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

## Nata

LumCAT: 2-2263-M
Luminaire: 92.70.131.00
Report No: 200921-B037
Test No: 200921-C037
LampCAT: SEOUL SAWx15 LES14.5
Lamp flux(lm): 2329.0
Number of Lamps: 1
Length(feet)(ft.):0.000
Phm Type: C

Voltage(V): 230.7000
Current(A): 0.0900
Power (W): 20.0400
PF: 0.9550
Ballast type: AC
Width(feet)(ft.):0.000
Height(feet)(ft.):0.000

## Photometric Results

Lumens(lm): 2218.79
Efficiency(%): 95.27%
Lumens(lm)/Power(W): 110.72
Central intensity(cd): 8146.802
Maximum intensity(cd): 8146.802
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=26.4
[C90/270]Total=26.4
Field angle(10%Imax): [C0/180]Total=54.6
[C90/270]Total=54.6
Maximum s/h(1/2): C0_180=0.45 C90_270=0.45
Maximum s/h(1/4): C0_180=0.43 C90_270=0.43
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 95.35%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 99.677%

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 0.0 | 8146.803 | 1.949 | 1.949 | .084% | .088% |
| 1.0 | 8116.873 | 15.534 | 17.484 | .667% | .788% |
| 2.0 | 8049.066 | 30.805 | 48.288 | 1.323% | 2.176% |
| 3.0 | 7946.573 | 45.607 | 93.895 | 1.958% | 4.232% |
| 4.0 | 7787.757 | 59.573 | 153.468 | 2.558% | 6.917% |
| 5.0 | 7581.088 | 72.457 | 225.925 | 3.111% | 10.182% |
| 6.0 | 7290.023 | 83.563 | 309.488 | 3.588% | 13.949% |
| 7.0 | 6935.908 | 92.694 | 402.182 | 3.980% | 18.126% |
| 8.0 | 6578.254 | 100.396 | 502.578 | 4.311% | 22.651% |
| 9.0 | 6123.965 | 105.055 | 607.633 | 4.511% | 27.386% |
| 10.0 | 5640.849 | 107.415 | 715.048 | 4.612% | 32.227% |
| 11.0 | 5183.312 | 108.457 | 823.505 | 4.657% | 37.115% |
| 12.0 | 4670.787 | 106.493 | 929.998 | 4.573% | 41.915% |
| 13.0 | 4159.654 | 102.612 | 1032.61 | 4.406% | 46.539% |
| 14.0 | 3695.562 | 98.041 | 1130.651 | 4.210% | 50.958% |
| 15.0 | 3234.951 | 91.815 | 1222.466 | 3.942% | 55.096% |
| 16.0 | 2738.029 | 82.761 | 1305.228 | 3.554% | 58.826% |
| 17.0 | 2341.455 | 75.071 | 1380.299 | 3.223% | 62.210% |
| 18.0 | 1977.130 | 66.999 | 1447.298 | 2.877% | 65.229% |
| 19.0 | 1672.957 | 59.728 | 1507.026 | 2.565% | 67.921% |
| 20.0 | 1464.200 | 54.917 | 1561.943 | 2.358% | 70.396% |
| 21.0 | 1300.744 | 51.118 | 1613.061 | 2.195% | 72.700% |
| 22.0 | 1174.005 | 48.228 | 1661.288 | 2.071% | 74.874% |
| 23.0 | 1051.743 | 45.065 | 1706.353 | 1.935% | 76.905% |
| 24.0 | 970.578 | 43.291 | 1749.644 | 1.859% | 78.856% |
| 25.0 | 923.792 | 42.813 | 1792.457 | 1.838% | 80.785% |
| 26.0 | 873.021 | 41.968 | 1834.425 | 1.802% | 82.677% |
| 27.0 | 826.316 | 41.138 | 1875.563 | 1.766% | 84.531% |
| 28.0 | 786.223 | 40.477 | 1916.04 | 1.738% | 86.355% |
| 29.0 | 748.115 | 39.773 | 1955.813 | 1.708% | 88.148% |
| 30.0 | 698.225 | 38.284 | 1994.097 | 1.644% | 89.873% |
| 31.0 | 630.795 | 35.627 | 2029.724 | 1.530% | 91.479% |
| 32.0 | 574.334 | 33.375 | 2063.1 | 1.433% | 92.983% |
| 33.0 | 500.895 | 29.916 | 2093.016 | 1.285% | 94.332% |
| 34.0 | 426.731 | 26.168 | 2119.184 | 1.124% | 95.511% |
| 35.0 | 362.416 | 22.796 | 2141.979 | .979% | 96.538% |
| 36.0 | 292.138 | 18.830 | 2160.81 | .809% | 97.387% |
| 37.0 | 227.127 | 14.989 | 2175.799 | .644% | 98.063% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 38.0 | 183.792 | 12.409 | 2188.208 | .533% | 98.622% |
| 39.0 | 119.767 | 8.265 | 2196.473 | .355% | 98.994% |
| 40.0 | 49.924 | 3.519 | 2199.992 | .151% | 99.153% |
| 41.0 | 24.037 | 1.729 | 2201.721 | .074% | 99.231% |
| 42.0 | 14.397 | 1.056 | 2202.778 | .045% | 99.278% |
| 43.0 | 12.001 | 0.898 | 2203.675 | .039% | 99.319% |
| 44.0 | 10.226 | 0.779 | 2204.454 | .033% | 99.354% |
| 45.0 | 8.979 | 0.696 | 2205.151 | .030% | 99.385% |
| 46.0 | 8.289 | 0.654 | 2205.804 | .028% | 99.415% |
| 47.0 | 7.732 | 0.620 | 2206.424 | .027% | 99.443% |
| 48.0 | 7.529 | 0.614 | 2207.038 | .026% | 99.470% |
| 49.0 | 7.245 | 0.600 | 2207.638 | .026% | 99.497% |
| 50.0 | 7.001 | 0.588 | 2208.226 | .025% | 99.524% |
| 51.0 | 6.763 | 0.576 | 2208.802 | .025% | 99.550% |
| 52.0 | 6.549 | 0.566 | 2209.368 | .024% | 99.575% |
| 53.0 | 6.357 | 0.557 | 2209.925 | .024% | 99.601% |
| 54.0 | 6.172 | 0.548 | 2210.472 | .024% | 99.625% |
| 55.0 | 5.969 | 0.536 | 2211.009 | .023% | 99.649% |
| 56.0 | 5.777 | 0.525 | 2211.534 | .023% | 99.673% |
| 57.0 | 5.557 | 0.511 | 2212.045 | .022% | 99.696% |
| 58.0 | 5.307 | 0.494 | 2212.538 | .021% | 99.718% |
| 59.0 | 5.087 | 0.478 | 2213.017 | .021% | 99.740% |
| 60.0 | 4.820 | 0.458 | 2213.474 | .020% | 99.761% |
| 61.0 | 4.530 | 0.434 | 2213.909 | .019% | 99.780% |
| 62.0 | 4.188 | 0.405 | 2214.314 | .017% | 99.798% |
| 63.0 | 3.863 | 0.377 | 2214.692 | .016% | 99.815% |
| 64.0 | 3.625 | 0.357 | 2215.049 | .015% | 99.832% |
| 65.0 | 3.422 | 0.340 | 2215.389 | .015% | 99.847% |
| 66.0 | 3.173 | 0.318 | 2215.707 | .014% | 99.861% |
| 67.0 | 2.952 | 0.298 | 2216.005 | .013% | 99.875% |
| 68.0 | 2.738 | 0.278 | 2216.283 | .012% | 99.887% |
| 69.0 | 2.465 | 0.252 | 2216.536 | .011% | 99.899% |
| 70.0 | 2.204 | 0.227 | 2216.763 | .010% | 99.909% |
| 71.0 | 1.949 | 0.202 | 2216.965 | .009% | 99.918% |
| 72.0 | 1.671 | 0.174 | 2217.139 | .007% | 99.926% |
| 73.0 | 1.485 | 0.156 | 2217.295 | .007% | 99.933% |
| 74.0 | 1.293 | 0.136 | 2217.431 | .006% | 99.939% |
| 75.0 | 1.154 | 0.122 | 2217.554 | .005% | 99.944% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 76.0 | 1.021 | 0.109 | 2217.662 | .005% | 99.949% |
| 77.0 | 0.969 | 0.104 | 2217.766 | .004% | 99.954% |
| 78.0 | 0.940 | 0.101 | 2217.866 | .004% | 99.958% |
| 79.0 | 0.905 | 0.097 | 2217.964 | .004% | 99.963% |
| 80.0 | 0.882 | 0.095 | 2218.059 | .004% | 99.967% |
| 81.0 | 0.829 | 0.090 | 2218.149 | .004% | 99.971% |
| 82.0 | 0.800 | 0.087 | 2218.236 | .004% | 99.975% |
| 83.0 | 0.754 | 0.082 | 2218.318 | .004% | 99.979% |
| 84.0 | 0.713 | 0.078 | 2218.396 | .003% | 99.982% |
| 85.0 | 0.684 | 0.075 | 2218.471 | .003% | 99.986% |
| 86.0 | 0.667 | 0.073 | 2218.543 | .003% | 99.989% |
| 87.0 | 0.661 | 0.072 | 2218.616 | .003% | 99.992% |
| 88.0 | 0.632 | 0.069 | 2218.685 | .003% | 99.995% |
| 89.0 | 0.626 | 0.069 | 2218.754 | .003% | 99.998% |
| 90.0 | 0.615 | 0.034 | 2218.788 | .001% | 100.000% |

## Zonal flux distribution table



ZONAL LUMEN SUMMARY

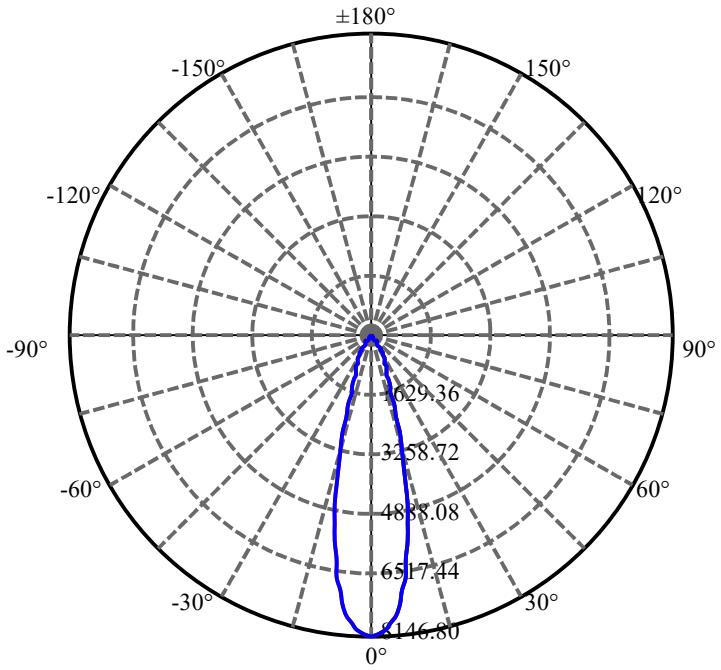
| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-30 | 1994.10 | 85.62% | 89.87% |
| 0-40 | 2199.99 | 94.46% | 99.15% |
| 0-60 | 2213.47 | 95.04% | 99.76% |
| 0-90 | 2218.75 | 95.27% | 100.00% |
| 0-120 | 2218.75 | 95.27% | 100.00% |
| 0-180 | 2218.79 | 95.27% | 100.00% |
| 60-90 | 5.74 | 0.25% | 0.26% |
| 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% |
| 0-24.59 | 1775.03 | 76.22% | 80.00% |

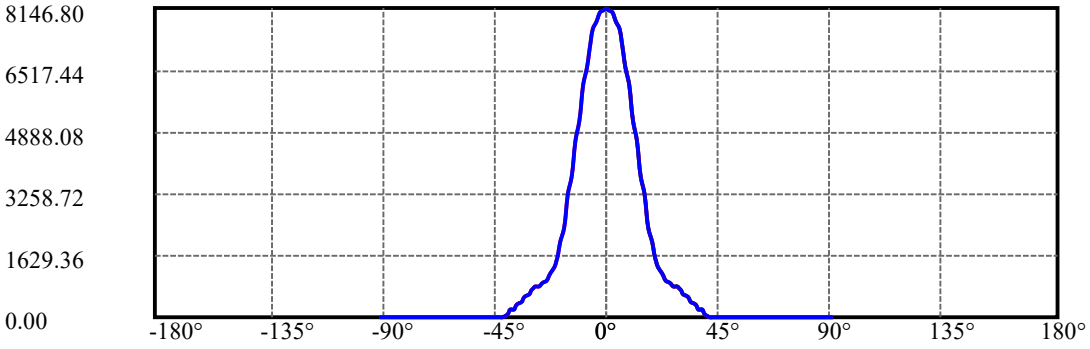
ZONAL LUMEN SUMMARY

| | |
|---|---|
| 0-10 | 715.05 |
| 10-20 | 846.89 |
| 20-30 | 432.15 |
| 30-40 | 205.89 |
| 40-50 | 8.23 |
| 50-60 | 5.25 |
| 60-70 | 3.29 |
| 70-80 | 1.30 |
| 80-90 | 0.69 |
| 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:

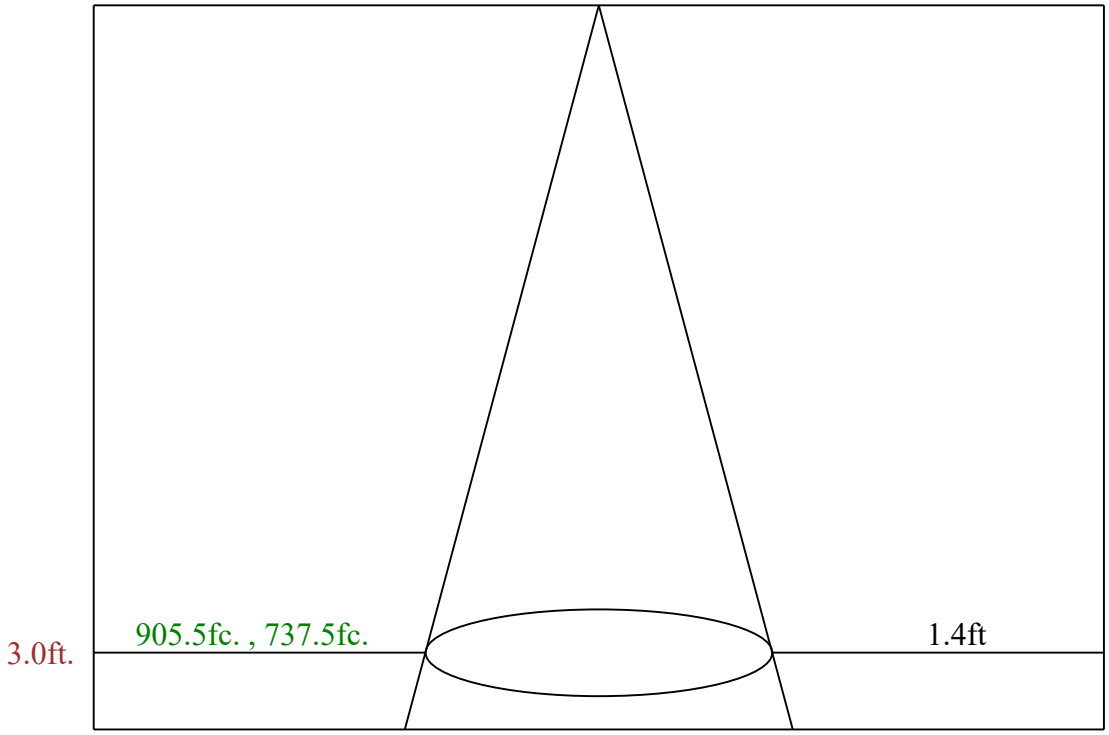
C90/C270:

Field angle(10%Imax):C0/180Left:27.3 Right:27.3
:C90/270Left:27.3 Right:27.3

Beam Angle(50%Imax):C0/180Left:13.2 Right:13.2
:C90/270Left:13.2 Right:13.2

Lux distance Curve



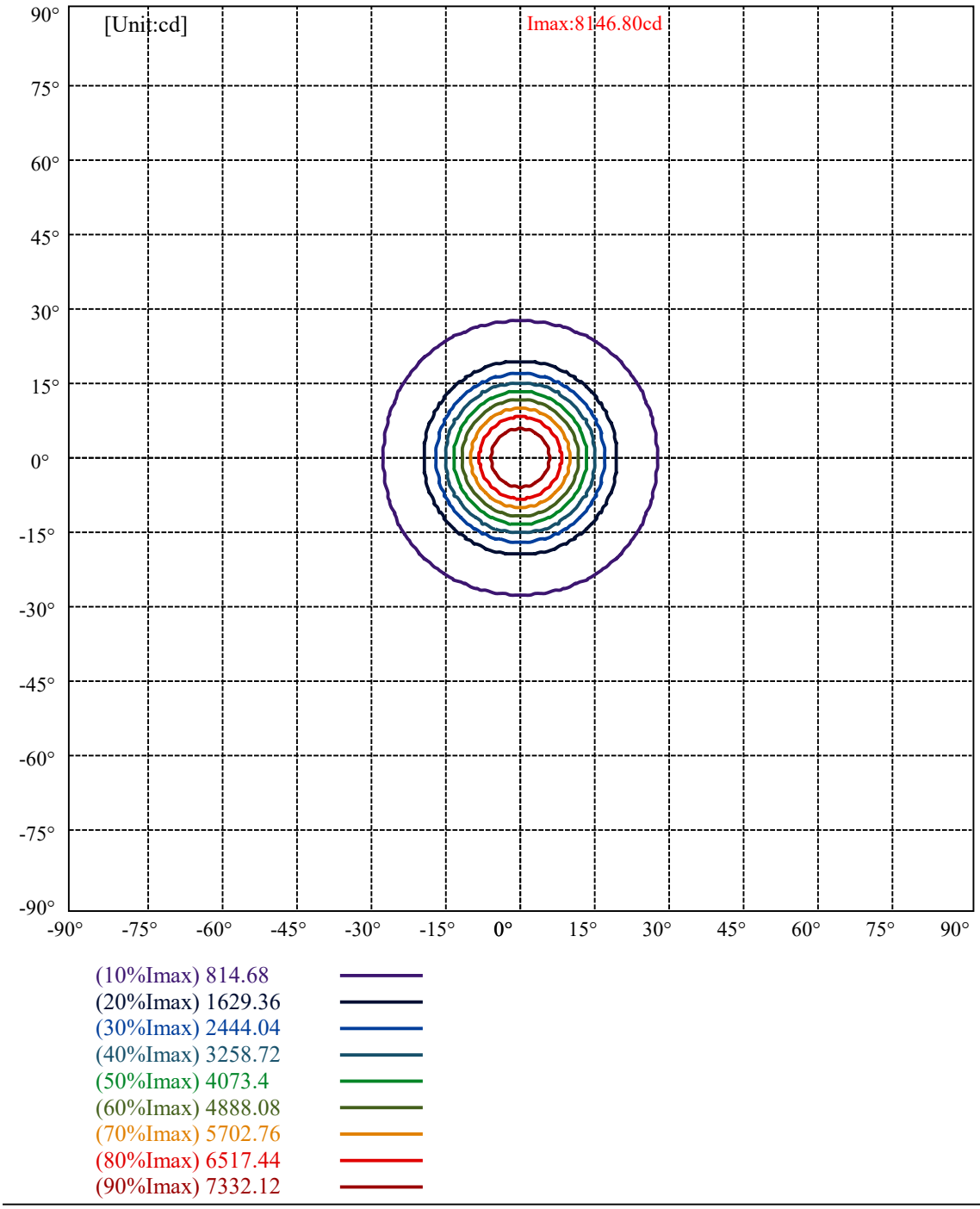



Max , Ave

Beam angle of C0 plane 26.44

ISO-Intensity(V-H)





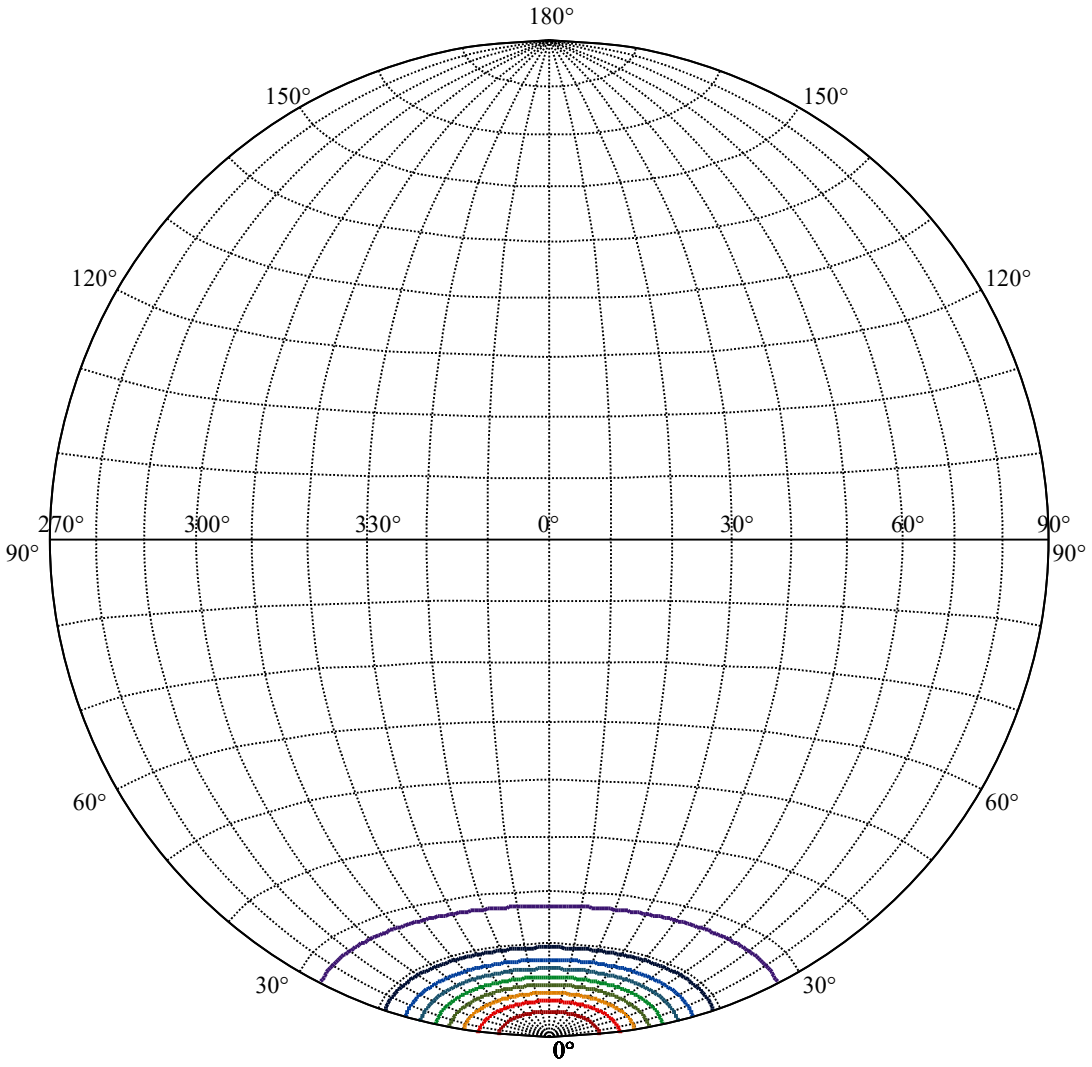

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/21
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

ISO candela diagram on circular web






House [Unit:cd] Road

Imax:8146.80

(10%Imax) 814.68
(20%Imax) 1629.36
(30%Imax) 2444.04
(40%Imax) 3258.72
(50%Imax) 4073.4
(60%Imax) 4888.08
(70%Imax) 5702.76
(80%Imax) 6517.44
(90%Imax) 7332.12

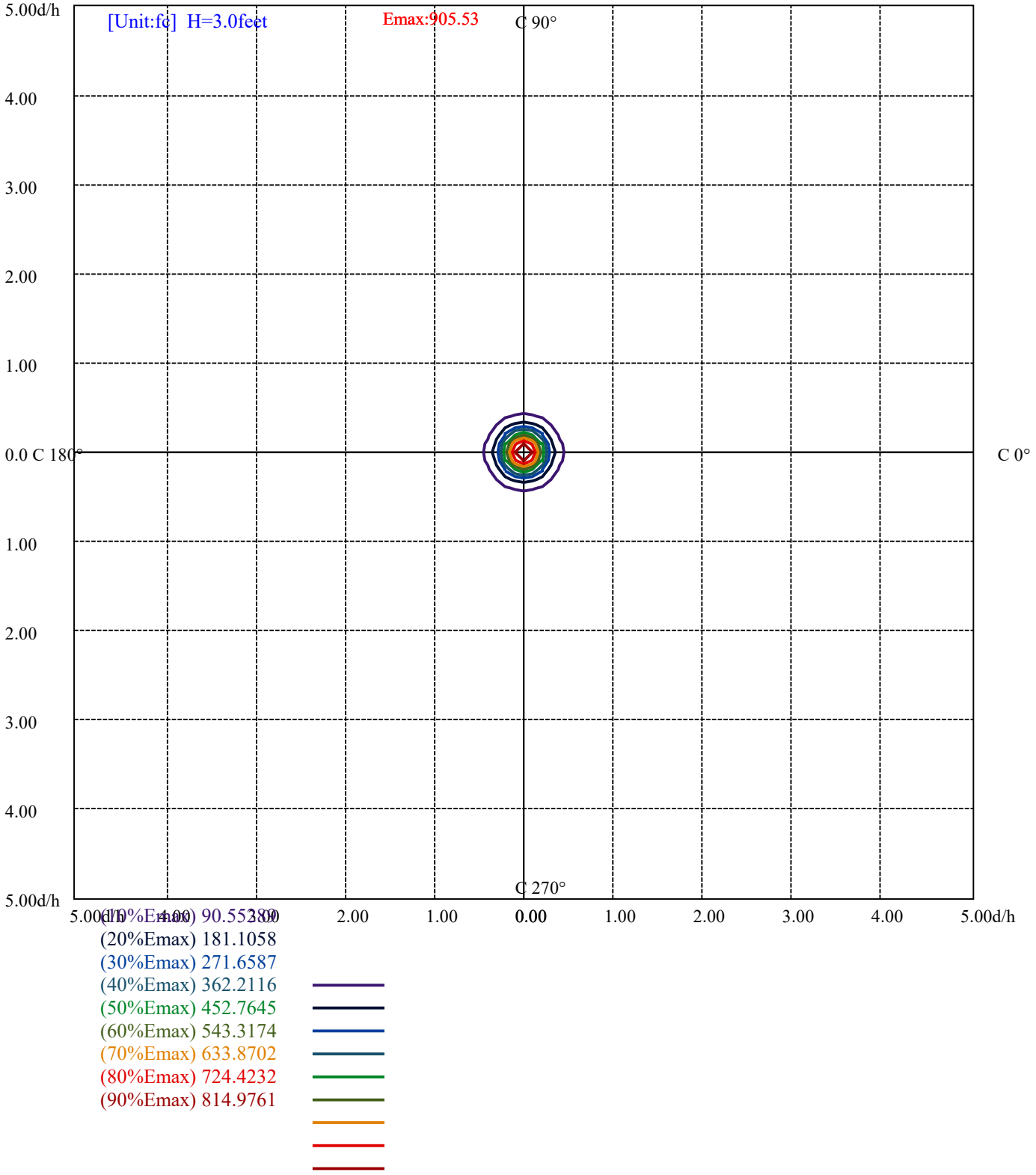
Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/21
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

## ISO illuminance diagram





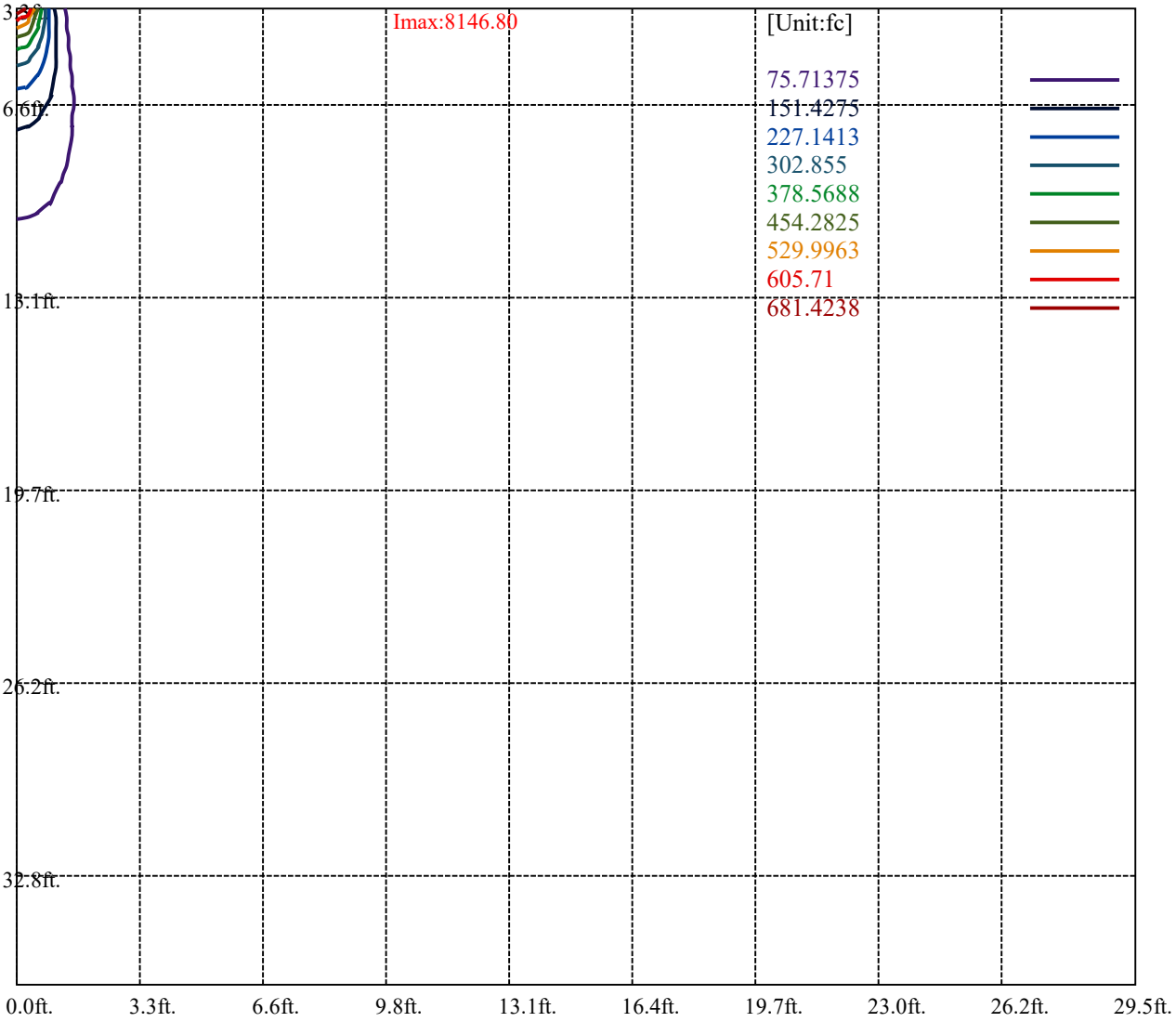

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/21
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

Space ISO Lux diagram






Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/21
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

Nata 2-2263-M

## Luminance Limitting Curve(no luminous side)



Luminance Table

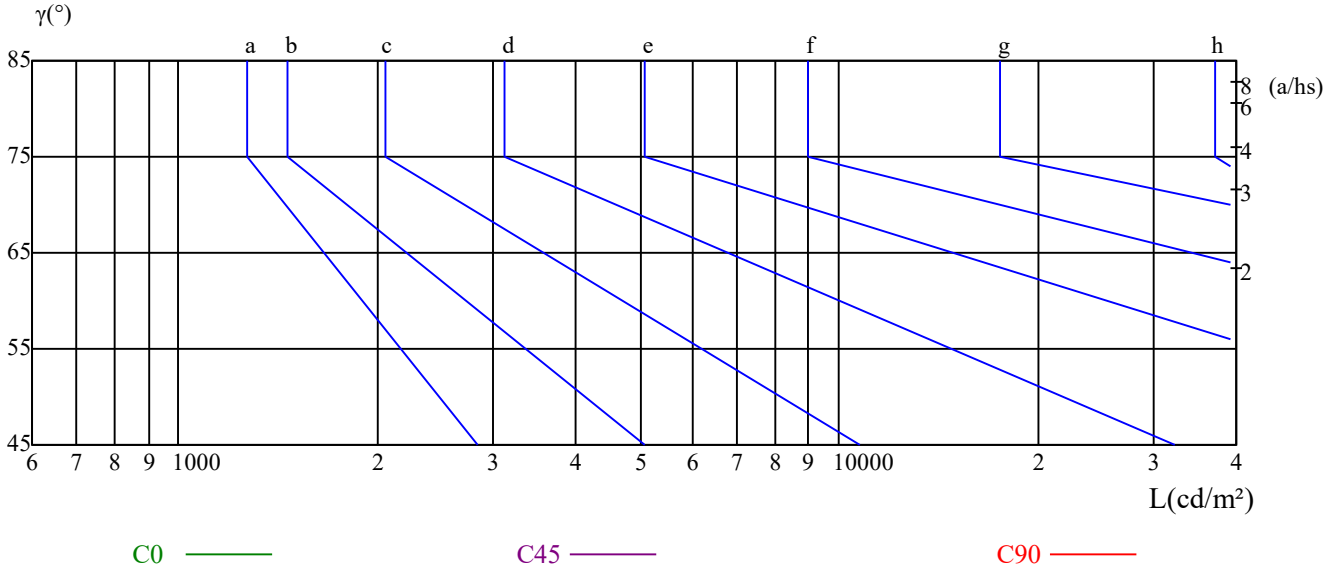
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|---|---|---|---|---|---|---|---|---|---|
| C0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| 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



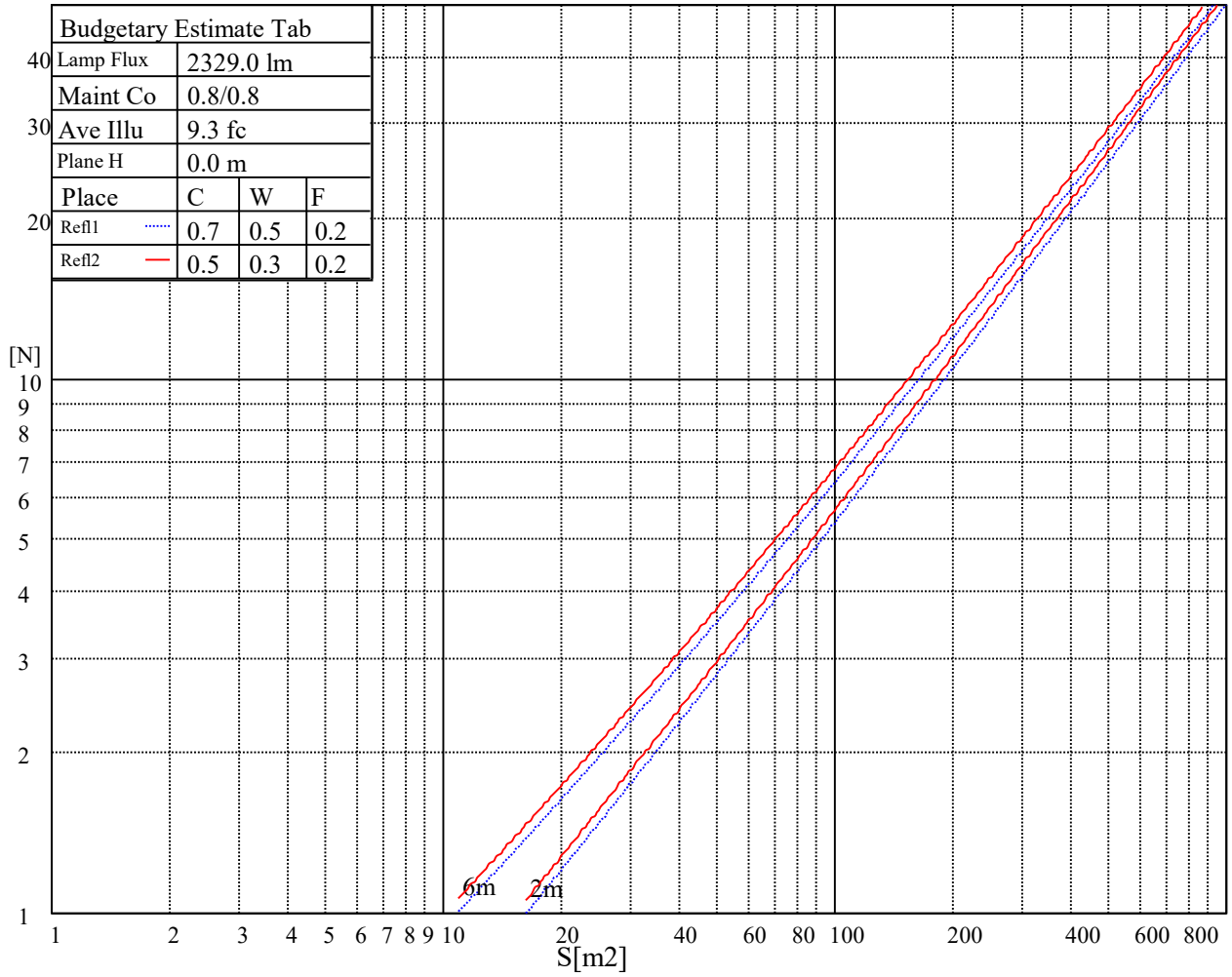

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/21
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

## Budgetary Estimate Table






Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/9/21
Humidity(%): 60.0%

Operator: NT0100
Distance(feet): 22.35

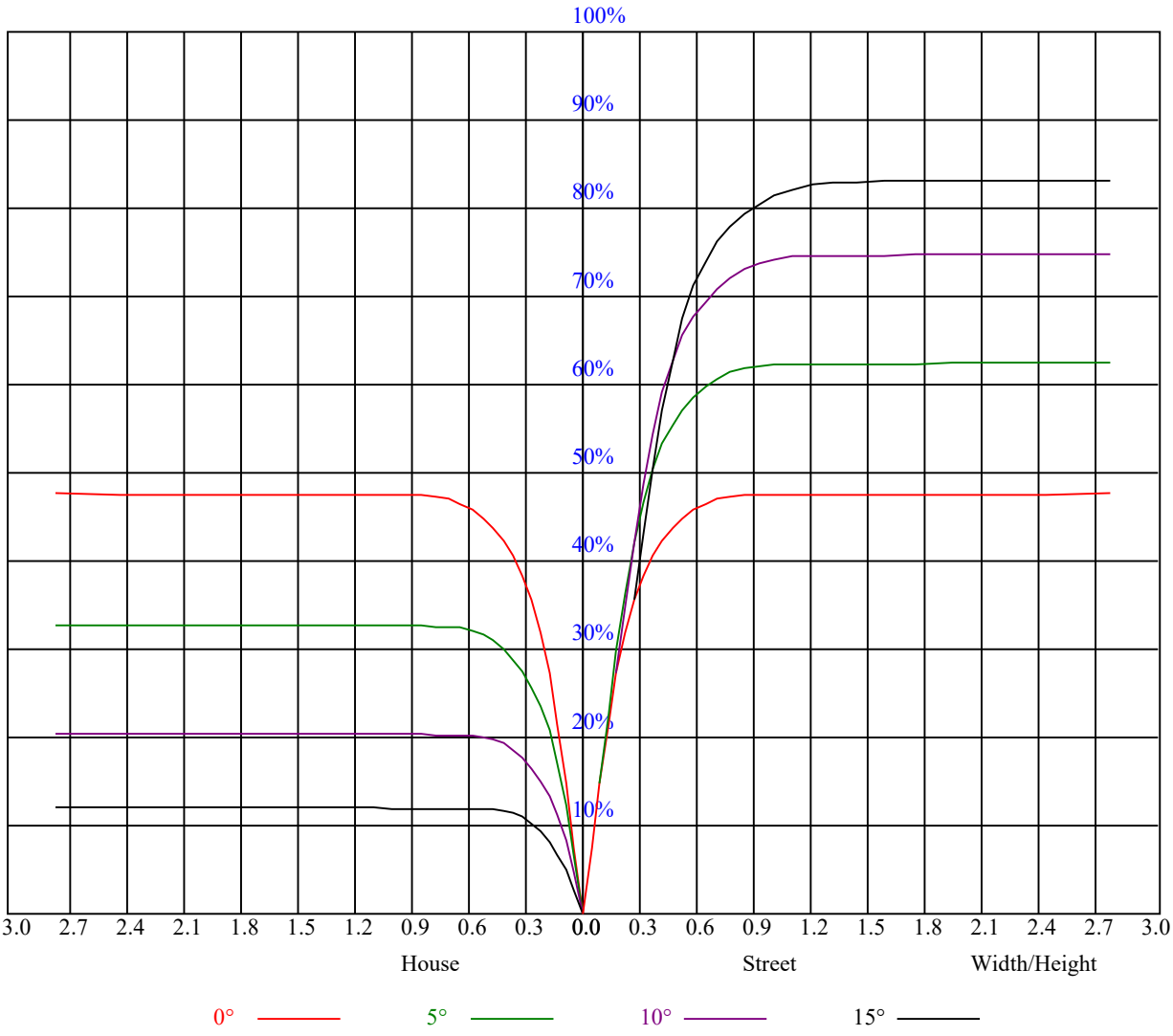
## Utilization factor table for indoor luminaire



| 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 | 1.14 | 1.14 | 1.14 | 1.11 | 1.11 | 1.11 | 1.06 | 1.06 | 1.06 | 1.01 | 1.01 | 1.01 | 0.97 | 0.97 | 0.97 | 0.95 |
| 1 | 1.07 | 1.05 | 1.04 | 1.05 | 1.03 | 1.02 | 1.01 | 1.00 | 0.99 | 0.98 | 0.97 | 0.96 | 0.95 | 0.94 | 0.93 | 0.91 |
| 2 | 1.02 | 0.99 | 0.96 | 1.00 | 0.97 | 0.95 | 0.97 | 0.95 | 0.93 | 0.94 | 0.93 | 0.91 | 0.92 | 0.90 | 0.89 | 0.88 |
| 3 | 0.97 | 0.93 | 0.90 | 0.96 | 0.92 | 0.90 | 0.93 | 0.91 | 0.88 | 0.91 | 0.89 | 0.87 | 0.89 | 0.87 | 0.86 | 0.84 |
| 4 | 0.93 | 0.89 | 0.86 | 0.92 | 0.88 | 0.85 | 0.90 | 0.87 | 0.84 | 0.88 | 0.85 | 0.83 | 0.86 | 0.84 | 0.82 | 0.81 |
| 5 | 0.89 | 0.85 | 0.82 | 0.88 | 0.84 | 0.81 | 0.87 | 0.83 | 0.81 | 0.85 | 0.82 | 0.80 | 0.84 | 0.81 | 0.79 | 0.78 |
| 6 | 0.86 | 0.81 | 0.78 | 0.85 | 0.81 | 0.78 | 0.84 | 0.80 | 0.77 | 0.82 | 0.79 | 0.77 | 0.81 | 0.79 | 0.76 | 0.75 |
| 7 | 0.82 | 0.78 | 0.75 | 0.82 | 0.78 | 0.75 | 0.81 | 0.77 | 0.75 | 0.80 | 0.77 | 0.74 | 0.79 | 0.76 | 0.74 | 0.73 |
| 8 | 0.80 | 0.75 | 0.72 | 0.79 | 0.75 | 0.72 | 0.78 | 0.75 | 0.72 | 0.77 | 0.74 | 0.72 | 0.76 | 0.74 | 0.71 | 0.70 |
| 9 | 0.77 | 0.73 | 0.70 | 0.76 | 0.72 | 0.70 | 0.76 | 0.72 | 0.70 | 0.75 | 0.72 | 0.69 | 0.74 | 0.71 | 0.69 | 0.68 |
| 10 | 0.74 | 0.70 | 0.68 | 0.74 | 0.70 | 0.67 | 0.73 | 0.70 | 0.67 | 0.73 | 0.69 | 0.67 | 0.72 | 0.69 | 0.67 | 0.66 |

## Coefficient Utilization Curve






| | | |
|---|---|---|
| Equipment: GMS 1800 | Date: 2020/9/21 | Operator: NT0100 |
| Temperature(°C): 25.0 | Humidity(%): 60.0% | Distance(feet): 22.35 |

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 | 8139.84 | 8073.95 | 7979.75 | 7860.03 | 7649.82 | 7385.79 | 7054.93 | 6654.47 | 6215.96 |
| 45.0 | 8173.72 | 8124.07 | 8049.36 | 7939.84 | 7785.32 | 7603.88 | 7268.39 | 6912.47 | 6589.51 |
| 90.0 | 8111.54 | 8028.94 | 7923.14 | 7742.63 | 7503.19 | 7193.21 | 6818.28 | 6406.68 | 5942.64 |
| 135.0 | 8162.12 | 8128.24 | 8063.74 | 7996.92 | 7850.29 | 7640.54 | 7360.73 | 6984.86 | 6598.32 |
| 180.0 | 8139.84 | 8155.16 | 8104.11 | 8043.79 | 7937.99 | 7765.83 | 7639.15 | 7240.08 | 7035.91 |
| 225.0 | 8173.72 | 8128.71 | 8051.68 | 7938.45 | 7776.50 | 7549.59 | 7250.75 | 6888.81 | 6475.35 |
| 270.0 | 8111.54 | 8175.11 | 8163.04 | 8089.26 | 7986.71 | 7918.96 | 7632.65 | 7474.42 | 7163.52 |
| 315.0 | 8162.12 | 8120.82 | 8057.71 | 7961.65 | 7812.23 | 7590.89 | 7295.30 | 6925.47 | 6604.82 |
| 360.0 | 8139.84 | 8073.95 | 7979.75 | 7860.03 | 7649.82 | 7385.79 | 7054.93 | 6654.47 | 6215.96 |

| C/γ(°) | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 17.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 5727.80 | 5242.42 | 4744.05 | 4248.46 | 3753.33 | 3345.45 | 2747.31 | 2299.05 | 1987.22 |
| 45.0 | 6145.43 | 5667.47 | 5175.60 | 4685.11 | 4177.46 | 3681.41 | 3182.11 | 2706.01 | 2293.02 |
| 90.0 | 5439.63 | 4948.68 | 4455.42 | 3953.80 | 3449.86 | 2971.90 | 2697.66 | 2279.56 | 1929.68 |
| 135.0 | 6348.21 | 5677.68 | 5376.99 | 4875.37 | 4182.57 | 3882.80 | 3390.46 | 2907.40 | 2447.08 |
| 180.0 | 6626.17 | 6147.75 | 5660.51 | 5158.43 | 4680.01 | 4182.57 | 3671.20 | 3177.93 | 2687.91 |
| 225.0 | 6005.75 | 5513.41 | 5008.54 | 4511.10 | 4004.84 | 3495.80 | 3195.57 | 2524.11 | 2285.13 |
| 270.0 | 6624.31 | 6367.70 | 5890.21 | 5384.88 | 4875.83 | 4365.39 | 3860.53 | 3363.08 | 2887.91 |
| 315.0 | 6074.43 | 5561.67 | 5155.18 | 4549.15 | 4153.33 | 3639.18 | 3134.78 | 2647.08 | 2213.67 |
| 360.0 | 5727.80 | 5242.42 | 4744.05 | 4248.46 | 3753.33 | 3345.45 | 2747.31 | 2299.05 | 1987.22 |

| C/γ(°) | 18.0 | 19.0 | 20.0 | 21.0 | 22.0 | 23.0 | 24.0 | 25.0 | 26.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 1684.67 | 1453.12 | 1287.46 | 1167.28 | 1060.08 | 893.22 | 893.22 | 864.08 | 818.18 |
| 45.0 | 1943.14 | 1670.75 | 1455.44 | 1295.35 | 1177.02 | 1076.79 | 993.73 | 930.16 | 896.74 |
| 90.0 | 1660.08 | 1451.26 | 1301.38 | 1175.63 | 1074.01 | 914.29 | 914.29 | 872.61 | 825.70 |
| 135.0 | 2057.76 | 1740.82 | 1499.52 | 1323.66 | 1194.19 | 1086.53 | 997.90 | 930.62 | 878.18 |
| 180.0 | 2255.90 | 1893.02 | 1618.32 | 1415.07 | 1265.19 | 1150.11 | 1056.84 | 973.31 | 913.45 |
| 225.0 | 1928.29 | 1552.89 | 1431.31 | 1279.11 | 1157.53 | 1054.98 | 917.25 | 917.25 | 867.60 |
| 270.0 | 2422.02 | 2029.91 | 1724.58 | 1492.10 | 1325.05 | 1198.83 | 1085.61 | 996.51 | 931.08 |
| 315.0 | 1865.18 | 1591.87 | 1395.58 | 1257.76 | 1138.97 | 1039.20 | 905.79 | 905.79 | 853.22 |
| 360.0 | 1684.67 | 1453.12 | 1287.46 | 1167.28 | 1060.08 | 893.22 | 893.22 | 864.08 | 818.18 |

| C/γ(°) | 27.0 | 28.0 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 | 34.0 | 35.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 787.93 | 753.13 | 697.44 | 630.39 | 559.35 | 515.77 | 414.89 | 370.90 | 300.74 |
| 45.0 | 846.16 | 787.70 | 766.82 | 721.80 | 658.70 | 591.41 | 516.70 | 445.24 | 370.53 |
| 90.0 | 787.19 | 744.63 | 686.96 | 647.47 | 549.69 | 506.54 | 434.47 | 334.38 | 292.81 |
| 135.0 | 830.39 | 790.48 | 754.29 | 705.10 | 640.13 | 573.78 | 529.23 | 429.46 | 386.31 |
| 180.0 | 858.69 | 812.75 | 790.48 | 751.97 | 681.43 | 642.92 | 573.78 | 500.00 | 429.00 |
| 225.0 | 818.74 | 781.90 | 752.15 | 693.54 | 627.98 | 572.76 | 483.94 | 424.96 | 351.69 |
| 270.0 | 875.86 | 834.56 | 794.19 | 751.04 | 708.35 | 646.17 | 578.42 | 506.03 | 434.57 |
| 315.0 | 805.56 | 784.63 | 742.59 | 684.50 | 620.74 | 545.33 | 475.73 | 402.87 | 333.69 |
| 360.0 | 787.93 | 753.13 | 697.44 | 630.39 | 559.35 | 515.77 | 414.89 | 370.90 | 300.74 |

| C/γ(°) | 36.0 | 37.0 | 38.0 | 39.0 | 40.0 | 41.0 | 42.0 | 43.0 | 44.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 231.09 | 164.27 | 105.10 | 52.99 | 24.32 | 16.52 | 14.94 | 13.60 | 12.48 |
| 45.0 | 299.53 | 257.31 | 257.31 | 99.16 | 47.66 | 23.43 | 12.90 | 11.74 | 9.93 |
| 90.0 | 224.04 | 157.63 | 97.08 | 47.89 | 18.14 | 11.09 | 9.37 | 7.61 | 6.31 |
| 135.0 | 316.70 | 248.49 | 248.49 | 105.61 | 55.96 | 22.97 | 14.34 | 12.06 | 9.65 |
| 180.0 | 356.61 | 286.54 | 232.25 | 232.25 | 82.04 | 36.19 | 17.17 | 14.15 | 12.67 |
| 225.0 | 281.16 | 211.69 | 145.61 | 88.82 | 39.35 | 18.47 | 14.25 | 12.44 | 10.63 |
| 270.0 | 363.57 | 293.97 | 251.27 | 251.27 | 97.96 | 48.82 | 19.63 | 13.97 | 11.74 |
| 315.0 | 264.41 | 197.12 | 133.22 | 80.14 | 33.97 | 14.80 | 12.58 | 10.44 | 8.40 |
| 360.0 | 231.09 | 164.27 | 105.10 | 52.99 | 24.32 | 16.52 | 14.94 | 13.60 | 12.48 |

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 | 11.79 | 10.95 | 10.67 | 10.44 | 10.02 | 9.61 | 9.33 | 8.96 | 8.72 |
| 45.0 | 8.31 | 7.52 | 7.19 | 7.01 | 6.77 | 6.54 | 6.31 | 6.08 | 5.85 |
| 90.0 | 5.38 | 4.97 | 4.55 | 4.27 | 4.04 | 3.90 | 3.85 | 3.85 | 3.85 |
| 135.0 | 8.40 | 7.05 | 6.26 | 6.13 | 5.38 | 5.01 | 4.64 | 4.36 | 4.27 |
| 180.0 | 10.26 | 9.88 | 9.10 | 8.77 | 8.58 | 8.45 | 8.12 | 7.84 | 7.66 |
| 225.0 | 9.74 | 9.19 | 8.68 | 8.49 | 8.31 | 8.07 | 7.75 | 7.42 | 7.15 |
| 270.0 | 10.26 | 9.42 | 8.26 | 8.12 | 7.93 | 7.70 | 7.56 | 7.52 | 7.24 |
| 315.0 | 7.70 | 7.33 | 7.15 | 7.01 | 6.91 | 6.73 | 6.54 | 6.36 | 6.13 |
| 360.0 | 11.79 | 10.95 | 10.67 | 10.44 | 10.02 | 9.61 | 9.33 | 8.96 | 8.72 |

| C/γ(°) | 54.0 | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 8.26 | 7.93 | 7.52 | 6.96 | 6.54 | 6.17 | 5.66 | 5.15 | 4.73 |
| 45.0 | 5.52 | 5.20 | 4.97 | 4.73 | 4.45 | 4.22 | 3.94 | 3.71 | 3.39 |
| 90.0 | 4.04 | 3.99 | 3.99 | 4.04 | 3.99 | 3.99 | 3.85 | 3.62 | 3.43 |
| 135.0 | 4.27 | 4.36 | 4.32 | 4.32 | 4.27 | 4.36 | 4.36 | 4.45 | 4.22 |
| 180.0 | 7.52 | 7.19 | 7.01 | 6.73 | 6.36 | 6.13 | 5.80 | 5.43 | 4.97 |
| 225.0 | 6.87 | 6.54 | 6.36 | 6.08 | 5.75 | 5.38 | 5.06 | 4.64 | 4.22 |
| 270.0 | 7.01 | 6.82 | 6.54 | 6.31 | 6.03 | 5.71 | 5.38 | 5.06 | 4.69 |
| 315.0 | 5.89 | 5.71 | 5.52 | 5.29 | 5.06 | 4.73 | 4.50 | 4.18 | 3.85 |
| 360.0 | 8.26 | 7.93 | 7.52 | 6.96 | 6.54 | 6.17 | 5.66 | 5.15 | 4.73 |

| C/γ(°) | 63.0 | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 4.36 | 4.04 | 3.71 | 3.39 | 3.11 | 2.74 | 2.37 | 2.13 | 1.86 |
| 45.0 | 3.11 | 2.92 | 2.88 | 2.69 | 2.60 | 2.46 | 2.18 | 1.90 | 1.76 |
| 90.0 | 3.16 | 2.92 | 2.88 | 2.74 | 2.51 | 2.27 | 2.04 | 1.81 | 1.58 |
| 135.0 | 3.90 | 3.67 | 3.43 | 3.20 | 2.92 | 2.74 | 2.55 | 2.18 | 2.04 |
| 180.0 | 4.64 | 4.36 | 4.13 | 3.71 | 3.53 | 3.34 | 3.02 | 2.78 | 2.41 |
| 225.0 | 3.85 | 3.57 | 3.34 | 3.06 | 2.83 | 2.60 | 2.37 | 2.13 | 1.81 |
| 270.0 | 4.36 | 4.13 | 3.76 | 3.53 | 3.34 | 3.11 | 2.88 | 2.55 | 2.23 |
| 315.0 | 3.53 | 3.39 | 3.25 | 3.06 | 2.78 | 2.64 | 2.32 | 2.13 | 1.90 |
| 360.0 | 4.36 | 4.04 | 3.71 | 3.39 | 3.11 | 2.74 | 2.37 | 2.13 | 1.86 |

| C/γ(°) | 72.0 | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 1.48 | 1.25 | 1.11 | 0.97 | 0.97 | 0.88 | 0.88 | 0.79 | 0.79 |
| 45.0 | 1.58 | 1.44 | 1.25 | 1.11 | 1.02 | 0.97 | 0.88 | 0.84 | 0.84 |
| 90.0 | 1.39 | 1.25 | 1.07 | 1.02 | 0.93 | 0.93 | 0.93 | 0.93 | 0.79 |
| 135.0 | 1.76 | 1.53 | 1.35 | 1.25 | 1.07 | 0.97 | 0.97 | 0.97 | 0.93 |
| 180.0 | 2.04 | 1.86 | 1.58 | 1.35 | 1.07 | 1.02 | 0.97 | 0.88 | 0.84 |
| 225.0 | 1.58 | 1.44 | 1.30 | 1.11 | 0.97 | 1.02 | 0.97 | 0.84 | 0.84 |
| 270.0 | 1.95 | 1.72 | 1.44 | 1.25 | 1.11 | 0.97 | 0.93 | 0.97 | 1.07 |
| 315.0 | 1.58 | 1.39 | 1.25 | 1.16 | 1.02 | 0.97 | 0.97 | 1.02 | 0.97 |
| 360.0 | 1.48 | 1.25 | 1.11 | 0.97 | 0.97 | 0.88 | 0.88 | 0.79 | 0.79 |

| C/γ(°) | 81.0 | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.74 | 0.74 | 0.65 | 0.65 | 0.60 | 0.60 | 0.56 | 0.46 | 0.51 |
| 45.0 | 0.84 | 0.79 | 0.74 | 0.65 | 0.70 | 0.70 | 0.70 | 0.65 | 0.65 |
| 90.0 | 0.79 | 0.74 | 0.70 | 0.70 | 0.70 | 0.65 | 0.70 | 0.65 | 0.65 |
| 135.0 | 0.88 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.79 | 0.74 | 0.79 |
| 180.0 | 0.84 | 0.79 | 0.79 | 0.70 | 0.70 | 0.65 | 0.65 | 0.60 | 0.60 |
| 225.0 | 0.79 | 0.74 | 0.74 | 0.70 | 0.65 | 0.65 | 0.65 | 0.65 | 0.60 |
| 270.0 | 0.93 | 0.88 | 0.79 | 0.70 | 0.65 | 0.60 | 0.60 | 0.60 | 0.60 |
| 315.0 | 0.84 | 0.84 | 0.74 | 0.74 | 0.65 | 0.65 | 0.65 | 0.70 | 0.60 |
| 360.0 | 0.74 | 0.74 | 0.65 | 0.65 | 0.60 | 0.60 | 0.56 | 0.46 | 0.51 |

Intensity data(cd)



| C/γ(°) | 90.0 |
|---|---|
| 0.0 | 0.51 |
| 45.0 | 0.65 |
| 90.0 | 0.65 |
| 135.0 | 0.79 |
| 180.0 | 0.51 |
| 225.0 | 0.60 |
| 270.0 | 0.56 |
| 315.0 | 0.65 |
| 360.0 | 0.51 |