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Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

## NATA

LumCAT: 2-1120-A3
Luminaire: 99.02.73.172+92.76.365.00

| | |
|---|---|
| Report No: NATA0100 | Voltage(V): 35.1000 |
| Test No: GC2019011503 | Current(A): 0.7000 |
| LampCAT: LUMINUS CLM-14-AC30 | Power (W): 24.5700 |
| Lamp flux(lm): 3532.9 | PF: 0.0000 |
| Number of Lamps: 1 | Ballast type: DC |
| Length(mm): 71 | Width(mm): 71 |
| Phm Type: C | Height(mm): 0 |

## Photometric Results

Lumens(lm): 3257.90
Efficiency(%): 92.21%
Lumens(lm)/Power(W): 132.79
Central intensity(cd): 20576.250
Maximum intensity(cd): 20576.250
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=16.4
[C90/270]Total=16.4
Field angle(10%Imax): [C0/180]Total=33.9
[C90/270]Total=33.9
Maximum s/h(1/2): C0_180=0.28 C90_270=0.28
Maximum s/h(1/4): C0_180=0.28 C90_270=0.28
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 92.35%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.626%

| | | |
|---|---|---|
| Equipment: GMS1980 | Date: 2019/1/15 | Operator: NT07 |
| Temperature(°C): 10.0 | Humidity(%): 65.0% | Distance(m): 7.50 |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 0.0 | 20576.250 | 4.923 | 4.923 | .139% | .151% |
| 1.0 | 20446.172 | 39.131 | 44.054 | 1.108% | 1.352% |
| 2.0 | 20020.078 | 76.619 | 120.673 | 2.169% | 3.704% |
| 3.0 | 19179.141 | 110.073 | 230.746 | 3.116% | 7.083% |
| 4.0 | 18059.766 | 138.149 | 368.895 | 3.910% | 11.323% |
| 5.0 | 16368.047 | 156.439 | 525.334 | 4.428% | 16.125% |
| 6.0 | 14468.695 | 165.850 | 691.184 | 4.694% | 21.216% |
| 7.0 | 12571.734 | 168.012 | 859.196 | 4.756% | 26.373% |
| 8.0 | 10695.305 | 163.230 | 1022.426 | 4.620% | 31.383% |
| 9.0 | 8617.359 | 147.829 | 1170.255 | 4.184% | 35.921% |
| 10.0 | 6927.258 | 131.912 | 1302.167 | 3.734% | 39.970% |
| 11.0 | 5627.180 | 117.745 | 1419.911 | 3.333% | 43.584% |
| 12.0 | 4537.055 | 103.444 | 1523.355 | 2.928% | 46.759% |
| 13.0 | 3674.320 | 90.639 | 1613.994 | 2.566% | 49.541% |
| 14.0 | 3067.102 | 81.368 | 1695.363 | 2.303% | 52.039% |
| 15.0 | 2642.766 | 75.008 | 1770.371 | 2.123% | 54.341% |
| 16.0 | 2316.516 | 70.020 | 1840.391 | 1.982% | 56.490% |
| 17.0 | 2041.242 | 65.446 | 1905.837 | 1.852% | 58.499% |
| 18.0 | 1832.344 | 62.093 | 1967.93 | 1.758% | 60.405% |
| 19.0 | 1699.031 | 60.659 | 2028.589 | 1.717% | 62.267% |
| 20.0 | 1582.313 | 59.347 | 2087.935 | 1.680% | 64.088% |
| 21.0 | 1500.117 | 58.953 | 2146.888 | 1.669% | 65.898% |
| 22.0 | 1442.883 | 59.273 | 2206.161 | 1.678% | 67.717% |
| 23.0 | 1392.258 | 59.655 | 2265.817 | 1.689% | 69.548% |
| 24.0 | 1347.891 | 60.120 | 2325.937 | 1.702% | 71.394% |
| 25.0 | 1313.438 | 60.871 | 2386.808 | 1.723% | 73.262% |
| 26.0 | 1279.688 | 61.517 | 2448.325 | 1.741% | 75.150% |
| 27.0 | 1245.727 | 62.018 | 2510.343 | 1.755% | 77.054% |
| 28.0 | 1214.648 | 62.533 | 2572.877 | 1.770% | 78.974% |
| 29.0 | 1183.148 | 62.902 | 2635.778 | 1.780% | 80.904% |
| 30.0 | 1157.709 | 63.478 | 2699.256 | 1.797% | 82.853% |
| 31.0 | 1126.378 | 63.617 | 2762.873 | 1.801% | 84.805% |
| 32.0 | 1080.098 | 62.766 | 2825.639 | 1.777% | 86.732% |
| 33.0 | 1025.698 | 61.260 | 2886.9 | 1.734% | 88.612% |
| 34.0 | 949.711 | 58.238 | 2945.138 | 1.648% | 90.400% |
| 35.0 | 846.626 | 53.252 | 2998.39 | 1.507% | 92.035% |
| 36.0 | 738.105 | 47.576 | 3045.966 | 1.347% | 93.495% |
| 37.0 | 624.783 | 41.233 | 3087.199 | 1.167% | 94.760% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 38.0 | 500.175 | 33.769 | 3120.967 | .956% | 95.797% |
| 39.0 | 385.439 | 26.600 | 3147.567 | .753% | 96.613% |
| 40.0 | 271.807 | 19.159 | 3166.726 | .542% | 97.202% |
| 41.0 | 192.888 | 13.877 | 3180.604 | .393% | 97.628% |
| 42.0 | 112.163 | 8.230 | 3188.834 | .233% | 97.880% |
| 43.0 | 61.657 | 4.611 | 3193.445 | .131% | 98.022% |
| 44.0 | 36.063 | 2.747 | 3196.192 | .078% | 98.106% |
| 45.0 | 26.684 | 2.069 | 3198.261 | .059% | 98.170% |
| 46.0 | 22.029 | 1.738 | 3199.999 | .049% | 98.223% |
| 47.0 | 18.218 | 1.461 | 3201.46 | .041% | 98.268% |
| 48.0 | 16.355 | 1.333 | 3202.793 | .038% | 98.309% |
| 49.0 | 15.532 | 1.285 | 3204.078 | .036% | 98.348% |
| 50.0 | 14.920 | 1.253 | 3205.332 | .035% | 98.387% |
| 51.0 | 14.562 | 1.241 | 3206.573 | .035% | 98.425% |
| 52.0 | 14.344 | 1.240 | 3207.812 | .035% | 98.463% |
| 53.0 | 14.175 | 1.241 | 3209.054 | .035% | 98.501% |
| 54.0 | 14.027 | 1.244 | 3210.298 | .035% | 98.539% |
| 55.0 | 13.894 | 1.248 | 3211.546 | .035% | 98.577% |
| 56.0 | 13.774 | 1.252 | 3212.799 | .035% | 98.616% |
| 57.0 | 13.676 | 1.258 | 3214.056 | .036% | 98.654% |
| 58.0 | 13.577 | 1.263 | 3215.319 | .036% | 98.693% |
| 59.0 | 13.486 | 1.268 | 3216.587 | .036% | 98.732% |
| 60.0 | 13.423 | 1.275 | 3217.861 | .036% | 98.771% |
| 61.0 | 13.359 | 1.281 | 3219.143 | .036% | 98.810% |
| 62.0 | 13.296 | 1.287 | 3220.43 | .036% | 98.850% |
| 63.0 | 13.247 | 1.294 | 3221.724 | .037% | 98.890% |
| 64.0 | 13.205 | 1.301 | 3223.026 | .037% | 98.930% |
| 65.0 | 13.163 | 1.308 | 3224.334 | .037% | 98.970% |
| 66.0 | 13.134 | 1.316 | 3225.65 | .037% | 99.010% |
| 67.0 | 13.085 | 1.321 | 3226.971 | .037% | 99.051% |
| 68.0 | 13.064 | 1.328 | 3228.299 | .038% | 99.092% |
| 69.0 | 13.022 | 1.333 | 3229.632 | .038% | 99.132% |
| 70.0 | 13.001 | 1.340 | 3230.972 | .038% | 99.174% |
| 71.0 | 12.973 | 1.345 | 3232.317 | .038% | 99.215% |
| 72.0 | 12.959 | 1.351 | 3233.668 | .038% | 99.256% |
| 73.0 | 12.930 | 1.356 | 3235.024 | .038% | 99.298% |
| 74.0 | 12.930 | 1.363 | 3236.387 | .039% | 99.340% |
| 75.0 | 12.909 | 1.367 | 3237.755 | .039% | 99.382% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 76.0 | 12.888 | 1.371 | 3239.126 | .039% | 99.424% |
| 77.0 | 12.874 | 1.376 | 3240.502 | .039% | 99.466% |
| 78.0 | 12.874 | 1.381 | 3241.883 | .039% | 99.508% |
| 79.0 | 12.839 | 1.382 | 3243.265 | .039% | 99.551% |
| 80.0 | 12.825 | 1.385 | 3244.65 | .039% | 99.593% |
| 81.0 | 12.825 | 1.389 | 3246.039 | .039% | 99.636% |
| 82.0 | 12.818 | 1.392 | 3247.431 | .039% | 99.679% |
| 83.0 | 12.818 | 1.395 | 3248.826 | .039% | 99.722% |
| 84.0 | 12.825 | 1.399 | 3250.225 | .040% | 99.765% |
| 85.0 | 12.818 | 1.400 | 3251.625 | .040% | 99.807% |
| 86.0 | 12.748 | 1.395 | 3253.02 | .039% | 99.850% |
| 87.0 | 12.741 | 1.395 | 3254.415 | .039% | 99.893% |
| 88.0 | 12.713 | 1.393 | 3255.808 | .039% | 99.936% |
| 89.0 | 12.698 | 1.392 | 3257.2 | .039% | 99.979% |
| 90.0 | 12.698 | 0.696 | 3257.897 | .020% | 100.000% |

## Zonal flux distribution table



ZONAL LUMEN SUMMARY

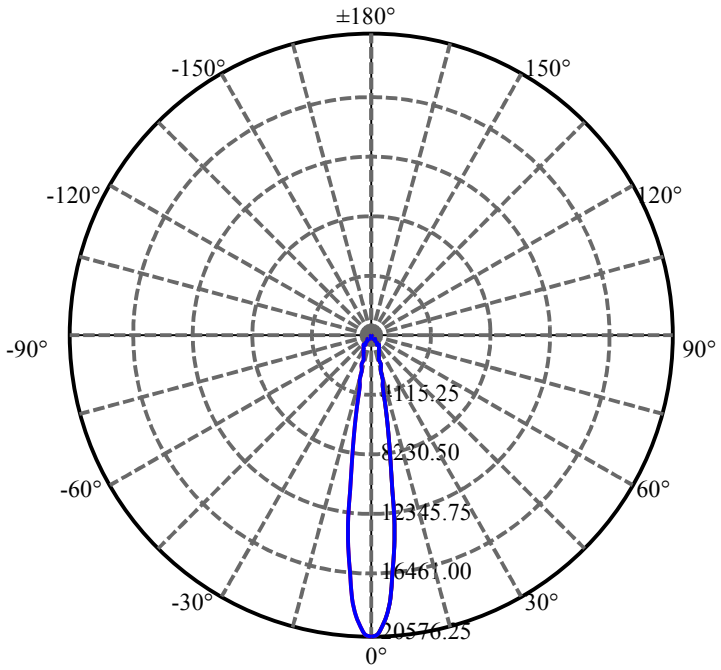
| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-30 | 2699.26 | 76.40% | 82.85% |
| 0-40 | 3166.73 | 89.63% | 97.20% |
| 0-60 | 3217.86 | 91.08% | 98.77% |
| 0-90 | 3257.20 | 92.20% | 99.98% |
| 0-120 | 3257.20 | 92.20% | 99.98% |
| 0-180 | 3257.90 | 92.21% | 100.00% |
| 60-90 | 40.61 | 1.15% | 1.25% |
| 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% |
| 0-28.53 | 2606.32 | 73.77% | 80.00% |

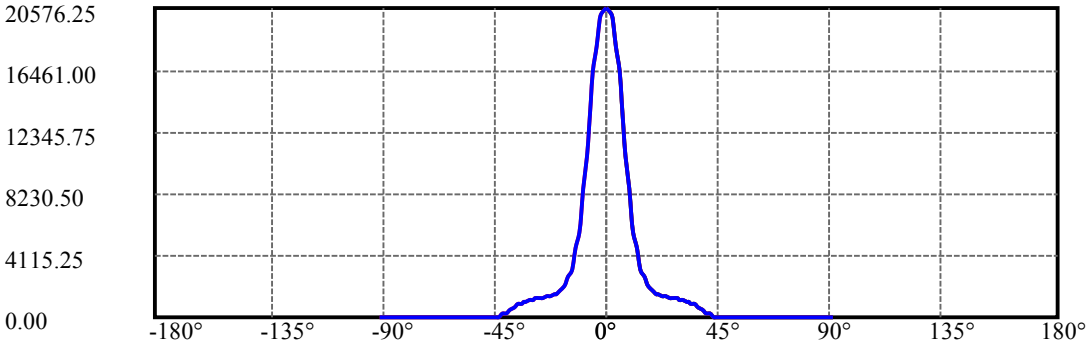
ZONAL LUMEN SUMMARY

| | |
|---|---|
| 0-10 | 1302.17 |
| 10-20 | 785.77 |
| 20-30 | 611.32 |
| 30-40 | 467.47 |
| 40-50 | 38.61 |
| 50-60 | 12.53 |
| 60-70 | 13.11 |
| 70-80 | 13.68 |
| 80-90 | 12.55 |
| 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:

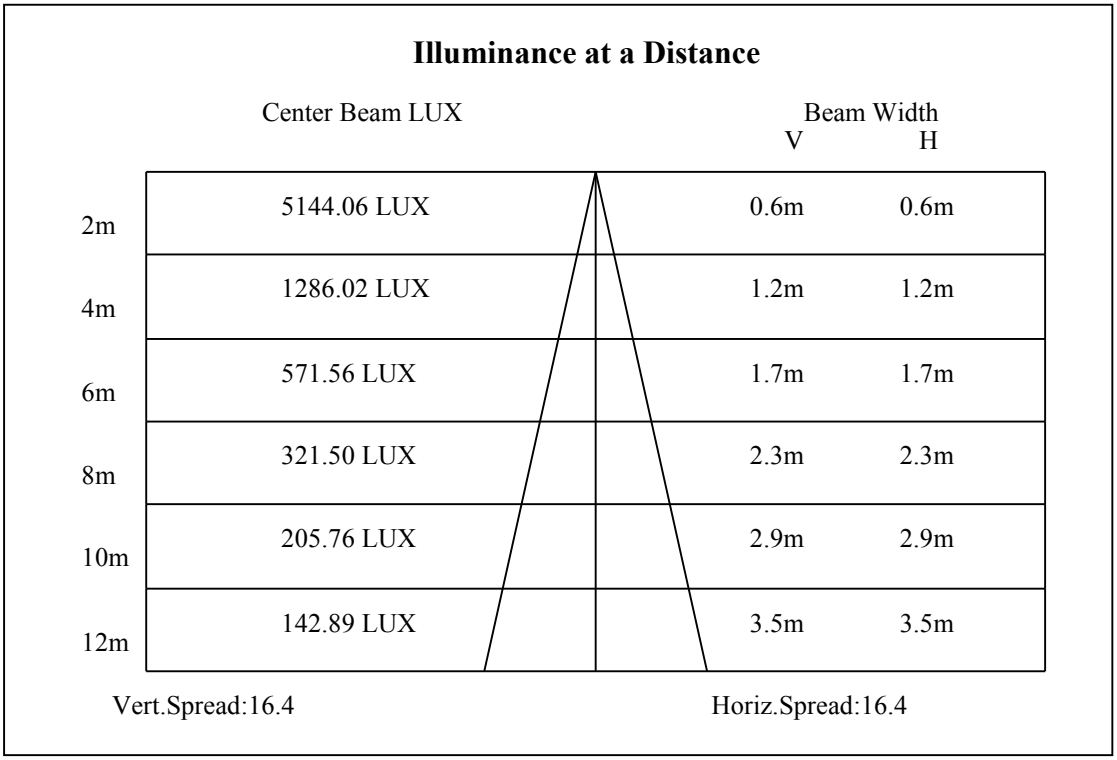
Field angle(10%Imax):C0/180Left:16.9 Right:16.9
:C90/270Left:16.9 Right:16.9

Beam Angle(50%Imax):C0/180Left:8.2 Right:8.2
:C90/270Left:8.2 Right:8.2

Equipment: GMS1980 Date: 2019/1/15 Operator: NT07
Temperature(°C): 10.0 Humidity(%): 65.0% Distance(m): 7.50

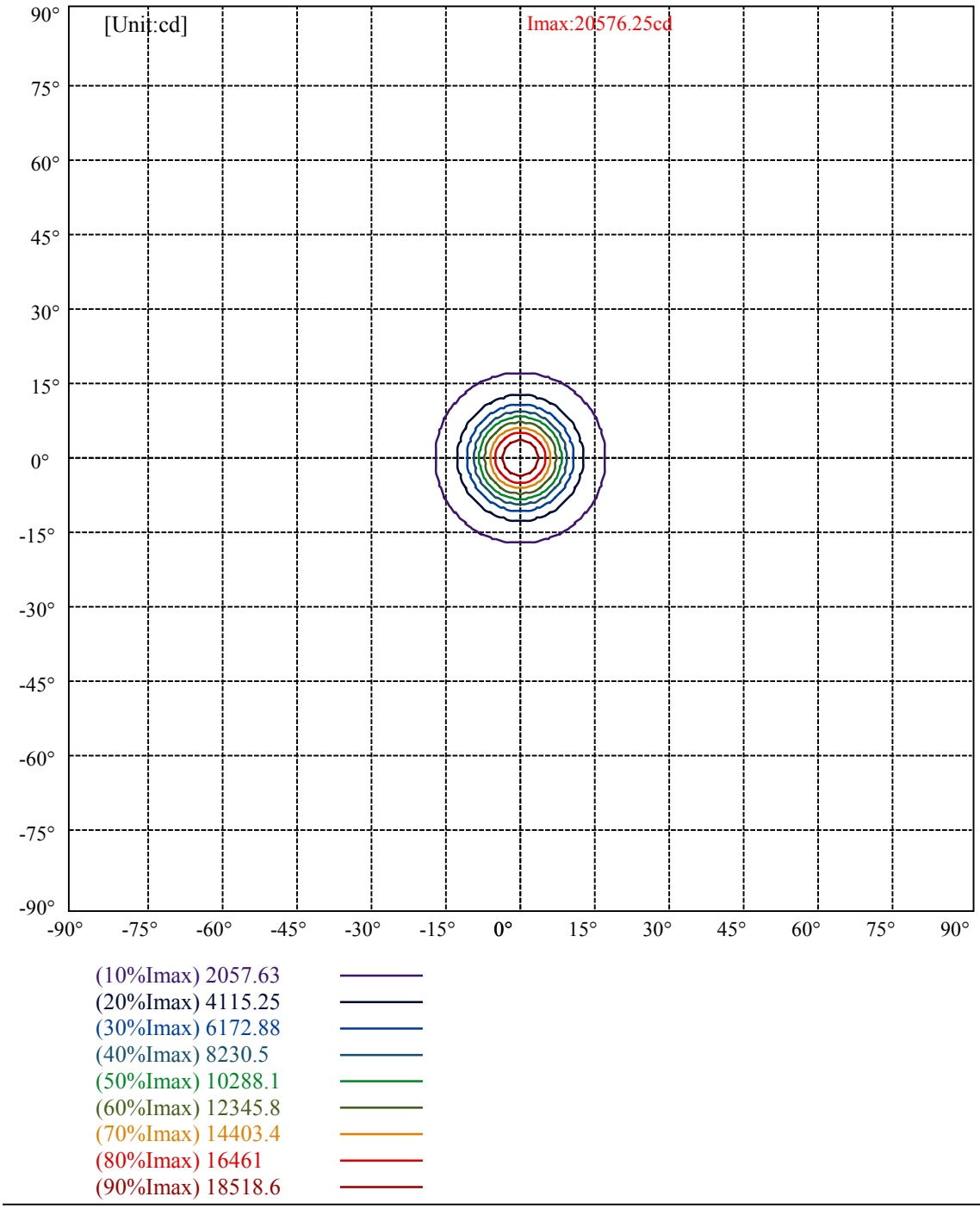
Lux distance Curve





ISO-Intensity(V-H)





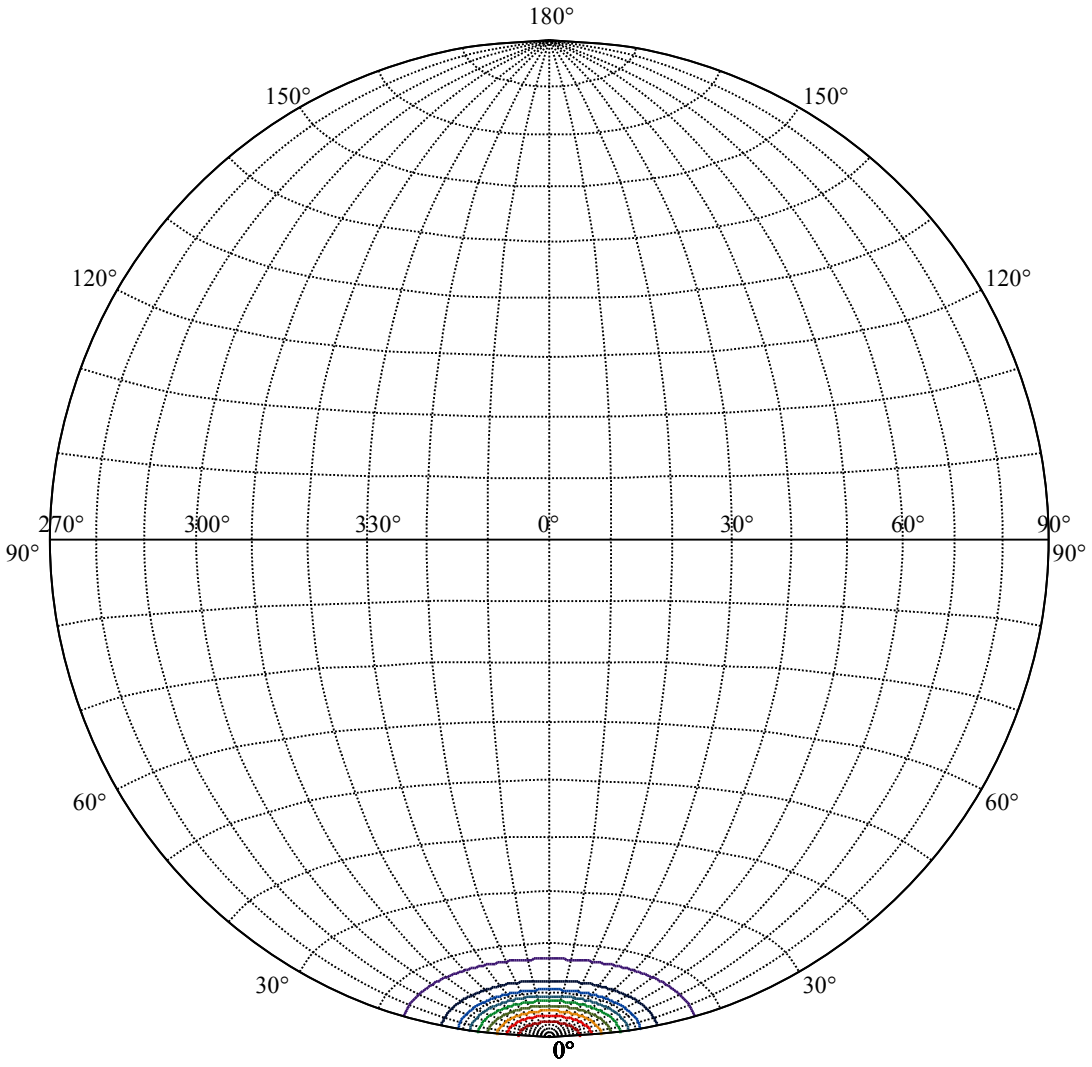

Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/1/15
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web






House [Unit:cd] Road

Imax:20576.25

(10%Imax) 2057.63
(20%Imax) 4115.25
(30%Imax) 6172.88
(40%Imax) 8230.5
(50%Imax) 10288.1
(60%Imax) 12345.8
(70%Imax) 14403.4
(80%Imax) 16461
(90%Imax) 18518.6

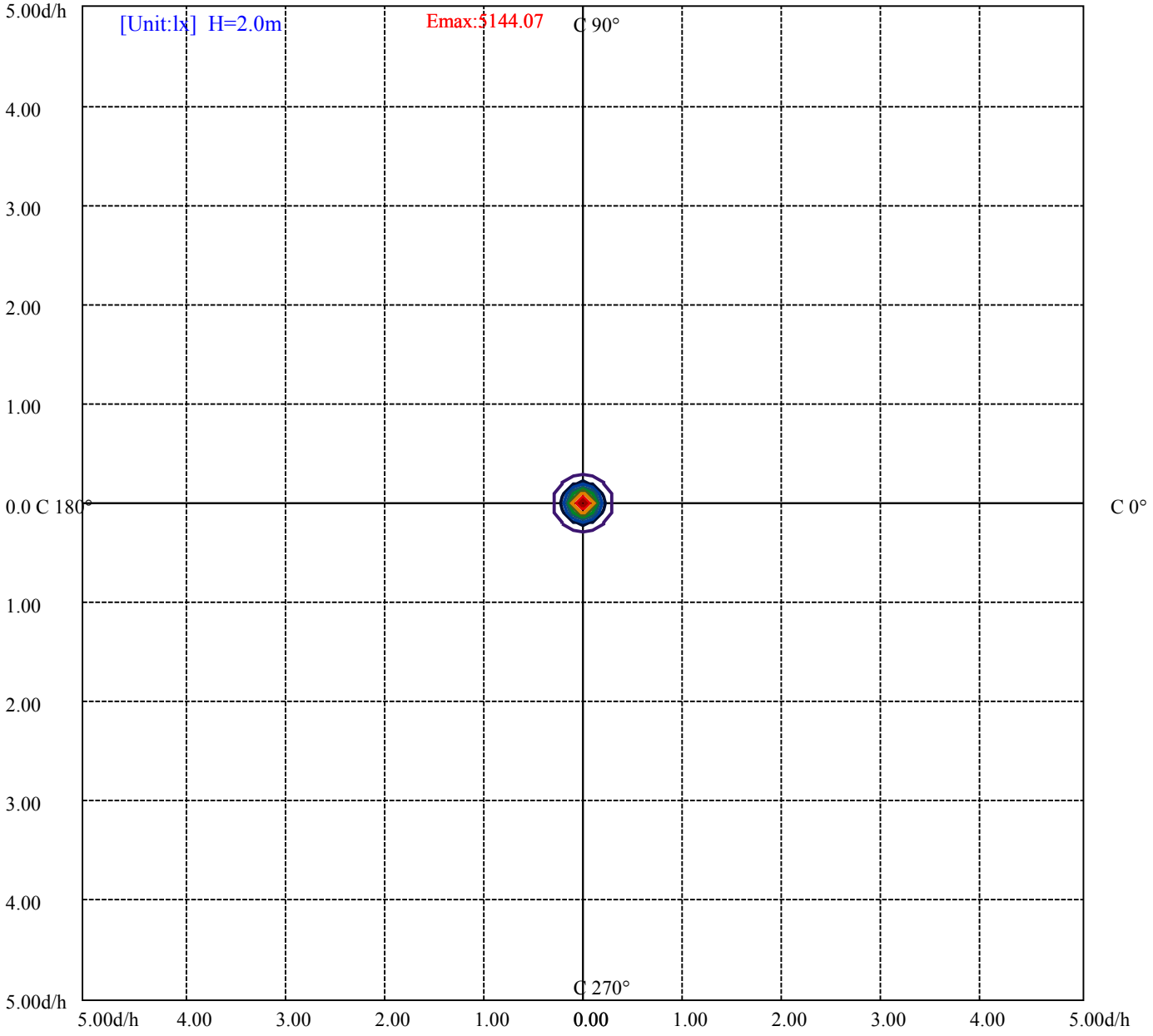
Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/1/15
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

## ISO illuminance diagram



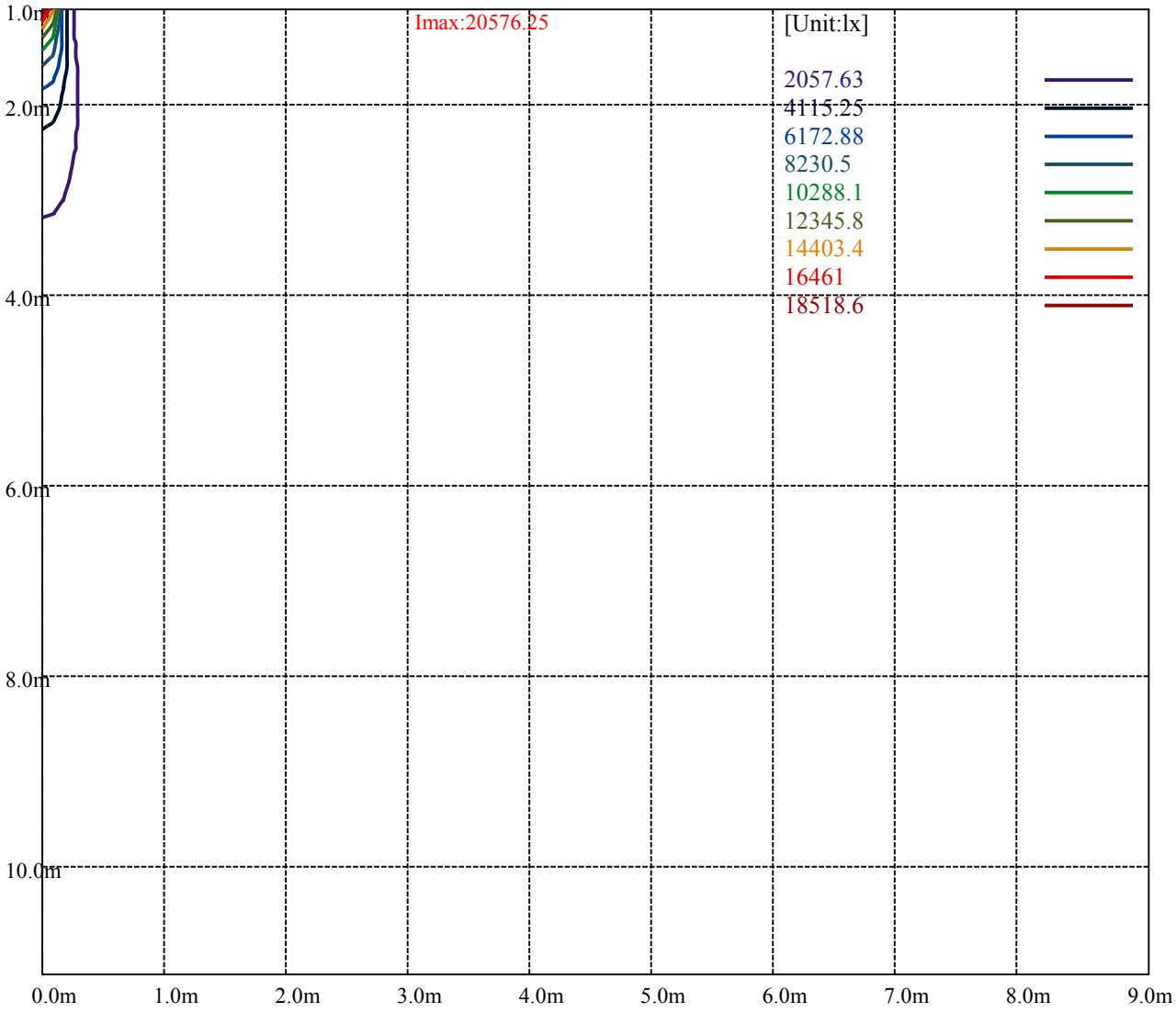



(10%Emax) 514.405
(20%Emax) 1028.813
(30%Emax) 1543.218
(40%Emax) 2057.623
(50%Emax) 2572.025
(60%Emax) 3086.425
(70%Emax) 3600.85
(80%Emax) 4115.25
(90%Emax) 4629.65

Equipment: GMS1980
Temperature(°C): 10.0
Date: 2019/1/15
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram






Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/1/15
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

## Luminance Limitting Curve(no luminous side)



Luminance Table

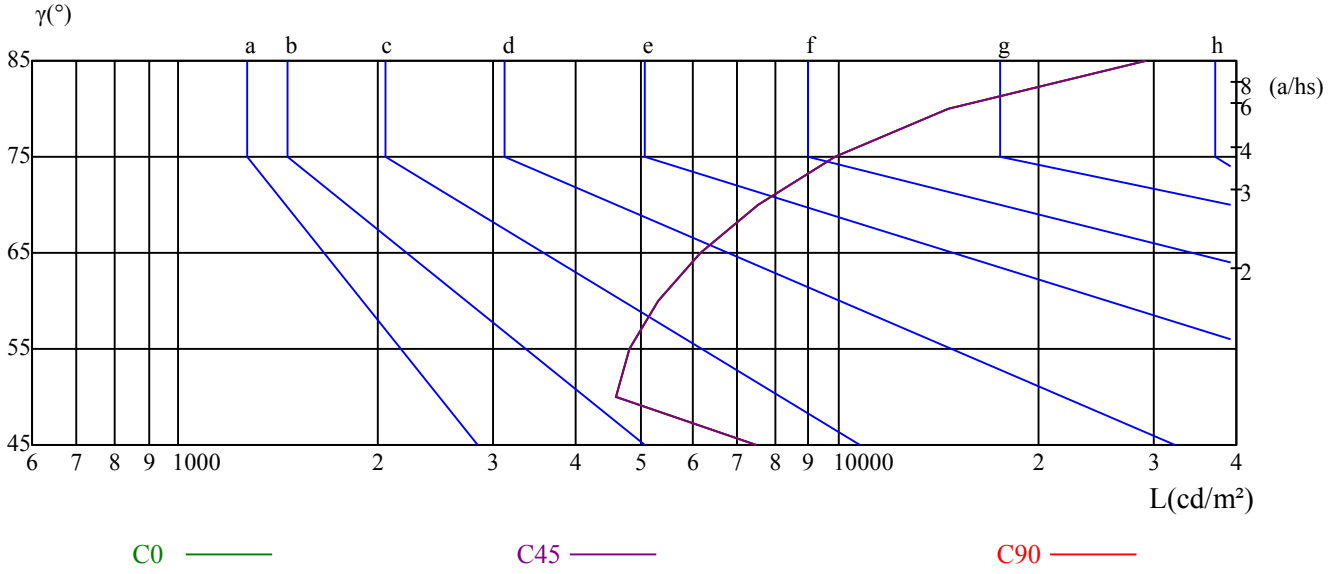
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|---|---|---|---|---|---|---|---|---|---|
| C0 | 7486 | 4605 | 4805 | 5325 | 6178 | 7541 | 9894 | 14651 | 29175 |
| C45 | 7486 | 4605 | 4805 | 5325 | 6178 | 7541 | 9894 | 14651 | 29175 |
| C90 | 7486 | 4605 | 4805 | 5325 | 6178 | 7541 | 9894 | 14651 | 29175 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|---|---|---|---|---|---|---|---|---|
| 6178 | 6178 | 6178 | 9894 | 9894 | 9894 | 29175 | 29175 | 29175 |

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: GMS1980
Temperature(°C): 10.0

Date: 2019/1/15
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

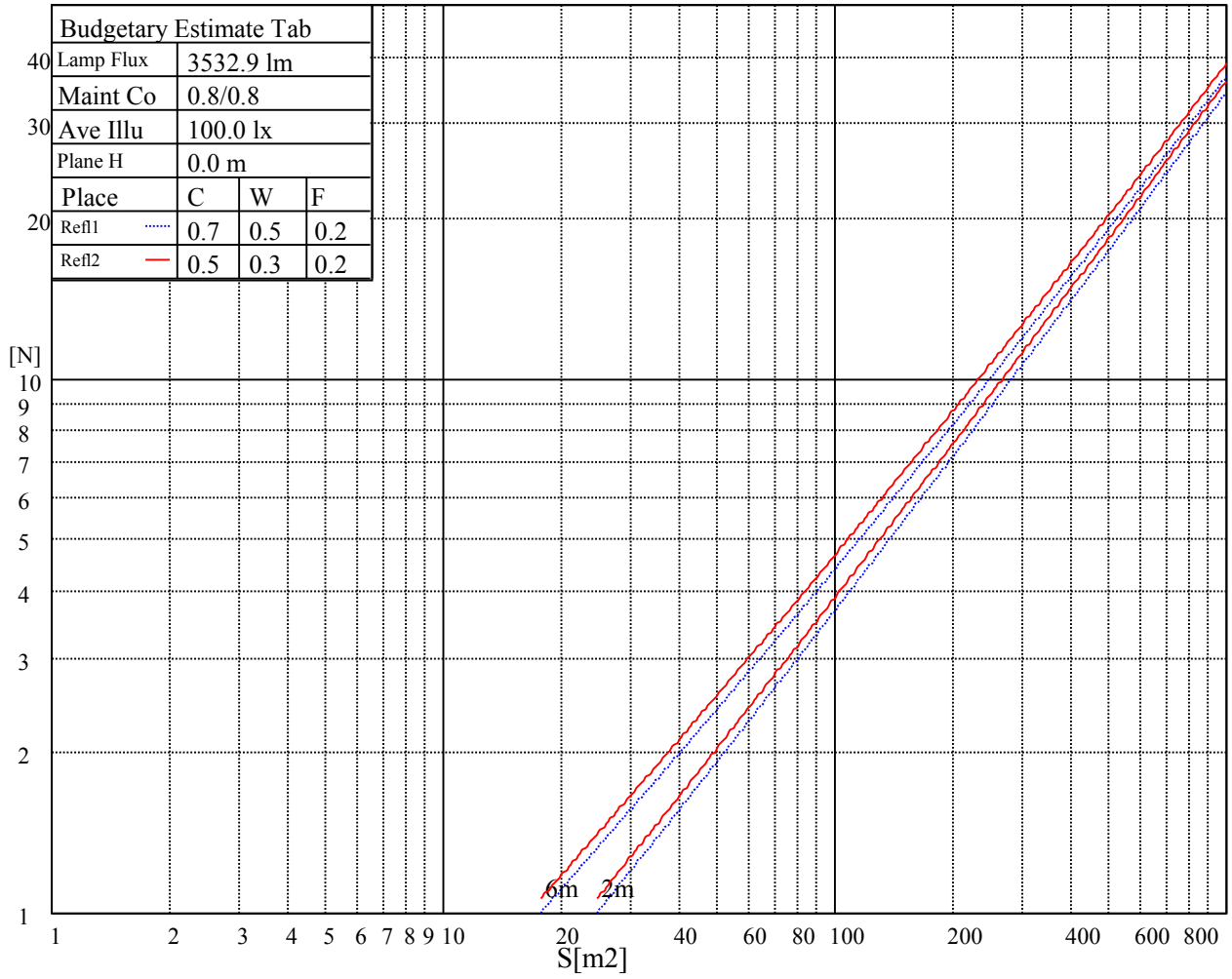
UGR Glare



| 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 | 1.86 | 2.77 | 2.23 | 3.09 | 3.40 | 1.89 | 2.80 | 2.25 | 3.11 | 3.42 |
| | 3H | 5.18 | 5.98 | 5.56 | 6.31 | 6.68 | 5.21 | 6.01 | 5.59 | 6.34 | 6.71 |
| | 4H | 6.98 | 7.72 | 7.39 | 8.08 | 8.47 | 7.02 | 7.76 | 7.43 | 8.11 | 8.51 |
| | 6H | 8.98 | 9.66 | 9.40 | 10.04 | 10.43 | 9.04 | 9.71 | 9.45 | 10.09 | 10.49 |
| | 8H | 10.09 | 10.72 | 10.53 | 11.12 | 11.53 | 10.15 | 10.79 | 10.59 | 11.18 | 11.59 |
| | 12H | 11.88 | 12.49 | 12.32 | 12.87 | 13.30 | 11.97 | 12.57 | 12.40 | 12.96 | 13.39 |
| 4H | 2H | 2.81 | 3.55 | 3.21 | 3.90 | 4.29 | 2.82 | 3.56 | 3.23 | 3.92 | 4.31 |
| | 3H | 6.35 | 6.96 | 6.77 | 7.37 | 7.78 | 6.38 | 6.98 | 6.79 | 7.39 | 7.80 |
| | 4H | 8.32 | 8.86 | 8.76 | 9.29 | 9.74 | 8.35 | 8.90 | 8.79 | 9.32 | 9.77 |
| | 6H | 10.48 | 10.94 | 10.95 | 11.39 | 11.87 | 10.52 | 10.99 | 11.00 | 11.44 | 11.92 |
| | 8H | 11.68 | 12.11 | 12.15 | 12.56 | 13.04 | 11.74 | 12.17 | 12.21 | 12.62 | 13.10 |
| | 12H | 13.36 | 13.73 | 13.85 | 14.22 | 14.70 | 13.44 | 13.81 | 13.93 | 14.30 | 14.78 |
| 8H | 4H | 9.06 | 9.49 | 9.54 | 9.94 | 10.42 | 9.09 | 9.52 | 9.57 | 9.97 | 10.45 |
| | 6H | 11.49 | 11.83 | 12.00 | 12.33 | 12.82 | 11.52 | 11.86 | 12.03 | 12.36 | 12.85 |
| | 8H | 12.87 | 13.17 | 13.41 | 13.70 | 14.19 | 12.92 | 13.22 | 13.45 | 13.74 | 14.24 |
| | 12H | 14.68 | 14.94 | 15.21 | 15.44 | 16.02 | 14.75 | 15.01 | 15.27 | 15.51 | 16.09 |
| 12H | 4H | 9.27 | 9.64 | 9.76 | 10.13 | 10.61 | 9.30 | 9.67 | 9.79 | 10.16 | 10.64 |
| | 6H | 12.00 | 12.11 | 12.35 | 12.58 | 13.13 | 12.03 | 12.14 | 12.38 | 12.61 | 13.16 |
| | 8H | 13.33 | 13.58 | 13.85 | 14.08 | 14.66 | 13.37 | 13.62 | 13.89 | 14.12 | 14.71 |
| Variation with the observer position at spacings: | | | | | | | | | | | |
| S = 1.0H | | 5.3/-8.6 | | | | | 5.3/-8.6 | | | | |
| S = 1.5H | | 7.6/-6.5 | | | | | 7.6/-6.5 | | | | |
| S = 2.0H | | 9.0/-4.9 | | | | | 9.0/-4.9 | | | | |
| Standard tables: | | BK2 | | | | | BK2 | | | | |
| Uncorrected UGR | | 2.8 | | | | | 2.8 | | | | |

## Budgetary Estimate Table






| | | |
|---|---|---|
| Equipment: GMS1980 | Date: 2019/1/15 | Operator: NT07 |
| Temperature(°C): 10.0 | Humidity(%): 65.0% | Distance(m): 7.50 |

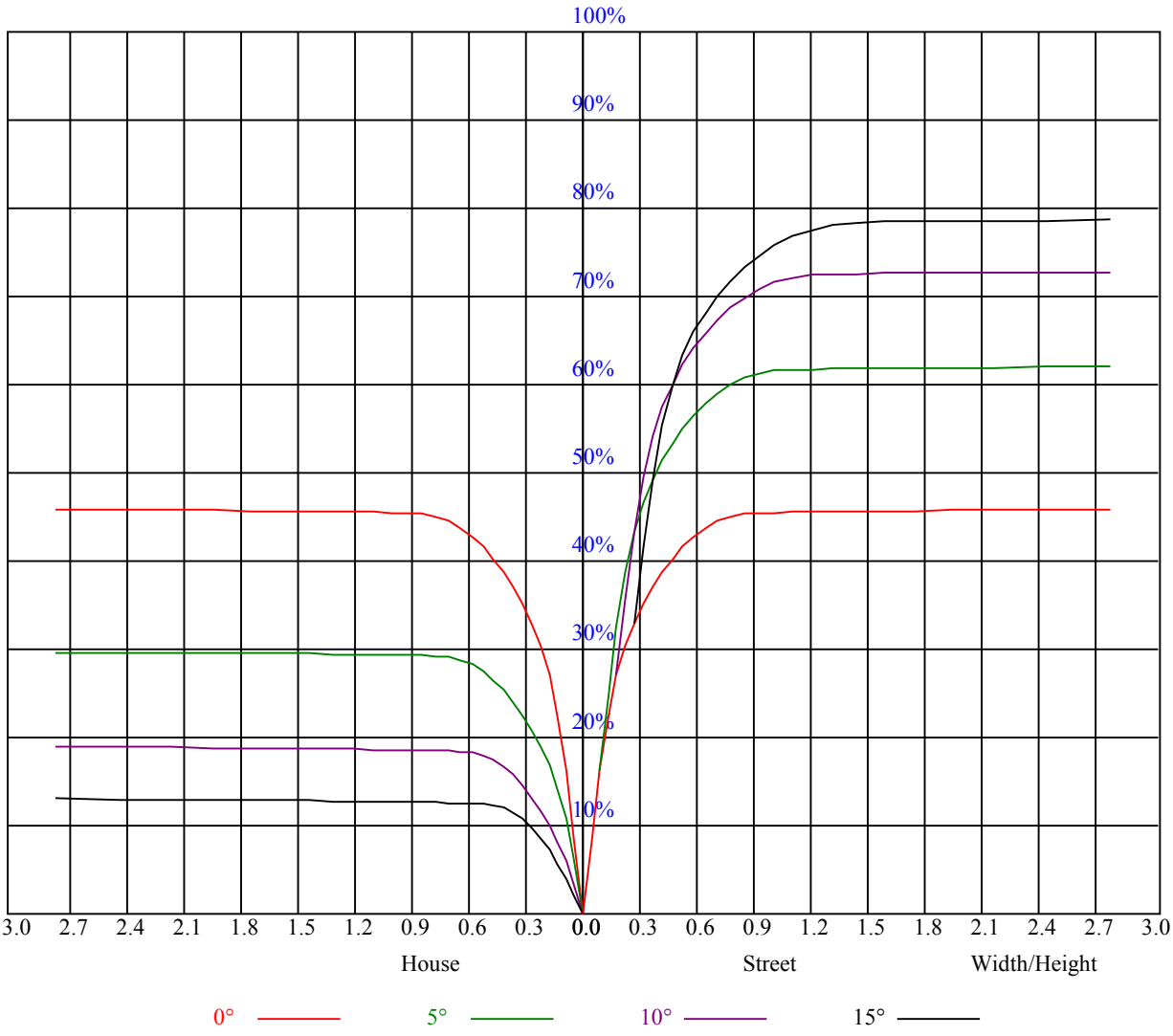
Utilization factor table for indoor luminaire



| 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 | 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 | 1.03 | 1.01 | 1.00 | 1.01 | 1.00 | 0.98 | 0.98 | 0.96 | 0.95 | 0.94 | 0.93 | 0.92 | 0.91 | 0.90 | 0.90 | 0.88 |
| 2 | 0.98 | 0.95 | 0.92 | 0.96 | 0.94 | 0.91 | 0.93 | 0.91 | 0.89 | 0.91 | 0.89 | 0.87 | 0.88 | 0.87 | 0.86 | 0.84 |
| 3 | 0.93 | 0.89 | 0.87 | 0.92 | 0.89 | 0.86 | 0.90 | 0.87 | 0.84 | 0.87 | 0.85 | 0.83 | 0.85 | 0.84 | 0.82 | 0.81 |
| 4 | 0.89 | 0.85 | 0.82 | 0.88 | 0.84 | 0.81 | 0.86 | 0.83 | 0.80 | 0.84 | 0.82 | 0.80 | 0.83 | 0.81 | 0.79 | 0.77 |
| 5 | 0.85 | 0.81 | 0.78 | 0.84 | 0.81 | 0.78 | 0.83 | 0.80 | 0.77 | 0.82 | 0.79 | 0.76 | 0.80 | 0.78 | 0.76 | 0.75 |
| 6 | 0.82 | 0.78 | 0.75 | 0.81 | 0.77 | 0.74 | 0.80 | 0.77 | 0.74 | 0.79 | 0.76 | 0.73 | 0.78 | 0.75 | 0.73 | 0.72 |
| 7 | 0.79 | 0.75 | 0.72 | 0.78 | 0.74 | 0.72 | 0.77 | 0.74 | 0.71 | 0.76 | 0.73 | 0.71 | 0.75 | 0.73 | 0.71 | 0.69 |
| 8 | 0.76 | 0.72 | 0.69 | 0.76 | 0.72 | 0.69 | 0.75 | 0.71 | 0.69 | 0.74 | 0.71 | 0.68 | 0.73 | 0.70 | 0.68 | 0.67 |
| 9 | 0.74 | 0.70 | 0.67 | 0.73 | 0.69 | 0.67 | 0.73 | 0.69 | 0.67 | 0.72 | 0.69 | 0.66 | 0.71 | 0.68 | 0.66 | 0.65 |
| 10 | 0.72 | 0.67 | 0.65 | 0.71 | 0.67 | 0.65 | 0.71 | 0.67 | 0.65 | 0.70 | 0.67 | 0.64 | 0.69 | 0.66 | 0.64 | 0.63 |

## Coefficient Utilization Curve






Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/1/15
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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 | 20379.38 | 20790.00 | 20930.63 | 20851.88 | 20491.88 | 19828.13 | 18596.25 | 16886.25 | 15052.50 |
| 45.0 | 20694.38 | 20756.25 | 20553.75 | 20075.63 | 19130.63 | 17870.63 | 16031.25 | 13809.38 | 11745.00 |
| 90.0 | 20576.25 | 20221.88 | 19558.13 | 18208.13 | 16745.63 | 14951.25 | 11102.63 | 10332.56 | 8380.13 |
| 135.0 | 20655.00 | 20131.88 | 19170.00 | 17926.88 | 16155.00 | 14028.75 | 11975.63 | 9675.00 | 7818.75 |
| 180.0 | 20379.38 | 19687.50 | 18624.38 | 16830.00 | 15041.25 | 11210.63 | 10433.81 | 8461.13 | 6770.81 |
| 225.0 | 20694.38 | 20430.00 | 19890.00 | 18753.75 | 17426.25 | 15761.25 | 13370.63 | 11096.44 | 9363.38 |
| 270.0 | 20576.25 | 20694.38 | 20576.25 | 20216.25 | 19445.63 | 18157.50 | 16621.88 | 14585.63 | 12622.50 |
| 315.0 | 20655.00 | 20857.50 | 20857.50 | 20570.63 | 20041.88 | 19136.25 | 17617.50 | 15727.50 | 13809.38 |
| 360.0 | 20379.38 | 20790.00 | 20930.63 | 20851.88 | 20491.88 | 19828.13 | 18596.25 | 16886.25 | 15052.50 |

| C/γ(°) | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 17.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 12808.13 | 10507.50 | 8550.00 | 6840.00 | 5197.50 | 4252.50 | 3538.13 | 2936.25 | 2657.25 |
| 45.0 | 9466.88 | 7396.88 | 5889.38 | 4753.13 | 3729.38 | 3133.13 | 2891.25 | 2310.75 | 2030.63 |
| 90.0 | 6514.31 | 5126.06 | 4219.88 | 3452.06 | 2934.00 | 2494.13 | 2163.94 | 1945.69 | 1780.31 |
| 135.0 | 6108.75 | 4837.50 | 3999.38 | 3346.88 | 2851.88 | 2401.88 | 2133.56 | 1928.25 | 1735.31 |
| 180.0 | 5305.50 | 4245.19 | 3541.50 | 2885.63 | 2500.31 | 2202.75 | 1919.81 | 1771.88 | 1634.06 |
| 225.0 | 7369.88 | 5796.56 | 4721.06 | 3813.75 | 3146.63 | 2711.25 | 2342.25 | 2088.00 | 1867.50 |
| 270.0 | 10383.75 | 8268.75 | 6665.63 | 5405.63 | 4325.63 | 3538.13 | 3015.00 | 2851.88 | 2252.25 |
| 315.0 | 10981.69 | 9239.63 | 7430.63 | 5799.38 | 4709.25 | 3803.06 | 3138.19 | 2699.44 | 2372.63 |
| 360.0 | 12808.13 | 10507.50 | 8550.00 | 6840.00 | 5197.50 | 4252.50 | 3538.13 | 2936.25 | 2657.25 |

| C/γ(°) | 18.0 | 19.0 | 20.0 | 21.0 | 22.0 | 23.0 | 24.0 | 25.0 | 26.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 2215.13 | 1985.06 | 1769.63 | 1650.38 | 1561.50 | 1486.13 | 1427.63 | 1384.31 | 1342.13 |
| 45.0 | 1846.69 | 1689.19 | 1581.75 | 1513.69 | 1443.94 | 1399.50 | 1356.75 | 1319.06 | 1287.56 |
| 90.0 | 1633.50 | 1549.13 | 1483.31 | 1419.19 | 1377.56 | 1342.69 | 1302.19 | 1271.81 | 1243.69 |
| 135.0 | 1624.50 | 1537.88 | 1460.81 | 1413.56 | 1372.50 | 1329.19 | 1297.13 | 1267.31 | 1235.81 |
| 180.0 | 1527.19 | 1472.06 | 1420.88 | 1364.06 | 1333.13 | 1302.75 | 1264.50 | 1242.00 | 1216.69 |
| 225.0 | 1712.25 | 1609.31 | 1531.69 | 1460.25 | 1414.69 | 1375.88 | 1333.13 | 1301.63 | 1271.25 |
| 270.0 | 2026.13 | 1863.56 | 1672.88 | 1575.00 | 1511.44 | 1433.25 | 1388.25 | 1353.94 | 1310.63 |
| 315.0 | 2073.38 | 1886.06 | 1737.56 | 1604.81 | 1528.31 | 1468.69 | 1413.56 | 1367.44 | 1329.75 |
| 360.0 | 2215.13 | 1985.06 | 1769.63 | 1650.38 | 1561.50 | 1486.13 | 1427.63 | 1384.31 | 1342.13 |

| C/γ(°) | 27.0 | 28.0 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 | 34.0 | 35.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 1308.38 | 1272.94 | 1240.31 | 1212.75 | 1181.81 | 1154.81 | 1135.13 | 1116.56 | 1049.63 |
| 45.0 | 1257.19 | 1219.50 | 1189.13 | 1161.56 | 1133.44 | 1112.06 | 1072.69 | 1002.38 | 888.19 |
| 90.0 | 1207.13 | 1180.69 | 1151.44 | 1121.12 | 1097.83 | 1035.11 | 943.37 | 846.51 | 740.64 |
| 135.0 | 1204.31 | 1176.19 | 1149.19 | 1127.81 | 1096.88 | 1025.44 | 939.38 | 828.00 | 706.50 |
| 180.0 | 1185.75 | 1158.19 | 1121.63 | 1111.56 | 1060.76 | 975.04 | 881.78 | 765.45 | 642.60 |
| 225.0 | 1239.19 | 1205.44 | 1179.56 | 1156.50 | 1119.99 | 1086.86 | 1017.56 | 915.58 | 796.05 |
| 270.0 | 1274.06 | 1248.19 | 1212.19 | 1182.94 | 1158.19 | 1131.19 | 1108.13 | 1053.56 | 953.44 |
| 315.0 | 1289.81 | 1256.06 | 1221.75 | 1187.44 | 1162.13 | 1120.28 | 1107.56 | 1069.65 | 995.96 |
| 360.0 | 1308.38 | 1272.94 | 1240.31 | 1212.75 | 1181.81 | 1154.81 | 1135.13 | 1116.56 | 1049.63 |

| C/γ(°) | 36.0 | 37.0 | 38.0 | 39.0 | 40.0 | 41.0 | 42.0 | 43.0 | 44.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 966.38 | 876.94 | 732.38 | 598.50 | 498.94 | 358.31 | 291.38 | 145.18 | 69.41 |
| 45.0 | 782.44 | 671.63 | 545.06 | 421.31 | 311.06 | 285.19 | 102.71 | 50.06 | 34.48 |
| 90.0 | 615.83 | 493.03 | 384.86 | 265.50 | 158.85 | 85.33 | 41.96 | 31.95 | 24.64 |
| 135.0 | 593.44 | 480.94 | 342.00 | 289.69 | 139.84 | 64.63 | 36.90 | 30.77 | 22.73 |
| 180.0 | 531.06 | 403.31 | 293.29 | 178.88 | 90.23 | 46.46 | 35.55 | 26.83 | 20.81 |
| 225.0 | 683.27 | 554.18 | 441.06 | 314.83 | 201.94 | 118.01 | 59.34 | 37.35 | 30.88 |
| 270.0 | 856.13 | 747.56 | 604.69 | 489.38 | 375.19 | 294.19 | 148.73 | 79.59 | 39.71 |
| 315.0 | 876.32 | 770.68 | 658.07 | 525.43 | 398.42 | 290.98 | 180.73 | 91.52 | 45.84 |
| 360.0 | 966.38 | 876.94 | 732.38 | 598.50 | 498.94 | 358.31 | 291.38 | 145.18 | 69.41 |

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 | 38.64 | 32.12 | 24.47 | 19.01 | 17.33 | 15.98 | 15.02 | 14.74 | 14.51 |
| 45.0 | 28.07 | 20.70 | 17.44 | 16.54 | 15.19 | 14.85 | 14.63 | 14.34 | 14.18 |
| 90.0 | 18.96 | 17.10 | 16.09 | 15.19 | 14.96 | 14.74 | 14.40 | 14.18 | 14.06 |
| 135.0 | 18.17 | 16.93 | 15.30 | 14.85 | 14.63 | 14.46 | 14.29 | 14.18 | 14.01 |
| 180.0 | 18.39 | 16.48 | 15.08 | 14.79 | 14.46 | 14.29 | 14.12 | 14.01 | 13.89 |
| 225.0 | 23.85 | 19.24 | 17.61 | 15.30 | 14.85 | 14.51 | 14.29 | 14.12 | 13.95 |
| 270.0 | 32.91 | 25.71 | 19.29 | 17.61 | 16.37 | 15.19 | 14.79 | 14.51 | 14.29 |
| 315.0 | 34.48 | 27.96 | 20.48 | 17.55 | 16.48 | 15.36 | 14.96 | 14.68 | 14.51 |
| 360.0 | 38.64 | 32.12 | 24.47 | 19.01 | 17.33 | 15.98 | 15.02 | 14.74 | 14.51 |

| C/γ(°) | 54.0 | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 14.34 | 14.18 | 14.06 | 13.89 | 13.84 | 13.67 | 13.61 | 13.50 | 13.44 |
| 45.0 | 14.06 | 13.95 | 13.84 | 13.73 | 13.61 | 13.50 | 13.44 | 13.39 | 13.33 |
| 90.0 | 13.89 | 13.84 | 13.67 | 13.61 | 13.50 | 13.44 | 13.39 | 13.33 | 13.28 |
| 135.0 | 13.89 | 13.78 | 13.67 | 13.61 | 13.50 | 13.44 | 13.39 | 13.33 | 13.28 |
| 180.0 | 13.84 | 13.67 | 13.61 | 13.50 | 13.44 | 13.39 | 13.33 | 13.33 | 13.28 |
| 225.0 | 13.84 | 13.67 | 13.56 | 13.50 | 13.44 | 13.33 | 13.28 | 13.22 | 13.16 |
| 270.0 | 14.12 | 14.01 | 13.84 | 13.73 | 13.61 | 13.56 | 13.44 | 13.39 | 13.28 |
| 315.0 | 14.23 | 14.06 | 13.95 | 13.84 | 13.67 | 13.56 | 13.50 | 13.39 | 13.33 |
| 360.0 | 14.34 | 14.18 | 14.06 | 13.89 | 13.84 | 13.67 | 13.61 | 13.50 | 13.44 |

| C/γ(°) | 63.0 | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 13.39 | 13.33 | 13.28 | 13.22 | 13.22 | 13.16 | 13.11 | 13.11 | 13.05 |
| 45.0 | 13.28 | 13.22 | 13.22 | 13.16 | 13.11 | 13.05 | 13.05 | 13.05 | 13.05 |
| 90.0 | 13.22 | 13.16 | 13.11 | 13.11 | 13.05 | 13.05 | 12.99 | 12.99 | 12.94 |
| 135.0 | 13.22 | 13.22 | 13.16 | 13.11 | 13.05 | 13.05 | 13.05 | 12.99 | 12.99 |
| 180.0 | 13.28 | 13.22 | 13.16 | 13.16 | 13.11 | 13.11 | 13.05 | 13.05 | 12.99 |
| 225.0 | 13.11 | 13.11 | 13.05 | 13.05 | 12.99 | 12.99 | 12.94 | 12.88 | 12.88 |
| 270.0 | 13.22 | 13.16 | 13.16 | 13.11 | 13.05 | 13.05 | 12.99 | 12.94 | 12.94 |
| 315.0 | 13.28 | 13.22 | 13.16 | 13.16 | 13.11 | 13.05 | 12.99 | 12.99 | 12.94 |
| 360.0 | 13.39 | 13.33 | 13.28 | 13.22 | 13.22 | 13.16 | 13.11 | 13.11 | 13.05 |

| C/γ(°) | 72.0 | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 13.05 | 13.05 | 12.99 | 12.99 | 12.99 | 12.94 | 12.99 | 12.94 | 12.94 |
| 45.0 | 12.94 | 12.94 | 12.94 | 12.88 | 12.88 | 12.88 | 12.83 | 12.88 | 12.83 |
| 90.0 | 12.94 | 12.88 | 12.88 | 12.88 | 12.88 | 12.83 | 12.83 | 12.83 | 12.77 |
| 135.0 | 12.99 | 12.94 | 12.94 | 12.88 | 12.88 | 12.88 | 12.88 | 12.83 | 12.83 |
| 180.0 | 12.99 | 12.99 | 12.99 | 12.94 | 12.94 | 12.94 | 12.94 | 12.88 | 12.88 |
| 225.0 | 12.88 | 12.88 | 12.88 | 12.88 | 12.83 | 12.83 | 12.83 | 12.77 | 12.77 |
| 270.0 | 12.94 | 12.88 | 12.88 | 12.88 | 12.83 | 12.83 | 12.83 | 12.77 | 12.77 |
| 315.0 | 12.94 | 12.88 | 12.94 | 12.94 | 12.88 | 12.88 | 12.88 | 12.83 | 12.83 |
| 360.0 | 13.05 | 13.05 | 12.99 | 12.99 | 12.99 | 12.94 | 12.99 | 12.94 | 12.94 |

| C/γ(°) | 81.0 | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 12.94 | 12.88 | 12.88 | 12.88 | 12.88 | 12.88 | 12.94 | 12.83 | 12.77 |
| 45.0 | 12.83 | 12.83 | 12.83 | 12.77 | 12.77 | 12.71 | 12.66 | 12.71 | 12.66 |
| 90.0 | 12.77 | 12.77 | 12.77 | 12.71 | 12.71 | 12.66 | 12.66 | 12.66 | 12.66 |
| 135.0 | 12.83 | 12.83 | 12.83 | 12.83 | 12.83 | 12.71 | 12.71 | 12.71 | 12.71 |
| 180.0 | 12.88 | 12.88 | 12.88 | 13.11 | 13.11 | 12.77 | 12.77 | 12.77 | 12.77 |
| 225.0 | 12.77 | 12.77 | 12.77 | 12.77 | 12.71 | 12.71 | 12.71 | 12.66 | 12.66 |
| 270.0 | 12.83 | 12.77 | 12.77 | 12.71 | 12.77 | 12.71 | 12.71 | 12.66 | 12.66 |
| 315.0 | 12.77 | 12.83 | 12.83 | 12.83 | 12.77 | 12.83 | 12.77 | 12.71 | 12.71 |
| 360.0 | 12.94 | 12.88 | 12.88 | 12.88 | 12.88 | 12.88 | 12.94 | 12.83 | 12.77 |

Intensity data(cd)

| C/γ(°) | 90.0 |
|---|---|
| 0.0 | 12.77 |
| 45.0 | 12.66 |
| 90.0 | 12.66 |
| 135.0 | 12.71 |
| 180.0 | 12.77 |
| 225.0 | 12.66 |
| 270.0 | 12.66 |
| 315.0 | 12.71 |
| 360.0 | 12.77 |