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

## Nata

LumCAT: 2-1678-M
Luminaire: 92.70.126.00

| | |
|---|---|
| Report No: NATA0100 | Voltage(V): 36.2000 |
| Test No: GC2018082012 | Current(A): 0.4000 |
| LampCAT: LUMINUS CHM-9-AA10 | Power (W): 15.4800 |
| Lamp flux(lm): 1813.0 | PF: 1.0000 |
| Number of Lamps: 1 | Ballast type: DC |
| Length(mm): 70 | Width(mm): 70 |
| Phm Type: C | Height(mm): 0 |

## Photometric Results

Lumens(lm): 1643.64
Efficiency(%): 90.66%
Lumens(lm)/Power(W): 106.54
Central intensity(cd): 23769.220
Maximum intensity(cd): 23769.220
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=9.7
[C90/270]Total=9.7
Field angle(10%Imax): [C0/180]Total=19.0
[C90/270]Total=19.0
Maximum s/h(1/2): C0_180=0.17 C90_270=0.17
Maximum s/h(1/4): C0_180=0.17 C90_270=0.17
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.97%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.345%

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 0.0 | 23769.225 | 5.687 | 5.687 | .314% | .346% |
| 1.0 | 23238.617 | 44.475 | 50.162 | 2.453% | 3.052% |
| 2.0 | 21613.078 | 82.716 | 132.877 | 4.562% | 8.084% |
| 3.0 | 18947.660 | 108.745 | 241.622 | 5.998% | 14.700% |
| 4.0 | 15291.571 | 116.974 | 358.596 | 6.452% | 21.817% |
| 5.0 | 11279.886 | 107.808 | 466.404 | 5.946% | 28.376% |
| 6.0 | 8242.769 | 94.484 | 560.888 | 5.211% | 34.125% |
| 7.0 | 5641.629 | 75.396 | 636.285 | 4.159% | 38.712% |
| 8.0 | 3800.062 | 57.996 | 694.281 | 3.199% | 42.240% |
| 9.0 | 2742.566 | 47.048 | 741.329 | 2.595% | 45.103% |
| 10.0 | 2013.894 | 38.349 | 779.678 | 2.115% | 47.436% |
| 11.0 | 1426.133 | 29.841 | 809.519 | 1.646% | 49.252% |
| 12.0 | 1154.725 | 26.327 | 835.846 | 1.452% | 50.853% |
| 13.0 | 1023.925 | 25.259 | 861.105 | 1.393% | 52.390% |
| 14.0 | 921.025 | 24.434 | 885.539 | 1.348% | 53.877% |
| 15.0 | 856.609 | 24.313 | 909.852 | 1.341% | 55.356% |
| 16.0 | 813.059 | 24.576 | 934.428 | 1.356% | 56.851% |
| 17.0 | 779.633 | 24.996 | 959.424 | 1.379% | 58.372% |
| 18.0 | 754.293 | 25.561 | 984.985 | 1.410% | 59.927% |
| 19.0 | 735.326 | 26.253 | 1011.238 | 1.448% | 61.524% |
| 20.0 | 716.965 | 26.891 | 1038.128 | 1.483% | 63.160% |
| 21.0 | 700.620 | 27.534 | 1065.662 | 1.519% | 64.836% |
| 22.0 | 688.928 | 28.301 | 1093.963 | 1.561% | 66.557% |
| 23.0 | 677.166 | 29.015 | 1122.978 | 1.600% | 68.323% |
| 24.0 | 666.478 | 29.727 | 1152.705 | 1.640% | 70.131% |
| 25.0 | 657.105 | 30.453 | 1183.158 | 1.680% | 71.984% |
| 26.0 | 647.876 | 31.145 | 1214.303 | 1.718% | 73.879% |
| 27.0 | 638.833 | 31.804 | 1246.107 | 1.754% | 75.814% |
| 28.0 | 629.880 | 32.428 | 1278.535 | 1.789% | 77.787% |
| 29.0 | 619.674 | 32.945 | 1311.48 | 1.817% | 79.791% |
| 30.0 | 608.015 | 33.338 | 1344.818 | 1.839% | 81.820% |
| 31.0 | 598.208 | 33.787 | 1378.604 | 1.864% | 83.875% |
| 32.0 | 588.498 | 34.198 | 1412.803 | 1.886% | 85.956% |
| 33.0 | 577.404 | 34.486 | 1447.289 | 1.902% | 88.054% |
| 34.0 | 560.323 | 34.360 | 1481.648 | 1.895% | 90.144% |
| 35.0 | 514.206 | 32.343 | 1513.991 | 1.784% | 92.112% |
| 36.0 | 440.554 | 28.397 | 1542.388 | 1.566% | 93.840% |
| 37.0 | 357.282 | 23.579 | 1565.967 | 1.301% | 95.274% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 38.0 | 272.653 | 18.408 | 1584.375 | 1.015% | 96.394% |
| 39.0 | 172.554 | 11.908 | 1596.283 | .657% | 97.119% |
| 40.0 | 86.679 | 6.110 | 1602.393 | .337% | 97.491% |
| 41.0 | 42.889 | 3.086 | 1605.479 | .170% | 97.678% |
| 42.0 | 26.214 | 1.923 | 1607.402 | .106% | 97.795% |
| 43.0 | 20.460 | 1.530 | 1608.933 | .084% | 97.888% |
| 44.0 | 15.719 | 1.197 | 1610.13 | .066% | 97.961% |
| 45.0 | 11.555 | 0.896 | 1611.026 | .049% | 98.016% |
| 46.0 | 9.869 | 0.778 | 1611.804 | .043% | 98.063% |
| 47.0 | 9.380 | 0.752 | 1612.557 | .041% | 98.109% |
| 48.0 | 9.153 | 0.746 | 1613.303 | .041% | 98.154% |
| 49.0 | 8.947 | 0.740 | 1614.043 | .041% | 98.199% |
| 50.0 | 8.733 | 0.734 | 1614.777 | .040% | 98.244% |
| 51.0 | 8.561 | 0.730 | 1615.506 | .040% | 98.288% |
| 52.0 | 8.431 | 0.729 | 1616.235 | .040% | 98.333% |
| 53.0 | 8.265 | 0.724 | 1616.959 | .040% | 98.377% |
| 54.0 | 8.121 | 0.720 | 1617.679 | .040% | 98.421% |
| 55.0 | 8.018 | 0.720 | 1618.399 | .040% | 98.464% |
| 56.0 | 7.887 | 0.717 | 1619.116 | .040% | 98.508% |
| 57.0 | 7.763 | 0.714 | 1619.83 | .039% | 98.552% |
| 58.0 | 7.673 | 0.714 | 1620.544 | .039% | 98.595% |
| 59.0 | 7.577 | 0.712 | 1621.256 | .039% | 98.638% |
| 60.0 | 7.481 | 0.710 | 1621.967 | .039% | 98.681% |
| 61.0 | 7.419 | 0.712 | 1622.678 | .039% | 98.725% |
| 62.0 | 7.378 | 0.714 | 1623.393 | .039% | 98.768% |
| 63.0 | 7.323 | 0.715 | 1624.108 | .039% | 98.812% |
| 64.0 | 7.267 | 0.716 | 1624.824 | .040% | 98.855% |
| 65.0 | 7.226 | 0.718 | 1625.543 | .040% | 98.899% |
| 66.0 | 7.192 | 0.720 | 1626.263 | .040% | 98.943% |
| 67.0 | 7.150 | 0.722 | 1626.985 | .040% | 98.987% |
| 68.0 | 7.116 | 0.724 | 1627.708 | .040% | 99.031% |
| 69.0 | 7.075 | 0.724 | 1628.433 | .040% | 99.075% |
| 70.0 | 7.061 | 0.728 | 1629.16 | .040% | 99.119% |
| 71.0 | 7.033 | 0.729 | 1629.89 | .040% | 99.164% |
| 72.0 | 7.013 | 0.731 | 1630.621 | .040% | 99.208% |
| 73.0 | 6.999 | 0.734 | 1631.355 | .040% | 99.253% |
| 74.0 | 6.972 | 0.735 | 1632.09 | .041% | 99.297% |
| 75.0 | 6.958 | 0.737 | 1632.827 | .041% | 99.342% |

## Zonal flux distribution table



| γ(°) | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|---|---|---|---|---|---|
| 76.0 | 6.951 | 0.740 | 1633.566 | .041% | 99.387% |
| 77.0 | 6.923 | 0.740 | 1634.306 | .041% | 99.432% |
| 78.0 | 6.923 | 0.743 | 1635.049 | .041% | 99.477% |
| 79.0 | 6.910 | 0.744 | 1635.793 | .041% | 99.523% |
| 80.0 | 6.903 | 0.745 | 1636.538 | .041% | 99.568% |
| 81.0 | 6.896 | 0.747 | 1637.285 | .041% | 99.613% |
| 82.0 | 6.903 | 0.750 | 1638.034 | .041% | 99.659% |
| 83.0 | 6.903 | 0.751 | 1638.786 | .041% | 99.705% |
| 84.0 | 6.882 | 0.751 | 1639.536 | .041% | 99.750% |
| 85.0 | 6.868 | 0.750 | 1640.287 | .041% | 99.796% |
| 86.0 | 6.827 | 0.747 | 1641.034 | .041% | 99.842% |
| 87.0 | 6.793 | 0.744 | 1641.777 | .041% | 99.887% |
| 88.0 | 6.793 | 0.744 | 1642.522 | .041% | 99.932% |
| 89.0 | 6.786 | 0.744 | 1643.266 | .041% | 99.977% |
| 90.0 | 6.793 | 0.372 | 1643.638 | .021% | 100.000% |

## Zonal flux distribution table



ZONAL LUMEN SUMMARY

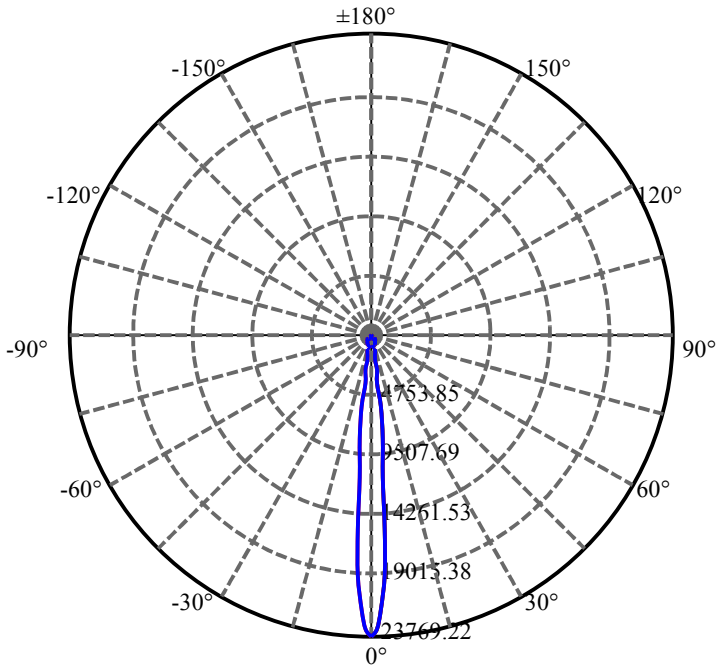
| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-30 | 1344.82 | 74.18% | 81.82% |
| 0-40 | 1602.39 | 88.38% | 97.49% |
| 0-60 | 1621.97 | 89.46% | 98.68% |
| 0-90 | 1643.27 | 90.64% | 99.98% |
| 0-120 | 1643.27 | 90.64% | 99.98% |
| 0-180 | 1643.64 | 90.66% | 100.00% |
| 60-90 | 22.01 | 1.21% | 1.34% |
| 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% |
| 0-29.10 | 1314.91 | 72.53% | 80.00% |

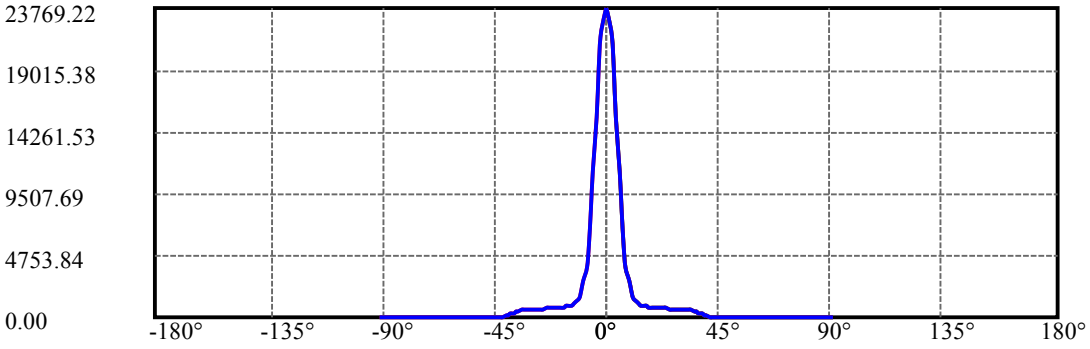
ZONAL LUMEN SUMMARY

| | |
|---|---|
| 0-10 | 779.68 |
| 10-20 | 258.45 |
| 20-30 | 306.69 |
| 30-40 | 257.58 |
| 40-50 | 12.38 |
| 50-60 | 7.19 |
| 60-70 | 7.19 |
| 70-80 | 7.38 |
| 80-90 | 6.73 |
| 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:

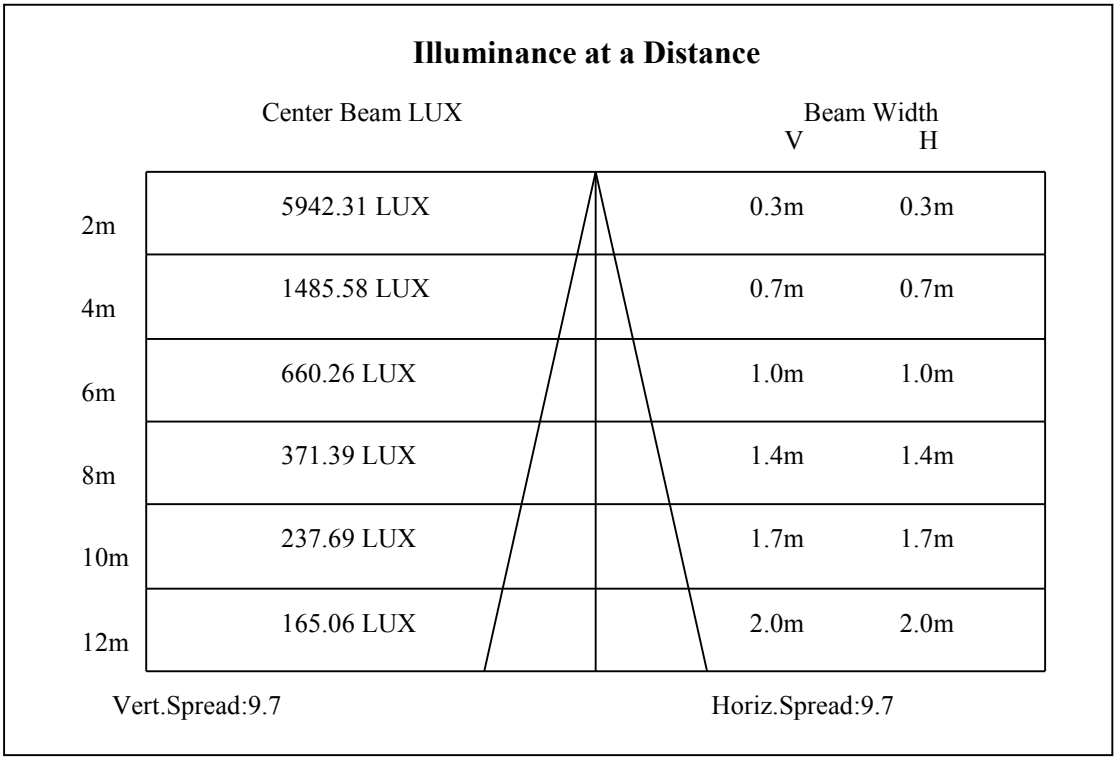
C90/C270:

Field angle(10%Imax):C0/180Left:9.5 Right:9.5
:C90/270Left:9.5 Right:9.5

Beam Angle(50%Imax):C0/180Left:4.8 Right:4.8
:C90/270Left:4.8 Right:4.8

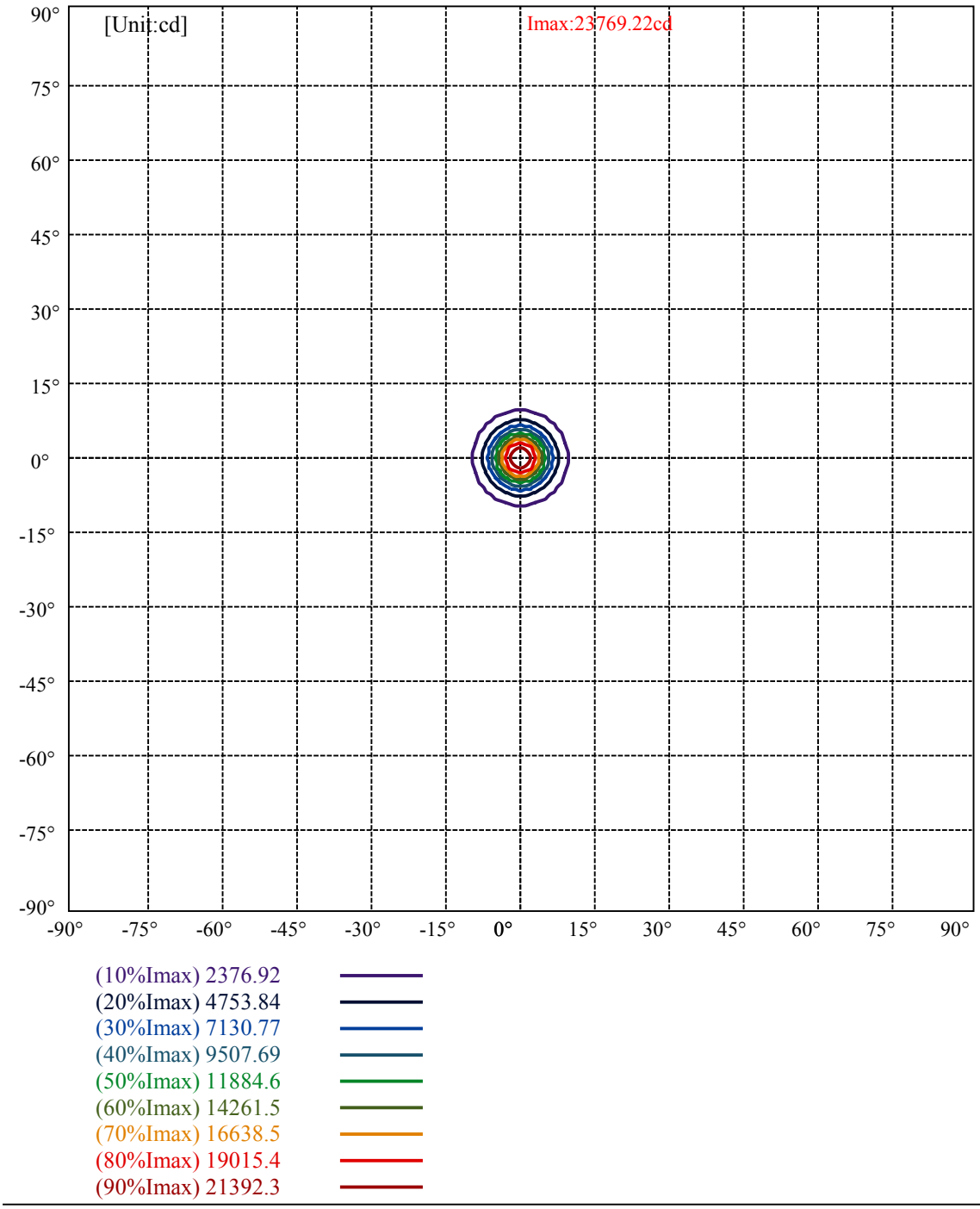
Lux distance Curve





ISO-Intensity(V-H)






(10%Imax) 2376.92
(20%Imax) 4753.84
(30%Imax) 7130.77
(40%Imax) 9507.69
(50%Imax) 11884.6
(60%Imax) 14261.5
(70%Imax) 16638.5
(80%Imax) 19015.4
(90%Imax) 21392.3

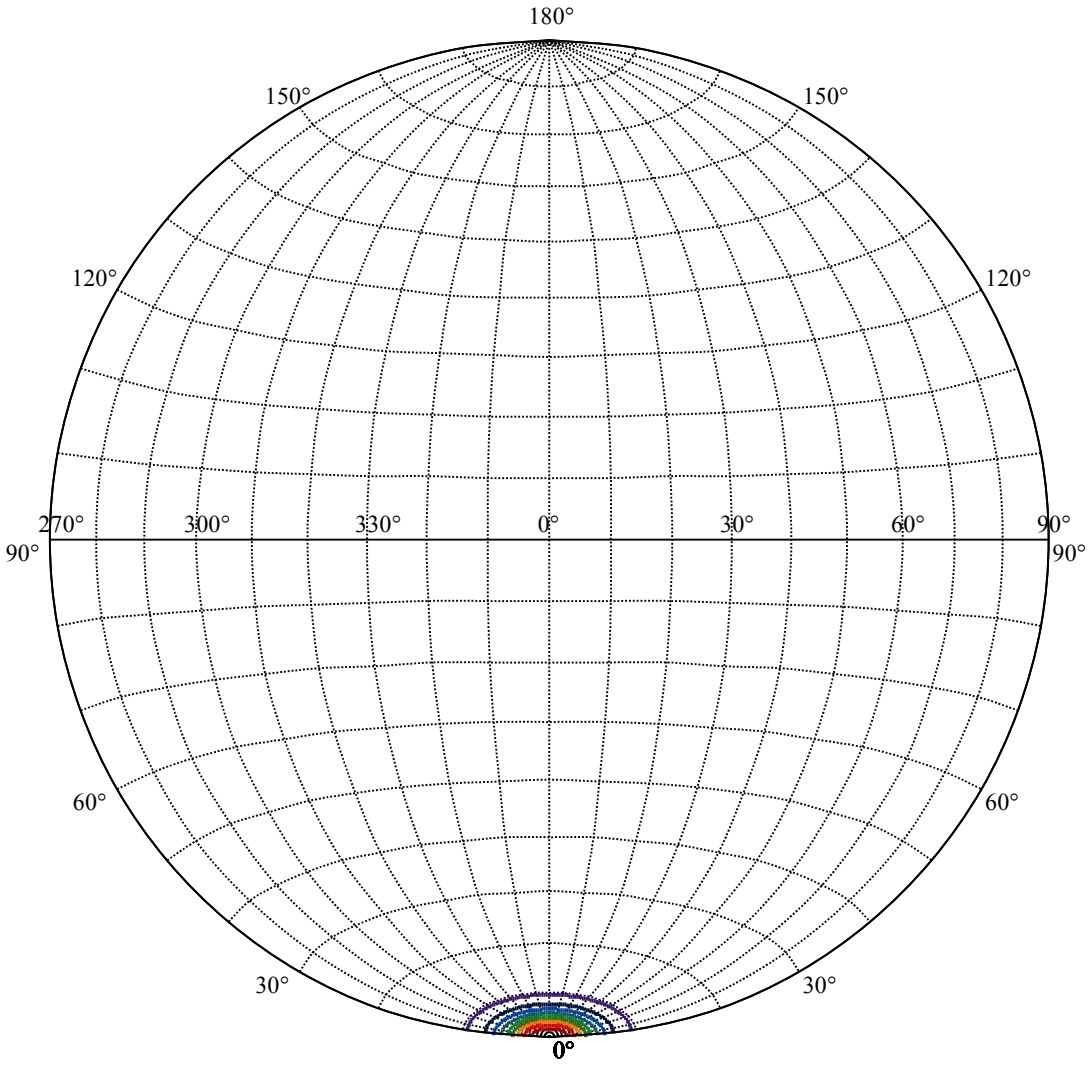
Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/8/20
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web






House [Unit:cd] Road

Imax:23769.22

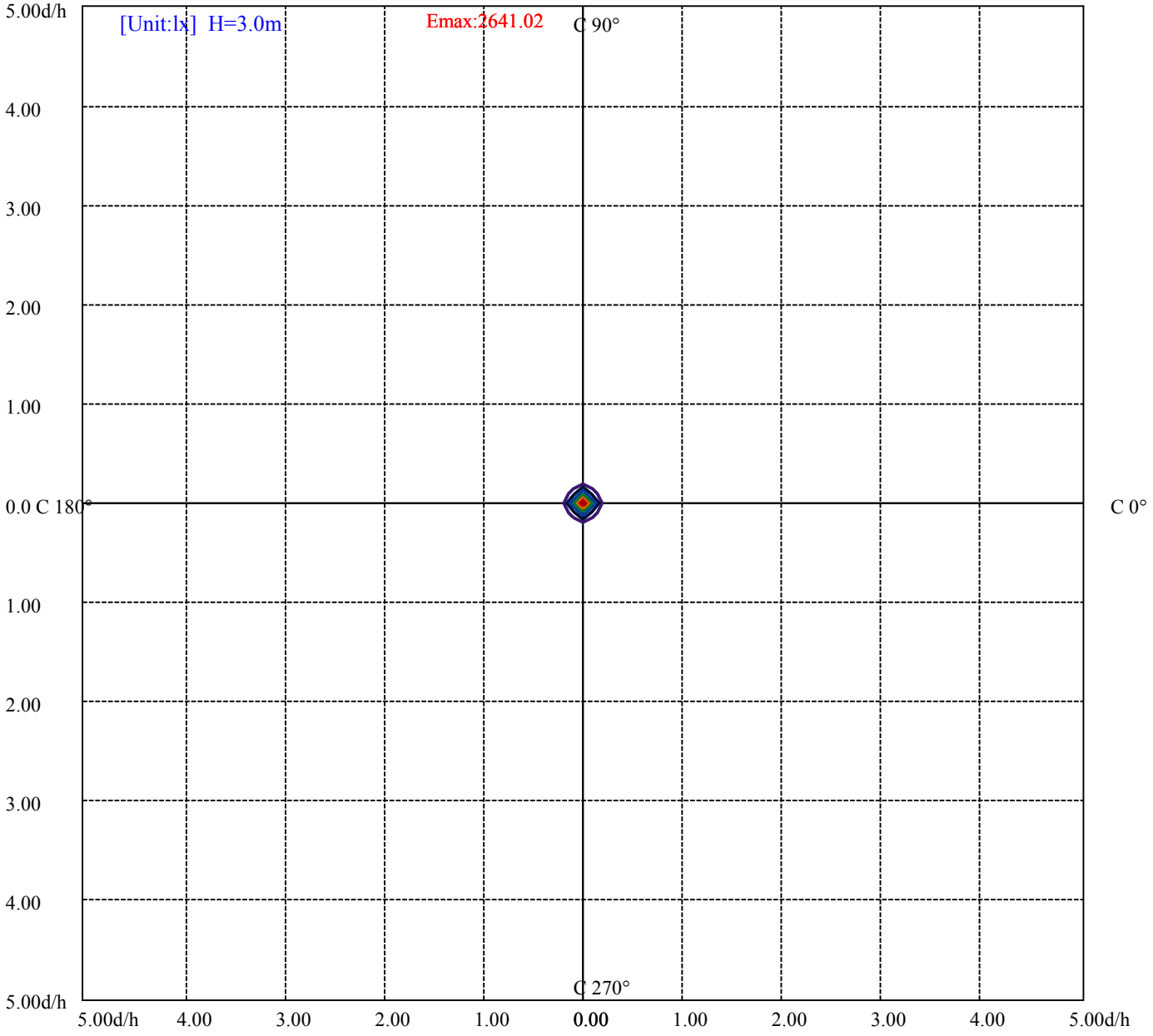
(10%Imax) 2376.92
(20%Imax) 4753.84
(30%Imax) 7130.77
(40%Imax) 9507.69
(50%Imax) 11884.6
(60%Imax) 14261.5
(70%Imax) 16638.5
(80%Imax) 19015.4
(90%Imax) 21392.3

Equipment: GMS1980 Date: 2018/8/20 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Nata 2-1678-M

ISO illuminance diagram





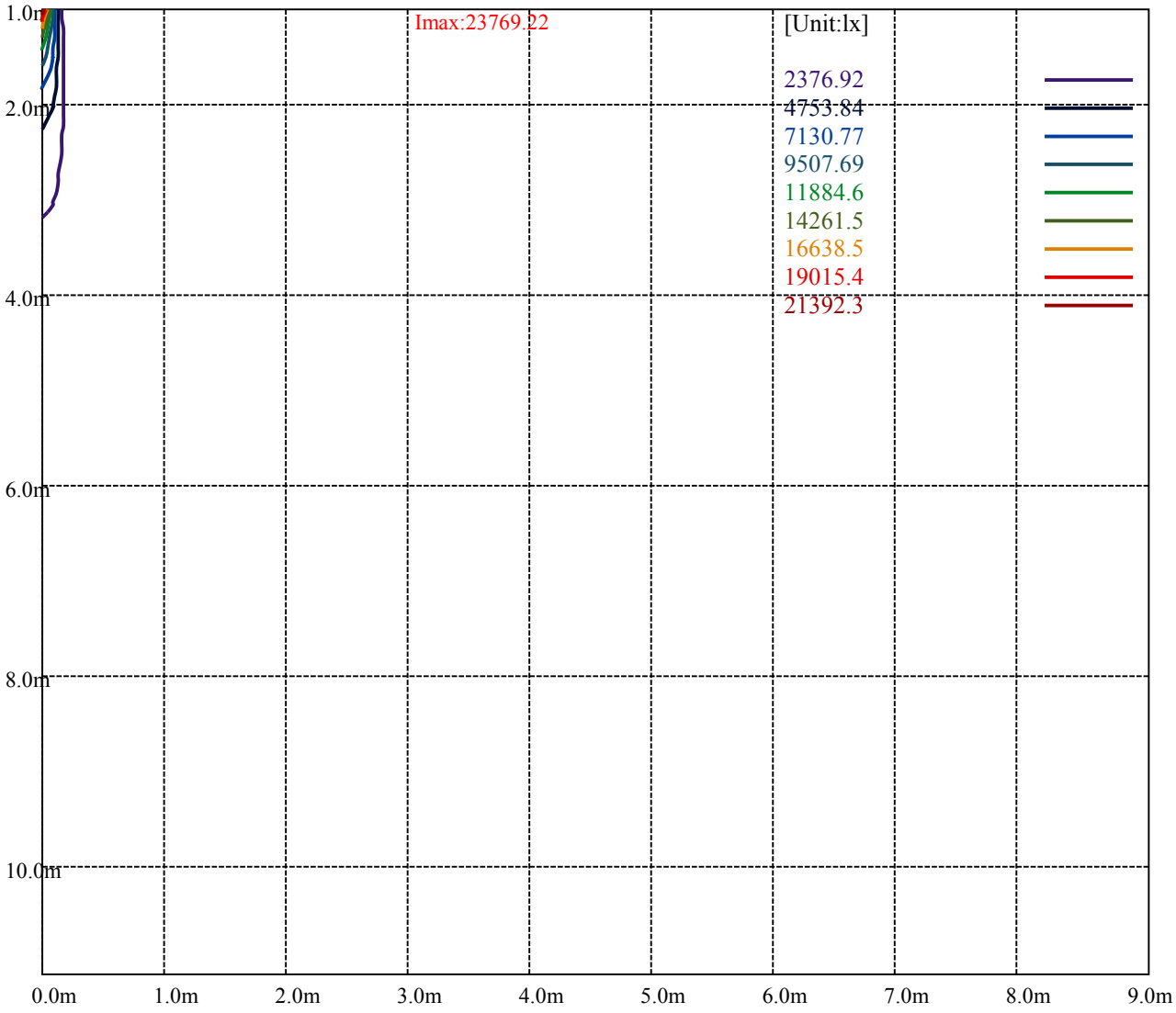

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/8/20
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

## Space ISO Lux diagram






Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/8/20
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Nata 2-1678-M

## Luminance Limitting Curve(no luminous side)



Luminance Table

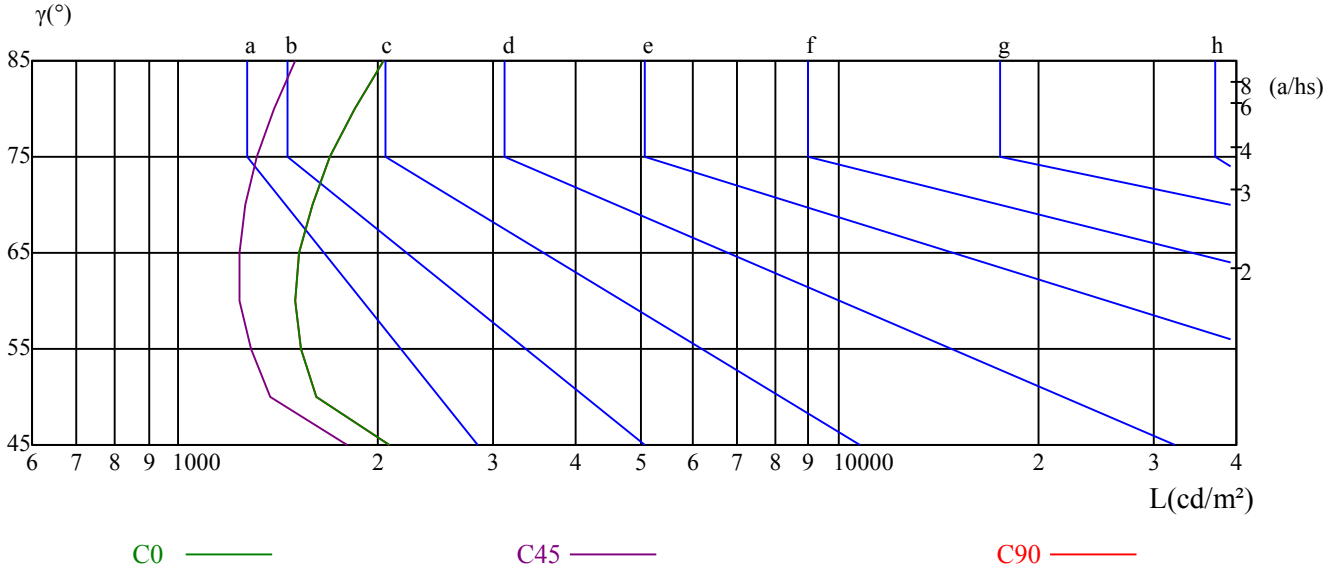
| γ | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|---|---|---|---|---|---|---|---|---|---|
| C0 | 2084 | 1617 | 1536 | 1497 | 1526 | 1591 | 1694 | 1843 | 2047 |
| C45 | 1804 | 1379 | 1290 | 1236 | 1238 | 1265 | 1317 | 1396 | 1503 |
| C90 | 2084 | 1617 | 1536 | 1497 | 1526 | 1591 | 1694 | 1843 | 2047 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|---|---|---|---|---|---|---|---|---|
| 3489 | 3489 | 3489 | 5486 | 5486 | 5486 | 16083 | 16083 | 16083 |

Glare Table

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

Luminance Limitting Curve



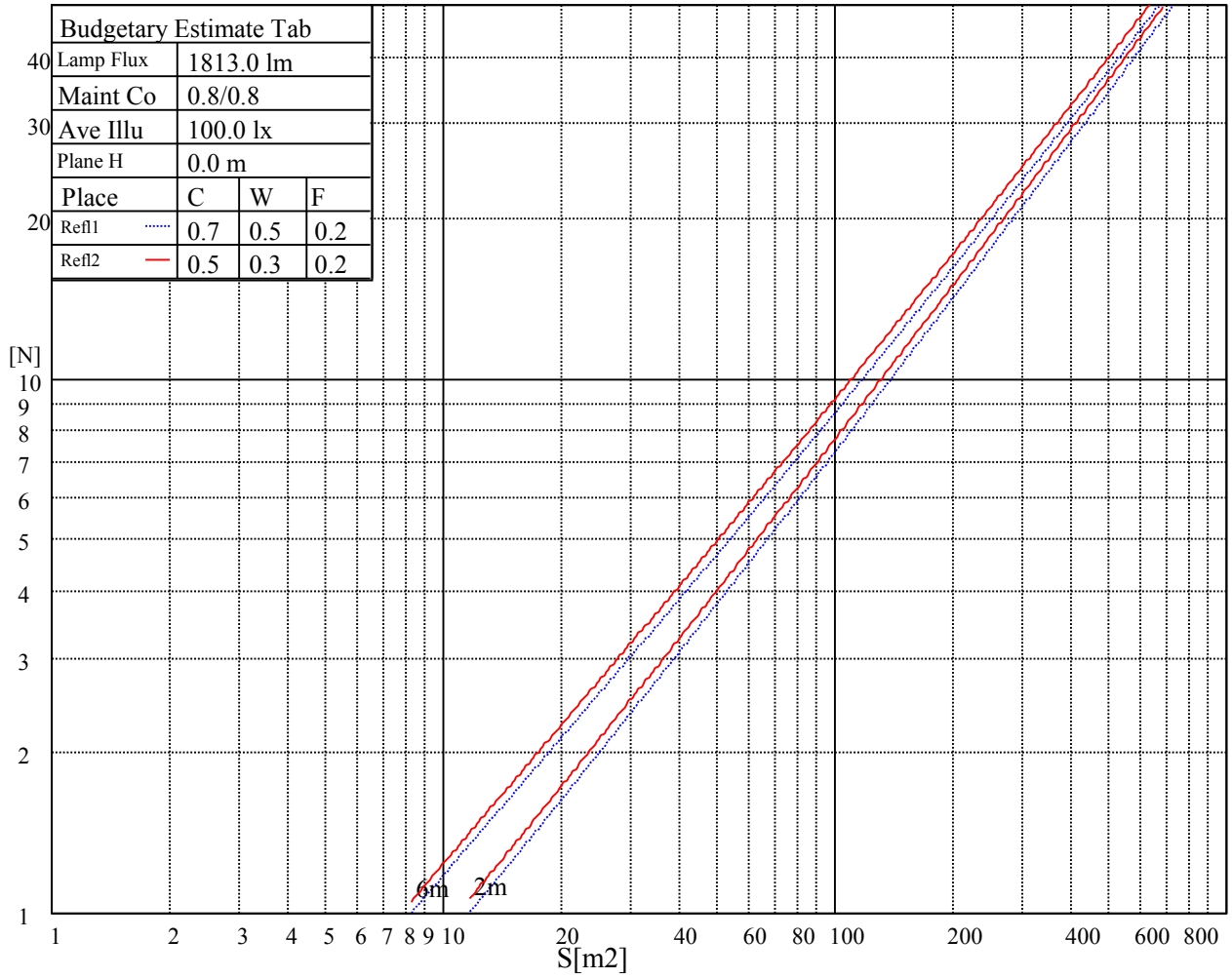

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/8/20
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

## Budgetary Estimate Table






Equipment: GMS1980 Date: 2018/8/20 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

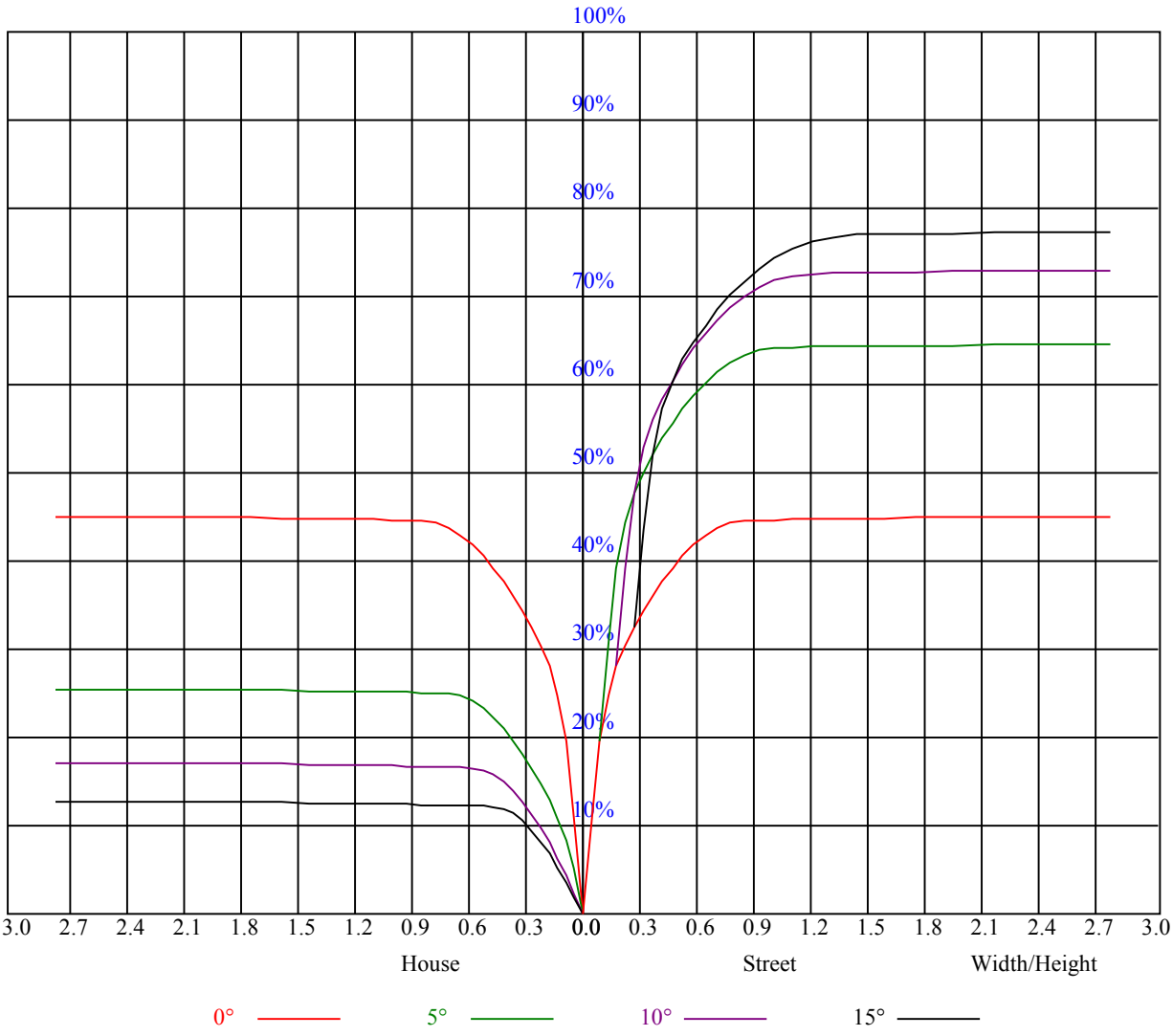
# Utilization factor table for indoor luminaire



| 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 | 0.96 | 0.96 | 0.95 | 0.93 | 0.93 | 0.92 | 0.91 | 0.90 | 0.89 | 0.88 | 0.86 |
| 2 | 0.96 | 0.93 | 0.91 | 0.95 | 0.92 | 0.90 | 0.92 | 0.90 | 0.88 | 0.89 | 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 | 0.81 | 0.85 | 0.82 | 0.80 | 0.84 | 0.81 | 0.79 | 0.82 | 0.80 | 0.78 | 0.77 |
| 5 | 0.85 | 0.80 | 0.77 | 0.84 | 0.80 | 0.77 | 0.82 | 0.79 | 0.76 | 0.81 | 0.78 | 0.76 | 0.80 | 0.77 | 0.75 | 0.74 |
| 6 | 0.81 | 0.77 | 0.74 | 0.81 | 0.77 | 0.74 | 0.80 | 0.76 | 0.74 | 0.78 | 0.75 | 0.73 | 0.77 | 0.75 | 0.73 | 0.72 |
| 7 | 0.79 | 0.75 | 0.72 | 0.78 | 0.74 | 0.71 | 0.77 | 0.74 | 0.71 | 0.76 | 0.73 | 0.71 | 0.75 | 0.73 | 0.70 | 0.69 |
| 8 | 0.76 | 0.72 | 0.69 | 0.76 | 0.72 | 0.69 | 0.75 | 0.71 | 0.69 | 0.74 | 0.71 | 0.69 | 0.73 | 0.70 | 0.68 | 0.67 |
| 9 | 0.74 | 0.70 | 0.67 | 0.73 | 0.70 | 0.67 | 0.73 | 0.69 | 0.67 | 0.72 | 0.69 | 0.67 | 0.71 | 0.69 | 0.67 | 0.66 |
| 10 | 0.72 | 0.68 | 0.65 | 0.71 | 0.68 | 0.65 | 0.71 | 0.67 | 0.65 | 0.70 | 0.67 | 0.65 | 0.70 | 0.67 | 0.65 | 0.64 |

## Coefficient Utilization Curve






Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/8/20
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

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 | 23789.87 | 23707.29 | 22292.34 | 20090.08 | 17039.96 | 13081.40 | 9271.50 | 6507.67 | 4321.93 |
| 45.0 | 23883.47 | 23024.59 | 21020.53 | 17920.86 | 14556.91 | 10719.48 | 7289.47 | 5010.13 | 3633.72 |
| 90.0 | 23503.58 | 21620.65 | 19473.45 | 15905.79 | 10617.63 | 8620.18 | 5914.16 | 3814.31 | 2576.64 |
| 135.0 | 23899.98 | 23140.20 | 20893.90 | 18113.56 | 14705.56 | 10758.02 | 7239.92 | 4866.99 | 3182.26 |
| 180.0 | 23789.87 | 22980.54 | 20607.61 | 17728.16 | 12850.16 | 9768.11 | 6752.67 | 4507.47 | 2801.82 |
| 225.0 | 23883.47 | 23696.27 | 22556.61 | 20117.61 | 16560.97 | 10628.64 | 9374.45 | 6219.72 | 4034.53 |
| 270.0 | 23503.58 | 24021.11 | 23646.72 | 21785.82 | 19209.18 | 15746.13 | 11242.52 | 8021.72 | 5566.20 |
| 315.0 | 23899.98 | 23718.30 | 22413.46 | 19919.41 | 16792.20 | 10917.13 | 8857.47 | 6185.04 | 4283.39 |
| 360.0 | 23789.87 | 23707.29 | 22292.34 | 20090.08 | 17039.96 | 13081.40 | 9271.50 | 6507.67 | 4321.93 |

| C/γ(°) | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 | 17.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 3072.15 | 2829.90 | 1617.01 | 1309.79 | 1093.42 | 964.04 | 891.91 | 840.71 | 800.52 |
| 45.0 | 2813.38 | 1751.89 | 1391.28 | 1140.77 | 994.32 | 908.98 | 847.87 | 806.03 | 778.50 |
| 90.0 | 1913.21 | 1458.44 | 1095.02 | 1027.24 | 930.51 | 853.32 | 814.12 | 783.18 | 756.70 |
| 135.0 | 2796.87 | 1661.60 | 1299.88 | 1103.88 | 972.85 | 888.61 | 838.51 | 803.27 | 770.24 |
| 180.0 | 2107.01 | 1556.44 | 1083.84 | 1066.00 | 947.41 | 876.22 | 821.11 | 786.43 | 757.63 |
| 225.0 | 2800.72 | 1961.11 | 1473.86 | 1089.24 | 1056.53 | 933.37 | 869.62 | 823.09 | 783.29 |
| 270.0 | 3540.13 | 2840.91 | 1874.12 | 1421.01 | 1152.88 | 1006.43 | 907.88 | 845.12 | 807.13 |
| 315.0 | 2897.07 | 2050.85 | 1574.06 | 1079.88 | 1043.48 | 937.23 | 861.85 | 816.65 | 783.07 |
| 360.0 | 3072.15 | 2829.90 | 1617.01 | 1309.79 | 1093.42 | 964.04 | 891.91 | 840.71 | 800.52 |

| C/γ(°) | 18.0 | 19.0 | 20.0 | 21.0 | 22.0 | 23.0 | 24.0 | 25.0 | 26.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 774.09 | 754.27 | 735.00 | 720.69 | 709.13 | 697.56 | 686.00 | 676.64 | 667.28 |
| 45.0 | 754.27 | 735.00 | 716.28 | 700.32 | 688.76 | 677.74 | 667.28 | 657.37 | 650.22 |
| 90.0 | 736.43 | 719.20 | 703.18 | 687.87 | 678.35 | 667.12 | 658.80 | 649.11 | 639.26 |
| 135.0 | 749.32 | 732.25 | 711.88 | 698.67 | 685.45 | 673.89 | 663.43 | 654.07 | 644.16 |
| 180.0 | 732.08 | 714.47 | 698.61 | 679.18 | 670.81 | 660.02 | 648.40 | 642.01 | 631.72 |
| 225.0 | 754.93 | 734.78 | 716.34 | 698.94 | 684.90 | 672.46 | 663.43 | 652.58 | 643.33 |
| 270.0 | 776.30 | 753.72 | 731.70 | 715.18 | 701.97 | 688.21 | 676.09 | 665.63 | 655.72 |
| 315.0 | 756.92 | 738.91 | 722.73 | 704.12 | 692.06 | 680.33 | 668.38 | 659.41 | 651.32 |
| 360.0 | 774.09 | 754.27 | 735.00 | 720.69 | 709.13 | 697.56 | 686.00 | 676.64 | 667.28 |

| C/γ(°) | 27.0 | 28.0 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 | 34.0 | 35.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 657.92 | 648.56 | 641.41 | 627.64 | 616.63 | 609.47 | 600.11 | 589.10 | 559.37 |
| 45.0 | 639.20 | 631.50 | 621.04 | 608.92 | 598.46 | 590.76 | 578.64 | 560.47 | 512.02 |
| 90.0 | 631.55 | 621.04 | 608.54 | 598.79 | 589.71 | 577.60 | 566.14 | 531.84 | 457.41 |
| 135.0 | 635.35 | 625.99 | 612.78 | 603.42 | 592.96 | 583.05 | 570.38 | 551.67 | 482.29 |
| 180.0 | 623.90 | 614.65 | 602.26 | 591.31 | 583.38 | 571.54 | 558.55 | 537.68 | 473.21 |
| 225.0 | 634.30 | 625.11 | 615.64 | 602.37 | 592.79 | 582.06 | 571.76 | 561.74 | 522.32 |
| 270.0 | 644.71 | 638.10 | 628.74 | 617.18 | 606.17 | 597.36 | 588.55 | 574.79 | 562.13 |
| 315.0 | 643.72 | 634.08 | 626.98 | 614.48 | 605.57 | 596.15 | 585.08 | 575.28 | 544.89 |
| 360.0 | 657.92 | 648.56 | 641.41 | 627.64 | 616.63 | 609.47 | 600.11 | 589.10 | 559.37 |

| C/γ(°) | 36.0 | 37.0 | 38.0 | 39.0 | 40.0 | 41.0 | 42.0 | 43.0 | 44.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 501.01 | 420.63 | 326.48 | 278.03 | 118.81 | 56.32 | 27.91 | 21.86 | 16.08 |
| 45.0 | 427.79 | 338.60 | 279.69 | 134.39 | 66.23 | 31.27 | 23.95 | 18.11 | 14.26 |
| 90.0 | 362.11 | 268.95 | 168.64 | 85.67 | 38.76 | 26.76 | 21.80 | 16.35 | 13.21 |
| 135.0 | 401.36 | 318.23 | 282.99 | 117.38 | 56.16 | 28.46 | 22.52 | 18.39 | 14.15 |
| 180.0 | 386.00 | 297.86 | 210.37 | 112.65 | 55.39 | 31.60 | 25.66 | 19.38 | 15.86 |
| 225.0 | 454.82 | 374.60 | 263.39 | 175.85 | 100.59 | 40.52 | 29.35 | 22.57 | 16.13 |
| 270.0 | 516.43 | 446.51 | 347.41 | 288.50 | 151.02 | 79.78 | 31.49 | 25.71 | 19.71 |
| 315.0 | 474.92 | 392.88 | 302.26 | 187.96 | 106.48 | 48.39 | 27.03 | 21.31 | 16.35 |
| 360.0 | 501.01 | 420.63 | 326.48 | 278.03 | 118.81 | 56.32 | 27.91 | 21.86 | 16.08 |

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 | 12.11 | 10.19 | 9.63 | 9.36 | 9.14 | 8.86 | 8.64 | 8.53 | 8.37 |
| 45.0 | 11.07 | 9.58 | 9.36 | 9.14 | 8.92 | 8.75 | 8.59 | 8.42 | 8.26 |
| 90.0 | 9.52 | 9.30 | 9.03 | 8.86 | 8.70 | 8.53 | 8.37 | 8.26 | 8.15 |
| 135.0 | 10.30 | 9.30 | 9.14 | 8.92 | 8.75 | 8.53 | 8.37 | 8.26 | 8.09 |
| 180.0 | 10.63 | 9.36 | 9.14 | 8.92 | 8.75 | 8.59 | 8.42 | 8.31 | 8.15 |
| 225.0 | 13.38 | 9.97 | 9.52 | 9.30 | 9.08 | 8.81 | 8.70 | 8.53 | 8.37 |
| 270.0 | 13.54 | 11.45 | 9.74 | 9.47 | 9.19 | 8.97 | 8.81 | 8.64 | 8.42 |
| 315.0 | 11.89 | 9.80 | 9.47 | 9.25 | 9.03 | 8.81 | 8.59 | 8.48 | 8.31 |
| 360.0 | 12.11 | 10.19 | 9.63 | 9.36 | 9.14 | 8.86 | 8.64 | 8.53 | 8.37 |

| C/γ(°) | 54.0 | 55.0 | 56.0 | 57.0 | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 8.20 | 8.09 | 7.98 | 7.82 | 7.71 | 7.60 | 7.54 | 7.43 | 7.38 |
| 45.0 | 8.09 | 8.04 | 7.93 | 7.82 | 7.71 | 7.65 | 7.54 | 7.49 | 7.43 |
| 90.0 | 7.98 | 7.87 | 7.76 | 7.65 | 7.60 | 7.54 | 7.43 | 7.43 | 7.38 |
| 135.0 | 7.98 | 7.93 | 7.76 | 7.65 | 7.60 | 7.49 | 7.38 | 7.38 | 7.32 |
| 180.0 | 7.98 | 7.87 | 7.76 | 7.65 | 7.54 | 7.49 | 7.38 | 7.32 | 7.32 |
| 225.0 | 8.20 | 8.09 | 7.93 | 7.87 | 7.76 | 7.60 | 7.54 | 7.43 | 7.38 |
| 270.0 | 8.31 | 8.15 | 8.04 | 7.87 | 7.76 | 7.65 | 7.54 | 7.49 | 7.43 |
| 315.0 | 8.20 | 8.09 | 7.93 | 7.76 | 7.71 | 7.60 | 7.49 | 7.38 | 7.38 |
| 360.0 | 8.20 | 8.09 | 7.98 | 7.82 | 7.71 | 7.60 | 7.54 | 7.43 | 7.38 |

| C/γ(°) | 63.0 | 64.0 | 65.0 | 66.0 | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 7.38 | 7.27 | 7.27 | 7.16 | 7.16 | 7.10 | 7.10 | 7.05 | 7.05 |
| 45.0 | 7.38 | 7.32 | 7.27 | 7.21 | 7.21 | 7.16 | 7.10 | 7.10 | 7.05 |
| 90.0 | 7.32 | 7.32 | 7.27 | 7.27 | 7.21 | 7.16 | 7.16 | 7.16 | 7.10 |
| 135.0 | 7.27 | 7.21 | 7.16 | 7.16 | 7.10 | 7.10 | 7.05 | 7.05 | 6.99 |
| 180.0 | 7.27 | 7.16 | 7.16 | 7.10 | 7.05 | 7.05 | 6.99 | 6.99 | 6.99 |
| 225.0 | 7.32 | 7.27 | 7.21 | 7.21 | 7.16 | 7.10 | 7.05 | 7.05 | 6.99 |
| 270.0 | 7.38 | 7.32 | 7.27 | 7.27 | 7.21 | 7.16 | 7.10 | 7.10 | 7.10 |
| 315.0 | 7.27 | 7.27 | 7.21 | 7.16 | 7.10 | 7.10 | 7.05 | 6.99 | 6.99 |
| 360.0 | 7.38 | 7.27 | 7.27 | 7.16 | 7.16 | 7.10 | 7.10 | 7.05 | 7.05 |

| C/γ(°) | 72.0 | 73.0 | 74.0 | 75.0 | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 6.99 | 6.99 | 6.94 | 6.94 | 6.94 | 6.88 | 6.88 | 6.88 | 6.88 |
| 45.0 | 7.05 | 7.05 | 6.99 | 6.99 | 6.94 | 6.94 | 6.94 | 6.88 | 6.88 |
| 90.0 | 7.10 | 7.10 | 7.10 | 7.05 | 7.05 | 7.05 | 7.05 | 7.05 | 7.05 |
| 135.0 | 6.99 | 6.99 | 6.94 | 6.94 | 6.94 | 6.88 | 6.88 | 6.88 | 6.88 |
| 180.0 | 6.94 | 6.94 | 6.88 | 6.88 | 6.88 | 6.88 | 6.88 | 6.83 | 6.83 |
| 225.0 | 6.99 | 6.94 | 6.94 | 6.94 | 6.94 | 6.88 | 6.88 | 6.88 | 6.88 |
| 270.0 | 7.05 | 7.05 | 7.05 | 7.05 | 7.05 | 6.99 | 6.99 | 6.99 | 6.99 |
| 315.0 | 6.99 | 6.94 | 6.94 | 6.88 | 6.88 | 6.88 | 6.88 | 6.88 | 6.83 |
| 360.0 | 6.99 | 6.99 | 6.94 | 6.94 | 6.94 | 6.88 | 6.88 | 6.88 | 6.88 |

| C/γ(°) | 81.0 | 82.0 | 83.0 | 84.0 | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 6.88 | 6.88 | 6.83 | 6.88 | 6.83 | 6.83 | 6.77 | 6.83 | 6.83 |
| 45.0 | 6.88 | 6.88 | 6.88 | 6.88 | 6.88 | 6.83 | 6.83 | 6.83 | 6.77 |
| 90.0 | 7.05 | 7.10 | 7.21 | 7.05 | 6.94 | 6.77 | 6.77 | 6.77 | 6.77 |
| 135.0 | 6.83 | 6.88 | 6.88 | 6.83 | 6.83 | 6.83 | 6.83 | 6.77 | 6.77 |
| 180.0 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.77 | 6.77 | 6.77 |
| 225.0 | 6.88 | 6.83 | 6.83 | 6.83 | 6.83 | 6.77 | 6.77 | 6.77 | 6.77 |
| 270.0 | 6.99 | 6.99 | 6.94 | 6.94 | 6.99 | 6.94 | 6.83 | 6.83 | 6.83 |
| 315.0 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.77 | 6.77 | 6.77 |
| 360.0 | 6.88 | 6.88 | 6.83 | 6.88 | 6.83 | 6.83 | 6.77 | 6.83 | 6.83 |

Intensity data(cd)

| C/γ(°) | 90.0 |
|---|---|
| 0.0 | 6.83 |
| 45.0 | 6.83 |
| 90.0 | 6.77 |
| 135.0 | 6.77 |
| 180.0 | 6.77 |
| 225.0 | 6.77 |
| 270.0 | 6.83 |
| 315.0 | 6.77 |
| 360.0 | 6.83 |