SOTEN LIGHTING LTD.
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Address:Address:Jin Ou Road,Jiangmen City,GuangDong,China

## SOTEN

LumCAT: R1026
Luminaire: 1420-E
Report No:
Test No:
LampCAT: Lumileds1202 3000K Ra80
Lamp flux(lm): 1115.0
Number of Lamps: 1
Length(mm): 51
Phm Type: C

Voltage(V): 220.5000
Current(A): 0.0910
Power (W): 11.1100
PF: 0.5490
Ballast type: Philips 10W 250mA
Width(mm): 51
Height(mm): 43

## Photometric Results

Lumens(lm): 931.28
Efficiency(%): 83.52%
Lumens(lm)/Power(W): 83.82
Central intensity(cd): 5837.586
Maximum intensity(cd): 5837.586
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=18.6
[C90/270]Total=18.6
Field angle(10%Imax): [C0/180]Total=41.5
[C90/270]Total=41.5
Maximum s/h(1/2): C0_180=0.32 C90_270=0.32
Maximum s/h(1/4): C0_180=0.47 C90_270=0.33
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 83.52%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 99.187%

SOTEN R1026

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 0.0 | 5837.586 | .000 | .000 | .000% | .000% |
| 1.0 | 5817.680 | 5.577 | 5.577 | .500% | .500% |
| 2.0 | 5724.130 | 16.566 | 22.143 | 1.486% | 1.986% |
| 3.0 | 5545.246 | 26.953 | 49.095 | 2.417% | 4.403% |
| 4.0 | 5317.452 | 36.361 | 85.456 | 3.261% | 7.664% |
| 5.0 | 4980.099 | 44.300 | 129.756 | 3.973% | 11.637% |
| 6.0 | 4530.590 | 49.981 | 179.737 | 4.483% | 16.120% |
| 7.0 | 4061.777 | 53.333 | 233.070 | 4.783% | 20.903% |
| 8.0 | 3548.556 | 54.466 | 287.535 | 4.885% | 25.788% |
| 9.0 | 3050.555 | 53.482 | 341.018 | 4.797% | 30.585% |
| 10.0 | 2594.457 | 51.085 | 392.103 | 4.582% | 35.166% |
| 11.0 | 2191.444 | 47.821 | 439.924 | 4.289% | 39.455% |
| 12.0 | 1845.878 | 44.134 | 484.058 | 3.958% | 43.413% |
| 13.0 | 1541.473 | 40.199 | 524.257 | 3.605% | 47.019% |
| 14.0 | 1284.491 | 36.172 | 560.429 | 3.244% | 50.263% |
| 15.0 | 1095.583 | 32.675 | 593.104 | 2.930% | 53.193% |
| 16.0 | 922.174 | 29.566 | 622.670 | 2.652% | 55.845% |
| 17.0 | 829.274 | 27.275 | 649.944 | 2.446% | 58.291% |
| 18.0 | 751.688 | 26.067 | 676.011 | 2.338% | 60.629% |
| 19.0 | 673.498 | 24.795 | 700.806 | 2.224% | 62.853% |
| 20.0 | 622.965 | 23.729 | 724.535 | 2.128% | 64.981% |
| 21.0 | 571.040 | 22.927 | 747.462 | 2.056% | 67.037% |
| 22.0 | 529.509 | 22.116 | 769.578 | 1.983% | 69.020% |
| 23.0 | 489.277 | 21.377 | 790.955 | 1.917% | 70.938% |
| 24.0 | 440.646 | 20.331 | 811.287 | 1.823% | 72.761% |
| 25.0 | 388.814 | 18.860 | 830.147 | 1.691% | 74.453% |
| 26.0 | 334.893 | 17.083 | 847.230 | 1.532% | 75.985% |
| 27.0 | 277.446 | 14.981 | 862.211 | 1.344% | 77.328% |
| 28.0 | 234.801 | 12.969 | 875.180 | 1.163% | 78.491% |
| 29.0 | 171.368 | 10.627 | 885.807 | .953% | 79.445% |
| 30.0 | 125.521 | 8.016 | 893.823 | .719% | 80.163% |
| 31.0 | 80.231 | 5.726 | 899.548 | .514% | 80.677% |
| 32.0 | 50.904 | 3.757 | 903.305 | .337% | 81.014% |
| 33.0 | 33.967 | 2.500 | 905.806 | .224% | 81.238% |
| 34.0 | 23.248 | 1.732 | 907.537 | .155% | 81.393% |
| 35.0 | 19.072 | 1.314 | 908.851 | .118% | 81.511% |
| 36.0 | 16.612 | 1.136 | 909.988 | .102% | 81.613% |
| 37.0 | 14.107 | 1.002 | 910.989 | .090% | 81.703% |

SOTEN R1026

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 38.0 | 12.529 | .889 | 911.878 | .080% | 81.783% |
| 39.0 | 11.786 | .830 | 912.708 | .074% | 81.857% |
| 40.0 | 11.276 | .804 | 913.513 | .072% | 81.929% |
| 41.0 | 10.905 | .790 | 914.303 | .071% | 82.000% |
| 42.0 | 10.487 | .777 | 915.080 | .070% | 82.070% |
| 43.0 | 9.977 | .758 | 915.838 | .068% | 82.138% |
| 44.0 | 9.420 | .732 | 916.570 | .066% | 82.204% |
| 45.0 | 8.863 | .703 | 917.273 | .063% | 82.267% |
| 46.0 | 8.213 | .668 | 917.940 | .060% | 82.326% |
| 47.0 | 7.517 | .626 | 918.566 | .056% | 82.383% |
| 48.0 | 6.821 | .580 | 919.146 | .052% | 82.435% |
| 49.0 | 6.125 | .532 | 919.677 | .048% | 82.482% |
| 50.0 | 5.568 | .488 | 920.165 | .044% | 82.526% |
| 51.0 | 5.012 | .448 | 920.613 | .040% | 82.566% |
| 52.0 | 4.548 | .410 | 921.023 | .037% | 82.603% |
| 53.0 | 4.223 | .382 | 921.404 | .034% | 82.637% |
| 54.0 | 3.944 | .360 | 921.764 | .032% | 82.669% |
| 55.0 | 3.759 | .344 | 922.108 | .031% | 82.700% |
| 56.0 | 3.573 | .331 | 922.440 | .030% | 82.730% |
| 57.0 | 3.480 | .322 | 922.762 | .029% | 82.759% |
| 58.0 | 3.387 | .318 | 923.080 | .028% | 82.787% |
| 59.0 | 3.341 | .315 | 923.394 | .028% | 82.816% |
| 60.0 | 3.295 | .313 | 923.708 | .028% | 82.844% |
| 61.0 | 3.248 | .312 | 924.020 | .028% | 82.872% |
| 62.0 | 3.202 | .311 | 924.331 | .028% | 82.900% |
| 63.0 | 3.155 | .309 | 924.640 | .028% | 82.927% |
| 64.0 | 3.155 | .310 | 924.950 | .028% | 82.955% |
| 65.0 | 3.155 | .312 | 925.262 | .028% | 82.983% |
| 66.0 | 3.109 | .313 | 925.574 | .028% | 83.011% |
| 67.0 | 3.109 | .313 | 925.887 | .028% | 83.039% |
| 68.0 | 3.109 | .315 | 926.202 | .028% | 83.067% |
| 69.0 | 3.063 | .315 | 926.517 | .028% | 83.096% |
| 70.0 | 3.016 | .312 | 926.829 | .028% | 83.124% |
| 71.0 | 2.970 | .309 | 927.139 | .028% | 83.151% |
| 72.0 | 2.877 | .304 | 927.443 | .027% | 83.179% |
| 73.0 | 2.831 | .298 | 927.741 | .027% | 83.205% |
| 74.0 | 2.738 | .293 | 928.034 | .026% | 83.232% |
| 75.0 | 2.645 | .284 | 928.318 | .026% | 83.257% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 76.0 | 2.599 | .278 | 928.596 | .025% | 83.282% |
| 77.0 | 2.506 | .272 | 928.869 | .024% | 83.307% |
| 78.0 | 2.413 | .263 | 929.132 | .024% | 83.330% |
| 79.0 | 2.320 | .254 | 929.386 | .023% | 83.353% |
| 80.0 | 2.227 | .245 | 929.631 | .022% | 83.375% |
| 81.0 | 2.088 | .233 | 929.865 | .021% | 83.396% |
| 82.0 | 1.949 | .219 | 930.084 | .020% | 83.416% |
| 83.0 | 1.717 | .199 | 930.283 | .018% | 83.433% |
| 84.0 | 1.531 | .177 | 930.460 | .016% | 83.449% |
| 85.0 | 1.346 | .157 | 930.617 | .014% | 83.463% |
| 86.0 | 1.253 | .142 | 930.759 | .013% | 83.476% |
| 87.0 | 1.206 | .135 | 930.894 | .012% | 83.488% |
| 88.0 | 1.206 | .132 | 931.026 | .012% | 83.500% |
| 89.0 | 1.160 | .130 | 931.156 | .012% | 83.512% |
| 90.0 | 1.160 | .127 | 931.283 | .011% | 83.523% |

## Zonal flux distribution table



ZONAL LUMEN SUMMARY

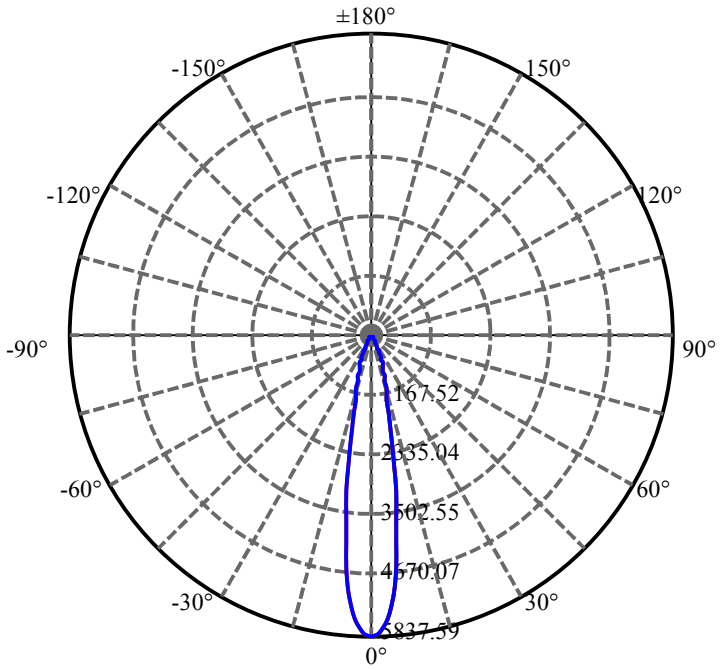
| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-30 | 893.82 | 80.16% | 95.98% |
| 0-40 | 913.51 | 81.93% | 98.09% |
| 0-60 | 923.71 | 82.84% | 99.19% |
| 0-90 | 931.16 | 83.51% | 99.99% |
| 0-120 | 931.16 | 83.51% | 99.99% |
| 0-180 | 931.28 | 83.52% | 100.00% |
| 60-90 | 7.76 | 0.70% | 0.83% |
| 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% |
| 0-20.89 | 745.03 | 66.82% | 80.00% |

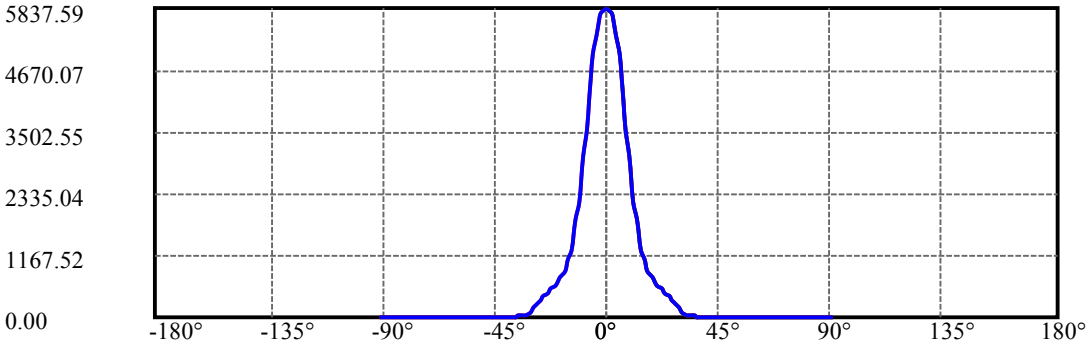
ZONAL LUMEN SUMMARY

| | |
|---|---|
| 0-10 | 392.10 |
| 10-20 | 332.43 |
| 20-30 | 169.29 |
| 30-40 | 19.69 |
| 40-50 | 6.65 |
| 50-60 | 3.54 |
| 60-70 | 3.12 |
| 70-80 | 2.80 |
| 80-90 | 1.52 |
| 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 |

Light Distribution Curve [Unit:cd]






C0(Max):

C0/C180:

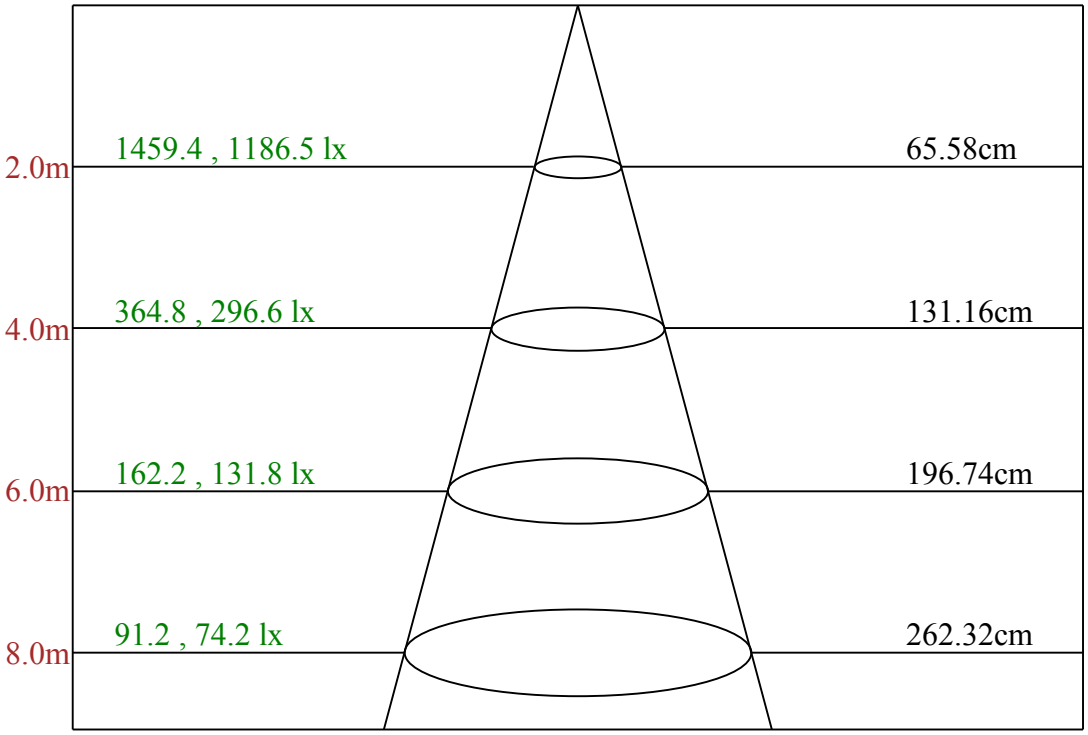
C90/C270:

Field angle(10%Imax):C0/180Left:20.8 Right:20.8
:C90/270Left:20.8 Right:20.8

Beam Angle(50%Imax):C0/180Left:9.3 Right:9.3
:C90/270Left:9.3 Right:9.3

Lux distance Curve



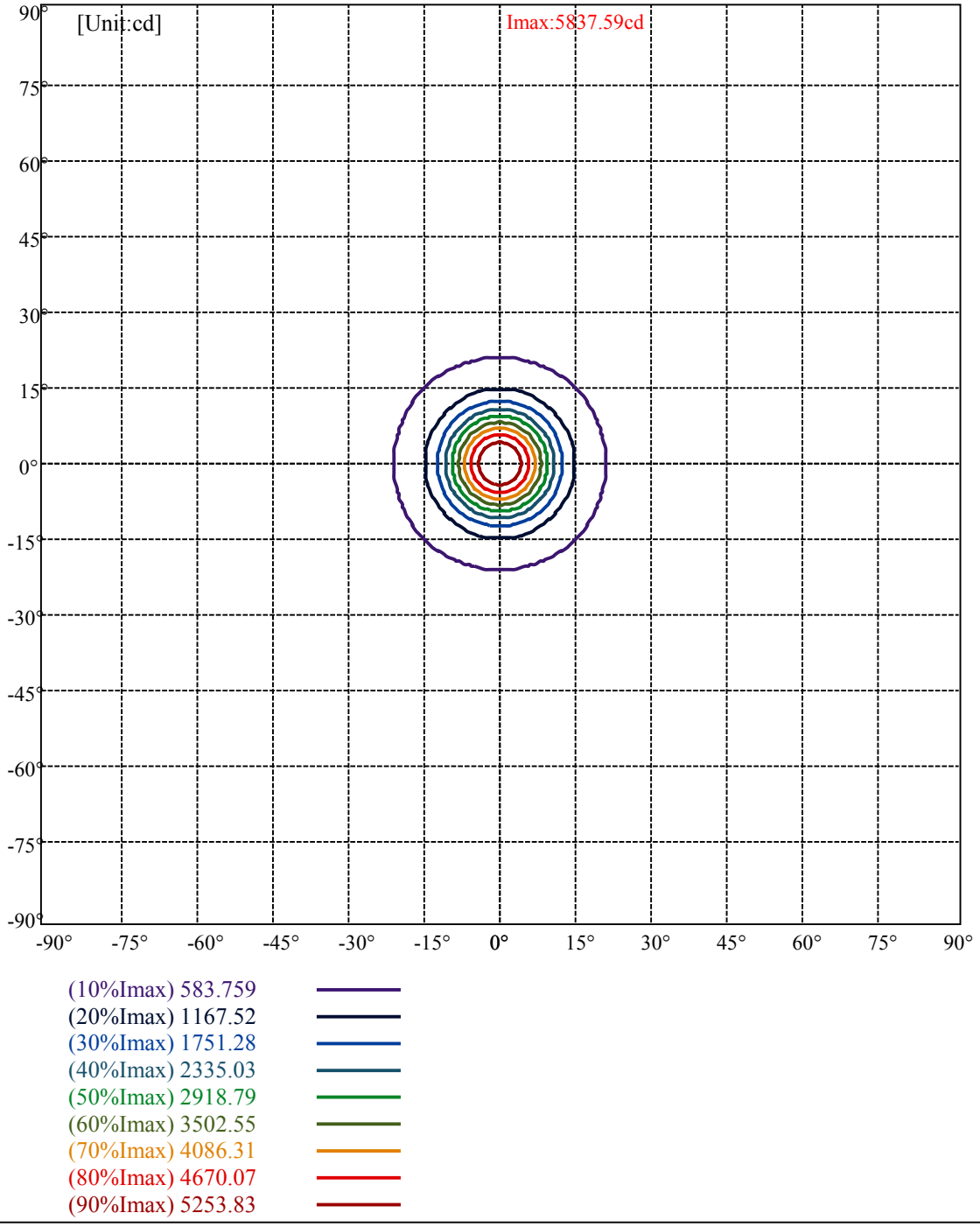



Max , Ave

Beam angle of C0plane18.62

ISO-Intensity(V-H)






(10%Imax) 583.759
(20%Imax) 1167.52
(30%Imax) 1751.28
(40%Imax) 2335.03
(50%Imax) 2918.79
(60%Imax) 3502.55
(70%Imax) 4086.31
(80%Imax) 4670.07
(90%Imax) 5253.83

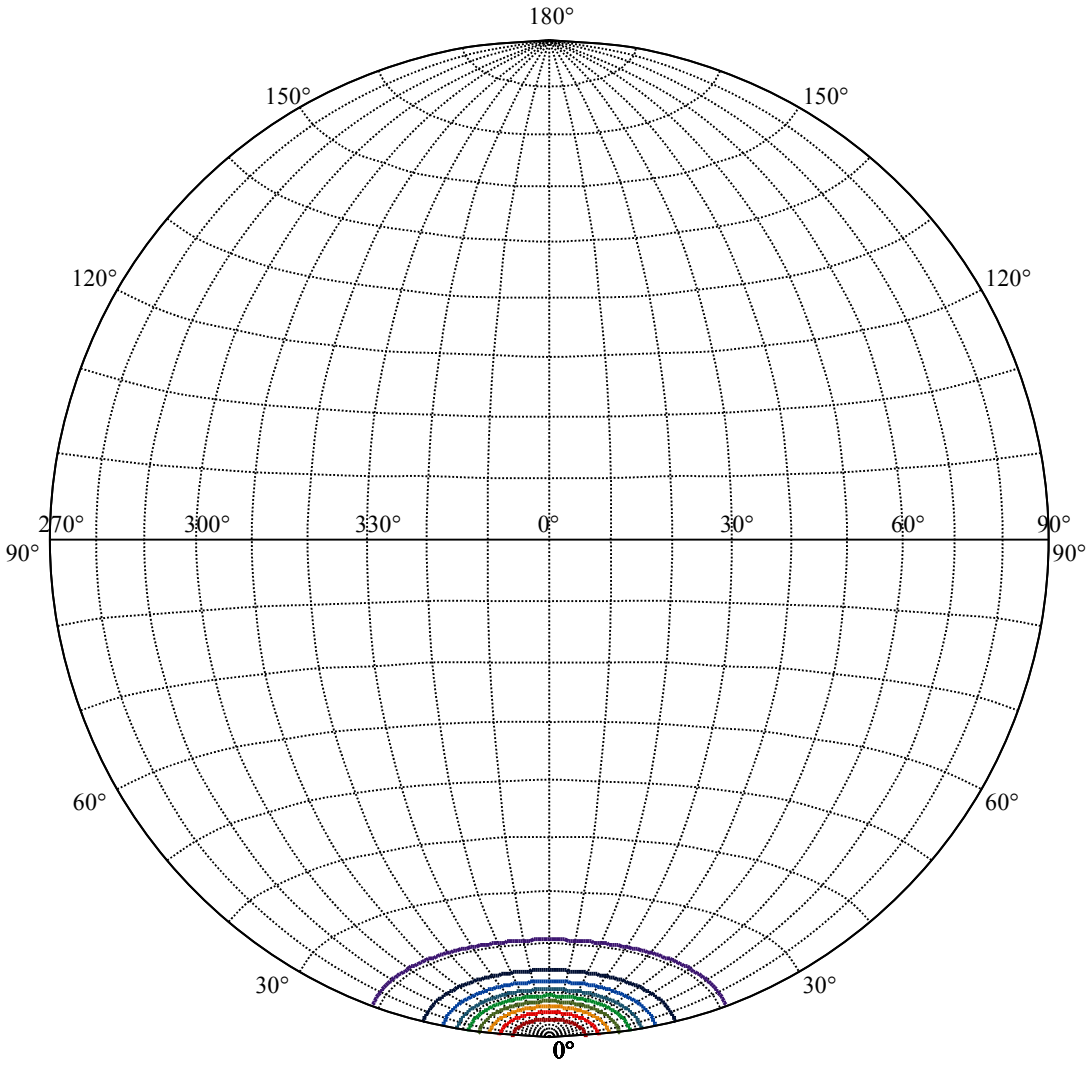
Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/5/7
Humidity(%): 60.0%

Operator: 01
Distance(m): 6.81

## ISO candela diagram on circular web






House [Unit:cd] Road

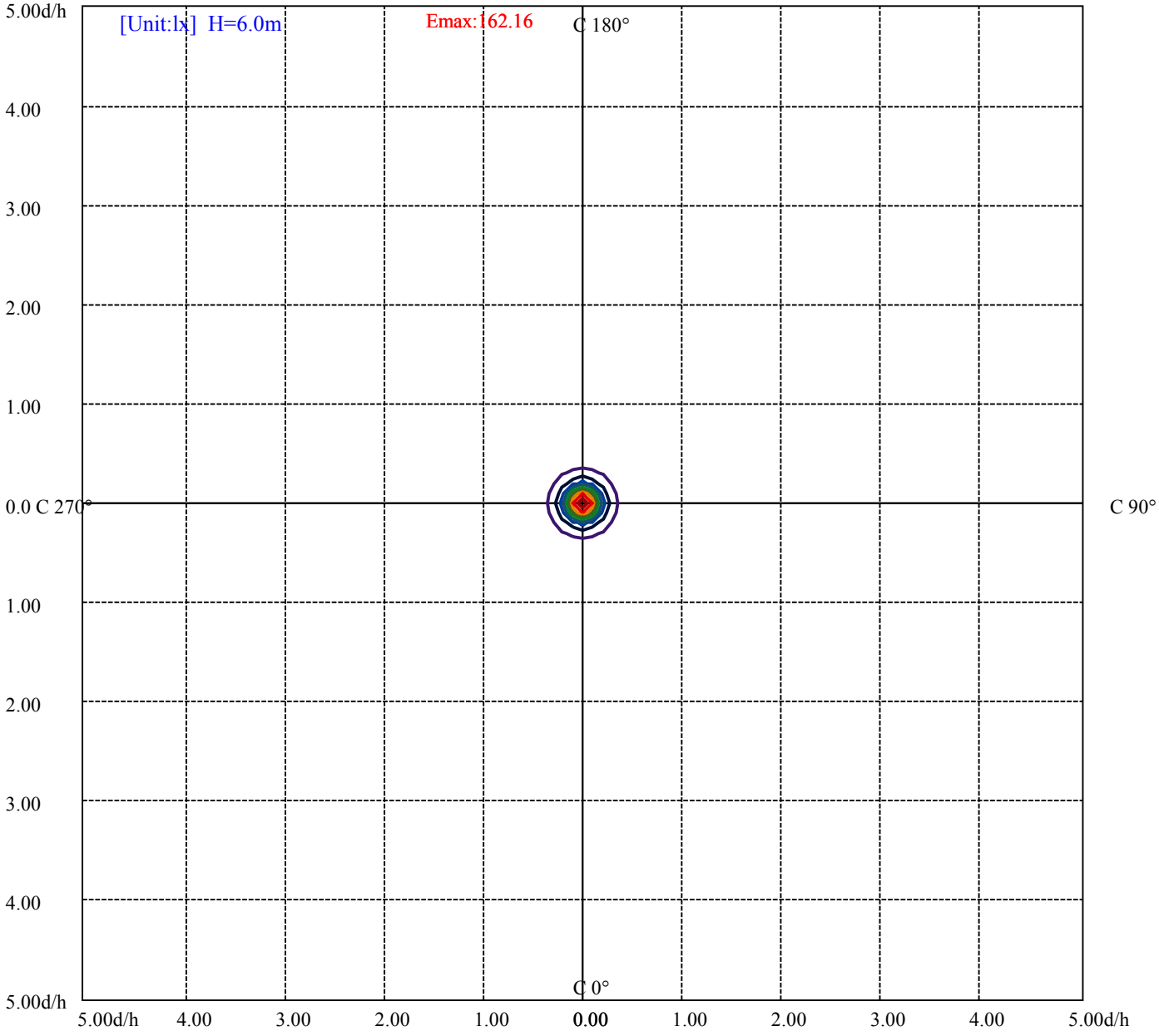
Imax:5837.59

(10%Imax) 583.759
(20%Imax) 1167.52
(30%Imax) 1751.28
(40%Imax) 2335.03
(50%Imax) 2918.79
(60%Imax) 3502.55
(70%Imax) 4086.31
(80%Imax) 4670.07
(90%Imax) 5253.83

SOTEN R1026

ISO illuminance diagram






(10%Emax) 16.2155
(20%Emax) 32.43111
(30%Emax) 48.64667
(40%Emax) 64.86195
(50%Emax) 81.0775
(60%Emax) 97.29306
(70%Emax) 113.5086
(80%Emax) 129.7242
(90%Emax) 145.9397

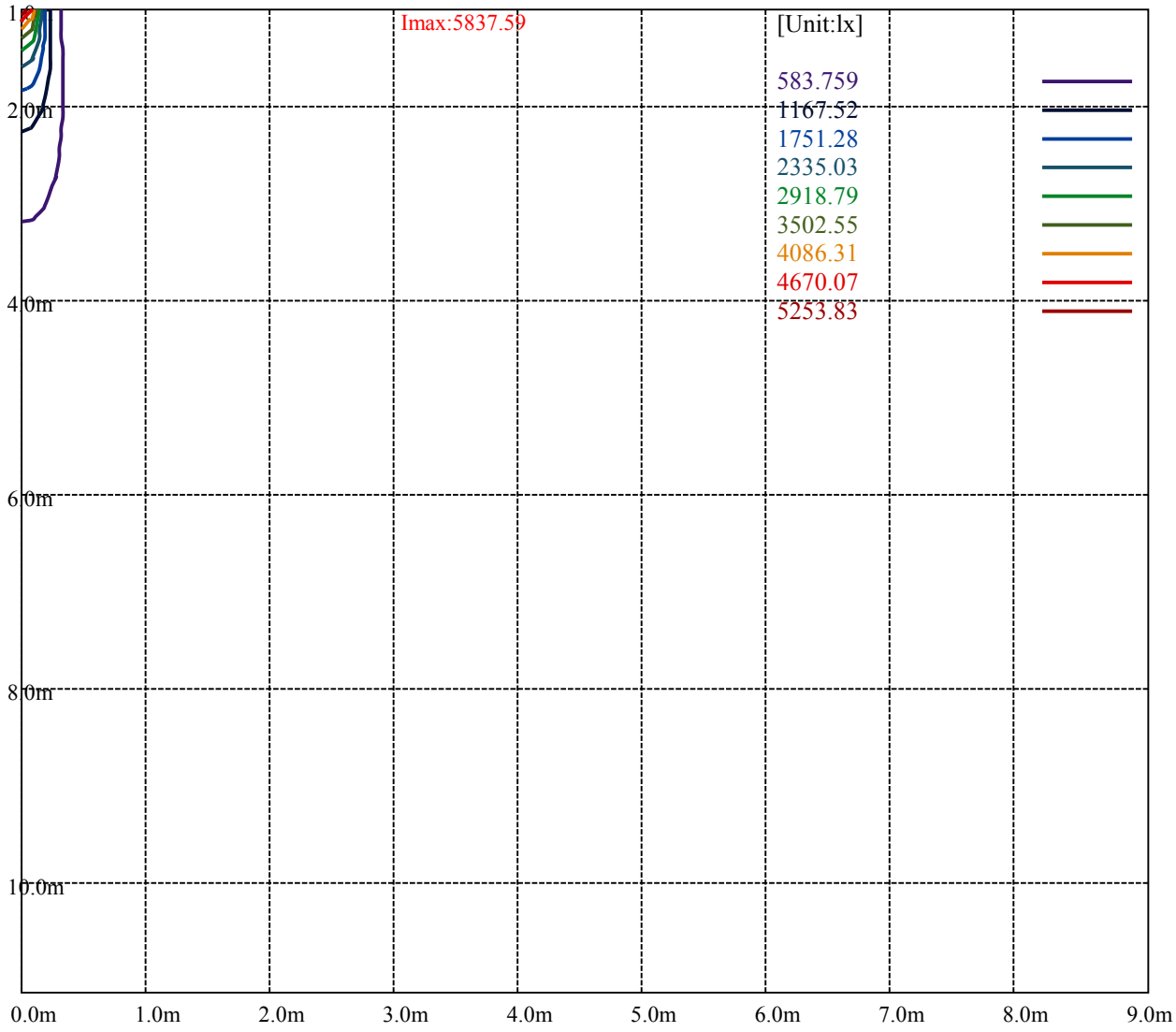
Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/5/7
Humidity(%): 60.0%

Operator: 01
Distance(m): 6.81

## Space ISO Lux diagram






Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/5/7
Humidity(%): 60.0%

Operator: 01
Distance(m): 6.81

SOTEN R1026

## Luminance Limitting Curve(no luminous side)



Luminance Table

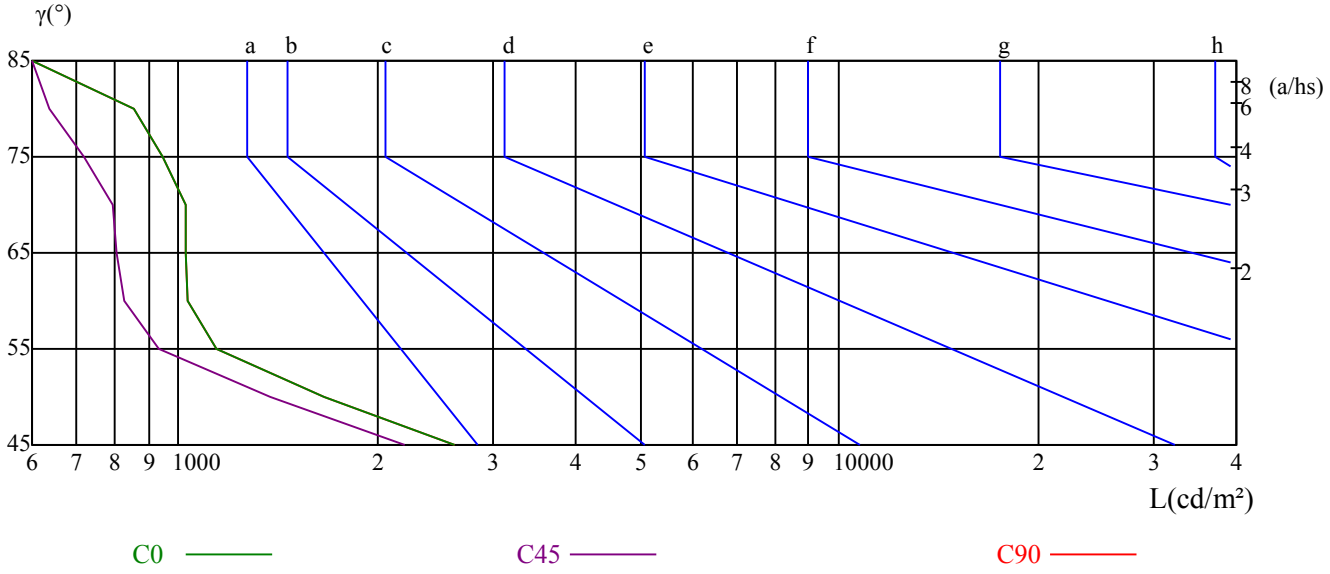
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|---|---|---|---|---|---|---|---|---|---|
| C0 | 2615 | 1661 | 1143 | 1030 | 1022 | 1022 | 948 | 853 | 558 |
| C45 | 2198 | 1376 | 932 | 826 | 807 | 793 | 721 | 635 | 406 |
| C90 | 2615 | 1661 | 1143 | 1030 | 1022 | 1022 | 948 | 853 | 558 |

| L横(65) | L纵(65) | L45(65) | L横(75) | L纵(75) | L45(75) | L横(85) | L纵(85) | L45(85) |
|---|---|---|---|---|---|---|---|---|
| 2871 | 2871 | 2871 | 3929 | 3929 | 3929 | 5936 | 5936 | 5936 |

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 Limitting Curve




Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/5/7
Humidity(%): 60.0%

Operator: 01
Distance(m): 6.81

Illuminatin assessment according UGR

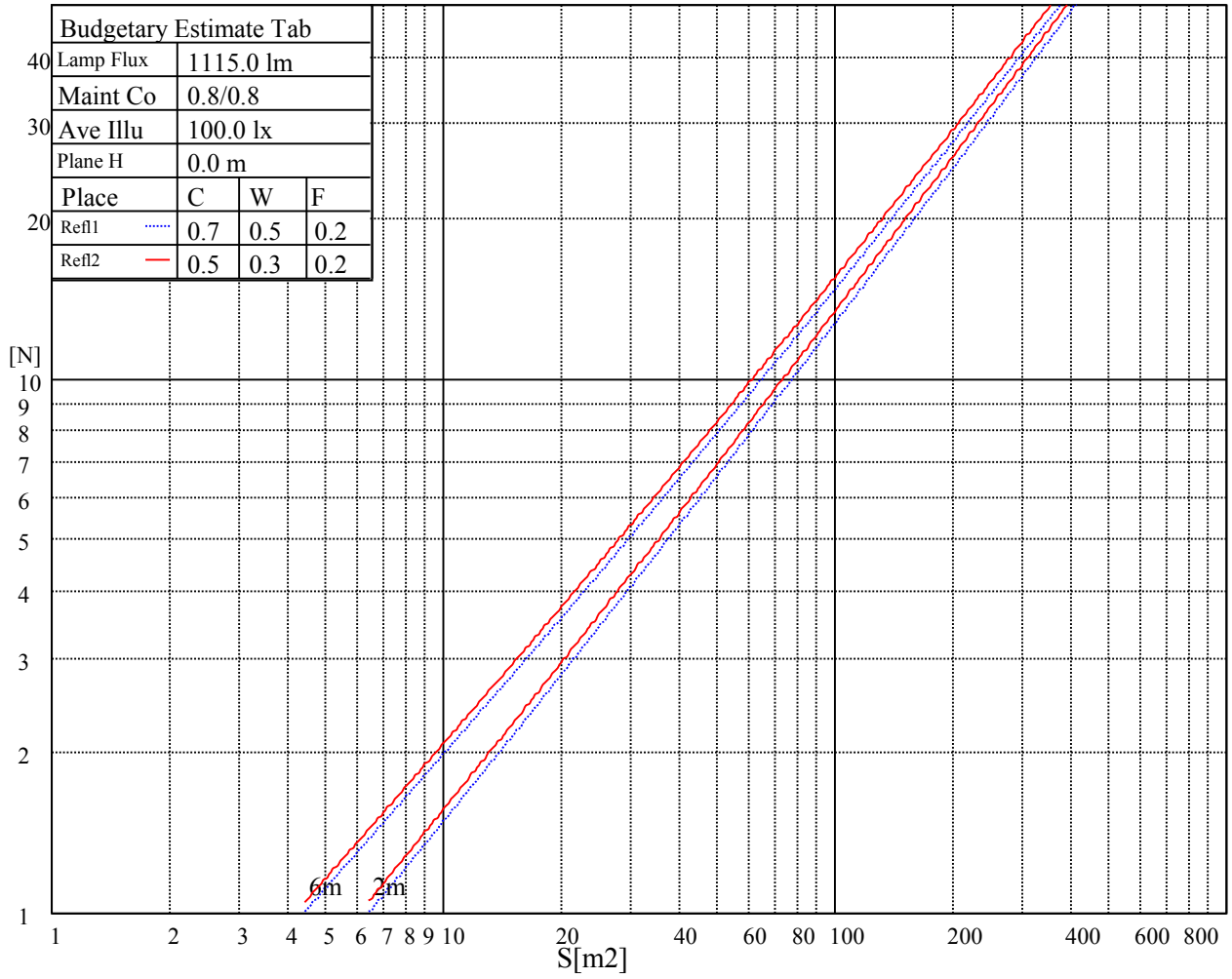
| Rf of Ceiling | | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rf of Wall | | 50 | 30 | 50 | 30 | 30 | 50 | 30 | 50 | 30 | 30 |
| Rf of Floor | | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Room dimensions | | Viewed crosswise | | | | | Viewed endwise | | | | |
| X | Y | | | | | | | | | | |
| 2H | 2H | -2.2 | -1.6 | -1.9 | -1.4 | -1.2 | -2.2 | -1.6 | -1.9 | -1.4 | -1.2 |
| | 3H | -1.2 | -0.6 | -0.9 | -0.4 | -0.2 | -1.2 | -0.6 | -0.9 | -0.4 | -0.2 |
| | 4H | -0.7 | -0.2 | -0.3 | 0.1 | 0.4 | -0.7 | -0.2 | -0.3 | 0.1 | 0.4 |
| | 6H | 0.1 | 0.5 | 0.4 | 0.8 | 1.1 | 0.1 | 0.5 | 0.4 | 0.8 | 1.1 |
| | 8H | 0.4 | 0.8 | 0.7 | 1.1 | 1.4 | 0.4 | 0.8 | 0.7 | 1.1 | 1.4 |
| | 12H | 0.4 | 0.7 | 0.8 | 1.1 | 1.5 | 0.4 | 0.7 | 0.8 | 1.1 | 1.5 |
| 4H | 2H | -2.1 | -1.6 | -1.7 | -1.3 | -1.0 | -2.1 | -1.6 | -1.7 | -1.3 | -1.0 |
| | 3H | -0.8 | -0.5 | -0.4 | -0.1 | 0.3 | -0.8 | -0.5 | -0.4 | -0.1 | 0.3 |
| | 4H | 0.1 | 0.4 | 0.5 | 0.8 | 1.2 | 0.1 | 0.4 | 0.5 | 0.8 | 1.2 |
| | 6H | 1.0 | 1.4 | 1.4 | 1.7 | 2.1 | 1.0 | 1.4 | 1.4 | 1.7 | 2.1 |
| | 8H | 1.2 | 1.4 | 1.7 | 1.8 | 2.3 | 1.2 | 1.4 | 1.7 | 1.8 | 2.3 |
| | 12H | 1.4 | 1.6 | 1.9 | 2.1 | 2.6 | 1.4 | 1.6 | 1.9 | 2.1 | 2.6 |
| 8H | 4H | 0.3 | 0.5 | 0.8 | 0.9 | 1.4 | 0.3 | 0.5 | 0.8 | 0.9 | 1.4 |
| | 6H | 1.4 | 1.6 | 1.9 | 2.0 | 2.5 | 1.4 | 1.6 | 1.9 | 2.0 | 2.5 |
| | 8H | 1.9 | 2.1 | 2.4 | 2.5 | 3.0 | 1.9 | 2.1 | 2.4 | 2.5 | 3.0 |
| | 12H | 2.2 | 2.4 | 2.7 | 2.9 | 3.4 | 2.2 | 2.4 | 2.7 | 2.9 | 3.4 |
| 12H | 4H | 0.4 | 0.6 | 0.8 | 1.0 | 1.5 | 0.4 | 0.6 | 0.8 | 1.0 | 1.5 |
| | 6H | 1.5 | 1.7 | 2.0 | 2.2 | 2.7 | 1.5 | 1.7 | 2.0 | 2.2 | 2.7 |
| | 8H | 2.0 | 2.2 | 2.5 | 2.7 | 3.2 | 2.0 | 2.2 | 2.5 | 2.7 | 3.2 |

Variation with the observer position at spacings:

| | | |
|---|---|---|
| S = 1.0H | 2.6/-1.5 | 2.6/-1.5 |
| S = 1.5H | 3.7/-1.3 | 3.7/-1.3 |
| S = 2.0H | 4.7/-1.1 | 4.7/-1.1 |
| Standard tables: | BKBF | BKBF |
| Uncorrected UGR | -8.9 | -8.9 |

## Budgetary Estimate Table






Equipment: GMS 1800 Date: 2019/5/7 Operator: 01
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 6.81

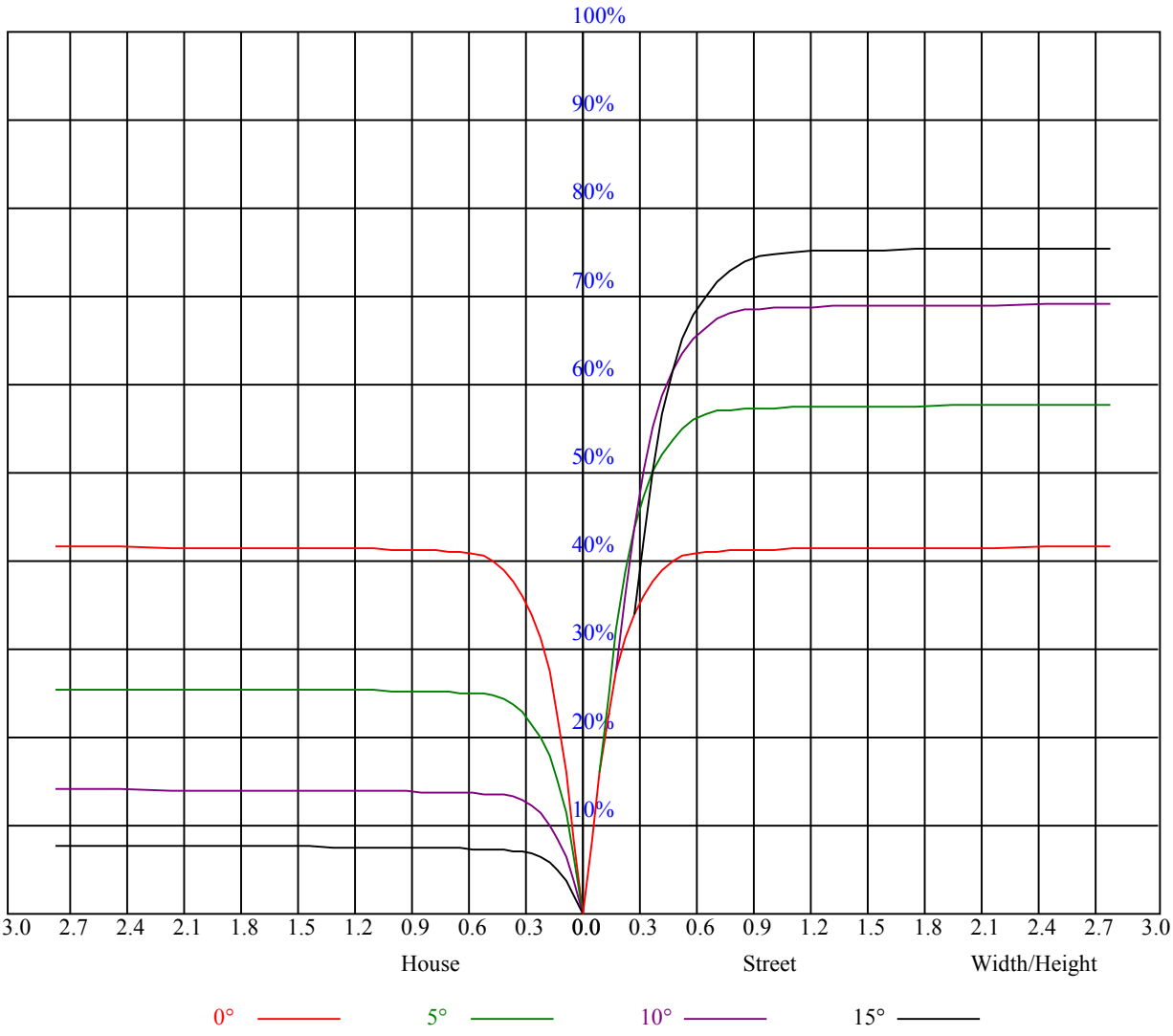
# Utilization factor table for indoor luminaire



| 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 | COEFFCIENTS OF UTILIZATION RHOFC=20 CU | | | | | | | | | | | | | | | |
| 0 | 0.99 | 0.99 | 0.99 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 | 0.89 | 0.89 | 0.89 | 0.85 | 0.85 | 0.85 | 0.84 |
| 1 | 0.94 | 0.93 | 0.91 | 0.93 | 0.91 | 0.90 | 0.89 | 0.88 | 0.87 | 0.86 | 0.85 | 0.85 | 0.83 | 0.83 | 0.82 | 0.81 |
| 2 | 0.90 | 0.87 | 0.85 | 0.89 | 0.86 | 0.84 | 0.86 | 0.84 | 0.83 | 0.84 | 0.82 | 0.81 | 0.81 | 0.80 | 0.79 | 0.78 |
| 3 | 0.86 | 0.83 | 0.81 | 0.85 | 0.82 | 0.80 | 0.83 | 0.81 | 0.79 | 0.81 | 0.79 | 0.78 | 0.79 | 0.78 | 0.77 | 0.76 |
| 4 | 0.83 | 0.80 | 0.77 | 0.82 | 0.79 | 0.77 | 0.81 | 0.78 | 0.76 | 0.79 | 0.77 | 0.75 | 0.78 | 0.76 | 0.74 | 0.73 |
| 5 | 0.80 | 0.77 | 0.74 | 0.79 | 0.76 | 0.74 | 0.78 | 0.75 | 0.73 | 0.77 | 0.75 | 0.73 | 0.76 | 0.74 | 0.72 | 0.71 |
| 6 | 0.78 | 0.74 | 0.72 | 0.77 | 0.74 | 0.72 | 0.76 | 0.73 | 0.71 | 0.75 | 0.73 | 0.71 | 0.74 | 0.72 | 0.70 | 0.69 |
| 7 | 0.75 | 0.72 | 0.70 | 0.75 | 0.72 | 0.69 | 0.74 | 0.71 | 0.69 | 0.73 | 0.71 | 0.69 | 0.72 | 0.70 | 0.68 | 0.68 |
| 8 | 0.73 | 0.70 | 0.68 | 0.73 | 0.70 | 0.67 | 0.72 | 0.69 | 0.67 | 0.71 | 0.69 | 0.67 | 0.71 | 0.68 | 0.67 | 0.66 |
| 9 | 0.71 | 0.68 | 0.66 | 0.71 | 0.68 | 0.66 | 0.70 | 0.67 | 0.65 | 0.70 | 0.67 | 0.65 | 0.69 | 0.67 | 0.65 | 0.64 |
| 10 | 0.69 | 0.66 | 0.64 | 0.69 | 0.66 | 0.64 | 0.69 | 0.66 | 0.64 | 0.68 | 0.65 | 0.64 | 0.68 | 0.65 | 0.64 | 0.63 |

## Coefficient Utilization Curve






Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/5/7
Humidity(%): 60.0%

Operator: 01
Distance(m): 6.81

Intensity data(cd)



| C/γ(°) | 0.0 | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 5837.59 | 5817.68 | 5724.13 | 5545.25 | 5317.45 | 4980.10 | 4530.59 | 4061.78 | 3548.56 |
| 45.0 | 5837.59 | 5817.68 | 5724.13 | 5545.25 | 5317.45 | 4980.10 | 4530.59 | 4061.78 | 3548.56 |
| 90.0 | 5837.59 | 5817.68 | 5724.13 | 5545.25 | 5317.45 | 4980.10 | 4530.59 | 4061.78 | 3548.56 |
| 135.0 | 5837.59 | 5817.68 | 5724.13 | 5545.25 | 5317.45 | 4980.10 | 4530.59 | 4061.78 | 3548.56 |
| 180.0 | 5837.59 | 5817.68 | 5724.13 | 5545.25 | 5317.45 | 4980.10 | 4530.59 | 4061.78 | 3548.56 |
| 225.0 | 5837.59 | 5817.68 | 5724.13 | 5545.25 | 5317.45 | 4980.10 | 4530.59 | 4061.78 | 3548.56 |
| 270.0 | 5837.59 | 5817.68 | 5724.13 | 5545.25 | 5317.45 | 4980.10 | 4530.59 | 4061.78 | 3548.56 |
| 315.0 | 5837.59 | 5817.68 | 5724.13 | 5545.25 | 5317.45 | 4980.10 | 4530.59 | 4061.78 | 3548.56 |
| 360.0 | 5837.59 | 5817.68 | 5724.13 | 5545.25 | 5317.45 | 4980.10 | 4530.59 | 4061.78 | 3548.56 |

| C/γ(°) | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 17.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 3050.56 | 2594.46 | 2191.44 | 1845.88 | 1541.47 | 1284.49 | 1095.58 | 922.17 | 829.27 |
| 45.0 | 3050.56 | 2594.46 | 2191.44 | 1845.88 | 1541.47 | 1284.49 | 1095.58 | 922.17 | 829.27 |
| 90.0 | 3050.56 | 2594.46 | 2191.44 | 1845.88 | 1541.47 | 1284.49 | 1095.58 | 922.17 | 829.27 |
| 135.0 | 3050.56 | 2594.46 | 2191.44 | 1845.88 | 1541.47 | 1284.49 | 1095.58 | 922.17 | 829.27 |
| 180.0 | 3050.56 | 2594.46 | 2191.44 | 1845.88 | 1541.47 | 1284.49 | 1095.58 | 922.17 | 829.27 |
| 225.0 | 3050.56 | 2594.46 | 2191.44 | 1845.88 | 1541.47 | 1284.49 | 1095.58 | 922.17 | 829.27 |
| 270.0 | 3050.56 | 2594.46 | 2191.44 | 1845.88 | 1541.47 | 1284.49 | 1095.58 | 922.17 | 829.27 |
| 315.0 | 3050.56 | 2594.46 | 2191.44 | 1845.88 | 1541.47 | 1284.49 | 1095.58 | 922.17 | 829.27 |
| 360.0 | 3050.56 | 2594.46 | 2191.44 | 1845.88 | 1541.47 | 1284.49 | 1095.58 | 922.17 | 829.27 |

| C/γ(°) | 18.0 | 19.0 | 20.0 | 21.0 | 22.0 | 23.0 | 24.0 | 25.0 | 26.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 751.69 | 673.50 | 622.96 | 571.04 | 529.51 | 489.28 | 440.65 | 388.81 | 334.89 |
| 45.0 | 751.69 | 673.50 | 622.96 | 571.04 | 529.51 | 489.28 | 440.65 | 388.81 | 334.89 |
| 90.0 | 751.69 | 673.50 | 622.96 | 571.04 | 529.51 | 489.28 | 440.65 | 388.81 | 334.89 |
| 135.0 | 751.69 | 673.50 | 622.96 | 571.04 | 529.51 | 489.28 | 440.65 | 388.81 | 334.89 |
| 180.0 | 751.69 | 673.50 | 622.96 | 571.04 | 529.51 | 489.28 | 440.65 | 388.81 | 334.89 |
| 225.0 | 751.69 | 673.50 | 622.96 | 571.04 | 529.51 | 489.28 | 440.65 | 388.81 | 334.89 |
| 270.0 | 751.69 | 673.50 | 622.96 | 571.04 | 529.51 | 489.28 | 440.65 | 388.81 | 334.89 |
| 315.0 | 751.69 | 673.50 | 622.96 | 571.04 | 529.51 | 489.28 | 440.65 | 388.81 | 334.89 |
| 360.0 | 751.69 | 673.50 | 622.96 | 571.04 | 529.51 | 489.28 | 440.65 | 388.81 | 334.89 |

| C/γ(°) | 27.0 | 28.0 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 | 34.0 | 35.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 277.45 | 234.80 | 171.37 | 125.52 | 80.23 | 50.90 | 33.97 | 23.25 | 19.07 |
| 45.0 | 277.45 | 234.80 | 171.37 | 125.52 | 80.23 | 50.90 | 33.97 | 23.25 | 19.07 |
| 90.0 | 277.45 | 234.80 | 171.37 | 125.52 | 80.23 | 50.90 | 33.97 | 23.25 | 19.07 |
| 135.0 | 277.45 | 234.80 | 171.37 | 125.52 | 80.23 | 50.90 | 33.97 | 23.25 | 19.07 |
| 180.0 | 277.45 | 234.80 | 171.37 | 125.52 | 80.23 | 50.90 | 33.97 | 23.25 | 19.07 |
| 225.0 | 277.45 | 234.80 | 171.37 | 125.52 | 80.23 | 50.90 | 33.97 | 23.25 | 19.07 |
| 270.0 | 277.45 | 234.80 | 171.37 | 125.52 | 80.23 | 50.90 | 33.97 | 23.25 | 19.07 |
| 315.0 | 277.45 | 234.80 | 171.37 | 125.52 | 80.23 | 50.90 | 33.97 | 23.25 | 19.07 |
| 360.0 | 277.45 | 234.80 | 171.37 | 125.52 | 80.23 | 50.90 | 33.97 | 23.25 | 19.07 |

| C/γ(°) | 36.0 | 37.0 | 38.0 | 39.0 | 40.0 | 41.0 | 42.0 | 43.0 | 44.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 16.61 | 14.11 | 12.53 | 11.79 | 11.28 | 10.90 | 10.49 | 9.98 | 9.42 |
| 45.0 | 16.61 | 14.11 | 12.53 | 11.79 | 11.28 | 10.90 | 10.49 | 9.98 | 9.42 |
| 90.0 | 16.61 | 14.11 | 12.53 | 11.79 | 11.28 | 10.90 | 10.49 | 9.98 | 9.42 |
| 135.0 | 16.61 | 14.11 | 12.53 | 11.79 | 11.28 | 10.90 | 10.49 | 9.98 | 9.42 |
| 180.0 | 16.61 | 14.11 | 12.53 | 11.79 | 11.28 | 10.90 | 10.49 | 9.98 | 9.42 |
| 225.0 | 16.61 | 14.11 | 12.53 | 11.79 | 11.28 | 10.90 | 10.49 | 9.98 | 9.42 |
| 270.0 | 16.61 | 14.11 | 12.53 | 11.79 | 11.28 | 10.90 | 10.49 | 9.98 | 9.42 |
| 315.0 | 16.61 | 14.11 | 12.53 | 11.79 | 11.28 | 10.90 | 10.49 | 9.98 | 9.42 |
| 360.0 | 16.61 | 14.11 | 12.53 | 11.79 | 11.28 | 10.90 | 10.49 | 9.98 | 9.42 |

Intensity data(cd)



| C/γ(°) | 45.0 | 46.0 | 47.0 | 48.0 | 49.0 | 50.0 | 51.0 | 52.0 | 53.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 8.86 | 8.21 | 7.52 | 6.82 | 6.13 | 5.57 | 5.01 | 4.55 | 4.22 |
| 45.0 | 8.86 | 8.21 | 7.52 | 6.82 | 6.13 | 5.57 | 5.01 | 4.55 | 4.22 |
| 90.0 | 8.86 | 8.21 | 7.52 | 6.82 | 6.13 | 5.57 | 5.01 | 4.55 | 4.22 |
| 135.0 | 8.86 | 8.21 | 7.52 | 6.82 | 6.13 | 5.57 | 5.01 | 4.55 | 4.22 |
| 180.0 | 8.86 | 8.21 | 7.52 | 6.82 | 6.13 | 5.57 | 5.01 | 4.55 | 4.22 |
| 225.0 | 8.86 | 8.21 | 7.52 | 6.82 | 6.13 | 5.57 | 5.01 | 4.55 | 4.22 |
| 270.0 | 8.86 | 8.21 | 7.52 | 6.82 | 6.13 | 5.57 | 5.01 | 4.55 | 4.22 |
| 315.0 | 8.86 | 8.21 | 7.52 | 6.82 | 6.13 | 5.57 | 5.01 | 4.55 | 4.22 |
| 360.0 | 8.86 | 8.21 | 7.52 | 6.82 | 6.13 | 5.57 | 5.01 | 4.55 | 4.22 |

| C/γ(°) | 54.0 | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 3.94 | 3.76 | 3.57 | 3.48 | 3.39 | 3.34 | 3.29 | 3.25 | 3.20 |
| 45.0 | 3.94 | 3.76 | 3.57 | 3.48 | 3.39 | 3.34 | 3.29 | 3.25 | 3.20 |
| 90.0 | 3.94 | 3.76 | 3.57 | 3.48 | 3.39 | 3.34 | 3.29 | 3.25 | 3.20 |
| 135.0 | 3.94 | 3.76 | 3.57 | 3.48 | 3.39 | 3.34 | 3.29 | 3.25 | 3.20 |
| 180.0 | 3.94 | 3.76 | 3.57 | 3.48 | 3.39 | 3.34 | 3.29 | 3.25 | 3.20 |
| 225.0 | 3.94 | 3.76 | 3.57 | 3.48 | 3.39 | 3.34 | 3.29 | 3.25 | 3.20 |
| 270.0 | 3.94 | 3.76 | 3.57 | 3.48 | 3.39 | 3.34 | 3.29 | 3.25 | 3.20 |
| 315.0 | 3.94 | 3.76 | 3.57 | 3.48 | 3.39 | 3.34 | 3.29 | 3.25 | 3.20 |
| 360.0 | 3.94 | 3.76 | 3.57 | 3.48 | 3.39 | 3.34 | 3.29 | 3.25 | 3.20 |

| C/γ(°) | 63.0 | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 3.16 | 3.16 | 3.16 | 3.11 | 3.11 | 3.11 | 3.06 | 3.02 | 2.97 |
| 45.0 | 3.16 | 3.16 | 3.16 | 3.11 | 3.11 | 3.11 | 3.06 | 3.02 | 2.97 |
| 90.0 | 3.16 | 3.16 | 3.16 | 3.11 | 3.11 | 3.11 | 3.06 | 3.02 | 2.97 |
| 135.0 | 3.16 | 3.16 | 3.16 | 3.11 | 3.11 | 3.11 | 3.06 | 3.02 | 2.97 |
| 180.0 | 3.16 | 3.16 | 3.16 | 3.11 | 3.11 | 3.11 | 3.06 | 3.02 | 2.97 |
| 225.0 | 3.16 | 3.16 | 3.16 | 3.11 | 3.11 | 3.11 | 3.06 | 3.02 | 2.97 |
| 270.0 | 3.16 | 3.16 | 3.16 | 3.11 | 3.11 | 3.11 | 3.06 | 3.02 | 2.97 |
| 315.0 | 3.16 | 3.16 | 3.16 | 3.11 | 3.11 | 3.11 | 3.06 | 3.02 | 2.97 |
| 360.0 | 3.16 | 3.16 | 3.16 | 3.11 | 3.11 | 3.11 | 3.06 | 3.02 | 2.97 |

| C/γ(°) | 72.0 | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 2.88 | 2.83 | 2.74 | 2.64 | 2.60 | 2.51 | 2.41 | 2.32 | 2.23 |
| 45.0 | 2.88 | 2.83 | 2.74 | 2.64 | 2.60 | 2.51 | 2.41 | 2.32 | 2.23 |
| 90.0 | 2.88 | 2.83 | 2.74 | 2.64 | 2.60 | 2.51 | 2.41 | 2.32 | 2.23 |
| 135.0 | 2.88 | 2.83 | 2.74 | 2.64 | 2.60 | 2.51 | 2.41 | 2.32 | 2.23 |
| 180.0 | 2.88 | 2.83 | 2.74 | 2.64 | 2.60 | 2.51 | 2.41 | 2.32 | 2.23 |
| 225.0 | 2.88 | 2.83 | 2.74 | 2.64 | 2.60 | 2.51 | 2.41 | 2.32 | 2.23 |
| 270.0 | 2.88 | 2.83 | 2.74 | 2.64 | 2.60 | 2.51 | 2.41 | 2.32 | 2.23 |
| 315.0 | 2.88 | 2.83 | 2.74 | 2.64 | 2.60 | 2.51 | 2.41 | 2.32 | 2.23 |
| 360.0 | 2.88 | 2.83 | 2.74 | 2.64 | 2.60 | 2.51 | 2.41 | 2.32 | 2.23 |

| C/γ(°) | 81.0 | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 2.09 | 1.95 | 1.72 | 1.53 | 1.35 | 1.25 | 1.21 | 1.21 | 1.16 |
| 45.0 | 2.09 | 1.95 | 1.72 | 1.53 | 1.35 | 1.25 | 1.21 | 1.21 | 1.16 |
| 90.0 | 2.09 | 1.95 | 1.72 | 1.53 | 1.35 | 1.25 | 1.21 | 1.21 | 1.16 |
| 135.0 | 2.09 | 1.95 | 1.72 | 1.53 | 1.35 | 1.25 | 1.21 | 1.21 | 1.16 |
| 180.0 | 2.09 | 1.95 | 1.72 | 1.53 | 1.35 | 1.25 | 1.21 | 1.21 | 1.16 |
| 225.0 | 2.09 | 1.95 | 1.72 | 1.53 | 1.35 | 1.25 | 1.21 | 1.21 | 1.16 |
| 270.0 | 2.09 | 1.95 | 1.72 | 1.53 | 1.35 | 1.25 | 1.21 | 1.21 | 1.16 |
| 315.0 | 2.09 | 1.95 | 1.72 | 1.53 | 1.35 | 1.25 | 1.21 | 1.21 | 1.16 |
| 360.0 | 2.09 | 1.95 | 1.72 | 1.53 | 1.35 | 1.25 | 1.21 | 1.21 | 1.16 |

## Intensity data(cd)

| C/γ(°) | 90.0 |
|---|---|
| 0.0 | 1.16 |
| 45.0 | 1.16 |
| 90.0 | 1.16 |
| 135.0 | 1.16 |
| 180.0 | 1.16 |
| 225.0 | 1.16 |
| 270.0 | 1.16 |
| 315.0 | 1.16 |
| 360.0 | 1.16 |