NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.com
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

Client:
LumCAT: 1656-S
Luminaire: 92.70.124.00

| | |
|---|---|
| Report No: | Voltage(V): 33.2600 |
| Test No: GC2019082808 | Current(A): 0.2970 |
| LampCAT: XICATO XOB LES 9.8MM | Power (W): 9.8800 |
| Lamp flux(lm): 902.0 | PF: 0.0000 |
| Number of Lamps: 1 | Ballast type: DC |
| Length(mm): 47 | Width(mm): 47 |
| Phm Type: C | Height(mm): 0 |

## Photometric Results

Lumens(lm): 800.23, Efficiency(%): 88.72% , Luminous Efficacy(lm/W): 81.00
Central intensity(cd): 5409.422, Maximum intensity(cd): 5409.422
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=15.0
[C90/270]Total=15.0
Field angle(10%Imax): [C0/180]Total=34.8
[C90/270]Total=34.8
Maximum s/h(1/2): C0_180=0.26 C90_270=0.26
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(%): 88.72%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.263%

| | | |
|---|---|---|
| Equipment: GMS1980 | Date: 2019/8/28 | Operator: NT07 |
| Temperature(°C): 25.0 | 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 | 5409.422 | 0.000 | 0 | .000% | .000% |
| 1.0 | 5357.742 | 5.152 | 5.152 | .571% | .644% |
| 2.0 | 5153.414 | 15.087 | 20.238 | 1.673% | 2.529% |
| 3.0 | 4837.711 | 23.895 | 44.134 | 2.649% | 5.515% |
| 4.0 | 4430.320 | 31.023 | 75.157 | 3.439% | 9.392% |
| 5.0 | 3933.141 | 35.979 | 111.136 | 3.989% | 13.888% |
| 6.0 | 3424.992 | 38.669 | 149.805 | 4.287% | 18.720% |
| 7.0 | 2929.500 | 39.442 | 189.247 | 4.373% | 23.649% |
| 8.0 | 2483.016 | 38.736 | 227.984 | 4.294% | 28.490% |
| 9.0 | 2077.453 | 36.960 | 264.944 | 4.098% | 33.108% |
| 10.0 | 1721.742 | 34.381 | 299.325 | 3.812% | 37.405% |
| 11.0 | 1441.617 | 31.608 | 330.934 | 3.504% | 41.355% |
| 12.0 | 1196.142 | 28.834 | 359.768 | 3.197% | 44.958% |
| 13.0 | 989.972 | 25.944 | 385.712 | 2.876% | 48.200% |
| 14.0 | 852.384 | 23.582 | 409.294 | 2.614% | 51.147% |
| 15.0 | 733.535 | 21.772 | 431.066 | 2.414% | 53.867% |
| 16.0 | 637.819 | 20.094 | 451.16 | 2.228% | 56.378% |
| 17.0 | 563.702 | 18.711 | 469.871 | 2.074% | 58.717% |
| 18.0 | 504.021 | 17.604 | 487.476 | 1.952% | 60.917% |
| 19.0 | 459.000 | 16.755 | 504.23 | 1.857% | 63.010% |
| 20.0 | 423.225 | 16.147 | 520.377 | 1.790% | 65.028% |
| 21.0 | 394.193 | 15.696 | 536.073 | 1.740% | 66.990% |
| 22.0 | 372.635 | 15.410 | 551.483 | 1.708% | 68.915% |
| 23.0 | 355.310 | 15.274 | 566.757 | 1.693% | 70.824% |
| 24.0 | 340.376 | 15.210 | 581.968 | 1.686% | 72.725% |
| 25.0 | 328.535 | 15.210 | 597.177 | 1.686% | 74.625% |
| 26.0 | 319.254 | 15.291 | 612.468 | 1.695% | 76.536% |
| 27.0 | 310.802 | 15.414 | 627.883 | 1.709% | 78.462% |
| 28.0 | 303.532 | 15.554 | 643.436 | 1.724% | 80.406% |
| 29.0 | 294.469 | 15.645 | 659.082 | 1.735% | 82.361% |
| 30.0 | 283.992 | 15.618 | 674.7 | 1.732% | 84.313% |
| 31.0 | 272.194 | 15.478 | 690.178 | 1.716% | 86.247% |
| 32.0 | 247.718 | 14.895 | 705.073 | 1.651% | 88.108% |
| 33.0 | 222.349 | 13.848 | 718.921 | 1.535% | 89.839% |
| 34.0 | 192.424 | 12.552 | 731.473 | 1.392% | 91.407% |
| 35.0 | 160.080 | 10.947 | 742.421 | 1.214% | 92.775% |
| 36.0 | 127.554 | 9.158 | 751.579 | 1.015% | 93.920% |
| 37.0 | 98.121 | 7.360 | 758.939 | .816% | 94.840% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 38.0 | 69.961 | 5.610 | 764.55 | .622% | 95.541% |
| 39.0 | 47.088 | 3.995 | 768.545 | .443% | 96.040% |
| 40.0 | 31.029 | 2.724 | 771.269 | .302% | 96.380% |
| 41.0 | 20.974 | 1.852 | 773.121 | .205% | 96.612% |
| 42.0 | 15.462 | 1.324 | 774.445 | .147% | 96.777% |
| 43.0 | 12.776 | 1.046 | 775.491 | .116% | 96.908% |
| 44.0 | 10.948 | 0.895 | 776.386 | .099% | 97.020% |
| 45.0 | 9.591 | 0.789 | 777.176 | .088% | 97.118% |
| 46.0 | 8.747 | 0.717 | 777.893 | .080% | 97.208% |
| 47.0 | 8.241 | 0.676 | 778.569 | .075% | 97.293% |
| 48.0 | 7.882 | 0.652 | 779.22 | .072% | 97.374% |
| 49.0 | 7.559 | 0.634 | 779.854 | .070% | 97.453% |
| 50.0 | 7.256 | 0.618 | 780.472 | .068% | 97.530% |
| 51.0 | 7.052 | 0.605 | 781.077 | .067% | 97.606% |
| 52.0 | 6.891 | 0.598 | 781.676 | .066% | 97.681% |
| 53.0 | 6.743 | 0.593 | 782.269 | .066% | 97.755% |
| 54.0 | 6.602 | 0.588 | 782.857 | .065% | 97.828% |
| 55.0 | 6.539 | 0.587 | 783.444 | .065% | 97.902% |
| 56.0 | 6.420 | 0.586 | 784.029 | .065% | 97.975% |
| 57.0 | 6.321 | 0.583 | 784.612 | .065% | 98.048% |
| 58.0 | 6.209 | 0.579 | 785.191 | .064% | 98.120% |
| 59.0 | 6.124 | 0.577 | 785.768 | .064% | 98.192% |
| 60.0 | 5.948 | 0.570 | 786.338 | .063% | 98.263% |
| 61.0 | 5.801 | 0.561 | 786.899 | .062% | 98.333% |
| 62.0 | 5.611 | 0.550 | 787.449 | .061% | 98.402% |
| 63.0 | 5.407 | 0.536 | 787.985 | .059% | 98.469% |
| 64.0 | 5.203 | 0.521 | 788.505 | .058% | 98.534% |
| 65.0 | 5.027 | 0.506 | 789.011 | .056% | 98.597% |
| 66.0 | 4.894 | 0.495 | 789.506 | .055% | 98.659% |
| 67.0 | 4.767 | 0.486 | 789.992 | .054% | 98.720% |
| 68.0 | 4.655 | 0.477 | 790.469 | .053% | 98.780% |
| 69.0 | 4.577 | 0.471 | 790.94 | .052% | 98.839% |
| 70.0 | 4.514 | 0.467 | 791.407 | .052% | 98.897% |
| 71.0 | 4.472 | 0.464 | 791.872 | .051% | 98.955% |
| 72.0 | 4.430 | 0.463 | 792.335 | .051% | 99.013% |
| 73.0 | 4.388 | 0.461 | 792.796 | .051% | 99.070% |
| 74.0 | 4.345 | 0.459 | 793.255 | .051% | 99.128% |
| 75.0 | 4.289 | 0.456 | 793.711 | .051% | 99.185% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 76.0 | 4.268 | 0.454 | 794.165 | .050% | 99.242% |
| 77.0 | 4.226 | 0.453 | 794.618 | .050% | 99.298% |
| 78.0 | 4.212 | 0.452 | 795.07 | .050% | 99.355% |
| 79.0 | 4.184 | 0.451 | 795.521 | .050% | 99.411% |
| 80.0 | 4.148 | 0.449 | 795.97 | .050% | 99.467% |
| 81.0 | 4.099 | 0.446 | 796.416 | .049% | 99.523% |
| 82.0 | 4.057 | 0.442 | 796.858 | .049% | 99.578% |
| 83.0 | 3.994 | 0.438 | 797.296 | .049% | 99.633% |
| 84.0 | 3.952 | 0.433 | 797.729 | .048% | 99.687% |
| 85.0 | 3.902 | 0.429 | 798.158 | .048% | 99.740% |
| 86.0 | 3.874 | 0.425 | 798.583 | .047% | 99.794% |
| 87.0 | 3.804 | 0.420 | 799.003 | .047% | 99.846% |
| 88.0 | 3.769 | 0.415 | 799.418 | .046% | 99.898% |
| 89.0 | 3.727 | 0.411 | 799.829 | .046% | 99.949% |
| 90.0 | 3.684 | 0.406 | 800.235 | .045% | 100.000% |

## Zonal flux distribution table



ZONAL LUMEN SUMMARY

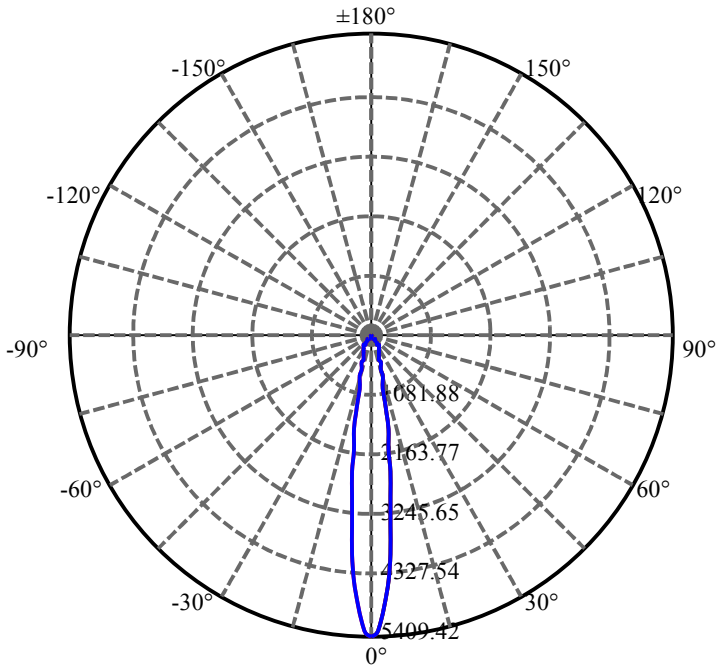
| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-30 | 674.70 | 74.80% | 84.31% |
| 0-40 | 771.27 | 85.51% | 96.38% |
| 0-60 | 786.34 | 87.18% | 98.26% |
| 0-90 | 799.83 | 88.67% | 99.95% |
| 0-120 | 799.83 | 88.67% | 99.95% |
| 0-180 | 800.23 | 88.72% | 100.00% |
| 60-90 | 14.06 | 1.56% | 1.76% |
| 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% |
| 0-27.79 | 640.19 | 70.97% | 80.00% |

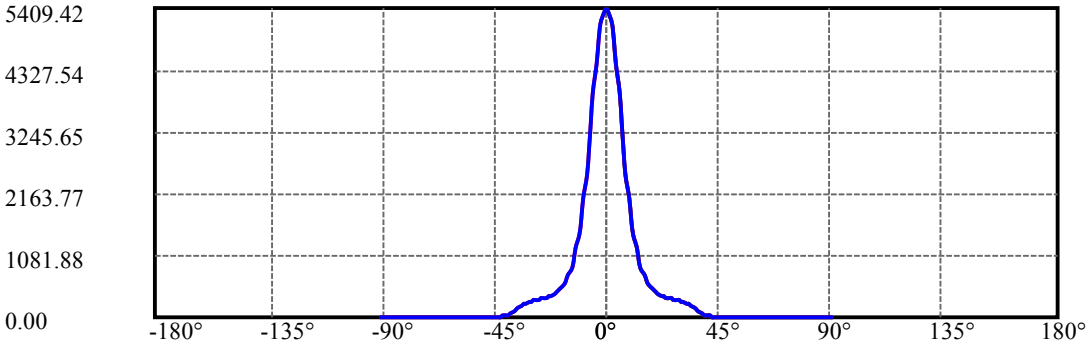
ZONAL LUMEN SUMMARY

| | |
|---|---|
| 0-10 | 299.33 |
| 10-20 | 221.05 |
| 20-30 | 154.32 |
| 30-40 | 96.57 |
| 40-50 | 9.20 |
| 50-60 | 5.87 |
| 60-70 | 5.07 |
| 70-80 | 4.56 |
| 80-90 | 3.86 |
| 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 |

Light Distribution Curve [Unit:cd]






C0(Max):

C0/C180:

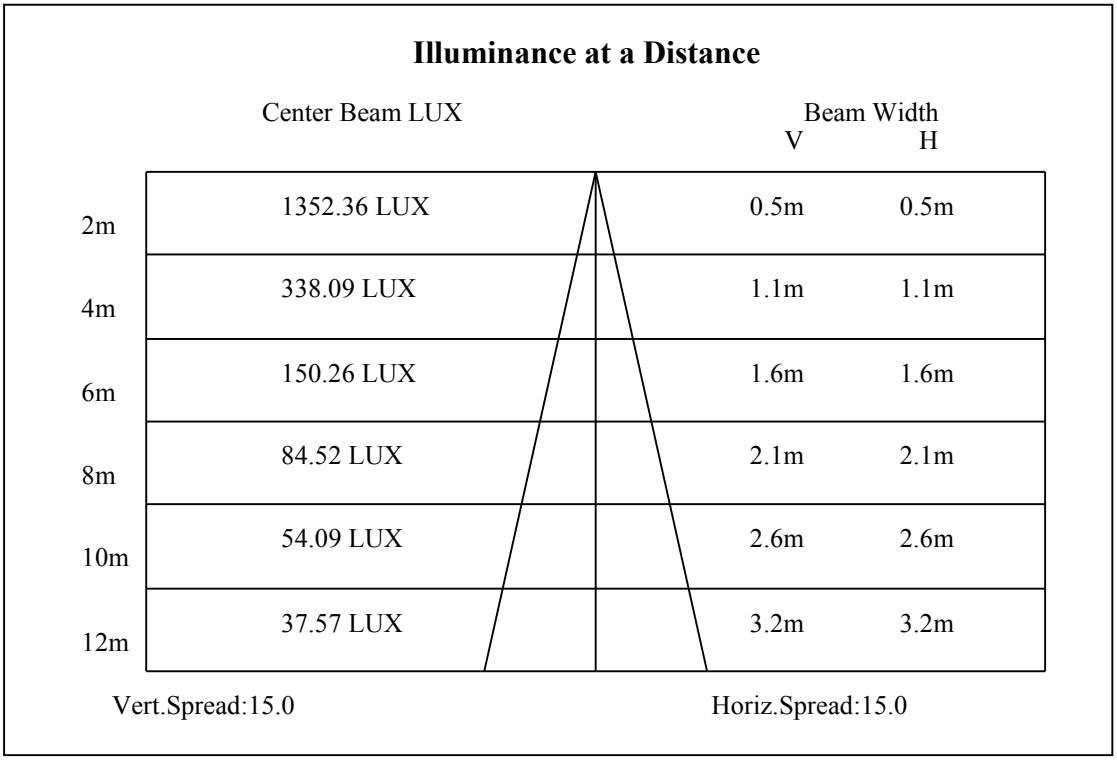
C90/C270:

Field angle(10%Imax):C0/180Left:17.4 Right:17.4
:C90/270Left:17.4 Right:17.4

Beam Angle(50%Imax):C0/180Left:7.5 Right:7.5
:C90/270Left:7.5 Right:7.5

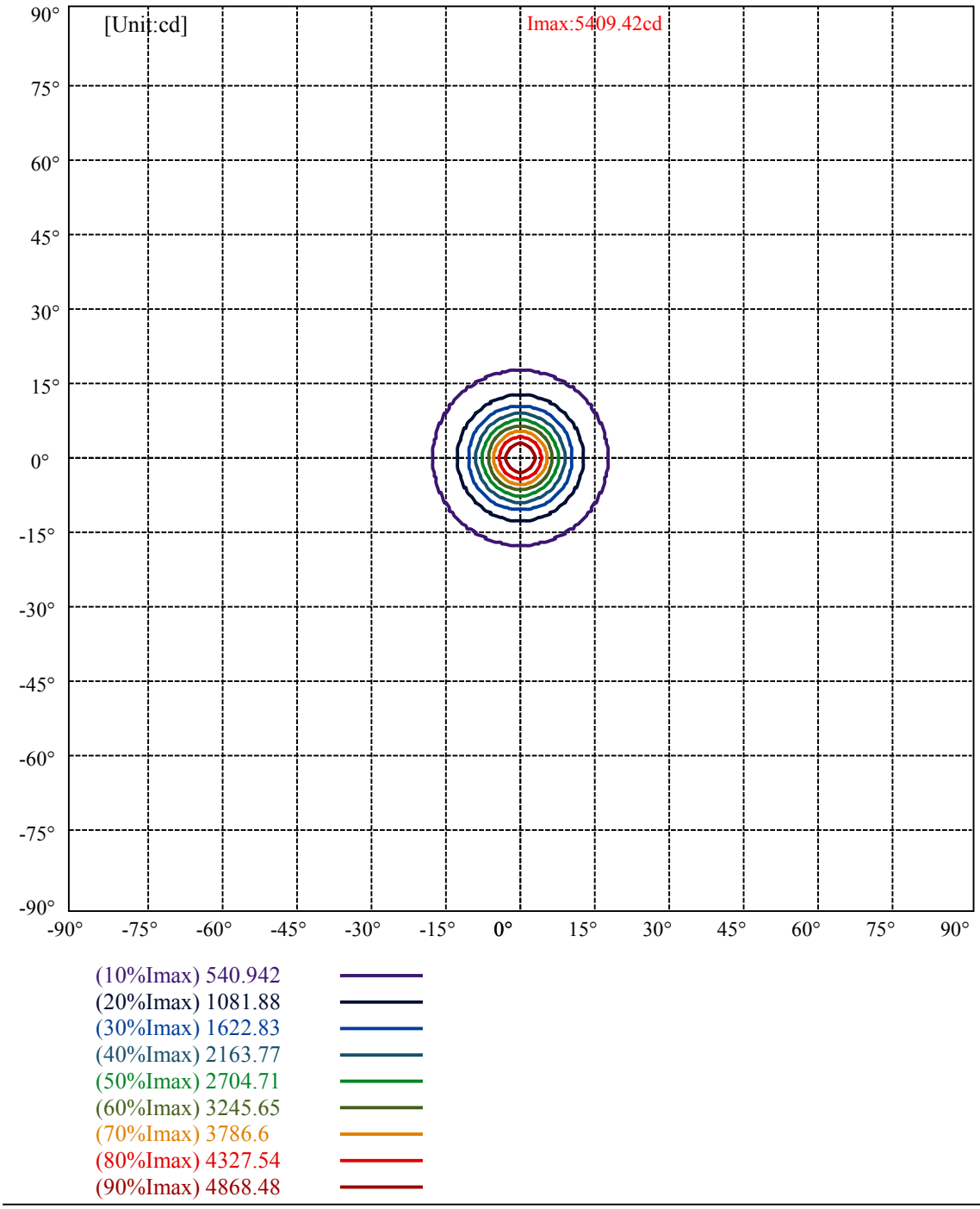
Lux distance Curve





ISO-Intensity(V-H)





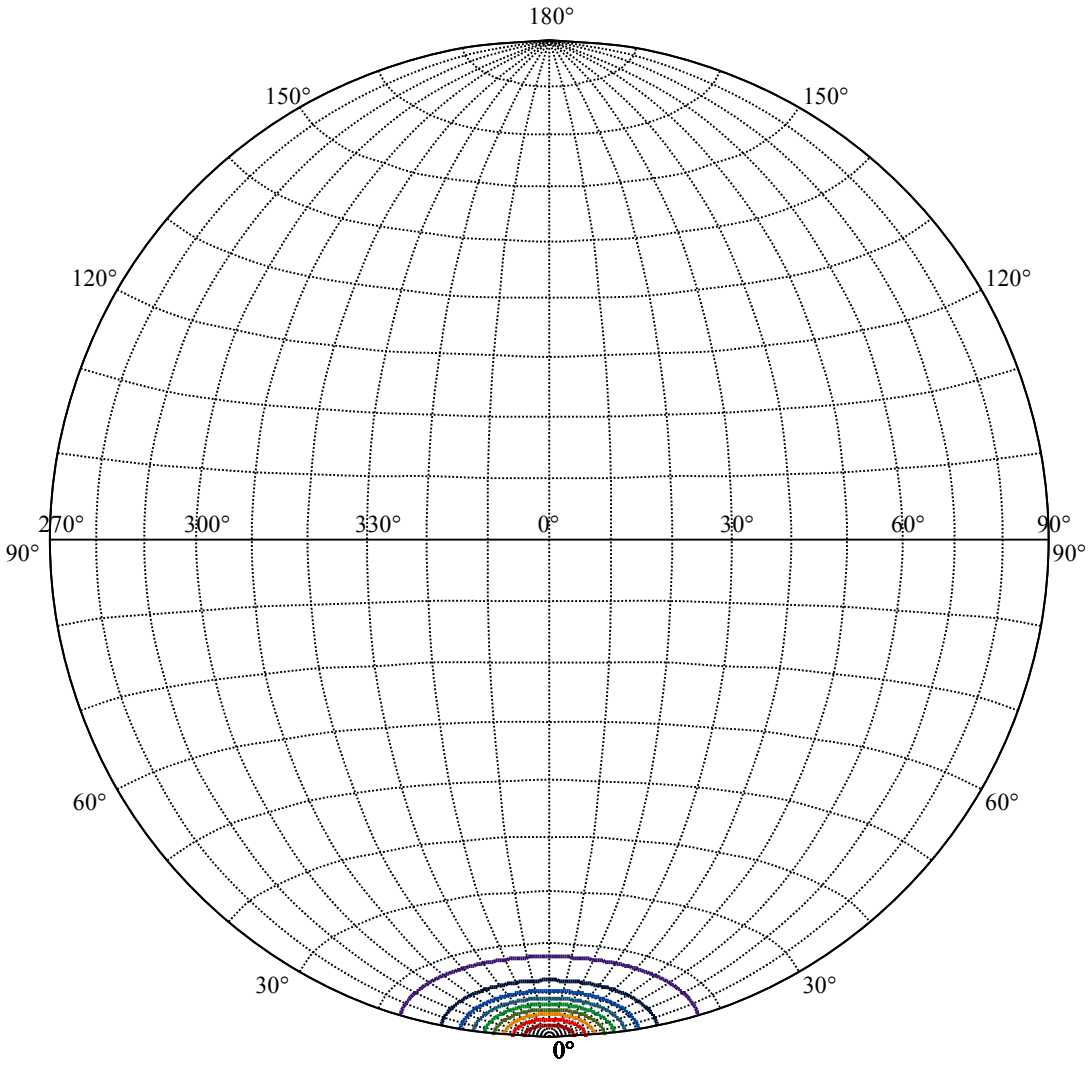

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/8/28
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web






House [Unit:cd] Road

Imax:5409.42

(10%Imax) 540.942
(20%Imax) 1081.88
(30%Imax) 1622.83
(40%Imax) 2163.77
(50%Imax) 2704.71
(60%Imax) 3245.65
(70%Imax) 3786.6
(80%Imax) 4327.54
(90%Imax) 4868.48

Equipment: GMS1980
Temperature(°C): 25.0

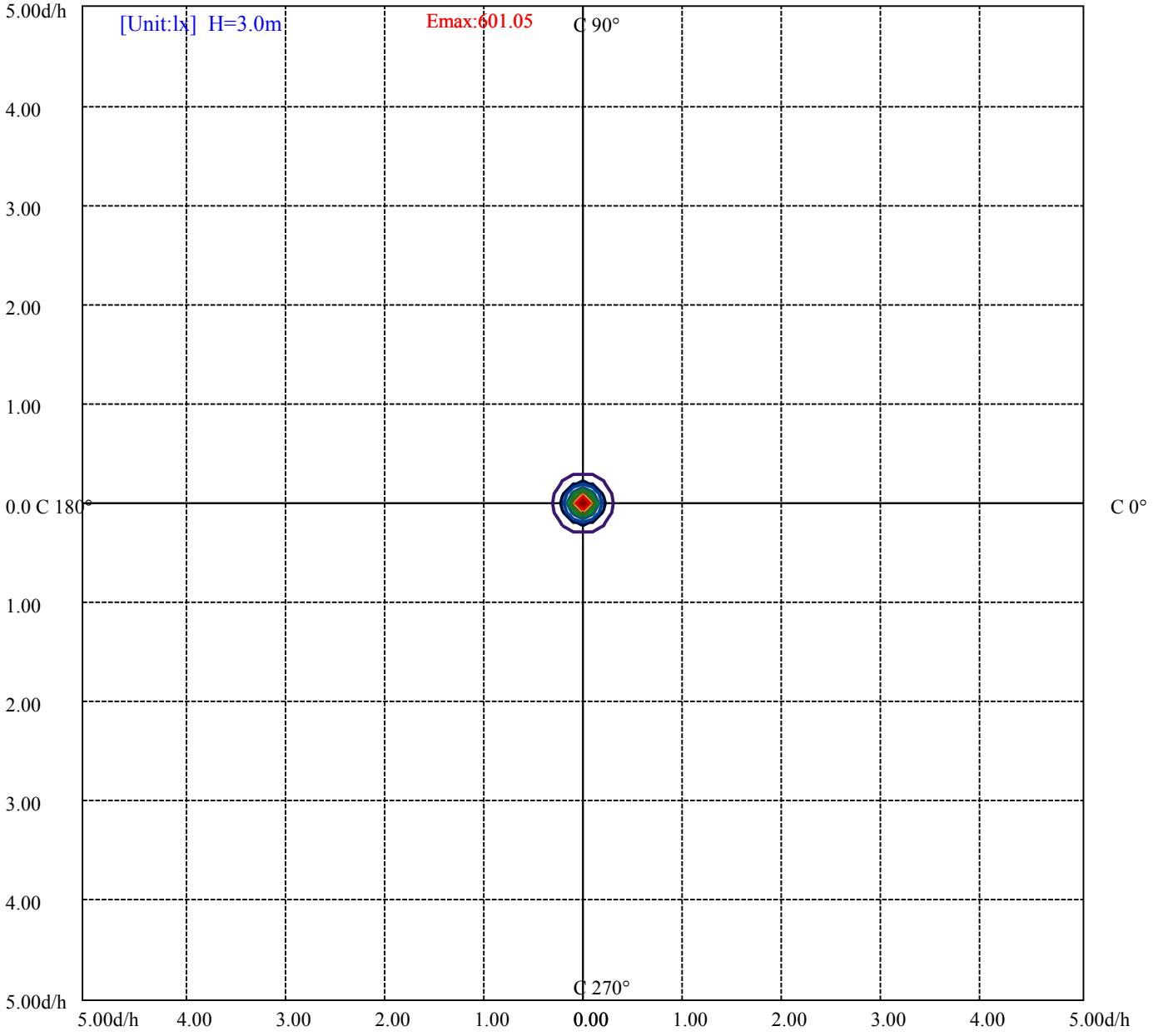
Date: 2019/8/28
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Nata 1656-S

ISO illuminance diagram






(10%Emax) 60.10455
(20%Emax) 120.2089
(30%Emax) 180.3133
(40%Emax) 240.4189
(50%Emax) 300.5233
(60%Emax) 360.6278
(70%Emax) 420.7322
(80%Emax) 480.8366
(90%Emax) 540.9412

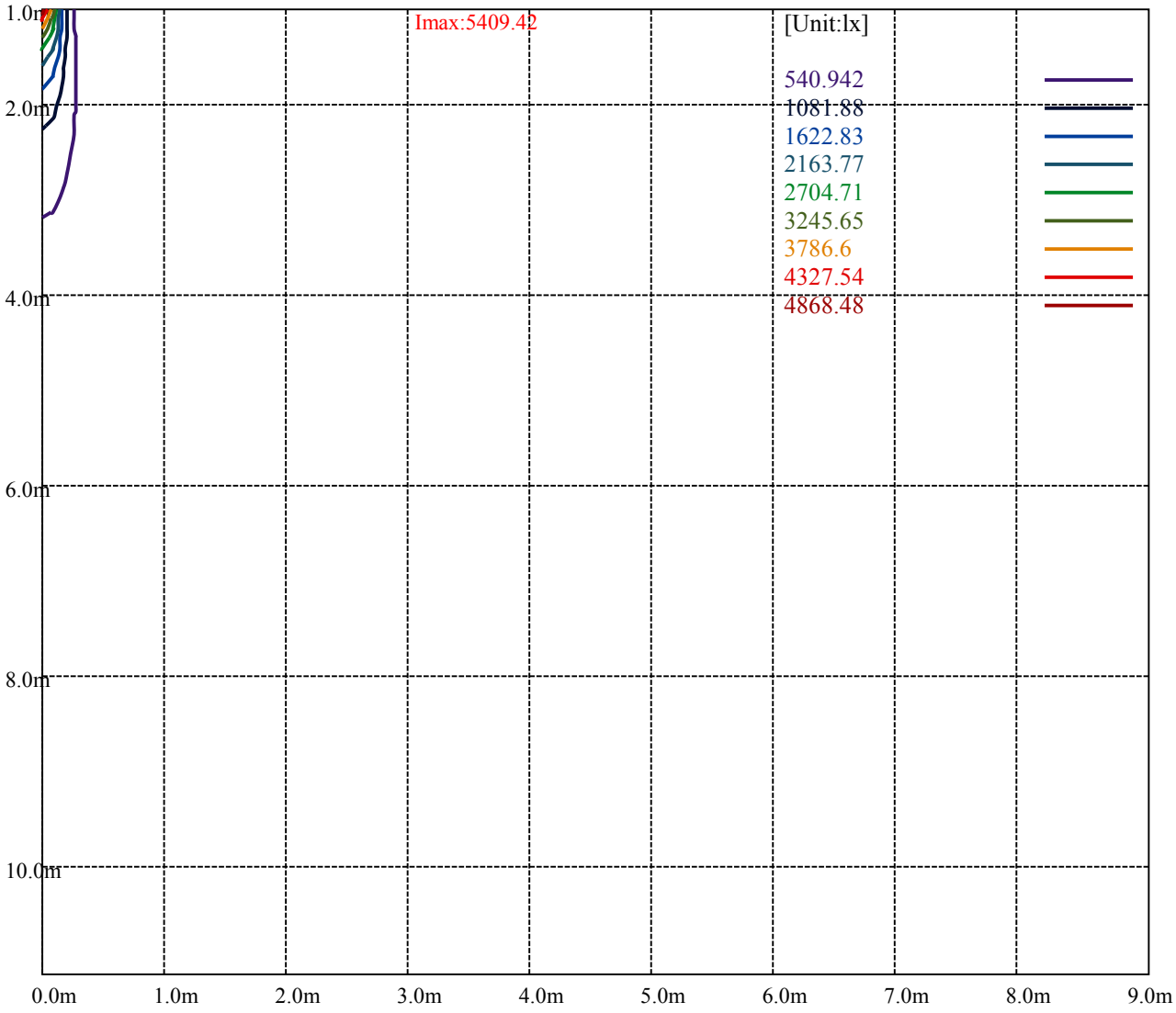
Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/8/28
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

## Space ISO Lux diagram






Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/8/28
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Nata 1656-S

## Luminance Limitting Curve(no luminous side)



Luminance Table

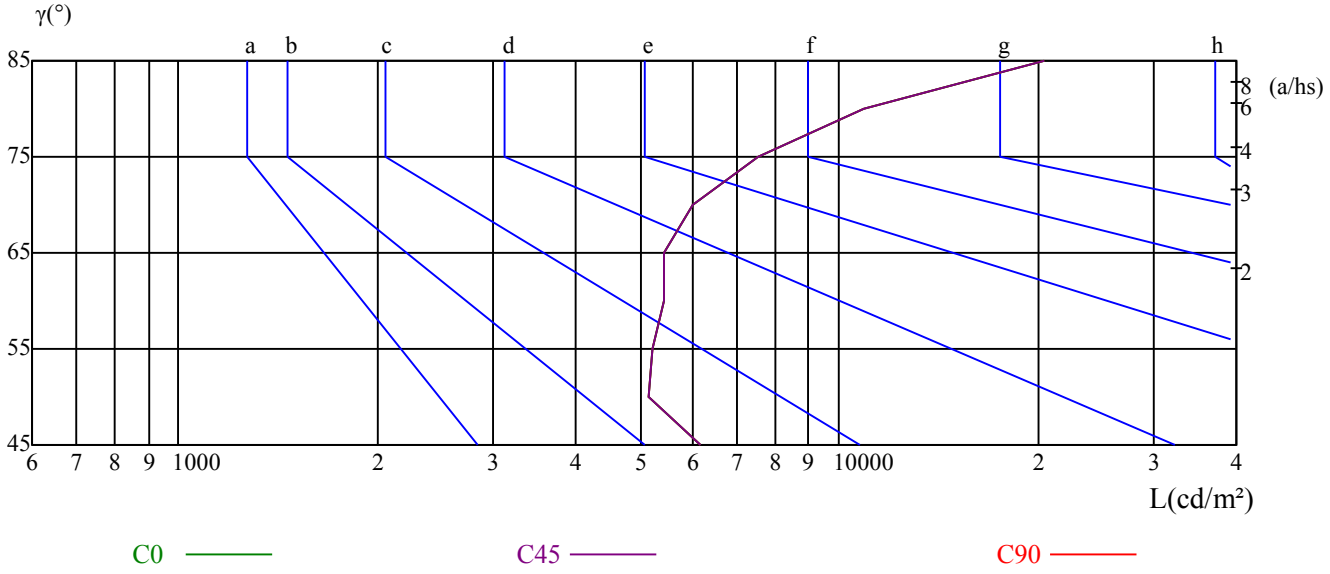
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|---|---|---|---|---|---|---|---|---|---|
| C0 | 6193 | 5154 | 5205 | 5432 | 5431 | 6026 | 7566 | 10907 | 20443 |
| C45 | 6193 | 5154 | 5205 | 5432 | 5431 | 6026 | 7566 | 10907 | 20443 |
| C90 | 6193 | 5154 | 5205 | 5432 | 5431 | 6026 | 7566 | 10907 | 20443 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|---|---|---|---|---|---|---|---|---|
| 5431 | 5431 | 5431 | 7566 | 7566 | 7566 | 20443 | 20443 | 20443 |

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



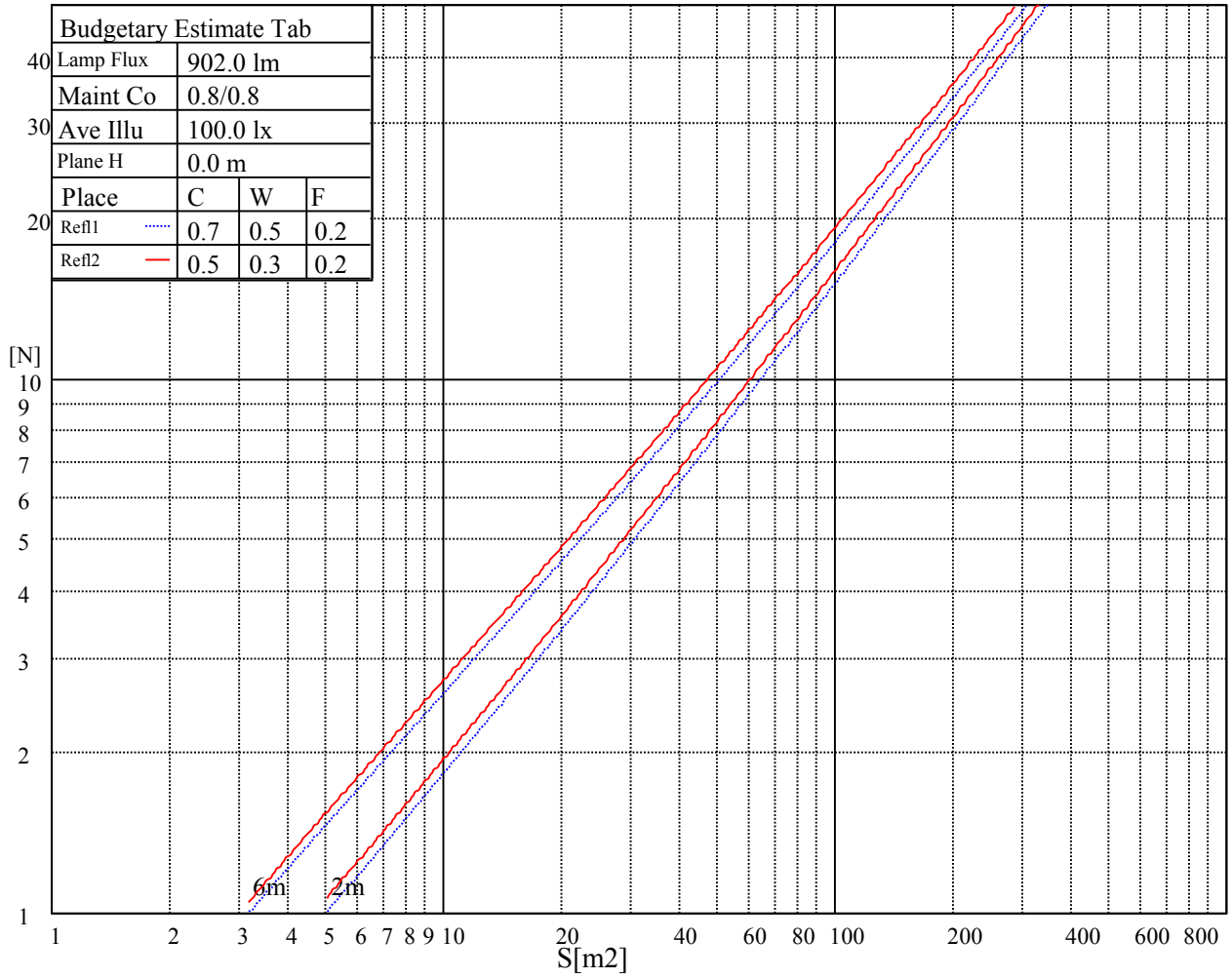

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/8/28
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

## Budgetary Estimate Table






Equipment: GMS1980 Date: 2019/8/28 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

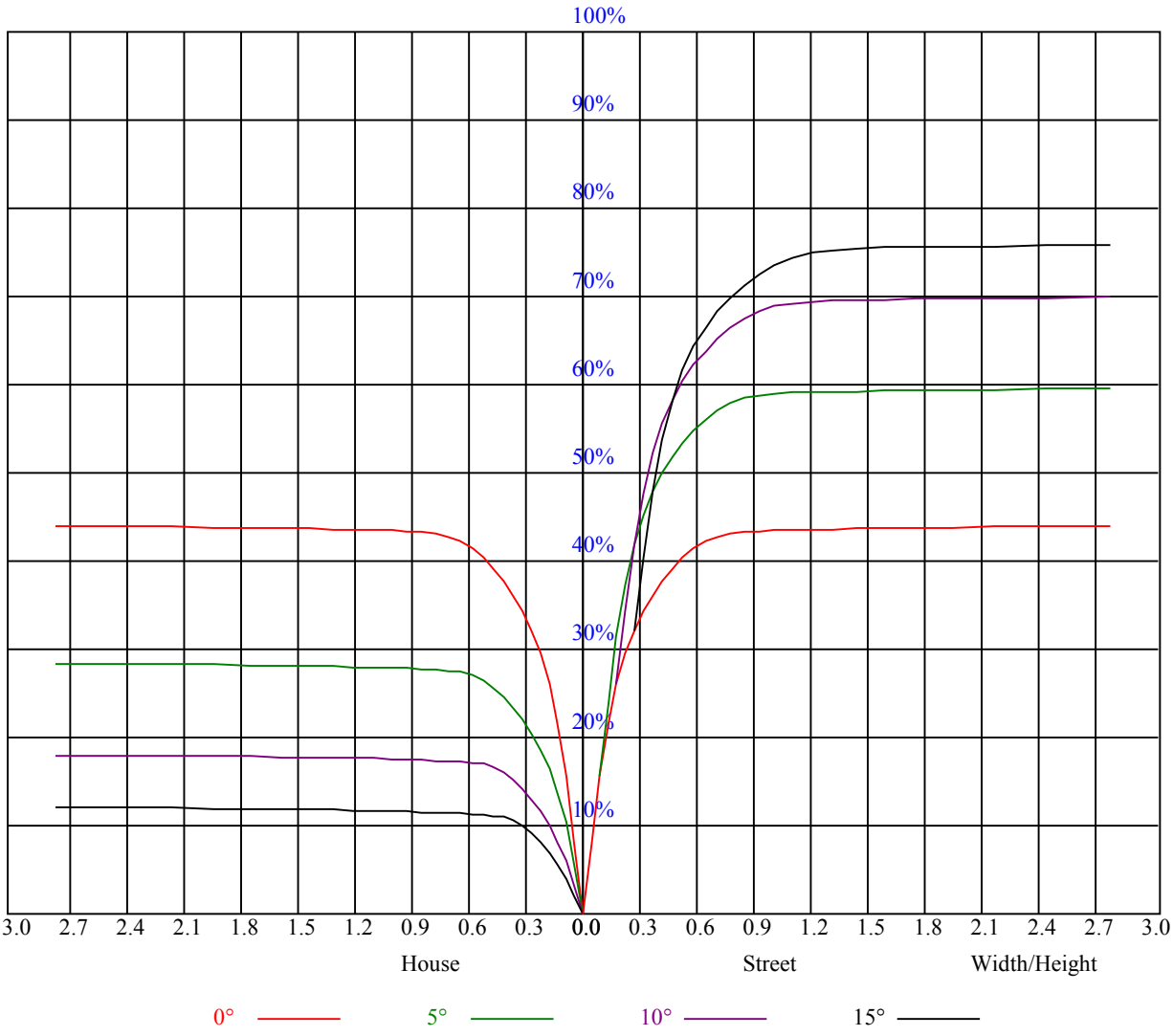
## Utilization factor table for indoor luminaire



| 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 | 1.06 | 1.06 | 1.06 | 1.03 | 1.03 | 1.03 | 0.99 | 0.99 | 0.99 | 0.94 | 0.94 | 0.94 | 0.91 | 0.91 | 0.91 | 0.89 |
| 1 | 0.99 | 0.97 | 0.96 | 0.97 | 0.96 | 0.94 | 0.94 | 0.93 | 0.91 | 0.91 | 0.90 | 0.89 | 0.88 | 0.87 | 0.86 | 0.85 |
| 2 | 0.94 | 0.91 | 0.89 | 0.93 | 0.90 | 0.88 | 0.90 | 0.88 | 0.86 | 0.87 | 0.85 | 0.84 | 0.85 | 0.83 | 0.82 | 0.81 |
| 3 | 0.89 | 0.86 | 0.83 | 0.88 | 0.85 | 0.82 | 0.86 | 0.83 | 0.81 | 0.84 | 0.82 | 0.80 | 0.82 | 0.80 | 0.79 | 0.77 |
| 4 | 0.85 | 0.81 | 0.78 | 0.84 | 0.81 | 0.78 | 0.83 | 0.80 | 0.77 | 0.81 | 0.78 | 0.76 | 0.79 | 0.77 | 0.75 | 0.74 |
| 5 | 0.82 | 0.78 | 0.75 | 0.81 | 0.77 | 0.74 | 0.80 | 0.76 | 0.74 | 0.78 | 0.75 | 0.73 | 0.77 | 0.74 | 0.73 | 0.71 |
| 6 | 0.79 | 0.74 | 0.72 | 0.78 | 0.74 | 0.71 | 0.77 | 0.73 | 0.71 | 0.76 | 0.73 | 0.70 | 0.75 | 0.72 | 0.70 | 0.69 |
| 7 | 0.76 | 0.72 | 0.69 | 0.75 | 0.71 | 0.69 | 0.74 | 0.71 | 0.68 | 0.73 | 0.70 | 0.68 | 0.72 | 0.70 | 0.68 | 0.67 |
| 8 | 0.73 | 0.69 | 0.66 | 0.73 | 0.69 | 0.66 | 0.72 | 0.68 | 0.66 | 0.71 | 0.68 | 0.66 | 0.70 | 0.67 | 0.65 | 0.64 |
| 9 | 0.71 | 0.67 | 0.64 | 0.70 | 0.66 | 0.64 | 0.70 | 0.66 | 0.64 | 0.69 | 0.66 | 0.64 | 0.68 | 0.65 | 0.63 | 0.62 |
| 10 | 0.68 | 0.65 | 0.62 | 0.68 | 0.64 | 0.62 | 0.68 | 0.64 | 0.62 | 0.67 | 0.64 | 0.62 | 0.66 | 0.64 | 0.61 | 0.61 |

## Coefficient Utilization Curve

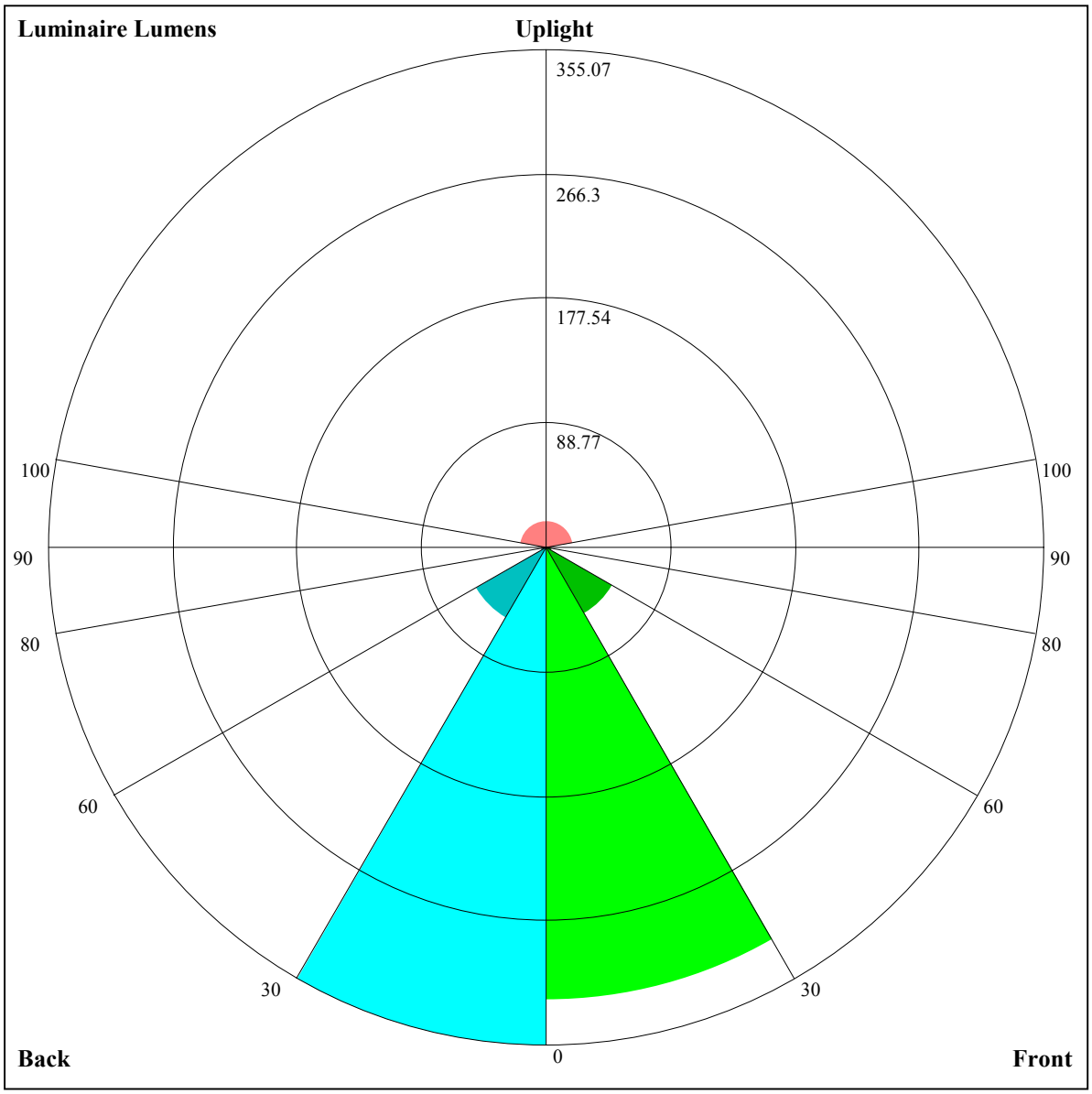





Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/8/28
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50




Luminaire Lumens:
FL=323.01,FM=54.39,FH=4.78,FVH=2.1
BL=355.07,BM=58.6,BH=4.89,BVH=2.15
UL=4.02,UH=19.13

BUG Rating:B1-U2-G0

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 | 5385.38 | 5227.88 | 4919.63 | 4523.63 | 3984.19 | 3409.88 | 2942.44 | 2469.38 | 2096.44 |
| 45.0 | 5470.88 | 5329.13 | 4925.81 | 4508.44 | 4017.38 | 3391.88 | 2928.38 | 2485.13 | 2050.31 |
| 90.0 | 5384.25 | 5162.63 | 4779.56 | 4278.94 | 3785.63 | 3296.81 | 2716.88 | 2304.00 | 1897.31 |
| 135.0 | 5397.19 | 5343.19 | 5153.63 | 4858.88 | 4408.88 | 3894.75 | 3416.63 | 2894.63 | 2475.56 |
| 180.0 | 5385.38 | 5420.25 | 5343.19 | 5108.63 | 4793.06 | 4389.75 | 3790.69 | 3300.19 | 2838.94 |
| 225.0 | 5470.88 | 5542.31 | 5478.75 | 5321.25 | 5046.75 | 4537.69 | 4120.31 | 3566.81 | 2973.38 |
| 270.0 | 5384.25 | 5501.81 | 5488.31 | 5347.13 | 5072.63 | 4701.94 | 4188.38 | 3628.13 | 3153.94 |
| 315.0 | 5397.19 | 5334.75 | 5138.44 | 4754.81 | 4334.06 | 3842.44 | 3296.25 | 2787.75 | 2378.25 |
| 360.0 | 5385.38 | 5227.88 | 4919.63 | 4523.63 | 3984.19 | 3409.88 | 2942.44 | 2469.38 | 2096.44 |

| C/γ(°) | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 17.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 1730.81 | 1423.13 | 1199.25 | 1011.94 | 825.75 | 709.88 | 619.88 | 537.75 | 486.56 |
| 45.0 | 1686.94 | 1413.56 | 1160.44 | 979.88 | 819.00 | 695.81 | 609.75 | 536.63 | 477.56 |
| 90.0 | 1593.56 | 1234.69 | 1111.50 | 931.11 | 789.47 | 690.30 | 601.31 | 540.79 | 486.90 |
| 135.0 | 2067.19 | 1719.56 | 1454.63 | 1231.31 | 1011.38 | 867.38 | 749.25 | 635.06 | 566.44 |
| 180.0 | 2316.38 | 1945.69 | 1638.00 | 1246.50 | 1118.42 | 951.98 | 804.66 | 699.13 | 616.61 |
| 225.0 | 2588.63 | 2140.88 | 1719.56 | 1478.25 | 1116.68 | 1006.54 | 857.31 | 737.10 | 642.83 |
| 270.0 | 2662.31 | 2266.88 | 1870.88 | 1571.63 | 1266.75 | 1072.69 | 916.31 | 785.81 | 663.75 |
| 315.0 | 1973.81 | 1629.56 | 1378.69 | 1118.53 | 972.34 | 824.51 | 709.82 | 630.28 | 568.97 |
| 360.0 | 1730.81 | 1423.13 | 1199.25 | 1011.94 | 825.75 | 709.88 | 619.88 | 537.75 | 486.56 |

| C/γ(°) | 18.0 | 19.0 | 20.0 | 21.0 | 22.0 | 23.0 | 24.0 | 25.0 | 26.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 447.75 | 411.75 | 385.88 | 366.75 | 351.56 | 340.31 | 330.75 | 321.75 | 315.56 |
| 45.0 | 435.94 | 402.19 | 370.69 | 351.00 | 333.56 | 318.38 | 307.13 | 299.25 | 291.94 |
| 90.0 | 442.97 | 412.26 | 387.51 | 364.28 | 349.82 | 337.95 | 326.25 | 318.94 | 312.47 |
| 135.0 | 510.19 | 461.25 | 425.25 | 399.94 | 378.00 | 361.69 | 348.19 | 334.13 | 325.69 |
| 180.0 | 543.83 | 486.34 | 448.14 | 413.38 | 385.82 | 366.92 | 350.66 | 336.38 | 326.31 |
| 225.0 | 551.76 | 495.17 | 450.39 | 406.07 | 378.62 | 355.84 | 337.33 | 321.58 | 310.50 |
| 270.0 | 590.63 | 532.13 | 475.88 | 440.44 | 412.31 | 387.56 | 368.44 | 353.25 | 339.75 |
| 315.0 | 509.12 | 470.93 | 442.07 | 411.69 | 391.39 | 373.84 | 354.26 | 343.01 | 331.82 |
| 360.0 | 447.75 | 411.75 | 385.88 | 366.75 | 351.56 | 340.31 | 330.75 | 321.75 | 315.56 |

| C/γ(°) | 27.0 | 28.0 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 | 34.0 | 35.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 309.38 | 302.63 | 298.69 | 289.13 | 284.06 | 244.35 | 216.62 | 176.68 | 144.45 |
| 45.0 | 284.06 | 284.06 | 266.23 | 251.33 | 228.88 | 201.88 | 172.97 | 141.81 | 107.72 |
| 90.0 | 305.27 | 297.79 | 288.23 | 269.21 | 245.59 | 214.26 | 179.94 | 148.67 | 114.36 |
| 135.0 | 317.25 | 307.69 | 300.94 | 291.38 | 284.63 | 249.58 | 223.31 | 193.22 | 154.80 |
| 180.0 | 318.38 | 310.56 | 303.75 | 297.39 | 289.35 | 272.36 | 250.59 | 220.95 | 191.48 |
| 225.0 | 300.09 | 289.35 | 276.58 | 266.23 | 256.16 | 240.08 | 217.91 | 194.29 | 168.92 |
| 270.0 | 330.75 | 322.31 | 315.56 | 310.50 | 303.19 | 294.75 | 284.63 | 256.73 | 223.03 |
| 315.0 | 321.24 | 313.88 | 305.78 | 296.78 | 285.69 | 264.49 | 232.82 | 207.06 | 175.89 |
| 360.0 | 309.38 | 302.63 | 298.69 | 289.13 | 284.06 | 244.35 | 216.62 | 176.68 | 144.45 |

| C/γ(°) | 36.0 | 37.0 | 38.0 | 39.0 | 40.0 | 41.0 | 42.0 | 43.0 | 44.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 112.44 | 78.75 | 49.84 | 30.66 | 19.58 | 15.92 | 13.56 | 11.42 | 10.07 |
| 45.0 | 81.96 | 60.24 | 37.63 | 26.33 | 20.36 | 17.10 | 14.63 | 13.16 | 12.21 |
| 90.0 | 81.28 | 55.52 | 34.65 | 18.39 | 14.18 | 12.60 | 10.29 | 8.78 | 7.99 |
| 135.0 | 124.20 | 94.44 | 60.98 | 38.98 | 22.95 | 14.12 | 11.87 | 10.18 | 7.82 |
| 180.0 | 156.66 | 121.44 | 91.41 | 63.90 | 36.39 | 21.38 | 14.85 | 12.32 | 10.29 |
| 225.0 | 135.90 | 110.70 | 87.53 | 63.23 | 46.80 | 32.85 | 23.57 | 19.18 | 16.37 |
| 270.0 | 192.15 | 159.64 | 122.51 | 87.98 | 61.03 | 37.01 | 21.60 | 16.14 | 13.78 |
| 315.0 | 135.84 | 104.23 | 75.15 | 47.25 | 26.94 | 16.82 | 13.33 | 11.03 | 9.06 |
| 360.0 | 112.44 | 78.75 | 49.84 | 30.66 | 19.58 | 15.92 | 13.56 | 11.42 | 10.07 |

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 | 9.51 | 9.34 | 9.06 | 8.83 | 8.61 | 8.38 | 8.16 | 7.99 | 7.71 |
| 45.0 | 11.70 | 11.25 | 10.74 | 10.18 | 9.68 | 9.23 | 9.00 | 8.78 | 8.66 |
| 90.0 | 7.54 | 7.20 | 6.98 | 6.75 | 6.58 | 6.47 | 6.41 | 6.36 | 6.36 |
| 135.0 | 6.64 | 6.24 | 6.02 | 5.79 | 5.63 | 5.46 | 5.34 | 5.23 | 5.18 |
| 180.0 | 8.49 | 7.37 | 7.03 | 6.81 | 6.53 | 6.30 | 6.13 | 5.96 | 5.79 |
| 225.0 | 13.67 | 11.87 | 10.63 | 9.84 | 9.23 | 8.66 | 8.21 | 7.93 | 7.65 |
| 270.0 | 11.70 | 9.68 | 8.72 | 8.38 | 8.04 | 7.59 | 7.37 | 7.20 | 7.03 |
| 315.0 | 7.48 | 7.03 | 6.75 | 6.47 | 6.19 | 5.96 | 5.79 | 5.68 | 5.57 |
| 360.0 | 9.51 | 9.34 | 9.06 | 8.83 | 8.61 | 8.38 | 8.16 | 7.99 | 7.71 |

| C/γ(°) | 54.0 | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 7.43 | 7.20 | 6.81 | 6.53 | 6.24 | 5.96 | 5.68 | 5.51 | 5.23 |
| 45.0 | 8.38 | 8.38 | 8.16 | 7.99 | 7.65 | 7.43 | 6.81 | 6.41 | 5.96 |
| 90.0 | 6.41 | 6.41 | 6.41 | 6.41 | 6.41 | 6.41 | 6.36 | 6.19 | 5.91 |
| 135.0 | 5.06 | 5.06 | 5.01 | 4.95 | 4.95 | 5.01 | 5.01 | 4.95 | 4.95 |
| 180.0 | 5.68 | 5.57 | 5.46 | 5.40 | 5.29 | 5.29 | 5.18 | 5.12 | 5.01 |
| 225.0 | 7.43 | 7.31 | 7.14 | 6.98 | 6.81 | 6.69 | 6.47 | 6.30 | 6.08 |
| 270.0 | 6.92 | 6.86 | 6.86 | 6.81 | 6.81 | 6.75 | 6.69 | 6.58 | 6.47 |
| 315.0 | 5.51 | 5.51 | 5.51 | 5.51 | 5.51 | 5.46 | 5.40 | 5.34 | 5.29 |
| 360.0 | 7.43 | 7.20 | 6.81 | 6.53 | 6.24 | 5.96 | 5.68 | 5.51 | 5.23 |

| C/γ(°) | 63.0 | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 5.01 | 4.84 | 4.67 | 4.61 | 4.50 | 4.39 | 4.33 | 4.28 | 4.22 |
| 45.0 | 5.51 | 5.12 | 4.89 | 4.84 | 4.67 | 4.61 | 4.56 | 4.50 | 4.50 |
| 90.0 | 5.57 | 5.29 | 5.01 | 4.78 | 4.67 | 4.50 | 4.44 | 4.39 | 4.33 |
| 135.0 | 4.89 | 4.84 | 4.78 | 4.73 | 4.67 | 4.61 | 4.61 | 4.56 | 4.50 |
| 180.0 | 4.95 | 4.84 | 4.78 | 4.67 | 4.67 | 4.61 | 4.50 | 4.44 | 4.39 |
| 225.0 | 5.85 | 5.68 | 5.51 | 5.34 | 5.18 | 5.12 | 5.06 | 5.06 | 5.06 |
| 270.0 | 6.24 | 5.91 | 5.63 | 5.34 | 5.12 | 4.84 | 4.67 | 4.56 | 4.44 |
| 315.0 | 5.23 | 5.12 | 4.95 | 4.84 | 4.67 | 4.56 | 4.44 | 4.33 | 4.33 |
| 360.0 | 5.01 | 4.84 | 4.67 | 4.61 | 4.50 | 4.39 | 4.33 | 4.28 | 4.22 |

| C/γ(°) | 72.0 | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 4.22 | 4.16 | 4.11 | 4.05 | 4.05 | 3.99 | 3.99 | 3.99 | 3.94 |
| 45.0 | 4.50 | 4.50 | 4.50 | 4.44 | 4.44 | 4.39 | 4.39 | 4.28 | 4.22 |
| 90.0 | 4.33 | 4.28 | 4.22 | 4.22 | 4.16 | 4.16 | 4.11 | 4.11 | 4.05 |
| 135.0 | 4.44 | 4.39 | 4.39 | 4.33 | 4.33 | 4.28 | 4.22 | 4.22 | 4.16 |
| 180.0 | 4.39 | 4.39 | 4.33 | 4.28 | 4.28 | 4.22 | 4.16 | 4.16 | 4.16 |
| 225.0 | 5.01 | 4.89 | 4.78 | 4.67 | 4.61 | 4.61 | 4.67 | 4.61 | 4.61 |
| 270.0 | 4.33 | 4.33 | 4.28 | 4.22 | 4.16 | 4.11 | 4.11 | 4.11 | 4.05 |
| 315.0 | 4.22 | 4.16 | 4.16 | 4.11 | 4.11 | 4.05 | 4.05 | 3.99 | 3.99 |
| 360.0 | 4.22 | 4.16 | 4.11 | 4.05 | 4.05 | 3.99 | 3.99 | 3.99 | 3.94 |

| C/γ(°) | 81.0 | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 3.94 | 3.94 | 3.88 | 3.88 | 3.83 | 3.77 | 3.71 | 3.71 | 3.71 |
| 45.0 | 4.16 | 4.05 | 3.99 | 3.94 | 3.83 | 3.83 | 3.71 | 3.66 | 3.60 |
| 90.0 | 3.99 | 3.99 | 3.94 | 3.94 | 3.94 | 3.94 | 3.77 | 3.77 | 3.71 |
| 135.0 | 4.11 | 4.11 | 4.11 | 4.11 | 4.16 | 4.11 | 4.11 | 3.99 | 3.94 |
| 180.0 | 4.11 | 4.05 | 3.99 | 3.94 | 3.94 | 3.88 | 3.83 | 3.77 | 3.71 |
| 225.0 | 4.50 | 4.39 | 4.22 | 4.05 | 3.88 | 3.83 | 3.77 | 3.71 | 3.66 |
| 270.0 | 3.99 | 3.94 | 3.88 | 3.88 | 3.83 | 3.83 | 3.77 | 3.77 | 3.71 |
| 315.0 | 3.99 | 3.99 | 3.94 | 3.88 | 3.83 | 3.83 | 3.77 | 3.77 | 3.77 |
| 360.0 | 3.94 | 3.94 | 3.88 | 3.88 | 3.83 | 3.77 | 3.71 | 3.71 | 3.71 |

Intensity data(cd)



| C/γ(°) | 90.0 |
|---|---|
| 0.0 | 3.66 |
| 45.0 | 3.60 |
| 90.0 | 3.66 |
| 135.0 | 3.83 |
| 180.0 | 3.66 |
| 225.0 | 3.66 |
| 270.0 | 3.71 |
| 315.0 | 3.71 |
| 360.0 | 3.66 |