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: CR01D06312BG
Luminaire: 92.70.185.00

| | |
|---|---|
| Report No: NATA0100 | Voltage(V): 35.4000 |
| Test No: GC2018123011 | Current(A): 0.3000 |
| LampCAT: CREE CXA1512 | Power (W): 10.6200 |
| Lamp flux(lm): 1505.0 | PF: 0.0000 |
| Number of Lamps: 1 | Ballast type: DC |
| Length(mm): 63 | Width(mm): 63 |
| Phm Type: C | Height(mm): 0 |

## Photometric Results

Lumens(lm): 1402.90
Efficiency(%): 93.22%
Lumens(lm)/Power(W): 132.38
Central intensity(cd): 12754.690
Maximum intensity(cd): 12754.690
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=14.1
[C90/270]Total=14.1
Field angle(10%Imax): [C0/180]Total=30.1
[C90/270]Total=30.1
Maximum s/h(1/2): C0_180=0.24 C90_270=0.24
Maximum s/h(1/4): C0_180=0.26 C90_270=0.26
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 93.42%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 94.427%

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 0.0 | 12754.688 | 3.051 | 3.051 | .203% | .218% |
| 1.0 | 12600.703 | 24.116 | 27.167 | 1.602% | 1.937% |
| 2.0 | 12022.453 | 46.011 | 73.179 | 3.057% | 5.216% |
| 3.0 | 11173.289 | 64.126 | 137.304 | 4.261% | 9.787% |
| 4.0 | 10159.242 | 77.714 | 215.018 | 5.164% | 15.327% |
| 5.0 | 8951.906 | 85.559 | 300.577 | 5.685% | 21.425% |
| 6.0 | 7804.406 | 89.459 | 390.036 | 5.944% | 27.802% |
| 7.0 | 6450.117 | 86.201 | 476.237 | 5.728% | 33.947% |
| 8.0 | 5427.844 | 82.839 | 559.076 | 5.504% | 39.851% |
| 9.0 | 4453.523 | 76.399 | 635.475 | 5.076% | 45.297% |
| 10.0 | 3541.148 | 67.432 | 702.907 | 4.481% | 50.104% |
| 11.0 | 2942.719 | 61.574 | 764.482 | 4.091% | 54.493% |
| 12.0 | 2449.266 | 55.843 | 820.324 | 3.710% | 58.473% |
| 13.0 | 1891.477 | 46.660 | 866.984 | 3.100% | 61.799% |
| 14.0 | 1538.156 | 40.806 | 907.79 | 2.711% | 64.708% |
| 15.0 | 1284.124 | 36.446 | 944.237 | 2.422% | 67.306% |
| 16.0 | 1053.401 | 31.841 | 976.077 | 2.116% | 69.576% |
| 17.0 | 900.584 | 28.874 | 1004.952 | 1.919% | 71.634% |
| 18.0 | 765.963 | 25.956 | 1030.908 | 1.725% | 73.484% |
| 19.0 | 650.566 | 23.227 | 1054.134 | 1.543% | 75.140% |
| 20.0 | 564.110 | 21.158 | 1075.292 | 1.406% | 76.648% |
| 21.0 | 488.904 | 19.213 | 1094.505 | 1.277% | 78.017% |
| 22.0 | 418.134 | 17.177 | 1111.682 | 1.141% | 79.242% |
| 23.0 | 364.338 | 15.611 | 1127.293 | 1.037% | 80.354% |
| 24.0 | 313.221 | 13.971 | 1141.264 | .928% | 81.350% |
| 25.0 | 273.748 | 12.687 | 1153.951 | .843% | 82.255% |
| 26.0 | 233.213 | 11.211 | 1165.162 | .745% | 83.054% |
| 27.0 | 198.605 | 9.888 | 1175.049 | .657% | 83.758% |
| 28.0 | 172.308 | 8.871 | 1183.92 | .589% | 84.391% |
| 29.0 | 151.545 | 8.057 | 1191.977 | .535% | 84.965% |
| 30.0 | 134.979 | 7.401 | 1199.378 | .492% | 85.493% |
| 31.0 | 118.709 | 6.705 | 1206.083 | .445% | 85.971% |
| 32.0 | 106.418 | 6.184 | 1212.267 | .411% | 86.411% |
| 33.0 | 96.799 | 5.781 | 1218.048 | .384% | 86.823% |
| 34.0 | 87.532 | 5.368 | 1223.416 | .357% | 87.206% |
| 35.0 | 81.091 | 5.101 | 1228.516 | .339% | 87.570% |
| 36.0 | 75.530 | 4.868 | 1233.385 | .323% | 87.917% |
| 37.0 | 70.748 | 4.669 | 1238.054 | .310% | 88.249% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 38.0 | 66.551 | 4.493 | 1242.547 | .299% | 88.570% |
| 39.0 | 63.443 | 4.378 | 1246.925 | .291% | 88.882% |
| 40.0 | 60.659 | 4.276 | 1251.201 | .284% | 89.187% |
| 41.0 | 58.423 | 4.203 | 1255.404 | .279% | 89.486% |
| 42.0 | 56.377 | 4.137 | 1259.541 | .275% | 89.781% |
| 43.0 | 54.260 | 4.058 | 1263.599 | .270% | 90.070% |
| 44.0 | 52.559 | 4.004 | 1267.603 | .266% | 90.356% |
| 45.0 | 50.871 | 3.945 | 1271.547 | .262% | 90.637% |
| 46.0 | 49.247 | 3.885 | 1275.432 | .258% | 90.914% |
| 47.0 | 47.848 | 3.837 | 1279.27 | .255% | 91.187% |
| 48.0 | 46.744 | 3.809 | 1283.079 | .253% | 91.459% |
| 49.0 | 45.527 | 3.768 | 1286.847 | .250% | 91.727% |
| 50.0 | 44.487 | 3.737 | 1290.584 | .248% | 91.994% |
| 51.0 | 43.643 | 3.719 | 1294.303 | .247% | 92.259% |
| 52.0 | 42.877 | 3.705 | 1298.008 | .246% | 92.523% |
| 53.0 | 42.152 | 3.692 | 1301.7 | .245% | 92.786% |
| 54.0 | 41.534 | 3.685 | 1305.385 | .245% | 93.049% |
| 55.0 | 41.027 | 3.685 | 1309.07 | .245% | 93.312% |
| 56.0 | 40.493 | 3.681 | 1312.752 | .245% | 93.574% |
| 57.0 | 40.071 | 3.685 | 1316.437 | .245% | 93.837% |
| 58.0 | 39.698 | 3.692 | 1320.129 | .245% | 94.100% |
| 59.0 | 39.382 | 3.702 | 1323.831 | .246% | 94.364% |
| 60.0 | 39.157 | 3.719 | 1327.549 | .247% | 94.629% |
| 61.0 | 38.827 | 3.724 | 1331.273 | .247% | 94.894% |
| 62.0 | 38.447 | 3.723 | 1334.996 | .247% | 95.160% |
| 63.0 | 38.032 | 3.716 | 1338.712 | .247% | 95.424% |
| 64.0 | 37.406 | 3.687 | 1342.399 | .245% | 95.687% |
| 65.0 | 36.612 | 3.639 | 1346.037 | .242% | 95.947% |
| 66.0 | 35.768 | 3.583 | 1349.621 | .238% | 96.202% |
| 67.0 | 34.727 | 3.505 | 1353.126 | .233% | 96.452% |
| 68.0 | 33.623 | 3.419 | 1356.545 | .227% | 96.696% |
| 69.0 | 32.456 | 3.323 | 1359.868 | .221% | 96.932% |
| 70.0 | 31.205 | 3.216 | 1363.083 | .214% | 97.162% |
| 71.0 | 29.672 | 3.077 | 1366.16 | .204% | 97.381% |
| 72.0 | 28.083 | 2.929 | 1369.089 | .195% | 97.590% |
| 73.0 | 26.508 | 2.780 | 1371.868 | .185% | 97.788% |
| 74.0 | 24.912 | 2.626 | 1374.495 | .174% | 97.975% |
| 75.0 | 23.449 | 2.484 | 1376.978 | .165% | 98.152% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 76.0 | 21.952 | 2.336 | 1379.314 | .155% | 98.319% |
| 77.0 | 20.798 | 2.222 | 1381.536 | .148% | 98.477% |
| 78.0 | 19.870 | 2.131 | 1383.668 | .142% | 98.629% |
| 79.0 | 19.076 | 2.053 | 1385.721 | .136% | 98.775% |
| 80.0 | 18.274 | 1.974 | 1387.695 | .131% | 98.916% |
| 81.0 | 17.613 | 1.908 | 1389.602 | .127% | 99.052% |
| 82.0 | 16.966 | 1.842 | 1391.445 | .122% | 99.183% |
| 83.0 | 16.397 | 1.785 | 1393.23 | .119% | 99.310% |
| 84.0 | 15.947 | 1.739 | 1394.969 | .116% | 99.434% |
| 85.0 | 15.623 | 1.707 | 1396.676 | .113% | 99.556% |
| 86.0 | 15.398 | 1.684 | 1398.36 | .112% | 99.676% |
| 87.0 | 13.859 | 1.518 | 1399.878 | .101% | 99.784% |
| 88.0 | 11.735 | 1.286 | 1401.164 | .085% | 99.876% |
| 89.0 | 10.716 | 1.175 | 1402.339 | .078% | 99.960% |
| 90.0 | 10.287 | 0.564 | 1402.903 | .037% | 100.000% |

## Zonal flux distribution table



ZONAL LUMEN SUMMARY

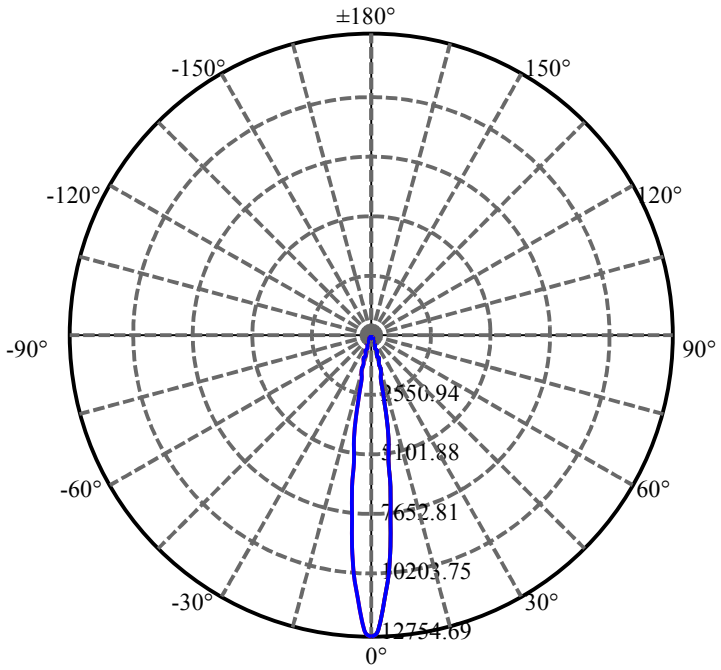
| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-30 | 1199.38 | 79.69% | 85.49% |
| 0-40 | 1251.20 | 83.14% | 89.19% |
| 0-60 | 1327.55 | 88.21% | 94.63% |
| 0-90 | 1402.34 | 93.18% | 99.96% |
| 0-120 | 1402.34 | 93.18% | 99.96% |
| 0-180 | 1402.90 | 93.22% | 100.00% |
| 60-90 | 78.51 | 5.22% | 5.60% |
| 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% |
| 0-22.68 | 1122.32 | 74.57% | 80.00% |

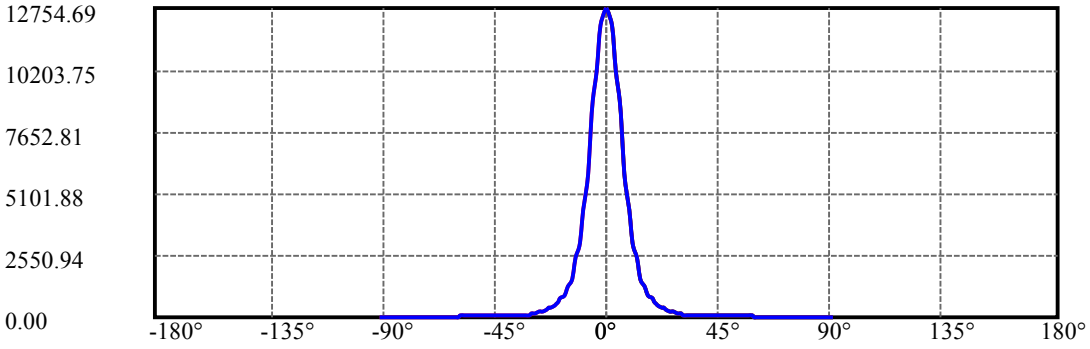
ZONAL LUMEN SUMMARY

| | |
|---|---|
| 0-10 | 702.91 |
| 10-20 | 372.38 |
| 20-30 | 124.09 |
| 30-40 | 51.82 |
| 40-50 | 39.38 |
| 50-60 | 36.97 |
| 60-70 | 35.53 |
| 70-80 | 24.61 |
| 80-90 | 14.64 |
| 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:

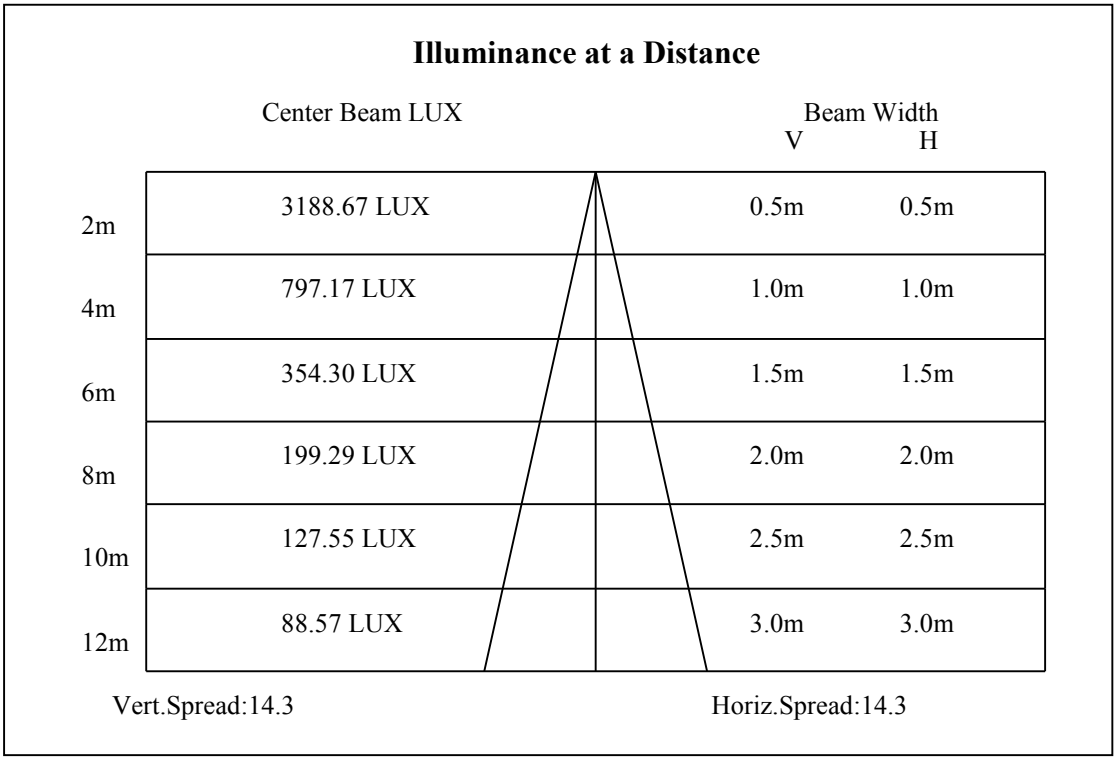
C90/C270:

Field angle(10%Imax):C0/180Left:15.0 Right:15.0
:C90/270Left:15.0 Right:15.0

Beam Angle(50%Imax):C0/180Left:7.1 Right:7.1
:C90/270Left:7.1 Right:7.1

Lux distance Curve

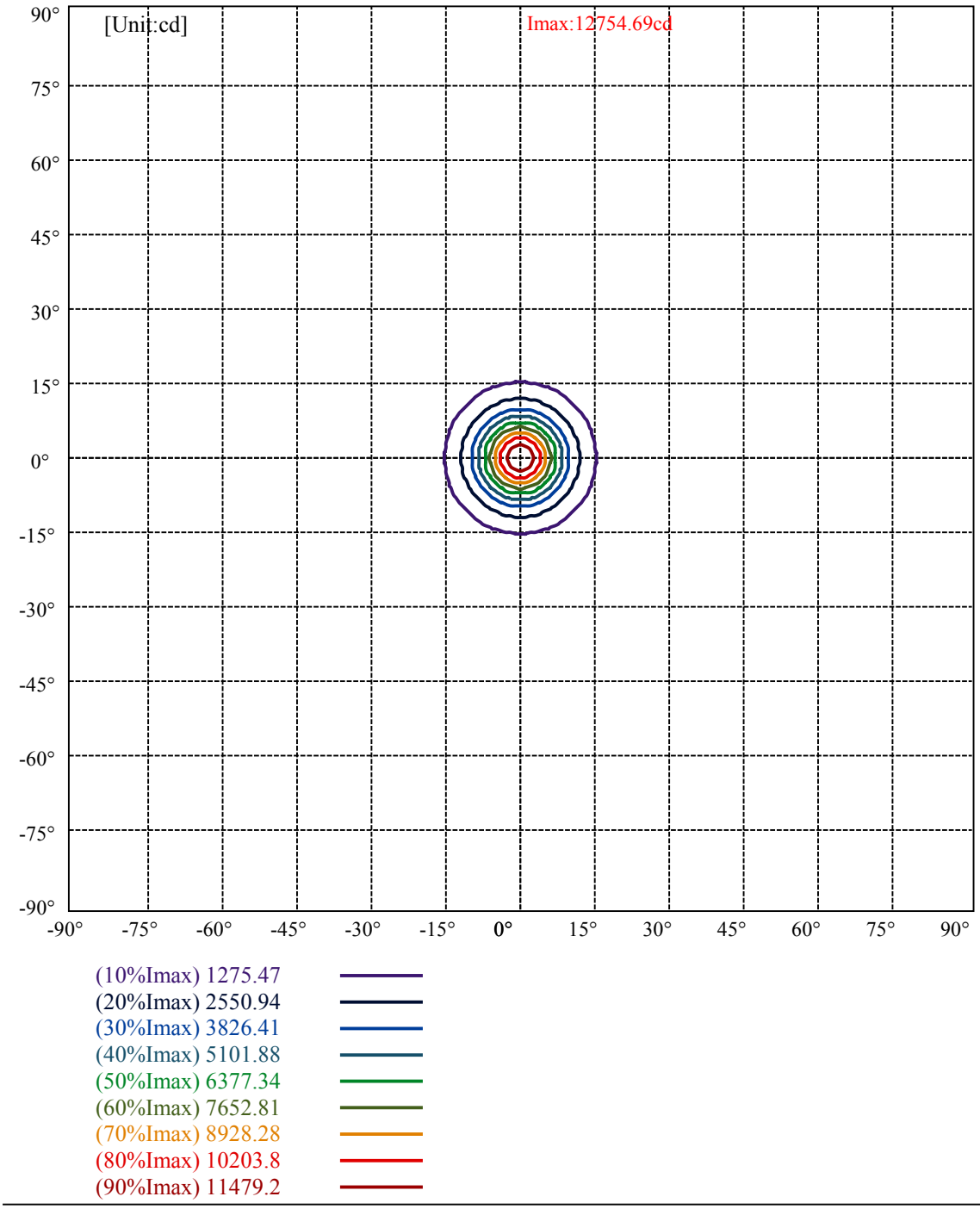





Equipment: GMS1980 Date: 2018/12/30 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

ISO-Intensity(V-H)





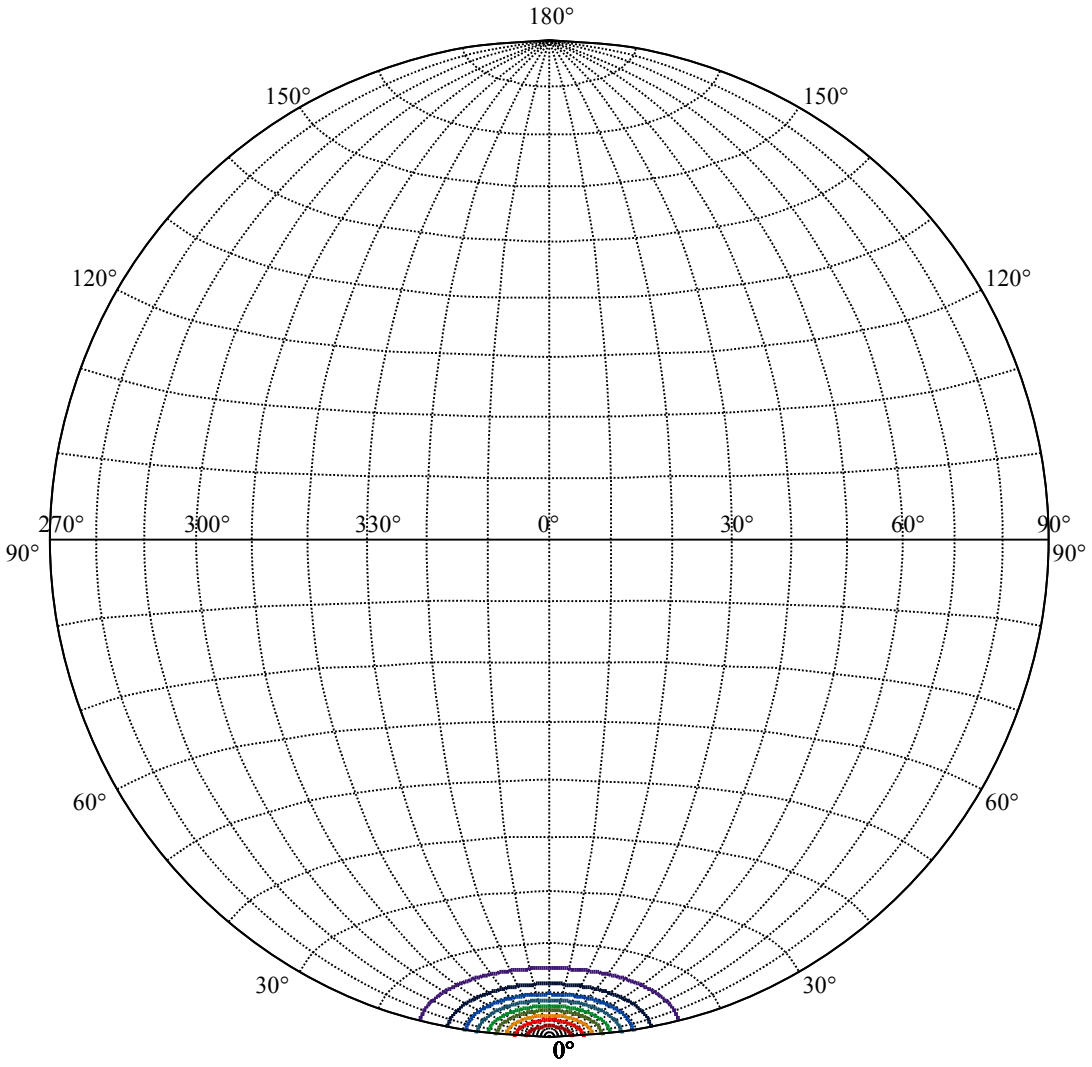

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/30
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web





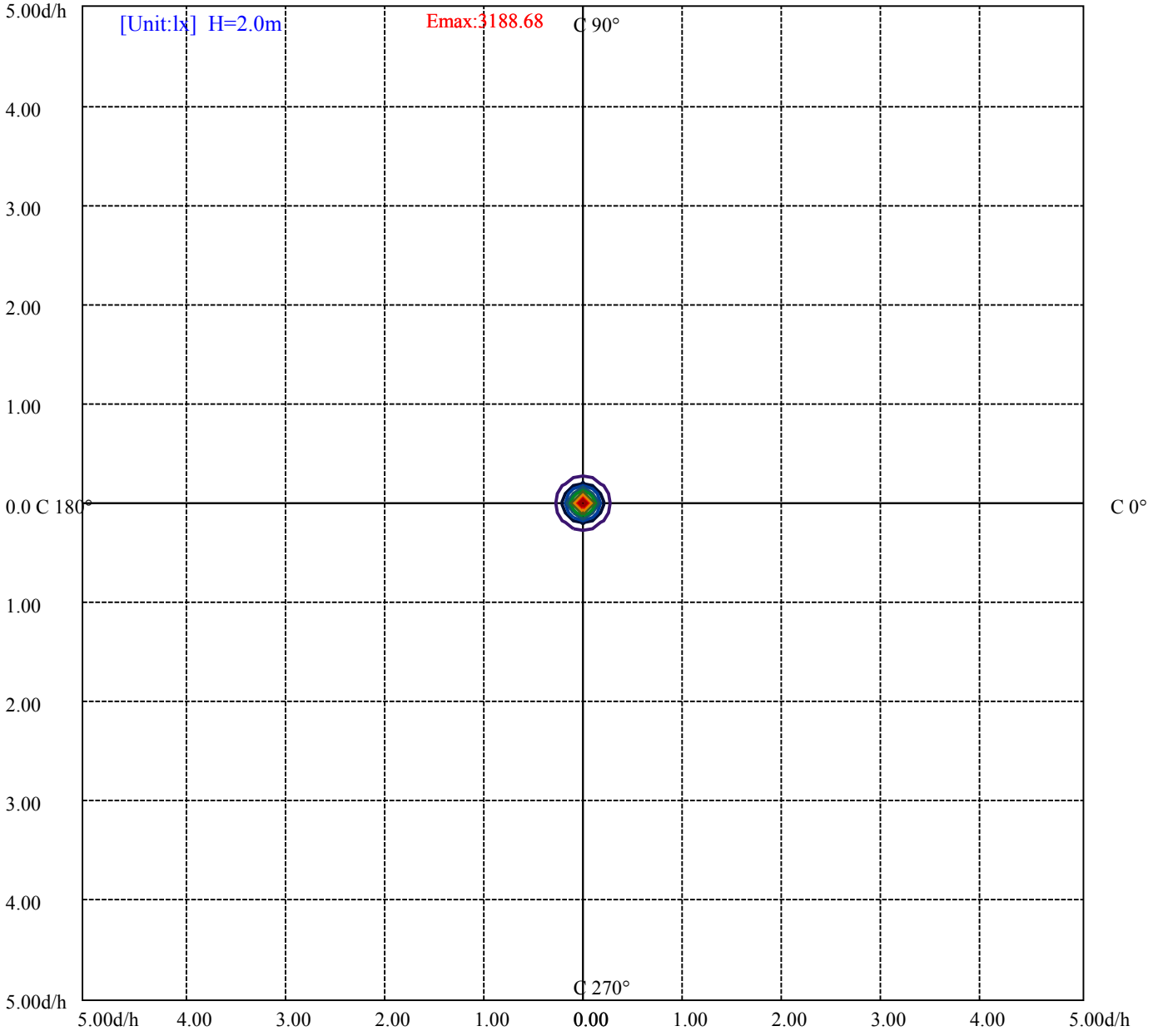

House [Unit:cd] Road

Imax:12754.69

(10%Imax) 1275.47
(20%Imax) 2550.94
(30%Imax) 3826.41
(40%Imax) 5101.88
(50%Imax) 6377.34
(60%Imax) 7652.81
(70%Imax) 8928.28
(80%Imax) 10203.8
(90%Imax) 11479.2

## ISO illuminance diagram





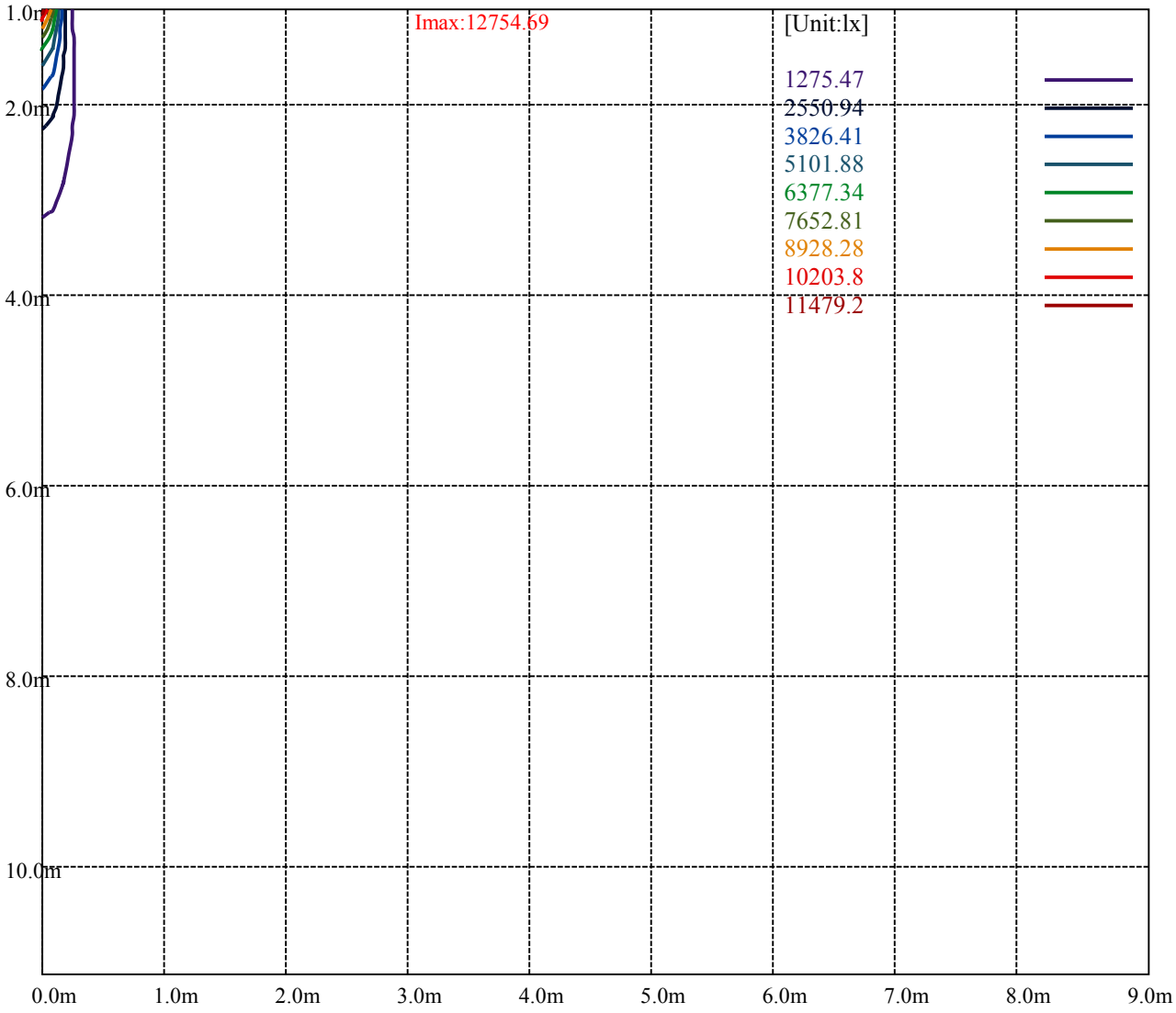

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/30
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

## Space ISO Lux diagram






Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/30
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

## Luminance Limitting Curve(no luminous side)



Luminance Table

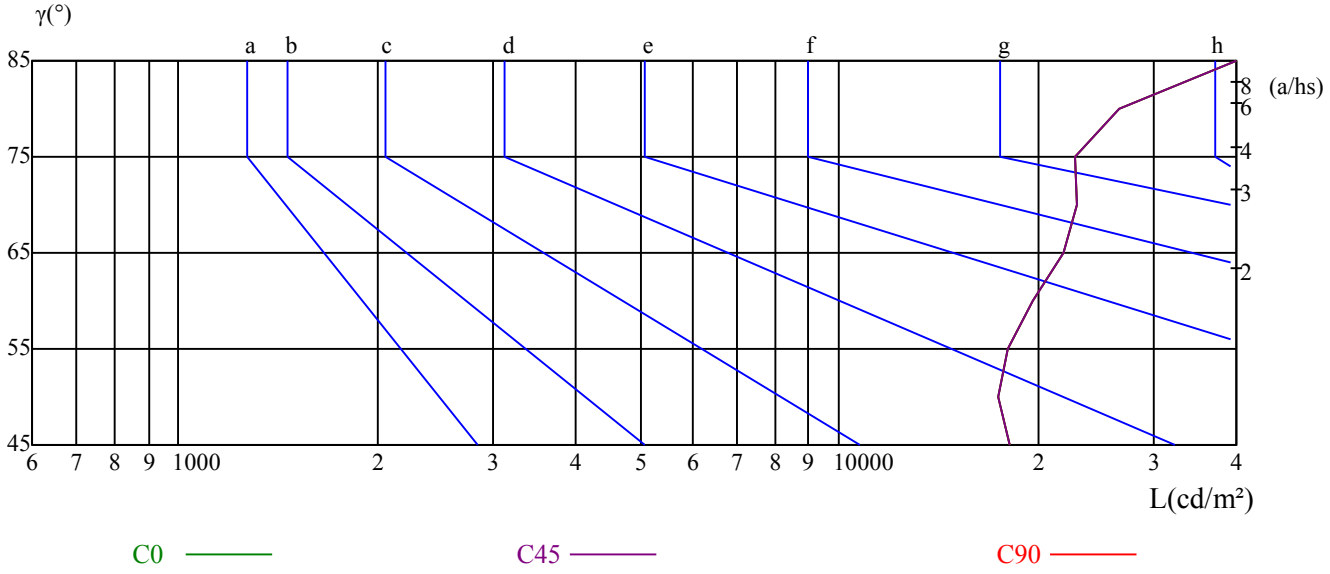
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|---|---|---|---|---|---|---|---|---|---|
| C0 | 18126 | 17437 | 18022 | 19731 | 21827 | 22987 | 22827 | 26515 | 45165 |
| C45 | 18126 | 17437 | 18022 | 19731 | 21827 | 22987 | 22827 | 26515 | 45165 |
| C90 | 18126 | 17437 | 18022 | 19731 | 21827 | 22987 | 22827 | 26515 | 45165 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|---|---|---|---|---|---|---|---|---|
| 21827 | 21827 | 21827 | 22827 | 22827 | 22827 | 45165 | 45165 | 45165 |

Glare Table

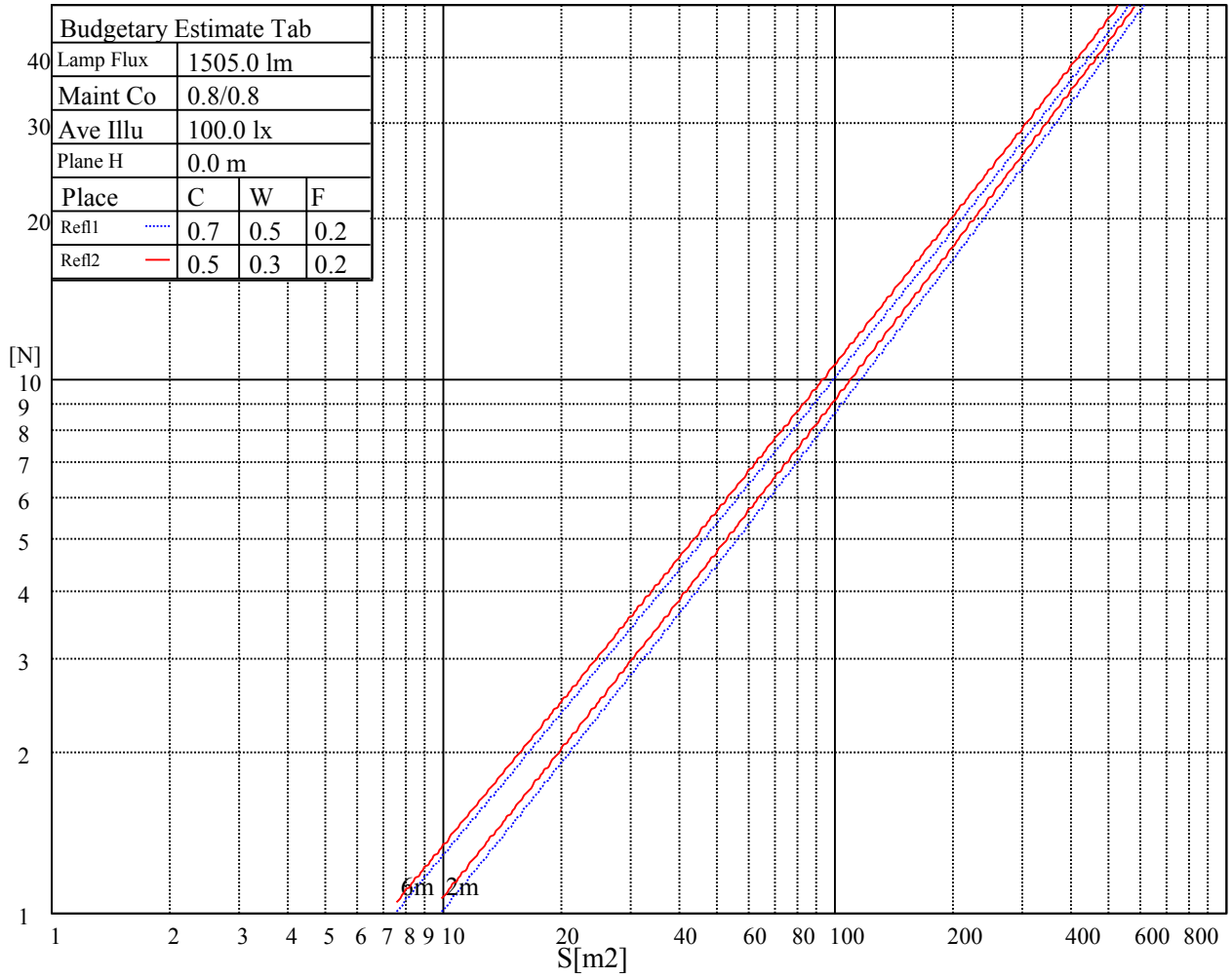
| Glare | Quality | Service Values Illuminance(lx) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.15 | A | 2000 | 1000 | 500 | <=300 | | | | |
| 1.5 | B | | 2000 | 1000 | 500 | <=300 | | | |
| 1.85 | C | | | 2000 | 1000 | 500 | <=300 | | |
| 2.2 | D | | | | 2000 | 1000 | 500 | <=300 |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

Luminance Limitting Curve



## Budgetary Estimate Table






Equipment: GMS1980 Date: 2018/12/30 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

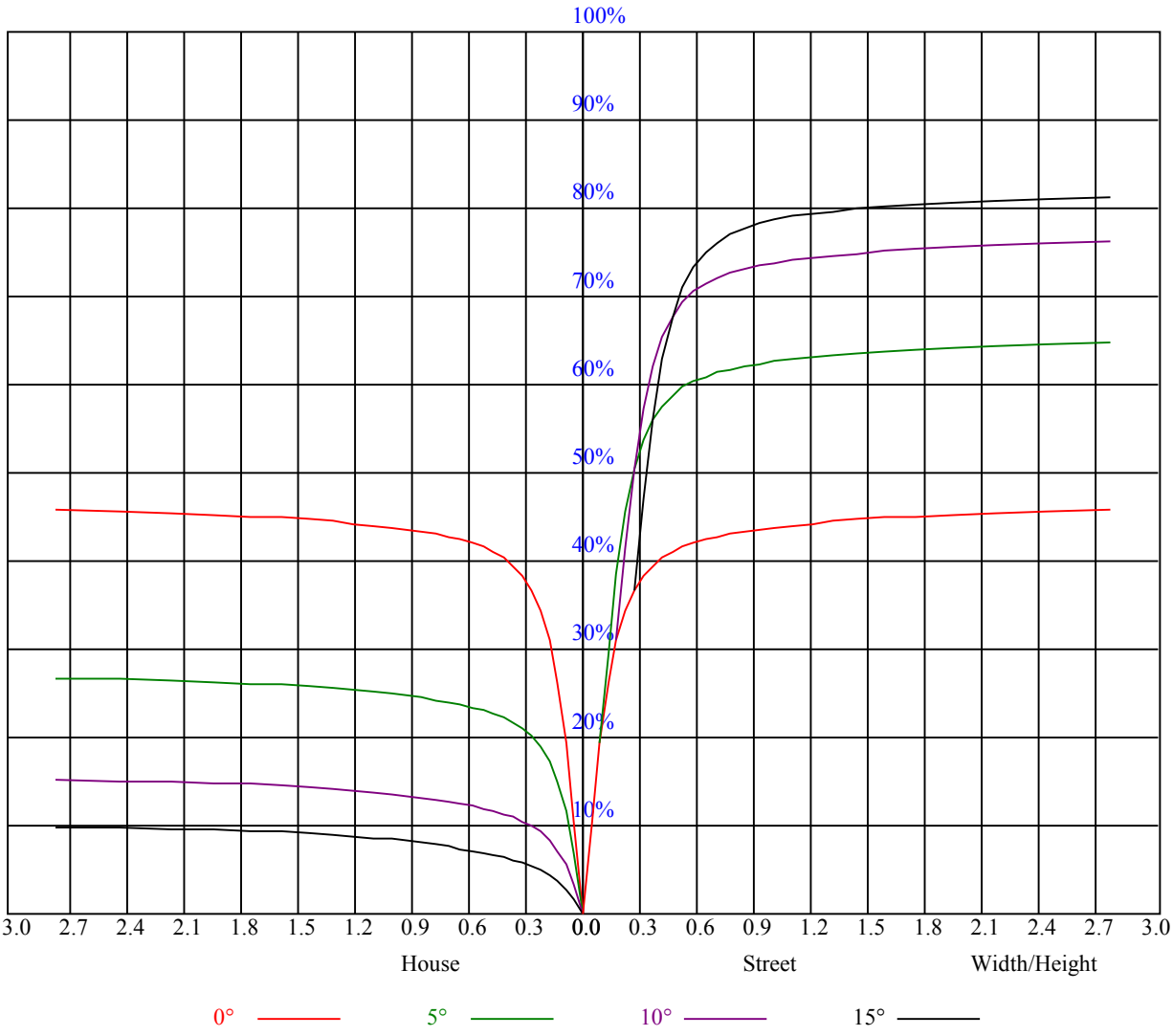
Utilization factor table for indoor luminaire



| 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 | 1.11 | 1.11 | 1.11 | 1.09 | 1.09 | 1.09 | 1.04 | 1.04 | 1.04 | 0.99 | 0.99 | 0.99 | 0.95 | 0.95 | 0.95 | 0.93 |
| 1 | 1.04 | 1.02 | 1.00 | 1.02 | 1.00 | 0.98 | 0.98 | 0.97 | 0.95 | 0.95 | 0.94 | 0.92 | 0.92 | 0.91 | 0.90 | 0.88 |
| 2 | 0.98 | 0.95 | 0.92 | 0.97 | 0.94 | 0.91 | 0.94 | 0.91 | 0.89 | 0.91 | 0.89 | 0.87 | 0.89 | 0.87 | 0.86 | 0.84 |
| 3 | 0.94 | 0.90 | 0.87 | 0.93 | 0.89 | 0.86 | 0.90 | 0.87 | 0.85 | 0.88 | 0.86 | 0.84 | 0.86 | 0.84 | 0.82 | 0.81 |
| 4 | 0.90 | 0.86 | 0.83 | 0.89 | 0.85 | 0.82 | 0.87 | 0.84 | 0.81 | 0.85 | 0.83 | 0.81 | 0.84 | 0.82 | 0.80 | 0.78 |
| 5 | 0.87 | 0.83 | 0.80 | 0.86 | 0.82 | 0.79 | 0.85 | 0.81 | 0.79 | 0.83 | 0.80 | 0.78 | 0.82 | 0.79 | 0.77 | 0.76 |
| 6 | 0.84 | 0.80 | 0.77 | 0.83 | 0.80 | 0.77 | 0.82 | 0.79 | 0.76 | 0.81 | 0.78 | 0.76 | 0.80 | 0.77 | 0.75 | 0.74 |
| 7 | 0.82 | 0.78 | 0.75 | 0.81 | 0.77 | 0.75 | 0.80 | 0.77 | 0.74 | 0.79 | 0.76 | 0.74 | 0.78 | 0.76 | 0.74 | 0.73 |
| 8 | 0.80 | 0.76 | 0.73 | 0.79 | 0.75 | 0.73 | 0.78 | 0.75 | 0.72 | 0.77 | 0.74 | 0.72 | 0.77 | 0.74 | 0.72 | 0.71 |
| 9 | 0.78 | 0.74 | 0.71 | 0.77 | 0.74 | 0.71 | 0.77 | 0.73 | 0.71 | 0.76 | 0.73 | 0.71 | 0.75 | 0.73 | 0.71 | 0.70 |
| 10 | 0.76 | 0.72 | 0.70 | 0.76 | 0.72 | 0.70 | 0.75 | 0.72 | 0.70 | 0.74 | 0.71 | 0.69 | 0.74 | 0.71 | 0.69 | 0.68 |

## Coefficient Utilization Curve






Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/30
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 | 12774.38 | 12571.88 | 11953.13 | 11126.25 | 9933.75 | 8611.88 | 7436.25 | 6170.63 | 5169.38 |
| 45.0 | 12802.50 | 12538.13 | 11913.75 | 10912.50 | 9855.00 | 8527.50 | 7357.50 | 6075.00 | 5073.75 |
| 90.0 | 12690.00 | 12313.13 | 11191.50 | 10561.50 | 9276.75 | 8092.69 | 6913.13 | 5533.88 | 4562.44 |
| 135.0 | 12751.88 | 12695.63 | 12223.13 | 11615.63 | 10423.13 | 9157.50 | 8122.50 | 6671.25 | 5602.50 |
| 180.0 | 12774.38 | 12678.75 | 12268.13 | 11176.31 | 10427.63 | 9330.75 | 8157.38 | 6715.13 | 5655.94 |
| 225.0 | 12802.50 | 12729.38 | 12358.13 | 11168.44 | 10559.81 | 9466.31 | 8322.19 | 6944.06 | 5915.25 |
| 270.0 | 12690.00 | 12774.38 | 12465.00 | 11902.50 | 10935.00 | 9714.38 | 8572.50 | 7306.88 | 6255.00 |
| 315.0 | 12751.88 | 12504.38 | 11806.88 | 10923.19 | 9862.88 | 8714.25 | 7553.81 | 6184.13 | 5188.50 |
| 360.0 | 12774.38 | 12571.88 | 11953.13 | 11126.25 | 9933.75 | 8611.88 | 7436.25 | 6170.63 | 5169.38 |

| C/γ(°) | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 17.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 4185.00 | 3358.13 | 2896.88 | 2272.50 | 1797.19 | 1497.38 | 1260.00 | 1024.88 | 877.50 |
| 45.0 | 4005.00 | 3273.75 | 2891.25 | 2224.69 | 1760.63 | 1474.31 | 1242.00 | 1018.69 | 874.69 |
| 90.0 | 3738.38 | 2898.00 | 2371.50 | 1961.44 | 1596.38 | 1234.13 | 1110.60 | 929.70 | 799.71 |
| 135.0 | 4651.88 | 3611.25 | 2925.00 | 2846.25 | 1852.31 | 1524.94 | 1274.06 | 1032.75 | 883.13 |
| 180.0 | 4587.75 | 3673.13 | 2999.25 | 2458.69 | 1974.38 | 1595.25 | 1334.25 | 1102.89 | 942.47 |
| 225.0 | 4973.63 | 3938.63 | 3233.25 | 2651.63 | 2115.00 | 1697.06 | 1407.38 | 1120.39 | 966.77 |
| 270.0 | 5197.50 | 4230.00 | 3498.75 | 2953.13 | 2257.88 | 1850.63 | 1529.44 | 1216.69 | 1026.56 |
| 315.0 | 4289.06 | 3346.31 | 2725.88 | 2225.81 | 1778.06 | 1431.56 | 1115.27 | 981.23 | 833.85 |
| 360.0 | 4185.00 | 3358.13 | 2896.88 | 2272.50 | 1797.19 | 1497.38 | 1260.00 | 1024.88 | 877.50 |

| C/γ(°) | 18.0 | 19.0 | 20.0 | 21.0 | 22.0 | 23.0 | 24.0 | 25.0 | 26.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 756.56 | 646.88 | 556.88 | 486.56 | 416.81 | 361.69 | 308.25 | 291.94 | 225.68 |
| 45.0 | 751.50 | 641.25 | 552.94 | 483.75 | 412.88 | 357.75 | 303.19 | 288.00 | 225.68 |
| 90.0 | 677.76 | 579.21 | 506.42 | 435.88 | 374.18 | 325.46 | 283.22 | 238.16 | 208.29 |
| 135.0 | 757.69 | 645.75 | 556.31 | 488.81 | 420.75 | 365.06 | 312.19 | 285.75 | 229.39 |
| 180.0 | 793.63 | 675.84 | 589.11 | 505.80 | 434.59 | 380.19 | 330.75 | 276.64 | 240.53 |
| 225.0 | 810.96 | 677.03 | 598.89 | 513.45 | 432.00 | 382.39 | 331.14 | 272.87 | 241.59 |
| 270.0 | 873.56 | 735.75 | 626.63 | 545.06 | 466.88 | 406.69 | 347.06 | 294.75 | 284.06 |
| 315.0 | 706.05 | 602.83 | 525.71 | 451.91 | 387.00 | 335.48 | 289.97 | 241.88 | 210.49 |
| 360.0 | 756.56 | 646.88 | 556.88 | 486.56 | 416.81 | 361.69 | 308.25 | 291.94 | 225.68 |

| C/γ(°) | 27.0 | 28.0 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 | 34.0 | 35.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 194.40 | 169.03 | 150.75 | 135.17 | 120.04 | 107.49 | 97.99 | 88.26 | 81.84 |
| 45.0 | 193.78 | 169.31 | 149.96 | 133.93 | 116.89 | 105.13 | 95.85 | 86.74 | 80.38 |
| 90.0 | 183.04 | 159.58 | 139.50 | 124.54 | 111.04 | 100.01 | 91.52 | 83.87 | 78.58 |
| 135.0 | 197.04 | 171.17 | 150.47 | 133.76 | 116.10 | 104.79 | 95.40 | 85.95 | 79.82 |
| 180.0 | 210.09 | 181.41 | 157.61 | 139.61 | 123.02 | 109.46 | 99.45 | 90.45 | 83.98 |
| 225.0 | 211.22 | 182.48 | 159.58 | 141.75 | 124.88 | 110.93 | 100.52 | 90.68 | 83.76 |
| 270.0 | 215.10 | 185.40 | 163.91 | 145.52 | 126.28 | 113.68 | 102.88 | 91.74 | 83.98 |
| 315.0 | 184.16 | 160.09 | 140.57 | 125.55 | 111.43 | 99.84 | 90.79 | 82.58 | 76.39 |
| 360.0 | 194.40 | 169.03 | 150.75 | 135.17 | 120.04 | 107.49 | 97.99 | 88.26 | 81.84 |

| C/γ(°) | 36.0 | 37.0 | 38.0 | 39.0 | 40.0 | 41.0 | 42.0 | 43.0 | 44.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 75.99 | 71.66 | 65.76 | 62.55 | 59.74 | 56.93 | 54.45 | 52.37 | 50.18 |
| 45.0 | 75.21 | 70.48 | 66.49 | 63.73 | 60.69 | 58.50 | 56.48 | 54.62 | 53.10 |
| 90.0 | 73.41 | 68.96 | 66.21 | 63.28 | 60.81 | 59.18 | 57.49 | 55.13 | 53.44 |
| 135.0 | 74.98 | 70.31 | 66.26 | 63.73 | 61.59 | 59.01 | 56.93 | 55.41 | 53.61 |
| 180.0 | 78.02 | 72.79 | 68.74 | 65.14 | 62.27 | 59.85 | 57.66 | 55.24 | 53.49 |
| 225.0 | 77.63 | 72.79 | 69.24 | 65.93 | 63.06 | 60.86 | 59.06 | 56.98 | 55.41 |
| 270.0 | 78.24 | 72.84 | 67.22 | 63.73 | 60.41 | 58.39 | 56.03 | 53.89 | 52.54 |
| 315.0 | 70.76 | 66.15 | 62.49 | 59.46 | 56.70 | 54.68 | 52.93 | 50.46 | 48.71 |
| 360.0 | 75.99 | 71.66 | 65.76 | 62.55 | 59.74 | 56.93 | 54.45 | 52.37 | 50.18 |

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 | 48.21 | 46.69 | 44.72 | 43.26 | 42.02 | 40.44 | 39.26 | 38.48 | 37.13 |
| 45.0 | 51.58 | 50.63 | 49.95 | 49.50 | 49.05 | 48.94 | 48.88 | 49.16 | 49.78 |
| 90.0 | 52.26 | 50.57 | 49.28 | 47.98 | 46.63 | 45.56 | 44.55 | 43.20 | 42.24 |
| 135.0 | 51.92 | 50.23 | 48.77 | 47.53 | 46.35 | 45.17 | 44.21 | 43.20 | 42.02 |
| 180.0 | 51.69 | 49.84 | 48.21 | 46.91 | 45.39 | 44.16 | 42.98 | 41.79 | 40.84 |
| 225.0 | 53.89 | 52.43 | 51.41 | 50.85 | 50.23 | 49.84 | 49.67 | 49.56 | 49.61 |
| 270.0 | 50.34 | 48.32 | 46.86 | 45.56 | 43.59 | 42.13 | 40.95 | 40.11 | 38.93 |
| 315.0 | 47.08 | 45.28 | 43.59 | 42.36 | 40.95 | 39.66 | 38.64 | 37.52 | 36.68 |
| 360.0 | 48.21 | 46.69 | 44.72 | 43.26 | 42.02 | 40.44 | 39.26 | 38.48 | 37.13 |

| C/γ(°) | 54.0 | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 36.28 | 35.49 | 34.26 | 33.47 | 32.79 | 31.78 | 31.05 | 30.38 | 29.64 |
| 45.0 | 50.68 | 51.53 | 52.26 | 52.93 | 53.66 | 54.56 | 55.24 | 55.58 | 55.46 |
| 90.0 | 40.95 | 39.77 | 38.98 | 37.91 | 36.51 | 35.66 | 35.04 | 33.64 | 32.79 |
| 135.0 | 41.18 | 40.33 | 39.49 | 38.70 | 38.19 | 37.86 | 37.63 | 37.58 | 37.74 |
| 180.0 | 39.66 | 38.59 | 37.46 | 36.56 | 35.49 | 34.71 | 33.92 | 33.02 | 32.23 |
| 225.0 | 50.12 | 50.74 | 51.24 | 51.69 | 52.14 | 52.59 | 53.10 | 53.21 | 52.93 |
| 270.0 | 37.63 | 36.56 | 35.44 | 34.48 | 33.69 | 32.57 | 31.67 | 30.99 | 30.04 |
| 315.0 | 35.78 | 35.21 | 34.82 | 34.82 | 35.10 | 35.33 | 35.61 | 36.23 | 36.73 |
| 360.0 | 36.28 | 35.49 | 34.26 | 33.47 | 32.79 | 31.78 | 31.05 | 30.38 | 29.64 |

| C/γ(°) | 63.0 | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 29.03 | 28.29 | 27.62 | 27.06 | 26.44 | 25.59 | 24.92 | 24.19 | 23.29 |
| 45.0 | 55.07 | 53.55 | 51.86 | 50.01 | 46.74 | 44.27 | 41.79 | 39.21 | 35.89 |
| 90.0 | 31.84 | 30.88 | 29.81 | 28.80 | 27.79 | 26.72 | 25.65 | 24.69 | 23.85 |
| 135.0 | 37.80 | 37.86 | 37.97 | 37.97 | 37.74 | 37.46 | 37.01 | 36.23 | 35.04 |
| 180.0 | 31.50 | 30.71 | 29.87 | 29.14 | 28.35 | 27.62 | 26.78 | 25.88 | 25.03 |
| 225.0 | 52.43 | 51.53 | 49.73 | 47.76 | 45.68 | 43.14 | 40.50 | 38.08 | 35.21 |
| 270.0 | 29.19 | 28.29 | 27.39 | 26.44 | 25.76 | 24.69 | 23.96 | 23.34 | 22.11 |
| 315.0 | 37.41 | 38.14 | 38.64 | 38.98 | 39.32 | 39.49 | 39.04 | 38.03 | 36.96 |
| 360.0 | 29.03 | 28.29 | 27.62 | 27.06 | 26.44 | 25.59 | 24.92 | 24.19 | 23.29 |

| C/γ(°) | 72.0 | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 22.50 | 21.71 | 21.04 | 20.36 | 19.74 | 19.07 | 18.39 | 17.78 | 17.21 |
| 45.0 | 33.19 | 30.83 | 28.13 | 25.65 | 23.68 | 21.99 | 20.76 | 19.69 | 18.79 |
| 90.0 | 22.78 | 21.88 | 21.21 | 20.48 | 19.63 | 19.18 | 18.73 | 18.28 | 17.78 |
| 135.0 | 33.53 | 31.95 | 29.81 | 27.73 | 25.88 | 24.08 | 22.73 | 21.71 | 20.59 |
| 180.0 | 24.19 | 23.29 | 22.50 | 21.83 | 20.87 | 20.14 | 19.46 | 18.68 | 18.00 |
| 225.0 | 32.23 | 29.87 | 27.17 | 25.14 | 22.95 | 21.26 | 20.14 | 19.07 | 18.06 |
| 270.0 | 21.43 | 20.81 | 19.97 | 19.35 | 19.01 | 18.28 | 17.78 | 17.49 | 16.99 |
| 315.0 | 34.82 | 31.73 | 29.48 | 27.06 | 23.85 | 22.39 | 20.98 | 19.91 | 18.79 |
| 360.0 | 22.50 | 21.71 | 21.04 | 20.36 | 19.74 | 19.07 | 18.39 | 17.78 | 17.21 |

| C/γ(°) | 81.0 | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 16.71 | 16.20 | 15.69 | 15.36 | 15.24 | 15.47 | 15.81 | 12.43 | 11.42 |
| 45.0 | 17.89 | 17.04 | 16.54 | 16.26 | 16.14 | 16.14 | 14.85 | 11.87 | 10.69 |
| 90.0 | 17.33 | 17.04 | 16.93 | 17.10 | 17.27 | 17.27 | 13.11 | 11.42 | 10.63 |
| 135.0 | 19.58 | 18.84 | 18.00 | 17.10 | 16.31 | 15.92 | 12.60 | 10.80 | 10.07 |
| 180.0 | 17.44 | 16.76 | 15.98 | 15.24 | 14.68 | 13.89 | 11.87 | 10.80 | 10.07 |
| 225.0 | 17.38 | 16.65 | 15.86 | 15.19 | 14.57 | 14.06 | 12.09 | 10.86 | 9.96 |
| 270.0 | 16.65 | 16.31 | 15.92 | 15.64 | 15.41 | 15.24 | 15.19 | 13.33 | 11.76 |
| 315.0 | 17.94 | 16.88 | 16.26 | 15.69 | 15.36 | 15.19 | 15.36 | 12.38 | 11.14 |
| 360.0 | 16.71 | 16.20 | 15.69 | 15.36 | 15.24 | 15.47 | 15.81 | 12.43 | 11.42 |

## Intensity data(cd)

| C/γ(°) | 90.0 |
|---|---|
| 0.0 | 10.63 |
| 45.0 | 9.96 |
| 90.0 | 10.41 |
| 135.0 | 9.73 |
| 180.0 | 10.01 |
| 225.0 | 9.79 |
| 270.0 | 11.08 |
| 315.0 | 10.69 |
| 360.0 | 10.63 |