



NATA LIGHTING CO.,LTD.  
www.nata.cn  
Email:info@nata.com  
Tel:+86-750-3770000 Fax:+86-750-3771111  
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

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## NATA

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Client:

LumCAT: 1709-M

Luminaire: 92.70.123.00

Report No: nt0100

Test No: GC2020011601

LampCAT: LUMINUS CXM-6 AC40

Lamp flux(lm): 844.0

Number of Lamps: 1

Length(mm): 0

Phm Type: C

Voltage(V): 34.6400

Current(A): 0.1970

Power (W): 6.8200

PF: 0.0000

Ballast type: DC

Width(mm): 0

Height(mm): 0

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## Photometric Results

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Lumens(lm): 776.62, Efficiency(%): 92.02% , Luminous Efficacy(lm/W): 113.87

Central intensity(cd): 5008.781, Maximum intensity(cd): 5008.781

Angle of maximum intensity: C=0.0  $\gamma$ =0.0

Beam Angle(50%Imax): [C0/180]Total=12.6

[C90/270]Total=12.6

Field angle(10%Imax): [C0/180]Total=32.4

[C90/270]Total=32.4

Maximum s/h(1/2): C0\_180=0.22 C90\_270=0.22

Maximum s/h(1/4): C0\_180=0.23 C90\_270=0.23

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 92.02%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 98.742%

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 5008.781      | 0.000       | 0         | .000%       | .000%      |
| 1.0                | 4930.242      | 4.756       | 4.756     | .563%       | .612%      |
| 2.0                | 4626.563      | 13.717      | 18.472    | 1.625%      | 2.379%     |
| 3.0                | 4192.805      | 21.093      | 39.565    | 2.499%      | 5.095%     |
| 4.0                | 3701.672      | 26.425      | 65.991    | 3.131%      | 8.497%     |
| 5.0                | 3136.500      | 29.417      | 95.408    | 3.485%      | 12.285%    |
| 6.0                | 2622.375      | 30.264      | 125.673   | 3.586%      | 16.182%    |
| 7.0                | 2185.172      | 29.840      | 155.513   | 3.536%      | 20.024%    |
| 8.0                | 1759.570      | 28.232      | 183.745   | 3.345%      | 23.660%    |
| 9.0                | 1398.284      | 25.593      | 209.338   | 3.032%      | 26.955%    |
| 10.0               | 1143.633      | 23.003      | 232.341   | 2.726%      | 29.917%    |
| 11.0               | 943.123       | 20.851      | 253.192   | 2.470%      | 32.602%    |
| 12.0               | 805.500       | 19.115      | 272.307   | 2.265%      | 35.063%    |
| 13.0               | 694.202       | 17.798      | 290.105   | 2.109%      | 37.355%    |
| 14.0               | 610.615       | 16.702      | 306.806   | 1.979%      | 39.505%    |
| 15.0               | 554.365       | 15.993      | 322.799   | 1.895%      | 41.565%    |
| 16.0               | 509.970       | 15.595      | 338.395   | 1.848%      | 43.573%    |
| 17.0               | 468.148       | 15.232      | 353.627   | 1.805%      | 45.534%    |
| 18.0               | 438.623       | 14.951      | 368.578   | 1.771%      | 47.459%    |
| 19.0               | 413.979       | 14.834      | 383.411   | 1.758%      | 49.369%    |
| 20.0               | 389.573       | 14.707      | 398.118   | 1.743%      | 51.263%    |
| 21.0               | 368.684       | 14.560      | 412.678   | 1.725%      | 53.138%    |
| 22.0               | 351.197       | 14.466      | 427.145   | 1.714%      | 55.001%    |
| 23.0               | 333.640       | 14.370      | 441.514   | 1.703%      | 56.851%    |
| 24.0               | 318.705       | 14.263      | 455.777   | 1.690%      | 58.687%    |
| 25.0               | 307.688       | 14.243      | 470.02    | 1.688%      | 60.521%    |
| 26.0               | 297.949       | 14.296      | 484.316   | 1.694%      | 62.362%    |
| 27.0               | 289.877       | 14.381      | 498.697   | 1.704%      | 64.214%    |
| 28.0               | 283.535       | 14.518      | 513.215   | 1.720%      | 66.083%    |
| 29.0               | 277.362       | 14.675      | 527.889   | 1.739%      | 67.973%    |
| 30.0               | 271.962       | 14.832      | 542.721   | 1.757%      | 69.883%    |
| 31.0               | 268.095       | 15.029      | 557.75    | 1.781%      | 71.818%    |
| 32.0               | 264.080       | 15.246      | 572.996   | 1.806%      | 73.781%    |
| 33.0               | 260.311       | 15.449      | 588.445   | 1.830%      | 75.770%    |
| 34.0               | 256.683       | 15.646      | 604.091   | 1.854%      | 77.785%    |
| 35.0               | 252.309       | 15.807      | 619.898   | 1.873%      | 79.820%    |
| 36.0               | 248.133       | 15.934      | 635.832   | 1.888%      | 81.872%    |
| 37.0               | 243.492       | 16.034      | 651.866   | 1.900%      | 83.936%    |

| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 38.0               | 238.359       | 16.084      | 667.95    | 1.906%      | 86.007%    |
| 39.0               | 232.643       | 16.077      | 684.027   | 1.905%      | 88.078%    |
| 40.0               | 220.472       | 15.803      | 699.83    | 1.872%      | 90.112%    |
| 41.0               | 196.538       | 14.850      | 714.679   | 1.759%      | 92.024%    |
| 42.0               | 165.340       | 13.148      | 727.827   | 1.558%      | 93.717%    |
| 43.0               | 132.870       | 11.047      | 738.873   | 1.309%      | 95.140%    |
| 44.0               | 100.526       | 8.809       | 747.682   | 1.044%      | 96.274%    |
| 45.0               | 67.155        | 6.444       | 754.126   | .764%       | 97.104%    |
| 46.0               | 38.658        | 4.138       | 758.265   | .490%       | 97.637%    |
| 47.0               | 19.202        | 2.301       | 760.566   | .273%       | 97.933%    |
| 48.0               | 9.963         | 1.179       | 761.745   | .140%       | 98.085%    |
| 49.0               | 8.353         | 0.752       | 762.497   | .089%       | 98.182%    |
| 50.0               | 7.109         | 0.645       | 763.142   | .076%       | 98.265%    |
| 51.0               | 5.913         | 0.551       | 763.693   | .065%       | 98.336%    |
| 52.0               | 4.971         | 0.467       | 764.16    | .055%       | 98.396%    |
| 53.0               | 4.233         | 0.400       | 764.56    | .047%       | 98.447%    |
| 54.0               | 3.867         | 0.357       | 764.917   | .042%       | 98.493%    |
| 55.0               | 3.748         | 0.340       | 765.257   | .040%       | 98.537%    |
| 56.0               | 3.607         | 0.332       | 765.589   | .039%       | 98.580%    |
| 57.0               | 3.396         | 0.320       | 765.909   | .038%       | 98.621%    |
| 58.0               | 3.354         | 0.312       | 766.222   | .037%       | 98.661%    |
| 59.0               | 3.333         | 0.313       | 766.534   | .037%       | 98.701%    |
| 60.0               | 3.291         | 0.313       | 766.847   | .037%       | 98.742%    |
| 61.0               | 3.270         | 0.313       | 767.16    | .037%       | 98.782%    |
| 62.0               | 3.248         | 0.314       | 767.474   | .037%       | 98.823%    |
| 63.0               | 3.213         | 0.314       | 767.789   | .037%       | 98.863%    |
| 64.0               | 3.185         | 0.314       | 768.103   | .037%       | 98.903%    |
| 65.0               | 3.171         | 0.315       | 768.417   | .037%       | 98.944%    |
| 66.0               | 3.164         | 0.316       | 768.733   | .037%       | 98.985%    |
| 67.0               | 3.157         | 0.318       | 769.051   | .038%       | 99.026%    |
| 68.0               | 3.129         | 0.318       | 769.369   | .038%       | 99.067%    |
| 69.0               | 3.143         | 0.320       | 769.689   | .038%       | 99.108%    |
| 70.0               | 3.115         | 0.321       | 770.011   | .038%       | 99.149%    |
| 71.0               | 3.122         | 0.322       | 770.333   | .038%       | 99.191%    |
| 72.0               | 3.101         | 0.324       | 770.657   | .038%       | 99.232%    |
| 73.0               | 3.101         | 0.324       | 770.981   | .038%       | 99.274%    |
| 74.0               | 3.087         | 0.325       | 771.306   | .039%       | 99.316%    |
| 75.0               | 3.087         | 0.326       | 771.632   | .039%       | 99.358%    |

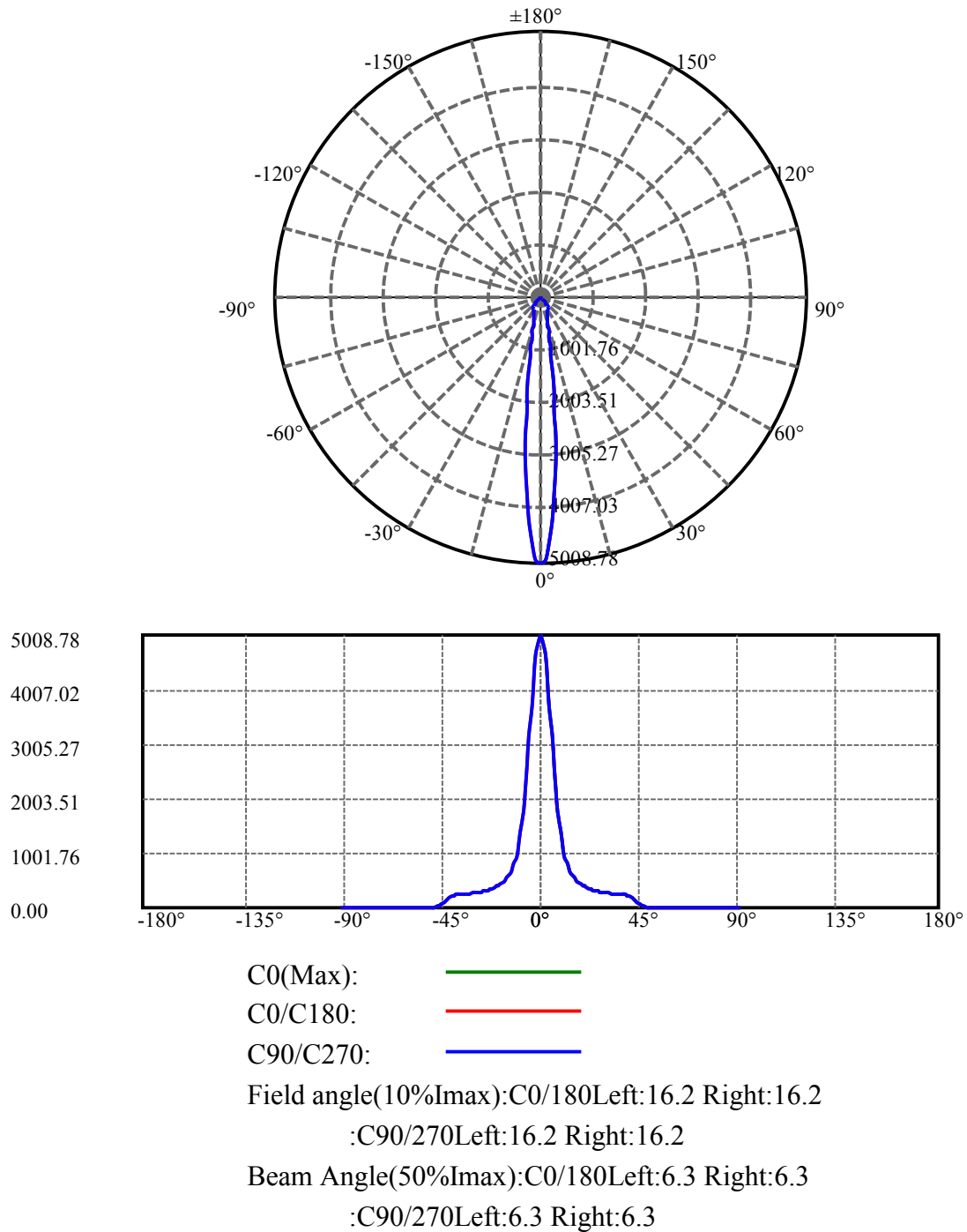
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 76.0               | 3.087         | 0.328       | 771.96    | .039%       | 99.400%    |
| 77.0               | 3.094         | 0.330       | 772.29    | .039%       | 99.443%    |
| 78.0               | 3.094         | 0.331       | 772.621   | .039%       | 99.485%    |
| 79.0               | 3.087         | 0.332       | 772.953   | .039%       | 99.528%    |
| 80.0               | 3.066         | 0.332       | 773.285   | .039%       | 99.571%    |
| 81.0               | 3.066         | 0.332       | 773.616   | .039%       | 99.613%    |
| 82.0               | 3.087         | 0.334       | 773.95    | .040%       | 99.656%    |
| 83.0               | 3.059         | 0.334       | 774.284   | .040%       | 99.699%    |
| 84.0               | 3.073         | 0.334       | 774.618   | .040%       | 99.742%    |
| 85.0               | 3.052         | 0.334       | 774.952   | .040%       | 99.785%    |
| 86.0               | 3.045         | 0.333       | 775.285   | .039%       | 99.828%    |
| 87.0               | 3.038         | 0.333       | 775.618   | .039%       | 99.871%    |
| 88.0               | 3.038         | 0.333       | 775.951   | .039%       | 99.914%    |
| 89.0               | 3.052         | 0.334       | 776.285   | .040%       | 99.957%    |
| 90.0               | 3.038         | 0.334       | 776.619   | .040%       | 100.000%   |

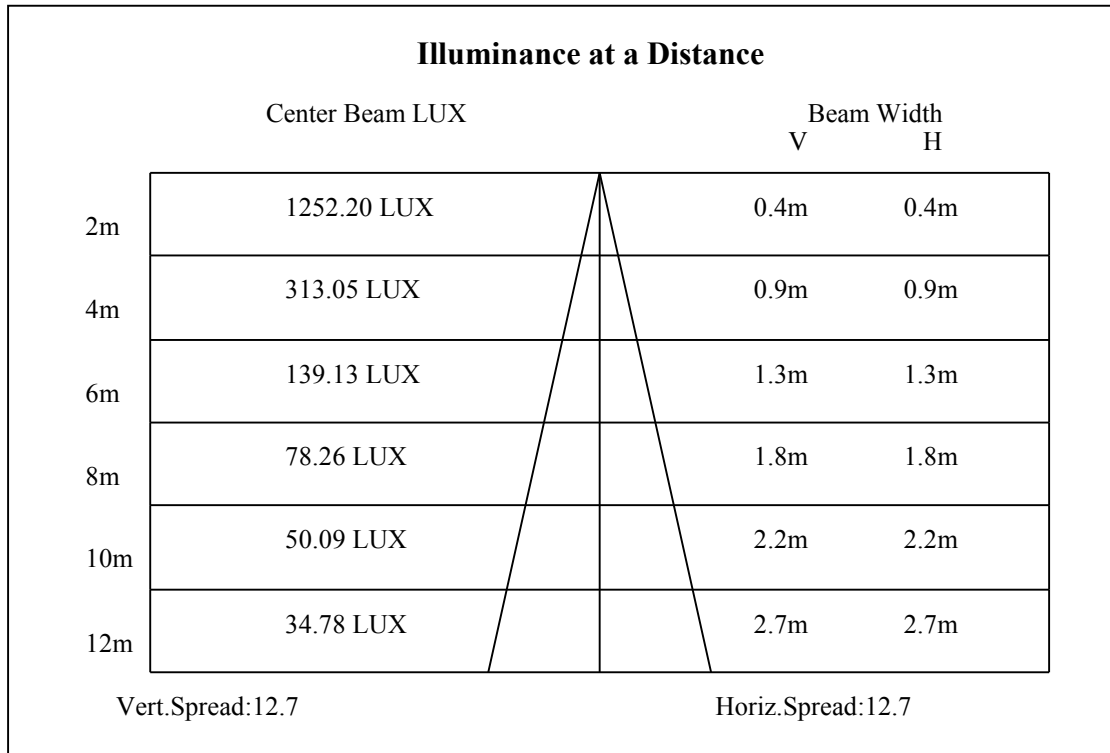
## ZONAL LUMEN SUMMARY

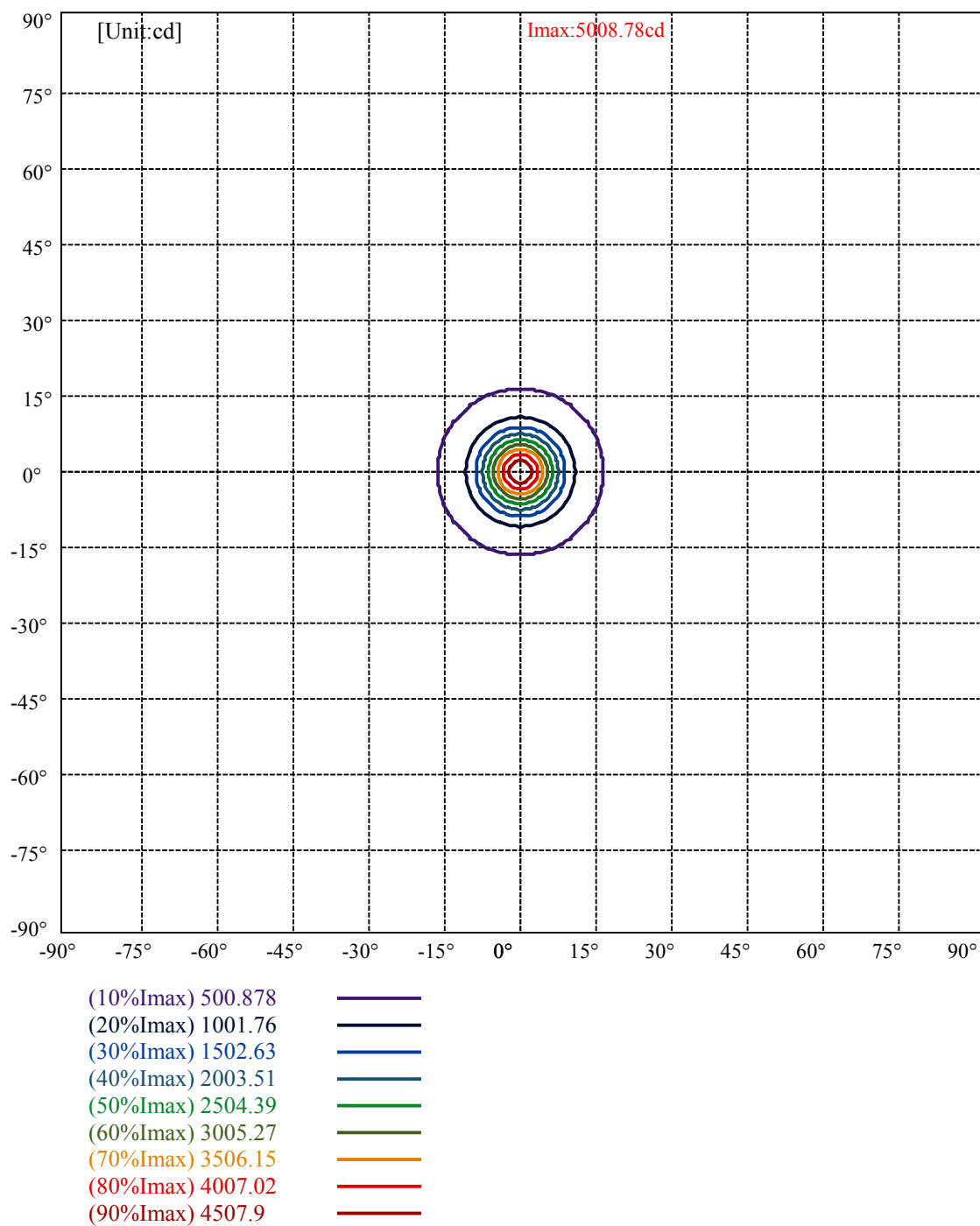
| Zone    | Lumens | %Lamp  | %Fixt   |
|---------|--------|--------|---------|
| 0-30    | 542.72 | 64.30% | 69.88%  |
| 0-40    | 699.83 | 82.92% | 90.11%  |
| 0-60    | 766.85 | 90.86% | 98.74%  |
| 0-90    | 776.28 | 91.98% | 99.96%  |
| 0-120   | 776.28 | 91.98% | 99.96%  |
| 0-180   | 776.62 | 92.02% | 100.00% |
| 60-90   | 9.75   | 1.16%  | 1.26%   |
| 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%   |
| 0-35.09 | 621.29 | 73.61% | 80.00%  |

## ZONAL LUMEN SUMMARY

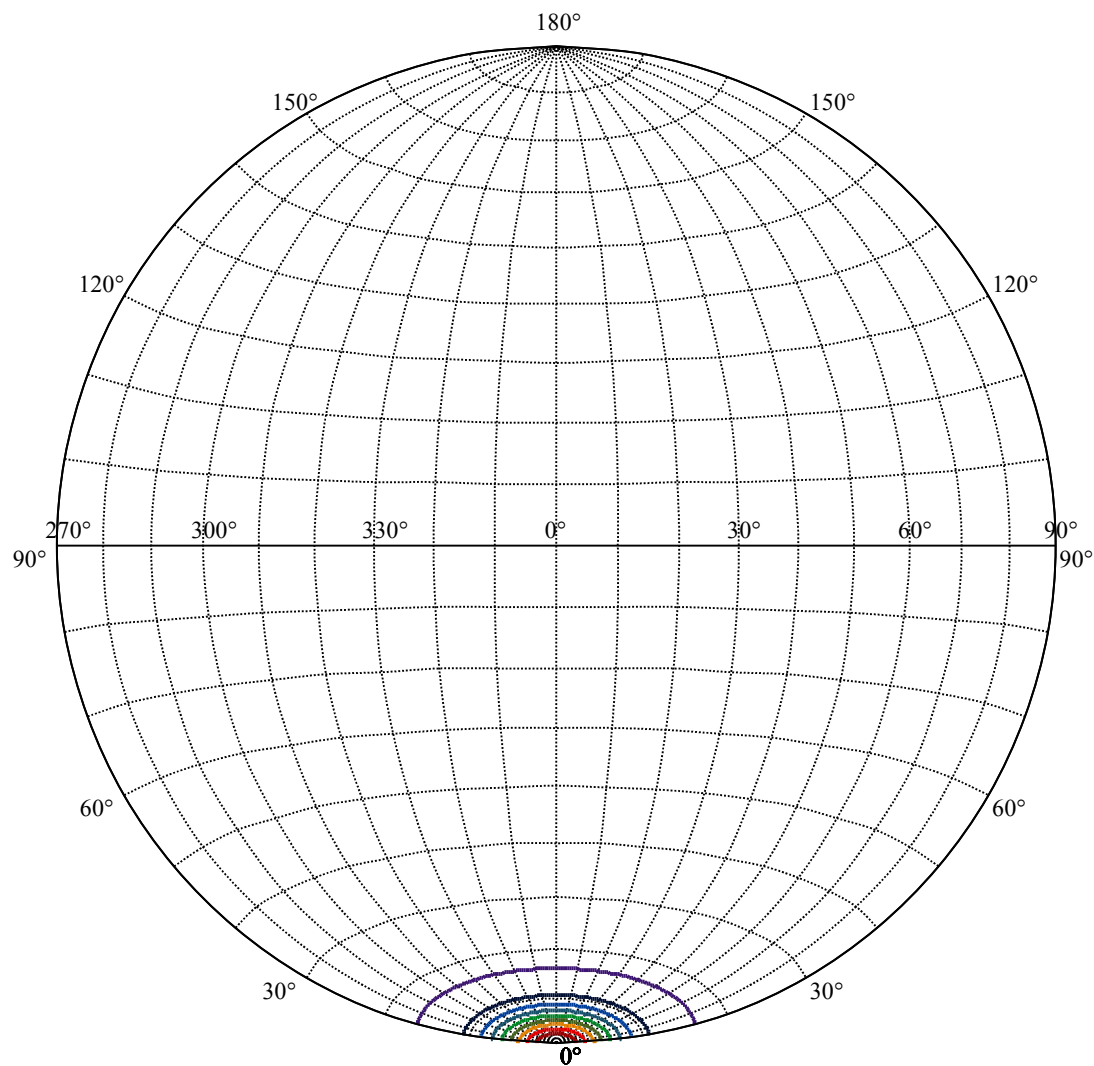
|         |        |
|---------|--------|
| 0-10    | 232.34 |
| 10-20   | 165.78 |
| 20-30   | 144.60 |
| 30-40   | 157.11 |
| 40-50   | 63.31  |
| 50-60   | 3.71   |
| 60-70   | 3.16   |
| 70-80   | 3.27   |
| 80-90   | 3.00   |
| 90-100  | 0.00   |
| 100-110 | 0.00   |
| 110-120 | 0.00   |
| 120-130 | 0.00   |
| 130-140 | 0.00   |
| 140-150 | 0.00   |
| 150-160 | 0.00   |
| 160-170 | 0.00   |
| 170-180 | 0.00   |









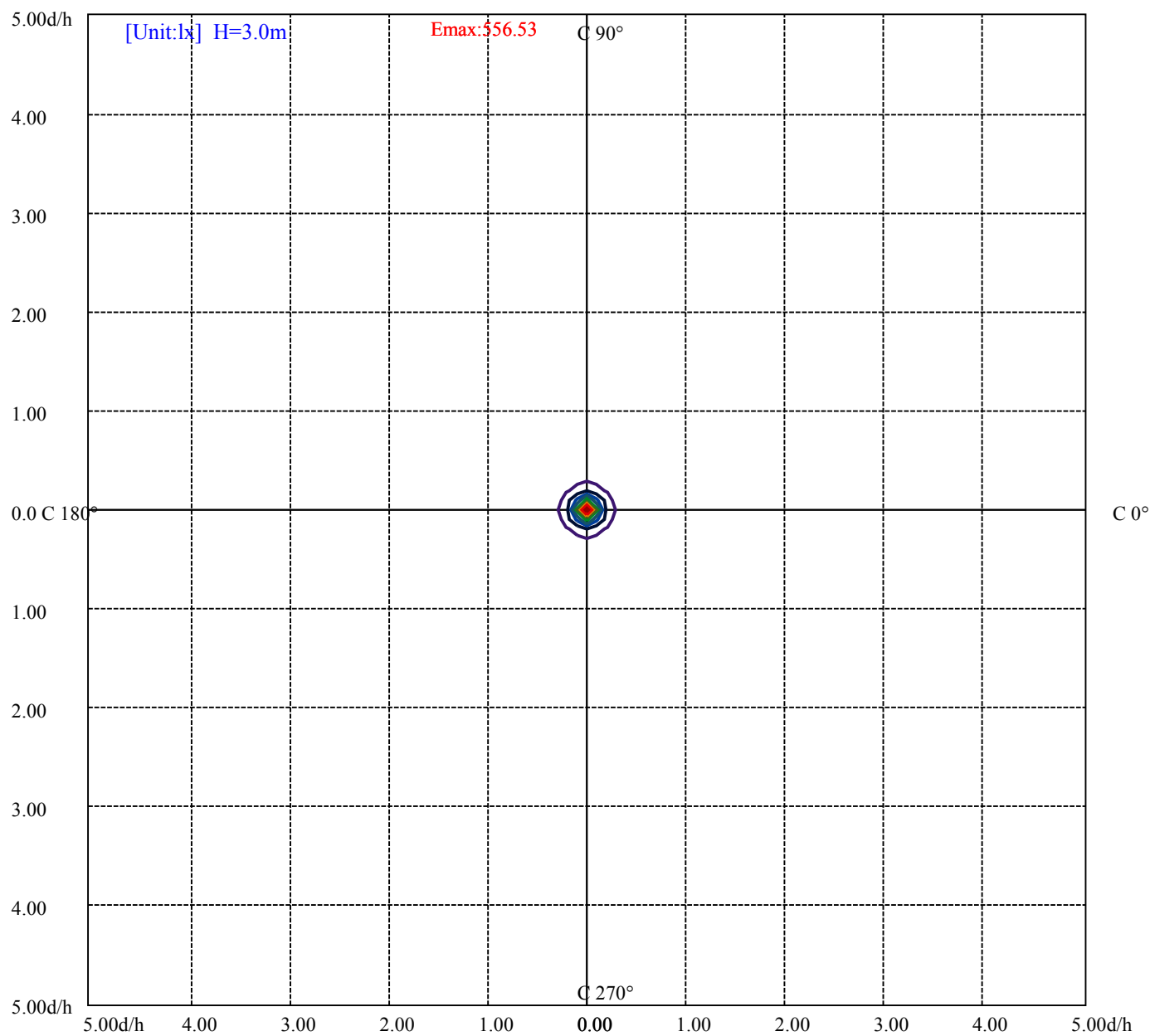


House

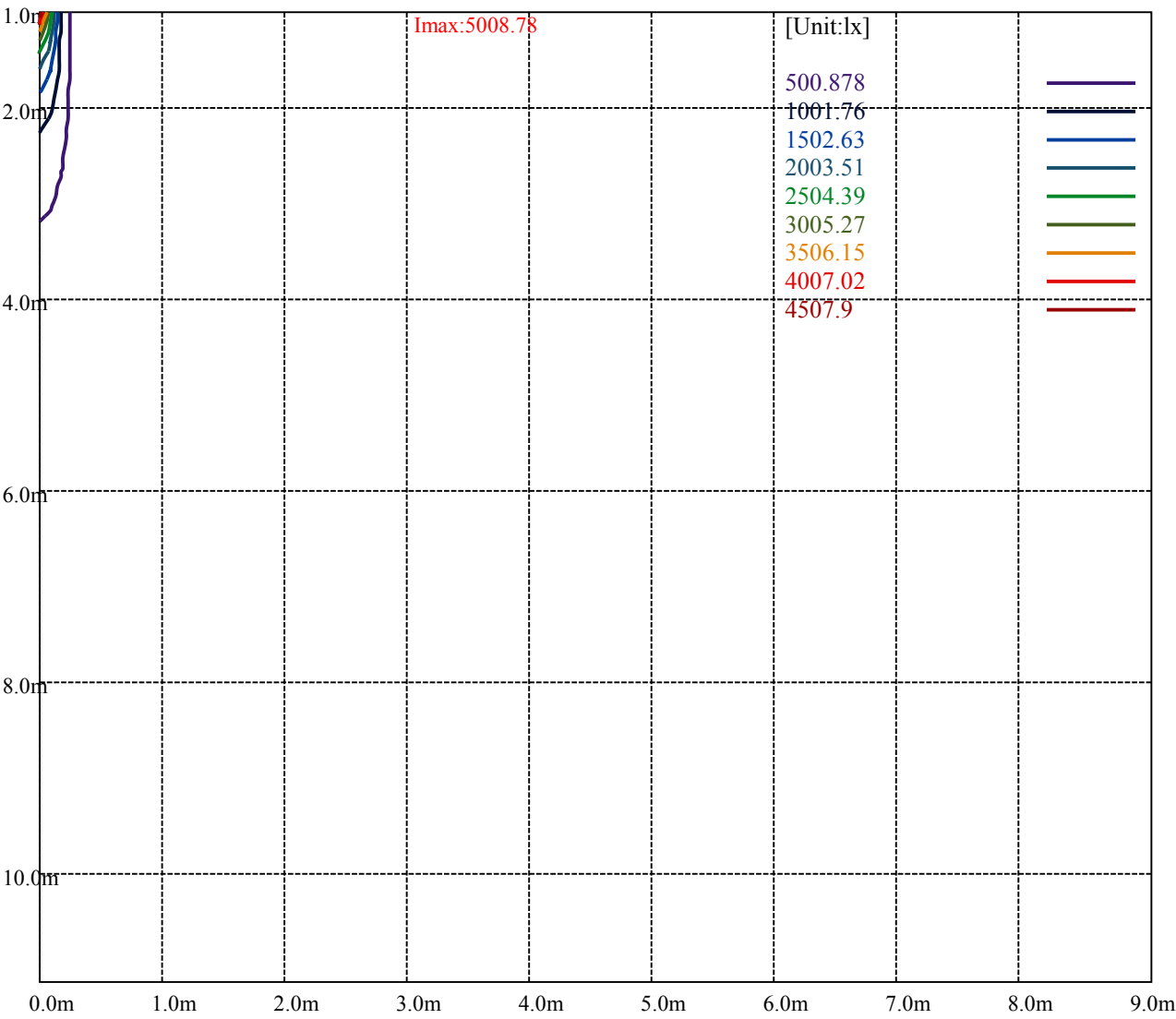
[Unit:cd]

Road

|           |              |   |
|-----------|--------------|---|
|           | Imax:5008.78 |   |
| (10%Imax) | 500.878      | — |
| (20%Imax) | 1001.76      | — |
| (30%Imax) | 1502.63      | — |
| (40%Imax) | 2003.51      | — |
| (50%Imax) | 2504.39      | — |
| (60%Imax) | 3005.27      | — |
| (70%Imax) | 3506.15      | — |
| (80%Imax) | 4007.02      | — |
| (90%Imax) | 4507.9       | — |



|                    |   |
|--------------------|---|
| (10%Emax) 55.653   | — |
| (20%Emax) 111.3056 | — |
| (30%Emax) 166.9589 | — |
| (40%Emax) 222.6122 | — |
| (50%Emax) 278.2644 | — |
| (60%Emax) 333.9178 | — |
| (70%Emax) 389.5711 | — |
| (80%Emax) 445.2245 | — |
| (90%Emax) 500.8767 | — |



Luminance Table

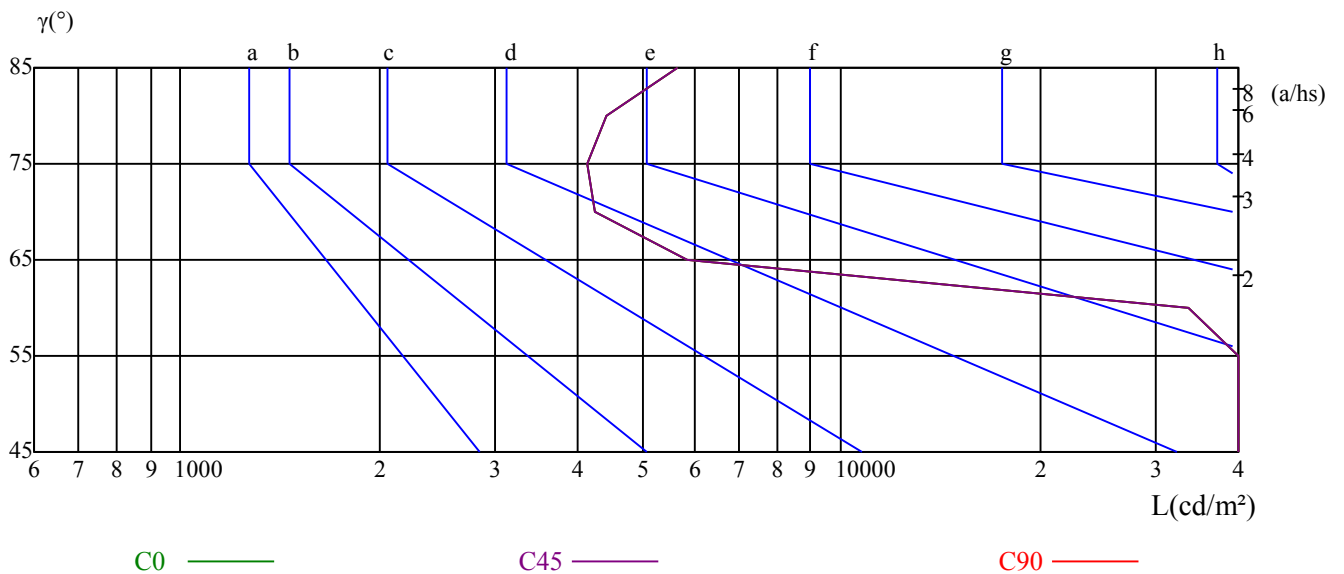
| $\gamma$ | 45    | 50    | 55    | 60    | 65   | 70   | 75   | 80   | 85   |
|----------|-------|-------|-------|-------|------|------|------|------|------|
| C0       | 46650 | 52836 | 53885 | 33658 | 5848 | 4245 | 4131 | 4405 | 5640 |
| C45      | 46650 | 52836 | 53885 | 33658 | 5848 | 4245 | 4131 | 4405 | 5640 |
| C90      | 46650 | 52836 | 53885 | 33658 | 5848 | 4245 | 4131 | 4405 | 5640 |

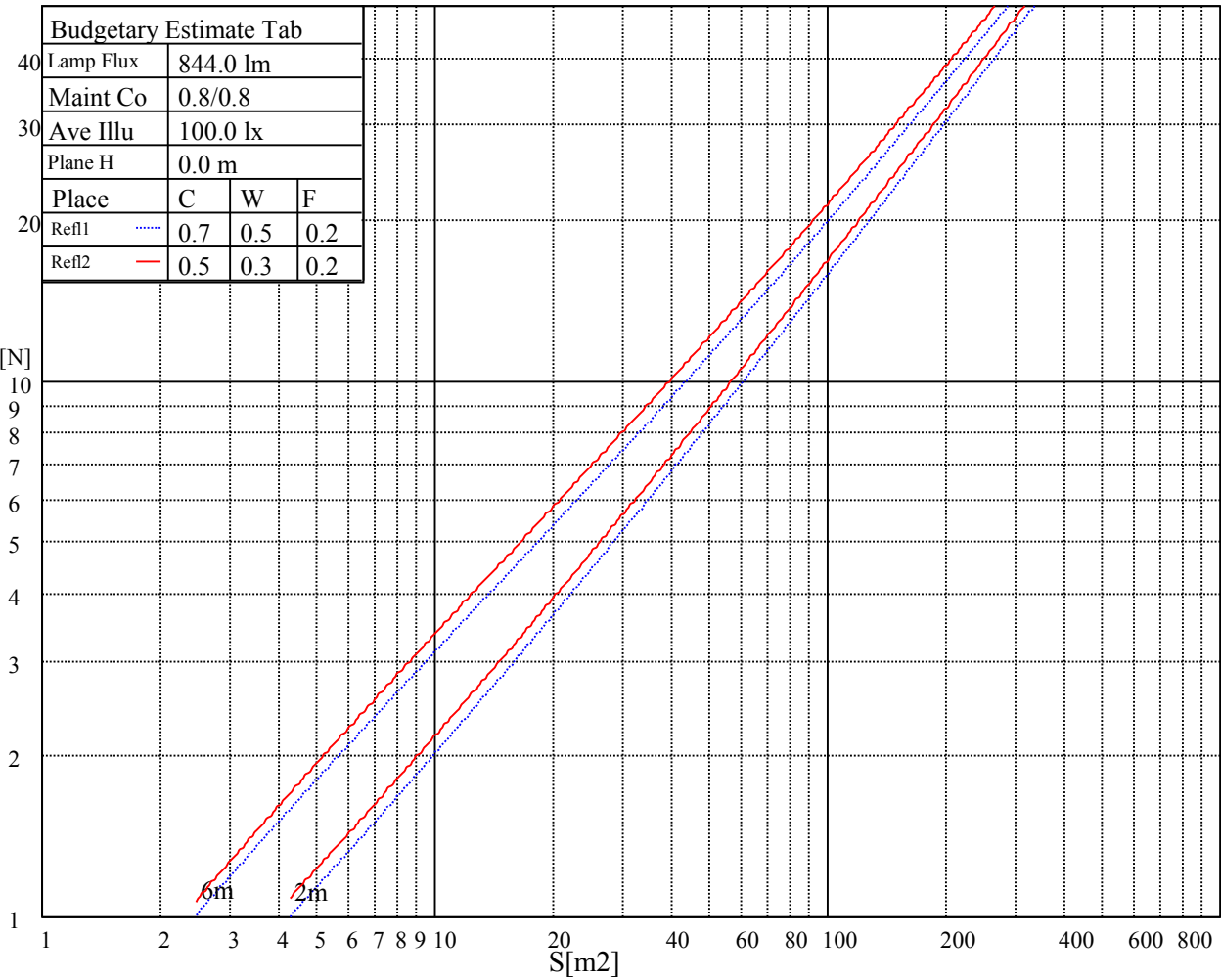
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 5848       | 5848       | 5848    | 4131       | 4131       | 4131    | 5640       | 5640       | 5640    |

Glare Table

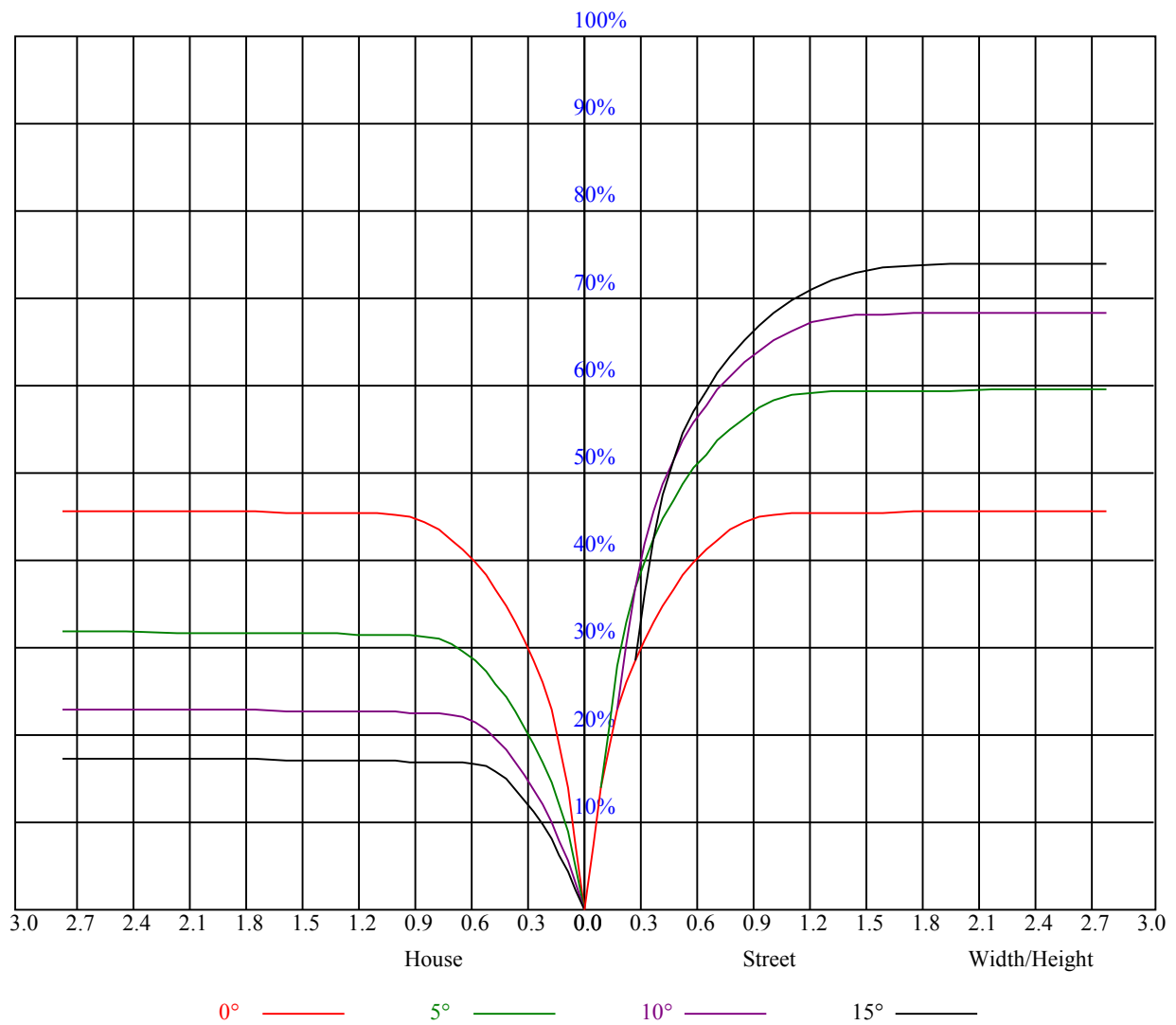
| Glare | Quality | Service Values Illuminance(lx) |      |      |            |            |            |            |            |
|-------|---------|--------------------------------|------|------|------------|------------|------------|------------|------------|
| 1.15  | A       | 2000            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

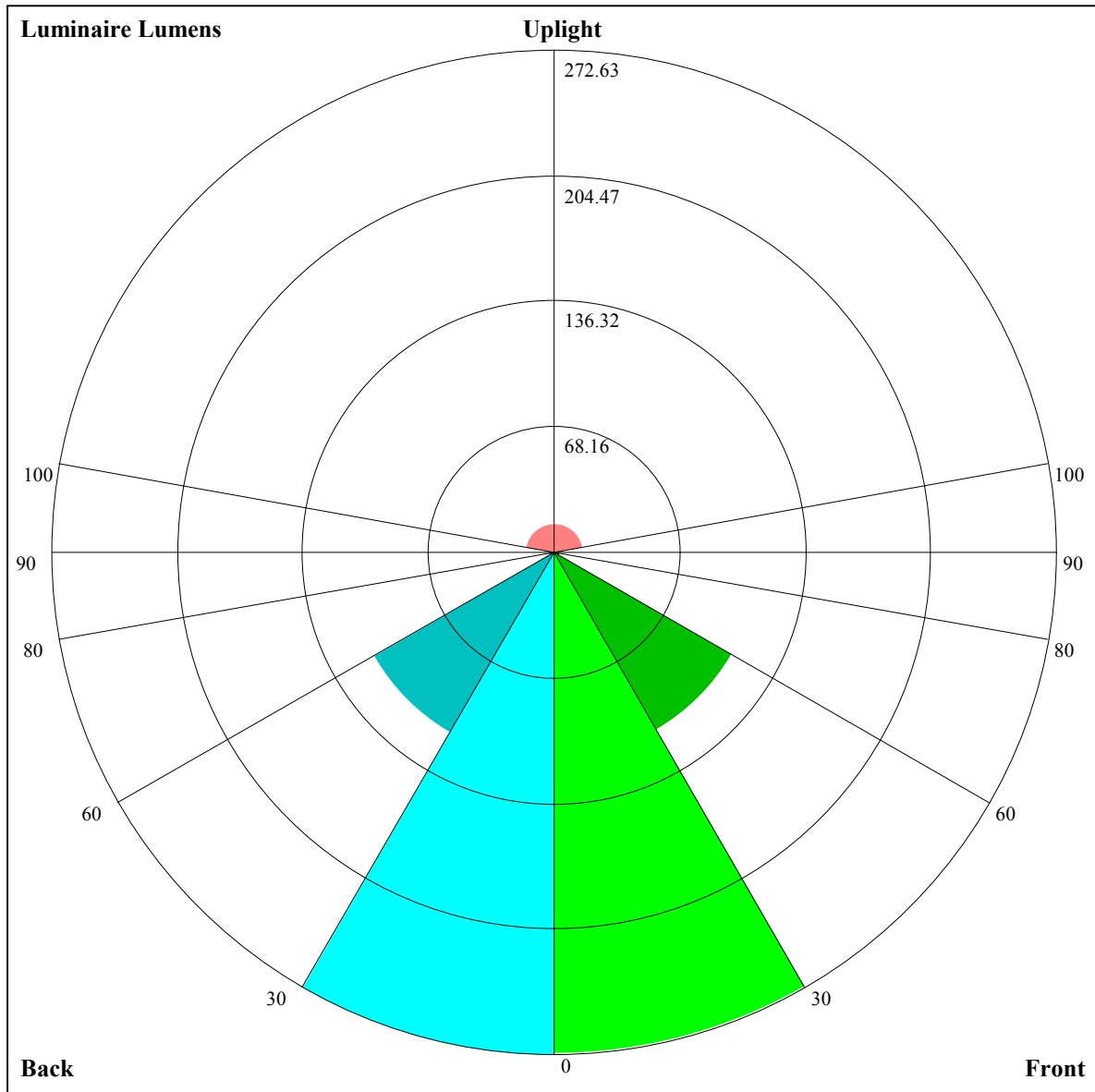
Luminance Limiting Curve





| RHOC | 80                                      |      |      | 70   |      |      | 50   |      |      | 30   |      |      | 10   |      |      | 0    |
|------|-----------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| RHOW | 50                                      | 30   | 10   | 50   | 30   | 10   | 50   | 30   | 10   | 50   | 30   | 10   | 50   | 30   | 10   | 0    |
| RCR  | COEFFICIENTS OF UTILIZATION RHOFC=20 CU |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 0    | 1.10                                    | 1.10 | 1.10 | 1.07 | 1.07 | 1.07 | 1.02 | 1.02 | 1.02 | 0.98 | 0.98 | 0.98 | 0.94 | 0.94 | 0.94 | 0.92 |
| 1    | 1.02                                    | 1.00 | 0.98 | 1.00 | 0.98 | 0.97 | 0.97 | 0.95 | 0.94 | 0.93 | 0.92 | 0.91 | 0.90 | 0.89 | 0.88 | 0.87 |
| 2    | 0.96                                    | 0.92 | 0.90 | 0.94 | 0.91 | 0.89 | 0.91 | 0.89 | 0.87 | 0.89 | 0.87 | 0.85 | 0.86 | 0.84 | 0.83 | 0.82 |
| 3    | 0.90                                    | 0.86 | 0.83 | 0.89 | 0.85 | 0.82 | 0.87 | 0.83 | 0.81 | 0.84 | 0.82 | 0.79 | 0.82 | 0.80 | 0.78 | 0.77 |
| 4    | 0.85                                    | 0.81 | 0.77 | 0.84 | 0.80 | 0.77 | 0.82 | 0.79 | 0.76 | 0.80 | 0.77 | 0.75 | 0.79 | 0.76 | 0.74 | 0.73 |
| 5    | 0.81                                    | 0.76 | 0.72 | 0.80 | 0.75 | 0.72 | 0.78 | 0.74 | 0.71 | 0.77 | 0.73 | 0.71 | 0.75 | 0.72 | 0.70 | 0.69 |
| 6    | 0.77                                    | 0.72 | 0.68 | 0.76 | 0.71 | 0.68 | 0.75 | 0.70 | 0.67 | 0.73 | 0.70 | 0.67 | 0.72 | 0.69 | 0.67 | 0.65 |
| 7    | 0.73                                    | 0.68 | 0.65 | 0.72 | 0.68 | 0.64 | 0.71 | 0.67 | 0.64 | 0.70 | 0.66 | 0.64 | 0.69 | 0.66 | 0.63 | 0.62 |
| 8    | 0.70                                    | 0.65 | 0.61 | 0.69 | 0.65 | 0.61 | 0.68 | 0.64 | 0.61 | 0.67 | 0.64 | 0.61 | 0.66 | 0.63 | 0.61 | 0.59 |
| 9    | 0.67                                    | 0.62 | 0.59 | 0.66 | 0.62 | 0.59 | 0.65 | 0.61 | 0.58 | 0.65 | 0.61 | 0.58 | 0.64 | 0.61 | 0.58 | 0.57 |
| 10   | 0.64                                    | 0.59 | 0.56 | 0.64 | 0.59 | 0.56 | 0.63 | 0.59 | 0.56 | 0.62 | 0.59 | 0.56 | 0.62 | 0.58 | 0.56 | 0.55 |





Luminaire Lumens:

FL=272.27,FM=110.9,FH=3.21,FVH=1.67

BL=272.63,BM=113.02,BH=3.22,BVH=1.67

UL=3.31,UH=15.77

BUG Rating:B1-U2-G0



## NATA 1709-M

| Intensity data(cd) |         |         |         |         |         |         |         |         | Appendix Page: 17 Total:19 |
|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|----------------------------|
| C/γ(°)             | 0.0     | 1.0     | 2.0     | 3.0     | 4.0     | 5.0     | 6.0     | 7.0     | 8.0                        |
| 0.0                | 5009.63 | 4961.25 | 4667.63 | 4265.44 | 3775.50 | 3146.06 | 2665.69 | 2229.19 | 1791.00                    |
| 45.0               | 5009.63 | 4954.50 | 4656.38 | 4244.06 | 3755.81 | 3202.88 | 2666.81 | 2218.50 | 1779.75                    |
| 90.0               | 4998.94 | 4845.94 | 4475.81 | 3954.94 | 3458.25 | 2913.75 | 2401.31 | 1982.81 | 1575.56                    |
| 135.0              | 5016.94 | 4965.75 | 4672.69 | 4268.81 | 3774.38 | 3220.31 | 2687.63 | 2244.94 | 1806.19                    |
| 180.0              | 5009.63 | 4899.38 | 4545.00 | 4111.31 | 3612.38 | 3064.50 | 2596.50 | 2115.56 | 1696.50                    |
| 225.0              | 5009.63 | 4907.81 | 4610.81 | 4140.00 | 3643.31 | 3085.31 | 2570.06 | 2160.56 | 1752.19                    |
| 270.0              | 4998.94 | 4996.69 | 4782.94 | 4435.88 | 3967.31 | 3394.69 | 2851.88 | 2410.88 | 1972.13                    |
| 315.0              | 5016.94 | 4910.63 | 4601.25 | 4122.00 | 3626.44 | 3064.50 | 2539.13 | 2118.94 | 1703.25                    |
| 360.0              | 5009.63 | 4961.25 | 4667.63 | 4265.44 | 3775.50 | 3146.06 | 2665.69 | 2229.19 | 1791.00                    |
| C/γ(°)             | 9.0     | 10.0    | 11.0    | 12.0    | 13.0    | 14.0    | 15.0    | 16.0    | 17.0                       |
| 0.0                | 1424.81 | 1163.25 | 948.38  | 809.44  | 693.00  | 606.38  | 550.13  | 501.19  | 463.50                     |
| 45.0               | 1416.94 | 1158.75 | 943.31  | 806.63  | 692.44  | 608.06  | 552.94  | 509.63  | 466.88                     |
| 90.0               | 1102.89 | 1028.48 | 851.46  | 738.17  | 643.61  | 573.41  | 525.94  | 488.53  | 450.28                     |
| 135.0              | 1441.69 | 1180.69 | 961.31  | 821.25  | 704.81  | 619.31  | 563.06  | 518.06  | 473.63                     |
| 180.0              | 1383.75 | 1108.29 | 930.09  | 784.80  | 689.23  | 606.26  | 544.22  | 500.46  | 465.30                     |
| 225.0              | 1437.75 | 1097.38 | 940.89  | 805.05  | 691.99  | 609.86  | 554.96  | 511.48  | 468.62                     |
| 270.0              | 1591.88 | 1306.69 | 1063.13 | 902.25  | 770.06  | 671.63  | 605.25  | 553.50  | 501.19                     |
| 315.0              | 1386.56 | 1105.54 | 906.41  | 776.42  | 668.48  | 590.01  | 538.43  | 496.91  | 455.79                     |
| 360.0              | 1424.81 | 1163.25 | 948.38  | 809.44  | 693.00  | 606.38  | 550.13  | 501.19  | 463.50                     |
| C/γ(°)             | 18.0    | 19.0    | 20.0    | 21.0    | 22.0    | 23.0    | 24.0    | 25.0    | 26.0                       |
| 0.0                | 436.50  | 412.88  | 387.56  | 369.56  | 353.81  | 336.38  | 321.75  | 310.50  | 299.81                     |
| 45.0               | 437.63  | 411.19  | 384.75  | 365.06  | 347.06  | 329.63  | 313.31  | 303.75  | 295.88                     |
| 90.0               | 422.72  | 398.64  | 375.41  | 355.05  | 337.73  | 320.91  | 307.46  | 297.62  | 288.11                     |
| 135.0              | 443.81  | 418.50  | 392.06  | 371.25  | 354.38  | 335.81  | 321.19  | 310.50  | 300.94                     |
| 180.0              | 430.43  | 406.46  | 385.82  | 362.76  | 345.94  | 331.09  | 316.97  | 305.44  | 297.06                     |
| 225.0              | 440.83  | 416.93  | 393.41  | 371.87  | 353.70  | 335.98  | 321.30  | 310.22  | 299.98                     |
| 270.0              | 468.00  | 440.44  | 410.06  | 388.13  | 367.88  | 347.63  | 330.19  | 317.25  | 305.44                     |
| 315.0              | 429.08  | 406.80  | 387.51  | 365.79  | 349.09  | 331.71  | 317.48  | 306.23  | 296.38                     |
| 360.0              | 436.50  | 412.88  | 387.56  | 369.56  | 353.81  | 336.38  | 321.75  | 310.50  | 299.81                     |
| C/γ(°)             | 27.0    | 28.0    | 29.0    | 30.0    | 31.0    | 32.0    | 33.0    | 34.0    | 35.0                       |
| 0.0                | 290.25  | 284.06  | 274.56  | 270.73  | 266.91  | 263.08  | 259.71  | 255.77  | 251.72                     |
| 45.0               | 288.00  | 284.06  | 273.54  | 269.10  | 264.83  | 261.00  | 256.84  | 253.13  | 248.79                     |
| 90.0               | 280.80  | 273.26  | 267.19  | 263.14  | 259.43  | 254.93  | 251.44  | 247.84  | 242.89                     |
| 135.0              | 293.63  | 286.88  | 285.19  | 274.39  | 270.06  | 265.95  | 262.29  | 258.64  | 253.91                     |
| 180.0              | 289.52  | 284.46  | 278.55  | 274.33  | 270.79  | 266.79  | 262.74  | 259.20  | 255.54                     |
| 225.0              | 292.78  | 286.43  | 281.14  | 277.37  | 273.88  | 269.55  | 266.01  | 262.46  | 257.74                     |
| 270.0              | 297.00  | 289.69  | 284.06  | 276.19  | 271.86  | 268.09  | 264.04  | 260.49  | 256.56                     |
| 315.0              | 287.04  | 279.45  | 274.67  | 270.45  | 267.02  | 263.25  | 259.43  | 255.94  | 251.33                     |
| 360.0              | 290.25  | 284.06  | 274.56  | 270.73  | 266.91  | 263.08  | 259.71  | 255.77  | 251.72                     |
| C/γ(°)             | 36.0    | 37.0    | 38.0    | 39.0    | 40.0    | 41.0    | 42.0    | 43.0    | 44.0                       |
| 0.0                | 247.89  | 243.39  | 237.54  | 233.33  | 222.75  | 198.00  | 167.29  | 135.79  | 99.56                      |
| 45.0               | 244.46  | 239.68  | 234.84  | 229.44  | 215.55  | 191.76  | 154.91  | 125.21  | 95.06                      |
| 90.0               | 238.84  | 233.72  | 228.88  | 220.67  | 201.66  | 172.46  | 143.38  | 109.97  | 81.11                      |
| 135.0              | 250.09  | 245.59  | 240.41  | 234.90  | 225.00  | 203.51  | 169.14  | 137.64  | 104.06                     |
| 180.0              | 250.82  | 246.43  | 241.37  | 235.86  | 225.51  | 203.63  | 173.59  | 138.09  | 105.41                     |
| 225.0              | 253.69  | 249.02  | 242.83  | 238.16  | 225.79  | 197.21  | 172.01  | 138.83  | 100.01                     |
| 270.0              | 251.78  | 247.61  | 243.00  | 236.76  | 229.22  | 213.53  | 178.31  | 148.89  | 122.96                     |
| 315.0              | 247.50  | 242.49  | 237.99  | 232.03  | 218.31  | 192.21  | 164.08  | 128.53  | 96.02                      |
| 360.0              | 247.89  | 243.39  | 237.54  | 233.33  | 222.75  | 198.00  | 167.29  | 135.79  | 99.56                      |

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| Intensity data(cd) |       |       |       |       |      |      |      |      |      | Appendix Page: 18 Total:19 |  |
|--------------------|-------|-------|-------|-------|------|------|------|------|------|----------------------------|--|
| C/ $\gamma$ (°)    | 45.0  | 46.0  | 47.0  | 48.0  | 49.0 | 50.0 | 51.0 | 52.0 | 53.0 |                            |  |
| 0.0                | 65.70 | 39.71 | 18.79 | 10.18 | 8.61 | 7.31 | 6.13 | 5.12 | 4.22 |                            |  |
| 45.0               | 62.16 | 34.09 | 17.33 | 9.62  | 8.66 | 7.37 | 6.08 | 5.12 | 4.39 |                            |  |
| 90.0               | 49.39 | 24.58 | 11.59 | 8.89  | 7.88 | 6.30 | 5.12 | 4.22 | 3.66 |                            |  |
| 135.0              | 69.02 | 39.54 | 19.80 | 9.56  | 8.38 | 7.26 | 6.08 | 5.12 | 4.39 |                            |  |
| 180.0              | 70.14 | 43.03 | 19.86 | 9.23  | 7.93 | 6.86 | 5.79 | 4.95 | 4.28 |                            |  |
| 225.0              | 73.46 | 41.68 | 17.21 | 9.45  | 8.04 | 6.69 | 5.68 | 4.78 | 3.99 |                            |  |
| 270.0              | 85.84 | 53.21 | 32.12 | 13.56 | 9.06 | 8.10 | 6.69 | 5.68 | 4.84 |                            |  |
| 315.0              | 61.54 | 33.41 | 16.93 | 9.23  | 8.27 | 6.97 | 5.74 | 4.78 | 4.11 |                            |  |
| 360.0              | 65.70 | 39.71 | 18.79 | 10.18 | 8.61 | 7.31 | 6.13 | 5.12 | 4.22 |                            |  |
| C/ $\gamma$ (°)    | 54.0  | 55.0  | 56.0  | 57.0  | 58.0 | 59.0 | 60.0 | 61.0 | 62.0 |                            |  |
| 0.0                | 3.83  | 3.60  | 3.49  | 3.38  | 3.38 | 3.32 | 3.26 | 3.26 | 3.26 |                            |  |
| 45.0               | 4.16  | 4.05  | 3.83  | 3.38  | 3.38 | 3.32 | 3.32 | 3.32 | 3.26 |                            |  |
| 90.0               | 3.49  | 3.49  | 3.43  | 3.38  | 3.32 | 3.32 | 3.32 | 3.26 | 3.21 |                            |  |
| 135.0              | 3.99  | 3.94  | 3.66  | 3.43  | 3.38 | 3.38 | 3.26 | 3.32 | 3.26 |                            |  |
| 180.0              | 3.94  | 3.71  | 3.49  | 3.38  | 3.32 | 3.32 | 3.26 | 3.26 | 3.26 |                            |  |
| 225.0              | 3.66  | 3.54  | 3.49  | 3.43  | 3.38 | 3.32 | 3.32 | 3.26 | 3.26 |                            |  |
| 270.0              | 4.22  | 4.11  | 3.99  | 3.49  | 3.38 | 3.38 | 3.32 | 3.26 | 3.26 |                            |  |
| 315.0              | 3.66  | 3.54  | 3.49  | 3.32  | 3.32 | 3.32 | 3.26 | 3.21 | 3.21 |                            |  |
| 360.0              | 3.83  | 3.60  | 3.49  | 3.38  | 3.38 | 3.32 | 3.26 | 3.26 | 3.26 |                            |  |
| C/ $\gamma$ (°)    | 63.0  | 64.0  | 65.0  | 66.0  | 67.0 | 68.0 | 69.0 | 70.0 | 71.0 |                            |  |
| 0.0                | 3.21  | 3.15  | 3.15  | 3.15  | 3.15 | 3.15 | 3.15 | 3.09 | 3.09 |                            |  |
| 45.0               | 3.21  | 3.21  | 3.21  | 3.21  | 3.21 | 3.15 | 3.15 | 3.15 | 3.15 |                            |  |
| 90.0               | 3.21  | 3.21  | 3.15  | 3.15  | 3.15 | 3.09 | 3.15 | 3.09 | 3.15 |                            |  |
| 135.0              | 3.26  | 3.21  | 3.21  | 3.15  | 3.21 | 3.15 | 3.15 | 3.15 | 3.09 |                            |  |
| 180.0              | 3.21  | 3.21  | 3.15  | 3.15  | 3.15 | 3.15 | 3.15 | 3.15 | 3.15 |                            |  |
| 225.0              | 3.26  | 3.21  | 3.21  | 3.15  | 3.15 | 3.15 | 3.15 | 3.09 | 3.15 |                            |  |
| 270.0              | 3.21  | 3.15  | 3.15  | 3.21  | 3.15 | 3.09 | 3.15 | 3.09 | 3.09 |                            |  |
| 315.0              | 3.15  | 3.15  | 3.15  | 3.15  | 3.09 | 3.09 | 3.09 | 3.09 | 3.09 |                            |  |
| 360.0              | 3.21  | 3.15  | 3.15  | 3.15  | 3.15 | 3.15 | 3.15 | 3.09 | 3.09 |                            |  |
| C/ $\gamma$ (°)    | 72.0  | 73.0  | 74.0  | 75.0  | 76.0 | 77.0 | 78.0 | 79.0 | 80.0 |                            |  |
| 0.0                | 3.09  | 3.09  | 3.09  | 3.09  | 3.09 | 3.09 | 3.09 | 3.09 | 3.09 |                            |  |
| 45.0               | 3.15  | 3.15  | 3.09  | 3.09  | 3.09 | 3.09 | 3.09 | 3.09 | 3.09 |                            |  |
| 90.0               | 3.09  | 3.09  | 3.09  | 3.09  | 3.04 | 3.09 | 3.09 | 3.09 | 3.04 |                            |  |
| 135.0              | 3.09  | 3.09  | 3.09  | 3.09  | 3.09 | 3.09 | 3.09 | 3.09 | 3.09 |                            |  |
| 180.0              | 3.09  | 3.09  | 3.09  | 3.09  | 3.09 | 3.09 | 3.09 | 3.09 | 3.09 |                            |  |
| 225.0              | 3.09  | 3.09  | 3.09  | 3.09  | 3.09 | 3.09 | 3.09 | 3.04 | 3.04 |                            |  |
| 270.0              | 3.09  | 3.09  | 3.09  | 3.09  | 3.09 | 3.09 | 3.09 | 3.09 | 3.04 |                            |  |
| 315.0              | 3.09  | 3.09  | 3.04  | 3.04  | 3.09 | 3.09 | 3.09 | 3.09 | 3.04 |                            |  |
| 360.0              | 3.09  | 3.09  | 3.09  | 3.09  | 3.09 | 3.09 | 3.09 | 3.09 | 3.09 |                            |  |
| C/ $\gamma$ (°)    | 81.0  | 82.0  | 83.0  | 84.0  | 85.0 | 86.0 | 87.0 | 88.0 | 89.0 |                            |  |
| 0.0                | 3.09  | 3.04  | 3.09  | 3.09  | 3.04 | 3.09 | 3.04 | 3.04 | 3.04 |                            |  |
| 45.0               | 3.09  | 3.09  | 3.04  | 3.04  | 3.09 | 3.04 | 3.04 | 3.04 | 3.09 |                            |  |
| 90.0               | 3.04  | 3.09  | 3.04  | 3.04  | 3.04 | 3.04 | 3.04 | 3.04 | 3.04 |                            |  |
| 135.0              | 3.09  | 3.09  | 3.09  | 3.09  | 3.04 | 3.04 | 3.04 | 3.04 | 3.09 |                            |  |
| 180.0              | 3.04  | 3.09  | 3.09  | 3.09  | 3.04 | 3.04 | 3.04 | 3.04 | 3.04 |                            |  |
| 225.0              | 3.09  | 3.09  | 3.04  | 3.09  | 3.04 | 3.04 | 3.04 | 3.04 | 3.04 |                            |  |
| 270.0              | 3.04  | 3.09  | 3.04  | 3.04  | 3.09 | 3.04 | 3.04 | 3.04 | 3.04 |                            |  |
| 315.0              | 3.04  | 3.09  | 3.04  | 3.09  | 3.04 | 3.04 | 3.04 | 3.04 | 3.04 |                            |  |
| 360.0              | 3.09  | 3.04  | 3.09  | 3.09  | 3.04 | 3.09 | 3.04 | 3.04 | 3.04 |                            |  |

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### Intensity data(cd)

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|                       |      |
|-----------------------|------|
| C/ $\gamma(^{\circ})$ | 90.0 |
| 0.0                   | 3.04 |
| 45.0                  | 3.04 |
| 90.0                  | 3.04 |
| 135.0                 | 3.04 |
| 180.0                 | 3.04 |
| 225.0                 | 3.04 |
| 270.0                 | 3.04 |
| 315.0                 | 3.04 |
| 360.0                 | 3.04 |