NATA LIGHTING CO.,LTD.
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Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

## Nata

LumCAT: 2-2158-A
Luminaire: 92.70.153.00

| | |
|---|---|
| Report No: NATA0100 | Voltage(V): 34.1000 |
| Test No: GC2019111406 | Current(A): 0.3220 |
| LampCAT: PHILIPS SLM92757 TWL112024 CP | Power (W): 10.9800 |
| Lamp flux(lm): 1022.0 | PF: 1.0000 |
| Number of Lamps: 1 | Ballast type: DC |
| Length(mm): 0 | Width(mm): 0 |
| Phm Type: C | Height(mm): 0 |

## Photometric Results

Lumens(lm): 844.77
Efficiency(%): 82.66%
Lumens(lm)/Power(W): 76.94
Central intensity(cd): 3669.890
Maximum intensity(cd): 3669.890
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=19.4
[C90/270]Total=19.4
Field angle(10%Imax): [C0/180]Total=50.0
[C90/270]Total=50.0
Maximum s/h(1/2): C0_180=0.33 C90_270=0.33
Maximum s/h(1/4): C0_180=0.35 C90_270=0.35
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.66%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.971%

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 0.0 | 3669.891 | 0.000 | 0 | .000% | .000% |
| 1.0 | 3645.352 | 3.500 | 3.5 | .342% | .414% |
| 2.0 | 3556.688 | 10.337 | 13.837 | 1.011% | 1.638% |
| 3.0 | 3415.852 | 16.676 | 30.513 | 1.632% | 3.612% |
| 4.0 | 3248.086 | 22.306 | 52.82 | 2.183% | 6.253% |
| 5.0 | 3025.406 | 26.988 | 79.808 | 2.641% | 9.447% |
| 6.0 | 2773.125 | 30.473 | 110.281 | 2.982% | 13.055% |
| 7.0 | 2532.164 | 32.930 | 143.211 | 3.222% | 16.953% |
| 8.0 | 2268.141 | 34.355 | 177.565 | 3.362% | 21.019% |
| 9.0 | 2008.688 | 34.661 | 212.227 | 3.392% | 25.122% |
| 10.0 | 1767.445 | 34.173 | 246.399 | 3.344% | 29.168% |
| 11.0 | 1537.383 | 33.022 | 279.421 | 3.231% | 33.077% |
| 12.0 | 1313.606 | 31.165 | 310.587 | 3.049% | 36.766% |
| 13.0 | 1152.984 | 29.272 | 339.859 | 2.864% | 40.231% |
| 14.0 | 1004.041 | 27.610 | 367.469 | 2.702% | 43.499% |
| 15.0 | 884.306 | 25.924 | 393.393 | 2.537% | 46.568% |
| 16.0 | 785.897 | 24.473 | 417.866 | 2.395% | 49.465% |
| 17.0 | 689.449 | 22.975 | 440.841 | 2.248% | 52.185% |
| 18.0 | 619.425 | 21.580 | 462.422 | 2.112% | 54.739% |
| 19.0 | 565.924 | 20.623 | 483.044 | 2.018% | 57.181% |
| 20.0 | 512.937 | 19.746 | 502.79 | 1.932% | 59.518% |
| 21.0 | 471.895 | 18.911 | 521.701 | 1.850% | 61.757% |
| 22.0 | 440.965 | 18.344 | 540.045 | 1.795% | 63.928% |
| 23.0 | 411.666 | 17.890 | 557.936 | 1.751% | 66.046% |
| 24.0 | 386.494 | 17.451 | 575.387 | 1.707% | 68.112% |
| 25.0 | 367.200 | 17.137 | 592.524 | 1.677% | 70.140% |
| 26.0 | 350.191 | 16.934 | 609.458 | 1.657% | 72.145% |
| 27.0 | 335.187 | 16.768 | 626.226 | 1.641% | 74.130% |
| 28.0 | 322.348 | 16.647 | 642.873 | 1.629% | 76.101% |
| 29.0 | 309.748 | 16.537 | 659.411 | 1.618% | 78.058% |
| 30.0 | 297.323 | 16.391 | 675.802 | 1.604% | 79.998% |
| 31.0 | 284.766 | 16.199 | 692 | 1.585% | 81.916% |
| 32.0 | 266.892 | 15.804 | 707.805 | 1.546% | 83.787% |
| 33.0 | 251.585 | 15.275 | 723.079 | 1.495% | 85.595% |
| 34.0 | 228.094 | 14.516 | 737.596 | 1.420% | 87.313% |
| 35.0 | 202.191 | 13.363 | 750.959 | 1.308% | 88.895% |
| 36.0 | 175.915 | 12.039 | 762.998 | 1.178% | 90.320% |
| 37.0 | 152.480 | 10.710 | 773.708 | 1.048% | 91.588% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 38.0 | 127.673 | 9.351 | 783.059 | .915% | 92.695% |
| 39.0 | 101.876 | 7.835 | 790.894 | .767% | 93.623% |
| 40.0 | 83.018 | 6.448 | 797.343 | .631% | 94.386% |
| 41.0 | 65.911 | 5.303 | 802.646 | .519% | 95.014% |
| 42.0 | 51.005 | 4.248 | 806.894 | .416% | 95.517% |
| 43.0 | 40.725 | 3.398 | 810.292 | .332% | 95.919% |
| 44.0 | 32.625 | 2.768 | 813.06 | .271% | 96.246% |
| 45.0 | 26.065 | 2.256 | 815.316 | .221% | 96.513% |
| 46.0 | 20.890 | 1.836 | 817.152 | .180% | 96.731% |
| 47.0 | 16.784 | 1.498 | 818.65 | .147% | 96.908% |
| 48.0 | 13.423 | 1.221 | 819.871 | .119% | 97.053% |
| 49.0 | 10.842 | 0.996 | 820.868 | .097% | 97.171% |
| 50.0 | 8.705 | 0.815 | 821.683 | .080% | 97.267% |
| 51.0 | 7.418 | 0.682 | 822.365 | .067% | 97.348% |
| 52.0 | 6.834 | 0.612 | 822.977 | .060% | 97.420% |
| 53.0 | 6.588 | 0.584 | 823.56 | .057% | 97.489% |
| 54.0 | 6.490 | 0.576 | 824.137 | .056% | 97.558% |
| 55.0 | 6.413 | 0.576 | 824.713 | .056% | 97.626% |
| 56.0 | 6.363 | 0.577 | 825.29 | .056% | 97.694% |
| 57.0 | 6.321 | 0.580 | 825.87 | .057% | 97.763% |
| 58.0 | 6.279 | 0.583 | 826.453 | .057% | 97.832% |
| 59.0 | 6.237 | 0.585 | 827.038 | .057% | 97.901% |
| 60.0 | 6.180 | 0.587 | 827.624 | .057% | 97.971% |
| 61.0 | 6.159 | 0.589 | 828.213 | .058% | 98.040% |
| 62.0 | 6.131 | 0.592 | 828.806 | .058% | 98.110% |
| 63.0 | 6.089 | 0.594 | 829.4 | .058% | 98.181% |
| 64.0 | 6.061 | 0.596 | 829.996 | .058% | 98.251% |
| 65.0 | 6.040 | 0.599 | 830.595 | .059% | 98.322% |
| 66.0 | 6.005 | 0.601 | 831.196 | .059% | 98.393% |
| 67.0 | 5.963 | 0.602 | 831.798 | .059% | 98.465% |
| 68.0 | 5.941 | 0.603 | 832.401 | .059% | 98.536% |
| 69.0 | 5.906 | 0.604 | 833.005 | .059% | 98.607% |
| 70.0 | 5.871 | 0.605 | 833.61 | .059% | 98.679% |
| 71.0 | 5.857 | 0.606 | 834.216 | .059% | 98.751% |
| 72.0 | 5.801 | 0.606 | 834.822 | .059% | 98.823% |
| 73.0 | 5.780 | 0.606 | 835.428 | .059% | 98.894% |
| 74.0 | 5.745 | 0.606 | 836.034 | .059% | 98.966% |
| 75.0 | 5.709 | 0.605 | 836.639 | .059% | 99.038% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 76.0 | 5.660 | 0.604 | 837.242 | .059% | 99.109% |
| 77.0 | 5.611 | 0.601 | 837.843 | .059% | 99.180% |
| 78.0 | 5.562 | 0.598 | 838.441 | .059% | 99.251% |
| 79.0 | 5.520 | 0.595 | 839.037 | .058% | 99.321% |
| 80.0 | 5.470 | 0.592 | 839.629 | .058% | 99.392% |
| 81.0 | 5.400 | 0.588 | 840.217 | .058% | 99.461% |
| 82.0 | 5.351 | 0.583 | 840.8 | .057% | 99.530% |
| 83.0 | 5.273 | 0.578 | 841.378 | .057% | 99.599% |
| 84.0 | 5.175 | 0.569 | 841.947 | .056% | 99.666% |
| 85.0 | 5.041 | 0.558 | 842.504 | .055% | 99.732% |
| 86.0 | 4.725 | 0.534 | 843.038 | .052% | 99.795% |
| 87.0 | 4.163 | 0.486 | 843.525 | .048% | 99.853% |
| 88.0 | 3.769 | 0.434 | 843.959 | .043% | 99.904% |
| 89.0 | 3.670 | 0.408 | 844.367 | .040% | 99.952% |
| 90.0 | 3.656 | 0.402 | 844.769 | .039% | 100.000% |

## Zonal flux distribution table



ZONAL LUMEN SUMMARY

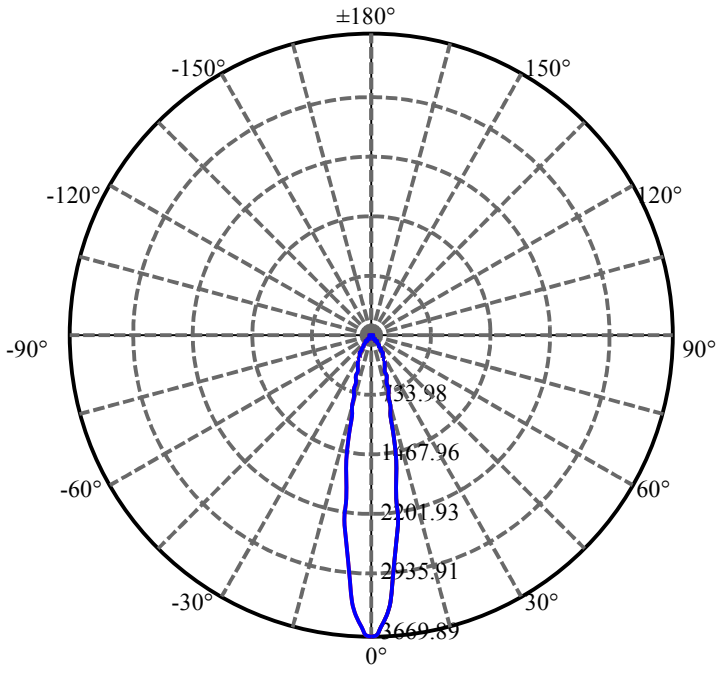
| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-30 | 675.80 | 66.13% | 80.00% |
| 0-40 | 797.34 | 78.02% | 94.39% |
| 0-60 | 827.62 | 80.98% | 97.97% |
| 0-90 | 844.37 | 82.62% | 99.95% |
| 0-120 | 844.37 | 82.62% | 99.95% |
| 0-180 | 844.77 | 82.66% | 100.00% |
| 60-90 | 17.33 | 1.70% | 2.05% |
| 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% |
| 0-30.00 | 675.81 | 66.13% | 80.00% |

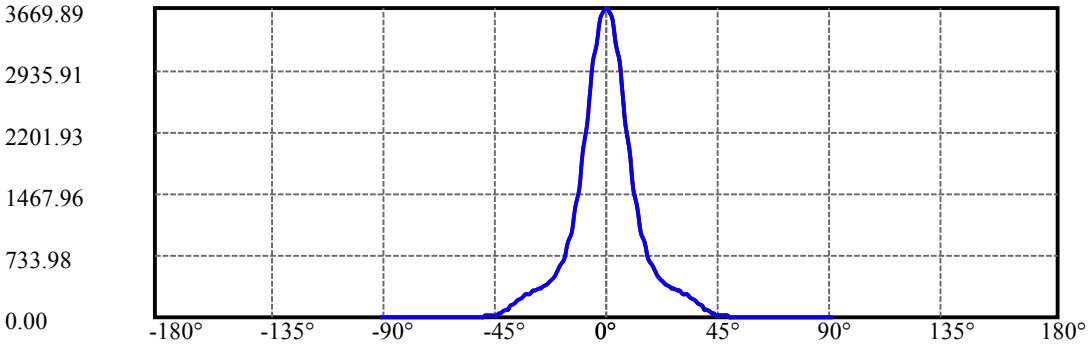
ZONAL LUMEN SUMMARY

| | |
|---|---|
| 0-10 | 246.40 |
| 10-20 | 256.39 |
| 20-30 | 173.01 |
| 30-40 | 121.54 |
| 40-50 | 24.34 |
| 50-60 | 5.94 |
| 60-70 | 5.99 |
| 70-80 | 6.02 |
| 80-90 | 4.74 |
| 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:

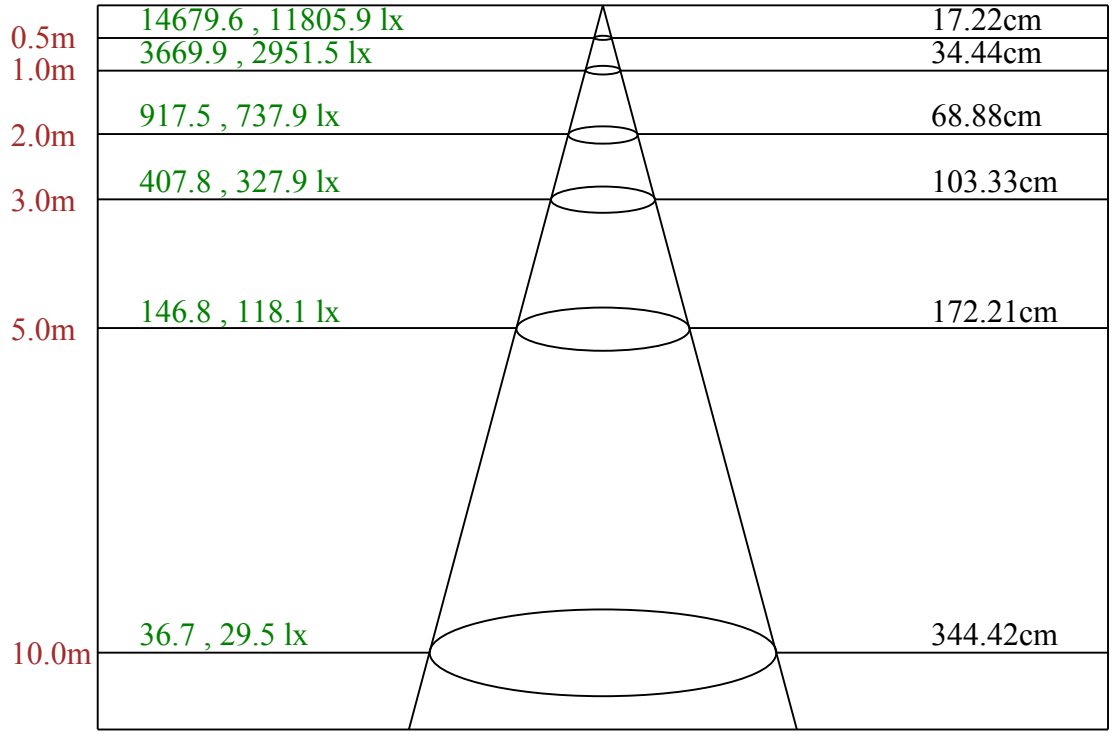
C90/C270:

Field angle(10%Imax):C0/180Left:25.0 Right:25.0
:C90/270Left:25.0 Right:25.0

Beam Angle(50%Imax):C0/180Left:9.7 Right:9.7
:C90/270Left:9.7 Right:9.7

Lux distance Curve






Max , Ave

Beam angle of C0 plane 19.54

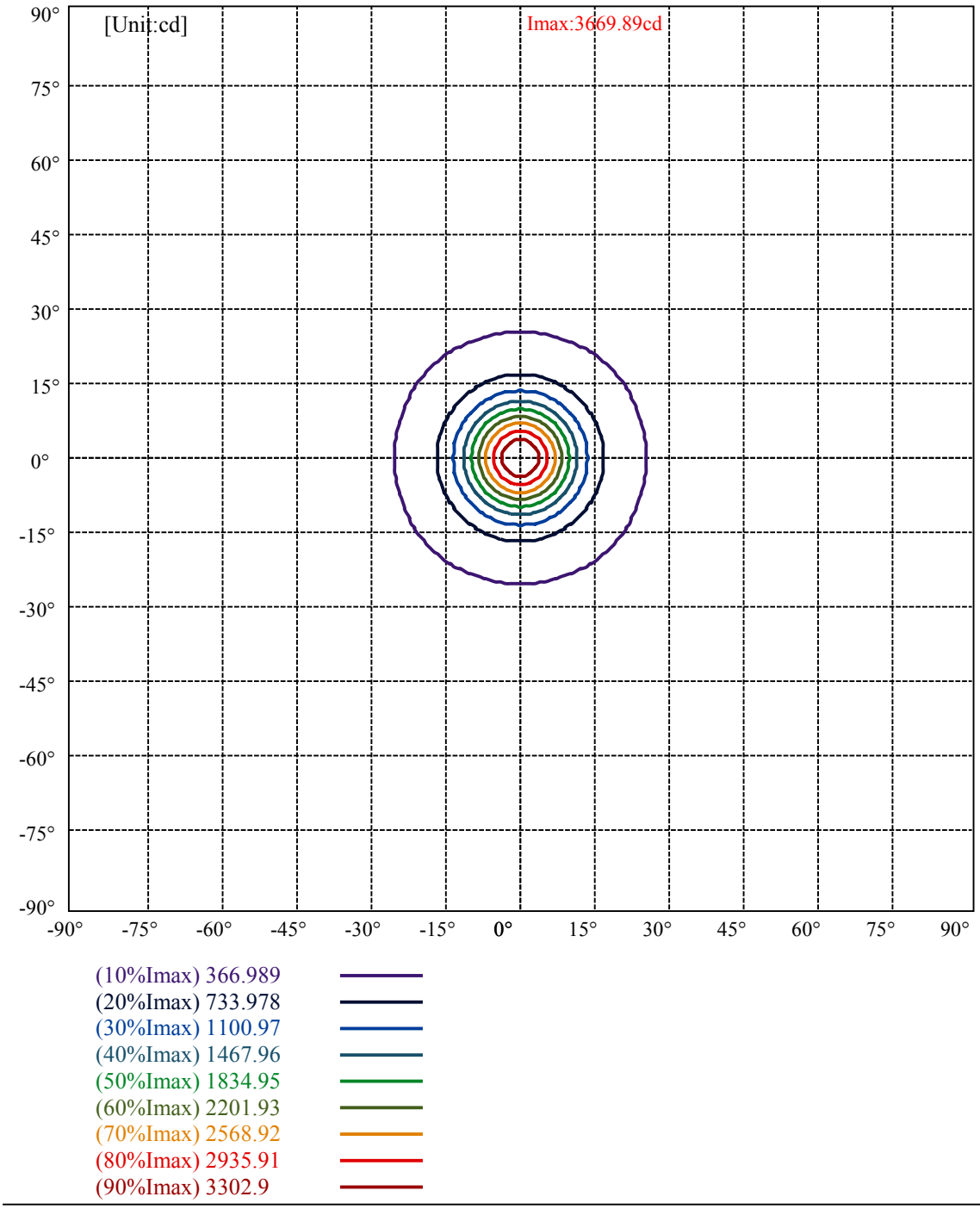
Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/11/14
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO-Intensity(V-H)





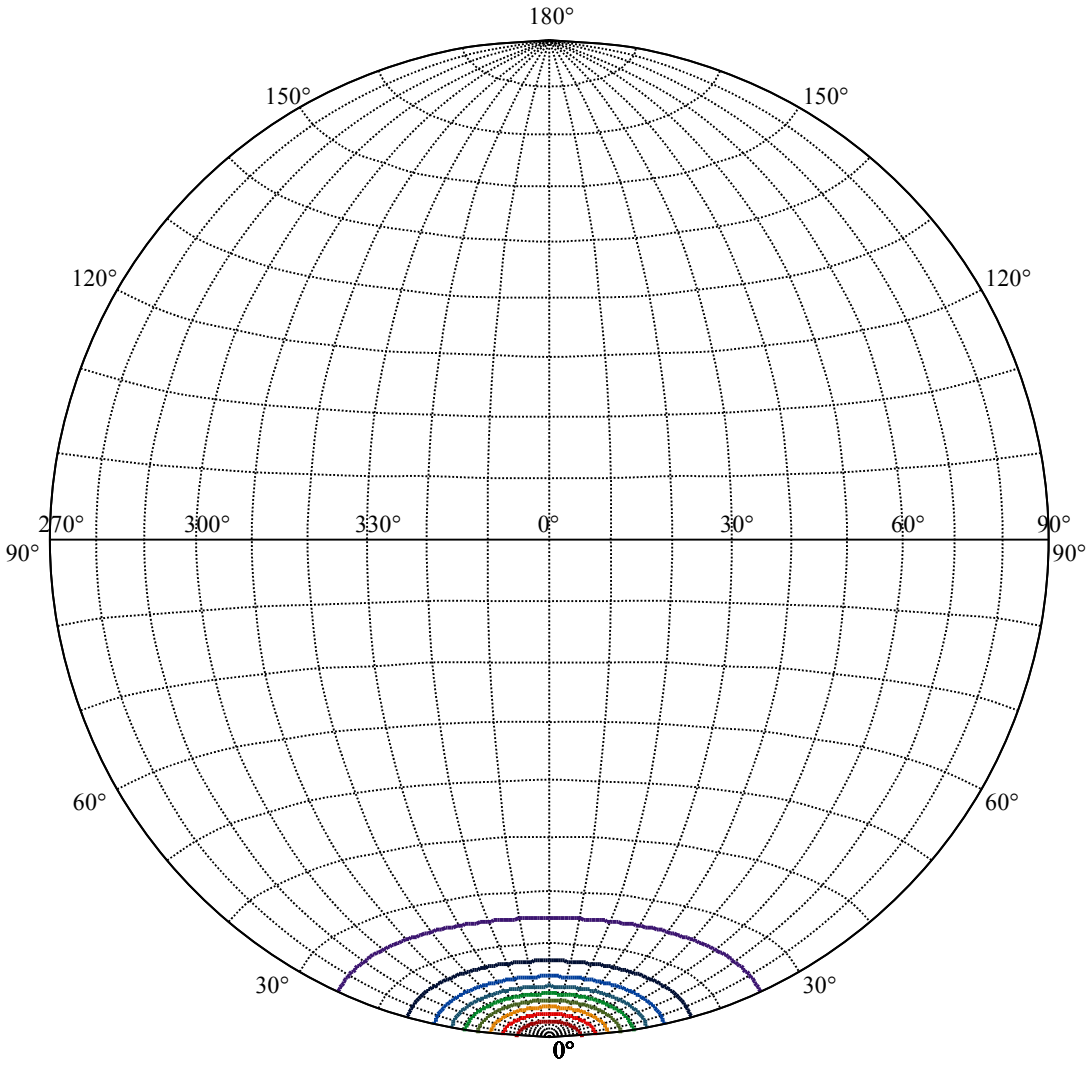

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/11/14
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web






House [Unit:cd] Road

Imax:3669.89

(10%Imax) 366.989
(20%Imax) 733.978
(30%Imax) 1100.97
(40%Imax) 1467.96
(50%Imax) 1834.95
(60%Imax) 2201.93
(70%Imax) 2568.92
(80%Imax) 2935.91
(90%Imax) 3302.9

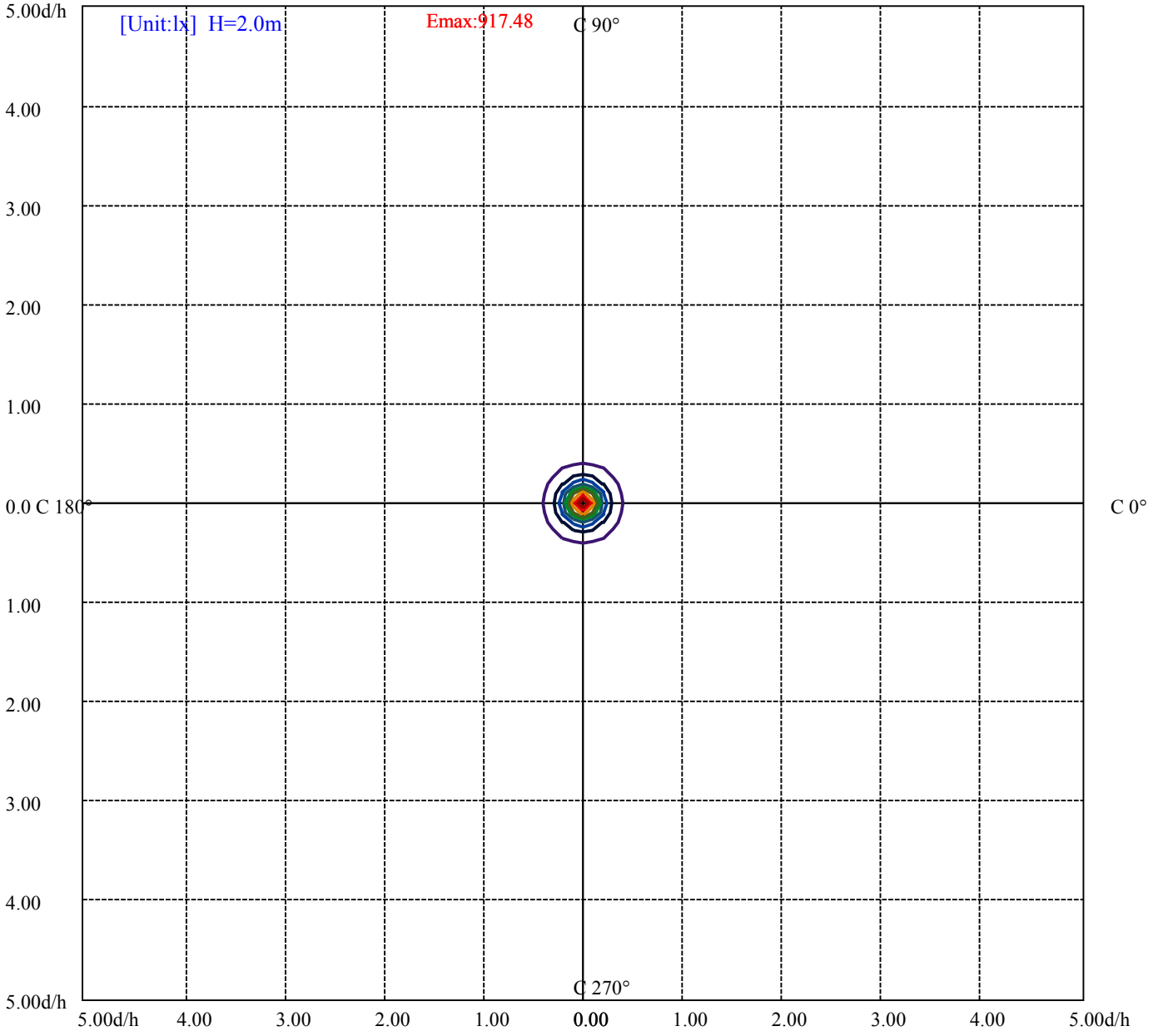
Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/11/14
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

## ISO illuminance diagram



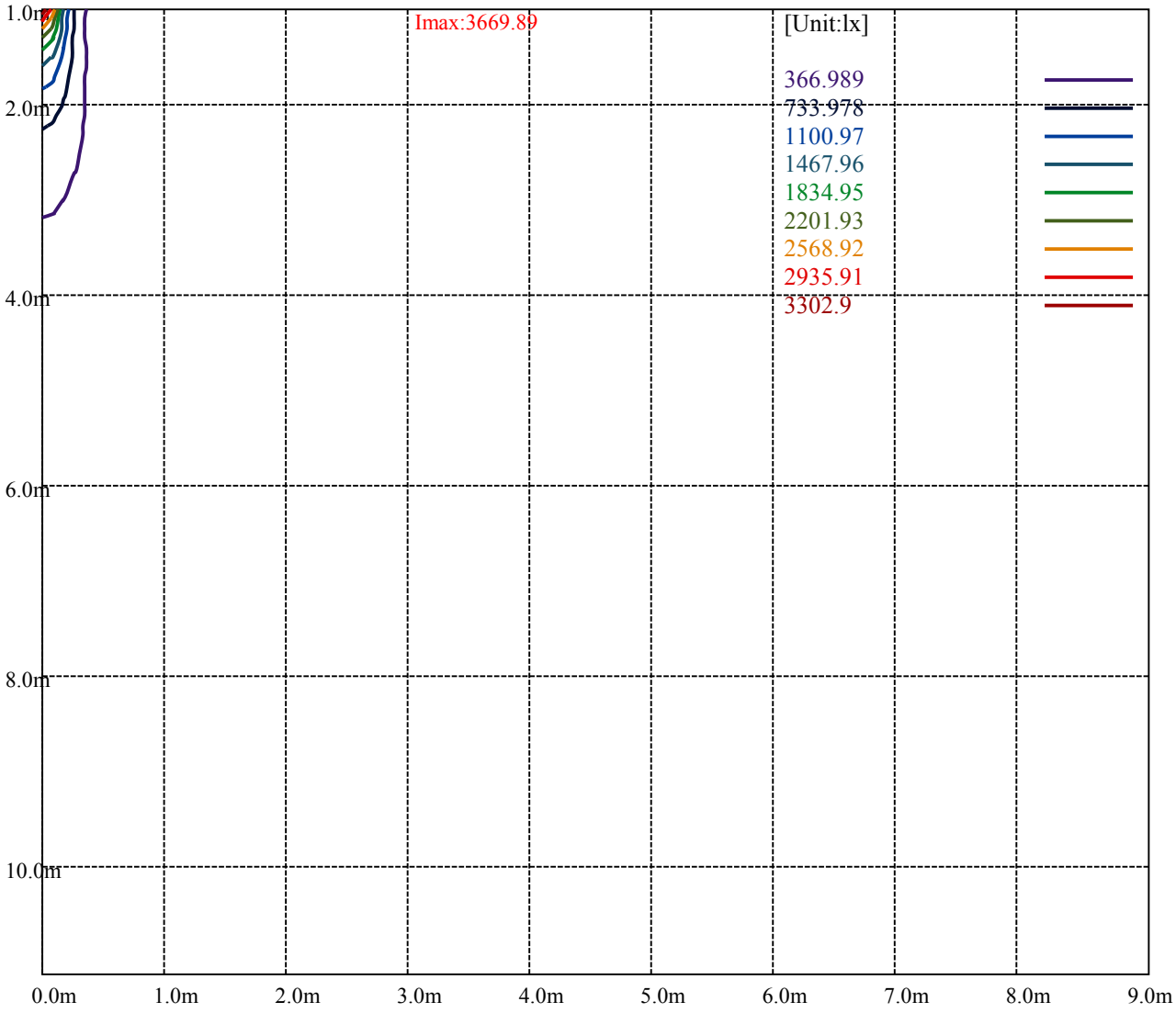



(10%Emax) 91.74725
(20%Emax) 183.4942
(30%Emax) 275.2425
(40%Emax) 366.9875
(50%Emax) 458.735
(60%Emax) 550.4825
(70%Emax) 642.23
(80%Emax) 733.9775
(90%Emax) 825.725

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2019/11/14
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram






Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/11/14
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

## Luminance Limitting Curve(no luminous side)



Luminance Table

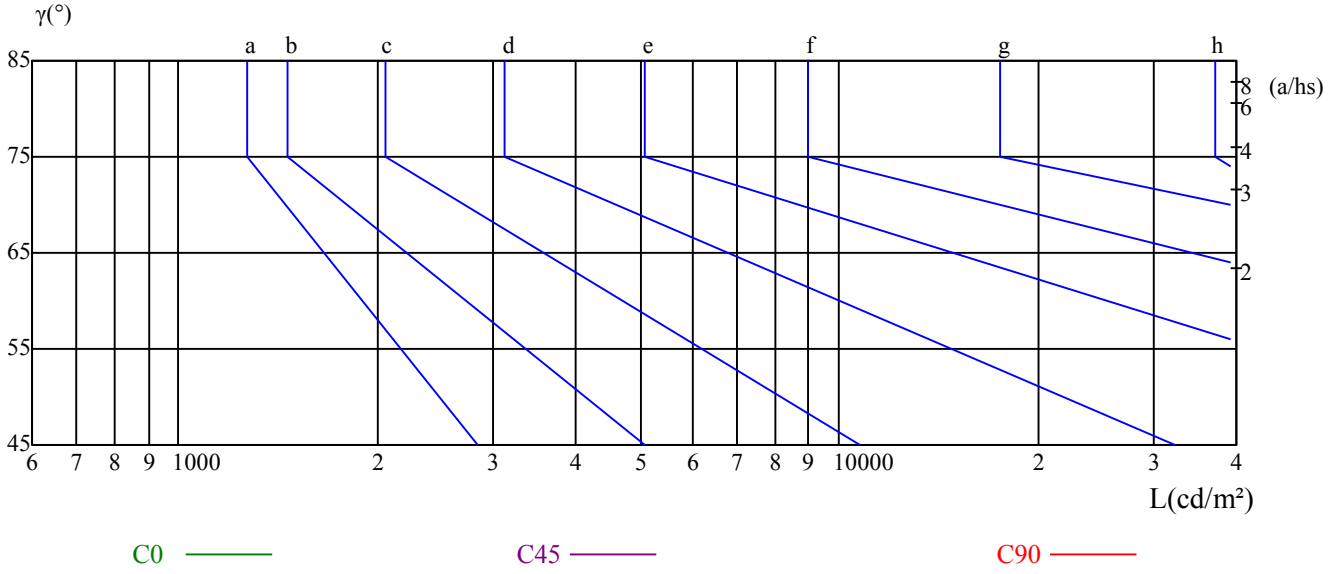
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|---|---|---|---|---|---|---|---|---|---|
| C0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 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

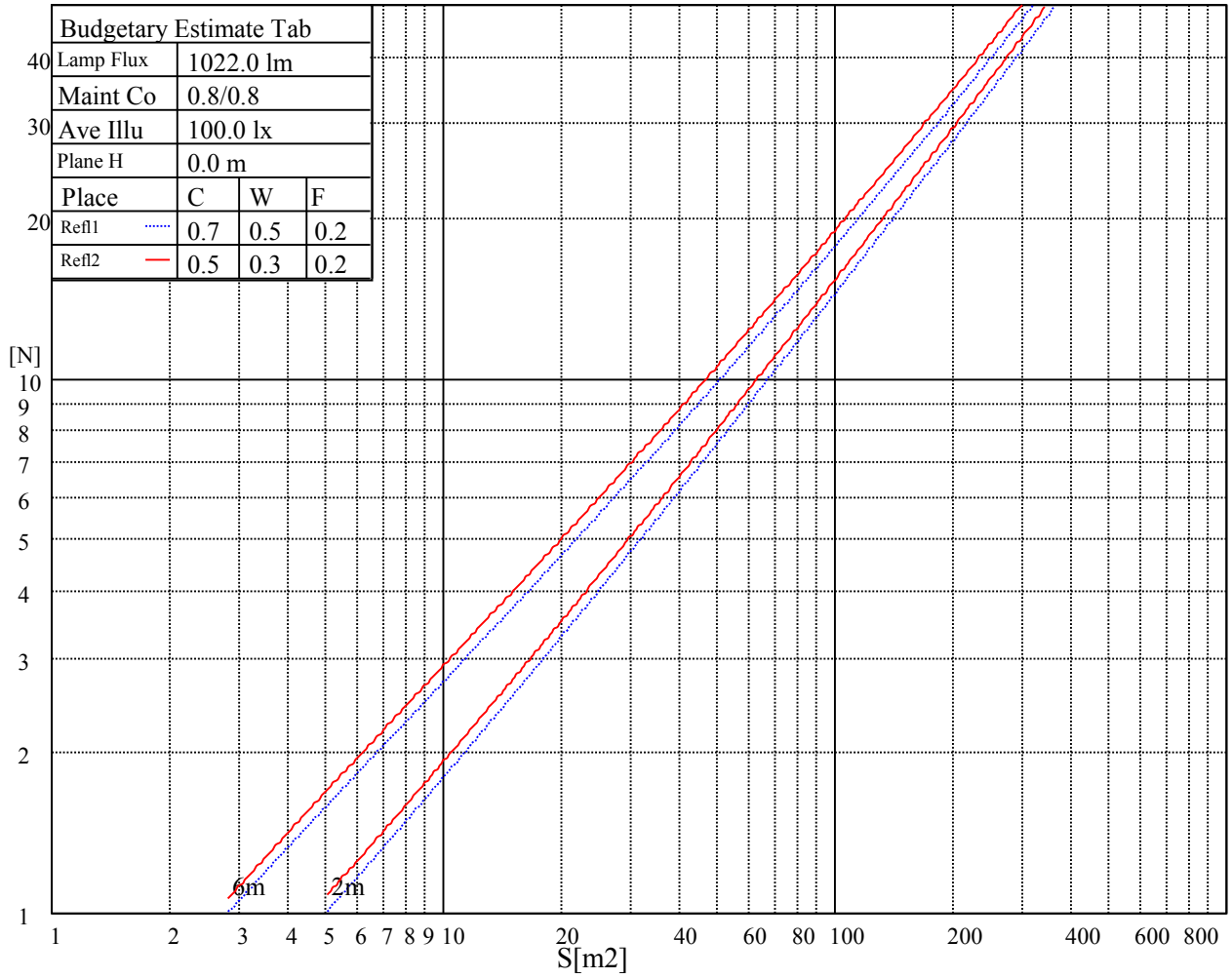
| Glare | Quality | Service Values Illuminance(lx) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.15 | A | 2000 | 1000 | 500 | <=300 | | | | |
| 1.5 | B | | 2000 | 1000 | 500 | <=300 | | | |
| 1.85 | C | | | 2000 | 1000 | 500 | <=300 | | |
| 2.2 | D | | | | 2000 | 1000 | 500 | <=300 |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

Luminance Limitting Curve



## Budgetary Estimate Table






Equipment: GMS1980 Date: 2019/11/14 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

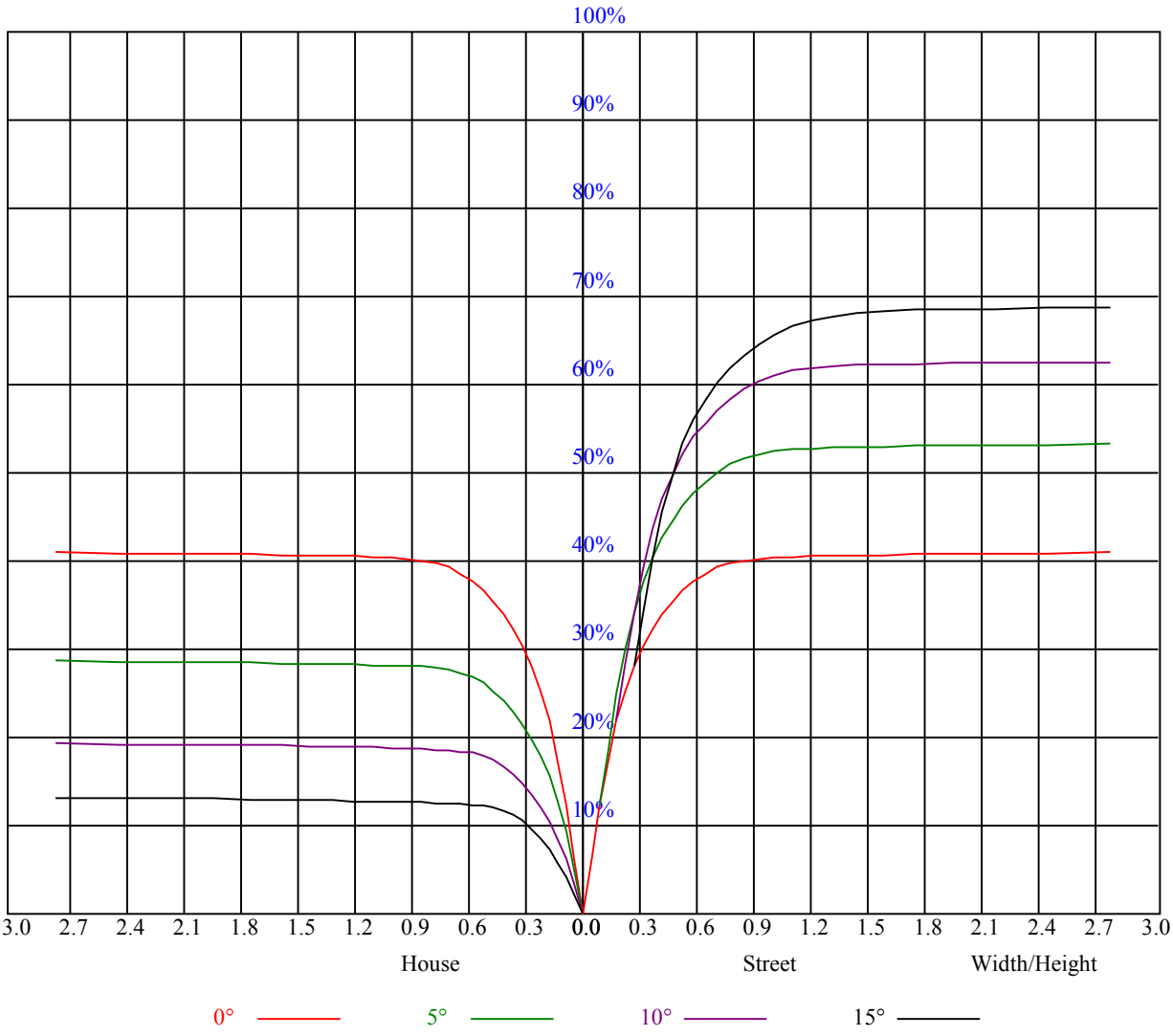
Utilization factor table for indoor luminaire



| 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 | 0.98 | 0.98 | 0.98 | 0.96 | 0.96 | 0.96 | 0.92 | 0.92 | 0.92 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.84 | 0.83 |
| 1 | 0.92 | 0.90 | 0.88 | 0.90 | 0.89 | 0.87 | 0.87 | 0.86 | 0.84 | 0.84 | 0.83 | 0.82 | 0.81 | 0.80 | 0.80 | 0.78 |
| 2 | 0.87 | 0.84 | 0.81 | 0.85 | 0.83 | 0.80 | 0.83 | 0.80 | 0.79 | 0.80 | 0.78 | 0.77 | 0.78 | 0.77 | 0.75 | 0.74 |
| 3 | 0.82 | 0.78 | 0.76 | 0.81 | 0.78 | 0.75 | 0.79 | 0.76 | 0.74 | 0.77 | 0.75 | 0.73 | 0.75 | 0.73 | 0.72 | 0.70 |
| 4 | 0.78 | 0.74 | 0.71 | 0.77 | 0.73 | 0.70 | 0.75 | 0.72 | 0.70 | 0.74 | 0.71 | 0.69 | 0.72 | 0.70 | 0.68 | 0.67 |
| 5 | 0.74 | 0.70 | 0.67 | 0.73 | 0.70 | 0.67 | 0.72 | 0.69 | 0.66 | 0.71 | 0.68 | 0.66 | 0.69 | 0.67 | 0.65 | 0.64 |
| 6 | 0.71 | 0.67 | 0.64 | 0.70 | 0.66 | 0.63 | 0.69 | 0.66 | 0.63 | 0.68 | 0.65 | 0.63 | 0.67 | 0.64 | 0.62 | 0.61 |
| 7 | 0.68 | 0.64 | 0.61 | 0.67 | 0.63 | 0.61 | 0.66 | 0.63 | 0.60 | 0.65 | 0.62 | 0.60 | 0.65 | 0.62 | 0.60 | 0.59 |
| 8 | 0.65 | 0.61 | 0.58 | 0.65 | 0.61 | 0.58 | 0.64 | 0.60 | 0.58 | 0.63 | 0.60 | 0.58 | 0.62 | 0.59 | 0.57 | 0.56 |
| 9 | 0.63 | 0.59 | 0.56 | 0.62 | 0.58 | 0.56 | 0.61 | 0.58 | 0.56 | 0.61 | 0.58 | 0.55 | 0.60 | 0.57 | 0.55 | 0.54 |
| 10 | 0.60 | 0.56 | 0.54 | 0.60 | 0.56 | 0.54 | 0.59 | 0.56 | 0.53 | 0.59 | 0.56 | 0.53 | 0.58 | 0.55 | 0.53 | 0.52 |

## Coefficient Utilization Curve






| | | |
|---|---|---|
| Equipment: GMS1980 | Date: 2019/11/14 | Operator: NT07 |
| Temperature(°C): 25.0 | Humidity(%): 65.0% | 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 | 3663.00 | 3681.56 | 3643.31 | 3559.50 | 3411.56 | 3237.75 | 3008.81 | 2759.63 | 2527.88 |
| 45.0 | 3666.94 | 3673.69 | 3612.94 | 3512.25 | 3372.19 | 3147.19 | 2936.25 | 2708.44 | 2441.81 |
| 90.0 | 3671.44 | 3630.94 | 3524.63 | 3367.13 | 3186.56 | 2951.44 | 2693.81 | 2449.69 | 2173.50 |
| 135.0 | 3678.19 | 3650.63 | 3545.44 | 3411.00 | 3237.75 | 3007.69 | 2751.19 | 2509.88 | 2237.06 |
| 180.0 | 3663.00 | 3594.94 | 3480.75 | 3281.63 | 3084.19 | 2865.38 | 2570.06 | 2325.94 | 2084.06 |
| 225.0 | 3666.94 | 3609.00 | 3486.94 | 3310.31 | 3116.25 | 2866.50 | 2630.25 | 2356.88 | 2083.50 |
| 270.0 | 3671.44 | 3665.25 | 3574.69 | 3450.38 | 3306.94 | 3056.06 | 2800.13 | 2590.31 | 2283.19 |
| 315.0 | 3678.19 | 3656.81 | 3584.81 | 3434.63 | 3269.25 | 3071.25 | 2794.50 | 2556.56 | 2314.13 |
| 360.0 | 3663.00 | 3681.56 | 3643.31 | 3559.50 | 3411.56 | 3237.75 | 3008.81 | 2759.63 | 2527.88 |

| C/γ(°) | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 17.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 2266.31 | 2006.44 | 1784.25 | 1576.69 | 1343.25 | 1178.44 | 1035.56 | 911.81 | 784.13 |
| 45.0 | 2174.63 | 1938.94 | 1690.31 | 1486.69 | 1282.50 | 1109.25 | 979.31 | 857.25 | 756.00 |
| 90.0 | 1932.75 | 1679.06 | 1450.13 | 1216.69 | 1092.83 | 963.28 | 843.08 | 753.81 | 669.54 |
| 135.0 | 1968.75 | 1739.25 | 1502.44 | 1314.00 | 1130.06 | 976.50 | 864.00 | 780.75 | 672.75 |
| 180.0 | 1821.94 | 1580.06 | 1387.13 | 1116.84 | 1028.98 | 906.30 | 791.66 | 705.94 | 625.22 |
| 225.0 | 1849.50 | 1603.69 | 1379.81 | 1105.82 | 1052.94 | 886.56 | 799.09 | 714.15 | 635.96 |
| 270.0 | 2012.06 | 1809.00 | 1538.44 | 1344.38 | 1174.50 | 996.19 | 878.06 | 779.06 | 678.94 |
| 315.0 | 2043.56 | 1783.13 | 1566.56 | 1347.75 | 1118.81 | 1015.82 | 883.69 | 784.41 | 693.06 |
| 360.0 | 2266.31 | 2006.44 | 1784.25 | 1576.69 | 1343.25 | 1178.44 | 1035.56 | 911.81 | 784.13 |

| C/γ(°) | 18.0 | 19.0 | 20.0 | 21.0 | 22.0 | 23.0 | 24.0 | 25.0 | 26.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 701.44 | 632.25 | 562.50 | 516.38 | 473.63 | 442.13 | 412.88 | 388.69 | 370.69 |
| 45.0 | 679.50 | 618.19 | 553.50 | 510.75 | 477.00 | 438.19 | 412.88 | 391.50 | 370.69 |
| 90.0 | 600.02 | 548.89 | 505.80 | 461.19 | 431.78 | 406.63 | 380.25 | 362.42 | 346.95 |
| 135.0 | 606.94 | 561.94 | 499.50 | 463.50 | 438.19 | 404.44 | 380.25 | 362.25 | 344.25 |
| 180.0 | 559.01 | 510.75 | 470.76 | 430.82 | 404.72 | 383.12 | 359.89 | 344.31 | 330.69 |
| 225.0 | 573.92 | 527.85 | 484.43 | 448.03 | 420.19 | 393.47 | 373.05 | 353.81 | 337.78 |
| 270.0 | 614.25 | 560.81 | 505.13 | 469.13 | 438.19 | 408.38 | 384.19 | 365.06 | 347.06 |
| 315.0 | 620.33 | 566.72 | 521.89 | 475.37 | 444.04 | 416.98 | 388.58 | 369.56 | 353.42 |
| 360.0 | 701.44 | 632.25 | 562.50 | 516.38 | 473.63 | 442.13 | 412.88 | 388.69 | 370.69 |

| C/γ(°) | 27.0 | 28.0 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 | 34.0 | 35.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 354.94 | 339.19 | 325.69 | 314.44 | 300.38 | 287.44 | 284.63 | 254.19 | 227.98 |
| 45.0 | 353.25 | 340.31 | 326.81 | 315.00 | 300.94 | 286.31 | 284.06 | 248.74 | 224.72 |
| 90.0 | 332.27 | 319.16 | 308.25 | 296.44 | 282.09 | 265.61 | 246.43 | 225.62 | 199.97 |
| 135.0 | 330.19 | 318.94 | 304.88 | 291.38 | 284.06 | 258.98 | 241.14 | 220.61 | 192.38 |
| 180.0 | 315.84 | 304.48 | 293.23 | 277.48 | 265.28 | 246.21 | 221.06 | 201.99 | 176.40 |
| 225.0 | 325.13 | 313.71 | 298.97 | 287.04 | 273.15 | 251.89 | 231.69 | 209.19 | 184.73 |
| 270.0 | 332.44 | 319.50 | 307.69 | 297.56 | 284.63 | 266.18 | 249.81 | 230.34 | 202.84 |
| 315.0 | 337.44 | 323.49 | 312.47 | 299.25 | 287.61 | 272.53 | 253.86 | 234.06 | 208.52 |
| 360.0 | 354.94 | 339.19 | 325.69 | 314.44 | 300.38 | 287.44 | 284.63 | 254.19 | 227.98 |

| C/γ(°) | 36.0 | 37.0 | 38.0 | 39.0 | 40.0 | 41.0 | 42.0 | 43.0 | 44.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 204.58 | 180.23 | 152.27 | 125.38 | 103.44 | 82.01 | 64.13 | 51.58 | 40.50 |
| 45.0 | 198.39 | 173.31 | 144.68 | 118.80 | 97.26 | 78.24 | 59.23 | 47.76 | 38.31 |
| 90.0 | 172.86 | 149.01 | 126.11 | 99.79 | 80.78 | 64.52 | 50.12 | 39.09 | 31.61 |
| 135.0 | 169.14 | 146.19 | 121.39 | 98.49 | 80.04 | 62.16 | 48.49 | 38.98 | 30.66 |
| 180.0 | 147.49 | 127.69 | 106.31 | 80.27 | 65.87 | 52.54 | 40.95 | 32.23 | 26.27 |
| 225.0 | 154.18 | 130.61 | 108.39 | 83.25 | 66.88 | 53.38 | 41.74 | 32.96 | 26.94 |
| 270.0 | 179.21 | 155.53 | 128.81 | 103.73 | 83.98 | 65.42 | 50.96 | 41.01 | 32.51 |
| 315.0 | 181.46 | 157.28 | 133.43 | 105.30 | 85.89 | 69.02 | 52.43 | 42.19 | 34.20 |
| 360.0 | 204.58 | 180.23 | 152.27 | 125.38 | 103.44 | 82.01 | 64.13 | 51.58 | 40.50 |

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 | 32.91 | 26.16 | 20.76 | 16.76 | 13.44 | 10.18 | 8.38 | 7.31 | 6.69 |
| 45.0 | 29.36 | 23.91 | 19.35 | 15.24 | 11.93 | 9.68 | 7.82 | 6.86 | 6.53 |
| 90.0 | 24.98 | 19.74 | 15.98 | 12.60 | 10.13 | 8.21 | 6.98 | 6.58 | 6.41 |
| 135.0 | 24.92 | 19.91 | 15.86 | 12.88 | 10.41 | 8.27 | 7.31 | 6.81 | 6.64 |
| 180.0 | 20.93 | 16.82 | 13.73 | 10.97 | 9.06 | 7.71 | 6.92 | 6.69 | 6.64 |
| 225.0 | 21.60 | 17.66 | 14.06 | 11.14 | 9.17 | 7.71 | 6.86 | 6.64 | 6.58 |
| 270.0 | 26.66 | 21.32 | 16.99 | 13.84 | 11.25 | 8.83 | 7.54 | 6.86 | 6.58 |
| 315.0 | 27.17 | 21.60 | 17.55 | 13.95 | 11.36 | 9.06 | 7.54 | 6.92 | 6.64 |
| 360.0 | 32.91 | 26.16 | 20.76 | 16.76 | 13.44 | 10.18 | 8.38 | 7.31 | 6.69 |

| C/γ(°) | 54.0 | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 6.53 | 6.41 | 6.36 | 6.30 | 6.24 | 6.19 | 6.13 | 6.13 | 6.13 |
| 45.0 | 6.41 | 6.30 | 6.30 | 6.24 | 6.19 | 6.13 | 6.08 | 6.08 | 6.02 |
| 90.0 | 6.36 | 6.30 | 6.24 | 6.19 | 6.13 | 6.13 | 6.08 | 6.02 | 6.02 |
| 135.0 | 6.58 | 6.47 | 6.41 | 6.41 | 6.36 | 6.30 | 6.24 | 6.24 | 6.19 |
| 180.0 | 6.58 | 6.53 | 6.47 | 6.41 | 6.41 | 6.36 | 6.30 | 6.30 | 6.24 |
| 225.0 | 6.47 | 6.41 | 6.41 | 6.36 | 6.30 | 6.30 | 6.24 | 6.19 | 6.19 |
| 270.0 | 6.47 | 6.41 | 6.36 | 6.30 | 6.30 | 6.24 | 6.19 | 6.19 | 6.13 |
| 315.0 | 6.53 | 6.47 | 6.36 | 6.36 | 6.30 | 6.24 | 6.19 | 6.13 | 6.13 |
| 360.0 | 6.53 | 6.41 | 6.36 | 6.30 | 6.24 | 6.19 | 6.13 | 6.13 | 6.13 |

| C/γ(°) | 63.0 | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 6.08 | 6.02 | 6.02 | 5.96 | 5.96 | 5.91 | 5.91 | 5.91 | 5.85 |
| 45.0 | 5.96 | 5.96 | 5.96 | 5.91 | 5.85 | 5.85 | 5.79 | 5.79 | 5.79 |
| 90.0 | 5.96 | 5.91 | 5.91 | 5.91 | 5.79 | 5.79 | 5.74 | 5.68 | 5.68 |
| 135.0 | 6.19 | 6.13 | 6.08 | 6.08 | 6.02 | 6.02 | 5.91 | 5.85 | 5.91 |
| 180.0 | 6.24 | 6.19 | 6.19 | 6.13 | 6.13 | 6.08 | 6.08 | 6.02 | 6.02 |
| 225.0 | 6.13 | 6.13 | 6.13 | 6.08 | 6.02 | 6.02 | 6.02 | 5.96 | 5.91 |
| 270.0 | 6.08 | 6.08 | 6.02 | 6.02 | 5.96 | 5.91 | 5.91 | 5.85 | 5.85 |
| 315.0 | 6.08 | 6.08 | 6.02 | 5.96 | 5.96 | 5.96 | 5.91 | 5.91 | 5.85 |
| 360.0 | 6.08 | 6.02 | 6.02 | 5.96 | 5.96 | 5.91 | 5.91 | 5.91 | 5.85 |

| C/γ(°) | 72.0 | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 5.79 | 5.79 | 5.79 | 5.74 | 5.68 | 5.63 | 5.63 | 5.57 | 5.51 |
| 45.0 | 5.68 | 5.68 | 5.63 | 5.63 | 5.51 | 5.51 | 5.46 | 5.40 | 5.34 |
| 90.0 | 5.63 | 5.63 | 5.51 | 5.51 | 5.46 | 5.40 | 5.34 | 5.29 | 5.23 |
| 135.0 | 5.85 | 5.79 | 5.79 | 5.74 | 5.68 | 5.63 | 5.57 | 5.51 | 5.46 |
| 180.0 | 5.96 | 5.96 | 5.91 | 5.91 | 5.85 | 5.79 | 5.74 | 5.74 | 5.68 |
| 225.0 | 5.91 | 5.85 | 5.85 | 5.79 | 5.79 | 5.74 | 5.68 | 5.63 | 5.57 |
| 270.0 | 5.79 | 5.74 | 5.74 | 5.63 | 5.63 | 5.57 | 5.51 | 5.46 | 5.46 |
| 315.0 | 5.79 | 5.79 | 5.74 | 5.74 | 5.68 | 5.63 | 5.57 | 5.57 | 5.51 |
| 360.0 | 5.79 | 5.79 | 5.79 | 5.74 | 5.68 | 5.63 | 5.63 | 5.57 | 5.51 |

| C/γ(°) | 81.0 | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 5.46 | 5.40 | 5.34 | 5.29 | 5.18 | 4.95 | 4.56 | 3.94 | 3.71 |
| 45.0 | 5.29 | 5.23 | 5.18 | 5.12 | 5.01 | 4.78 | 4.50 | 3.88 | 3.71 |
| 90.0 | 5.18 | 5.12 | 5.01 | 4.95 | 4.89 | 4.67 | 4.16 | 3.71 | 3.66 |
| 135.0 | 5.40 | 5.34 | 5.29 | 5.18 | 5.12 | 4.78 | 4.33 | 3.77 | 3.66 |
| 180.0 | 5.63 | 5.57 | 5.40 | 5.23 | 5.01 | 4.56 | 3.88 | 3.66 | 3.66 |
| 225.0 | 5.51 | 5.51 | 5.40 | 5.29 | 5.06 | 4.67 | 3.88 | 3.71 | 3.66 |
| 270.0 | 5.34 | 5.23 | 5.23 | 5.12 | 5.01 | 4.73 | 3.99 | 3.71 | 3.66 |
| 315.0 | 5.40 | 5.40 | 5.34 | 5.23 | 5.06 | 4.67 | 3.99 | 3.77 | 3.66 |
| 360.0 | 5.46 | 5.40 | 5.34 | 5.29 | 5.18 | 4.95 | 4.56 | 3.94 | 3.71 |

Intensity data(cd)



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