NATA LIGHTING CO.,LTD.
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Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

## Nata

LumCAT: 1-0808-S
Luminaire: 92.70.208.00
Report No: NATA0100
Test No: GC2019100908
LampCAT: LUMILEDS LUXEON 5050
Lamp flux(lm): 455.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 24.9300
Current(A): 0.1980
Power (W): 4.9400
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

## Photometric Results

Lumens(lm): 414.36
Efficiency(%): 91.07%
Lumens(lm)/Power(W): 83.88
Central intensity(cd): 3349.828
Maximum intensity(cd): 3349.828
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=14.8
[C90/270]Total=14.8
Field angle(10%Imax): [C0/180]Total=26.1
[C90/270]Total=26.1
Maximum s/h(1/2): C0_180=0.26 C90_270=0.26
Maximum s/h(1/4): C0_180=0.25 C90_270=0.25
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.07%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.634%

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2019/10/9
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 0.0 | 3349.828 | 0.000 | 0 | .000% | .000% |
| 1.0 | 3317.203 | 3.190 | 3.19 | .701% | .770% |
| 2.0 | 3211.734 | 9.371 | 12.561 | 2.060% | 3.031% |
| 3.0 | 3040.313 | 14.953 | 27.514 | 3.286% | 6.640% |
| 4.0 | 2824.172 | 19.630 | 47.144 | 4.314% | 11.378% |
| 5.0 | 2527.453 | 23.022 | 70.167 | 5.060% | 16.934% |
| 6.0 | 2196.211 | 24.824 | 94.991 | 5.456% | 22.925% |
| 7.0 | 1822.915 | 24.947 | 119.937 | 5.483% | 28.945% |
| 8.0 | 1449.492 | 23.420 | 143.357 | 5.147% | 34.597% |
| 9.0 | 1102.795 | 20.685 | 164.042 | 4.546% | 39.589% |
| 10.0 | 833.899 | 17.526 | 181.569 | 3.852% | 43.819% |
| 11.0 | 590.752 | 14.235 | 195.804 | 3.129% | 47.255% |
| 12.0 | 439.088 | 11.258 | 207.061 | 2.474% | 49.971% |
| 13.0 | 337.697 | 9.218 | 216.28 | 2.026% | 52.196% |
| 14.0 | 271.877 | 7.802 | 224.082 | 1.715% | 54.079% |
| 15.0 | 235.547 | 6.966 | 231.049 | 1.531% | 55.760% |
| 16.0 | 207.520 | 6.492 | 237.541 | 1.427% | 57.327% |
| 17.0 | 188.719 | 6.171 | 243.711 | 1.356% | 58.816% |
| 18.0 | 175.669 | 6.008 | 249.719 | 1.320% | 60.266% |
| 19.0 | 166.781 | 5.958 | 255.677 | 1.309% | 61.704% |
| 20.0 | 159.455 | 5.971 | 261.648 | 1.312% | 63.145% |
| 21.0 | 154.350 | 6.026 | 267.674 | 1.324% | 64.599% |
| 22.0 | 150.553 | 6.127 | 273.801 | 1.347% | 66.078% |
| 23.0 | 147.607 | 6.256 | 280.057 | 1.375% | 67.588% |
| 24.0 | 144.984 | 6.397 | 286.454 | 1.406% | 69.132% |
| 25.0 | 142.945 | 6.547 | 293.001 | 1.439% | 70.712% |
| 26.0 | 141.230 | 6.708 | 299.709 | 1.474% | 72.331% |
| 27.0 | 139.409 | 6.866 | 306.575 | 1.509% | 73.988% |
| 28.0 | 137.770 | 7.018 | 313.593 | 1.542% | 75.681% |
| 29.0 | 136.132 | 7.166 | 320.759 | 1.575% | 77.411% |
| 30.0 | 134.430 | 7.305 | 328.064 | 1.606% | 79.174% |
| 31.0 | 132.757 | 7.435 | 335.499 | 1.634% | 80.968% |
| 32.0 | 130.950 | 7.555 | 343.054 | 1.660% | 82.791% |
| 33.0 | 129.255 | 7.666 | 350.72 | 1.685% | 84.642% |
| 34.0 | 127.441 | 7.768 | 358.488 | 1.707% | 86.516% |
| 35.0 | 123.420 | 7.791 | 366.279 | 1.712% | 88.397% |
| 36.0 | 116.037 | 7.624 | 373.903 | 1.676% | 90.237% |
| 37.0 | 105.645 | 7.230 | 381.133 | 1.589% | 91.981% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 38.0 | 91.104 | 6.567 | 387.701 | 1.443% | 93.566% |
| 39.0 | 72.830 | 5.596 | 393.296 | 1.230% | 94.917% |
| 40.0 | 56.981 | 4.527 | 397.823 | .995% | 96.009% |
| 41.0 | 40.648 | 3.477 | 401.3 | .764% | 96.848% |
| 42.0 | 23.984 | 2.348 | 403.648 | .516% | 97.415% |
| 43.0 | 12.938 | 1.368 | 405.016 | .301% | 97.745% |
| 44.0 | 5.878 | 0.710 | 405.726 | .156% | 97.916% |
| 45.0 | 2.820 | 0.334 | 406.06 | .073% | 97.997% |
| 46.0 | 2.341 | 0.202 | 406.262 | .044% | 98.046% |
| 47.0 | 2.250 | 0.183 | 406.445 | .040% | 98.090% |
| 48.0 | 2.180 | 0.179 | 406.624 | .039% | 98.133% |
| 49.0 | 2.123 | 0.177 | 406.8 | .039% | 98.176% |
| 50.0 | 2.081 | 0.175 | 406.976 | .039% | 98.218% |
| 51.0 | 2.025 | 0.174 | 407.149 | .038% | 98.260% |
| 52.0 | 2.011 | 0.173 | 407.323 | .038% | 98.302% |
| 53.0 | 1.969 | 0.173 | 407.496 | .038% | 98.344% |
| 54.0 | 1.927 | 0.172 | 407.667 | .038% | 98.385% |
| 55.0 | 1.913 | 0.171 | 407.839 | .038% | 98.426% |
| 56.0 | 1.884 | 0.172 | 408.01 | .038% | 98.468% |
| 57.0 | 1.877 | 0.172 | 408.182 | .038% | 98.509% |
| 58.0 | 1.856 | 0.173 | 408.355 | .038% | 98.551% |
| 59.0 | 1.842 | 0.173 | 408.528 | .038% | 98.593% |
| 60.0 | 1.821 | 0.173 | 408.701 | .038% | 98.634% |
| 61.0 | 1.807 | 0.173 | 408.874 | .038% | 98.676% |
| 62.0 | 1.800 | 0.174 | 409.048 | .038% | 98.718% |
| 63.0 | 1.793 | 0.175 | 409.223 | .038% | 98.760% |
| 64.0 | 1.793 | 0.176 | 409.399 | .039% | 98.803% |
| 65.0 | 1.779 | 0.177 | 409.575 | .039% | 98.846% |
| 66.0 | 1.772 | 0.177 | 409.753 | .039% | 98.888% |
| 67.0 | 1.772 | 0.178 | 409.931 | .039% | 98.931% |
| 68.0 | 1.765 | 0.179 | 410.11 | .039% | 98.975% |
| 69.0 | 1.772 | 0.180 | 410.29 | .040% | 99.018% |
| 70.0 | 1.863 | 0.187 | 410.477 | .041% | 99.063% |
| 71.0 | 1.976 | 0.198 | 410.676 | .044% | 99.111% |
| 72.0 | 1.948 | 0.204 | 410.88 | .045% | 99.160% |
| 73.0 | 1.927 | 0.203 | 411.082 | .045% | 99.209% |
| 74.0 | 1.948 | 0.204 | 411.286 | .045% | 99.258% |
| 75.0 | 1.976 | 0.207 | 411.493 | .046% | 99.308% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 76.0 | 1.948 | 0.208 | 411.701 | .046% | 99.359% |
| 77.0 | 1.835 | 0.202 | 411.903 | .044% | 99.407% |
| 78.0 | 1.730 | 0.191 | 412.094 | .042% | 99.453% |
| 79.0 | 1.744 | 0.187 | 412.281 | .041% | 99.498% |
| 80.0 | 1.744 | 0.188 | 412.469 | .041% | 99.544% |
| 81.0 | 1.737 | 0.188 | 412.657 | .041% | 99.589% |
| 82.0 | 1.737 | 0.188 | 412.845 | .041% | 99.635% |
| 83.0 | 1.723 | 0.188 | 413.033 | .041% | 99.680% |
| 84.0 | 1.737 | 0.188 | 413.222 | .041% | 99.725% |
| 85.0 | 1.744 | 0.190 | 413.412 | .042% | 99.771% |
| 86.0 | 1.730 | 0.190 | 413.601 | .042% | 99.817% |
| 87.0 | 1.737 | 0.190 | 413.791 | .042% | 99.863% |
| 88.0 | 1.730 | 0.190 | 413.981 | .042% | 99.909% |
| 89.0 | 1.723 | 0.189 | 414.17 | .042% | 99.954% |
| 90.0 | 1.723 | 0.189 | 414.359 | .042% | 100.000% |

## Zonal flux distribution table



ZONAL LUMEN SUMMARY

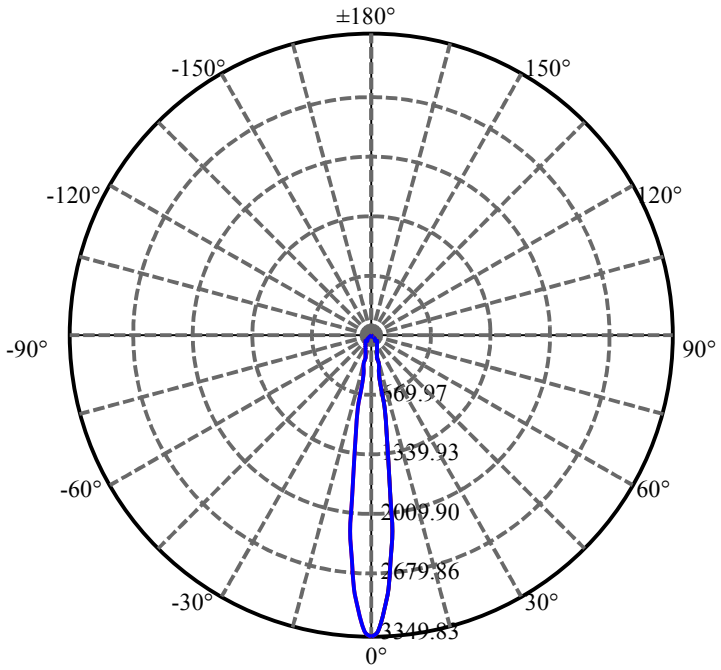
| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-30 | 328.06 | 72.10% | 79.17% |
| 0-40 | 397.82 | 87.43% | 96.01% |
| 0-60 | 408.70 | 89.82% | 98.63% |
| 0-90 | 414.17 | 91.03% | 99.95% |
| 0-120 | 414.17 | 91.03% | 99.95% |
| 0-180 | 414.36 | 91.07% | 100.00% |
| 60-90 | 5.64 | 1.24% | 1.36% |
| 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% |
| 0-30.46 | 331.49 | 72.85% | 80.00% |

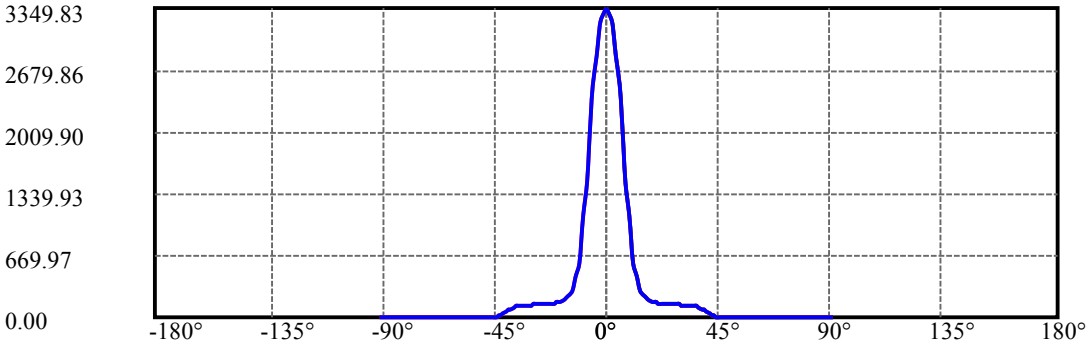
ZONAL LUMEN SUMMARY

| | |
|---|---|
| 0-10 | 181.57 |
| 10-20 | 80.08 |
| 20-30 | 66.42 |
| 30-40 | 69.76 |
| 40-50 | 9.15 |
| 50-60 | 1.73 |
| 60-70 | 1.78 |
| 70-80 | 1.99 |
| 80-90 | 1.70 |
| 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:

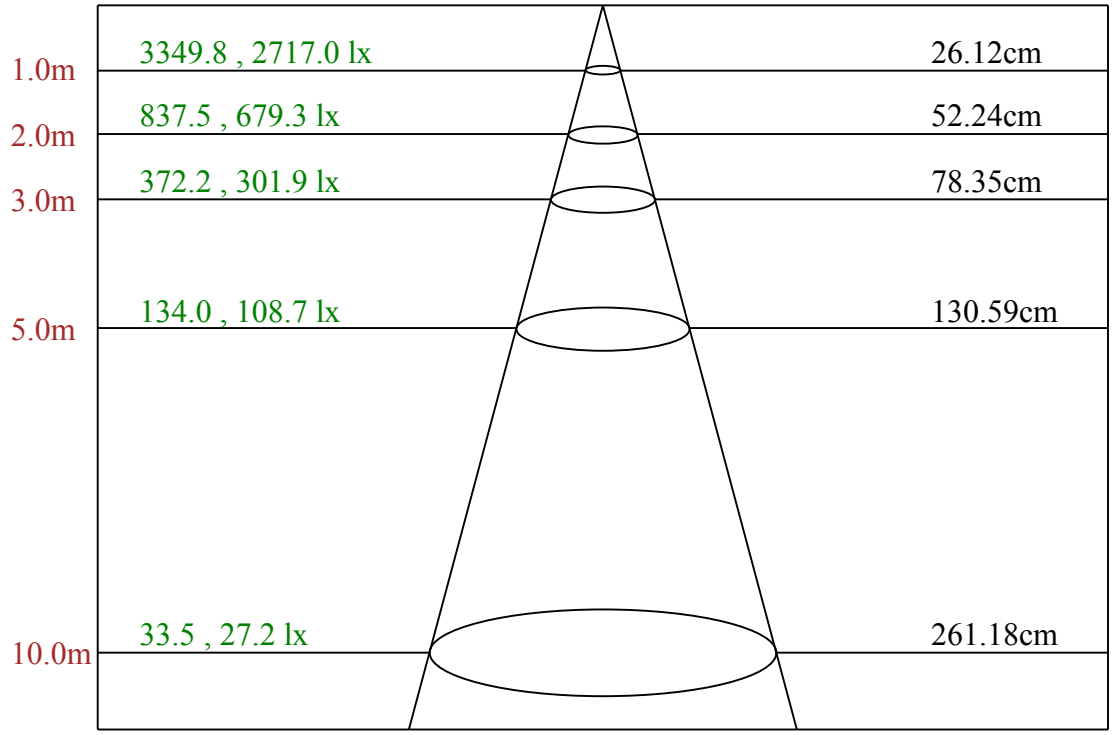
C90/C270:

Field angle(10%Imax):C0/180Left:13.0 Right:13.0
:C90/270Left:13.0 Right:13.0

Beam Angle(50%Imax):C0/180Left:7.4 Right:7.4
:C90/270Left:7.4 Right:7.4

Lux distance Curve





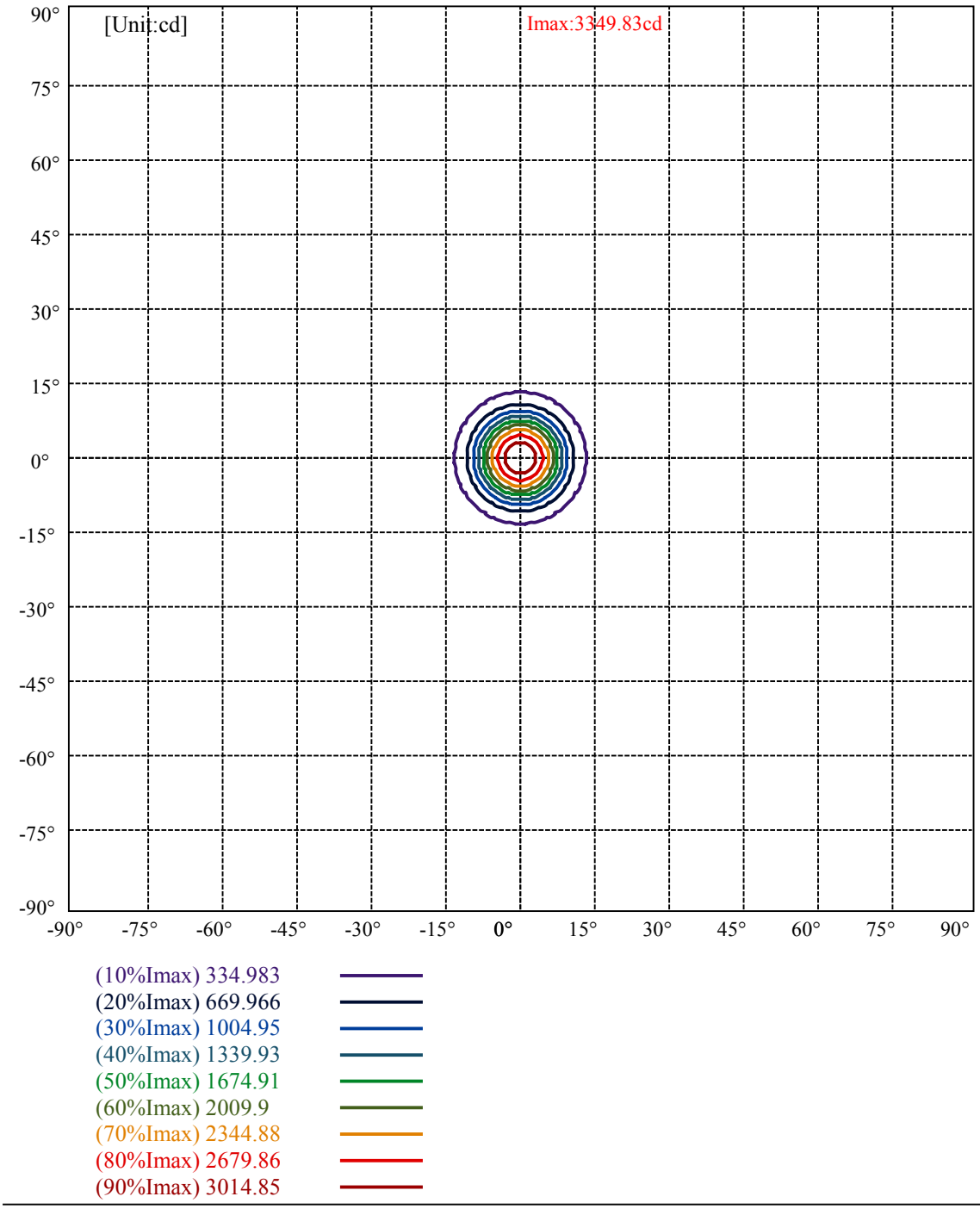

Max , Ave

Beam angle of C0 plane 14.88

| | | |
|---|---|---|
| Equipment: GMS1980 | Date: 2019/10/9 | Operator: NT07 |
| Temperature(°C): 25.0 | Humidity(%): 65.0% | Distance(m): 7.50 |

ISO-Intensity(V-H)





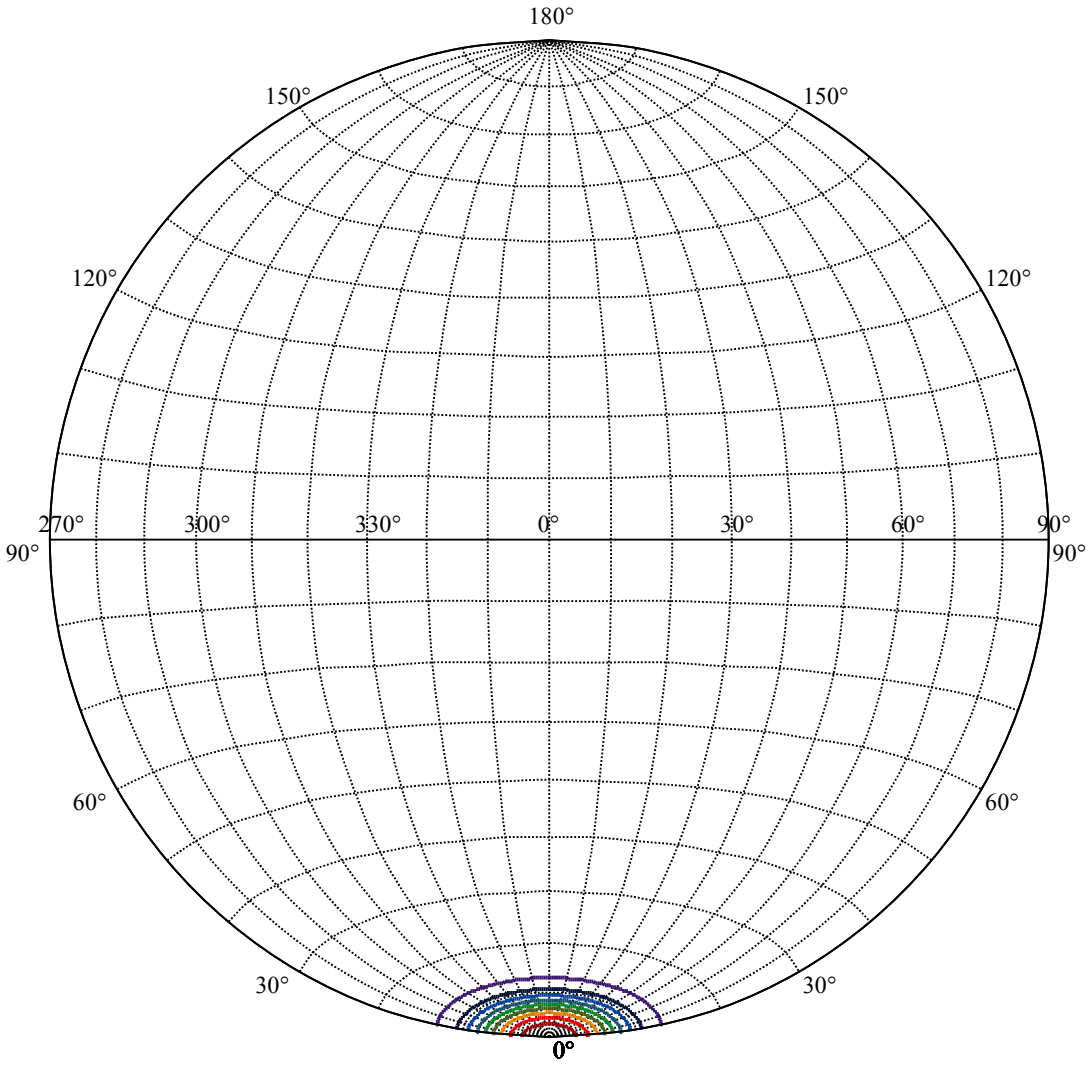

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/10/9
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web






House [Unit:cd] Road

Imax:3349.83

(10%Imax) 334.983
(20%Imax) 669.966
(30%Imax) 1004.95
(40%Imax) 1339.93
(50%Imax) 1674.91
(60%Imax) 2009.9
(70%Imax) 2344.88
(80%Imax) 2679.86
(90%Imax) 3014.85

Equipment: GMS1980 Date: 2019/10/9 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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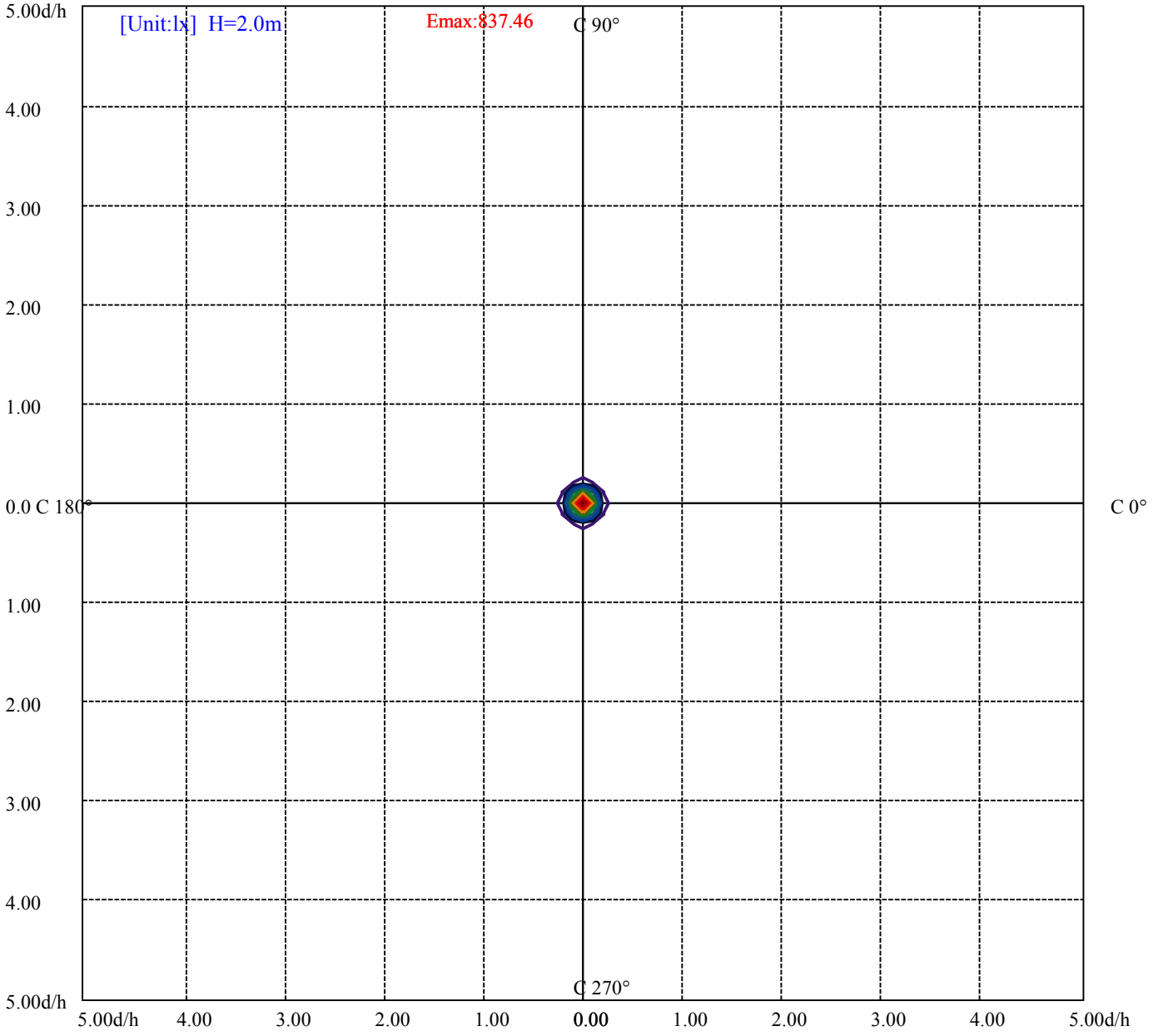
ISO illuminance diagram






(10%Emax) 83.7455
(20%Emax) 167.4913
(30%Emax) 251.2375
(40%Emax) 334.9825
(50%Emax) 418.7275
(60%Emax) 502.4725
(70%Emax) 586.22
(80%Emax) 669.965
(90%Emax) 753.71

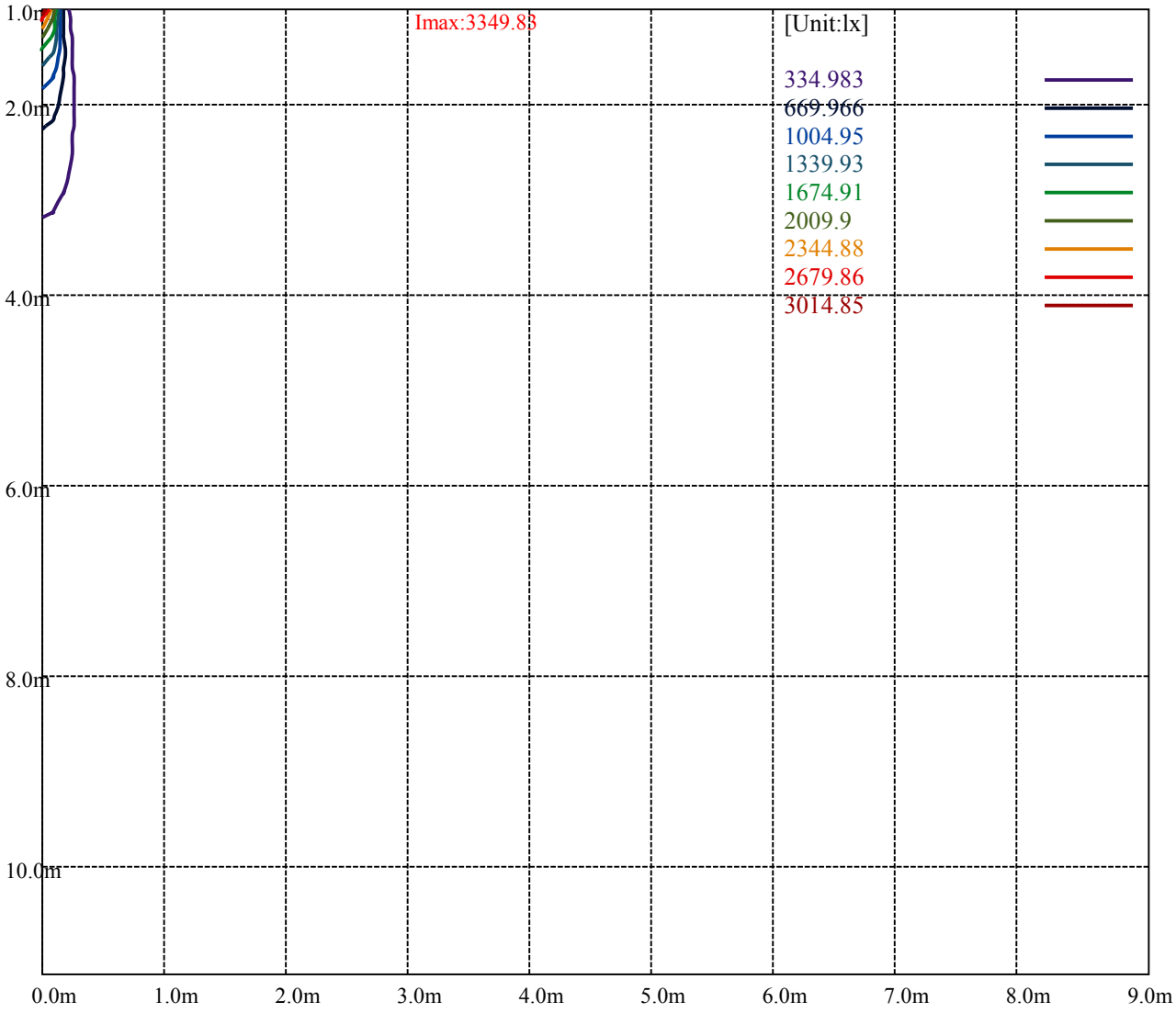
Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/10/9
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

## Space ISO Lux diagram






Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/10/9
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

## Luminance Limitting Curve(no luminous side)



Luminance Table

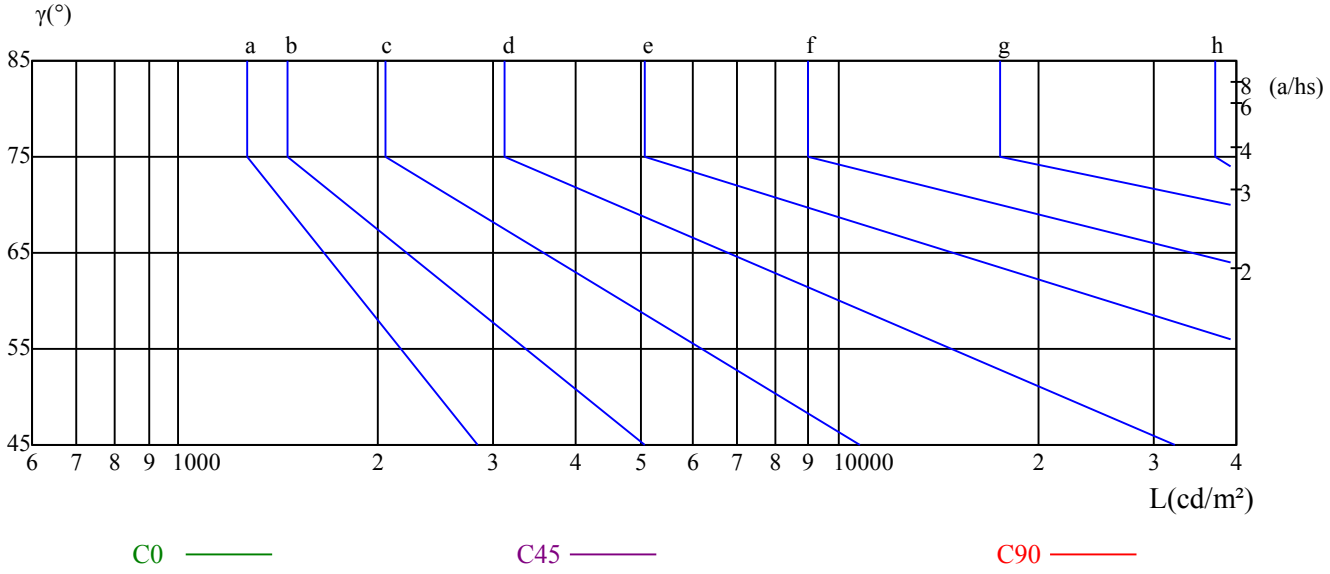
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|---|---|---|---|---|---|---|---|---|---|
| C0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 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

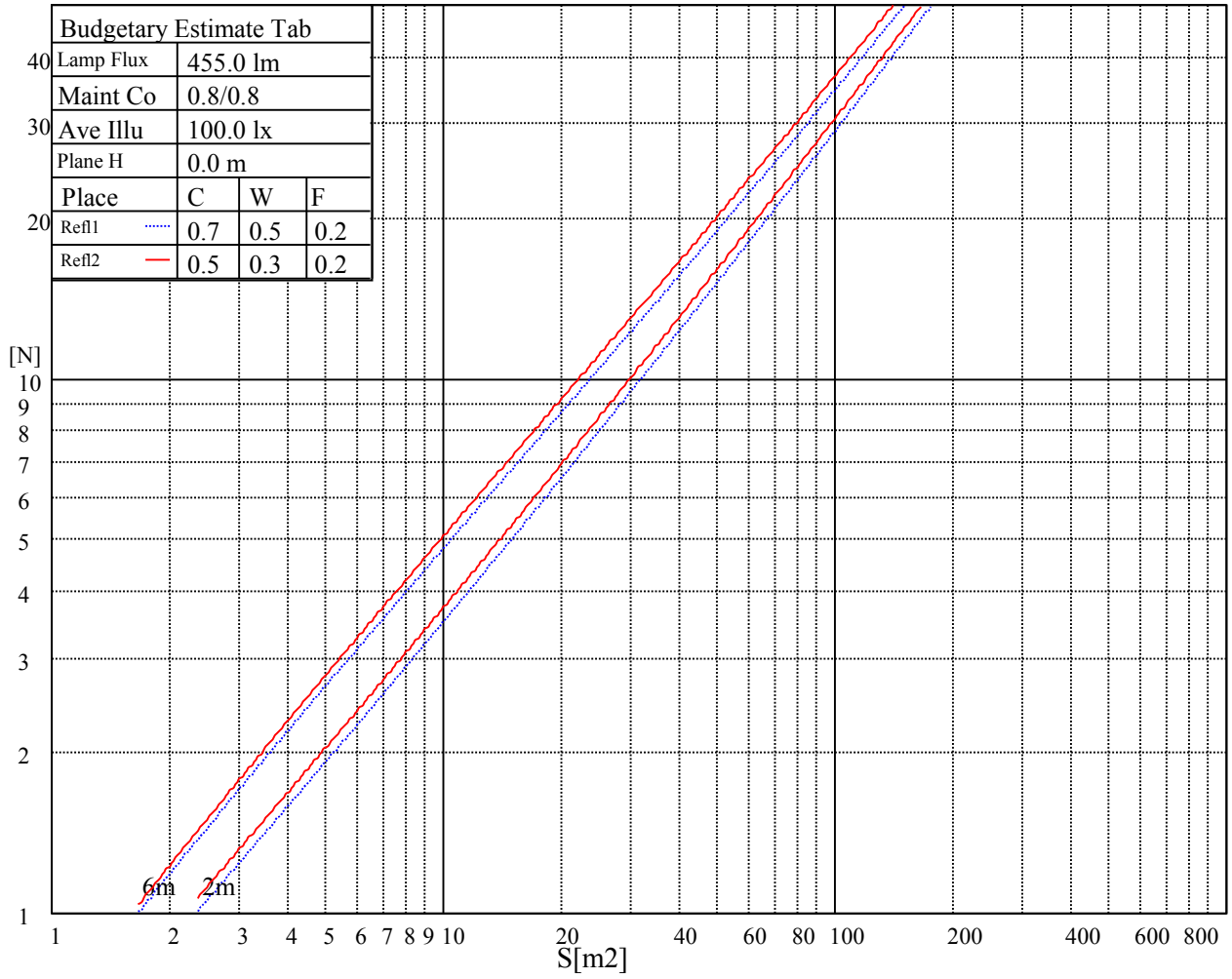
| Glare | Quality | Service Values Illuminance(lx) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.15 | A | 2000 | 1000 | 500 | <=300 | | | | |
| 1.5 | B | | 2000 | 1000 | 500 | <=300 | | | |
| 1.85 | C | | | 2000 | 1000 | 500 | <=300 | | |
| 2.2 | D | | | | 2000 | 1000 | 500 | <=300 |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

Luminance Limitting Curve



## Budgetary Estimate Table






Equipment: GMS1980 Date: 2019/10/9 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

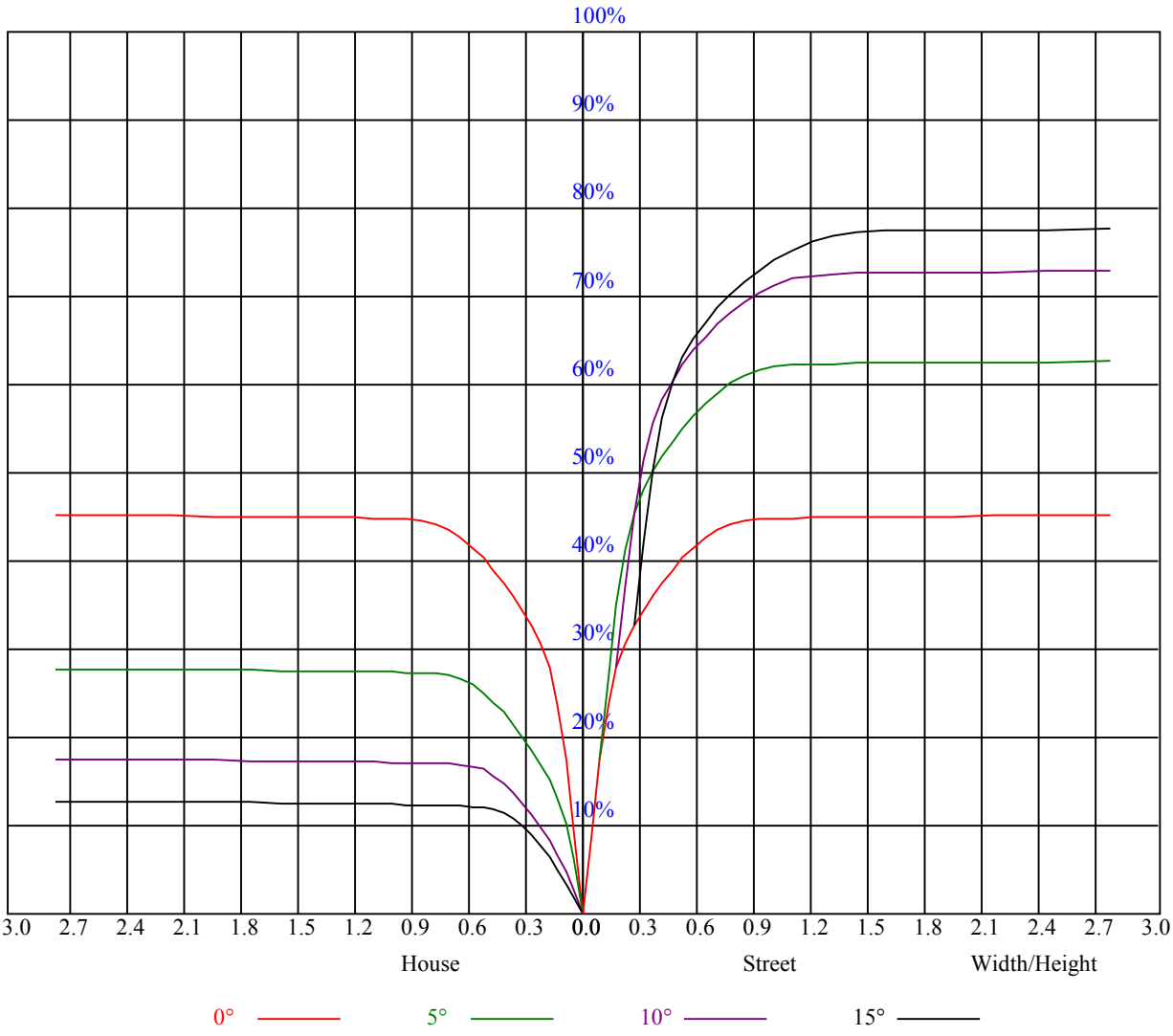
# Utilization factor table for indoor luminaire



| 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 | 1.08 | 1.08 | 1.08 | 1.06 | 1.06 | 1.06 | 1.01 | 1.01 | 1.01 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 | 0.91 |
| 1 | 1.02 | 1.00 | 0.98 | 1.00 | 0.98 | 0.97 | 0.96 | 0.95 | 0.94 | 0.93 | 0.92 | 0.91 | 0.90 | 0.89 | 0.88 | 0.87 |
| 2 | 0.97 | 0.94 | 0.91 | 0.95 | 0.92 | 0.90 | 0.92 | 0.90 | 0.88 | 0.90 | 0.88 | 0.86 | 0.87 | 0.86 | 0.84 | 0.83 |
| 3 | 0.92 | 0.88 | 0.85 | 0.91 | 0.87 | 0.85 | 0.88 | 0.86 | 0.83 | 0.86 | 0.84 | 0.82 | 0.84 | 0.83 | 0.81 | 0.80 |
| 4 | 0.88 | 0.84 | 0.81 | 0.87 | 0.83 | 0.80 | 0.85 | 0.82 | 0.79 | 0.83 | 0.81 | 0.79 | 0.82 | 0.80 | 0.78 | 0.77 |
| 5 | 0.84 | 0.80 | 0.77 | 0.83 | 0.80 | 0.77 | 0.82 | 0.79 | 0.76 | 0.80 | 0.78 | 0.75 | 0.79 | 0.77 | 0.75 | 0.74 |
| 6 | 0.81 | 0.77 | 0.74 | 0.80 | 0.76 | 0.73 | 0.79 | 0.76 | 0.73 | 0.78 | 0.75 | 0.73 | 0.77 | 0.74 | 0.72 | 0.71 |
| 7 | 0.78 | 0.74 | 0.71 | 0.77 | 0.74 | 0.71 | 0.76 | 0.73 | 0.70 | 0.75 | 0.72 | 0.70 | 0.75 | 0.72 | 0.70 | 0.69 |
| 8 | 0.75 | 0.71 | 0.68 | 0.75 | 0.71 | 0.68 | 0.74 | 0.71 | 0.68 | 0.73 | 0.70 | 0.68 | 0.72 | 0.70 | 0.68 | 0.67 |
| 9 | 0.73 | 0.69 | 0.66 | 0.73 | 0.69 | 0.66 | 0.72 | 0.68 | 0.66 | 0.71 | 0.68 | 0.66 | 0.71 | 0.68 | 0.66 | 0.65 |
| 10 | 0.71 | 0.67 | 0.64 | 0.71 | 0.67 | 0.64 | 0.70 | 0.66 | 0.64 | 0.69 | 0.66 | 0.64 | 0.69 | 0.66 | 0.64 | 0.63 |

## Coefficient Utilization Curve






Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/10/9
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 | 3362.06 | 3290.06 | 3143.25 | 2952.00 | 2678.06 | 2373.75 | 1987.88 | 1592.44 | 1256.06 |
| 45.0 | 3345.75 | 3326.63 | 3219.75 | 3074.63 | 2883.94 | 2622.38 | 2302.88 | 1968.19 | 1573.88 |
| 90.0 | 3366.00 | 3372.19 | 3323.81 | 3215.25 | 3052.69 | 2802.94 | 2541.94 | 2206.69 | 1819.13 |
| 135.0 | 3325.50 | 3382.31 | 3376.69 | 3308.06 | 3178.69 | 2944.69 | 2713.50 | 2472.19 | 2070.00 |
| 180.0 | 3362.06 | 3353.06 | 3284.44 | 3116.25 | 2917.69 | 2679.19 | 2294.44 | 1936.69 | 1578.38 |
| 225.0 | 3345.75 | 3300.75 | 3175.31 | 2977.88 | 2748.38 | 2423.81 | 2049.19 | 1689.19 | 1083.38 |
| 270.0 | 3366.00 | 3307.50 | 3147.19 | 2948.63 | 2696.06 | 2318.63 | 1978.31 | 1622.81 | 1231.88 |
| 315.0 | 3325.50 | 3205.13 | 3023.44 | 2729.81 | 2437.88 | 2054.25 | 1701.56 | 1095.13 | 983.25 |
| 360.0 | 3362.06 | 3290.06 | 3143.25 | 2952.00 | 2678.06 | 2373.75 | 1987.88 | 1592.44 | 1256.06 |

| C/γ(°) | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 17.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 963.56 | 669.38 | 502.88 | 392.06 | 307.69 | 284.06 | 230.34 | 204.98 | 186.30 |
| 45.0 | 1199.25 | 903.94 | 638.44 | 474.75 | 357.19 | 287.44 | 260.49 | 218.42 | 196.65 |
| 90.0 | 1326.38 | 1081.29 | 732.04 | 545.85 | 400.78 | 304.37 | 261.79 | 231.53 | 206.61 |
| 135.0 | 1661.06 | 1343.25 | 941.06 | 676.69 | 486.00 | 344.25 | 288.56 | 238.28 | 210.26 |
| 180.0 | 1109.48 | 847.52 | 610.82 | 430.37 | 333.62 | 269.44 | 230.40 | 207.00 | 189.90 |
| 225.0 | 970.93 | 682.20 | 472.16 | 352.69 | 276.36 | 232.65 | 207.56 | 189.45 | 173.87 |
| 270.0 | 894.38 | 649.13 | 450.56 | 341.44 | 285.75 | 231.64 | 206.89 | 187.31 | 173.81 |
| 315.0 | 697.33 | 494.49 | 378.06 | 298.86 | 254.19 | 221.18 | 198.34 | 183.21 | 172.35 |
| 360.0 | 963.56 | 669.38 | 502.88 | 392.06 | 307.69 | 284.06 | 230.34 | 204.98 | 186.30 |

| C/γ(°) | 18.0 | 19.0 | 20.0 | 21.0 | 22.0 | 23.0 | 24.0 | 25.0 | 26.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 174.66 | 165.15 | 157.95 | 153.39 | 149.23 | 146.36 | 143.72 | 141.47 | 139.67 |
| 45.0 | 180.84 | 171.17 | 163.35 | 157.39 | 153.28 | 150.36 | 147.04 | 144.84 | 143.16 |
| 90.0 | 188.72 | 176.74 | 167.12 | 160.43 | 155.98 | 152.38 | 149.18 | 146.48 | 144.39 |
| 135.0 | 192.60 | 179.61 | 168.36 | 161.94 | 156.66 | 152.49 | 149.01 | 146.98 | 144.79 |
| 180.0 | 174.83 | 166.33 | 160.31 | 154.52 | 150.75 | 148.28 | 146.03 | 144.06 | 142.43 |
| 225.0 | 165.49 | 159.19 | 153.17 | 149.51 | 146.64 | 143.89 | 142.03 | 140.51 | 138.77 |
| 270.0 | 165.60 | 159.41 | 153.34 | 149.79 | 146.81 | 144.11 | 141.92 | 140.23 | 138.54 |
| 315.0 | 162.62 | 156.66 | 152.04 | 147.83 | 145.07 | 142.99 | 140.96 | 138.99 | 138.09 |
| 360.0 | 174.66 | 165.15 | 157.95 | 153.39 | 149.23 | 146.36 | 143.72 | 141.47 | 139.67 |

| C/γ(°) | 27.0 | 28.0 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 | 34.0 | 35.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 138.15 | 136.13 | 134.72 | 133.26 | 131.57 | 129.83 | 128.36 | 126.56 | 123.58 |
| 45.0 | 141.02 | 139.22 | 137.81 | 135.79 | 133.99 | 132.41 | 130.50 | 128.70 | 126.90 |
| 90.0 | 142.31 | 140.46 | 138.26 | 136.52 | 134.78 | 132.81 | 130.84 | 129.09 | 127.35 |
| 135.0 | 142.88 | 141.41 | 139.44 | 137.42 | 135.56 | 133.93 | 132.02 | 130.50 | 128.25 |
| 180.0 | 140.51 | 138.83 | 137.19 | 135.11 | 133.59 | 131.57 | 129.88 | 128.48 | 126.68 |
| 225.0 | 137.53 | 136.01 | 134.27 | 132.98 | 131.51 | 129.49 | 128.19 | 126.62 | 120.26 |
| 270.0 | 136.91 | 135.62 | 134.10 | 132.69 | 131.06 | 129.38 | 127.86 | 126.06 | 118.69 |
| 315.0 | 135.96 | 134.49 | 133.26 | 131.68 | 129.99 | 128.19 | 126.39 | 123.53 | 115.65 |
| 360.0 | 138.15 | 136.13 | 134.72 | 133.26 | 131.57 | 129.83 | 128.36 | 126.56 | 123.58 |

| C/γ(°) | 36.0 | 37.0 | 38.0 | 39.0 | 40.0 | 41.0 | 42.0 | 43.0 | 44.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 115.88 | 103.16 | 88.09 | 68.74 | 52.26 | 36.06 | 20.48 | 9.39 | 3.21 |
| 45.0 | 123.36 | 114.69 | 102.32 | 83.87 | 68.23 | 50.79 | 31.50 | 17.66 | 7.20 |
| 90.0 | 124.59 | 118.18 | 106.48 | 89.78 | 73.97 | 53.94 | 34.93 | 19.74 | 8.66 |
| 135.0 | 126.68 | 123.13 | 111.66 | 97.99 | 82.63 | 64.01 | 45.45 | 29.93 | 14.74 |
| 180.0 | 120.32 | 110.87 | 98.55 | 78.75 | 62.89 | 47.81 | 27.00 | 15.08 | 6.41 |
| 225.0 | 111.32 | 97.82 | 81.00 | 62.66 | 47.14 | 30.04 | 16.31 | 5.79 | 2.36 |
| 270.0 | 107.04 | 93.32 | 72.68 | 52.82 | 36.56 | 24.41 | 9.34 | 3.43 | 2.25 |
| 315.0 | 99.11 | 83.98 | 68.06 | 48.04 | 32.18 | 18.11 | 6.86 | 2.48 | 2.19 |
| 360.0 | 115.88 | 103.16 | 88.09 | 68.74 | 52.26 | 36.06 | 20.48 | 9.39 | 3.21 |

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 | 2.42 | 2.31 | 2.25 | 2.19 | 2.14 | 2.08 | 2.03 | 1.97 | 1.97 |
| 45.0 | 2.76 | 2.53 | 2.42 | 2.31 | 2.25 | 2.19 | 2.14 | 2.14 | 2.08 |
| 90.0 | 3.21 | 2.64 | 2.53 | 2.48 | 2.36 | 2.31 | 2.19 | 2.19 | 2.14 |
| 135.0 | 5.29 | 2.64 | 2.48 | 2.36 | 2.31 | 2.25 | 2.19 | 2.14 | 2.08 |
| 180.0 | 2.42 | 2.25 | 2.19 | 2.14 | 2.08 | 2.03 | 1.97 | 1.97 | 1.91 |
| 225.0 | 2.19 | 2.14 | 2.08 | 2.03 | 1.97 | 1.97 | 1.91 | 1.91 | 1.86 |
| 270.0 | 2.14 | 2.14 | 2.03 | 1.97 | 1.97 | 1.91 | 1.91 | 1.91 | 1.86 |
| 315.0 | 2.14 | 2.08 | 2.03 | 1.97 | 1.91 | 1.91 | 1.86 | 1.86 | 1.86 |
| 360.0 | 2.42 | 2.31 | 2.25 | 2.19 | 2.14 | 2.08 | 2.03 | 1.97 | 1.97 |

| C/γ(°) | 54.0 | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 1.91 | 1.91 | 1.86 | 1.86 | 1.86 | 1.80 | 1.80 | 1.80 | 1.80 |
| 45.0 | 2.03 | 1.97 | 1.97 | 1.97 | 1.91 | 1.91 | 1.91 | 1.86 | 1.86 |
| 90.0 | 2.08 | 2.08 | 2.03 | 1.97 | 1.97 | 1.97 | 1.91 | 1.91 | 1.91 |
| 135.0 | 2.03 | 2.03 | 1.97 | 1.97 | 1.97 | 1.91 | 1.86 | 1.91 | 1.86 |
| 180.0 | 1.91 | 1.86 | 1.86 | 1.86 | 1.80 | 1.80 | 1.80 | 1.74 | 1.74 |
| 225.0 | 1.86 | 1.86 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.74 | 1.74 |
| 270.0 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.74 | 1.74 | 1.74 | 1.74 |
| 315.0 | 1.80 | 1.80 | 1.80 | 1.80 | 1.74 | 1.80 | 1.74 | 1.74 | 1.74 |
| 360.0 | 1.91 | 1.91 | 1.86 | 1.86 | 1.86 | 1.80 | 1.80 | 1.80 | 1.80 |

| C/γ(°) | 63.0 | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 1.80 | 1.80 | 1.74 | 1.80 | 1.74 | 1.74 | 1.80 | 1.74 | 2.19 |
| 45.0 | 1.86 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 |
| 90.0 | 1.86 | 1.86 | 1.86 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 |
| 135.0 | 1.86 | 1.86 | 1.86 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 |
| 180.0 | 1.74 | 1.80 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 |
| 225.0 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.80 | 2.14 | 2.14 |
| 270.0 | 1.74 | 1.74 | 1.74 | 1.74 | 1.80 | 1.74 | 1.74 | 1.74 | 2.19 |
| 315.0 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.69 | 2.14 | 2.14 |
| 360.0 | 1.80 | 1.80 | 1.74 | 1.80 | 1.74 | 1.74 | 1.80 | 1.74 | 2.19 |

| C/γ(°) | 72.0 | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 2.14 | 2.08 | 2.08 | 2.08 | 2.19 | 2.14 | 1.74 | 1.74 | 1.74 |
| 45.0 | 1.80 | 1.80 | 1.74 | 1.80 | 1.80 | 1.74 | 1.74 | 1.80 | 1.74 |
| 90.0 | 1.80 | 1.80 | 1.80 | 1.74 | 1.80 | 1.74 | 1.74 | 1.74 | 1.74 |
| 135.0 | 1.80 | 1.80 | 1.74 | 1.80 | 1.80 | 1.80 | 1.74 | 1.74 | 1.74 |
| 180.0 | 1.74 | 1.74 | 1.74 | 1.74 | 1.69 | 1.69 | 1.69 | 1.69 | 1.74 |
| 225.0 | 2.08 | 2.08 | 2.19 | 2.25 | 2.03 | 1.74 | 1.74 | 1.74 | 1.74 |
| 270.0 | 2.14 | 2.03 | 2.08 | 2.08 | 2.25 | 2.08 | 1.69 | 1.74 | 1.74 |
| 315.0 | 2.08 | 2.08 | 2.19 | 2.31 | 2.03 | 1.74 | 1.74 | 1.74 | 1.74 |
| 360.0 | 2.14 | 2.08 | 2.08 | 2.08 | 2.19 | 2.14 | 1.74 | 1.74 | 1.74 |

| C/γ(°) | 81.0 | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 1.69 | 1.74 | 1.74 | 1.74 | 1.74 | 1.69 | 1.74 | 1.69 | 1.69 |
| 45.0 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 |
| 90.0 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.69 | 1.74 | 1.69 |
| 135.0 | 1.80 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 |
| 180.0 | 1.69 | 1.69 | 1.69 | 1.69 | 1.74 | 1.69 | 1.74 | 1.74 | 1.74 |
| 225.0 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.69 |
| 270.0 | 1.74 | 1.74 | 1.69 | 1.74 | 1.74 | 1.74 | 1.74 | 1.69 | 1.74 |
| 315.0 | 1.74 | 1.74 | 1.69 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 | 1.74 |
| 360.0 | 1.69 | 1.74 | 1.74 | 1.74 | 1.74 | 1.69 | 1.74 | 1.69 | 1.69 |

Intensity data(cd)



| C/γ(°) | 90.0 |
|---|---|
| 0.0 | 1.69 |
| 45.0 | 1.69 |
| 90.0 | 1.74 |
| 135.0 | 1.69 |
| 180.0 | 1.74 |
| 225.0 | 1.74 |
| 270.0 | 1.74 |
| 315.0 | 1.74 |
| 360.0 | 1.69 |