



Shenzhen Belling Efficiency Testing Laboratory Co.,Ltd.
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LumCAT: LL4R-50K

Luminaire:

Report No:

Voltage(V): 120.03

Test No:

Current(A): 0.1129

LampCAT:

Power (W): 13.3560

Lamp flux(lm): 851.8

PF: 0.9856

Number of Lamps: 1

Ballast type:

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 851.81

Efficiency(%): 100.00%

Lumens(lm)/Power(W): 63.78

Central intensity(cd): 312.700

Maximum intensity(cd): 321.958

Angle of maximum intensity: C=180.0 γ =5.0

Beam Angle(50%Imax): [C0/180]Total=107.5

[C90/270]Total=106.8

Field angle(10%Imax): [C0/180]Total=158.9

[C90/270]Total=158.7

Maximum s/h(1/2): C0_180=1.30 C90_270=1.20

Maximum s/h(1/4): C0_180=1.85 C90_270=1.32

Up flux rate of lamp(%): 0.79%

Down flux rate of lamp(%): 99.21%

Up flux rate of LUM(%): 0.79%

Down flux rate of LUM(%): 99.21%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 79.326%

Equipment: GMS-3000
Temperature(°C): 25

Date:
Humidity(%): 58%

Operator: Zac

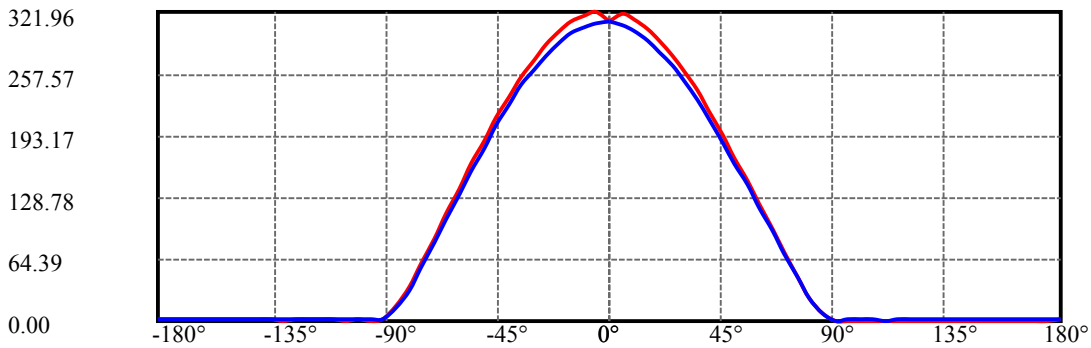
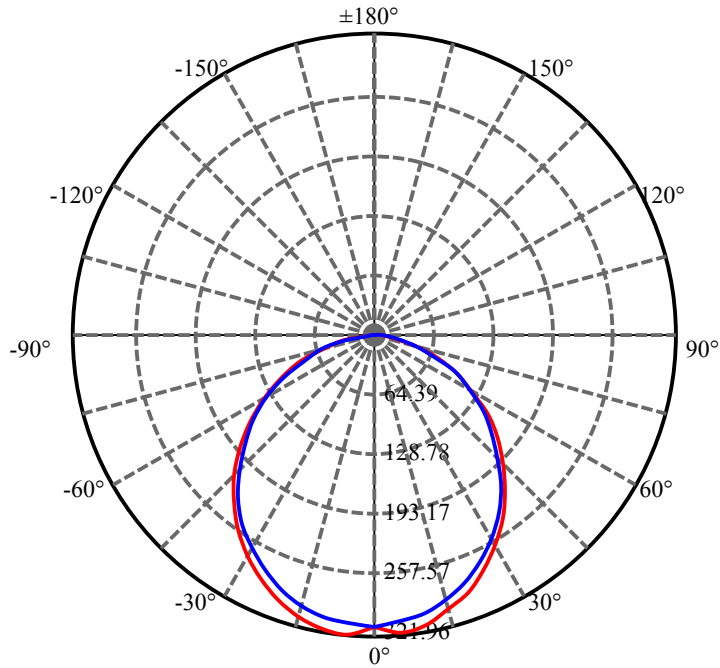
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0 | 312.700 | .000 | .000 | .000% | .000% |
| 5.0 | 311.221 | 7.459 | 7.459 | .876% | .876% |
| 10.0 | 306.391 | 22.094 | 29.553 | 2.594% | 3.469% |
| 15.0 | 298.494 | 35.881 | 65.434 | 4.212% | 7.682% |
| 20.0 | 287.645 | 48.306 | 113.740 | 5.671% | 13.353% |
| 25.0 | 273.829 | 58.888 | 172.628 | 6.913% | 20.266% |
| 30.0 | 257.736 | 67.270 | 239.899 | 7.897% | 28.163% |
| 35.0 | 239.391 | 73.205 | 313.104 | 8.594% | 36.757% |
| 40.0 | 218.943 | 76.470 | 389.574 | 8.977% | 45.735% |
| 45.0 | 196.819 | 76.982 | 466.555 | 9.037% | 54.772% |
| 50.0 | 173.806 | 74.890 | 541.445 | 8.792% | 63.564% |
| 55.0 | 150.180 | 70.445 | 611.891 | 8.270% | 71.834% |
| 60.0 | 125.927 | 63.821 | 675.712 | 7.492% | 79.326% |
| 65.0 | 101.338 | 55.249 | 730.960 | 6.486% | 85.812% |
| 70.0 | 76.335 | 44.988 | 775.948 | 5.281% | 91.094% |
| 75.0 | 51.670 | 33.458 | 809.407 | 3.928% | 95.022% |
| 80.0 | 28.807 | 21.533 | 830.940 | 2.528% | 97.550% |
| 85.0 | 10.925 | 10.796 | 841.736 | 1.267% | 98.817% |
| 90.0 | 1.251 | 3.334 | 845.070 | .391% | 99.209% |
| 95.0 | .888 | .586 | 845.656 | .069% | 99.277% |
| 100.0 | .913 | .490 | 846.146 | .057% | 99.335% |
| 105.0 | .963 | .502 | 846.648 | .059% | 99.394% |
| 110.0 | .963 | .504 | 847.151 | .059% | 99.453% |
| 115.0 | .976 | .491 | 847.643 | .058% | 99.511% |
| 120.0 | 1.076 | .499 | 848.141 | .059% | 99.569% |
| 125.0 | 1.126 | .509 | 848.650 | .060% | 99.629% |
| 130.0 | 1.076 | .479 | 849.129 | .056% | 99.685% |
| 135.0 | 1.189 | .458 | 849.587 | .054% | 99.739% |
| 140.0 | 1.164 | .436 | 850.022 | .051% | 99.790% |
| 145.0 | 1.139 | .384 | 850.407 | .045% | 99.835% |
| 150.0 | 1.264 | .354 | 850.760 | .042% | 99.877% |
| 155.0 | 1.251 | .318 | 851.079 | .037% | 99.914% |
| 160.0 | 1.276 | .265 | 851.344 | .031% | 99.945% |
| 165.0 | 1.189 | .203 | 851.547 | .024% | 99.969% |
| 170.0 | 1.226 | .143 | 851.690 | .017% | 99.986% |
| 175.0 | 1.302 | .090 | 851.781 | .011% | 99.996% |
| 180.0 | 1.284 | .031 | 851.812 | .004% | 100.000% |

ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|--------|---------|---------|
| 0-30 | 239.90 | 28.16% | 28.16% |
| 0-40 | 389.57 | 45.73% | 45.73% |
| 0-60 | 675.71 | 79.33% | 79.33% |
| 0-90 | 845.07 | 99.21% | 99.21% |
| 0-120 | 848.14 | 99.57% | 99.57% |
| 0-180 | 851.81 | 100.00% | 100.00% |
| 60-90 | 233.18 | 27.37% | 27.37% |
| 90-120 | 6.41 | 0.75% | 0.75% |
| 90-130 | 7.39 | 0.87% | 0.87% |
| 90-150 | 9.02 | 1.06% | 1.06% |
| 90-180 | 10.04 | 1.18% | 1.18% |
| 0-60.52 | 681.45 | 80.00% | 80.00% |

ZONAL LUMEN SUMMARY

| | |
|---------|--------|
| 0-10 | 29.55 |
| 10-20 | 84.19 |
| 20-30 | 126.16 |
| 30-40 | 149.68 |
| 40-50 | 151.87 |
| 50-60 | 134.27 |
| 60-70 | 100.24 |
| 70-80 | 54.99 |
| 80-90 | 14.13 |
| 90-100 | 1.08 |
| 100-110 | 1.01 |
| 110-120 | 0.99 |
| 120-130 | 0.99 |
| 130-140 | 0.89 |
| 140-150 | 0.74 |
| 150-160 | 0.58 |
| 160-170 | 0.35 |
| 170-180 | 0.09 |

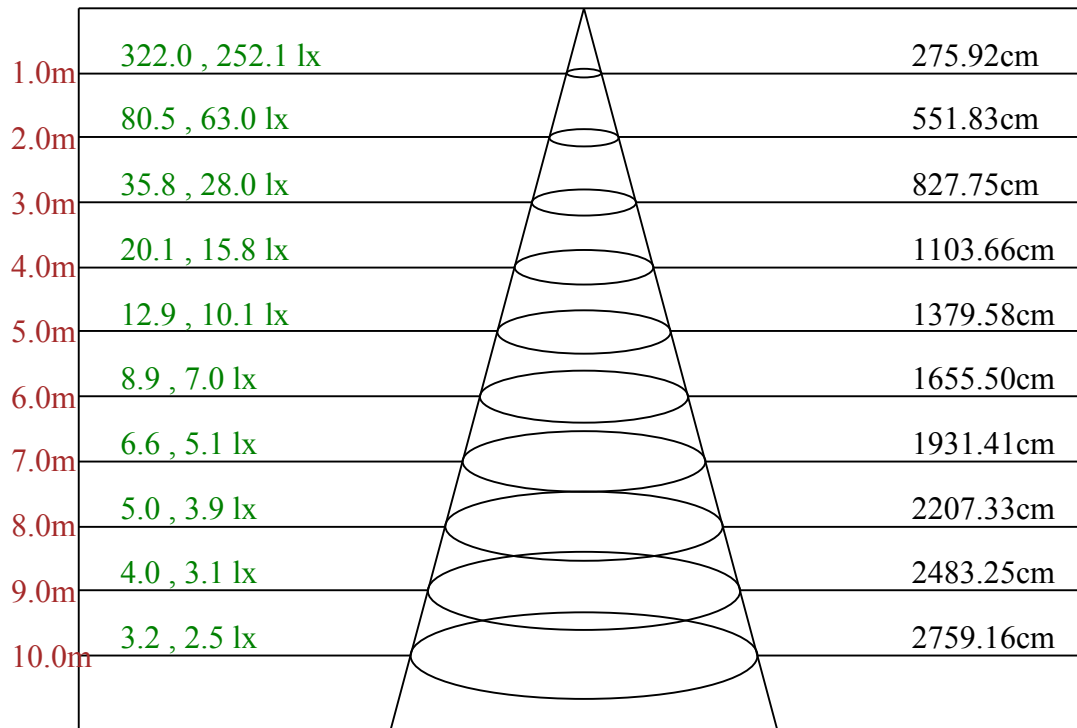


C0/C180: —

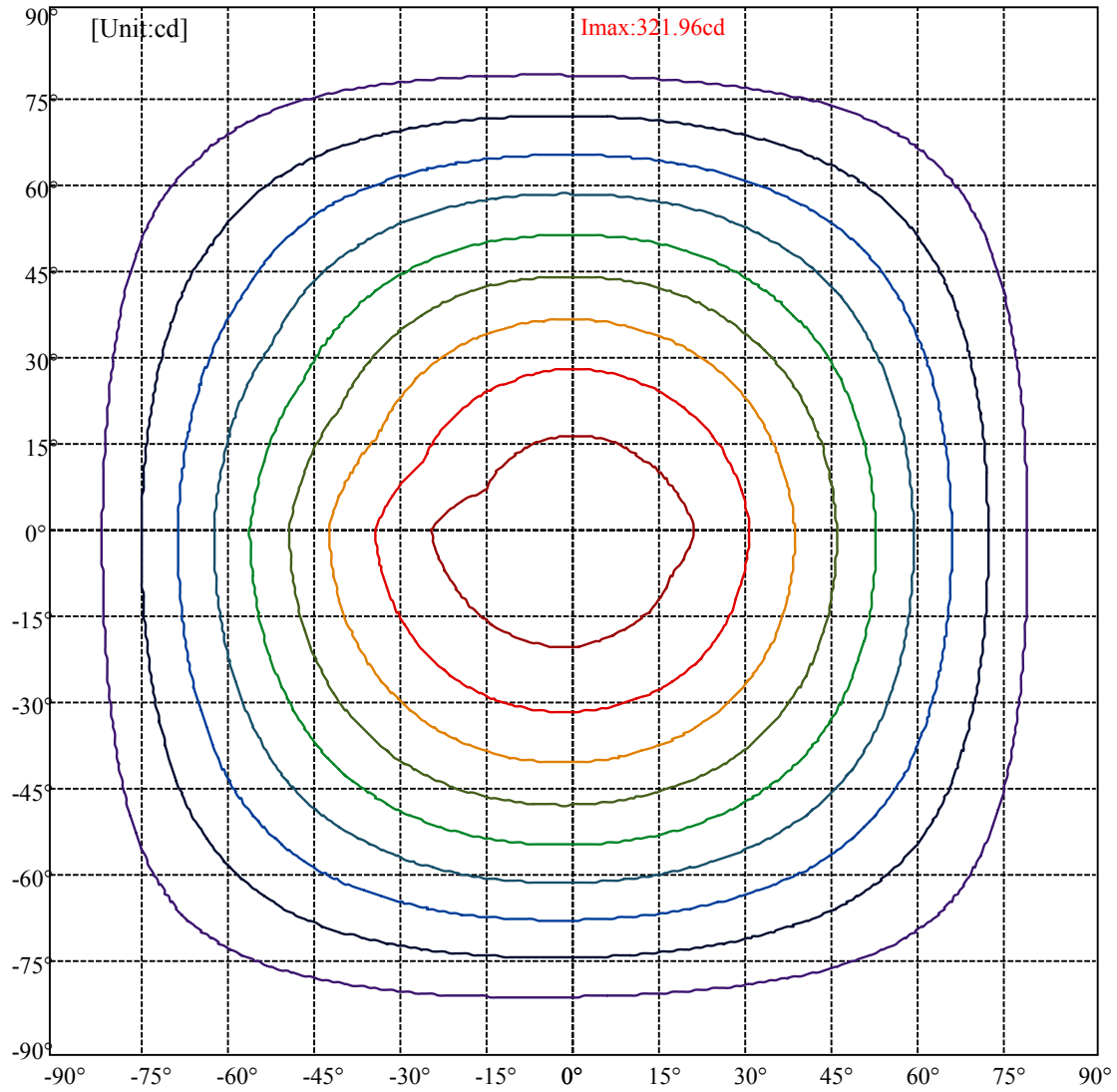
C90/C270: —










Field angle(10%Imax):C0/180Left:75.8 Right:83.1
:C90/270Left:80.4 Right:78.3

Beam Angle(50%Imax):C0/180Left:50.5 Right:57.0
:C90/270Left:55.1 Right:51.7



Max , Ave Beam angle of C180plane107.98



| | |
|-------------------|---|
| (10%Imax) 32.1958 |  |
| (20%Imax) 64.3916 |  |
| (30%Imax) 96.5874 |  |
| (40%Imax) 128.783 |  |
| (50%Imax) 160.979 |  |
| (60%Imax) 193.175 |  |
| (70%Imax) 225.371 |  |
| (80%Imax) 257.566 |  |
| (90%Imax) 289.762 |  |

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 | 312.70 | 319.56 | 313.55 | 304.14 | 292.33 | 276.91 | 259.09 | 239.07 | 217.04 |
| 22.5 | 312.70 | 314.15 | 308.14 | 298.53 | 286.12 | 271.50 | 254.48 | 234.26 | 212.64 |
| 45.0 | 312.70 | 309.74 | 303.94 | 294.93 | 282.31 | 267.90 | 250.68 | 231.46 | 210.23 |
| 67.5 | 312.70 | 308.74 | 302.94 | 293.33 | 281.51 | 266.50 | 249.48 | 229.66 | 209.43 |
| 90.0 | 312.70 | 307.74 | 301.54 | 292.53 | 280.51 | 266.70 | 249.88 | 230.66 | 209.23 |
| 112.5 | 312.70 | 306.54 | 300.93 | 292.53 | 280.91 | 265.90 | 249.68 | 231.26 | 210.63 |
| 135.0 | 312.70 | 306.54 | 300.73 | 292.73 | 281.71 | 266.90 | 250.48 | 232.26 | 211.64 |
| 157.5 | 312.70 | 307.54 | 301.74 | 292.93 | 281.91 | 268.10 | 251.28 | 232.66 | 212.04 |
| 180.0 | 312.70 | 321.96 | 318.15 | 311.55 | 301.34 | 288.12 | 271.90 | 253.68 | 234.06 |
| 202.5 | 312.70 | 316.15 | 312.35 | 306.54 | 296.53 | 282.91 | 267.50 | 250.68 | 231.06 |
| 225.0 | 312.70 | 313.15 | 309.14 | 302.74 | 292.93 | 280.31 | 265.30 | 247.88 | 228.25 |
| 247.5 | 312.70 | 310.75 | 307.34 | 300.93 | 291.12 | 278.71 | 263.49 | 245.87 | 227.05 |
| 270.0 | 312.70 | 309.54 | 305.74 | 299.33 | 290.12 | 276.91 | 261.49 | 245.07 | 225.05 |
| 292.5 | 312.70 | 309.14 | 305.54 | 298.33 | 288.12 | 275.31 | 260.49 | 243.07 | 223.25 |
| 315.0 | 312.70 | 309.34 | 305.74 | 297.73 | 287.92 | 274.71 | 260.09 | 242.07 | 221.65 |
| 337.5 | 312.70 | 308.94 | 304.74 | 297.13 | 286.92 | 273.90 | 258.49 | 240.67 | 219.84 |
| 360.0 | 312.70 | 319.56 | 313.55 | 304.14 | 292.33 | 276.91 | 259.09 | 239.07 | 217.04 |
| C/γ(°) | 45.0 | 50.0 | 55.0 | 60.0 | 65.0 | 70.0 | 75.0 | 80.0 | 85.0 |
| 0.0 | 194.62 | 170.59 | 146.56 | 121.34 | 96.91 | 71.08 | 46.05 | 23.63 | 7.21 |
| 22.5 | 190.81 | 167.19 | 143.56 | 118.93 | 94.71 | 69.68 | 44.85 | 22.83 | 7.21 |
| 45.0 | 187.61 | 164.98 | 140.96 | 118.13 | 93.10 | 68.28 | 44.65 | 22.83 | 7.21 |
| 67.5 | 187.41 | 164.98 | 141.36 | 118.13 | 93.70 | 68.88 | 44.45 | 22.83 | 6.81 |
| 90.0 | 186.61 | 164.18 | 141.76 | 118.13 | 94.11 | 70.08 | 45.85 | 24.03 | 7.41 |
| 112.5 | 188.21 | 165.58 | 143.36 | 119.53 | 95.51 | 71.28 | 47.85 | 25.83 | 8.41 |
| 135.0 | 189.41 | 166.79 | 143.36 | 121.14 | 97.11 | 72.68 | 48.85 | 27.43 | 10.01 |
| 157.5 | 190.01 | 167.79 | 144.36 | 121.14 | 97.91 | 74.08 | 50.66 | 27.83 | 11.01 |
| 180.0 | 211.04 | 187.01 | 163.58 | 137.55 | 111.72 | 85.50 | 60.07 | 35.64 | 15.22 |
| 202.5 | 208.63 | 185.21 | 160.98 | 136.15 | 110.92 | 86.10 | 59.67 | 35.64 | 16.02 |
| 225.0 | 207.43 | 183.80 | 159.78 | 134.75 | 110.12 | 85.10 | 59.87 | 35.04 | 15.42 |
| 247.5 | 205.63 | 182.20 | 158.18 | 133.75 | 108.92 | 83.29 | 58.47 | 34.64 | 14.62 |
| 270.0 | 203.43 | 180.20 | 156.77 | 131.75 | 106.72 | 81.49 | 56.46 | 32.84 | 13.22 |
| 292.5 | 200.62 | 179.00 | 154.77 | 129.74 | 104.52 | 80.09 | 54.46 | 31.24 | 12.61 |
| 315.0 | 200.22 | 177.00 | 152.57 | 128.14 | 103.52 | 77.89 | 52.66 | 30.03 | 11.81 |
| 337.5 | 197.42 | 174.39 | 150.97 | 126.54 | 101.91 | 75.88 | 51.86 | 28.63 | 10.61 |
| 360.0 | 194.62 | 170.59 | 146.56 | 121.34 | 96.91 | 71.08 | 46.05 | 23.63 | 7.21 |
| C/γ(°) | 90.0 | 95.0 | 100.0 | 105.0 | 110.0 | 115.0 | 120.0 | 125.0 | 130.0 |
| 0.0 | 0.20 | 0.20 | 0.20 | 0.40 | 0.40 | 0.40 | 0.20 | 0.40 | 0.40 |
| 22.5 | 0.80 | 0.80 | 0.80 | 0.60 | 0.80 | 0.80 | 1.00 | 1.00 | 0.80 |
| 45.0 | 0.80 | 0.80 | 0.80 | 1.00 | 0.80 | 0.80 | 0.80 | 1.00 | 1.00 |
| 67.5 | 0.60 | 0.80 | 0.60 | 1.00 | 1.00 | 1.20 | 1.00 | 1.00 | 1.00 |
| 90.0 | 0.80 | 1.00 | 1.00 | 1.00 | 0.60 | 1.00 | 1.00 | 1.20 | 1.00 |
| 112.5 | 0.80 | 0.80 | 0.80 | 1.00 | 1.00 | 0.80 | 1.00 | 1.20 | 1.00 |
| 135.0 | 0.60 | 0.80 | 1.00 | 0.80 | 1.00 | 1.00 | 1.00 | 1.20 | 1.00 |
| 157.5 | 0.80 | 1.00 | 1.00 | 1.00 | 1.00 | 0.80 | 1.20 | 1.00 | 1.00 |
| 180.0 | 2.40 | 0.80 | 1.00 | 0.80 | 1.00 | 1.20 | 1.00 | 1.00 | 0.80 |
| 202.5 | 2.80 | 1.00 | 1.20 | 1.00 | 1.00 | 1.00 | 1.20 | 1.20 | 1.40 |
| 225.0 | 2.40 | 1.20 | 1.00 | 1.00 | 1.00 | 1.20 | 1.40 | 1.20 | 1.40 |
| 247.5 | 2.00 | 1.00 | 1.00 | 1.20 | 1.20 | 1.20 | 1.40 | 1.40 | 1.20 |
| 270.0 | 1.40 | 1.00 | 1.00 | 1.20 | 1.20 | 1.00 | 1.20 | 1.40 | 1.40 |
| 292.5 | 1.20 | 0.80 | 1.00 | 1.00 | 1.20 | 1.20 | 1.40 | 1.40 | 1.20 |
| 315.0 | 1.20 | 1.20 | 1.00 | 1.20 | 1.00 | 1.00 | 1.20 | 1.20 | 1.20 |
| 337.5 | 1.20 | 1.00 | 1.20 | 1.20 | 1.20 | 1.00 | 1.20 | 1.20 | 1.40 |
| 360.0 | 0.20 | 0.20 | 0.20 | 0.40 | 0.40 | 0.40 | 0.20 | 0.40 | 0.40 |

Intensity data(cd)

Page: 8 Total:8

| C/γ(°) | 135.0 | 140.0 | 145.0 | 150.0 | 155.0 | 160.0 | 165.0 | 170.0 | 175.0 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.0 | 0.40 | 0.80 | 0.20 | 0.60 | 0.60 | 0.80 | 0.40 | 0.60 | 0.60 |
| 22.5 | 0.80 | 1.00 | 1.00 | 1.00 | 1.20 | 1.40 | 1.40 | 1.20 | 1.40 |
| 45.0 | 1.20 | 1.20 | 1.00 | 1.40 | 1.20 | 1.20 | 1.00 | 1.20 | 1.40 |
| 67.5 | 1.20 | 1.00 | 1.00 | 1.20 | 1.20 | 1.20 | 1.20 | 1.40 | 1.20 |
| 90.0 | 1.20 | 1.00 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.40 |
| 112.5 | 1.20 | 1.20 | 1.20 | 1.40 | 1.40 | 1.20 | 1.40 | 1.40 | 1.40 |
| 135.0 | 1.20 | 1.00 | 1.20 | 1.40 | 1.20 | 1.40 | 1.20 | 1.40 | 1.20 |
| 157.5 | 1.20 | 1.40 | 1.00 | 1.20 | 1.20 | 1.20 | 1.20 | 1.00 | 1.40 |
| 180.0 | 1.20 | 1.00 | 1.20 | 1.00 | 1.20 | 1.20 | 1.20 | 1.00 | 1.40 |
| 202.5 | 1.20 | 1.20 | 1.20 | 1.40 | 1.20 | 1.60 | 1.20 | 1.20 | 1.40 |
| 225.0 | 1.40 | 1.20 | 1.40 | 1.40 | 1.40 | 1.40 | 1.20 | 1.40 | 1.40 |
| 247.5 | 1.40 | 1.20 | 1.20 | 1.40 | 1.40 | 1.40 | 1.20 | 1.40 | 1.60 |
| 270.0 | 1.40 | 1.20 | 1.60 | 1.20 | 1.20 | 1.20 | 1.40 | 1.40 | 1.20 |
| 292.5 | 1.20 | 1.40 | 1.60 | 1.40 | 1.40 | 1.40 | 1.40 | 1.20 | 1.20 |
| 315.0 | 1.60 | 1.40 | 1.20 | 1.40 | 1.60 | 1.40 | 1.20 | 1.40 | 1.40 |
| 337.5 | 1.20 | 1.40 | 1.00 | 1.60 | 1.40 | 1.20 | 1.20 | 1.20 | 1.20 |
| 360.0 | 0.40 | 0.80 | 0.20 | 0.60 | 0.60 | 0.80 | 0.40 | 0.60 | 0.60 |
| C/γ(°) | 180.0 | | | | | | | | |
| 0.0 | 1.28 | | | | | | | | |
| 22.5 | 1.28 | | | | | | | | |
| 45.0 | 1.28 | | | | | | | | |
| 67.5 | 1.28 | | | | | | | | |
| 90.0 | 1.28 | | | | | | | | |
| 112.5 | 1.28 | | | | | | | | |
| 135.0 | 1.28 | | | | | | | | |
| 157.5 | 1.28 | | | | | | | | |
| 180.0 | 1.28 | | | | | | | | |
| 202.5 | 1.28 | | | | | | | | |
| 225.0 | 1.28 | | | | | | | | |
| 247.5 | 1.28 | | | | | | | | |
| 270.0 | 1.28 | | | | | | | | |
| 292.5 | 1.28 | | | | | | | | |
| 315.0 | 1.28 | | | | | | | | |
| 337.5 | 1.28 | | | | | | | | |
| 360.0 | 1.28 | | | | | | | | |