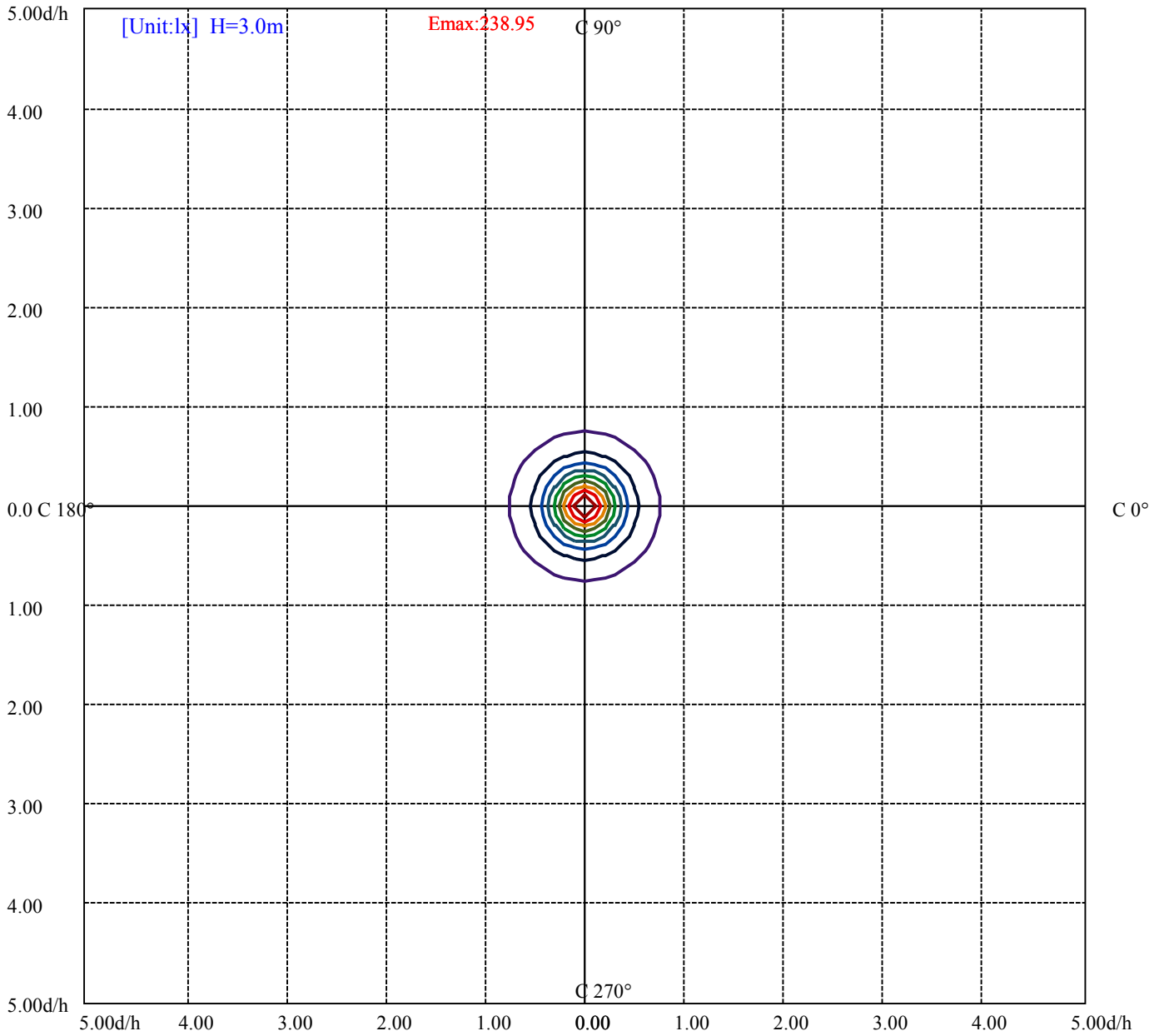
House

[Unit:cd]

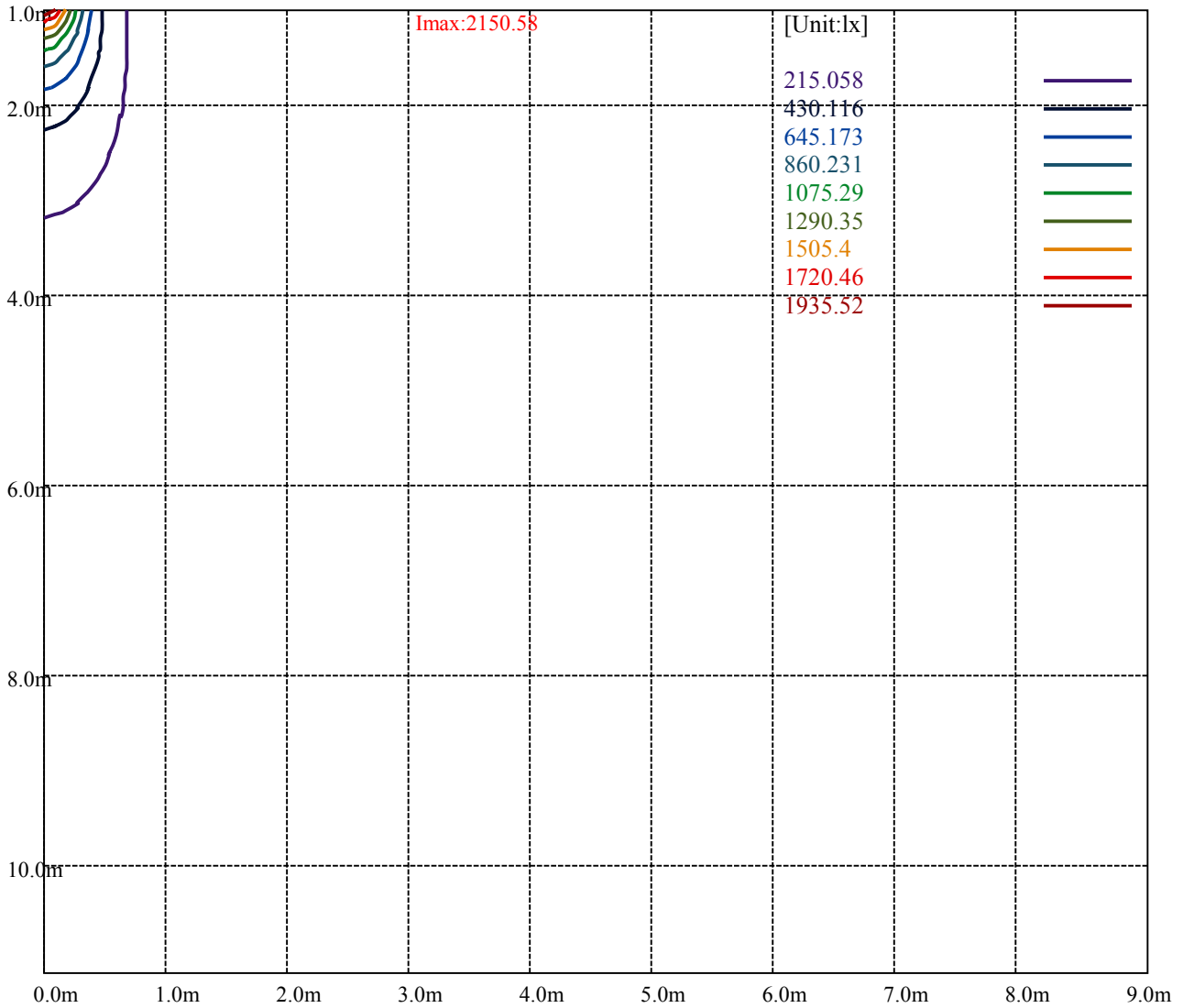
Road

Imax:2150.58

| | | |
|-----------|---------|---|
| (10%Imax) | 215.058 | — |
| (20%Imax) | 430.116 | — |
| (30%Imax) | 645.173 | — |
| (40%Imax) | 860.231 | — |
| (50%Imax) | 1075.29 | — |
| (60%Imax) | 1290.35 | — |
| (70%Imax) | 1505.4 | — |
| (80%Imax) | 1720.46 | — |
| (90%Imax) | 1935.52 | — |



- (10%Emax) 23.89522 ———
- (20%Emax) 47.79055 ———
- (30%Emax) 71.68578 ———
- (40%Emax) 95.58111 ———
- (50%Emax) 119.4767 ———
- (60%Emax) 143.3711 ———
- (70%Emax) 167.2667 ———
- (80%Emax) 191.1622 ———
- (90%Emax) 215.0578 ———



Luminance Table

| γ | 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 |

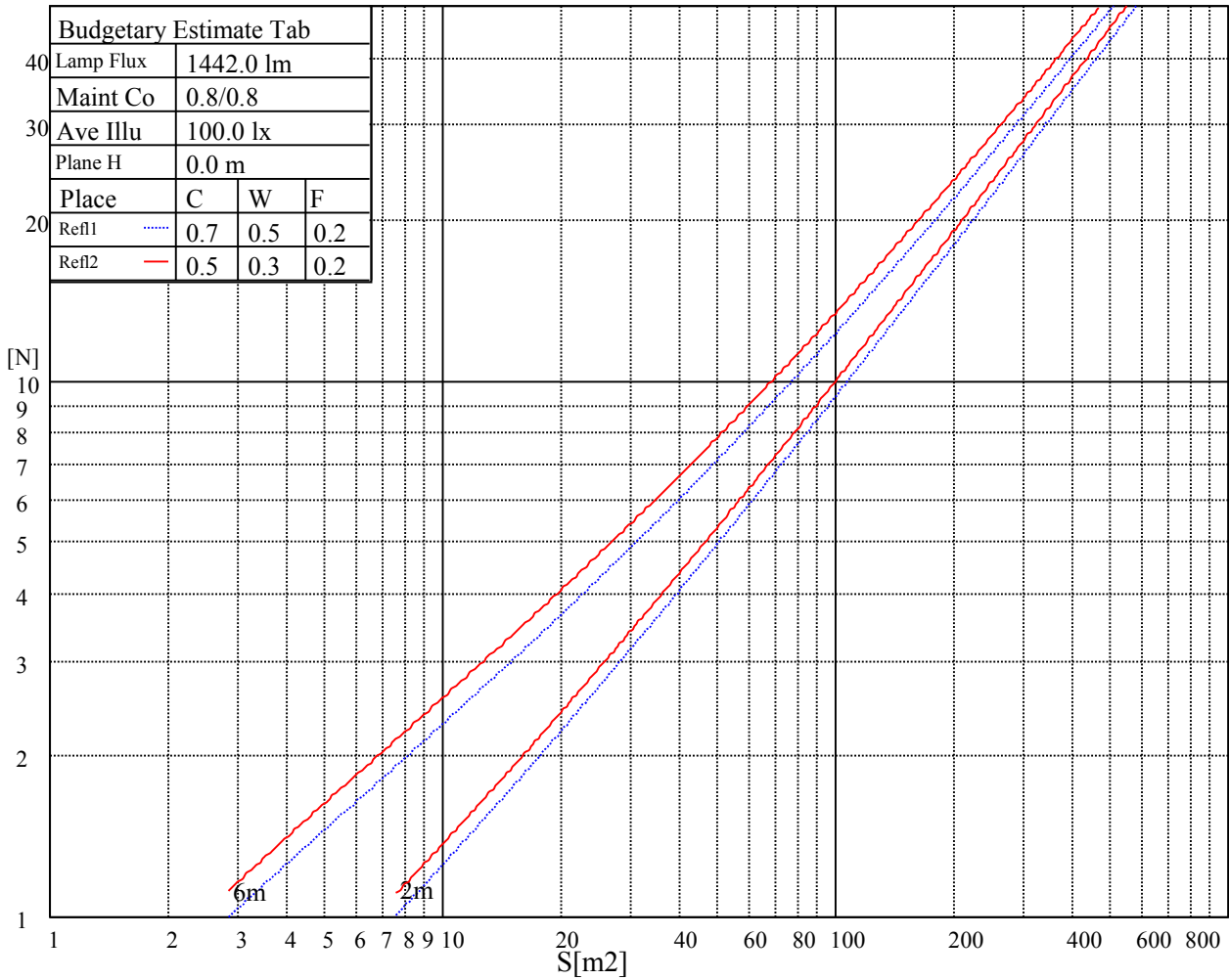
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Glare Table

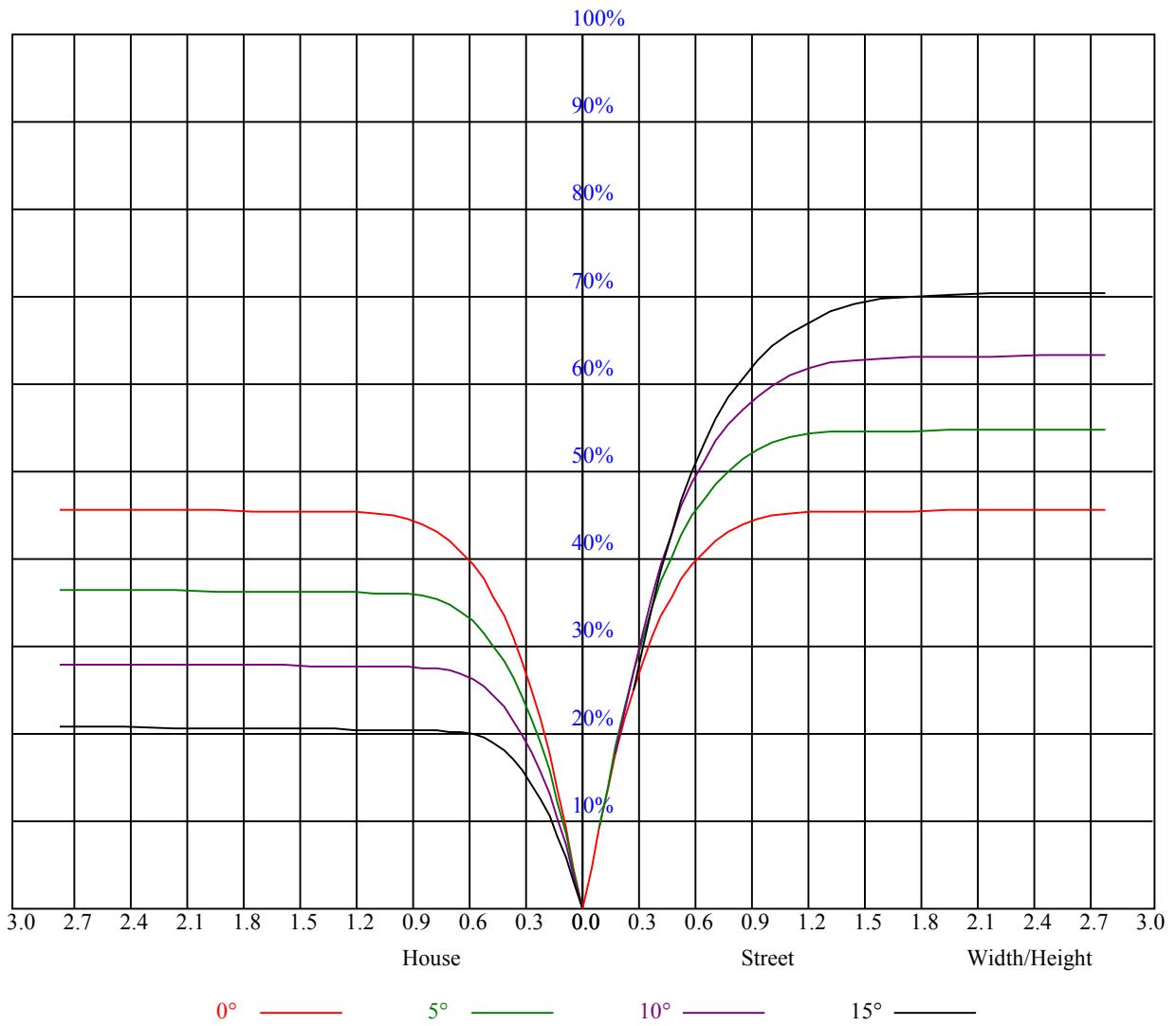
| Glare | Quality | Service Values Illuminance(lx) | | | | | | | |
|-------|---------|--------------------------------|------|------|-------|-------|-------|-------|-------|
| 1.15 | A | 2000 | 1000 | 500 | <=300 | | | | |
| 1.5 | B | | 2000 | 1000 | 500 | <=300 | | | |
| 1.85 | C | | | 2000 | 1000 |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

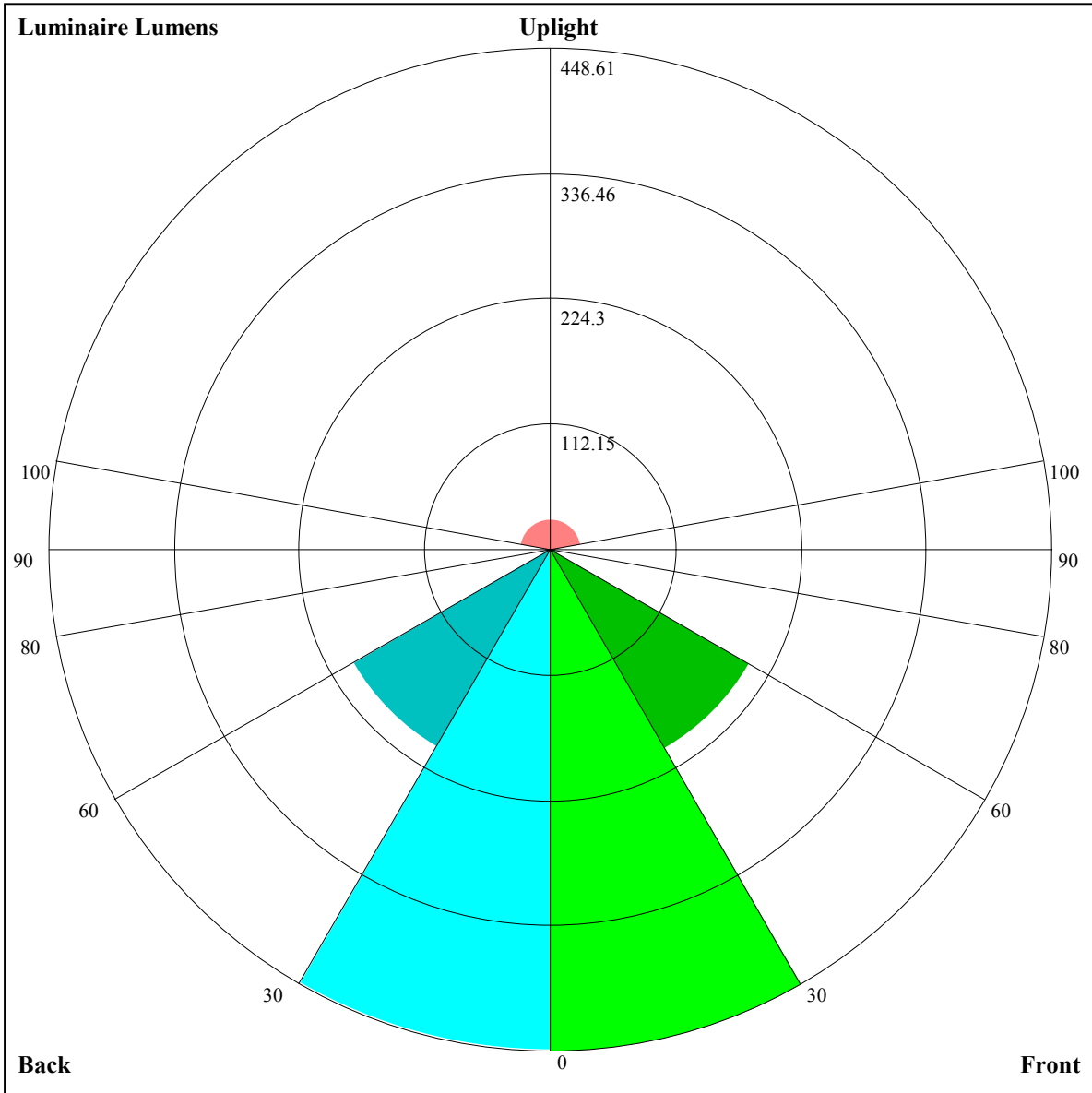
Luminance Limiting Curve





| 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 | 1.10 | 1.10 | 1.10 | 1.07 | 1.07 | 1.07 | 1.03 | 1.03 | 1.03 | 0.98 | 0.98 | 0.98 | 0.94 | 0.94 | 0.94 | 0.92 |
| 1 | 1.02 | 1.00 | 0.98 | 1.00 | 0.98 | 0.96 | 0.96 | 0.95 | 0.93 | 0.93 | 0.92 | 0.90 | 0.90 | 0.89 | 0.88 | 0.86 |
| 2 | 0.95 | 0.91 | 0.88 | 0.93 | 0.90 | 0.87 | 0.90 | 0.87 | 0.85 | 0.88 | 0.85 | 0.83 | 0.85 | 0.83 | 0.81 | 0.80 |
| 3 | 0.88 | 0.84 | 0.80 | 0.87 | 0.83 | 0.80 | 0.85 | 0.81 | 0.78 | 0.83 | 0.80 | 0.77 | 0.80 | 0.78 | 0.76 | 0.74 |
| 4 | 0.83 | 0.78 | 0.74 | 0.82 | 0.77 | 0.73 | 0.80 | 0.76 | 0.72 | 0.78 | 0.74 | 0.72 | 0.76 | 0.73 | 0.71 | 0.69 |
| 5 | 0.78 | 0.72 | 0.68 | 0.77 | 0.72 | 0.68 | 0.75 | 0.71 | 0.67 | 0.73 | 0.70 | 0.67 | 0.72 | 0.69 | 0.66 | 0.65 |
| 6 | 0.73 | 0.67 | 0.63 | 0.72 | 0.67 | 0.63 | 0.71 | 0.66 | 0.63 | 0.69 | 0.65 | 0.62 | 0.68 | 0.65 | 0.62 | 0.61 |
| 7 | 0.69 | 0.63 | 0.59 | 0.68 | 0.63 | 0.59 | 0.67 | 0.62 | 0.59 | 0.66 | 0.62 | 0.58 | 0.65 | 0.61 | 0.58 | 0.57 |
| 8 | 0.65 | 0.59 | 0.56 | 0.64 | 0.59 | 0.55 | 0.63 | 0.59 | 0.55 | 0.62 | 0.58 | 0.55 | 0.61 | 0.58 | 0.55 | 0.53 |
| 9 | 0.61 | 0.56 | 0.52 | 0.61 | 0.56 | 0.52 | 0.60 | 0.55 | 0.52 | 0.59 | 0.55 | 0.52 | 0.58 | 0.54 | 0.52 | 0.50 |
| 10 | 0.58 | 0.53 | 0.49 | 0.58 | 0.53 | 0.49 | 0.57 | 0.52 | 0.49 | 0.56 | 0.52 | 0.49 | 0.56 | 0.52 | 0.49 | 0.48 |





Luminaire Lumens:

FL=448.61,FM=205.96,FH=5.52,FVH=2.87

BL=448.09,BM=203.87,BH=5.52,BVH=2.87

UL=5.72,UH=27.23

BUG Rating:B1-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 | 2145.94 | 2050.31 | 1740.38 | 1382.06 | 1038.38 | 754.88 | 577.13 | 472.50 | 352.13 |
| 45.0 | 2150.44 | 2081.25 | 1769.63 | 1430.44 | 1060.31 | 767.81 | 579.94 | 467.44 | 360.00 |
| 90.0 | 2160.56 | 2054.25 | 1712.25 | 1365.19 | 1003.84 | 733.28 | 563.68 | 464.40 | 347.74 |
| 135.0 | 2145.38 | 2084.63 | 1785.38 | 1424.25 | 1074.94 | 784.69 | 586.69 | 486.00 | 374.06 |
| 180.0 | 2145.94 | 2013.19 | 1677.38 | 1297.13 | 979.82 | 711.51 | 543.21 | 447.69 | 317.93 |
| 225.0 | 2150.44 | 1976.63 | 1670.06 | 1284.19 | 951.53 | 700.71 | 540.79 | 451.80 | 304.26 |
| 270.0 | 2160.56 | 2016.00 | 1713.94 | 1330.88 | 993.38 | 734.63 | 557.44 | 460.13 | 342.00 |
| 315.0 | 2145.38 | 1972.13 | 1643.63 | 1118.59 | 948.38 | 686.64 | 527.68 | 447.19 | 296.72 |
| 360.0 | 2145.94 | 2050.31 | 1740.38 | 1382.06 | 1038.38 | 754.88 | 577.13 | 472.50 | 352.13 |

| C/γ(°) | 45.0 | 50.0 | 55.0 | 60.0 | 65.0 | 70.0 | 75.0 | 80.0 | 85.0 |
|--------|--------|-------|------|------|------|------|------|------|------|
| 0.0 | 160.48 | 23.18 | 7.09 | 5.74 | 5.51 | 5.34 | 5.29 | 5.29 | 5.23 |
| 45.0 | 172.24 | 23.46 | 7.09 | 5.79 | 5.51 | 5.40 | 5.23 | 5.29 | 5.29 |
| 90.0 | 150.92 | 18.17 | 6.30 | 5.68 | 5.46 | 5.34 | 5.29 | 5.29 | 5.29 |
| 135.0 | 170.78 | 25.65 | 7.14 | 5.74 | 5.51 | 5.40 | 5.29 | 5.23 | 5.23 |
| 180.0 | 120.54 | 15.41 | 6.13 | 5.74 | 5.46 | 5.40 | 5.29 | 5.29 | 5.29 |
| 225.0 | 106.88 | 14.18 | 6.13 | 5.63 | 5.40 | 5.29 | 5.29 | 5.29 | 5.29 |
| 270.0 | 120.66 | 15.92 | 6.69 | 5.63 | 5.40 | 5.34 | 5.29 | 5.23 | 5.29 |
| 315.0 | 94.78 | 13.95 | 5.96 | 5.57 | 5.40 | 5.29 | 5.29 | 5.23 | 5.23 |
| 360.0 | 160.48 | 23.18 | 7.09 | 5.74 | 5.51 | 5.34 | 5.29 | 5.29 | 5.23 |

| C/γ(°) | 90.0 |
|--------|------|
| 0.0 | 5.29 |
| 45.0 | 5.23 |
| 90.0 | 5.29 |
| 135.0 | 5.23 |
| 180.0 | 5.23 |
| 225.0 | 5.23 |
| 270.0 | 5.23 |
| 315.0 | 5.23 |
| 360.0 | 5.29 |