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## NATA

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|                         |                     |
|-------------------------|---------------------|
| LumCAT: 1681-S          |                     |
| Luminaire: 92.70.124.00 |                     |
| Report No: NATA0100     | Voltage(V): 33.9400 |
| Test No: GC2019032309   | Current(A): 0.3000  |
| LampCAT: BRIDGELUX V10  | Power (W): 10.1820  |
| Lamp flux(lm): 1503.0   | PF: 0.0000          |
| Number of Lamps: 1      | Ballast type: DC    |
| Length(mm): 47          | Width(mm): 47       |
| Phm Type: C             | Height(mm): 0       |

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## Photometric Results

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Lumens(lm): 1296.17  
Efficiency(%): 86.24%  
Lumens(lm)/Power(W): 127.30  
Central intensity(cd): 1575.562  
Maximum intensity(cd): 1575.562  
Angle of maximum intensity: C=0.0  $\gamma$ =0.0  
Beam Angle(50%Imax): [C0/180]Total=58.4  
[C90/270]Total=58.4  
Field angle(10%Imax): [C0/180]Total=77.6  
[C90/270]Total=77.6  
Maximum s/h(1/2): C0\_180=0.92 C90\_270=0.92  
Maximum s/h(1/4): C0\_180=0.87 C90\_270=0.87  
Up flux rate of lamp(%): 0.00%  
Down flux rate of lamp(%): 86.24%  
Up flux rate of LUM(%): - -  
Down flux rate of LUM(%): 100.00%  
CIE Type : Direct lighting  
Output flux ratio in  $\pi$  solid angle : 98.372%

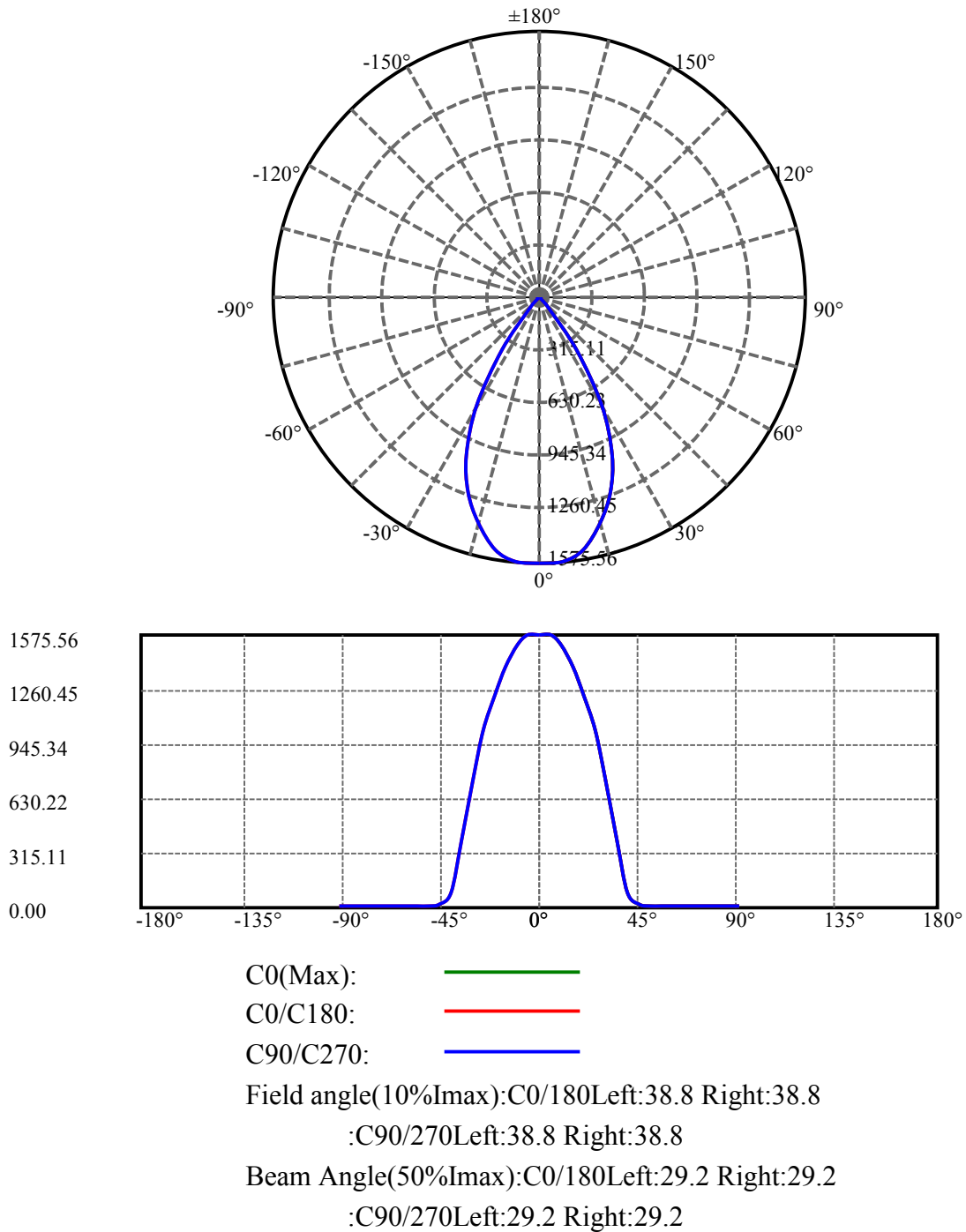
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 1575.563      | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 1571.625      | 37.624      | 37.624    | 2.503%      | 2.903%     |
| 10.0               | 1515.867      | 110.449     | 148.073   | 7.349%      | 11.424%    |
| 15.0               | 1386.633      | 172.174     | 320.247   | 11.455%     | 24.707%    |
| 20.0               | 1230.258      | 215.669     | 535.916   | 14.349%     | 41.346%    |
| 25.0               | 1030.402      | 237.101     | 773.017   | 15.775%     | 59.638%    |
| 30.0               | 742.001       | 224.299     | 997.316   | 14.923%     | 76.943%    |
| 35.0               | 377.241       | 164.816     | 1162.133  | 10.966%     | 89.659%    |
| 40.0               | 87.012        | 77.457      | 1239.59   | 5.153%      | 95.634%    |
| 45.0               | 23.210        | 20.408      | 1259.998  | 1.358%      | 97.209%    |
| 50.0               | 11.517        | 7.017       | 1267.015  | .467%       | 97.750%    |
| 55.0               | 8.529         | 4.359       | 1271.374  | .290%       | 98.087%    |
| 60.0               | 7.467         | 3.697       | 1275.071  | .246%       | 98.372%    |
| 65.0               | 7.172         | 3.559       | 1278.63   | .237%       | 98.646%    |
| 70.0               | 7.439         | 3.700       | 1282.33   | .246%       | 98.932%    |
| 75.0               | 6.919         | 3.753       | 1286.083  | .250%       | 99.221%    |
| 80.0               | 6.694         | 3.642       | 1289.725  | .242%       | 99.502%    |
| 85.0               | 5.963         | 3.439       | 1293.164  | .229%       | 99.768%    |
| 90.0               | 5.034         | 3.011       | 1296.175  | .200%       | 100.000%   |

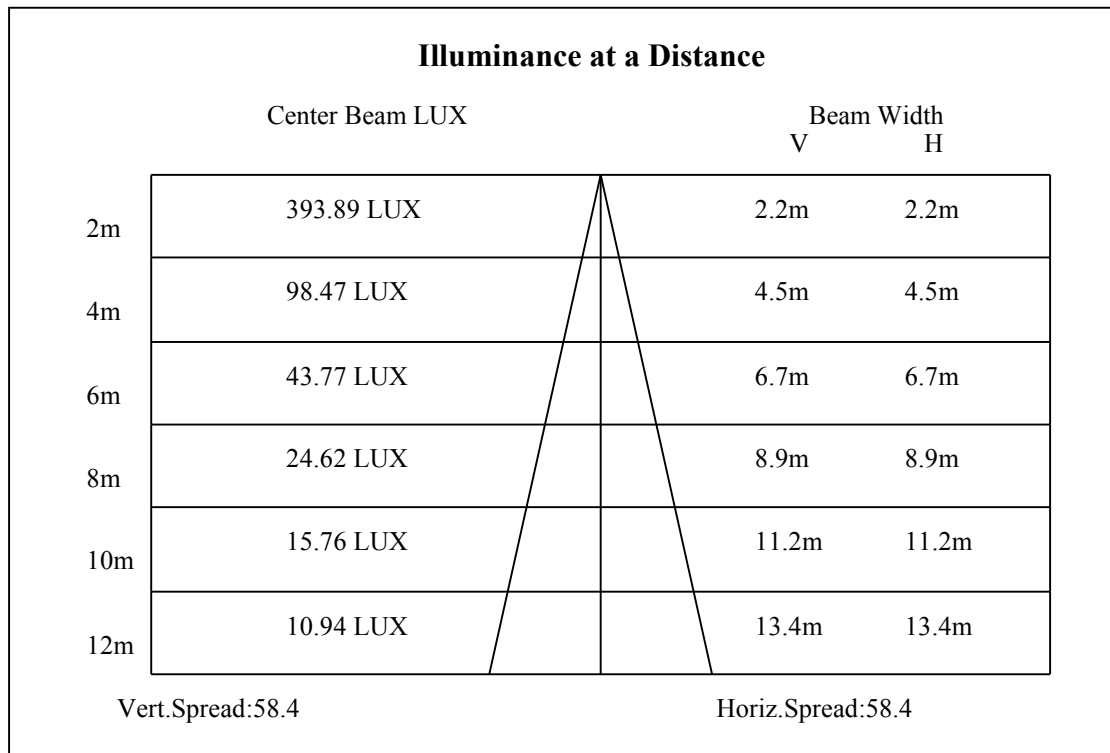
## ZONAL LUMEN SUMMARY

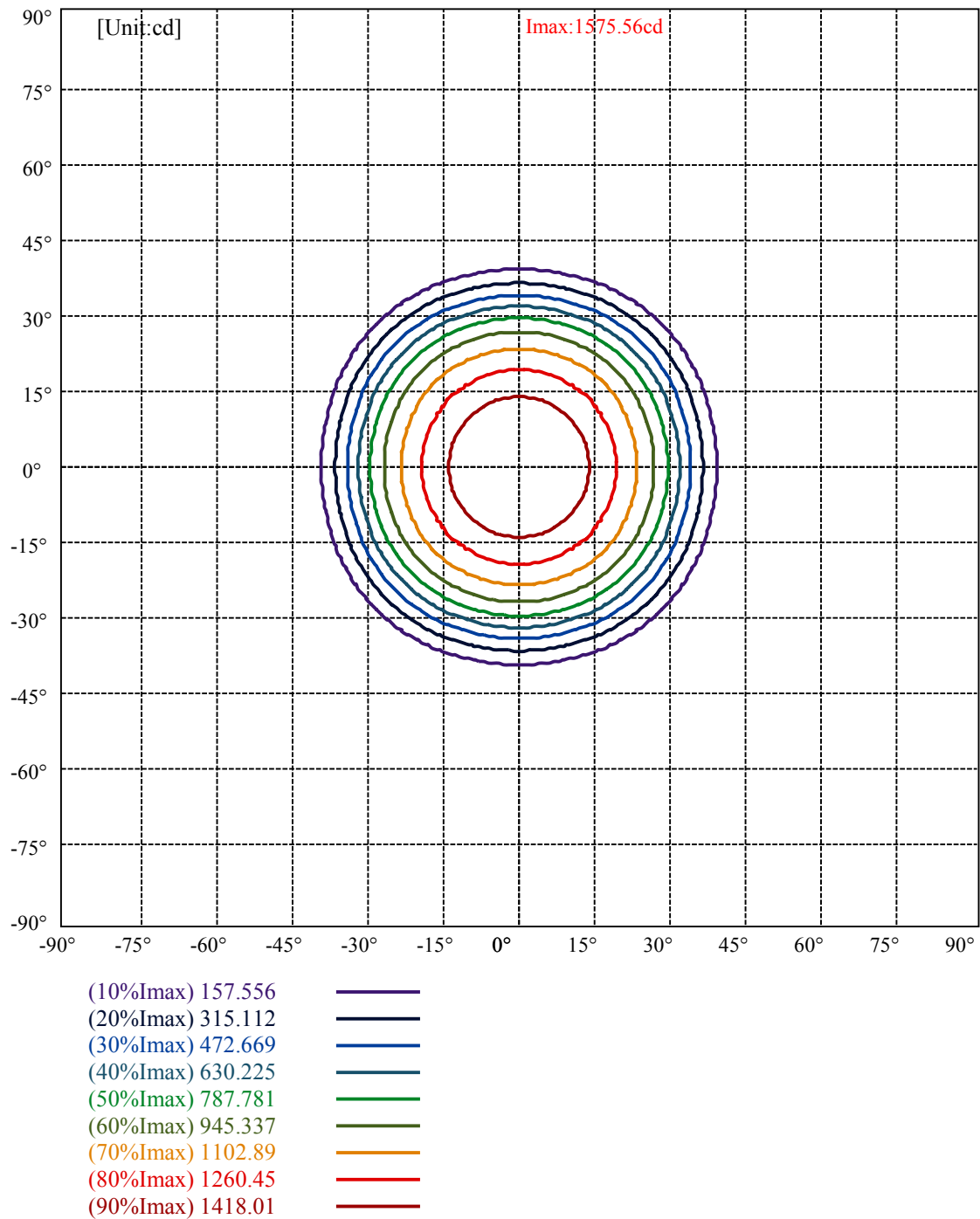
| Zone    | Lumens  | %Lamp  | %Fixt   |
|---------|---------|--------|---------|
| 0-30    | 997.32  | 66.36% | 76.94%  |
| 0-40    | 1239.59 | 82.47% | 95.63%  |
| 0-60    | 1275.07 | 84.84% | 98.37%  |
| 0-90    | 1293.16 | 86.04% | 99.77%  |
| 0-120   | 1293.16 | 86.04% | 99.77%  |
| 0-180   | 1296.17 | 86.24% | 100.00% |
| 60-90   | 21.79   | 1.45%  | 1.68%   |
| 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%   |
| 0-31.20 | 1036.94 | 68.99% | 80.00%  |

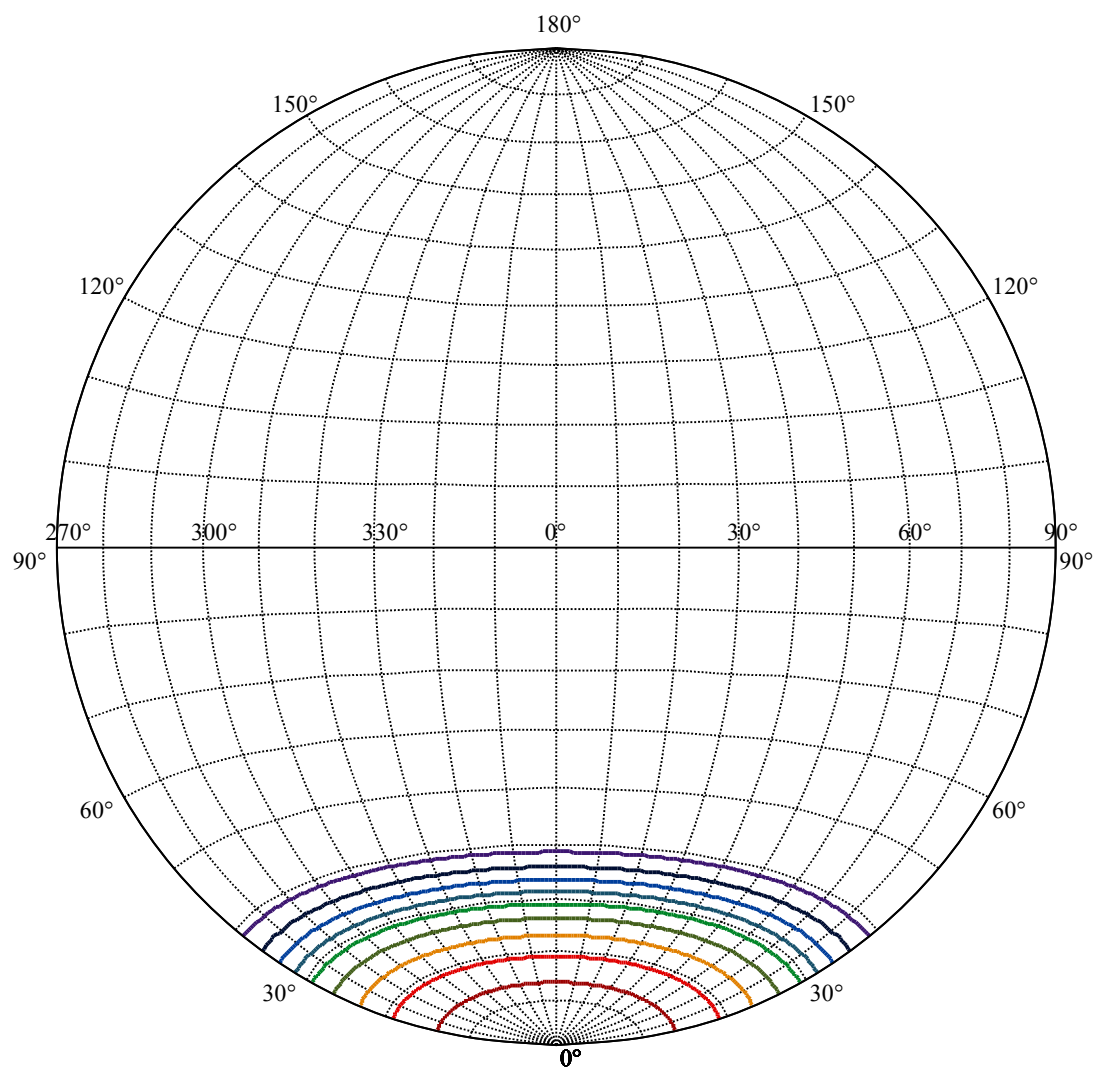
## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 148.07 |
| 10-20   | 387.84 |
| 20-30   | 461.40 |
| 30-40   | 242.27 |
| 40-50   | 27.43  |
| 50-60   | 8.06   |
| 60-70   | 7.26   |
| 70-80   | 7.40   |
| 80-90   | 3.44   |
| 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   |









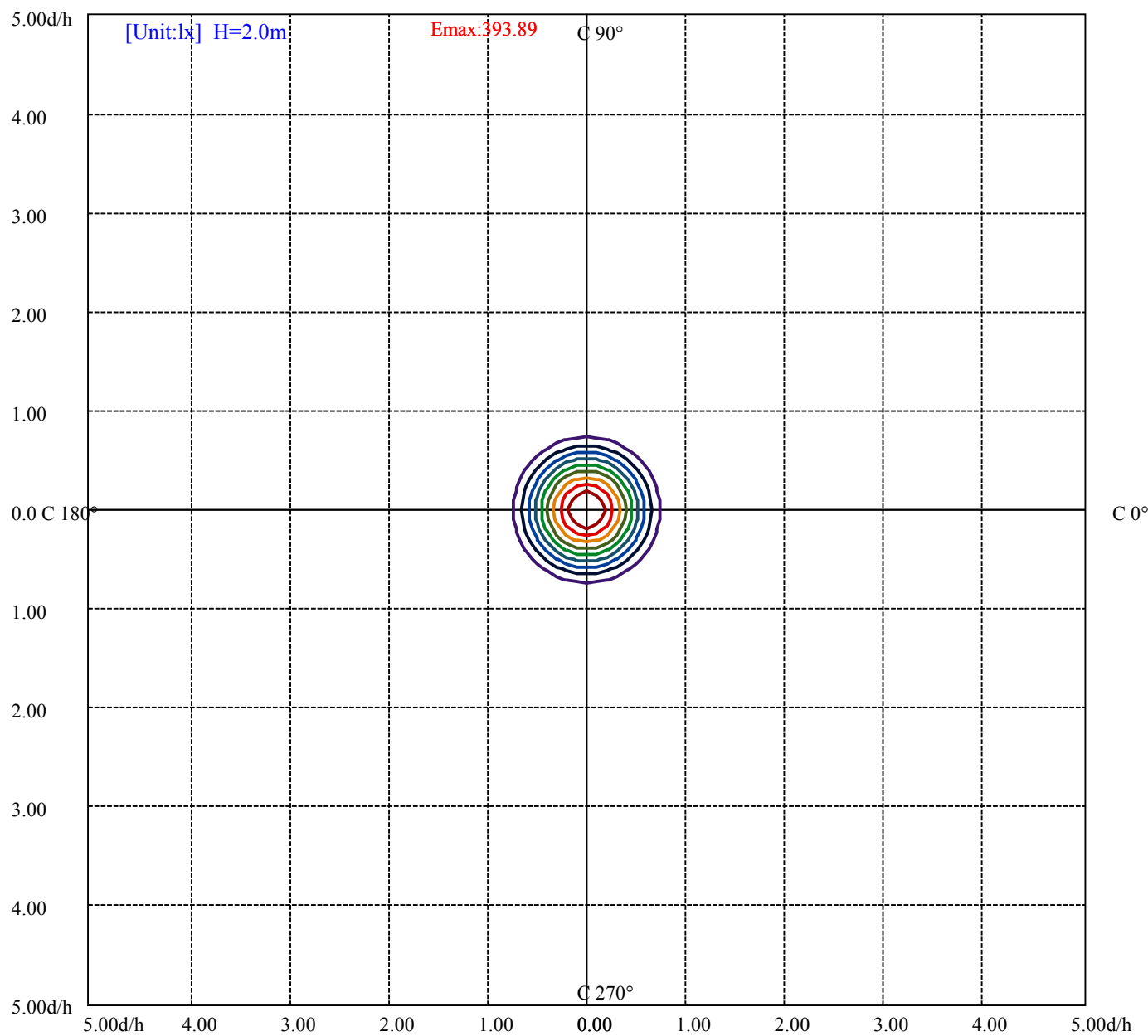
House

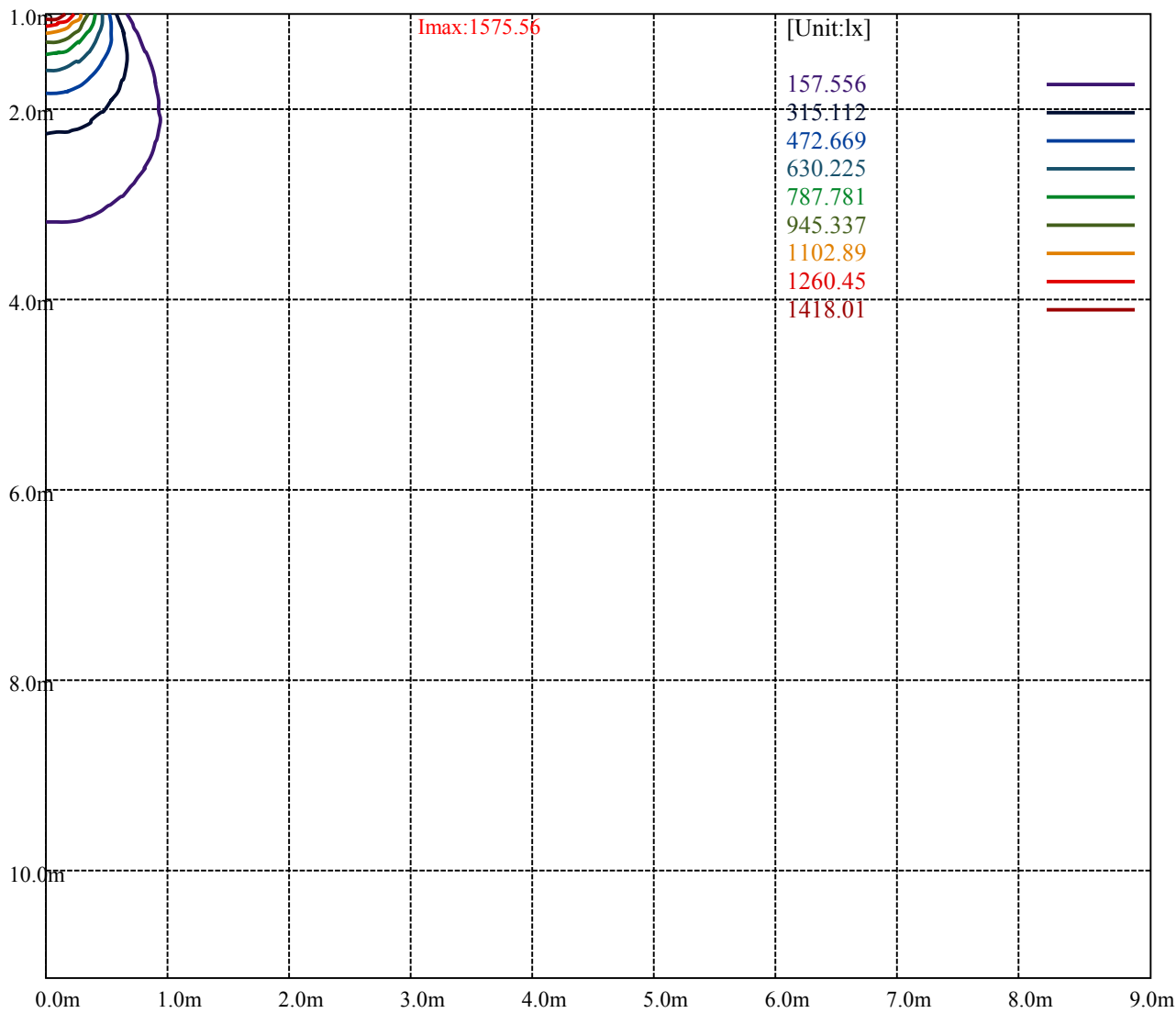
[Unit:cd]

Road

**Imax:1575.56**

|           |         |   |
|-----------|---------|---|
| (10%Imax) | 157.556 | — |
| (20%Imax) | 315.112 | — |
| (30%Imax) | 472.669 | — |
| (40%Imax) | 630.225 | — |
| (50%Imax) | 787.781 | — |
| (60%Imax) | 945.337 | — |
| (70%Imax) | 1102.89 | — |
| (80%Imax) | 1260.45 | — |
| (90%Imax) | 1418.01 | — |

(10%E<sub>max</sub>) 39.389(20%E<sub>max</sub>) 78.778(30%E<sub>max</sub>) 118.1673(40%E<sub>max</sub>) 157.5562(50%E<sub>max</sub>) 196.9453(60%E<sub>max</sub>) 236.3342(70%E<sub>max</sub>) 275.7225(80%E<sub>max</sub>) 315.1125(90%E<sub>max</sub>) 354.5025



Luminance Table

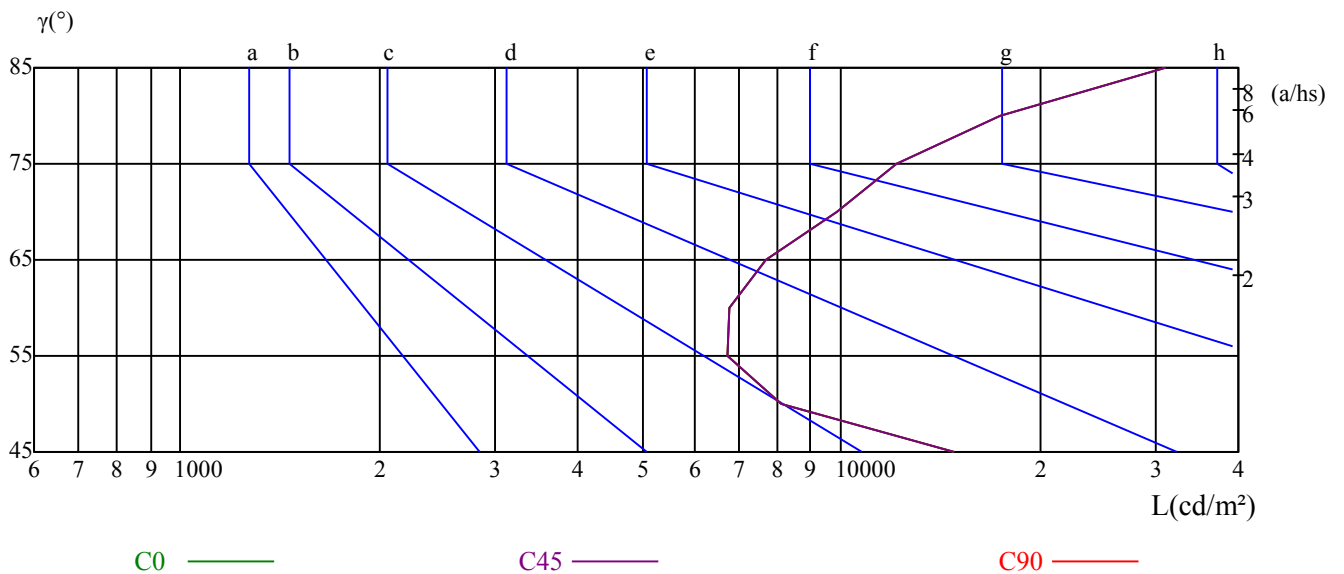
| $\gamma$ | 45    | 50   | 55   | 60   | 65   | 70   | 75    | 80    | 85    |
|----------|-------|------|------|------|------|------|-------|-------|-------|
| C0       | 14859 | 8111 | 6731 | 6761 | 7682 | 9846 | 12101 | 17450 | 30970 |
| C45      | 14859 | 8111 | 6731 | 6761 | 7682 | 9846 | 12101 | 17450 | 30970 |
| C90      | 14859 | 8111 | 6731 | 6761 | 7682 | 9846 | 12101 | 17450 | 30970 |

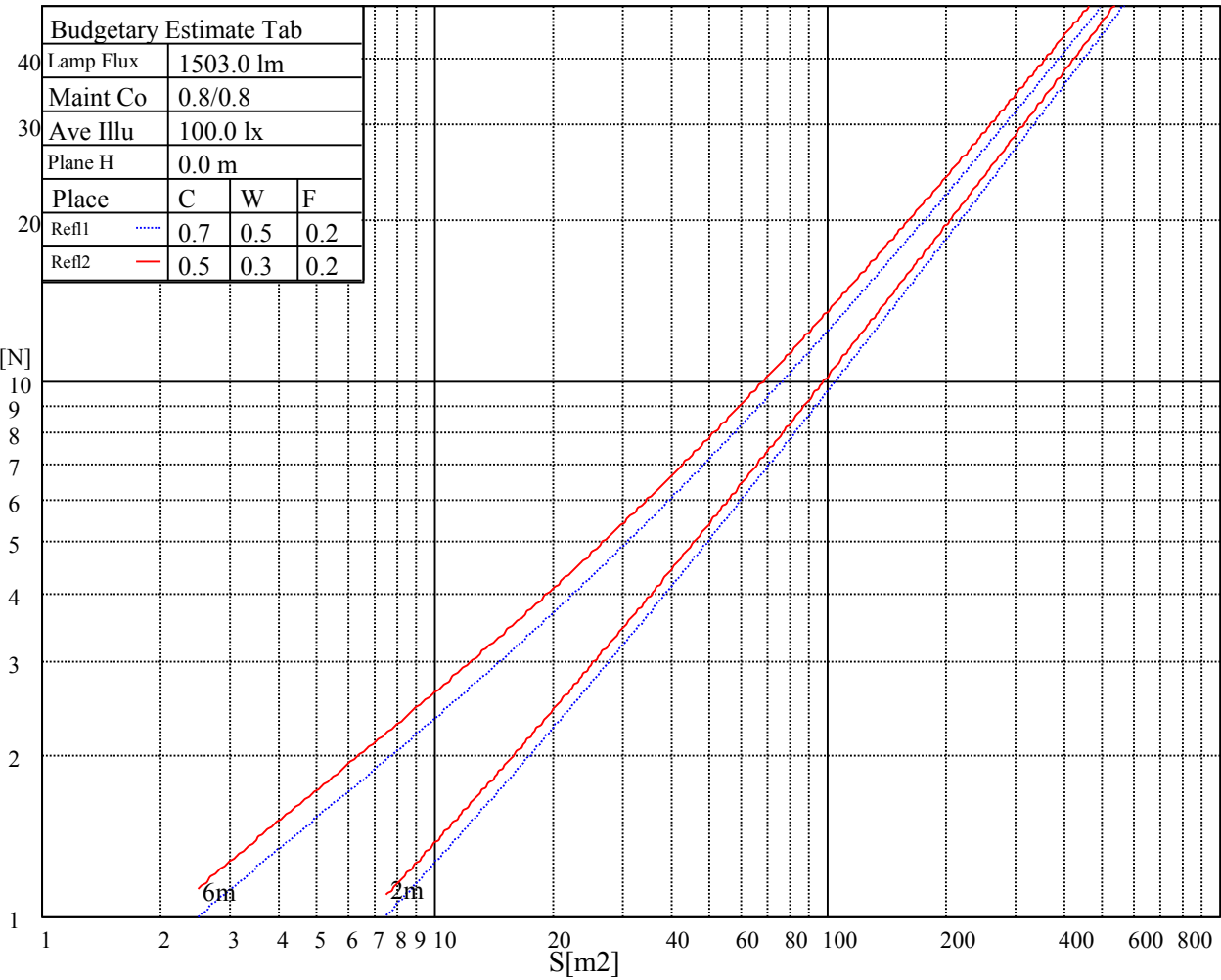
| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 7682       | 7682       | 7682    | 12101      | 12101      | 12101   | 30970      | 30970      | 30970   |

Glare Table

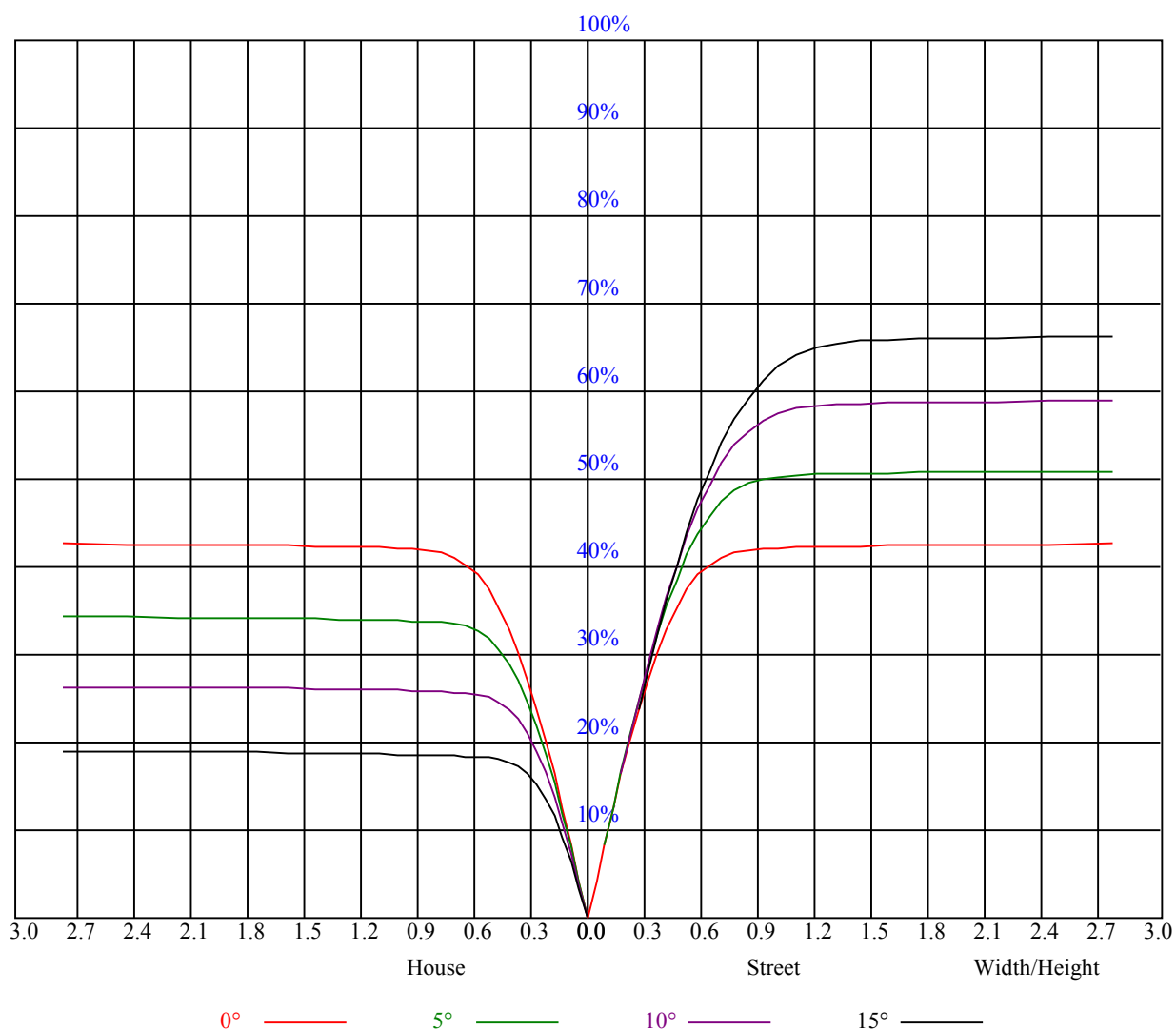
| Glare | Quality | Service Values Illuminance(lx) |      |      |            |            |            |            |            |
|-------|---------|--------------------------------|------|------|------------|------------|------------|------------|------------|
| 1.15  | A       | 2000                           | 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





| 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   | 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     | 0.95                                    | 0.93 | 0.91 | 0.94 | 0.92 | 0.90 | 0.90 | 0.89 | 0.87 | 0.87 | 0.86 | 0.85 | 0.84 | 0.83 | 0.82 | 0.81 |
| 2     | 0.89                                    | 0.86 | 0.83 | 0.88 | 0.84 | 0.82 | 0.85 | 0.82 | 0.80 | 0.82 | 0.80 | 0.78 | 0.80 | 0.78 | 0.77 | 0.75 |
| 3     | 0.83                                    | 0.79 | 0.76 | 0.82 | 0.78 | 0.75 | 0.80 | 0.77 | 0.74 | 0.78 | 0.75 | 0.73 | 0.76 | 0.74 | 0.72 | 0.70 |
| 4     | 0.78                                    | 0.73 | 0.70 | 0.77 | 0.73 | 0.70 | 0.75 | 0.72 | 0.69 | 0.74 | 0.70 | 0.68 | 0.72 | 0.69 | 0.67 | 0.66 |
| 5     | 0.73                                    | 0.69 | 0.65 | 0.73 | 0.68 | 0.65 | 0.71 | 0.67 | 0.64 | 0.70 | 0.66 | 0.64 | 0.68 | 0.65 | 0.63 | 0.62 |
| 6     | 0.69                                    | 0.64 | 0.61 | 0.69 | 0.64 | 0.60 | 0.67 | 0.63 | 0.60 | 0.66 | 0.62 | 0.60 | 0.65 | 0.62 | 0.59 | 0.58 |
| 7     | 0.65                                    | 0.60 | 0.57 | 0.65 | 0.60 | 0.57 | 0.64 | 0.59 | 0.56 | 0.63 | 0.59 | 0.56 | 0.62 | 0.58 | 0.56 | 0.55 |
| 8     | 0.62                                    | 0.57 | 0.53 | 0.61 | 0.57 | 0.53 | 0.60 | 0.56 | 0.53 | 0.59 | 0.56 | 0.53 | 0.59 | 0.55 | 0.53 | 0.51 |
| 9     | 0.58                                    | 0.54 | 0.50 | 0.58 | 0.53 | 0.50 | 0.57 | 0.53 | 0.50 | 0.56 | 0.53 | 0.50 | 0.56 | 0.52 | 0.50 | 0.49 |
| 10    | 0.55                                    | 0.51 | 0.47 | 0.55 | 0.50 | 0.47 | 0.54 | 0.50 | 0.47 | 0.54 | 0.50 | 0.47 | 0.53 | 0.50 | 0.47 | 0.46 |



# NATA 1681-S

| Intensity data(cd) |         |         |         |         |         |         |        |        | Appendix Page: 14 Total:14 |  |
|--------------------|---------|---------|---------|---------|---------|---------|--------|--------|----------------------------|--|
| C/γ(°)             | 0.0     | 5.0     | 10.0    | 15.0    | 20.0    | 25.0    | 30.0   | 35.0   | 40.0                       |  |
| 0.0                | 1573.31 | 1577.25 | 1530.00 | 1400.63 | 1244.25 | 1053.56 | 779.63 | 427.50 | 108.45                     |  |
| 45.0               | 1575.56 | 1579.50 | 1539.00 | 1424.81 | 1269.56 | 1081.13 | 801.00 | 458.44 | 113.96                     |  |
| 90.0               | 1577.81 | 1566.56 | 1512.00 | 1390.50 | 1228.50 | 1018.46 | 712.69 | 344.53 | 79.48                      |  |
| 135.0              | 1575.56 | 1570.50 | 1531.13 | 1415.25 | 1271.81 | 1097.44 | 811.69 | 418.50 | 107.49                     |  |
| 180.0              | 1573.31 | 1568.81 | 1496.25 | 1374.75 | 1246.50 | 1030.44 | 724.44 | 322.48 | 62.44                      |  |
| 225.0              | 1575.56 | 1567.13 | 1498.50 | 1347.75 | 1188.00 | 977.34  | 673.54 | 316.52 | 63.39                      |  |
| 270.0              | 1577.81 | 1572.75 | 1515.38 | 1379.81 | 1215.56 | 1008.00 | 732.94 | 388.69 | 86.63                      |  |
| 315.0              | 1575.56 | 1570.50 | 1504.69 | 1359.56 | 1177.88 | 976.84  | 700.09 | 341.27 | 74.25                      |  |
| 360.0              | 1573.31 | 1577.25 | 1530.00 | 1400.63 | 1244.25 | 1053.56 | 779.63 | 427.50 | 108.45                     |  |
| C/γ(°)             | 45.0    | 50.0    | 55.0    | 60.0    | 65.0    | 70.0    | 75.0   | 80.0   | 85.0                       |  |
| 0.0                | 27.11   | 12.26   | 8.78    | 7.48    | 7.14    | 7.59    | 5.79   | 5.57   | 5.51                       |  |
| 45.0               | 26.83   | 13.11   | 9.11    | 7.88    | 7.59    | 8.38    | 7.09   | 7.37   | 6.64                       |  |
| 90.0               | 22.44   | 11.70   | 8.78    | 7.71    | 7.59    | 8.66    | 8.72   | 7.37   | 6.02                       |  |
| 135.0              | 24.02   | 12.04   | 8.44    | 7.20    | 6.47    | 6.19    | 5.85   | 5.74   | 5.91                       |  |
| 180.0              | 19.52   | 11.03   | 8.33    | 7.14    | 6.53    | 6.08    | 5.96   | 5.79   | 5.85                       |  |
| 225.0              | 18.73   | 9.96    | 7.88    | 6.92    | 6.41    | 6.08    | 5.91   | 5.85   | 6.02                       |  |
| 270.0              | 25.14   | 11.42   | 8.66    | 8.04    | 8.21    | 9.11    | 9.56   | 9.51   | 6.36                       |  |
| 315.0              | 21.88   | 10.63   | 8.27    | 7.37    | 7.43    | 7.43    | 6.47   | 6.36   | 5.40                       |  |
| 360.0              | 27.11   | 12.26   | 8.78    | 7.48    | 7.14    | 7.59    | 5.79   | 5.57   | 5.51                       |  |
| C/γ(°)             | 90.0    |         |         |         |         |         |        |        |                            |  |
| 0.0                | 5.06    |         |         |         |         |         |        |        |                            |  |
| 45.0               | 5.18    |         |         |         |         |         |        |        |                            |  |
| 90.0               | 5.01    |         |         |         |         |         |        |        |                            |  |
| 135.0              | 5.06    |         |         |         |         |         |        |        |                            |  |
| 180.0              | 5.01    |         |         |         |         |         |        |        |                            |  |
| 225.0              | 5.06    |         |         |         |         |         |        |        |                            |  |
| 270.0              | 4.95    |         |         |         |         |         |        |        |                            |  |
| 315.0              | 4.95    |         |         |         |         |         |        |        |                            |  |
| 360.0              | 5.06    |         |         |         |         |         |        |        |                            |  |