



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

## NATA

|                                |                     |
|--------------------------------|---------------------|
| LumCAT: 1547-E                 |                     |
| Luminaire: 92.70.044.00        |                     |
| Report No: NATA0100            | Voltage(V): 35.2000 |
| Test No: GC2019011216          | Current(A): 0.1500  |
| LampCAT: LUMILEDS LUXEON 1202S | Power (W): 5.2800   |
| Lamp flux(lm): 805.0           | PF: 0.0000          |
| Number of Lamps: 1             | Ballast type: DC    |
| Length(mm): 21                 | Width(mm): 21       |
| Phm Type: C                    | Height(mm): 0       |

## Photometric Results

Lumens(lm): 690.21  
Efficiency(%): 85.74%  
Lumens(lm)/Power(W): 131.42  
Central intensity(cd): 725.456  
Maximum intensity(cd): 725.456  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=57.6  
[C90/270]Total=57.6  
Field angle(10%Imax): [C0/180]Total=93.1  
[C90/270]Total=93.1  
Maximum s/h(1/2): C0\_180=0.80 C90\_270=0.80  
Maximum s/h(1/4): C0\_180=0.93 C90\_270=0.93  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 86.20%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 97.632%

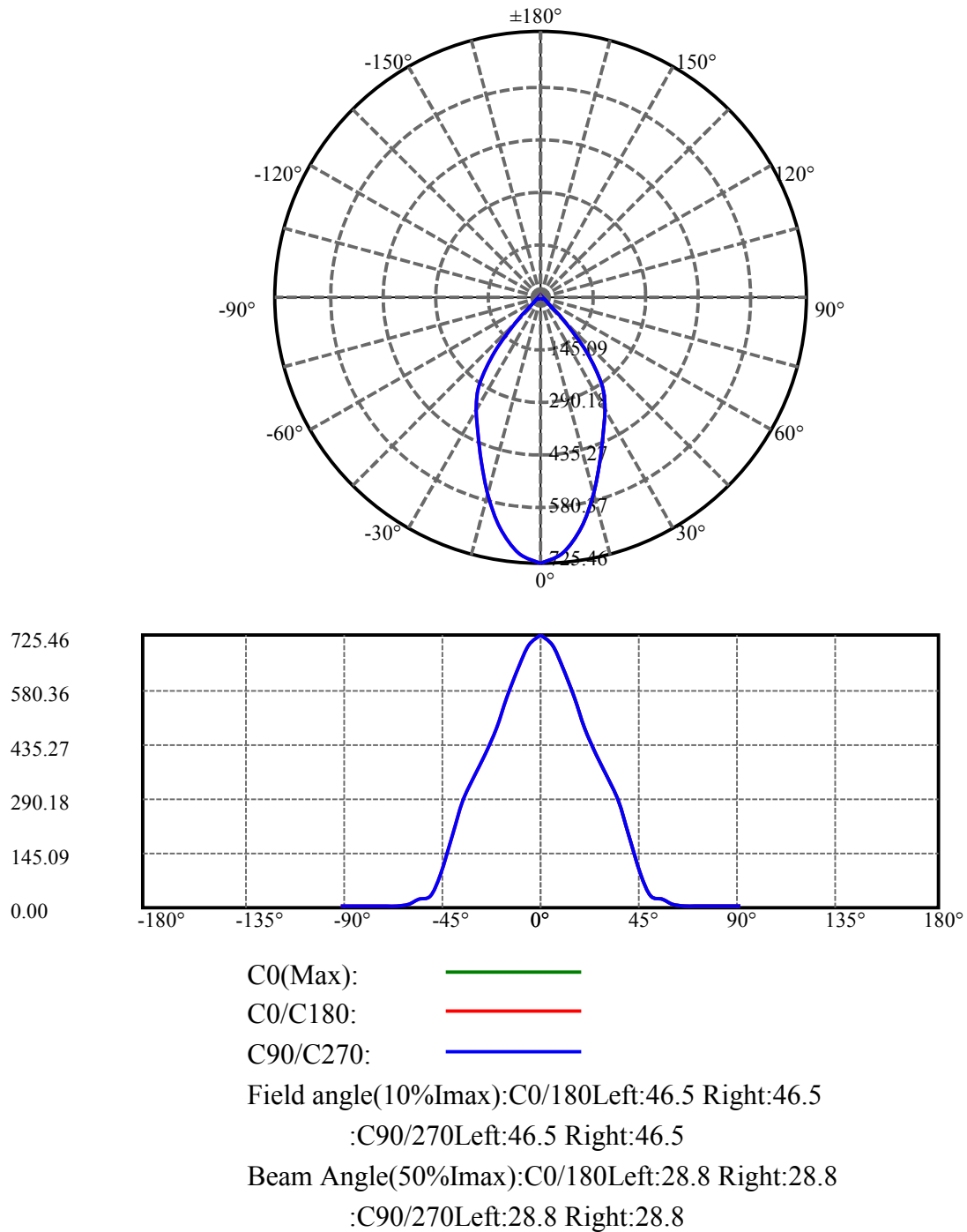
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 725.456       | 4.338       | 4.338     | .539%       | .629%      |
| 5.0                | 698.787       | 33.383      | 37.722    | 4.147%      | 5.465%     |
| 10.0               | 638.930       | 60.815      | 98.537    | 7.555%      | 14.276%    |
| 15.0               | 560.602       | 79.532      | 178.069   | 9.880%      | 25.799%    |
| 20.0               | 478.716       | 89.747      | 267.815   | 11.149%     | 38.802%    |
| 25.0               | 405.380       | 93.907      | 361.723   | 11.666%     | 52.407%    |
| 30.0               | 349.397       | 95.759      | 457.482   | 11.895%     | 66.281%    |
| 35.0               | 286.059       | 89.937      | 547.418   | 11.172%     | 79.311%    |
| 40.0               | 193.823       | 68.291      | 615.709   | 8.483%      | 89.205%    |
| 45.0               | 90.788        | 35.188      | 650.898   | 4.371%      | 94.304%    |
| 50.0               | 31.134        | 13.073      | 663.971   | 1.624%      | 96.198%    |
| 55.0               | 21.551        | 9.676       | 673.647   | 1.202%      | 97.600%    |
| 60.0               | 8.037         | 3.815       | 677.462   | .474%       | 98.152%    |
| 65.0               | 5.766         | 2.864       | 680.327   | .356%       | 98.567%    |
| 70.0               | 4.936         | 2.542       | 682.869   | .316%       | 98.936%    |
| 75.0               | 4.451         | 2.357       | 685.226   | .293%       | 99.277%    |
| 80.0               | 4.177         | 2.255       | 687.48    | .280%       | 99.604%    |
| 85.0               | 3.691         | 2.016       | 689.496   | .250%       | 99.896%    |
| 90.0               | 2.623         | 0.719       | 690.215   | .089%       | 100.000%   |

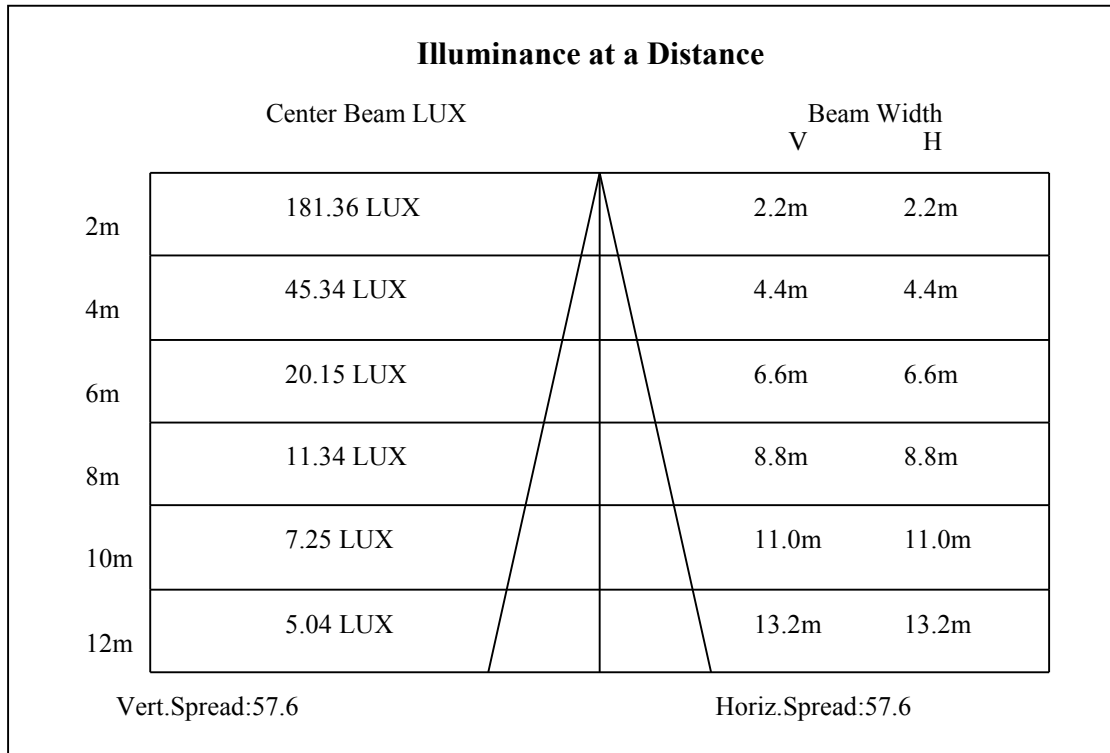
## ZONAL LUMEN SUMMARY

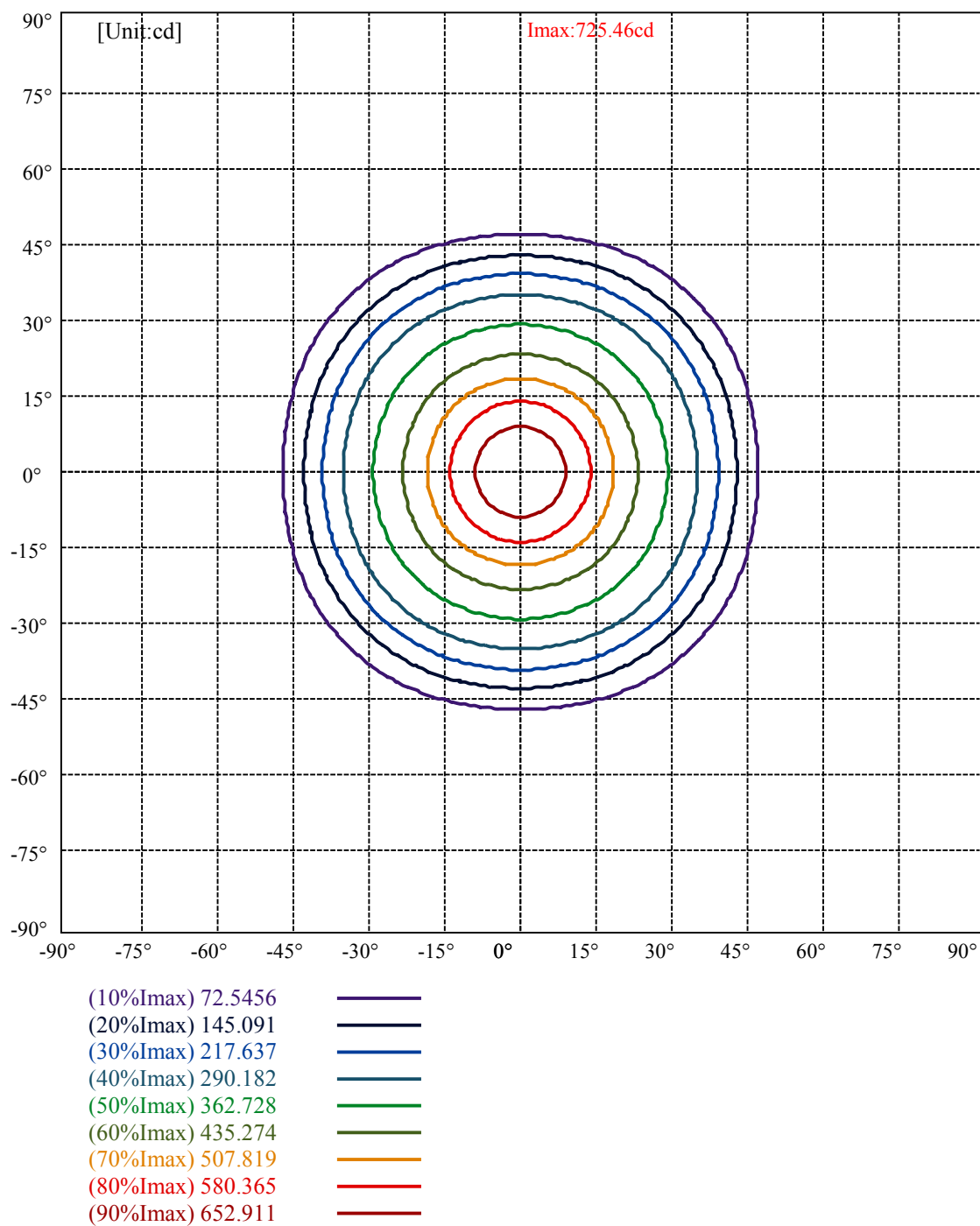
| Zone    | Lumens | %Lamp  | %Fixt   |
|---------|--------|--------|---------|
| 0-30    | 457.48 | 56.83% | 66.28%  |
| 0-40    | 615.71 | 76.49% | 89.21%  |
| 0-60    | 677.46 | 84.16% | 98.15%  |
| 0-90    | 689.50 | 85.65% | 99.90%  |
| 0-120   | 689.50 | 85.65% | 99.90%  |
| 0-180   | 690.21 | 85.74% | 100.00% |
| 60-90   | 15.85  | 1.97%  | 2.30%   |
| 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%   |
| 0-35.35 | 552.17 | 68.59% | 80.00%  |

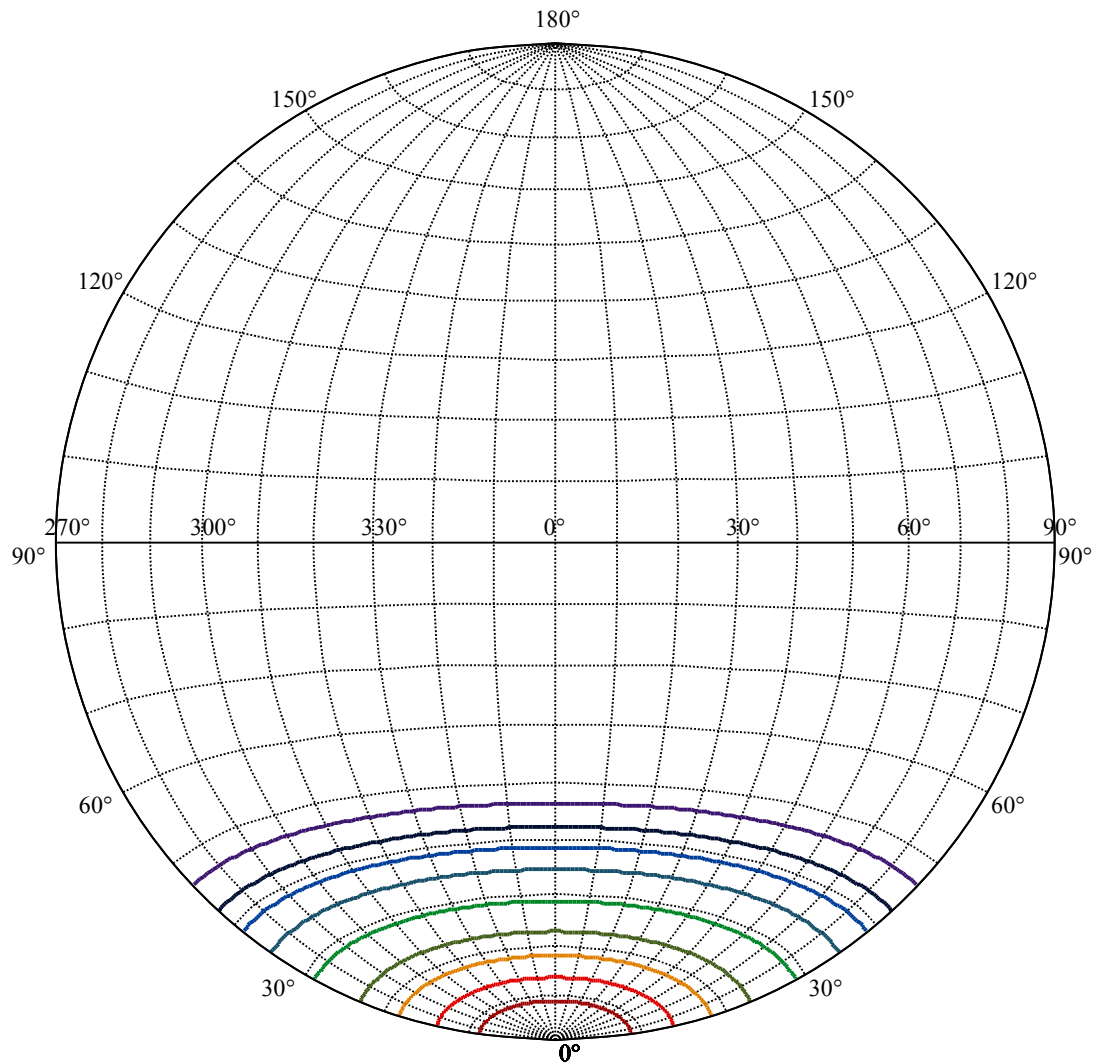
## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 98.54  |
| 10-20   | 169.28 |
| 20-30   | 189.67 |
| 30-40   | 158.23 |
| 40-50   | 48.26  |
| 50-60   | 13.49  |
| 60-70   | 5.41   |
| 70-80   | 4.61   |
| 80-90   | 2.02   |
| 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   |









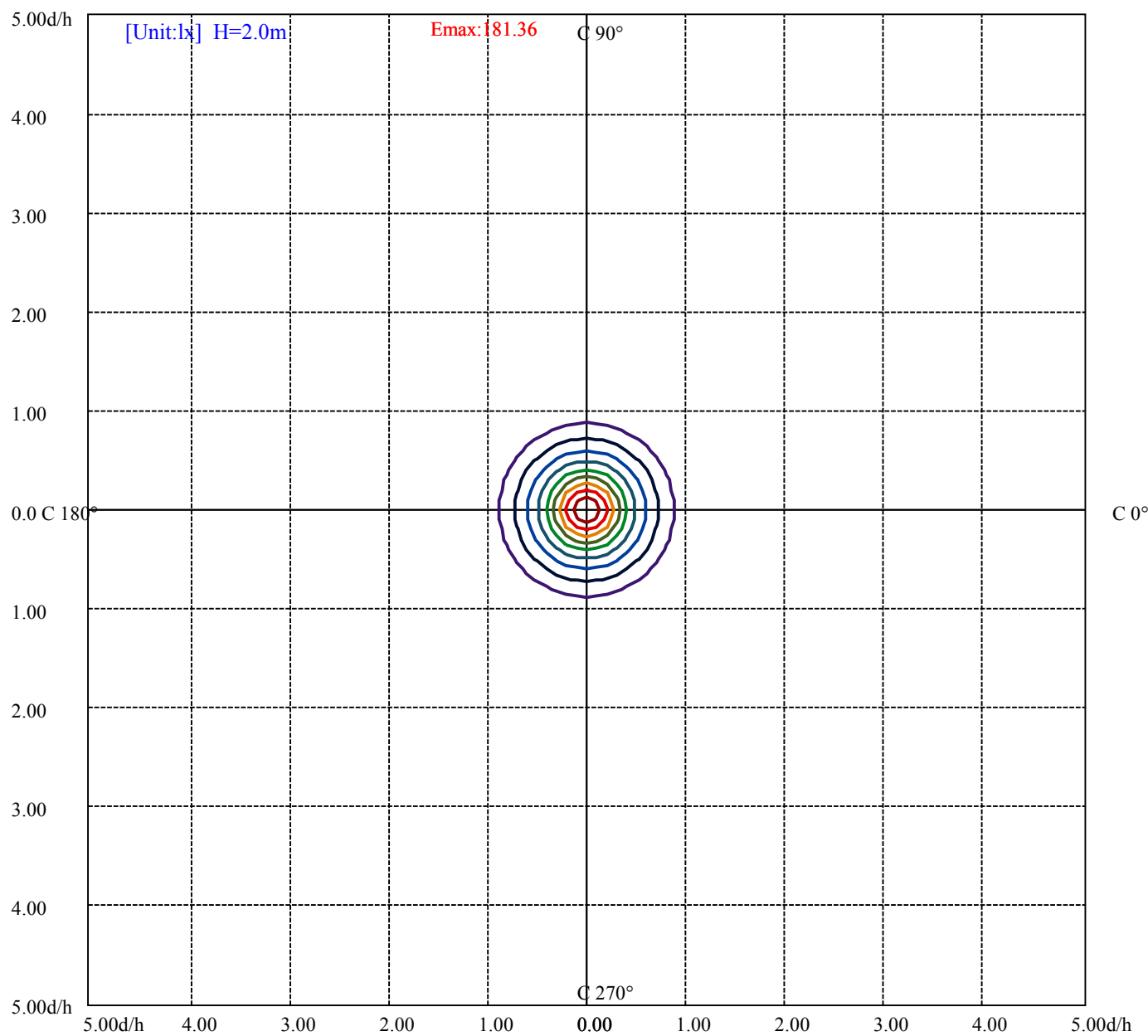
House

[Unit:cd]

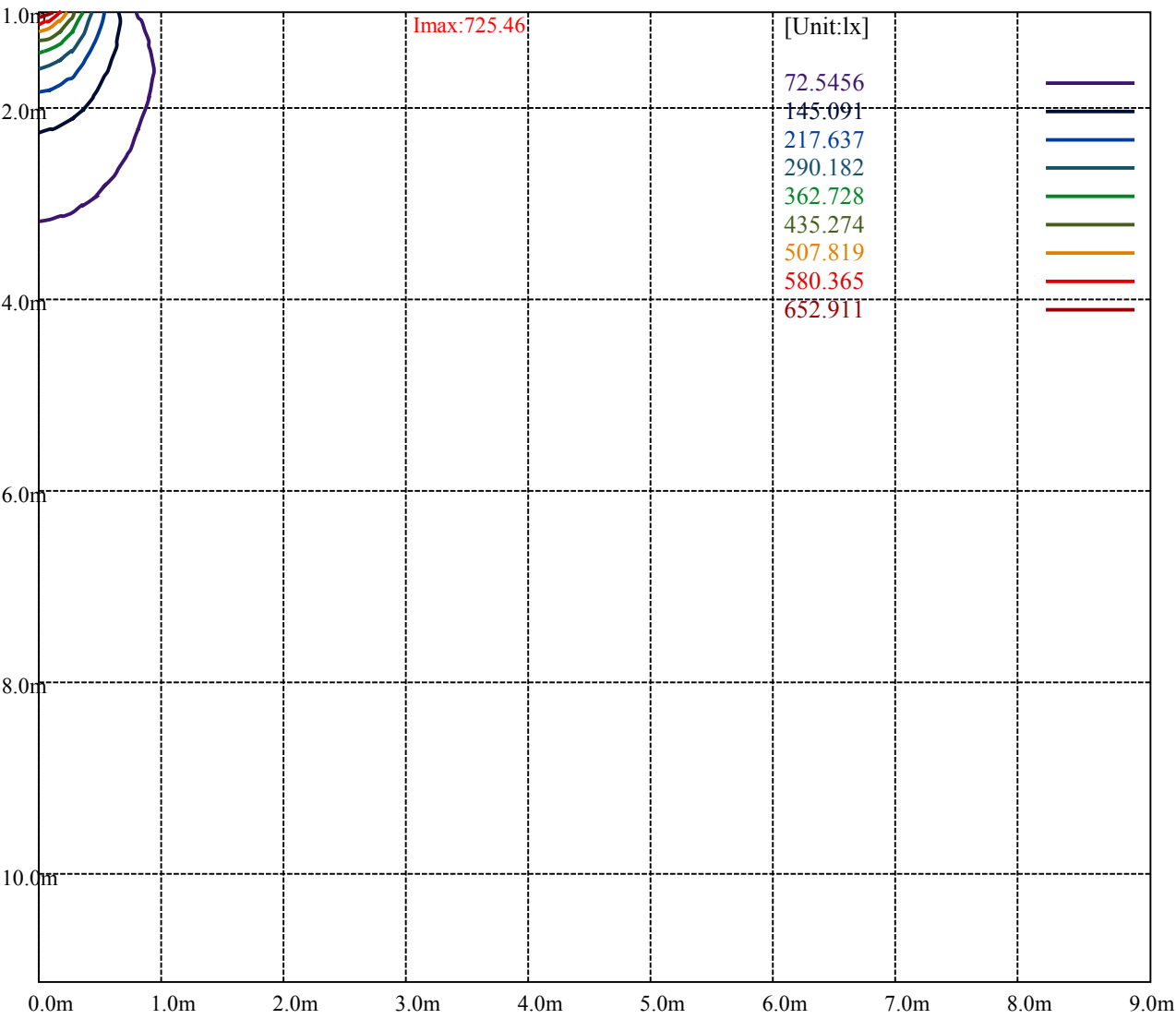
Road

**Imax:725.46**  
(10%Imax) 72.5456  
(20%Imax) 145.091  
(30%Imax) 217.637  
(40%Imax) 290.182  
(50%Imax) 362.728  
(60%Imax) 435.274  
(70%Imax) 507.819  
(80%Imax) 580.365  
(90%Imax) 652.911





|                                 |   |
|---------------------------------|---|
| (10%E <sub>max</sub> ) 18.13638 | — |
| (20%E <sub>max</sub> ) 36.27275 | — |
| (30%E <sub>max</sub> ) 54.40925 | — |
| (40%E <sub>max</sub> ) 72.5455  | — |
| (50%E <sub>max</sub> ) 90.682   | — |
| (60%E <sub>max</sub> ) 108.8183 | — |
| (70%E <sub>max</sub> ) 126.9548 | — |
| (80%E <sub>max</sub> ) 145.091  | — |
| (90%E <sub>max</sub> ) 163.2275 | — |



Luminance Table

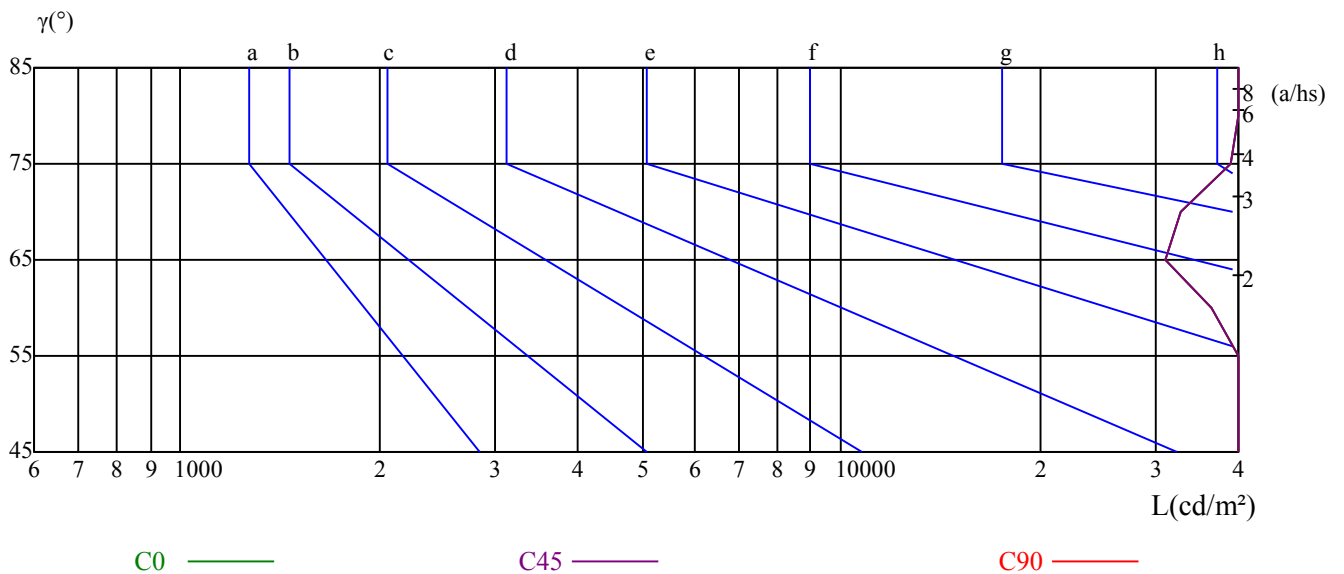
| $\gamma$ | 45     | 50     | 55    | 60    | 65    | 70    | 75    | 80    | 85    |
|----------|--------|--------|-------|-------|-------|-------|-------|-------|-------|
| C0       | 291140 | 109833 | 85199 | 36448 | 30936 | 32725 | 38994 | 54539 | 96041 |
| C45      | 291140 | 109833 | 85199 | 36448 | 30936 | 32725 | 38994 | 54539 | 96041 |
| C90      | 291140 | 109833 | 85199 | 36448 | 30936 | 32725 | 38994 | 54539 | 96041 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 30936      | 30936      | 30936   | 38994      | 38994      | 38994   | 96041      | 96041      | 96041   |

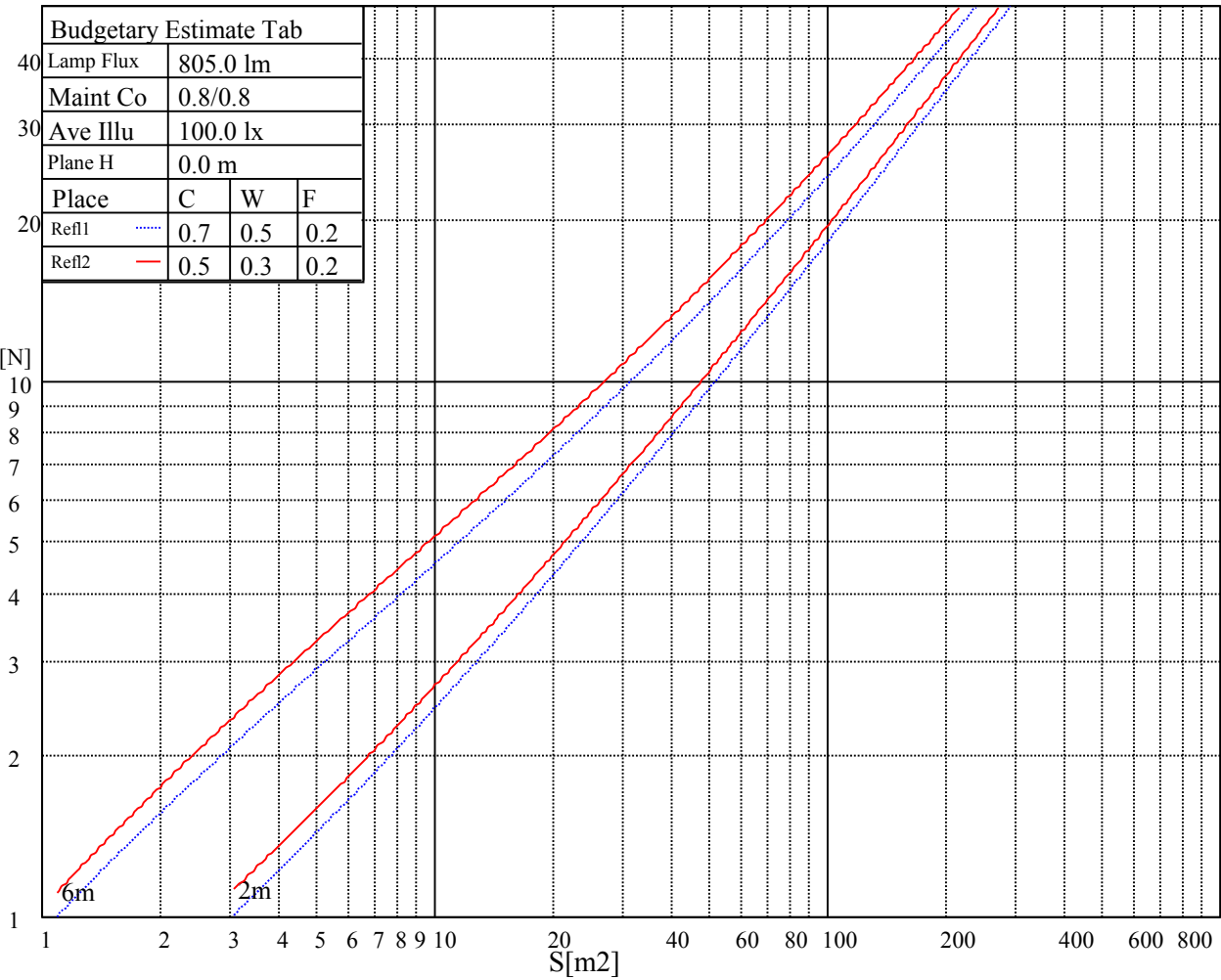
Glare Table

| 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          |

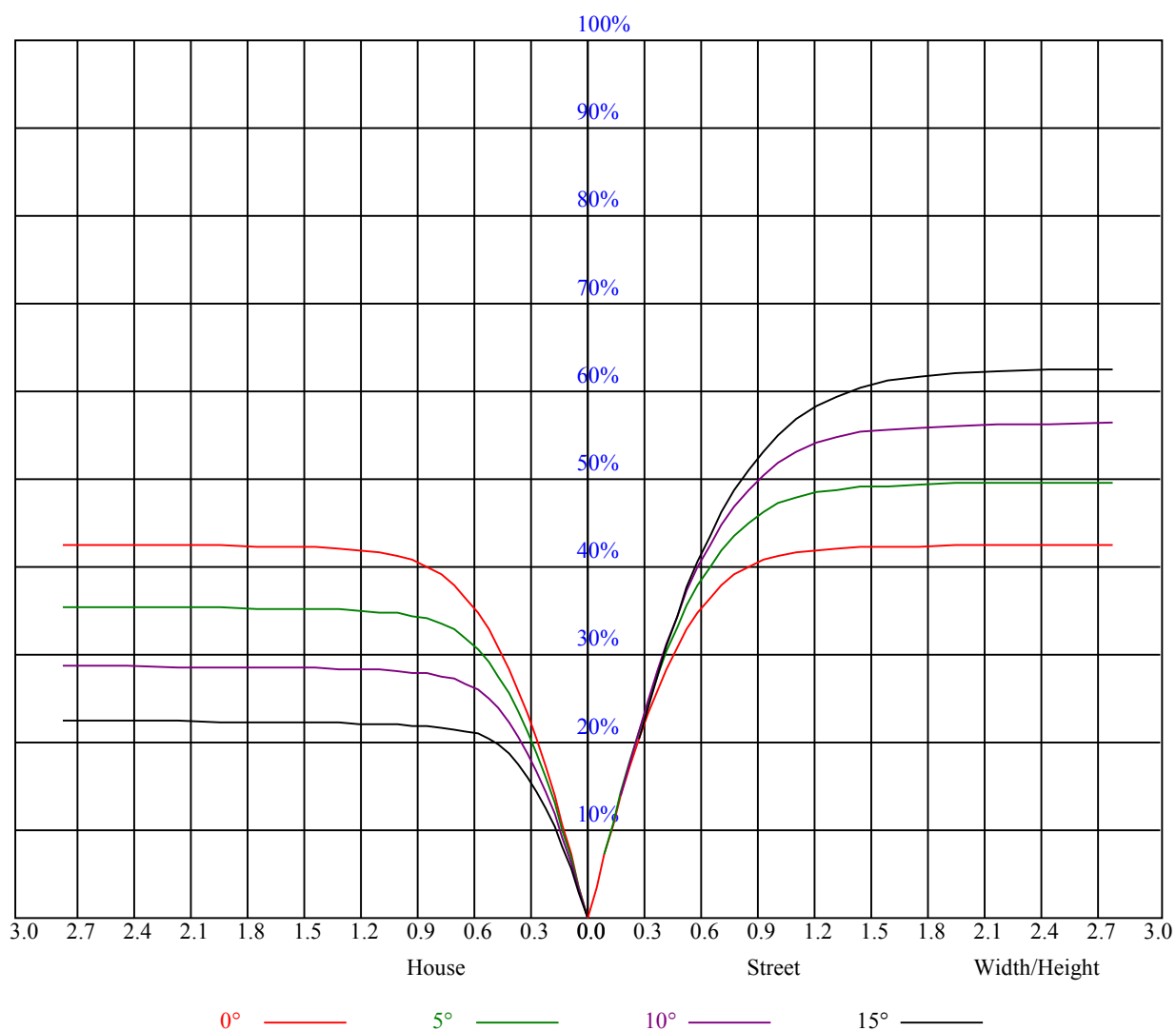
Luminance Limiting Curve



| Illumination assessment according UGR             |     |                  |       |       |       |       |                |       |       |       |       |
|---------------------------------------------------|-----|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Rf of Ceiling                                     |     | 70               | 70    | 50    | 50    | 30    | 70             | 70    | 50    | 50    | 30    |
| Rf of Wall                                        |     | 50               | 30    | 50    | 30    | 30    | 50             | 30    | 50    | 30    | 30    |
| Rf of Floor                                       |     | 20               | 20    | 20    | 20    | 20    | 20             | 20    | 20    | 20    | 20    |
| Room dimensions                                   |     | Viewed crosswise |       |       |       |       | Viewed endwise |       |       |       |       |
| X                                                 | Y   |                  |       |       |       |       |                |       |       |       |       |
| 2H                                                | 2H  | 21.32            | 22.41 | 21.68 | 22.72 | 23.03 | 21.16          | 22.25 | 21.53 | 22.56 | 22.88 |
|                                                   | 3H  | 21.91            | 22.87 | 22.29 | 23.20 | 23.57 | 21.77          | 22.73 | 22.15 | 23.06 | 23.43 |
|                                                   | 4H  | 22.37            | 23.26 | 22.78 | 23.61 | 24.00 | 22.27          | 23.15 | 22.67 | 23.51 | 23.89 |
|                                                   | 6H  | 23.05            | 23.86 | 23.46 | 24.23 | 24.63 | 23.04          | 23.85 | 23.46 | 24.23 | 24.62 |
|                                                   | 8H  | 23.50            | 24.27 | 23.93 | 24.66 | 25.07 | 23.54          | 24.31 | 23.98 | 24.70 | 25.11 |
|                                                   | 12H | 24.40            | 25.13 | 24.84 | 25.52 | 25.95 | 24.47          | 25.20 | 24.91 | 25.59 | 26.02 |
| 4H                                                | 2H  | 21.29            | 22.18 | 21.70 | 22.54 | 22.92 | 21.15          | 22.04 | 21.56 | 22.39 | 22.78 |
|                                                   | 3H  | 22.16            | 22.88 | 22.57 | 23.29 | 23.69 | 22.03          | 22.76 | 22.45 | 23.16 | 23.57 |
|                                                   | 4H  | 22.83            | 23.48 | 23.27 | 23.90 | 24.35 | 22.76          | 23.40 | 23.19 | 23.82 | 24.27 |
|                                                   | 6H  | 23.68            | 24.24 | 24.15 | 24.69 | 25.16 | 23.71          | 24.26 | 24.18 | 24.71 | 25.18 |
|                                                   | 8H  | 24.33            | 24.85 | 24.81 | 25.30 | 25.77 | 24.40          | 24.92 | 24.88 | 25.37 | 25.85 |
|                                                   | 12H | 25.36            | 25.82 | 25.85 | 26.30 | 26.78 | 25.46          | 25.91 | 25.95 | 26.40 | 26.87 |
| 8H                                                | 4H  | 23.11            | 23.62 | 23.58 | 24.07 | 24.55 | 23.04          | 23.56 | 23.52 | 24.01 | 24.48 |
|                                                   | 6H  | 24.28            | 24.69 | 24.79 | 25.20 | 25.68 | 24.31          | 24.73 | 24.82 | 25.23 | 25.72 |
|                                                   | 8H  | 25.13            | 25.51 | 25.66 | 26.03 | 26.52 | 25.21          | 25.59 | 25.74 | 26.11 | 26.60 |
|                                                   | 12H | 26.45            | 26.77 | 26.97 | 27.27 | 27.85 | 26.53          | 26.86 | 27.05 | 27.36 | 27.93 |
| 12H                                               | 4H  | 23.18            | 23.63 | 23.67 | 24.12 | 24.60 | 23.11          | 23.56 | 23.60 | 24.05 | 24.53 |
|                                                   | 6H  | 24.83            | 24.84 | 25.00 | 25.31 | 25.86 | 24.86          | 24.87 | 25.03 | 25.34 | 25.89 |
|                                                   | 8H  | 25.44            | 25.77 | 25.96 | 26.27 | 26.85 | 25.52          | 25.85 | 26.04 | 26.34 | 26.92 |
| Variation with the observer position at spacings: |     |                  |       |       |       |       |                |       |       |       |       |
| S = 1.0H                                          |     | 2.8/-6.3         |       |       |       |       | 2.8/-6.3       |       |       |       |       |
| S = 1.5H                                          |     | 5.1/-6.9         |       |       |       |       | 5.1/-6.9       |       |       |       |       |
| S = 2.0H                                          |     | 6.9/-5.9         |       |       |       |       | 6.9/-5.9       |       |       |       |       |
| Standard tables:                                  |     | BK1              |       |       |       |       | BK1            |       |       |       |       |
| Uncorrected UGR                                   |     | 10.5             |       |       |       |       | 10.5           |       |       |       |       |



| 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    | 1.03                                    | 1.03 | 1.03 | 1.00 | 1.00 | 1.00 | 0.96 | 0.96 | 0.96 | 0.92 | 0.92 | 0.92 | 0.88 | 0.88 | 0.88 | 0.86 |
| 1    | 0.94                                    | 0.92 | 0.90 | 0.93 | 0.90 | 0.88 | 0.89 | 0.87 | 0.86 | 0.86 | 0.84 | 0.83 | 0.83 | 0.82 | 0.81 | 0.79 |
| 2    | 0.88                                    | 0.84 | 0.81 | 0.86 | 0.83 | 0.80 | 0.83 | 0.80 | 0.78 | 0.81 | 0.78 | 0.76 | 0.78 | 0.76 | 0.75 | 0.73 |
| 3    | 0.81                                    | 0.77 | 0.73 | 0.80 | 0.76 | 0.73 | 0.78 | 0.74 | 0.72 | 0.76 | 0.73 | 0.70 | 0.74 | 0.71 | 0.69 | 0.68 |
| 4    | 0.76                                    | 0.71 | 0.67 | 0.75 | 0.70 | 0.67 | 0.73 | 0.69 | 0.66 | 0.71 | 0.68 | 0.65 | 0.70 | 0.67 | 0.64 | 0.63 |
| 5    | 0.71                                    | 0.66 | 0.62 | 0.70 | 0.65 | 0.62 | 0.69 | 0.64 | 0.61 | 0.67 | 0.64 | 0.61 | 0.66 | 0.63 | 0.60 | 0.59 |
| 6    | 0.67                                    | 0.61 | 0.58 | 0.66 | 0.61 | 0.57 | 0.65 | 0.60 | 0.57 | 0.63 | 0.60 | 0.57 | 0.62 | 0.59 | 0.56 | 0.55 |
| 7    | 0.63                                    | 0.57 | 0.54 | 0.62 | 0.57 | 0.53 | 0.61 | 0.56 | 0.53 | 0.60 | 0.56 | 0.53 | 0.59 | 0.55 | 0.53 | 0.51 |
| 8    | 0.59                                    | 0.54 | 0.50 | 0.59 | 0.54 | 0.50 | 0.58 | 0.53 | 0.50 | 0.57 | 0.53 | 0.50 | 0.56 | 0.52 | 0.49 | 0.48 |
| 9    | 0.56                                    | 0.51 | 0.47 | 0.55 | 0.50 | 0.47 | 0.55 | 0.50 | 0.47 | 0.54 | 0.50 | 0.47 | 0.53 | 0.49 | 0.47 | 0.45 |
| 10   | 0.53                                    | 0.48 | 0.44 | 0.52 | 0.48 | 0.44 | 0.52 | 0.47 | 0.44 | 0.51 | 0.47 | 0.44 | 0.50 | 0.47 | 0.44 | 0.43 |



# NATA 1547-E

| Intensity data(cd) |        |        |        |        |        |        |        |        |        | Appendix Page: 15 Total:15 |  |
|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------------------|--|
| C/ $\gamma$ (°)    | 0.0    | 5.0    | 10.0   | 15.0   | 20.0   | 25.0   | 30.0   | 35.0   | 40.0   |                            |  |
| 0.0                | 723.43 | 706.22 | 652.50 | 574.31 | 494.55 | 426.04 | 366.81 | 314.21 | 221.40 |                            |  |
| 45.0               | 729.17 | 703.97 | 643.22 | 563.18 | 478.35 | 400.61 | 341.33 | 279.79 | 186.81 |                            |  |
| 90.0               | 724.28 | 689.63 | 625.50 | 538.26 | 453.71 | 385.59 | 329.18 | 254.59 | 164.14 |                            |  |
| 135.0              | 724.95 | 693.51 | 631.24 | 556.09 | 471.54 | 399.21 | 347.68 | 286.26 | 194.63 |                            |  |
| 180.0              | 723.43 | 682.65 | 622.13 | 542.76 | 460.63 | 387.34 | 342.84 | 275.91 | 180.34 |                            |  |
| 225.0              | 729.17 | 703.35 | 641.25 | 563.46 | 485.38 | 407.03 | 346.44 | 279.17 | 187.88 |                            |  |
| 270.0              | 724.28 | 709.54 | 653.91 | 583.82 | 500.91 | 420.92 | 358.82 | 298.18 | 207.51 |                            |  |
| 315.0              | 724.95 | 701.44 | 641.70 | 562.95 | 484.65 | 416.31 | 362.08 | 300.38 | 207.90 |                            |  |
| 360.0              | 723.43 | 706.22 | 652.50 | 574.31 | 494.55 | 426.04 | 366.81 | 314.21 | 221.40 |                            |  |
| C/ $\gamma$ (°)    | 45.0   | 50.0   | 55.0   | 60.0   | 65.0   | 70.0   | 75.0   | 80.0   | 85.0   |                            |  |
| 0.0                | 114.08 | 39.54  | 26.55  | 8.49   | 5.63   | 4.67   | 3.99   | 3.54   | 3.26   |                            |  |
| 45.0               | 83.93  | 32.06  | 22.61  | 7.65   | 5.68   | 4.78   | 4.16   | 3.71   | 3.32   |                            |  |
| 90.0               | 67.89  | 26.44  | 18.45  | 7.54   | 5.68   | 4.84   | 4.16   | 3.71   | 3.54   |                            |  |
| 135.0              | 91.97  | 26.66  | 16.26  | 7.93   | 5.79   | 4.95   | 4.39   | 3.94   | 3.60   |                            |  |
| 180.0              | 79.59  | 23.46  | 16.54  | 7.37   | 5.79   | 5.18   | 5.01   | 5.01   | 4.22   |                            |  |
| 225.0              | 85.39  | 27.96  | 20.03  | 8.38   | 6.19   | 5.46   | 5.40   | 5.74   | 4.33   |                            |  |
| 270.0              | 104.12 | 37.52  | 24.81  | 10.18  | 6.08   | 5.18   | 4.61   | 4.22   | 3.88   |                            |  |
| 315.0              | 99.34  | 35.44  | 27.17  | 6.75   | 5.29   | 4.44   | 3.88   | 3.54   | 3.38   |                            |  |
| 360.0              | 114.08 | 39.54  | 26.55  | 8.49   | 5.63   | 4.67   | 3.99   | 3.54   | 3.26   |                            |  |
| C/ $\gamma$ (°)    | 90.0   |        |        |        |        |        |        |        |        |                            |  |
| 0.0                | 2.64   |        |        |        |        |        |        |        |        |                            |  |
| 45.0               | 2.53   |        |        |        |        |        |        |        |        |                            |  |
| 90.0               | 2.53   |        |        |        |        |        |        |        |        |                            |  |
| 135.0              | 2.64   |        |        |        |        |        |        |        |        |                            |  |
| 180.0              | 2.70   |        |        |        |        |        |        |        |        |                            |  |
| 225.0              | 2.64   |        |        |        |        |        |        |        |        |                            |  |
| 270.0              | 2.59   |        |        |        |        |        |        |        |        |                            |  |
| 315.0              | 2.70   |        |        |        |        |        |        |        |        |                            |  |
| 360.0              | 2.64   |        |        |        |        |        |        |        |        |                            |  |