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Client:

LumCAT: 0017440221 RIO 10W 4000K 1000lm

Luminaire:

Report No:

Voltage(V): 230.0000

Test No: KYZ-A251030009-02-001

Current(A): 0.0480

LampCAT: LED

Power (W): 10.0000

Lamp flux(lm)

PF: 0.9008

Number of Lamps: 1

Ballast type:

Length(mm): -192

Width(mm): -192

Phm Type: C

Height(mm): 0

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Photometric Results

Lumens(lm): 1000.00

Lumens(lm)/Power(W): 100.00

Central intensity(cd): 518.096

Maximum intensity(cd): 526.366

Angle of maximum intensity: C=90.0  $\gamma$ =5.0

Beam Angle(50%Imax): [C0/180]Total=83.4

[C90/270]Total=83.1

Field angle(10%Imax): [C0/180]Total=141.9

[C90/270]Total=139.2

Maximum s/h(1/2): C0\_180=1.12 C90\_270=1.14

Maximum s/h(1/4): C0\_180=1.16 C90\_270=1.18

Up flux rate of LUM(%): 0.27%

Down flux rate of LUM(%): 99.73%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 88.200%

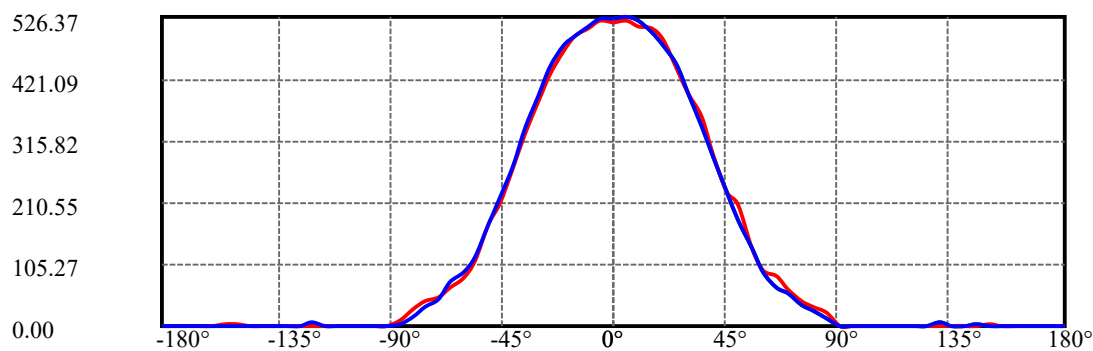
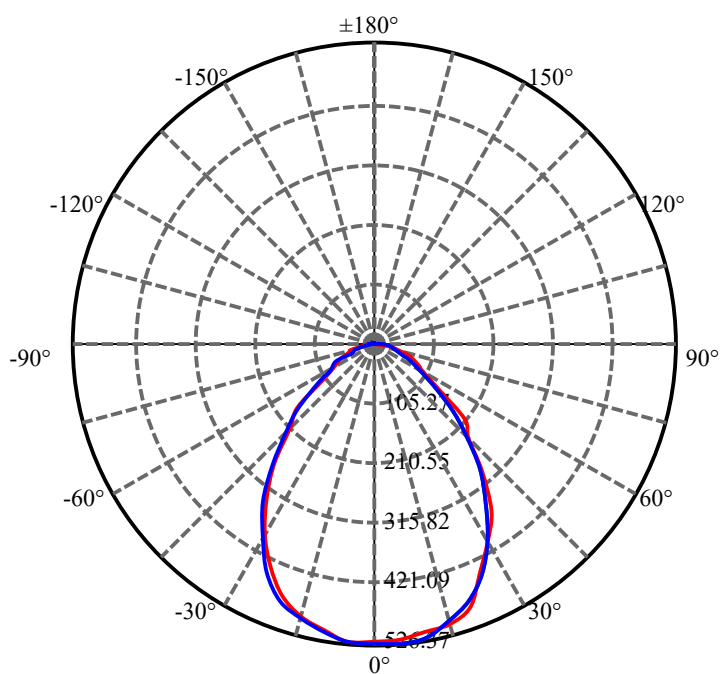
| $\gamma(^{\circ})$ | Average I(cd) | Zonal F(lm) | Sum F(lm) | Eff Flux(%) | Eff Sum(%) |
|--------------------|---------------|-------------|-----------|-------------|------------|
| 0.0                | 615.185       | 0.000       | 0         | .000%       | .000%      |
| 5.0                | 615.025       | 12.403      | 12.403    | 1.240%      | 1.240%     |
| 10.0               | 606.499       | 36.852      | 49.255    | 3.685%      | 4.926%     |
| 15.0               | 589.925       | 59.853      | 109.109   | 5.985%      | 10.911%    |
| 20.0               | 564.026       | 80.204      | 189.313   | 8.020%      | 18.931%    |
| 25.0               | 519.635       | 95.852      | 285.164   | 9.585%      | 28.516%    |
| 30.0               | 461.335       | 104.695     | 389.86    | 10.470%     | 38.986%    |
| 35.0               | 399.092       | 106.856     | 496.715   | 10.686%     | 49.672%    |
| 40.0               | 332.639       | 102.959     | 599.674   | 10.296%     | 59.968%    |
| 45.0               | 260.431       | 92.609      | 692.284   | 9.261%      | 69.229%    |
| 50.0               | 200.106       | 78.480      | 770.764   | 7.848%      | 77.077%    |
| 55.0               | 144.577       | 63.205      | 833.969   | 6.321%      | 83.397%    |
| 60.0               | 101.785       | 48.025      | 881.994   | 4.803%      | 88.200%    |
| 65.0               | 79.989        | 37.267      | 919.262   | 3.727%      | 91.926%    |
| 70.0               | 56.222        | 29.087      | 948.348   | 2.909%      | 94.835%    |
| 75.0               | 44.604        | 22.226      | 970.574   | 2.223%      | 97.058%    |
| 80.0               | 25.846        | 15.898      | 986.472   | 1.590%      | 98.647%    |
| 85.0               | 10.285        | 8.280       | 994.751   | .828%       | 99.475%    |
| 90.0               | 0.693         | 2.535       | 997.286   | .254%       | 99.729%    |
| 95.0               | 0.107         | 0.185       | 997.471   | .018%       | 99.747%    |
| 100.0              | 0.533         | 0.147       | 997.617   | .015%       | 99.762%    |
| 105.0              | 0.000         | 0.120       | 997.738   | .012%       | 99.774%    |
| 110.0              | 0.000         | 0.000       | 997.738   | .000%       | 99.774%    |
| 115.0              | 0.320         | 0.068       | 997.806   | .007%       | 99.781%    |
| 120.0              | 1.599         | 0.393       | 998.199   | .039%       | 99.820%    |
| 125.0              | 0.000         | 0.312       | 998.511   | .031%       | 99.851%    |
| 130.0              | 1.172         | 0.215       | 998.726   | .021%       | 99.873%    |
| 135.0              | 1.119         | 0.390       | 999.116   | .039%       | 99.912%    |
| 140.0              | 0.107         | 0.191       | 999.308   | .019%       | 99.931%    |
| 145.0              | 0.426         | 0.075       | 999.383   | .007%       | 99.939%    |
| 150.0              | 1.652         | 0.258       | 999.641   | .026%       | 99.964%    |
| 155.0              | 0.640         | 0.245       | 999.885   | .024%       | 99.989%    |
| 160.0              | 0.053         | 0.061       | 999.947   | .006%       | 99.995%    |
| 165.0              | 0.000         | 0.004       | 999.95    | .000%       | 99.995%    |
| 170.0              | 0.586         | 0.029       | 999.98    | .003%       | 99.998%    |
| 175.0              | 0.000         | 0.018       | 999.997   | .002%       | 100.000%   |
| 180.0              | 0.000         | 0.000       | 999.997   | .000%       | 100.000%   |

## ZONAL LUMEN SUMMARY

| Zone    | Lumens  | %Fixt   |
|---------|---------|---------|
| 0-30    | 389.86  | 38.99%  |
| 0-40    | 599.67  | 59.97%  |
| 0-60    | 881.99  | 88.20%  |
| 0-90    | 997.29  | 99.73%  |
| 0-120   | 998.20  | 99.82%  |
| 0-180   | 1000.00 | 100.00% |
| 60-90   | 163.32  | 16.33%  |
| 90-120  | 3.45    | 0.34%   |
| 90-130  | 3.97    | 0.40%   |
| 90-150  | 4.89    | 0.49%   |
| 90-180  | 5.25    | 0.52%   |
| 0-52.31 | 800.00  | 80.00%  |

## ZONAL LUMEN SUMMARY

|         |        |
|---------|--------|
| 0-10    | 49.26  |
| 10-20   | 140.06 |
| 20-30   | 200.55 |
| 30-40   | 209.81 |
| 40-50   | 171.09 |
| 50-60   | 111.23 |
| 60-70   | 66.35  |
| 70-80   | 38.12  |
| 80-90   | 10.81  |
| 90-100  | 0.33   |
| 100-110 | 0.12   |
| 110-120 | 0.46   |
| 120-130 | 0.53   |
| 130-140 | 0.58   |
| 140-150 | 0.33   |
| 150-160 | 0.31   |
| 160-170 | 0.03   |
| 170-180 | 0.02   |



C90(Max): —————

C0/C180: —————

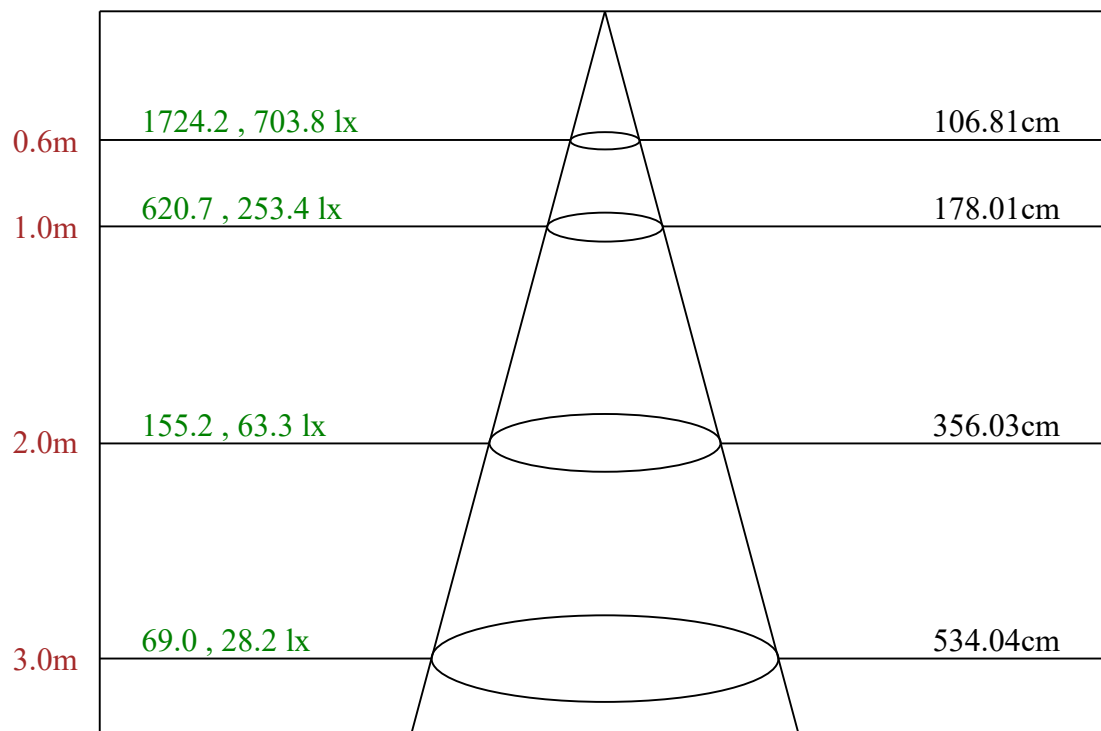
C90/C270: —————

Field angle(10%Imax):C0/180Left:64.4 Right:77.5

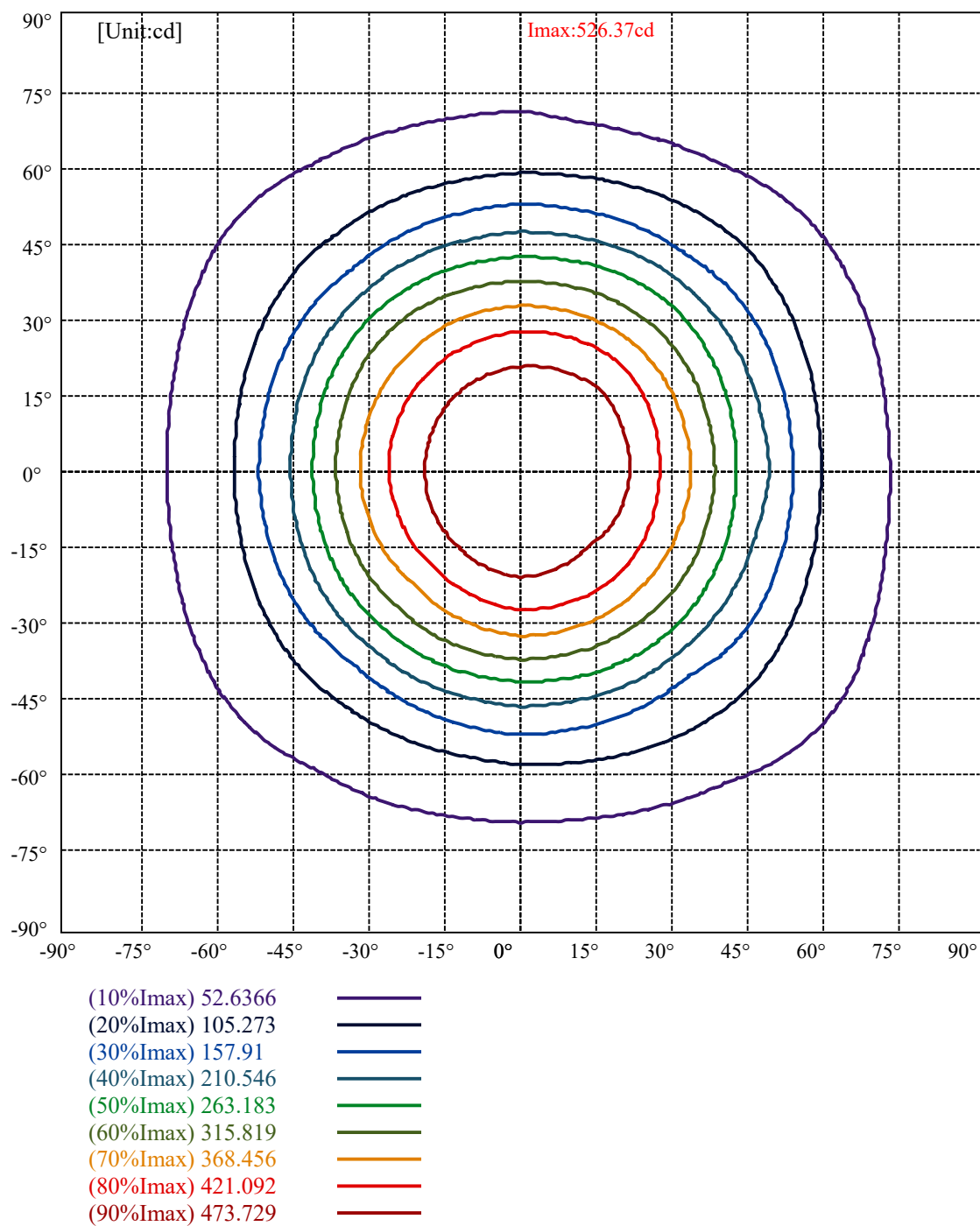
:C90/270Left:73.6 Right:65.6

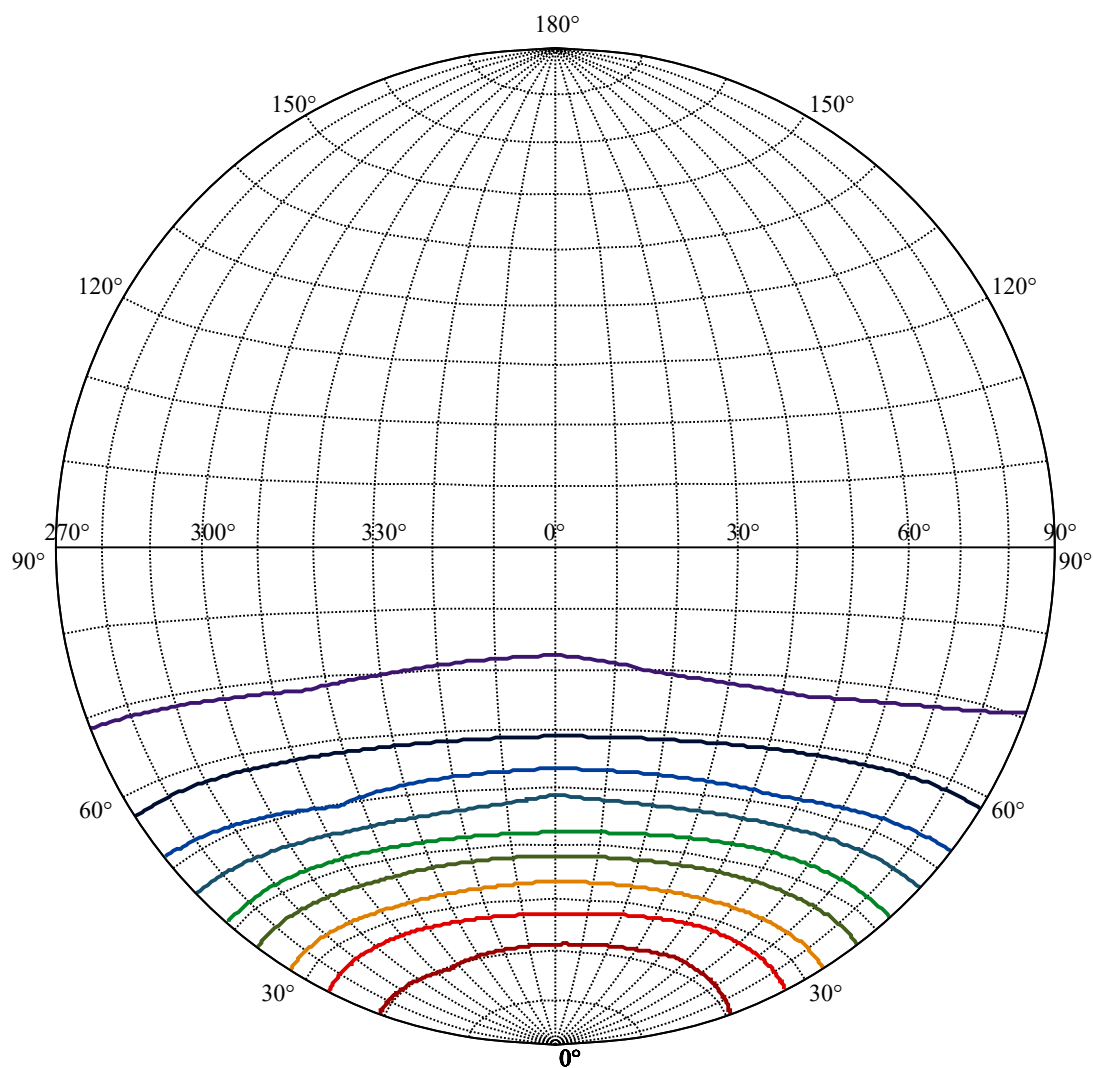
Beam Angle(50%Imax):C0/180Left:35.9 Right:47.5

:C90/270Left:46.1 Right:37.0



Max , Ave      Beam angle of C90 plane 83.34





House

[Unit:cd]

Road

**Imax:526.37**

(10%Imax) 44.39098

(20%Imax) 88.78178

(30%Imax) 133.1731

(40%Imax) 177.5636

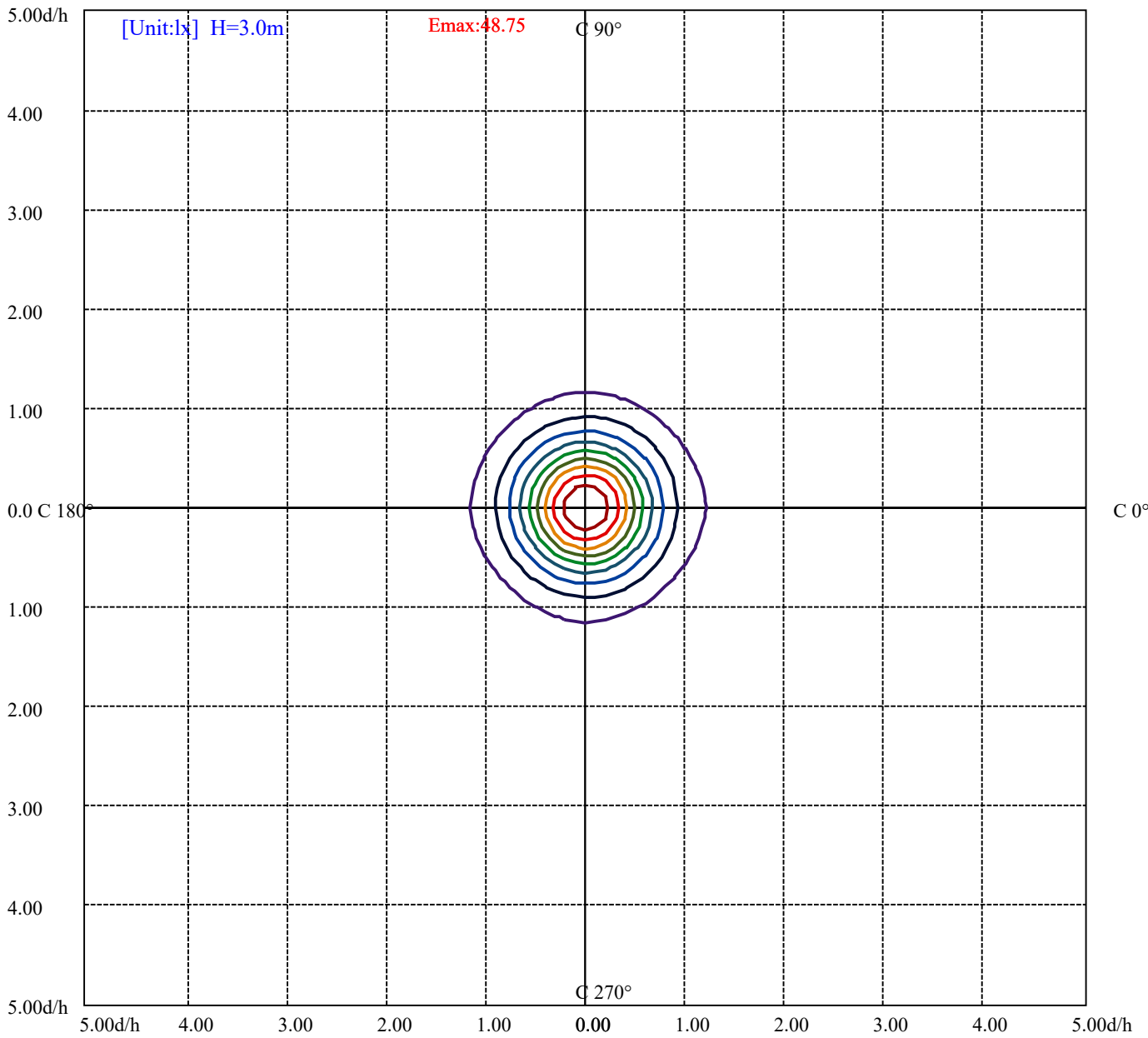
(50%Imax) 221.9549

(60%Imax) 266.3453

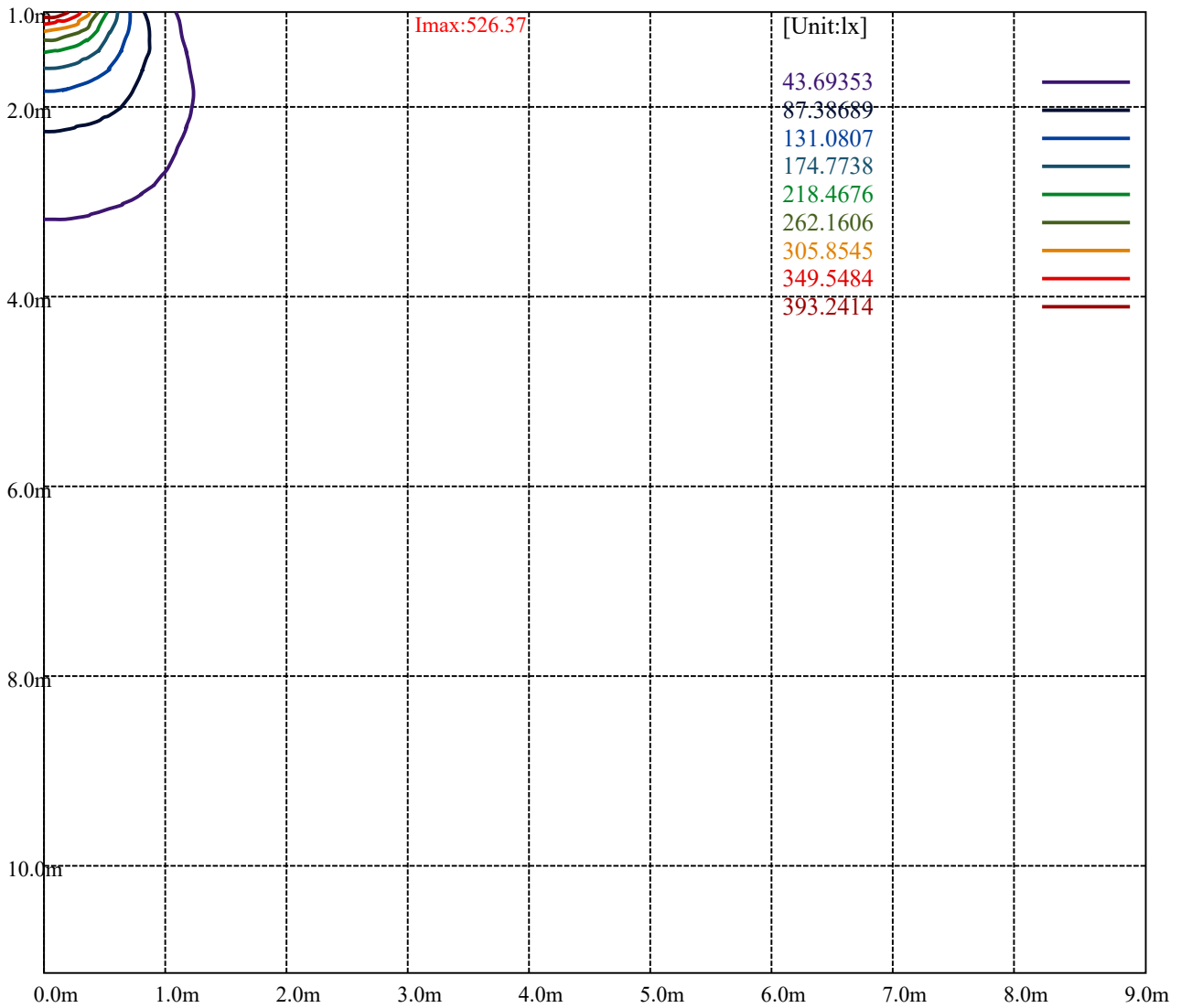
(70%Imax) 310.7367

(80%Imax) 355.1271

(90%Imax) 399.5185



|           |          |                                                                                     |
|-----------|----------|-------------------------------------------------------------------------------------|
| (10%Emax) | 4.875048 |  |
| (20%Emax) | 9.750134 |  |
| (30%Emax) | 14.62516 |  |
| (40%Emax) | 19.50018 |  |
| (50%Emax) | 24.37529 |  |
| (60%Emax) | 29.25031 |  |
| (70%Emax) | 34.12533 |  |
| (80%Emax) | 39.00035 |  |
| (90%Emax) | 43.87547 |  |



Luminance Table

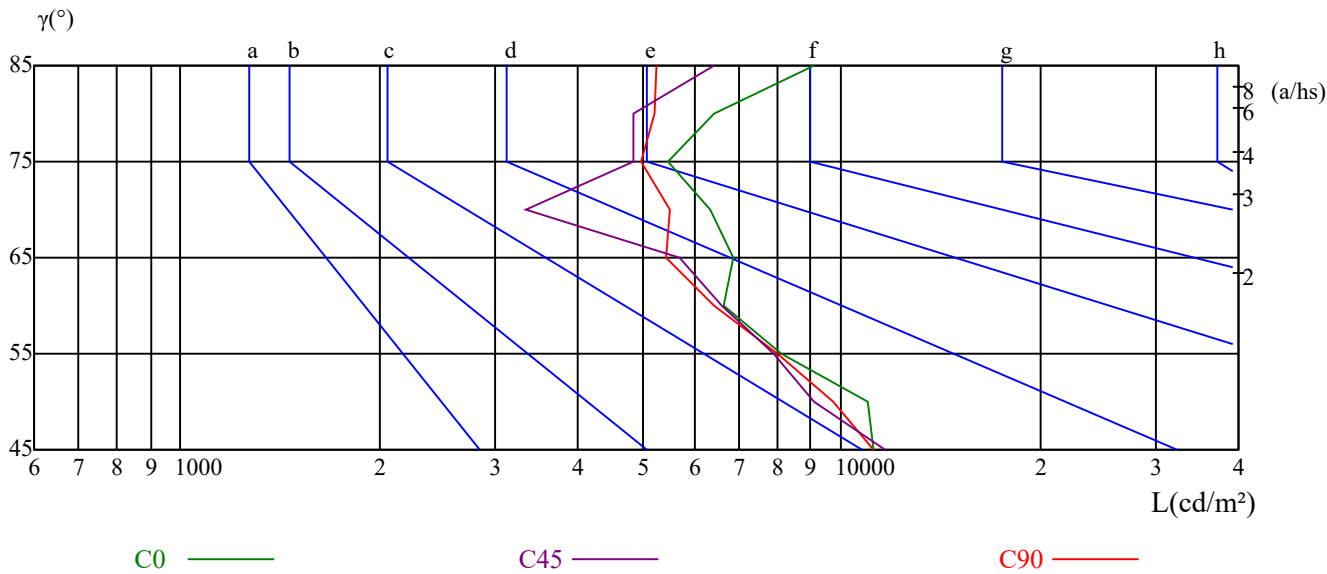
| $\gamma$ | 45    | 50    | 55   | 60   | 65   | 70   | 75   | 80   | 85   |
|----------|-------|-------|------|------|------|------|------|------|------|
| C0       | 11240 | 10993 | 8141 | 6656 | 6876 | 6354 | 5470 | 6436 | 9119 |
| C45      | 11696 | 9080  | 7924 | 6582 | 5700 | 3340 | 4846 | 4863 | 6412 |
| C90      | 11169 | 9718  | 7989 | 6433 | 5436 | 5519 | 4990 | 5220 | 5272 |

| L(Hor)(65) | L(Ver)(65) | L45(65) | L(Hor)(75) | L(Ver)(75) | L45(75) | L(Hor)(85) | L(Ver)(85) | L45(85) |
|------------|------------|---------|------------|------------|---------|------------|------------|---------|
| 6126       | 5730       | 5098    | 5542       | 4774       | 4882    | 6269       | 3420       | 2030    |

Glare Table

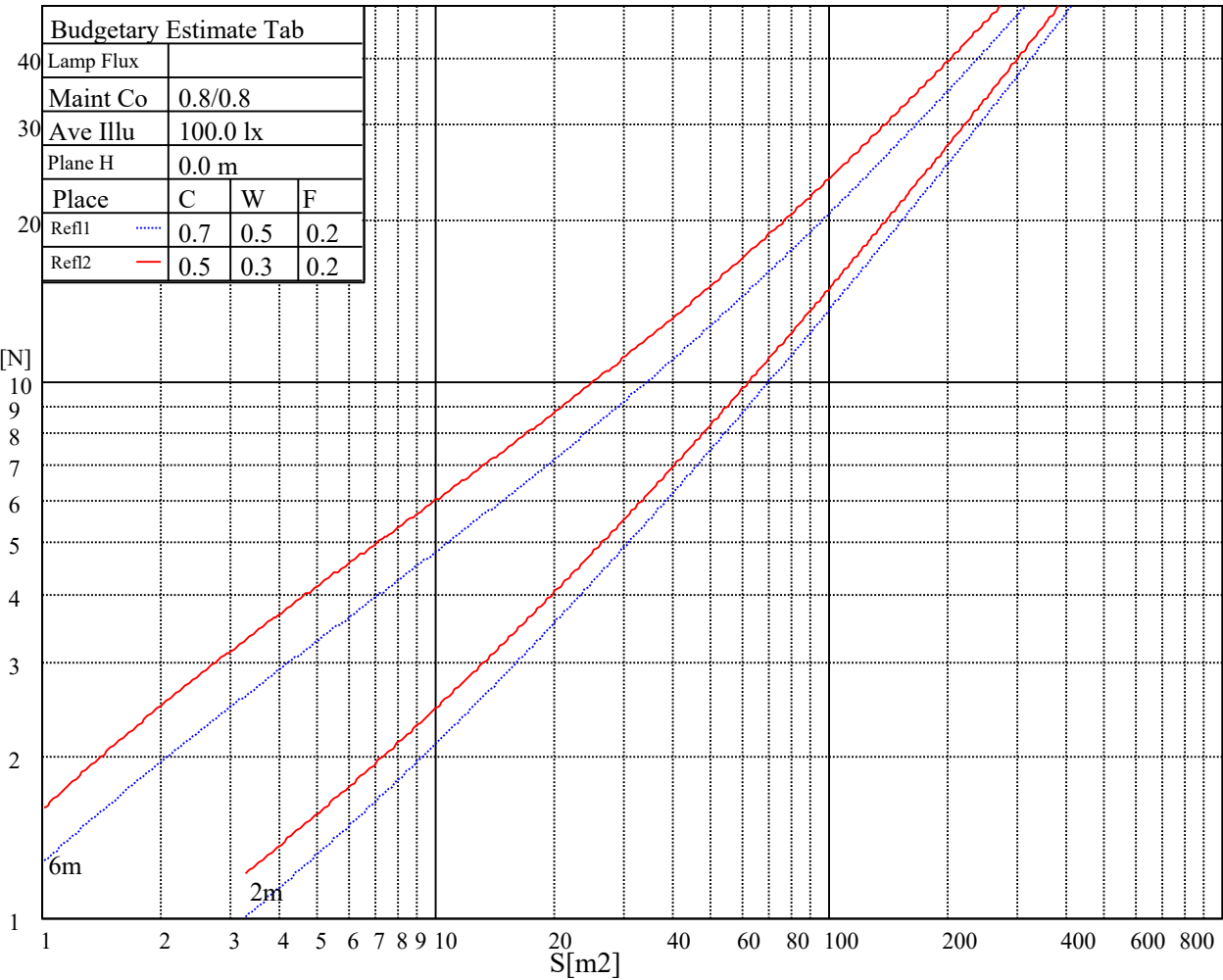
| Glare | Quality | Service Values Illuminance(lx) |      |      |            |            |            |            |            |
|-------|---------|--------------------------------|------|------|------------|------------|------------|------------|------------|
| 1.15  | A       | 2000            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

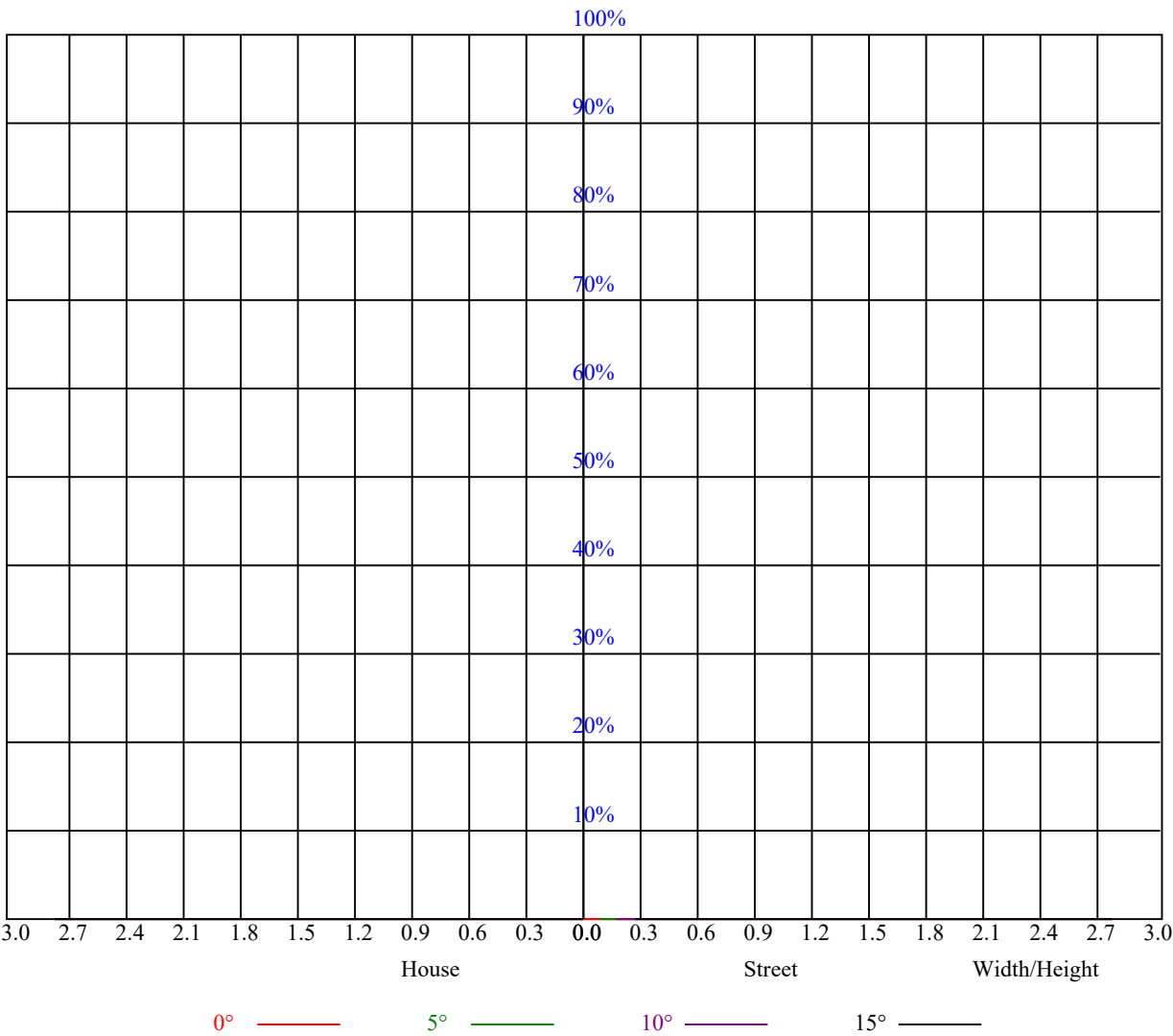


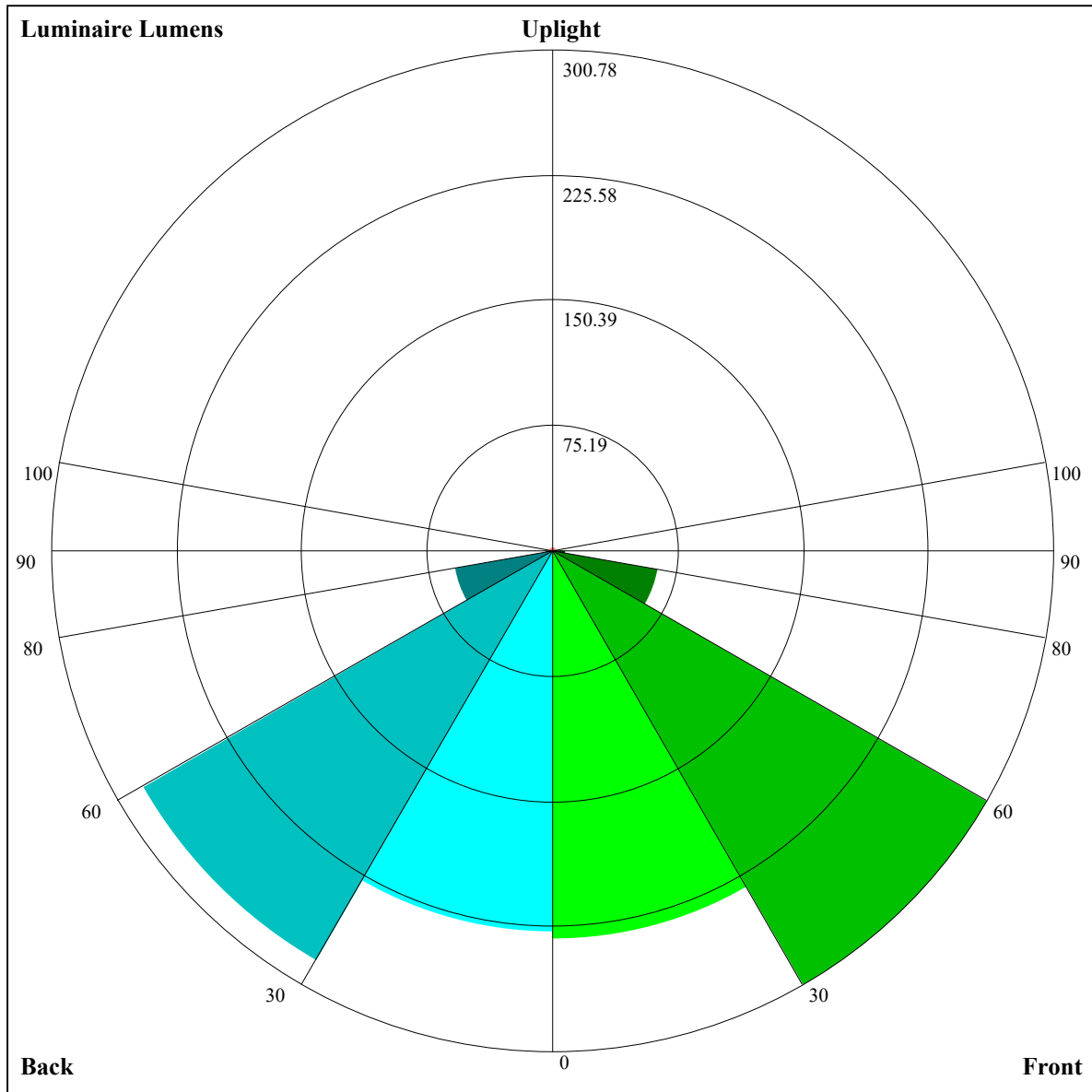
| Illumination assessment according UGR             |     |                  |       |       |       |       |                |       |       |       |       |
|---------------------------------------------------|-----|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| 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  | 15.80            | 17.23 | 16.16 | 17.55 | 17.87 | 15.57          | 17.00 | 15.93 | 17.32 | 17.64 |
|                                                   | 3H  | 16.85            | 18.13 | 17.24 | 18.48 | 18.83 | 16.40          | 17.69 | 16.79 | 18.03 | 18.38 |
|                                                   | 4H  | 17.27            | 18.47 | 17.67 | 18.83 | 19.20 | 16.80          | 18.00 | 17.20 | 18.36 | 18.73 |
|                                                   | 6H  | 17.75            | 18.86 | 18.16 | 19.24 | 19.64 | 17.20          | 18.31 | 17.62 | 18.69 | 19.09 |
|                                                   | 8H  | 17.99            | 19.06 | 18.41 | 19.44 | 19.85 | 17.35          | 18.42 | 17.77 | 18.80 | 19.21 |
|                                                   | 12H | 18.26            | 19.28 | 18.68 | 19.67 | 20.09 | 17.46          | 18.48 | 17.88 | 18.87 | 19.29 |
| 4H                                                | 2H  | 16.11            | 17.31 | 16.51 | 17.67 | 18.04 | 15.91          | 17.11 | 16.31 | 17.47 | 17.84 |
|                                                   | 3H  | 17.25            | 18.26 | 17.67 | 18.65 | 19.07 | 16.84          | 17.86 | 17.27 | 18.25 | 18.67 |
|                                                   | 4H  | 17.86            | 18.74 | 18.29 | 19.17 | 19.61 | 17.43          | 18.32 | 17.87 | 18.74 | 19.19 |
|                                                   | 6H  | 18.46            | 19.25 | 18.93 | 19.70 | 20.15 | 17.94          | 18.73 | 18.41 | 19.18 | 19.63 |
|                                                   | 8H  | 18.82            | 19.56 | 19.30 | 20.01 | 20.49 | 18.19          | 18.93 | 18.67 | 19.38 | 19.85 |
|                                                   | 12H | 19.23            | 19.91 | 19.71 | 20.36 | 20.87 | 18.39          | 19.08 | 18.88 | 19.52 | 20.04 |
| 8H                                                | 4H  | 17.97            | 18.71 | 18.45 | 19.16 | 19.64 | 17.58          | 18.32 | 18.06 | 18.77 | 19.24 |
|                                                   | 6H  | 18.73            | 19.35 | 19.23 | 19.82 | 20.33 | 18.24          | 18.86 | 18.74 | 19.33 | 19.84 |
|                                                   | 8H  | 19.26            | 19.80 | 19.78 | 20.31 | 20.81 | 18.64          | 19.17 | 19.16 | 19.69 | 20.19 |
|                                                   | 12H | 19.82            | 20.26 | 20.35 | 20.78 | 21.30 | 18.95          | 19.40 | 19.48 | 19.91 | 20.43 |
| 12H                                               | 4H  | 17.99            | 18.67 | 18.47 | 19.12 | 19.63 | 17.61          | 18.29 | 18.09 | 18.74 | 19.25 |
|                                                   | 6H  | 18.83            | 19.36 | 19.35 | 19.88 | 20.38 | 18.36          | 18.89 | 18.88 | 19.41 | 19.91 |
|                                                   | 8H  | 19.37            | 19.82 | 19.90 | 20.33 | 20.85 | 18.77          | 19.21 | 19.30 | 19.73 | 20.25 |
| Variation with the observer position at spacings: |     |                  |       |       |       |       |                |       |       |       |       |
| S = 1.0H                                          |     | 0.3/-0.7         |       |       |       |       | 0.4/-0.7       |       |       |       |       |
| S = 1.5H                                          |     | 0.7/-1.3         |       |       |       |       | 0.8/-1.2       |       |       |       |       |
| S = 2.0H                                          |     | 1.8/-1.5         |       |       |       |       | 1.5/-1.3       |       |       |       |       |
| Standard tables:                                  |     | BK3              |       |       |       |       | BK3            |       |       |       |       |
| Uncorrected UGR                                   |     | 3.3              |       |       |       |       | 3.9            |       |       |       |       |

UGR calculation is based on CIE Publ. 117 ,S/H = 0.25



| 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 RHOF=20 CU |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 0    | 1.19                                   | 1.19 | 1.19 | 1.16 | 1.16 | 1.16 | 1.11 | 1.11 | 1.11 | 1.06 | 1.06 | 1.06 | 1.02 | 1.02 | 1.02 | 1.00 |
| 1    | 1.06                                   | 1.03 | 1.00 | 1.04 | 1.01 | 0.98 | 1.00 | 0.97 | 0.95 | 0.96 | 0.94 | 0.92 | 0.92 | 0.91 | 0.89 | 0.87 |
| 2    | 0.95                                   | 0.89 | 0.84 | 0.93 | 0.88 | 0.83 | 0.90 | 0.85 | 0.81 | 0.86 | 0.83 | 0.80 | 0.84 | 0.80 | 0.78 | 0.76 |
| 3    | 0.85                                   | 0.78 | 0.73 | 0.84 | 0.77 | 0.72 | 0.81 | 0.75 | 0.71 | 0.78 | 0.73 | 0.69 | 0.76 | 0.72 | 0.68 | 0.66 |
| 4    | 0.77                                   | 0.69 | 0.63 | 0.76 | 0.68 | 0.63 | 0.73 | 0.67 | 0.62 | 0.71 | 0.66 | 0.61 | 0.69 | 0.64 | 0.60 | 0.58 |
| 5    | 0.70                                   | 0.62 | 0.56 | 0.69 | 0.61 | 0.56 | 0.67 | 0.60 | 0.55 | 0.65 | 0.59 | 0.55 | 0.63 | 0.58 | 0.54 | 0.52 |
| 6    | 0.64                                   | 0.56 | 0.50 | 0.63 | 0.55 | 0.50 | 0.61 | 0.54 | 0.49 | 0.59 | 0.53 | 0.49 | 0.58 | 0.53 | 0.48 | 0.47 |
| 7    | 0.58                                   | 0.50 | 0.45 | 0.58 | 0.50 | 0.45 | 0.56 | 0.49 | 0.44 | 0.55 | 0.49 | 0.44 | 0.53 | 0.48 | 0.44 | 0.42 |
| 8    | 0.54                                   | 0.46 | 0.41 | 0.53 | 0.46 | 0.41 | 0.52 | 0.45 | 0.40 | 0.51 | 0.45 | 0.40 | 0.50 | 0.44 | 0.40 | 0.38 |
| 9    | 0.50                                   | 0.42 | 0.37 | 0.49 | 0.42 | 0.37 | 0.48 | 0.41 | 0.37 | 0.47 | 0.41 | 0.37 | 0.46 | 0.41 | 0.37 | 0.35 |
| 10   | 0.46                                   | 0.39 | 0.34 | 0.46 | 0.39 | 0.34 | 0.45 | 0.38 | 0.34 | 0.44 | 0.38 | 0.34 | 0.43 | 0.38 | 0.34 | 0.32 |





Luminaire Lumens:

FL=233.19,FM=300.78,FH=64.75,FVH=7.61

BL=229.07,BM=283.9,BH=59.72,BVH=5.18

UL=0.39,UH=2.82

BUG Rating:B1-U1-G0

## Intensity data(cd)

| C/γ(°) | 0.0    | 5.0    | 10.0   | 15.0   | 20.0   | 25.0   | 30.0   | 35.0   | 40.0   |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0.0    | 518.10 | 518.46 | 509.47 | 505.87 | 487.54 | 439.36 | 396.93 | 354.86 | 290.51 |
| 45.0   | 520.25 | 513.78 | 511.98 | 501.56 | 486.82 | 456.61 | 404.12 | 342.64 | 294.82 |
| 90.0   | 523.49 | 526.37 | 520.97 | 499.76 | 477.11 | 443.31 | 396.57 | 339.05 | 286.19 |
| 135.0  | 513.42 | 519.89 | 508.03 | 494.37 | 470.28 | 432.53 | 377.52 | 339.76 | 277.56 |
| 180.0  | 518.10 | 521.33 | 505.87 | 493.65 | 466.32 | 427.85 | 383.99 | 328.26 | 271.45 |
| 225.0  | 520.25 | 509.11 | 510.55 | 495.09 | 467.40 | 419.58 | 367.09 | 317.47 | 261.38 |
| 270.0  | 523.49 | 523.13 | 510.91 | 494.73 | 478.19 | 440.80 | 391.54 | 336.89 | 275.05 |
| 315.0  | 513.42 | 517.38 | 514.14 | 495.09 | 471.72 | 445.83 | 394.77 | 333.65 | 287.27 |
| 360.0  | 518.10 | 518.46 | 509.47 | 505.87 | 487.54 | 439.36 | 396.93 | 354.86 | 290.51 |
|        |        |        |        |        |        |        |        |        |        |
| C/γ(°) | 45.0   | 50.0   | 55.0   | 60.0   | 65.0   | 70.0   | 75.0   | 80.0   | 85.0   |
| 0.0    | 230.10 | 204.58 | 135.19 | 96.36  | 84.13  | 62.92  | 40.99  | 32.36  | 23.01  |
| 45.0   | 239.45 | 168.98 | 131.59 | 95.28  | 69.75  | 33.08  | 36.31  | 24.45  | 16.18  |
| 90.0   | 228.67 | 180.85 | 132.67 | 93.12  | 66.51  | 54.65  | 37.39  | 26.25  | 13.30  |
| 135.0  | 213.57 | 154.60 | 113.97 | 76.58  | 60.04  | 46.74  | 33.44  | 14.74  | 2.52   |
| 180.0  | 210.33 | 172.94 | 111.82 | 80.54  | 65.80  | 50.34  | 42.07  | 29.84  | 8.63   |
| 225.0  | 197.39 | 136.98 | 104.27 | 64.00  | 56.45  | 40.63  | 35.95  | 11.87  | 0.72   |
| 270.0  | 218.96 | 174.74 | 118.29 | 90.60  | 73.71  | 44.58  | 34.16  | 17.98  | 3.96   |
| 315.0  | 218.60 | 156.40 | 127.64 | 90.24  | 63.28  | 46.38  | 40.63  | 16.90  | 1.08   |
| 360.0  | 230.10 | 204.58 | 135.19 | 96.36  | 84.13  | 62.92  | 40.99  | 32.36  | 23.01  |
|        |        |        |        |        |        |        |        |        |        |
| C/γ(°) | 90.0   | 95.0   | 100.0  | 105.0  | 110.0  | 115.0  | 120.0  | 125.0  | 130.0  |
| 0.0    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| 45.0   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| 90.0   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.44   | 0.00   | 0.00   | 6.47   |
| 135.0  | 1.80   | 0.72   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| 180.0  | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| 225.0  | 0.00   | 0.00   | 1.44   | 0.00   | 0.00   | 0.00   | 1.44   | 0.00   | 0.00   |
| 270.0  | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.72   | 7.55   | 0.00   | 0.00   |
| 315.0  | 2.88   | 0.00   | 2.16   | 0.00   | 0.00   | 0.00   | 1.80   | 0.00   | 1.44   |
| 360.0  | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
|        |        |        |        |        |        |        |        |        |        |
| C/γ(°) | 135.0  | 140.0  | 145.0  | 150.0  | 155.0  | 160.0  | 165.0  | 170.0  | 175.0  |
| 0.0    | 0.00   | 0.00   | 0.00   | 1.80   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| 45.0   | 0.00   | 0.72   | 0.00   | 2.52   | 0.00   | 0.00   | 0.00   | 3.96   | 0.00   |
| 90.0   | 0.00   | 0.00   | 2.52   | 0.00   | 1.44   | 0.36   | 0.00   | 0.00   | 0.00   |
| 135.0  | 0.00   | 0.00   | 0.00   | 3.60   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| 180.0  | 0.00   | 0.00   | 0.00   | 3.24   | 2.16   | 0.00   | 0.00   | 0.00   | 0.00   |
| 225.0  | 7.55   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| 270.0  | 0.00   | 0.00   | 0.00   | 0.00   | 0.72   | 0.00   | 0.00   | 0.00   | 0.00   |
| 315.0  | 0.00   | 0.00   | 0.36   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| 360.0  | 0.00   | 0.00   | 0.00   | 1.80   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
|        |        |        |        |        |        |        |        |        |        |
| C/γ(°) | 180.0  |        |        |        |        |        |        |        |        |
| 0.0    | 0.00   |        |        |        |        |        |        |        |        |
| 45.0   | 0.00   |        |        |        |        |        |        |        |        |
| 90.0   | 0.00   |        |        |        |        |        |        |        |        |
| 135.0  | 0.00   |        |        |        |        |        |        |        |        |
| 180.0  | 0.00   |        |        |        |        |        |        |        |        |
| 225.0  | 0.00   |        |        |        |        |        |        |        |        |
| 270.0  | 0.00   |        |        |        |        |        |        |        |        |
| 315.0  | 0.00   |        |        |        |        |        |        |        |        |
| 360.0  | 0.00   |        |        |        |        |        |        |        |        |