# IES Indoor Report

# Photometric Filename:HCP-1022202+HCP-1032202 3000K 60D.IES

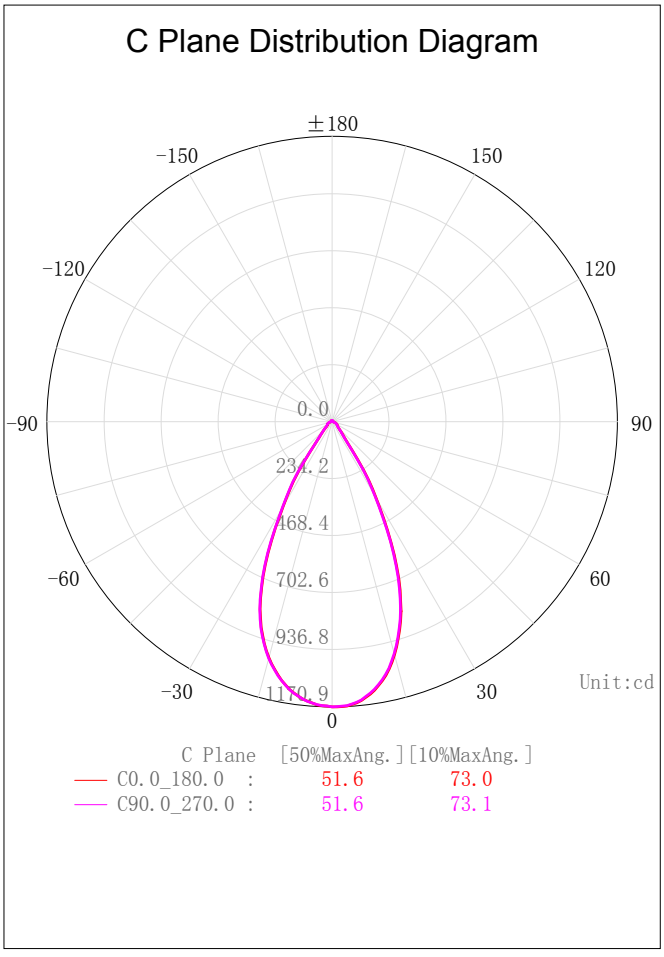
## Indoor Luminaire Photometric Data

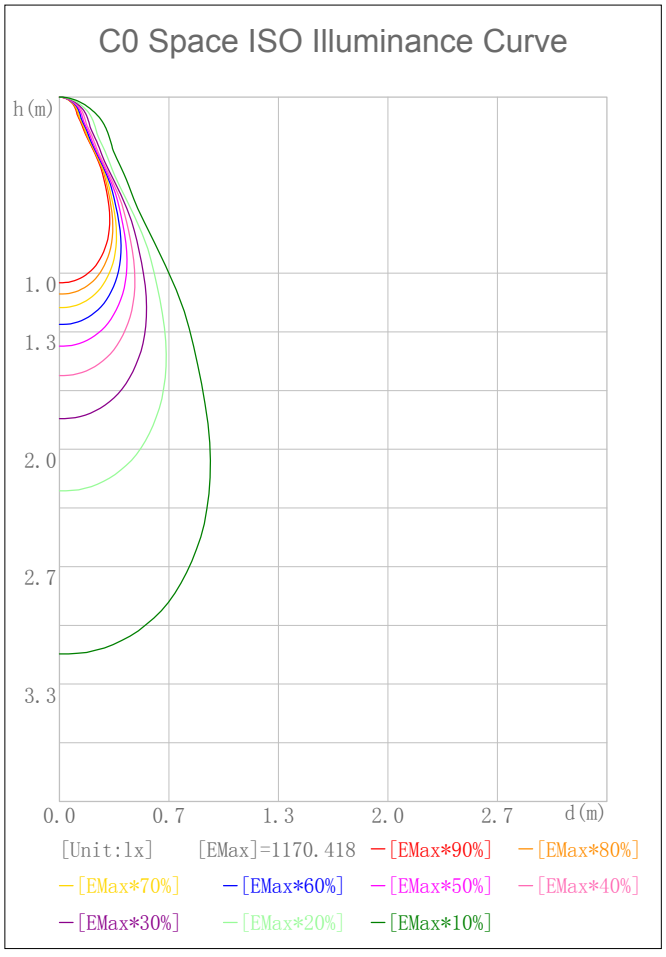
### Description Information

| | | | |
|---|---|---|---|
| Luminary Name: HCP-1022202+HCP-1032202 3000K 60D | | Lum. Catelog: | Test ID: 01 |
| Lamp Name: | | Lamp Catelog: LED | Test Date: 2020/11/23 |
| Manufacture: Havit Commercial | | Shld.Ang(° ): | Test Machine:GON-2000 |
| Test Lab: Quality Department | | Frequency(Hz): | Lamp CCT(K): Ra: |
| Lum.Size(W*L*H):0.000m*0.000m*0.000m | | Lum.Area(m2):0.000 | Lum.W(kg): 0.000 |
| Test System: C, γ | Test Step: C=90.0 γ=1.0 | Temp.(℃): 25 | Humidity(%): |

### Character Parameter

| Lamp Speciality Parameter | Luminaire Speciality Parameter | |
|---|---|---|
| Rated Flux(lm): 879.050 | Luminary Flux(lm): 879.053 | Field Angle(10%Imax): 73.0(° ) |
| Rated Power(W): | Luminary Efficiency: 100.00% | Down Lumens&Percent: 870.877lm 99.07% |
| Rated Voltage(V): | Luminary EER(lm/W): 60.499 | Up Lumens&Percent: 8.175lm 0.93% |
| Tested Power(W): 14.530 | Max.Candela(cd): 1170.950 | S/MH: C0_a180=0.829 C90_270=0.827 |
| Lamps' Inside: 1 | Max Cand@Ang.(° ): C=0.0 γ=1.0 | CIE Type: Semi-Direct |
| Tested Electrics(V,A,pf):240.3,0.062 | Beam Angle(50%Imax): 51.6(° ) | ErP Φuse(90° ): 799.397lm |
| Lamp Size(W*L*H):0.000m*0.000m*0.000m | Left=-26.3° ,Right=25.4° | IRF(%): 301.403 |

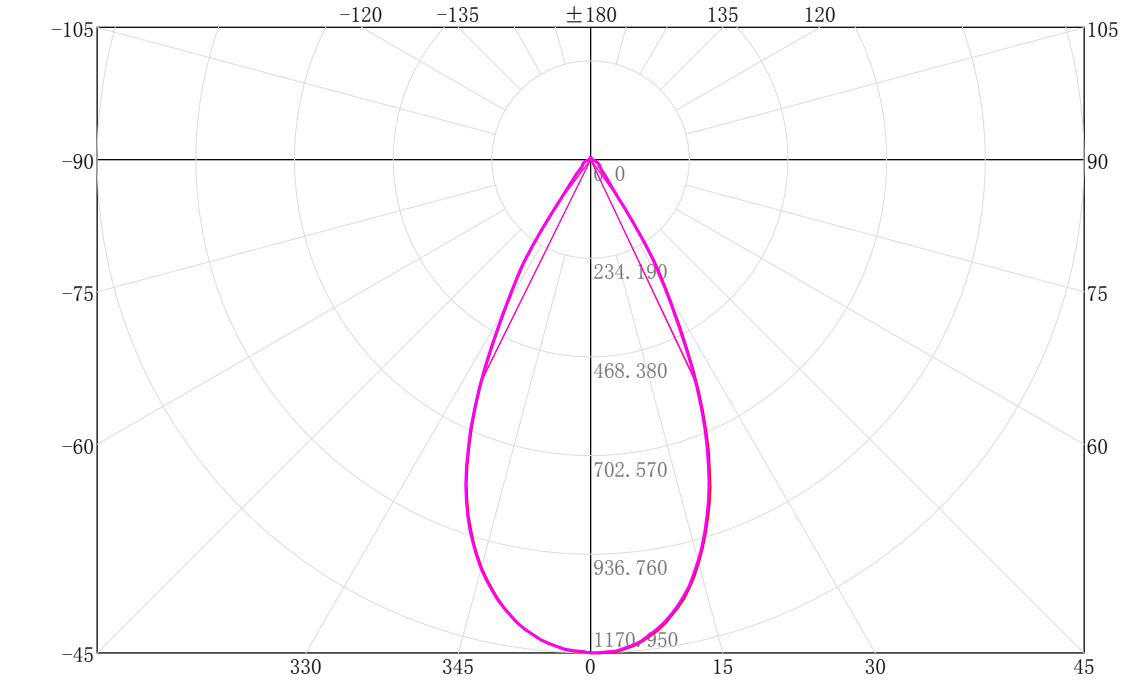


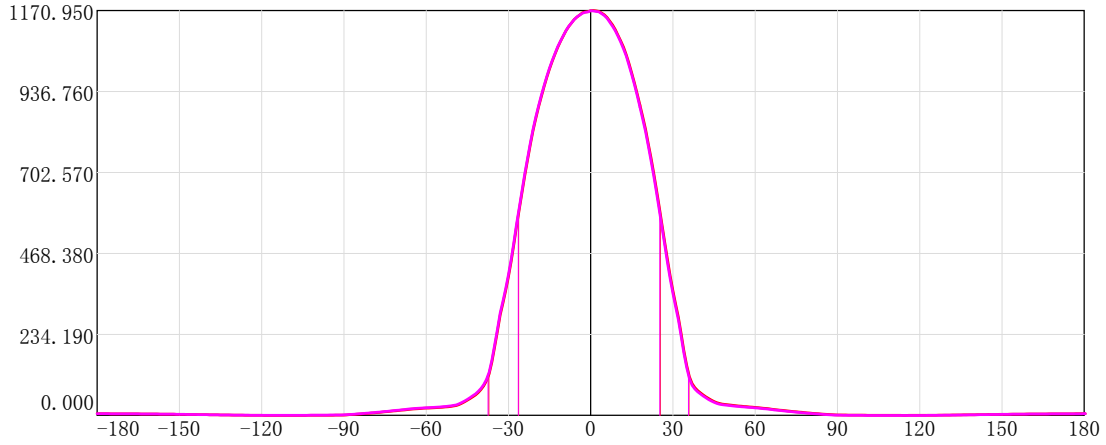



## 2D Plane Light Intensity Distribution Curve

| | | |
|---|---|---|
| Lum.Name: HCP-1022202+HCP-1032202 3000K 60D | Lum.Catelog: | Test ID: 01 |
| Lamp Name: | Lamp Catelog: LED | Test Lab: Quality Department |
| Manufacture: Havit Commercial | Test Machine:GON-2000 | Test Date: 2020/11/23 |

C Plane Distribution Diagram



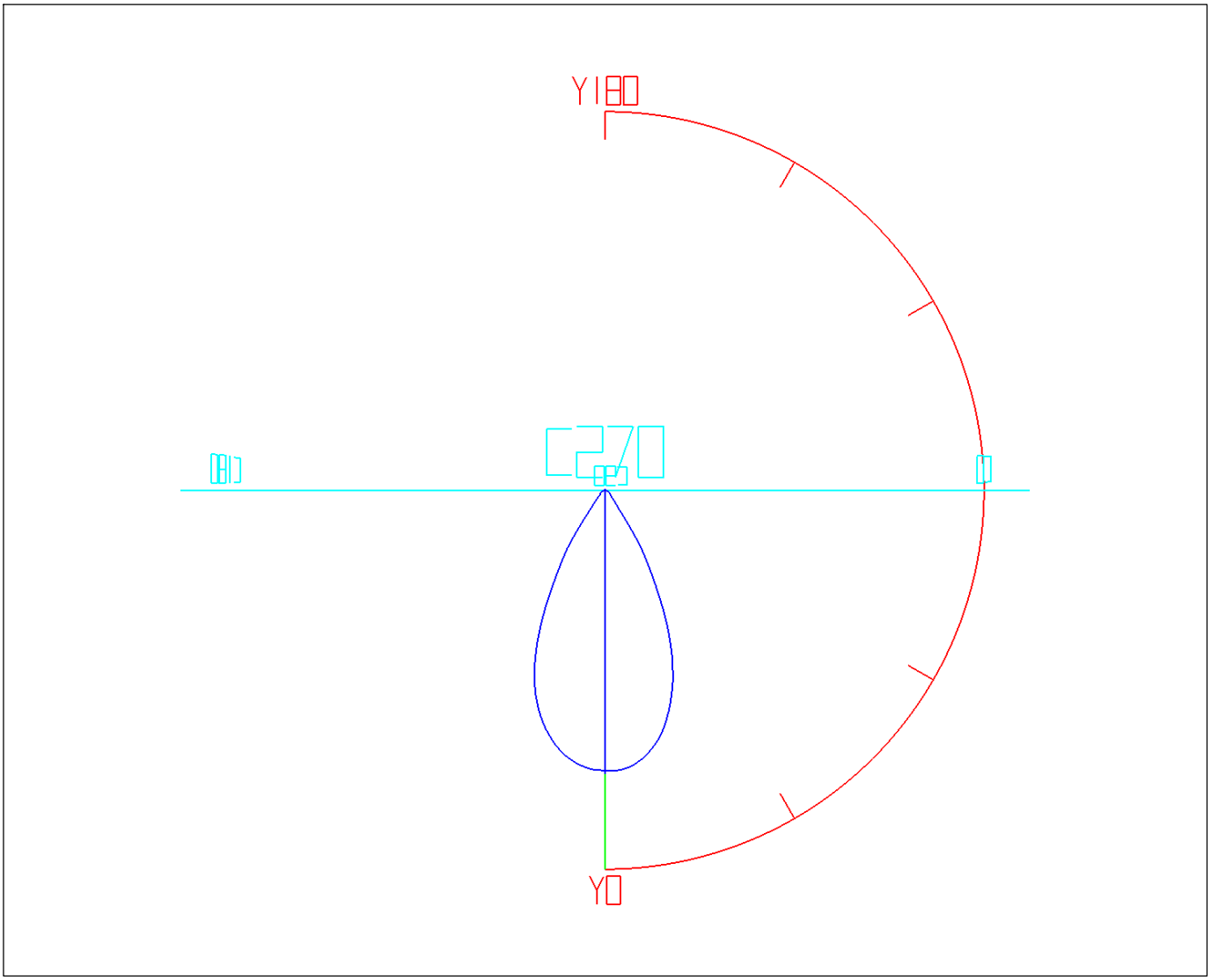




| C Plane | [50%MaxAng.] | [10%MaxAng.] | Unit:cd |
|---|---|---|---|
| C0.0_180.0 : | 51.6 | 73.0 | |
| C90.0_270.0 : | 51.6 | 73.1 | |

# 3D Light Intensity Distribution Modal

| | | |
|---|---|---|
| Lum.Name: HCP-1022202+HCP-1032202 3000K 60D | Lum.Catelog: | Test ID: 01 |
| Lamp Name: | Lamp Catelog: LED | Test Lab: Quality Department |
| Manufacture: Havit Commercial | Test Machine:GON-2000 | Test Date: 2020/11/23 |

3D Light Intensity Distribution Modal




Curves: 3D Model Fixture Vert. HUD Hori. HUD
View Angles: Orient:0 Tilt:0 Roll:0 Spin:0

## Zonal Flux Tabulation

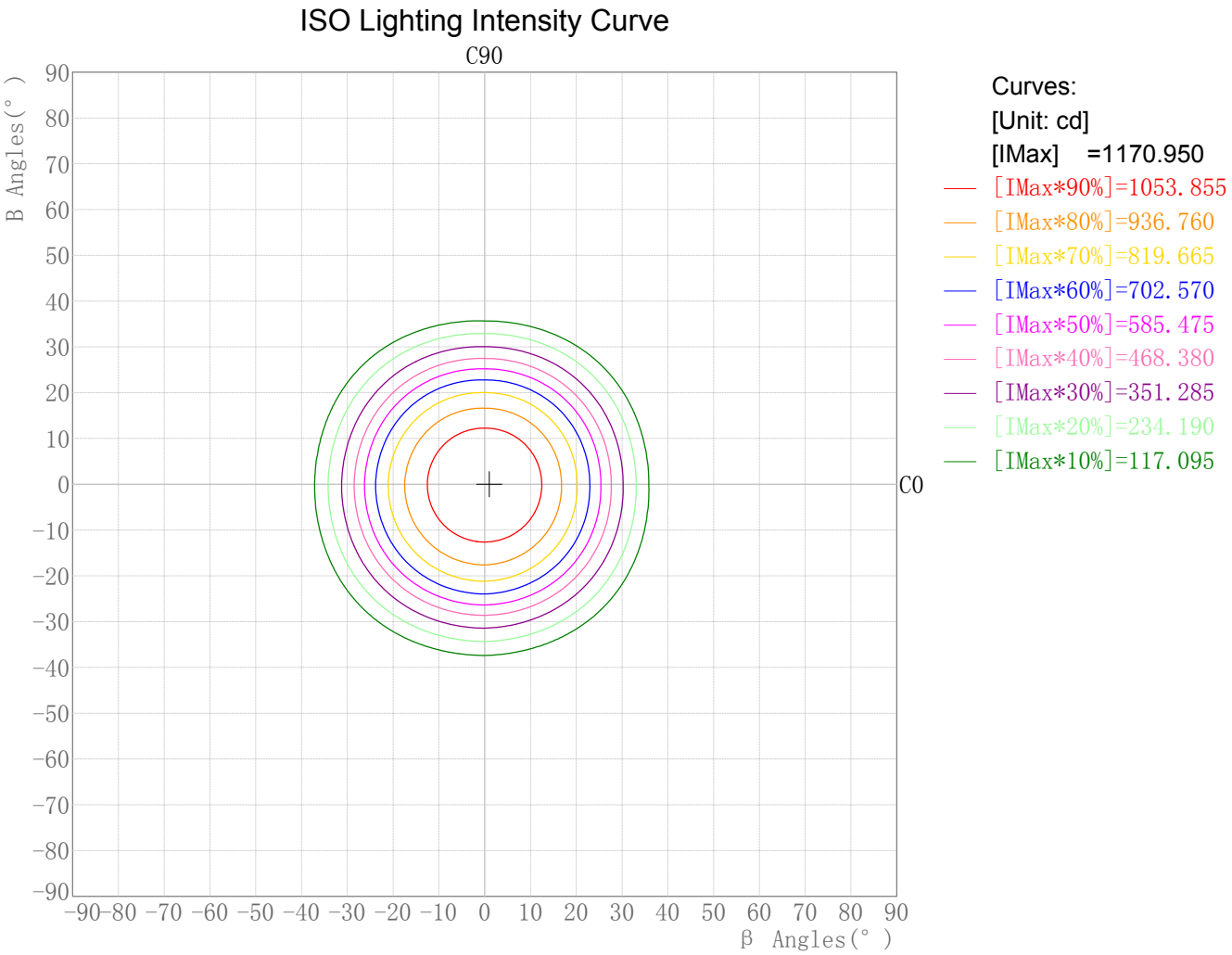
| Zone(γ) | Zone Flux (lm) | Sums Flux (lm) | Zone%Lamp | Sums%Lamp | Zone(γ) | Zone Flux (lm) | Sums Flux (lm) | Zone%Lamp | Sums%Lamp |
|---|---|---|---|---|---|---|---|---|---|
| 0.0-1.0 | 1.12 | 1.12 | 0.13 | 0.13 | 47.0-48.0 | 2.72 | 809.73 | 0.31 | 92.11 |
| 1.0-2.0 | 3.35 | 4.47 | 0.38 | 0.51 | 48.0-49.0 | 2.57 | 812.31 | 0.29 | 92.41 |
| 2.0-3.0 | 5.58 | 10.05 | 0.63 | 1.14 | 49.0-50.0 | 2.47 | 814.78 | 0.28 | 92.69 |
| 3.0-4.0 | 7.79 | 17.84 | 0.89 | 2.03 | 50.0-51.0 | 2.40 | 817.18 | 0.27 | 92.96 |
| 4.0-5.0 | 9.96 | 27.80 | 1.13 | 3.16 | 51.0-52.0 | 2.36 | 819.54 | 0.27 | 93.23 |
| 5.0-6.0 | 12.10 | 39.89 | 1.38 | 4.54 | 52.0-53.0 | 2.32 | 821.86 | 0.26 | 93.49 |
| 6.0-7.0 | 14.17 | 54.07 | 1.61 | 6.15 | 53.0-54.0 | 2.28 | 824.14 | 0.26 | 93.75 |
| 7.0-8.0 | 16.19 | 70.26 | 1.84 | 7.99 | 54.0-55.0 | 2.25 | 826.39 | 0.26 | 94.01 |
| 8.0-9.0 | 18.15 | 88.41 | 2.06 | 10.06 | 55.0-56.0 | 2.23 | 828.62 | 0.25 | 94.26 |
| 9.0-10.0 | 20.01 | 108.43 | 2.28 | 12.33 | 56.0-57.0 | 2.20 | 830.82 | 0.25 | 94.51 |
| 10.0-11.0 | 21.78 | 130.20 | 2.48 | 14.81 | 57.0-58.0 | 2.17 | 832.99 | 0.25 | 94.76 |
| 11.0-12.0 | 23.45 | 153.65 | 2.67 | 17.48 | 58.0-59.0 | 2.15 | 835.14 | 0.24 | 95.00 |
| 12.0-13.0 | 25.00 | 178.65 | 2.84 | 20.32 | 59.0-60.0 | 2.12 | 837.26 | 0.24 | 95.25 |
| 13.0-14.0 | 26.40 | 205.05 | 3.00 | 23.33 | 60.0-61.0 | 2.08 | 839.34 | 0.24 | 95.48 |
| 14.0-15.0 | 27.67 | 232.72 | 3.15 | 26.47 | 61.0-62.0 | 2.04 | 841.38 | 0.23 | 95.71 |
| 15.0-16.0 | 28.78 | 261.50 | 3.27 | 29.75 | 62.0-63.0 | 2.00 | 843.38 | 0.23 | 95.94 |
| 16.0-17.0 | 29.72 | 291.22 | 3.38 | 33.13 | 63.0-64.0 | 1.95 | 845.34 | 0.22 | 96.16 |
| 17.0-18.0 | 30.48 | 321.70 | 3.47 | 36.60 | 64.0-65.0 | 1.90 | 847.23 | 0.22 | 96.38 |
| 18.0-19.0 | 31.09 | 352.79 | 3.54 | 40.13 | 65.0-66.0 | 1.83 | 849.07 | 0.21 | 96.59 |
| 19.0-20.0 | 31.48 | 384.27 | 3.58 | 43.71 | 66.0-67.0 | 1.76 | 850.82 | 0.20 | 96.79 |
| 20.0-21.0 | 31.61 | 415.88 | 3.60 | 47.31 | 67.0-68.0 | 1.68 | 852.50 | 0.19 | 96.98 |
| 21.0-22.0 | 31.49 | 447.38 | 3.58 | 50.89 | 68.0-69.0 | 1.60 | 854.10 | 0.18 | 97.16 |
| 22.0-23.0 | 31.11 | 478.48 | 3.54 | 54.43 | 69.0-70.0 | 1.52 | 855.62 | 0.17 | 97.33 |
| 23.0-24.0 | 30.46 | 508.94 | 3.46 | 57.90 | 70.0-71.0 | 1.45 | 857.07 | 0.16 | 97.50 |
| 24.0-25.0 | 29.53 | 538.48 | 3.36 | 61.26 | 71.0-72.0 | 1.37 | 858.44 | 0.16 | 97.66 |
| 25.0-26.0 | 28.34 | 566.82 | 3.22 | 64.48 | 72.0-73.0 | 1.30 | 859.74 | 0.15 | 97.80 |
| 26.0-27.0 | 26.88 | 593.70 | 3.06 | 67.54 | 73.0-74.0 | 1.22 | 860.96 | 0.14 | 97.94 |
| 27.0-28.0 | 25.18 | 618.88 | 2.86 | 70.40 | 74.0-75.0 | 1.15 | 862.10 | 0.13 | 98.07 |
| 28.0-29.0 | 23.40 | 642.28 | 2.66 | 73.07 | 75.0-76.0 | 1.07 | 863.17 | 0.12 | 98.19 |
| 29.0-30.0 | 21.68 | 663.96 | 2.47 | 75.53 | 76.0-77.0 | 1.00 | 864.17 | 0.11 | 98.31 |
| 30.0-31.0 | 20.05 | 684.00 | 2.28 | 77.81 | 77.0-78.0 | 0.92 | 865.09 | 0.10 | 98.41 |
| 31.0-32.0 | 18.46 | 702.47 | 2.10 | 79.91 | 78.0-79.0 | 0.85 | 865.94 | 0.10 | 98.51 |
| 32.0-33.0 | 16.72 | 719.19 | 1.90 | 81.81 | 79.0-80.0 | 0.78 | 866.71 | 0.09 | 98.60 |
| 33.0-34.0 | 14.51 | 733.71 | 1.65 | 83.47 | 80.0-81.0 | 0.71 | 867.42 | 0.08 | 98.68 |
| 34.0-35.0 | 12.01 | 745.72 | 1.37 | 84.83 | 81.0-82.0 | 0.64 | 868.05 | 0.07 | 98.75 |
| 35.0-36.0 | 9.69 | 755.40 | 1.10 | 85.93 | 82.0-83.0 | 0.57 | 868.62 | 0.06 | 98.81 |
| 36.0-37.0 | 7.81 | 763.21 | 0.89 | 86.82 | 83.0-84.0 | 0.50 | 869.13 | 0.06 | 98.87 |
| 37.0-38.0 | 6.55 | 769.76 | 0.75 | 87.57 | 84.0-85.0 | 0.44 | 869.57 | 0.05 | 98.92 |
| 38.0-39.0 | 5.77 | 775.54 | 0.66 | 88.22 | 85.0-86.0 | 0.38 | 869.94 | 0.04 | 98.96 |
| 39.0-40.0 | 5.21 | 780.75 | 0.59 | 88.82 | 86.0-87.0 | 0.32 | 870.26 | 0.04 | 99.00 |
| 40.0-41.0 | 4.75 | 785.50 | 0.54 | 89.36 | 87.0-88.0 | 0.26 | 870.52 | 0.03 | 99.03 |
| 41.0-42.0 | 4.36 | 789.85 | 0.50 | 89.85 | 88.0-89.0 | 0.20 | 870.72 | 0.02 | 99.05 |
| 42.0-43.0 | 4.01 | 793.86 | 0.46 | 90.31 | 89.0-90.0 | 0.16 | 870.88 | 0.02 | 99.07 |
| 43.0-44.0 | 3.69 | 797.55 | 0.42 | 90.73 | 90.0-91.0 | 0.13 | 871.01 | 0.02 | 99.09 |
| 44.0-45.0 | 3.41 | 800.96 | 0.39 | 91.12 | 91.0-92.0 | 0.12 | 871.13 | 0.01 | 99.10 |
| 45.0-46.0 | 3.14 | 804.10 | 0.36 | 91.47 | 92.0-93.0 | 0.11 | 871.24 | 0.01 | 99.11 |
| 46.0-47.0 | 2.91 | 807.01 | 0.33 | 91.80 | 93.0-94.0 | 0.10 | 871.35 | 0.01 | 99.12 |

## Zonal Flux Tabulation - (Cont.)

| Zone(γ) | Zone Flux (lm) | Sums Flux (lm) | Zone%Lamp | Sums%Lamp |
|---|---|---|---|---|
| 94.0-95.0 | 0.09 | 871.44 | 0.01 | 99.13 |
| 95.0-96.0 | 0.09 | 871.53 | 0.01 | 99.14 |
| 96.0-97.0 | 0.08 | 871.61 | 0.01 | 99.15 |
| 97.0-98.0 | 0.07 | 871.68 | 0.01 | 99.16 |
| 98.0-99.0 | 0.07 | 871.75 | 0.01 | 99.17 |
| 99.0-100.0 | 0.06 | 871.81 | 0.01 | 99.18 |
| 100.0-101.0 | 0.05 | 871.86 | 0.01 | 99.18 |
| 101.0-102.0 | 0.05 | 871.91 | 0.01 | 99.19 |
| 102.0-103.0 | 0.04 | 871.95 | 0.00 | 99.19 |
| 103.0-104.0 | 0.04 | 871.99 | 0.00 | 99.20 |
| 104.0-105.0 | 0.03 | 872.02 | 0.00 | 99.20 |
| 105.0-106.0 | 0.03 | 872.05 | 0.00 | 99.20 |
| 106.0-107.0 | 0.03 | 872.08 | 0.00 | 99.21 |
| 107.0-108.0 | 0.02 | 872.11 | 0.00 | 99.21 |
| 108.0-109.0 | 0.02 | 872.13 | 0.00 | 99.21 |
| 109.0-110.0 | 0.02 | 872.15 | 0.00 | 99.21 |
| 110.0-111.0 | 0.02 | 872.17 | 0.00 | 99.22 |
| 111.0-112.0 | 0.02 | 872.19 | 0.00 | 99.22 |
| 112.0-113.0 | 0.02 | 872.20 | 0.00 | 99.22 |
| 113.0-114.0 | 0.02 | 872.22 | 0.00 | 99.22 |
| 114.0-115.0 | 0.02 | 872.24 | 0.00 | 99.23 |
| 115.0-116.0 | 0.02 | 872.26 | 0.00 | 99.23 |
| 116.0-117.0 | 0.02 | 872.28 | 0.00 | 99.23 |
| 117.0-118.0 | 0.02 | 872.30 | 0.00 | 99.23 |
| 118.0-119.0 | 0.02 | 872.32 | 0.00 | 99.23 |
| 119.0-120.0 | 0.03 | 872.35 | 0.00 | 99.24 |
| 120.0-121.0 | 0.03 | 872.38 | 0.00 | 99.24 |
| 121.0-122.0 | 0.03 | 872.42 | 0.00 | 99.25 |
| 122.0-123.0 | 0.04 | 872.45 | 0.00 | 99.25 |
| 123.0-124.0 | 0.04 | 872.50 | 0.01 | 99.25 |
| 124.0-125.0 | 0.05 | 872.55 | 0.01 | 99.26 |
| 125.0-126.0 | 0.06 | 872.60 | 0.01 | 99.27 |
| 126.0-127.0 | 0.06 | 872.66 | 0.01 | 99.27 |
| 127.0-128.0 | 0.07 | 872.73 | 0.01 | 99.28 |
| 128.0-129.0 | 0.07 | 872.81 | 0.01 | 99.29 |
| 129.0-130.0 | 0.08 | 872.89 | 0.01 | 99.30 |
| 130.0-131.0 | 0.09 | 872.97 | 0.01 | 99.31 |
| 131.0-132.0 | 0.09 | 873.07 | 0.01 | 99.32 |
| 132.0-133.0 | 0.10 | 873.17 | 0.01 | 99.33 |
| 133.0-134.0 | 0.11 | 873.27 | 0.01 | 99.34 |
| 134.0-135.0 | 0.11 | 873.38 | 0.01 | 99.36 |
| 135.0-136.0 | 0.12 | 873.50 | 0.01 | 99.37 |
| 136.0-137.0 | 0.13 | 873.63 | 0.01 | 99.38 |
| 137.0-138.0 | 0.13 | 873.76 | 0.01 | 99.40 |
| 138.0-139.0 | 0.14 | 873.90 | 0.02 | 99.41 |
| 139.0-140.0 | 0.14 | 874.04 | 0.02 | 99.43 |
| 140.0-141.0 | 0.15 | 874.19 | 0.02 | 99.45 |
| 141.0-142.0 | 0.15 | 874.34 | 0.02 | 99.46 |
| 142.0-143.0 | 0.16 | 874.50 | 0.02 | 99.48 |
| 143.0-144.0 | 0.16 | 874.66 | 0.02 | 99.50 |
| 144.0-145.0 | 0.17 | 874.82 | 0.02 | 99.52 |
| 145.0-146.0 | 0.17 | 874.99 | 0.02 | 99.54 |
| 146.0-147.0 | 0.17 | 875.16 | 0.02 | 99.56 |
| 147.0-148.0 | 0.17 | 875.34 | 0.02 | 99.58 |
| 148.0-149.0 | 0.18 | 875.51 | 0.02 | 99.60 |
| 149.0-150.0 | 0.18 | 875.69 | 0.02 | 99.62 |
| 150.0-151.0 | 0.18 | 875.87 | 0.02 | 99.64 |
| 151.0-152.0 | 0.18 | 876.04 | 0.02 | 99.66 |
| 152.0-153.0 | 0.18 | 876.22 | 0.02 | 99.68 |
| 153.0-154.0 | 0.17 | 876.39 | 0.02 | 99.70 |
| 154.0-155.0 | 0.17 | 876.56 | 0.02 | 99.72 |
| 155.0-156.0 | 0.17 | 876.73 | 0.02 | 99.74 |
| 156.0-157.0 | 0.17 | 876.90 | 0.02 | 99.76 |
| 157.0-158.0 | 0.16 | 877.06 | 0.02 | 99.77 |
| 158.0-159.0 | 0.16 | 877.22 | 0.02 | 99.79 |
| 159.0-160.0 | 0.15 | 877.38 | 0.02 | 99.81 |
| 160.0-161.0 | 0.15 | 877.52 | 0.02 | 99.83 |
| 161.0-162.0 | 0.14 | 877.67 | 0.02 | 99.84 |
| 162.0-163.0 | 0.14 | 877.81 | 0.02 | 99.86 |
| 163.0-164.0 | 0.13 | 877.94 | 0.02 | 99.87 |
| 164.0-165.0 | 0.13 | 878.07 | 0.01 | 99.89 |
| 165.0-166.0 | 0.12 | 878.19 | 0.01 | 99.90 |
| 166.0-167.0 | 0.11 | 878.30 | 0.01 | 99.91 |
| 167.0-168.0 | 0.11 | 878.41 | 0.01 | 99.93 |
| 168.0-169.0 | 0.10 | 878.51 | 0.01 | 99.94 |
| 169.0-170.0 | 0.09 | 878.60 | 0.01 | 99.95 |
| 170.0-171.0 | 0.08 | 878.68 | 0.01 | 99.96 |
| 171.0-172.0 | 0.08 | 878.76 | 0.01 | 99.97 |
| 172.0-173.0 | 0.07 | 878.83 | 0.01 | 99.97 |
| 173.0-174.0 | 0.06 | 878.89 | 0.01 | 99.98 |
| 174.0-175.0 | 0.05 | 878.94 | 0.01 | 99.99 |
| 175.0-176.0 | 0.04 | 878.98 | 0.00 | 99.99 |
| 176.0-177.0 | 0.03 | 879.01 | 0.00 | 100.00 |
| 177.0-178.0 | 0.02 | 879.03 | 0.00 | 100.00 |
| 178.0-179.0 | 0.01 | 879.05 | 0.00 | 100.00 |
| 179.0-180.0 | 0.00 | 879.05 | 0.00 | 100.00 |

# Rectangle ISO Lighting Intensity Diagram

| | | |
|---|---|---|
| Lum.Name: HCP-1022202+HCP-1032202 3000K 60D | Lum.Catelog: | Test ID: 01 |
| Lamp Name: | Lamp Catelog: LED | Test Lab: Quality Department |
| Manufacture: Havit Commercial | Test Machine:GON-2000 | Test Date: 2020/11/23 |

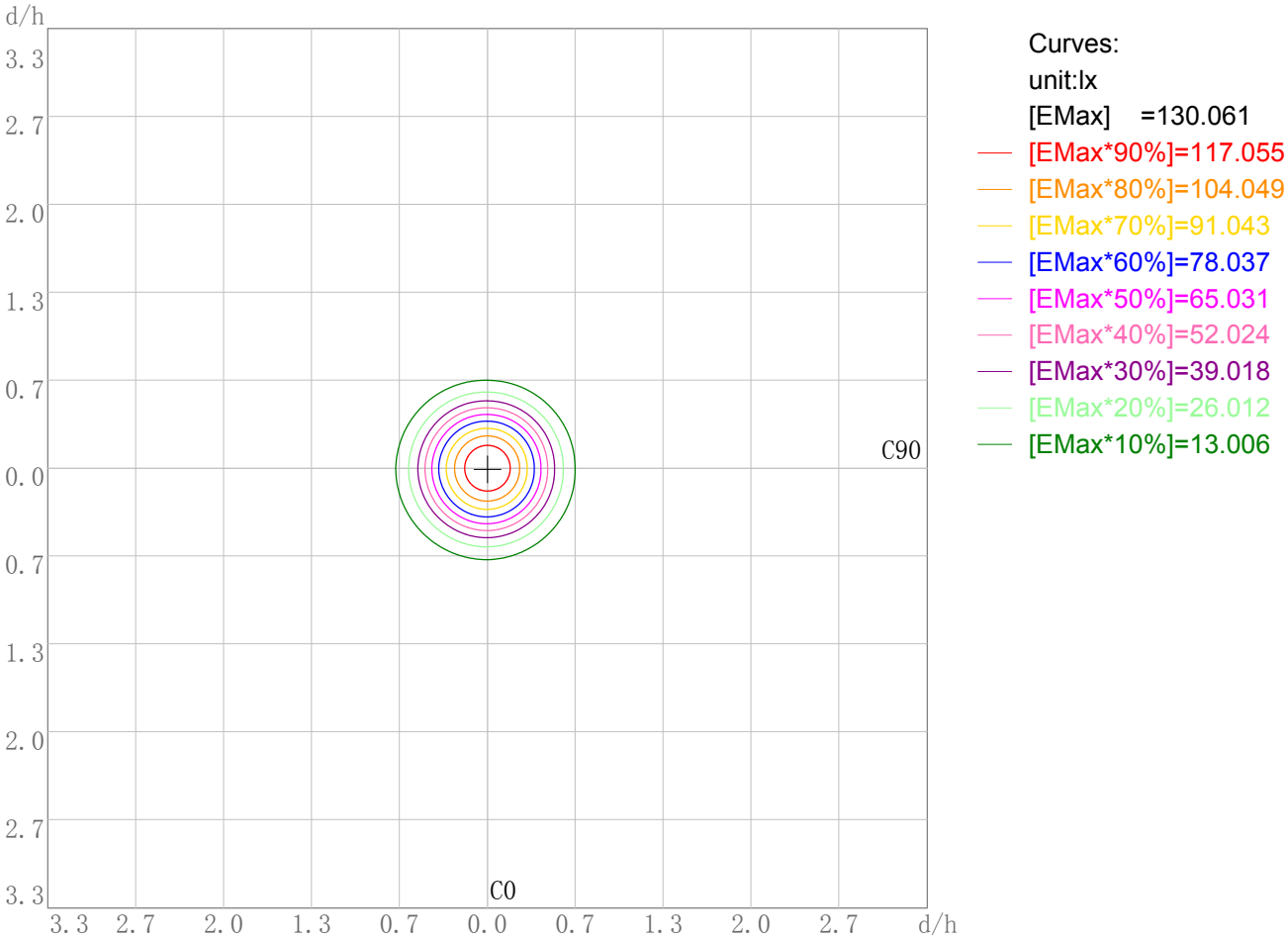



Maximum Light Intensity(cd): 1170.95
Maximum Cand.@Angle: H=1.0°,V=0.0°

# Plane ISO-Illuminance Diagram

| | | |
|---|---|---|
| Lum.Name: HCP-1022202+HCP-1032202 3000K 60D | Lum.Catelog: | Test ID: 01 |
| Lamp Name: | Lamp Catelog: LED | Test Lab: Quality Department |
| Manufacture: Havit Commercial | Test Machine:GON-2000 | Test Date: 2020/11/23 |

## Plane ISO-Illuminance Curve

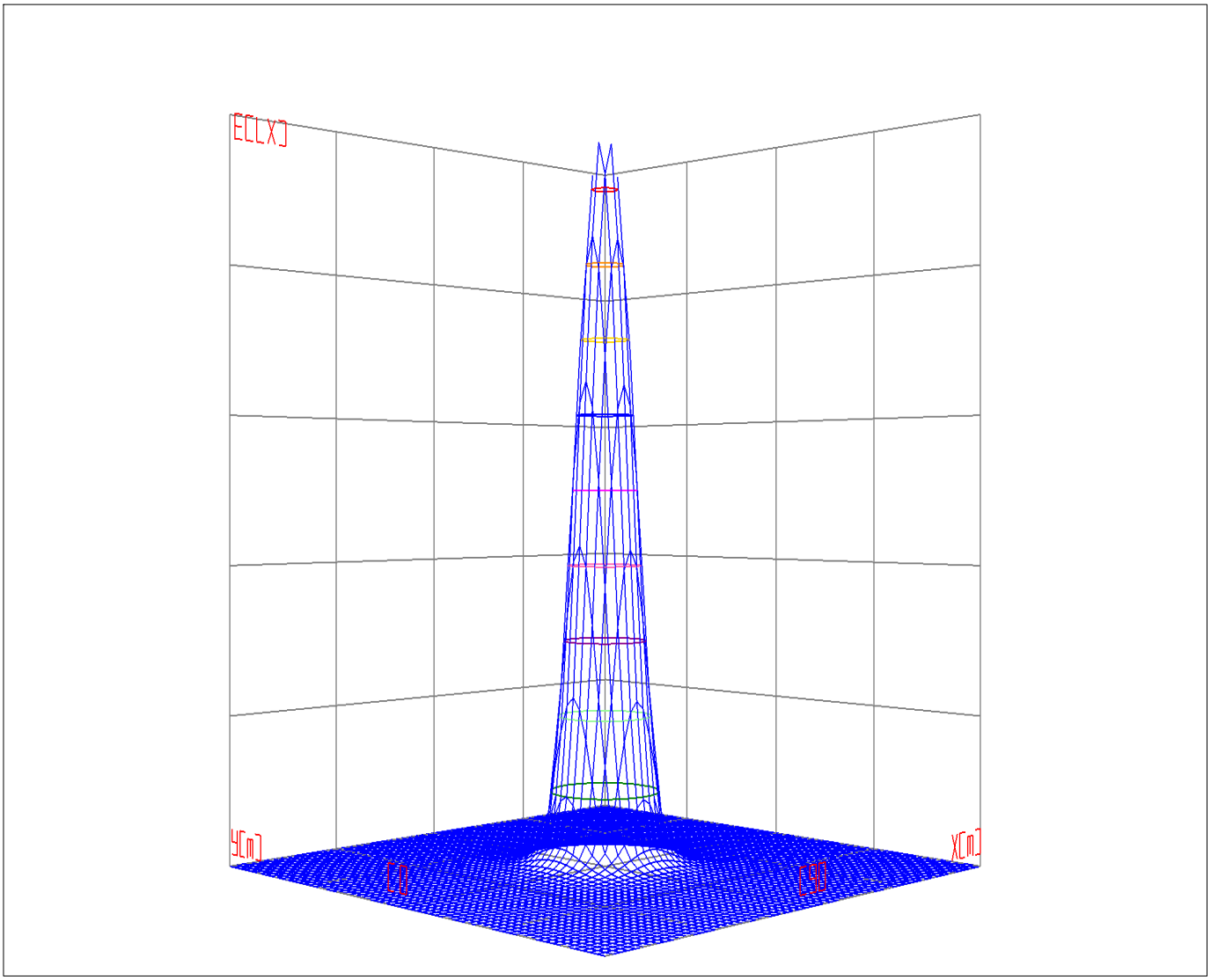



Working Plane Luminaire Mounting Height(m): 3.00
Working Plane Maximum Illuminance(lx): 130.06
Working Plane Maximum Illuminance Position(d/h):H0.0 V0.0

# 3D Plane ISO Illuminance Diagram

| | | |
|---|---|---|
| Lum.Name: HCP-1022202+HCP-1032202 3000K 60D | Lum.Catelog: | Test ID: 01 |
| Lamp Name: | Lamp Catelog: LED | Test Lab: Quality Department |
| Manufacture: Havit Commercial | Test Machine:GON-2000 | Test Date: 2020/11/23 |

3D Plane Illuminance Modal

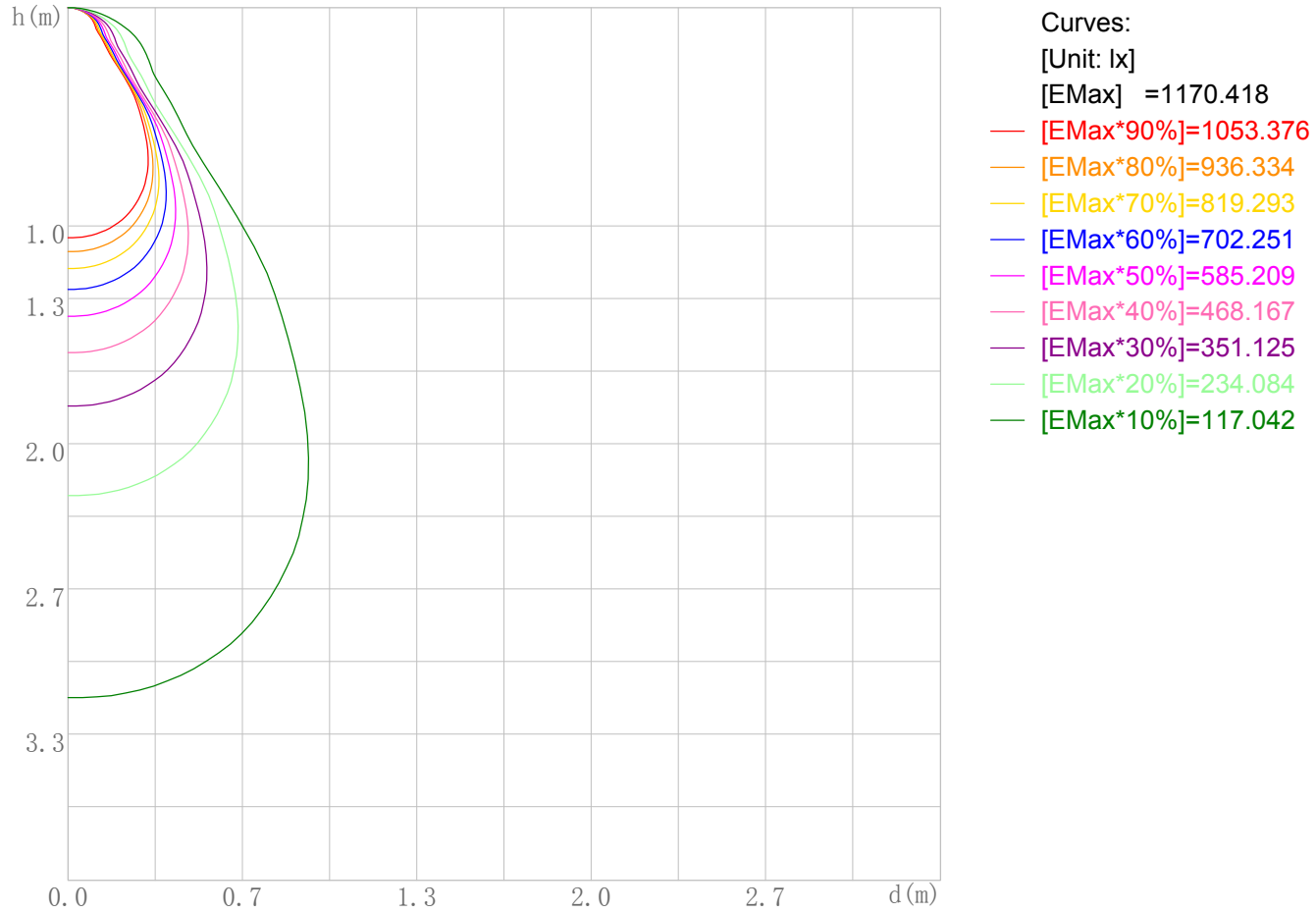



Curves: 3D Model 90% 80% 70% 60% 50% 40% 30% 20% 10%
View Angles(deg): 0 Height(m): 3.0 Distance(m): 10.0

# Space ISO Illuminance Diagram

| | | |
|---|---|---|
| Lum.Name: HCP-1022202+HCP-1032202 3000K 60D | Lum.Catelog: | Test ID: 01 |
| Lamp Name: | Lamp Catelog: LED | Test Lab: Quality Department |
| Manufacture: Havit Commercial | Test Machine:GON-2000 | Test Date: 2020/11/23 |

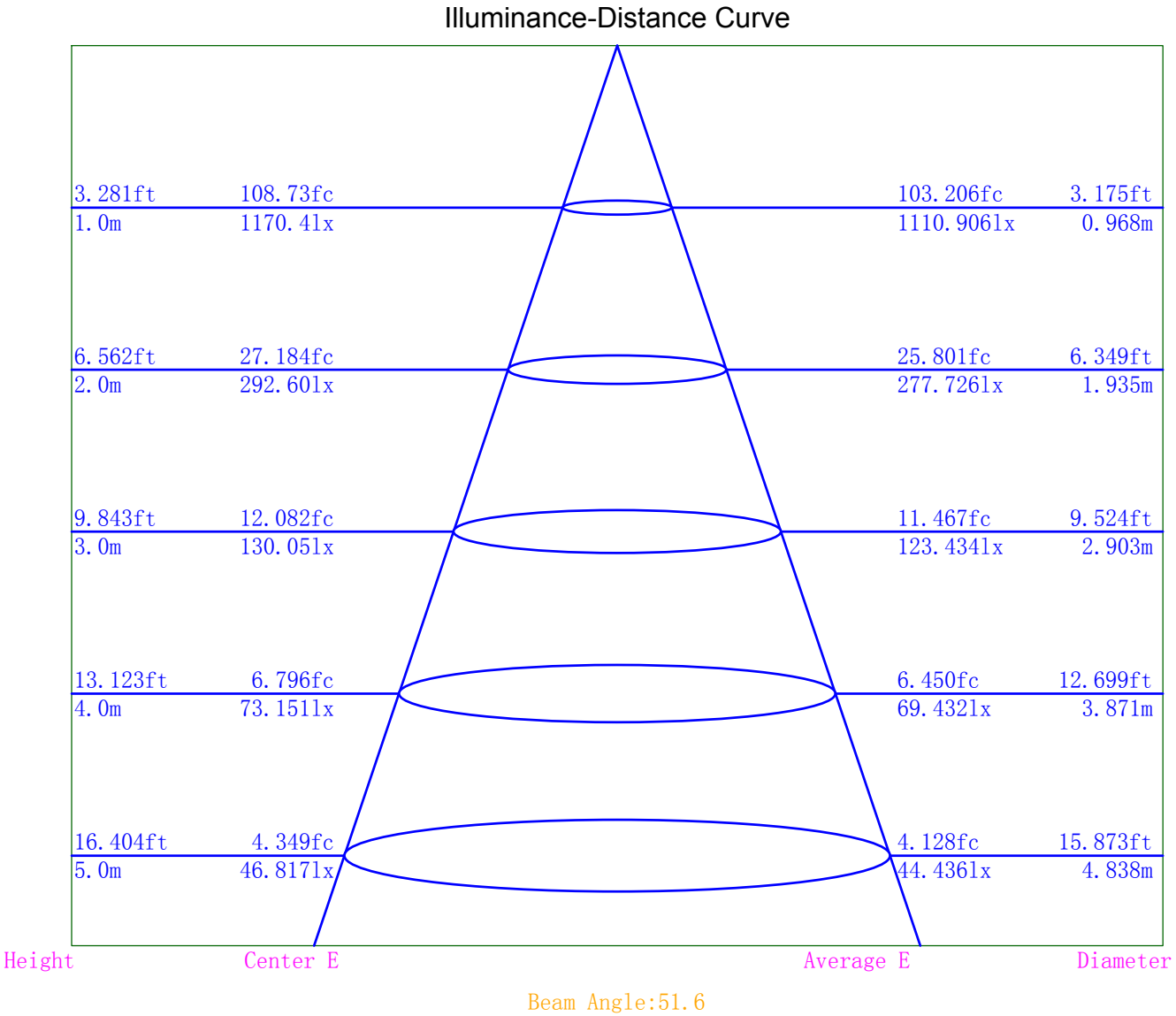
## Space ISO Illuminance Curve




Space Plane Maximum Illuminance and @Angle:1170.42lx,0.0deg
Plane Maximum Lighting Intensity and @Angle:1170.950cd,0eg

# Illuminance-Distance Diagram

| | | |
|---|---|---|
| Lum.Name: HCP-1022202+HCP-1032202 3000K 60D | Lum.Catelog: | Test ID: 01 |
| Lamp Name: | Lamp Catelog: LED | Test Lab: Quality Department |
| Manufacture: Havit Commercial | Test Machine:GON-2000 | Test Date: 2020/11/23 |




Beam Angle:51.6

# Indoor Luminance Limiting Curves

| | | |
|---|---|---|
| Lum.Name: HCP-1022202+HCP-1032202 3000K 60D | Lum.Catelog: | Test ID: 01 |
| Lamp Name: | Lamp Catelog: LED | Test Lab: Quality Department |
| Manufacture: Havit Commercial | Test Machine:GON-2000 | Test Date: 2020/11/23 |

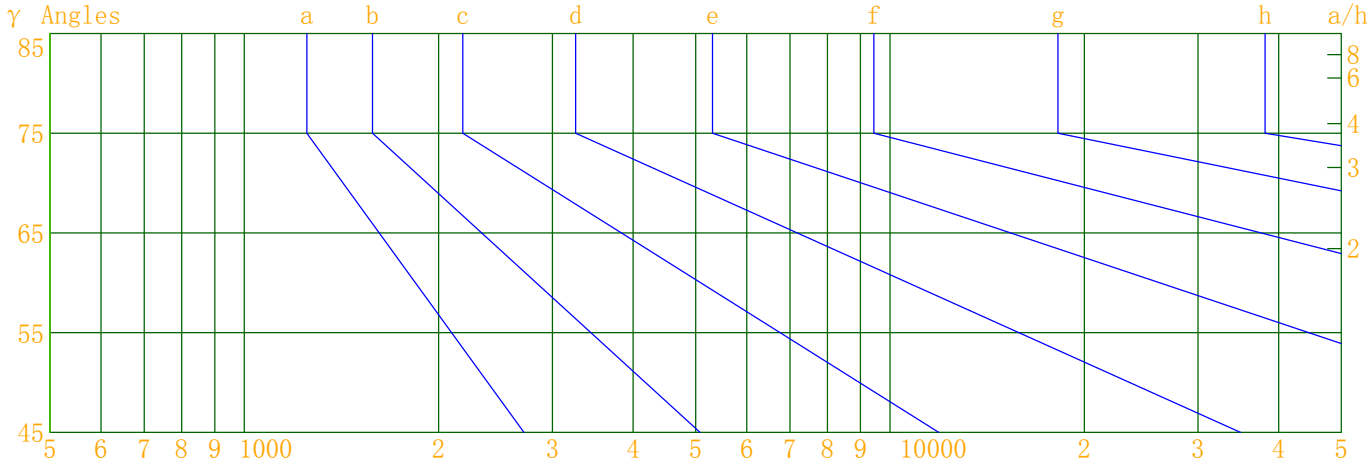
Glare Grade Table

| GI | Quality | Using Illuminace | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 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 | a | | | | 2000 | 1000 | 500 | <=300 |
| | | | b | c | d | e | f | g | h |

Luminance Table

| Gama(deg) | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
|---|---|---|---|---|---|---|---|---|---|
| C0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

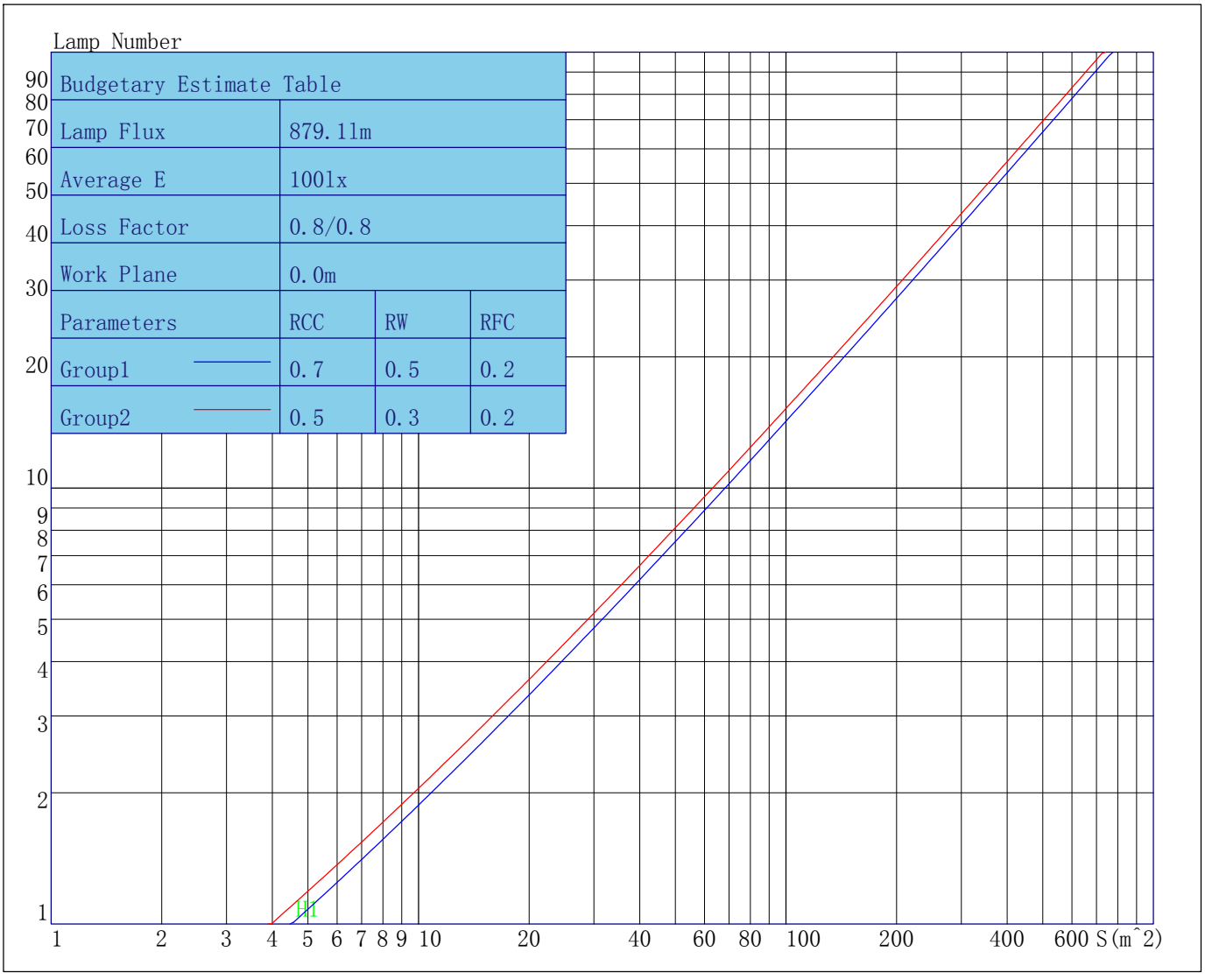
Luminance Limiting Curve




Luminous Size: Length(m)=0.000 Width(m)=0.000 Height(m)=0.000 Area(m^2)=0.000000
Luminous Type: Without Luminous Side
Luminous Curves: C0-C180 Color: C90-C270 Color:

# Indoor Budgetary Estimate Table

| | | |
|---|---|---|
| Lum.Name: HCP-1022202+HCP-1032202 3000K 60D | Lum.Catelog: | Test ID: 01 |
| Lamp Name: | Lamp Catelog: LED | Test Lab: Quality Department |
| Manufacture: Havit Commercial | Test Machine:GON-2000 | Test Date: 2020/11/23 |




Parameters1: Rhocc = 0.7 Rhow = 0.5 Rhofc = 0.2 LLF = 0.8
Parameters2: Rhocc = 0.5 Rhow = 0.3 Rhofc = 0.2 LLF = 0.8
Average Illuminance(lx): 100 Cavity Height: H1(m) = 2

# Indoor Coefficient of Utilization Table

| | | |
|---|---|---|
| Lum.Name: HCP-1022202+HCP-1032202 3000K 60D | Lum.Catelog: | Test ID: 01 |
| Lamp Name: | Lamp Catelog: LED | Test Lab: Quality Department |
| Manufacture: Havit Commercial | Test Machine:GON-2000 | Test Date: 2020/11/23 |

| Coefficients of Utilization - Zonal Cavity Method | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Coef. | Effective Floor Cavity Reflectance RFC=0.20 | | | | | | | | | | | | | | | | | |
| RhoCC(%) | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
| RhoW(%) | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| RCR | Coefficient of Utilization(%) | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 101 | 101 | 101 | 99 |
| 1 | 113 | 110 | 107 | 105 | 110 | 108 | 105 | 103 | 103 | 102 | 100 | 100 | 98 | 97 | 96 | 95 | 94 | 92 |
| 2 | 107 | 102 | 98 | 94 | 105 | 100 | 96 | 93 | 97 | 94 | 91 | 94 | 91 | 89 | 91 | 89 | 87 | 85 |
| 3 | 102 | 95 | 90 | 86 | 100 | 94 | 89 | 85 | 91 | 87 | 84 | 88 | 85 | 82 | 86 | 83 | 81 | 79 |
| 4 | 97 | 89 | 84 | 79 | 95 | 88 | 83 | 79 | 86 | 81 | 78 | 84 | 80 | 77 | 82 | 78 | 76 | 74 |
| 5 | 92 | 84 | 78 | 74 | 90 | 83 | 77 | 73 | 81 | 76 | 72 | 79 | 75 | 72 | 77 | 74 | 71 | 70 |
| 6 | 88 | 79 | 73 | 69 | 86 | 78 | 72 | 68 | 76 | 72 | 68 | 75 | 71 | 67 | 74 | 70 | 67 | 65 |
| 7 | 84 | 74 | 69 | 64 | 82 | 74 | 68 | 64 | 72 | 67 | 64 | 71 | 67 | 63 | 70 | 66 | 63 | 62 |
| 8 | 80 | 71 | 65 | 61 | 79 | 70 | 64 | 60 | 69 | 64 | 60 | 68 | 63 | 60 | 67 | 63 | 60 | 58 |
| 9 | 76 | 67 | 61 | 57 | 75 | 66 | 61 | 57 | 65 | 60 | 57 | 64 | 60 | 57 | 64 | 59 | 56 | 55 |
| 10 | 73 | 64 | 58 | 54 | 72 | 63 | 58 | 54 | 62 | 57 | 54 | 61 | 57 | 54 | 61 | 57 | 54 | 52 |

# Unified Glare Rating Table

| | | |
|---|---|---|
| Lum.Name: HCP-1022202+HCP-1032202 3000K 60D | Lum.Catelog: | Test ID: 01 |
| Lamp Name: | Lamp Catelog: LED | Test Lab: Quality Department |
| Manufacture: Havit Commercial | Test Machine:GON-2000 | Test Date: 2020/11/23 |

## Unified Glare Rating Table

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ceiling RCC | | 0.70 | 0.70 | 0.50 | 0.50 | 0.30 | 0.70 | 0.70 | 0.50 | 0.50 | 0.30 |
| Wall RW | | 0.50 | 0.30 | 0.50 | 0.30 | 0.30 | 0.50 | 0.30 | 0.50 | 0.30 | 0.30 |
| Floor RFC | | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| Room Size | | Vewed crosswise | | | | | Vewed endwise | | | | |
| X=2H | Y=2H | -1.4 | -0.4 | -1.0 | -0.1 | 0.3 | -1.4 | -0.4 | -1.0 | -0.1 | 0.3 |
| | Y=3H | -1.6 | -0.7 | -1.2 | -0.4 | 0.0 | -1.6 | -0.7 | -1.2 | -0.4 | 0.0 |
| | Y=4H | -1.7 | -0.9 | -1.3 | -0.5 | -0.1 | -1.7 | -0.9 | -1.3 | -0.5 | -0.1 |
| | Y=6H | -1.8 | -1.1 | -1.4 | -0.7 | -0.3 | -1.8 | -1.1 | -1.4 | -0.7 | -0.3 |
| | Y=8H | -1.9 | -1.2 | -1.4 | -0.8 | -0.3 | -1.9 | -1.2 | -1.4 | -0.8 | -0.3 |
| | Y=12H | -2.0 | -1.3 | -1.5 | -0.9 | -0.4 | -2.0 | -1.3 | -1.5 | -0.9 | -0.4 |
| X=4H | Y=2H | -1.7 | -0.9 | -1.3 | -0.5 | -0.1 | -1.7 | -0.9 | -1.3 | -0.5 | -0.1 |
| | Y=3H | -1.9 | -1.3 | -1.5 | -0.8 | -0.4 | -1.9 | -1.3 | -1.5 | -0.8 | -0.4 |
| | Y=4H | -2.1 | -1.4 | -1.6 | -1.0 | -0.5 | -2.1 | -1.4 | -1.6 | -1.0 | -0.5 |
| | Y=6H | -2.2 | -1.6 | -1.7 | -1.2 | -0.7 | -2.2 | -1.6 | -1.7 | -1.2 | -0.7 |
| | Y=8H | -2.2 | -1.7 | -1.7 | -1.3 | -0.8 | -2.2 | -1.7 | -1.7 | -1.3 | -0.8 |
| | Y=12H | -2.3 | -1.9 | -1.8 | -1.4 | -0.9 | -2.3 | -1.9 | -1.8 | -1.4 | -0.9 |
| X=8H | Y=4H | -2.2 | -1.7 | -1.7 | -1.3 | -0.8 | -2.2 | -1.7 | -1.7 | -1.3 | -0.8 |
| | Y=6H | -2.4 | -2.0 | -1.8 | -1.4 | -0.9 | -2.4 | -2.0 | -1.8 | -1.4 | -0.9 |
| | Y=8H | -2.4 | -2.1 | -1.9 | -1.5 | -1.0 | -2.4 | -2.1 | -1.9 | -1.5 | -1.0 |
| | Y=12H | -2.5 | -2.2 | -1.9 | -1.7 | -1.1 | -2.5 | -2.2 | -1.9 | -1.7 | -1.1 |
| X=12H | Y=4H | -2.3 | -1.9 | -1.8 | -1.4 | -0.9 | -2.3 | -1.9 | -1.8 | -1.4 | -0.9 |
| | Y=6H | -2.4 | -2.1 | -1.9 | -1.6 | -1.0 | -2.4 | -2.1 | -1.9 | -1.6 | -1.0 |
| | Y=8H | -2.5 | -2.2 | -1.9 | -1.7 | -1.1 | -2.5 | -2.2 | -1.9 | -1.7 | -1.1 |
| Variations with the objerver position at spacings | | | | | | | | | | | |
| S=1.0H | | 0.0/0.0 | | | | | 0.0/0.0 | | | | |
| S=1.5H | | 0.0/0.0 | | | | | 0.0/0.0 | | | | |
| S=2.0H | | 0.0/0.0 | | | | | 0.0/0.0 | | | | |
| Reduced UGR Table: | | | | | | | | | | | |
| Nordic Standard Table: | | BK0 | | | | | BK0 | | | | |
| Correction Value | | 0.0 | | | | | 0.0 | | | | |

o the CIE Pub.117,data has been corrected,refers to the lamp's lumens 8.2flm.

## Candela Tabulation

| V/H | C0.0 | C90.0 | C180.0 | C270.0 |
|---|---|---|---|---|
| γ 0.0 | 1170.42 | 1170.42 | 1170.42 | 1170.42 |
| γ 1.0 | 1170.95 | 1169.61 | 1167.69 | 1166.91 |
| γ 2.0 | 1169.82 | 1168.24 | 1166.56 | 1165.75 |
| γ 3.0 | 1168.84 | 1167.13 | 1164.29 | 1162.97 |
| γ 4.0 | 1163.49 | 1161.58 | 1157.98 | 1157.65 |
| γ 5.0 | 1158.37 | 1156.14 | 1151.89 | 1152.63 |
| γ 6.0 | 1150.47 | 1148.36 | 1144.95 | 1144.51 |
| γ 7.0 | 1140.01 | 1136.51 | 1134.77 | 1135.05 |
| γ 8.0 | 1129.18 | 1125.16 | 1124.48 | 1125.45 |
| γ 9.0 | 1115.80 | 1112.22 | 1112.83 | 1113.19 |
| γ 10.0 | 1099.28 | 1096.27 | 1097.39 | 1098.41 |
| γ 11.0 | 1082.82 | 1079.11 | 1082.00 | 1082.95 |
| γ 12.0 | 1064.29 | 1059.14 | 1064.15 | 1066.38 |
| γ 13.0 | 1042.18 | 1038.38 | 1044.37 | 1046.48 |
| γ 14.0 | 1017.33 | 1011.82 | 1024.28 | 1026.45 |
| γ 15.0 | 989.60 | 984.86 | 1002.17 | 1004.89 |
| γ 16.0 | 960.86 | 955.66 | 977.46 | 980.38 |
| γ 17.0 | 929.91 | 924.53 | 950.81 | 953.67 |
| γ 18.0 | 897.27 | 891.19 | 921.79 | 926.19 |
| γ 19.0 | 864.61 | 857.36 | 892.90 | 896.15 |
| γ 20.0 | 827.99 | 820.39 | 858.15 | 862.58 |
| γ 21.0 | 786.02 | 779.21 | 823.44 | 827.54 |
| γ 22.0 | 745.72 | 736.94 | 782.66 | 787.55 |
| γ 23.0 | 700.98 | 693.08 | 738.94 | 744.07 |
| γ 24.0 | 653.86 | 645.39 | 694.93 | 701.06 |
| γ 25.0 | 605.13 | 595.86 | 646.68 | 652.81 |
| γ 26.0 | 554.05 | 545.47 | 598.58 | 604.20 |
| γ 27.0 | 500.52 | 492.27 | 546.62 | 553.39 |
| γ 28.0 | 450.57 | 441.21 | 493.81 | 499.89 |
| γ 29.0 | 402.97 | 394.48 | 443.93 | 450.51 |
| γ 30.0 | 360.51 | 352.80 | 399.72 | 406.34 |
| γ 31.0 | 321.54 | 313.64 | 360.44 | 366.79 |
| γ 32.0 | 284.22 | 276.18 | 324.51 | 330.57 |
| γ 33.0 | 238.00 | 229.67 | 290.52 | 297.08 |
| γ 34.0 | 188.34 | 180.75 | 243.80 | 250.25 |
| γ 35.0 | 144.89 | 138.27 | 197.24 | 203.53 |
| γ 36.0 | 112.07 | 106.38 | 154.34 | 159.99 |
| γ 37.0 | 91.88 | 87.07 | 120.27 | 125.35 |
| γ 38.0 | 80.43 | 76.26 | 99.79 | 104.26 |
| γ 39.0 | 72.40 | 68.60 | 85.49 | 89.50 |
| γ 40.0 | 65.82 | 62.30 | 74.88 | 78.39 |
| γ 41.0 | 59.72 | 56.43 | 66.38 | 69.71 |
| γ 42.0 | 54.29 | 51.17 | 59.35 | 62.55 |
| γ 43.0 | 48.96 | 46.05 | 53.81 | 56.74 |
| γ 44.0 | 44.39 | 41.74 | 48.53 | 51.24 |
| γ 45.0 | 40.34 | 37.80 | 43.90 | 46.49 |
| γ 46.0 | 37.18 | 34.81 | 39.17 | 41.57 |

## Candela Tabulation - (Cont.)

| V/H | C0.0 | C90.0 | C180.0 | C270.0 |
|---|---|---|---|---|
| γ 47.0 | 34.72 | 32.50 | 35.17 | 37.42 |
| γ 48.0 | 33.04 | 30.98 | 31.70 | 33.76 |
| γ 49.0 | 31.94 | 29.94 | 28.72 | 30.72 |
| γ 50.0 | 30.86 | 28.93 | 27.11 | 28.99 |
| γ 51.0 | 29.94 | 28.10 | 25.83 | 27.58 |
| γ 52.0 | 29.08 | 27.33 | 25.00 | 26.67 |
| γ 53.0 | 28.27 | 26.56 | 24.31 | 25.90 |
| γ 54.0 | 27.49 | 25.85 | 23.70 | 25.25 |
| γ 55.0 | 26.75 | 25.13 | 23.22 | 24.67 |
| γ 56.0 | 26.01 | 24.43 | 22.76 | 24.16 |
| γ 57.0 | 25.31 | 23.78 | 22.32 | 23.69 |
| γ 58.0 | 24.64 | 23.13 | 21.88 | 23.23 |
| γ 59.0 | 23.94 | 22.47 | 21.49 | 22.78 |
| γ 60.0 | 23.23 | 21.77 | 21.07 | 22.35 |
| γ 61.0 | 22.51 | 21.07 | 20.62 | 21.86 |
| γ 62.0 | 21.79 | 20.36 | 20.10 | 21.33 |
| γ 63.0 | 21.04 | 19.64 | 19.56 | 20.76 |
| γ 64.0 | 20.24 | 18.87 | 18.98 | 20.15 |
| γ 65.0 | 19.32 | 17.97 | 18.37 | 19.53 |
| γ 66.0 | 18.27 | 16.94 | 17.65 | 18.81 |
| γ 67.0 | 17.27 | 15.96 | 16.80 | 17.93 |
| γ 68.0 | 16.34 | 15.06 | 15.94 | 17.06 |
| γ 69.0 | 15.45 | 14.20 | 15.11 | 16.23 |
| γ 70.0 | 14.60 | 13.34 | 14.31 | 15.41 |
| γ 71.0 | 13.74 | 12.50 | 13.53 | 14.61 |
| γ 72.0 | 12.90 | 11.69 | 12.75 | 13.82 |
| γ 73.0 | 12.08 | 10.92 | 11.97 | 13.00 |
| γ 74.0 | 11.30 | 10.15 | 11.20 | 12.23 |
| γ 75.0 | 10.53 | 9.40 | 10.45 | 11.44 |
| γ 76.0 | 9.76 | 8.66 | 9.69 | 10.68 |
| γ 77.0 | 9.03 | 7.95 | 8.97 | 9.93 |
| γ 78.0 | 8.30 | 7.24 | 8.24 | 9.19 |
| γ 79.0 | 7.59 | 6.57 | 7.53 | 8.46 |
| γ 80.0 | 6.92 | 5.93 | 6.85 | 7.76 |
| γ 81.0 | 6.24 | 5.28 | 6.19 | 7.06 |
| γ 82.0 | 5.61 | 4.66 | 5.53 | 6.39 |
| γ 83.0 | 4.98 | 4.05 | 4.90 | 5.75 |
| γ 84.0 | 4.35 | 3.48 | 4.29 | 5.11 |
| γ 85.0 | 3.77 | 2.93 | 3.71 | 4.50 |
| γ 86.0 | 3.22 | 2.39 | 3.14 | 3.90 |
| γ 87.0 | 2.65 | 1.86 | 2.61 | 3.34 |
| γ 88.0 | 2.12 | 1.36 | 2.10 | 2.81 |
| γ 89.0 | 1.64 | 0.91 | 1.59 | 2.27 |
| γ 90.0 | 1.50 | 0.80 | 1.10 | 1.75 |
| γ 91.0 | 1.40 | 0.73 | 0.91 | 1.55 |
| γ 92.0 | 1.30 | 0.65 | 0.85 | 1.45 |
| γ 93.0 | 1.21 | 0.59 | 0.77 | 1.35 |

## Candela Tabulation - (Cont.)

| V/H | C0.0 | C90.0 | C180.0 | C270.0 |
|---|---|---|---|---|
| γ 94.0 | 1.13 | 0.51 | 0.69 | 1.26 |
| γ 95.0 | 1.05 | 0.46 | 0.64 | 1.19 |
| γ 96.0 | 0.97 | 0.39 | 0.57 | 1.11 |
| γ 97.0 | 0.92 | 0.34 | 0.51 | 1.03 |
| γ 98.0 | 0.82 | 0.28 | 0.46 | 0.96 |
| γ 99.0 | 0.76 | 0.24 | 0.42 | 0.90 |
| γ 100.0 | 0.71 | 0.19 | 0.37 | 0.83 |
| γ 101.0 | 0.65 | 0.16 | 0.33 | 0.78 |
| γ 102.0 | 0.59 | 0.11 | 0.29 | 0.72 |
| γ 103.0 | 0.53 | 0.07 | 0.25 | 0.66 |
| γ 104.0 | 0.48 | 0.04 | 0.22 | 0.61 |
| γ 105.0 | 0.43 | 0.00 | 0.19 | 0.57 |
| γ 106.0 | 0.40 | 0.00 | 0.16 | 0.53 |
| γ 107.0 | 0.35 | 0.00 | 0.15 | 0.50 |
| γ 108.0 | 0.32 | 0.00 | 0.12 | 0.46 |
| γ 109.0 | 0.28 | 0.00 | 0.10 | 0.43 |
| γ 110.0 | 0.26 | 0.00 | 0.10 | 0.41 |
| γ 111.0 | 0.25 | 0.00 | 0.09 | 0.40 |
| γ 112.0 | 0.23 | 0.00 | 0.09 | 0.38 |
| γ 113.0 | 0.23 | 0.00 | 0.09 | 0.37 |
| γ 114.0 | 0.23 | 0.00 | 0.10 | 0.38 |
| γ 115.0 | 0.22 | 0.00 | 0.12 | 0.39 |
| γ 116.0 | 0.25 | 0.00 | 0.14 | 0.39 |
| γ 117.0 | 0.26 | 0.00 | 0.17 | 0.41 |
| γ 118.0 | 0.29 | 0.00 | 0.20 | 0.43 |
| γ 119.0 | 0.31 | 0.03 | 0.23 | 0.46 |
| γ 120.0 | 0.35 | 0.08 | 0.28 | 0.49 |
| γ 121.0 | 0.39 | 0.13 | 0.33 | 0.52 |
| γ 122.0 | 0.44 | 0.19 | 0.38 | 0.58 |
| γ 123.0 | 0.50 | 0.25 | 0.44 | 0.63 |
| γ 124.0 | 0.56 | 0.31 | 0.50 | 0.69 |
| γ 125.0 | 0.62 | 0.38 | 0.58 | 0.74 |
| γ 126.0 | 0.69 | 0.47 | 0.65 | 0.81 |
| γ 127.0 | 0.78 | 0.55 | 0.73 | 0.88 |
| γ 128.0 | 0.85 | 0.64 | 0.81 | 0.96 |
| γ 129.0 | 0.93 | 0.73 | 0.91 | 1.04 |
| γ 130.0 | 1.02 | 0.83 | 1.00 | 1.13 |
| γ 131.0 | 1.11 | 0.92 | 1.10 | 1.22 |
| γ 132.0 | 1.21 | 1.02 | 1.20 | 1.31 |
| γ 133.0 | 1.30 | 1.13 | 1.30 | 1.40 |
| γ 134.0 | 1.40 | 1.24 | 1.41 | 1.50 |
| γ 135.0 | 1.51 | 1.35 | 1.51 | 1.61 |
| γ 136.0 | 1.62 | 1.46 | 1.62 | 1.71 |
| γ 137.0 | 1.72 | 1.58 | 1.75 | 1.82 |
| γ 138.0 | 1.84 | 1.69 | 1.86 | 1.93 |
| γ 139.0 | 1.95 | 1.81 | 1.97 | 2.04 |
| γ 140.0 | 2.08 | 1.91 | 2.10 | 2.15 |

## Candela Tabulation - (Cont.)

| V/H | C0.0 | C90.0 | C180.0 | C270.0 |
|---|---|---|---|---|
| γ 141.0 | 2.18 | 2.05 | 2.22 | 2.27 |
| γ 142.0 | 2.31 | 2.17 | 2.33 | 2.38 |
| γ 143.0 | 2.41 | 2.29 | 2.45 | 2.50 |
| γ 144.0 | 2.53 | 2.41 | 2.57 | 2.62 |
| γ 145.0 | 2.64 | 2.53 | 2.69 | 2.73 |
| γ 146.0 | 2.77 | 2.66 | 2.82 | 2.86 |
| γ 147.0 | 2.89 | 2.77 | 2.93 | 2.97 |
| γ 148.0 | 2.99 | 2.89 | 3.04 | 3.08 |
| γ 149.0 | 3.12 | 3.00 | 3.16 | 3.18 |
| γ 150.0 | 3.21 | 3.11 | 3.27 | 3.29 |
| γ 151.0 | 3.31 | 3.21 | 3.38 | 3.40 |
| γ 152.0 | 3.42 | 3.31 | 3.47 | 3.49 |
| γ 153.0 | 3.51 | 3.40 | 3.56 | 3.59 |
| γ 154.0 | 3.60 | 3.49 | 3.65 | 3.67 |
| γ 155.0 | 3.67 | 3.58 | 3.74 | 3.76 |
| γ 156.0 | 3.75 | 3.66 | 3.83 | 3.84 |
| γ 157.0 | 3.83 | 3.72 | 3.90 | 3.91 |
| γ 158.0 | 3.89 | 3.80 | 3.97 | 3.99 |
| γ 159.0 | 3.97 | 3.87 | 4.04 | 4.05 |
| γ 160.0 | 4.04 | 3.94 | 4.11 | 4.11 |
| γ 161.0 | 4.11 | 4.01 | 4.18 | 4.17 |
| γ 162.0 | 4.17 | 4.07 | 4.24 | 4.24 |
| γ 163.0 | 4.23 | 4.14 | 4.30 | 4.30 |
| γ 164.0 | 4.28 | 4.20 | 4.35 | 4.36 |
| γ 165.0 | 4.34 | 4.26 | 4.41 | 4.41 |
| γ 166.0 | 4.40 | 4.32 | 4.47 | 4.47 |
| γ 167.0 | 4.45 | 4.37 | 4.52 | 4.53 |
| γ 168.0 | 4.51 | 4.42 | 4.58 | 4.57 |
| γ 169.0 | 4.56 | 4.48 | 4.63 | 4.62 |
| γ 170.0 | 4.60 | 4.52 | 4.68 | 4.66 |
| γ 171.0 | 4.66 | 4.57 | 4.72 | 4.70 |
| γ 172.0 | 4.70 | 4.62 | 4.75 | 4.74 |
| γ 173.0 | 4.75 | 4.65 | 4.80 | 4.78 |
| γ 174.0 | 4.78 | 4.70 | 4.83 | 4.81 |
| γ 175.0 | 4.82 | 4.73 | 4.86 | 4.84 |
| γ 176.0 | 4.85 | 4.75 | 4.87 | 4.87 |
| γ 177.0 | 4.88 | 4.79 | 4.90 | 4.89 |
| γ 178.0 | 4.89 | 4.81 | 4.92 | 4.90 |
| γ 179.0 | 4.91 | 4.83 | 4.93 | 4.91 |
| γ 180.0 | 4.91 | 4.91 | 4.91 | 4.91 |