

Report No.:

Test Time: 2023-08-23 11:41

Luminaire Property

Luminaire Manufacturer:

Luminaire Description: ECO12W110-4PK

Luminous Length (mm): 110

Voltage: 230.2 V

Power: 11.81 W

Lamp Catalog: 3000K

Luminous Width (mm): 110

Current: 0.053 A

Power Factor: 0.960

Photometric Results

CIE Class: Direct

Measurement Flux: 1019.9 lm

Downward Ratio: 100%

Field Angle(C0/C180,C90/C270,C45/C225,C135/315): 142.7, 141.9, 142.3, 142.3

Beam Angle(C0/C180,C90/C270,C45/C225,C135/315): 85.9, 85.7, 85.8, 85.8

Luminaire Efficacy Rating (LER): 86.41

Max. Intensity: 515.34 cd

S/MH(C0/C180): 1.10

Total Rated Lamp Lumens: 1019.9 lm

Efficiency: 100%

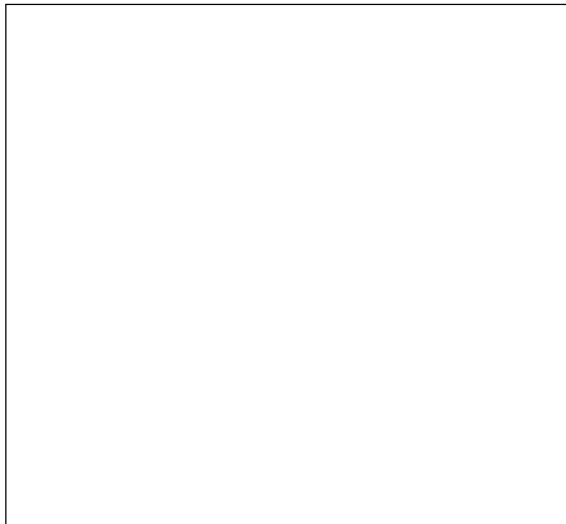
Upward Ratio: 0%

Central Intensity: 515.32 cd

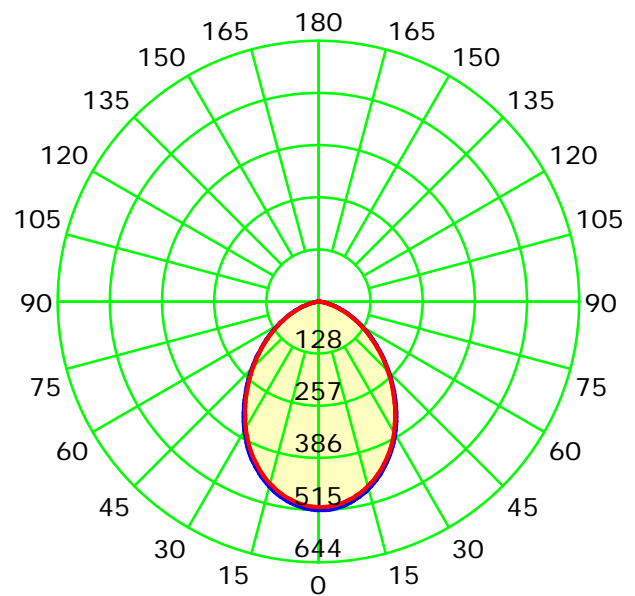
Pos of Max. Intensity: H0 V1

S/MH(C90/C270): 1.10

Picture Of Luminaire



Luminous Intensity Distribution Curve



Unit: cd

— C0-C180 — C90-C270

C Plane (°):0.0-360.0: 90.0

Test Lab:

Test Type: TYPE C

Temperature: 25°C

Operator: XU

Gamma Plane (°):0.0-90.0: 1.0

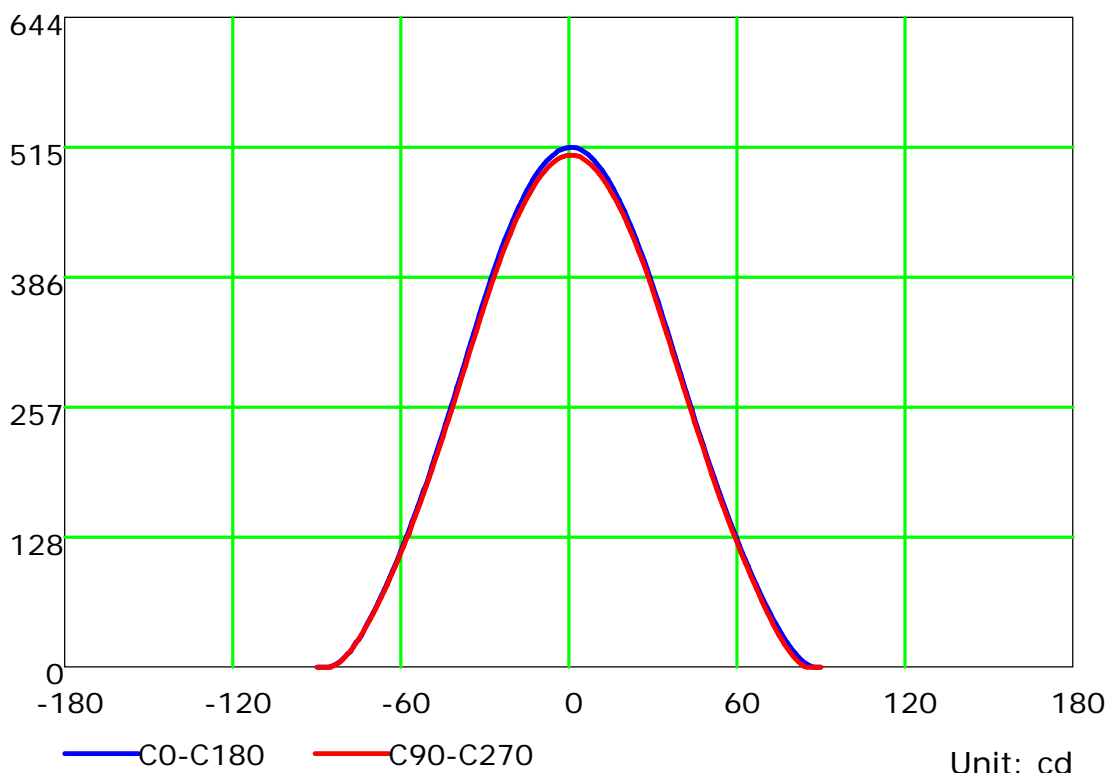
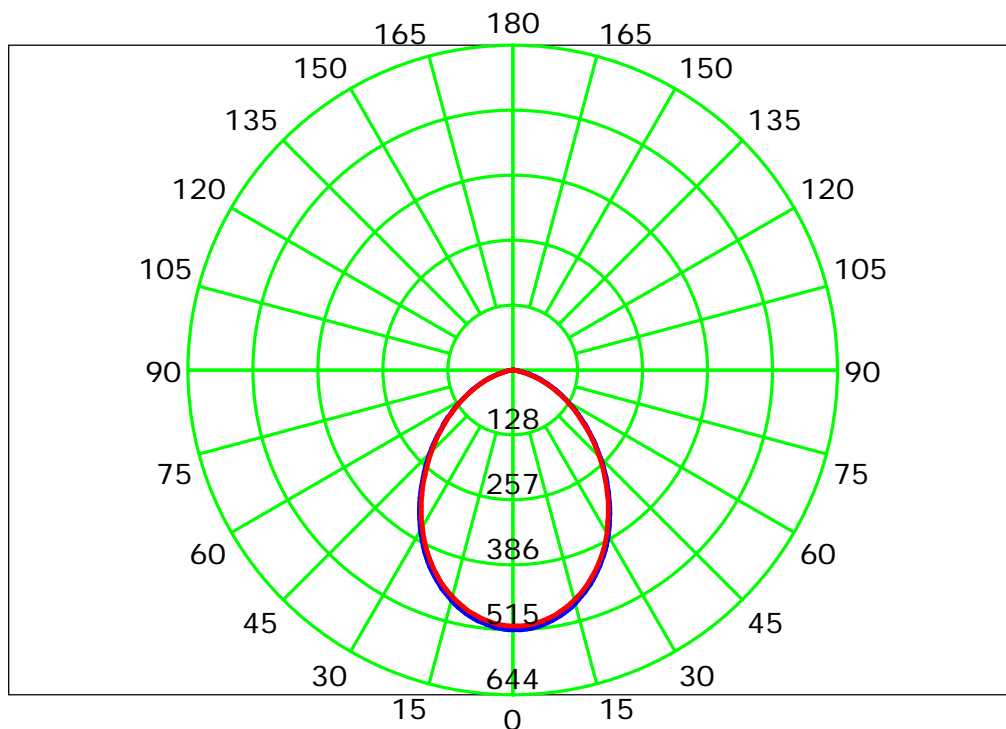
Test Device: GPM-1600

Distance: 8.350 m

Humidity: 50%

Inspector:

Luminous Intensity Distribution Curve



C Plane (°): 0.0-360.0: 90.0
 Test Lab:
 Test Type: TYPE C
 Temperature: 25°C
 Operator: XU

Gamma Plane (°): 0.0-90.0: 1.0
 Test Device: GPM-1600
 Distance: 8.350 m
 Humidity: 50%
 Inspector:

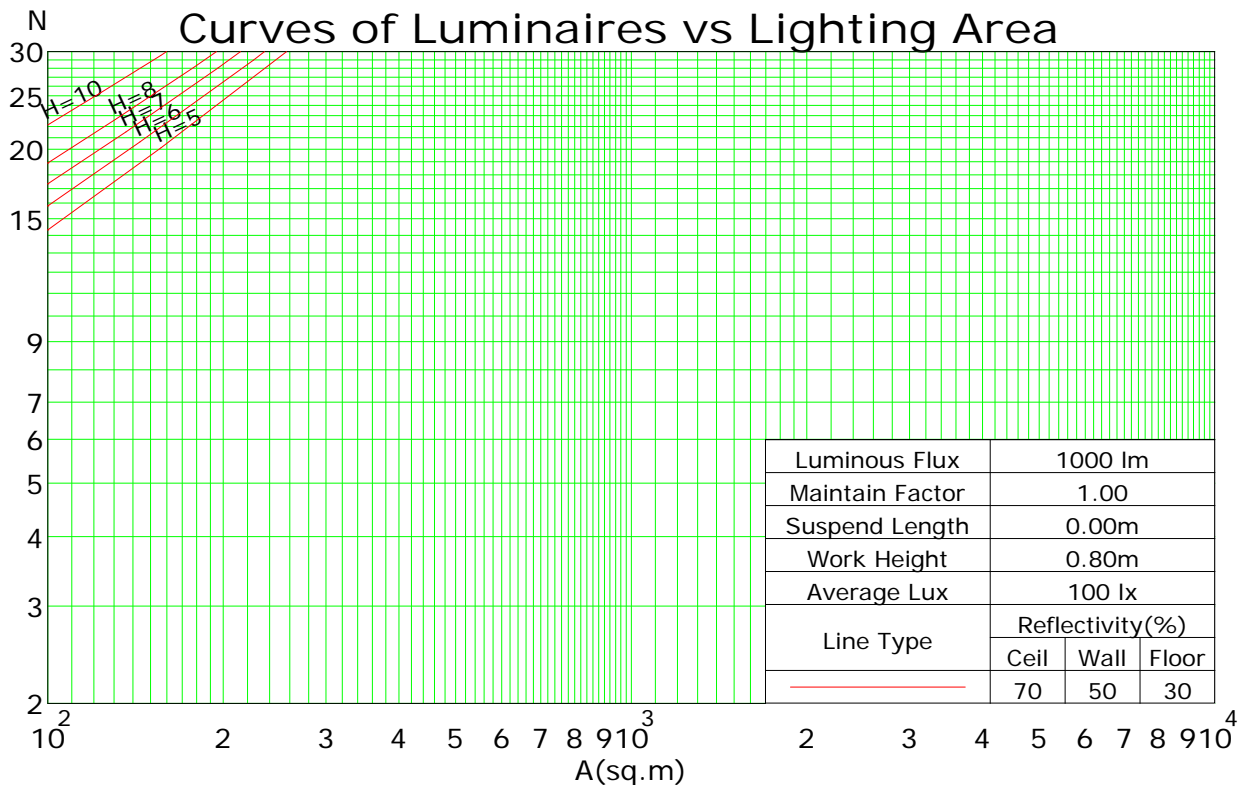
Coefficients Of Utilization - Zonal Cavity Method

| | | | | | | | | | | | | | | | | | | |
|-----|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RC | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 | 0.7 | 0.5 | 0.5 | 0.5 | 0.3 | 0.3 | 0.3 | 0.1 | 0.1 | 0.1 | 0 |
| RW | 0.7 | 0.5 | 0.3 | 0.1 | 0.7 | 0.5 | 0.3 | 0.1 | 0.5 | 0.3 | 0.1 | 0.5 | 0.3 | 0.1 | 0.5 | 0.3 | 0.1 | 0 |
| RCR | RF = 0.2 | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 111 | 107 | 103 | 100 | 108 | 104 | 101 | 98 | 100 | 98 | 95 | 96 | 94 | 92 | 93 | 91 | 89 | 88 |
| 2 | 102 | 95 | 89 | 84 | 99 | 93 | 87 | 83 | 89 | 85 | 81 | 86 | 83 | 79 | 83 | 80 | 77 | 75 |
| 3 | 94 | 85 | 77 | 72 | 92 | 83 | 76 | 71 | 80 | 74 | 70 | 77 | 73 | 69 | 75 | 71 | 67 | 65 |
| 4 | 87 | 76 | 68 | 62 | 85 | 75 | 67 | 62 | 72 | 66 | 61 | 70 | 64 | 60 | 68 | 63 | 59 | 57 |
| 5 | 80 | 69 | 60 | 54 | 78 | 67 | 60 | 54 | 65 | 59 | 54 | 64 | 58 | 53 | 62 | 57 | 52 | 50 |
| 6 | 75 | 62 | 54 | 48 | 73 | 61 | 54 | 48 | 60 | 53 | 48 | 58 | 52 | 47 | 57 | 51 | 47 | 45 |
| 7 | 69 | 57 | 49 | 43 | 68 | 56 | 48 | 43 | 55 | 48 | 43 | 53 | 47 | 42 | 52 | 46 | 42 | 40 |
| 8 | 65 | 52 | 44 | 39 | 63 | 52 | 44 | 39 | 50 | 44 | 39 | 49 | 43 | 38 | 48 | 42 | 38 | 36 |
| 9 | 61 | 48 | 41 | 35 | 60 | 48 | 40 | 35 | 47 | 40 | 35 | 46 | 39 | 35 | 45 | 39 | 35 | 33 |
| 10 | 57 | 45 | 37 | 32 | 56 | 44 | 37 | 32 | 43 | 37 | 32 | 42 | 36 | 32 | 42 | 36 | 32 | 30 |

Spacing Criteria (0-180): 1.10

Spacing Criteria (90-270): 1.10

Spacing Criteria (Diagonal): 1.18



C Plane (°):0.0-360.0: 90.0

Test Lab:

Test Type: TYPE C

Temperature: 25°C

Operator: XU

Gamma Plane (°):0.0-90.0:1.0

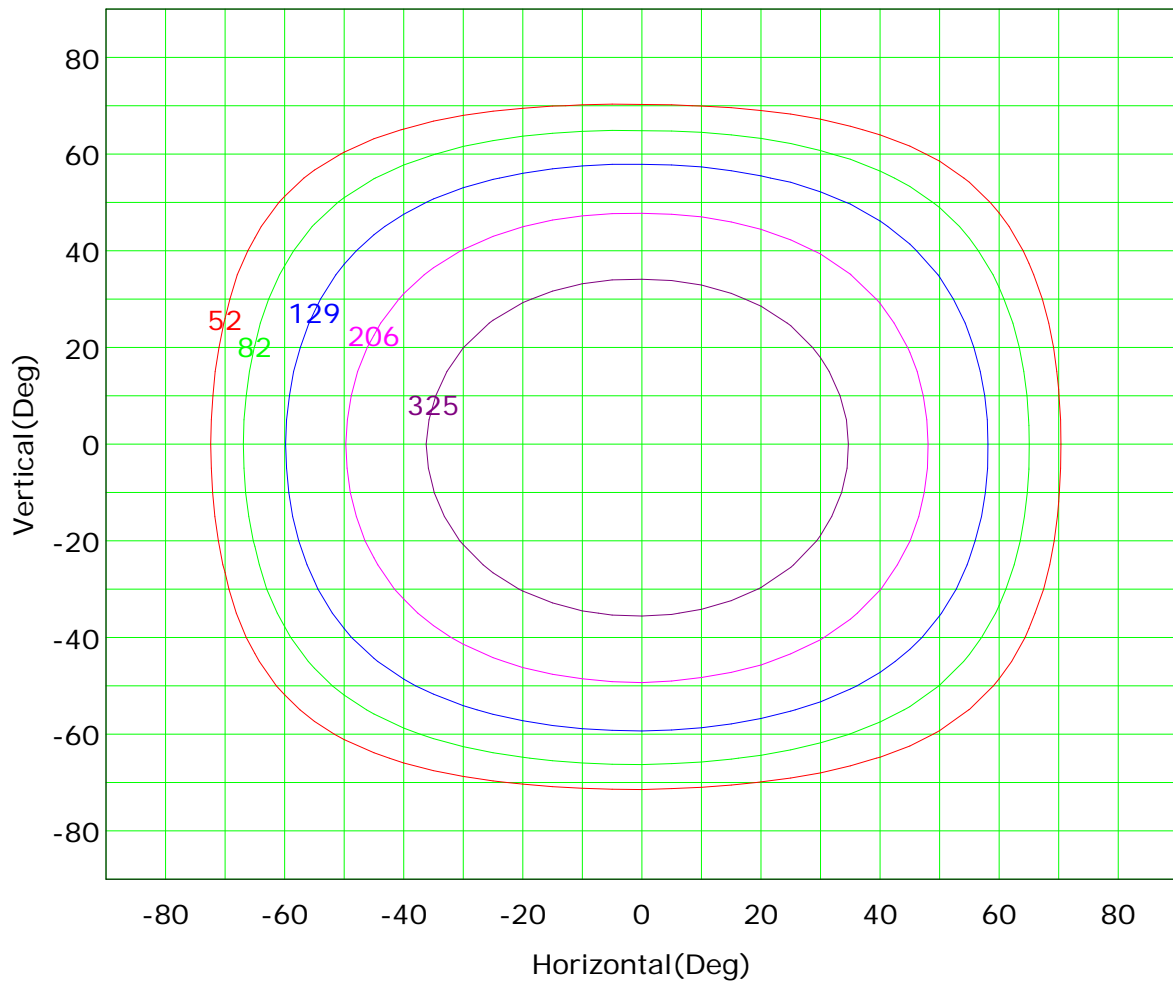
Test Device: GPM-1600

Distance: 8.350 m

Humidity: 50%

Inspector:

Isocandela (rectangle)



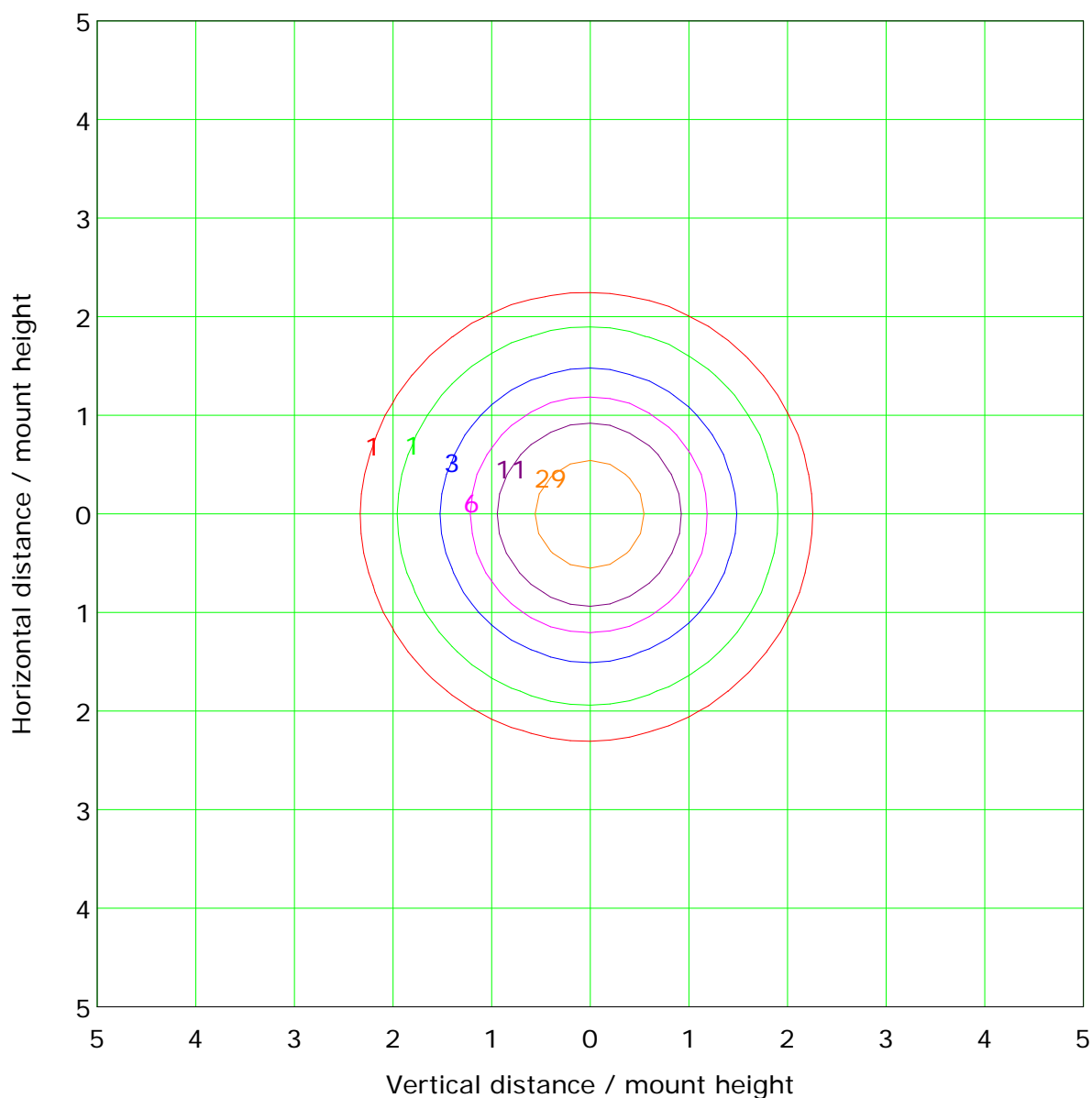
I_{max} (100%): 515 cd

| | |
|----------------|----------------|
| (10%): 52 cd | (16%): 82 cd |
| (25%): 129 cd | (40%): 206 cd |
| (63%): 325 cd | (100%): 515 cd |

C Plane (°):0.0-360.0: 90.0
 Test Lab:
 Test Type: TYPE C
 Temperature: 25°C
 Operator: XU

Gamma Plane (°):0.0-90.0:1.0
 Test Device: GPM-1600
 Distance: 8.350 m
 Humidity: 50%
 Inspector:

IsoLux Plot



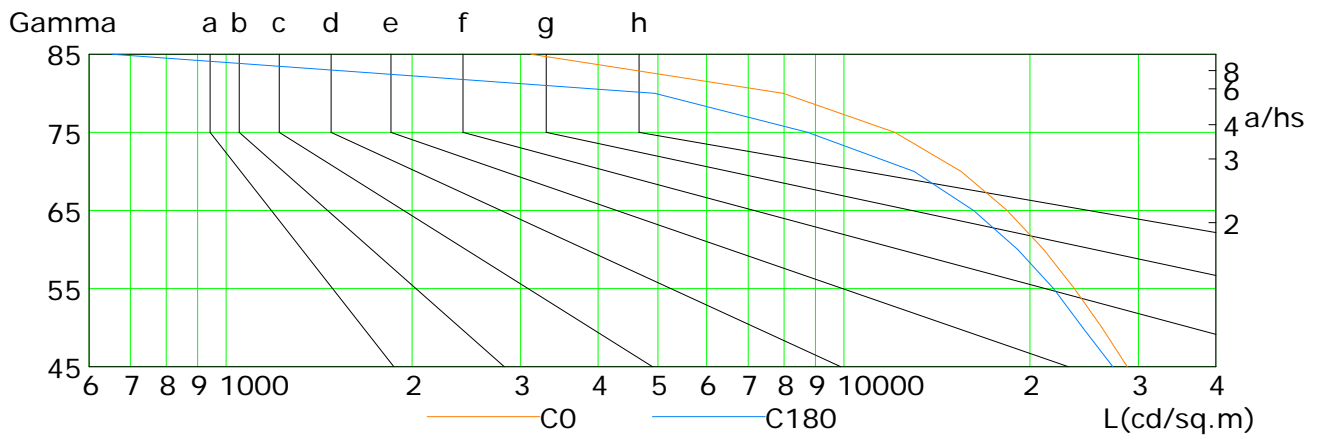
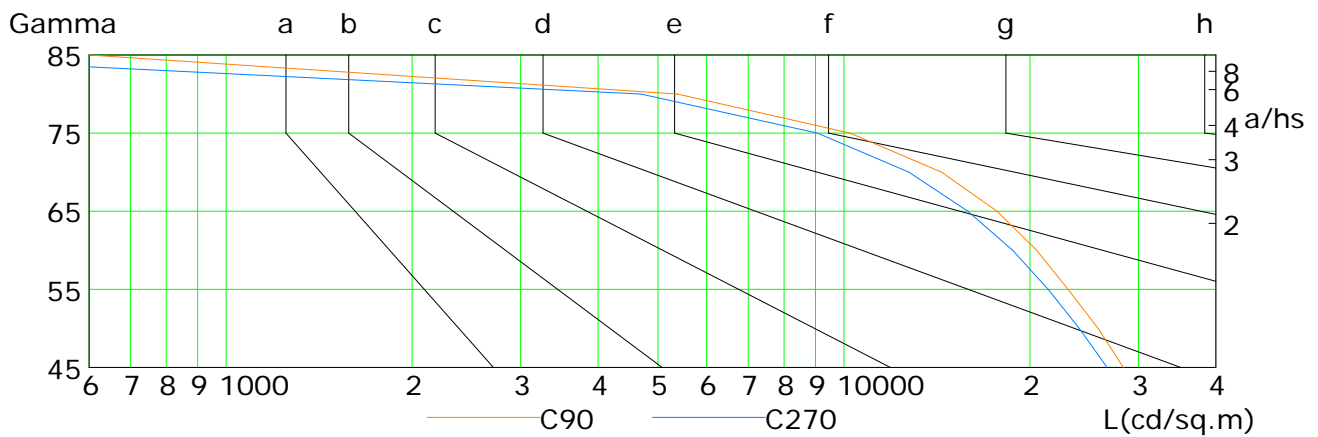
C Plane (°):0.0-360.0: 90.0
 Test Lab:
 Test Type: TYPE C
 Temperature: 25°C
 Operator: XU

Gamma Plane (°):0.0-90.0:1.0
 Test Device: GPM-1600
 Distance: 8.350 m
 Humidity: 50%
 Inspector:

Lum Limit Curve

| Dazzle | Quality | Illuminance (lx) | | | | | | | |
|--------|---------|------------------|------|------|--------|--------|--------|--------|--------|
| 1.15 | A | 2000 | 1000 | 500 | <= 300 | | | | |
| 1.50 | B | | 2000 | 1000 | 500 | <= 300 | | | |
| 1.85 | C | | | 2000 | 1000 | 500 | <= 300 | | |
| 2.20 | D | | | | 2000 | 1000 | 500 | <= 300 | |
| 2.55 | E | | | | | 2000 | 1000 | 500 | <= 300 |

a b c d e f g h

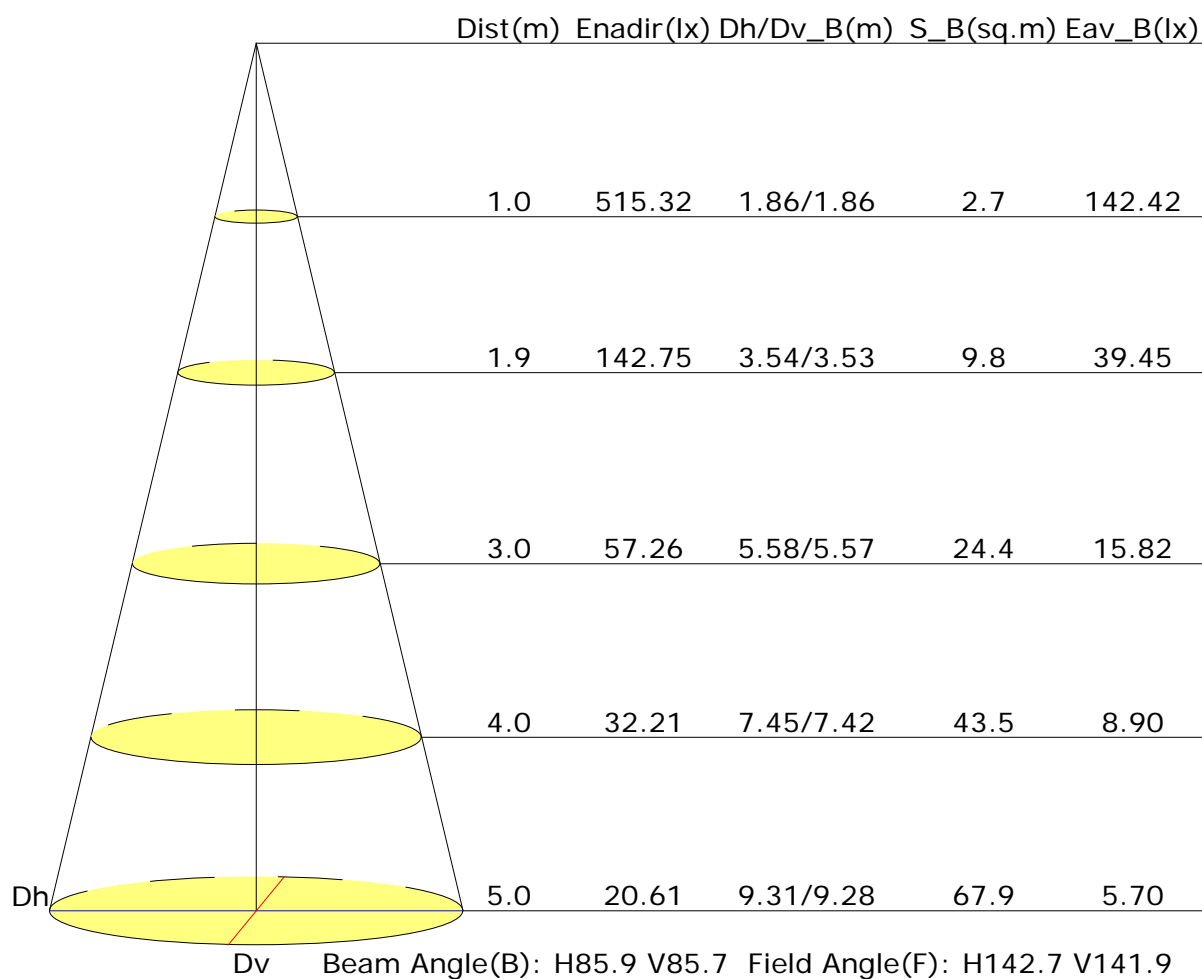


| L(cd/sq.m) | G45 | G50 | G55 | G60 | G65 | G70 | G75 | G80 | G85 |
|------------|-------|-------|-------|-------|-------|-------|-------|------|------|
| C0 | 28744 | 26180 | 23635 | 21063 | 18390 | 15477 | 12092 | 7972 | 3120 |
| C90 | 28335 | 25808 | 23077 | 20512 | 17700 | 14389 | 10231 | 5378 | 0 |
| C180 | 27251 | 24363 | 21854 | 19116 | 16219 | 12990 | 8746 | 4945 | 654 |
| C270 | 26692 | 24051 | 21424 | 18754 | 15885 | 12744 | 9059 | 4697 | 247 |

C Plane (°): 0.0-360.0: 90.0
Test Lab:
Test Type: TYPE C
Temperature: 25°C
Operator: XU

Gamma Plane (°): 0.0-90.0: 1.0
Test Device: GPM-1600
Distance: 8.350 m
Humidity: 50%
Inspector:

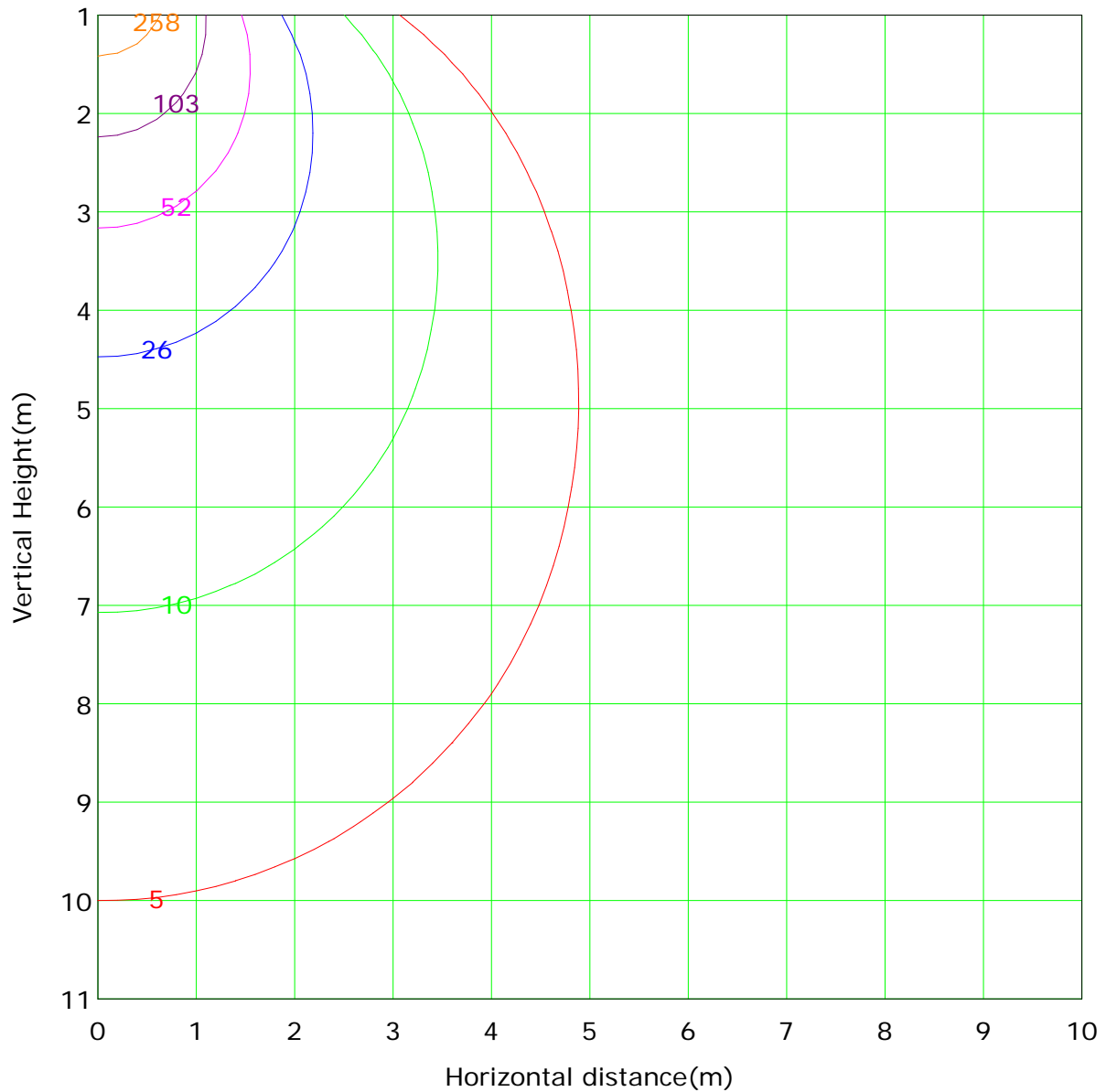
Illuminance at a Distance



C Plane (°):0.0-360.0: 90.0
 Test Lab:
 Test Type: TYPE C
 Temperature: 25°C
 Operator: XU

Gamma Plane (°):0.0-90.0:1.0
 Test Device: GPM-1600
 Distance: 8.350 m
 Humidity: 50%
 Inspector:

Vertical IsoLux Plot



Lowest(m): 1.0m Highest(m): 11.0m Max Lux: 515.3 lx

| | |
|------------------|------------------|
| (1%): 5.2 lx | (2%): 10.3 lx |
| (5%): 25.8 lx | (10%): 51.5 lx |
| (20%): 103.1 lx | (50%): 257.7 lx |
| (100%): 515.3 lx | |

C Plane (°):0.0-360.0: 90.0
 Test Lab:
 Test Type: TYPE C
 Temperature: 25°C
 Operator: XU

Gamma Plane (°):0.0-90.0:1.0
 Test Device: GPM-1600
 Distance: 8.350 m
 Humidity: 50%
 Inspector:

Area Flux Table

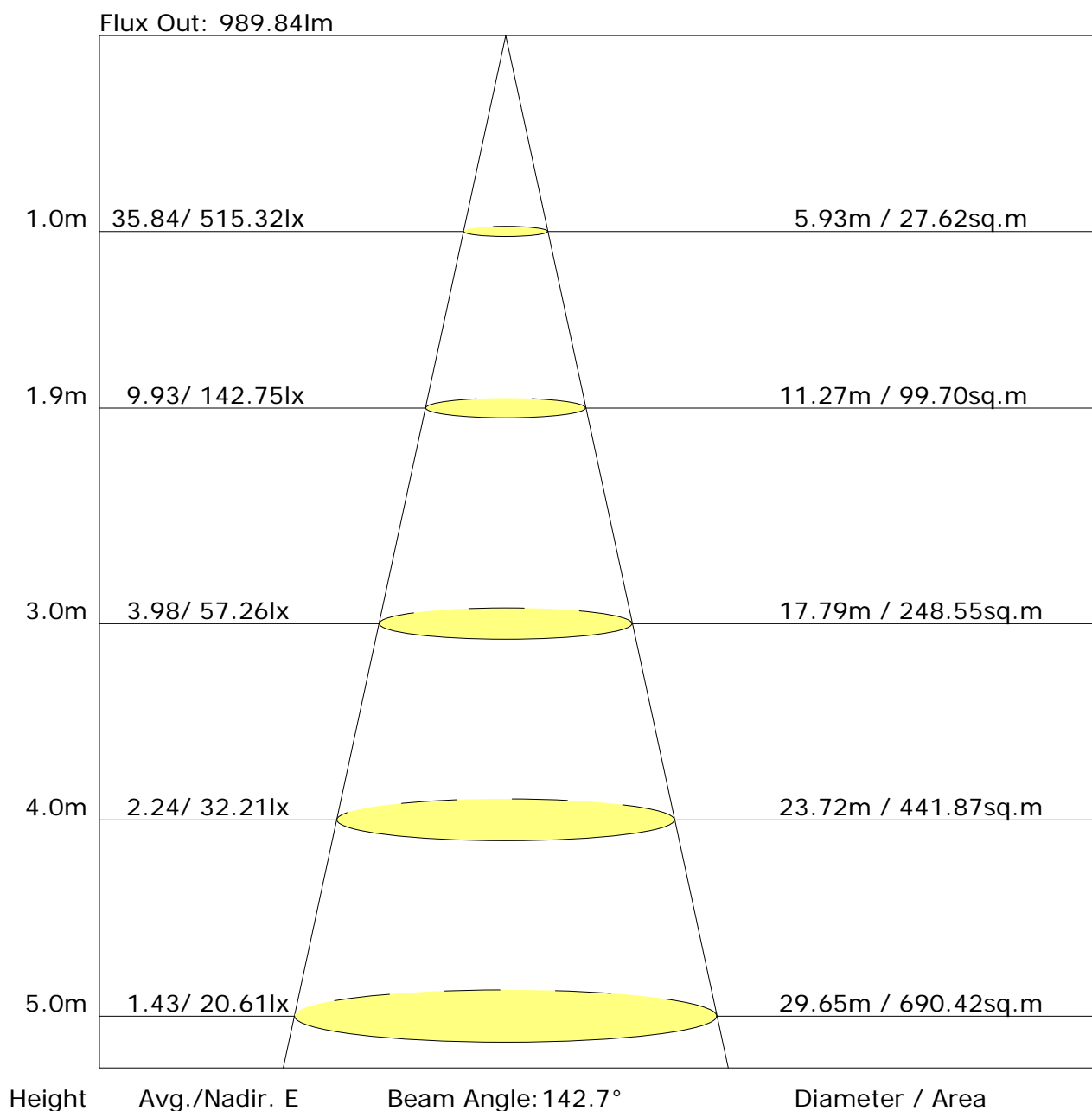
Unit: lm

| | | Vertical plane | | | | | | | | | | | | | | | | | | Flux(T) | | Flux(E) | |
|---------|---------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|--|---------|--|
| | | Horizontal plane | | | | | | | | | | | | | | | | | | | | | |
| Flux(E) | Flux(T) | Unit: m | | | | | | | | | | | | | | | | | | | | | |
| | | -90 | -80 | -70 | -60 | -50 | -40 | -30 | -20 | -10 | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | | | |
| 90 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| 80 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| 70 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| 60 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| 50 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| 40 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| 30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| 20 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| 10 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| -10 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| -20 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| -30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| -40 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| -50 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| -60 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| -70 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| -80 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| -90 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |

C Plane (°): 0.0-360.0: 90.0
 Test Lab:
 Test Type: TYPE C
 Temperature: 25°C
 Operator: XU

Gamma Plane (°): 0.0-90.0: 1.0
 Test Device: GPM-1600
 Distance: 8.350 m
 Humidity: 50%
 Inspector:

The Average Illuminance Effective Figure



C Plane (°): 0.0-360.0: 90.0
 Test Lab:
 Test Type: TYPE C
 Temperature: 25°C
 Operator: XU

Gamma Plane (°): 0.0-90.0: 1.0
 Test Device: GPM-1600
 Distance: 8.350 m
 Humidity: 50%
 Inspector:

UGR Table

| | | | | | | | | | | |
|--|------------------|------|------|------|------|----------------|------|------|------|------|
| Reflectance: | | | | | | | | | | |
| Ceiling (cavity) | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 |
| Wall | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 |
| Reference plane | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Room dimensions | Viewed crosswise | | | | | Viewed endwise | | | | |
| X=2H Y=2H | 23.2 | 24.5 | 23.5 | 24.7 | 24.9 | 23.0 | 24.3 | 23.3 | 24.5 | 24.7 |
| 3H | 24.2 | 25.3 | 24.5 | 25.6 | 25.8 | 23.9 | 25.0 | 24.2 | 25.3 | 25.5 |
| 4H | 24.5 | 25.5 | 24.8 | 25.8 | 26.1 | 24.1 | 25.1 | 24.4 | 25.4 | 25.7 |
| 6H | 24.6 | 25.6 | 25.0 | 25.9 | 26.2 | 24.1 | 25.1 | 24.5 | 25.4 | 25.7 |
| 8H | 24.6 | 25.5 | 25.0 | 25.9 | 26.2 | 24.1 | 25.0 | 24.5 | 25.4 | 25.7 |
| 12H | 24.6 | 25.5 | 24.9 | 25.8 | 26.1 | 24.1 | 25.0 | 24.4 | 25.3 | 25.6 |
| X=4H Y=2H | 23.7 | 24.7 | 24.0 | 25.0 | 25.3 | 23.5 | 24.5 | 23.8 | 24.8 | 25.1 |
| 3H | 24.8 | 25.7 | 25.2 | 26.0 | 26.3 | 24.5 | 25.4 | 24.9 | 25.7 | 26.1 |
| 4H | 25.1 | 25.9 | 25.5 | 26.3 | 26.7 | 24.8 | 25.6 | 25.2 | 25.9 | 26.3 |
| 6H | 25.3 | 26.0 | 25.7 | 26.4 | 26.8 | 24.9 | 25.6 | 25.3 | 26.0 | 26.4 |
| 8H | 25.3 | 26.0 | 25.8 | 26.4 | 26.8 | 24.9 | 25.5 | 25.3 | 25.9 | 26.3 |
| 12H | 25.3 | 25.9 | 25.8 | 26.3 | 26.8 | 24.8 | 25.4 | 25.3 | 25.8 | 26.3 |
| X=8H Y=4H | 25.2 | 25.9 | 25.7 | 26.3 | 26.7 | 24.9 | 25.5 | 25.3 | 25.9 | 26.4 |
| 6H | 25.5 | 26.0 | 25.9 | 26.4 | 26.9 | 25.0 | 25.5 | 25.5 | 26.0 | 26.4 |
| 8H | 25.5 | 26.0 | 26.0 | 26.4 | 26.9 | 25.0 | 25.5 | 25.5 | 25.9 | 26.4 |
| 12H | 25.5 | 25.9 | 26.0 | 26.4 | 26.9 | 25.0 | 25.4 | 25.5 | 25.9 | 26.4 |
| X=12H Y=4H | 25.2 | 25.8 | 25.7 | 26.2 | 26.6 | 24.9 | 25.5 | 25.3 | 25.9 | 26.3 |
| 6H | 25.4 | 25.9 | 25.9 | 26.4 | 26.8 | 25.0 | 25.5 | 25.5 | 25.9 | 26.4 |
| 8H | 25.5 | 25.9 | 26.0 | 26.4 | 26.9 | 25.0 | 25.4 | 25.5 | 25.9 | 26.4 |
| Variations with the observer position at spacings: | | | | | | | | | | |
| S=1.0H | +0.2/-0.3 | | | | | +0.3/-0.4 | | | | |
| S=1.5H | +0.5/-0.9 | | | | | +0.5/-1.0 | | | | |
| S=2.0H | +1.0/-1.5 | | | | | +1.0/-1.8 | | | | |

Calculate in accordance with CIE Pub.117. The table is revised with 1020lm ($8\log(F/F_0) = 0.1$).

C Plane (°):0.0-360.0: 90.0
Test Lab:
Test Type: TYPE C
Temperature: 25°C
Operator: XU

Gamma Plane (°):0.0-90.0:1.0
Test Device: GPM-1600
Distance: 8.350 m
Humidity: 50%
Inspector:

Utilisation Factor Table(Floor cavity)

| Utilisation Factors UF(F) | | | SHR NOM = 1.25 | | | | | | | | |
|---|------|-------|----------------|------|------|------|------|------|------|------|------|
| Room Reflectance | | | Room Index(RI) | | | | | | | | |
| Ceiling | Wall | Floor | 0.75 | 1.00 | 1.25 | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | 5.00 |
| 0.70 | 0.50 | 0.20 | 0.65 | 0.75 | 0.82 | 0.86 | 0.93 | 0.97 | 1.00 | 1.04 | 1.06 |
| | 0.30 | | 0.58 | 0.68 | 0.75 | 0.80 | 0.88 | 0.93 | 0.96 | 1.01 | 1.03 |
| | 0.20 | | 0.53 | 0.63 | 0.70 | 0.76 | 0.83 | 0.89 | 0.92 | 0.98 | 1.01 |
| 0.50 | 0.50 | 0.20 | 0.63 | 0.73 | 0.79 | 0.84 | 0.90 | 0.94 | 0.96 | 1.00 | 1.02 |
| | 0.30 | | 0.57 | 0.67 | 0.74 | 0.79 | 0.85 | 0.90 | 0.93 | 0.97 | 1.00 |
| | 0.20 | | 0.53 | 0.63 | 0.70 | 0.75 | 0.82 | 0.87 | 0.90 | 0.95 | 0.98 |
| 0.30 | 0.50 | 0.20 | 0.62 | 0.71 | 0.77 | 0.81 | 0.87 | 0.91 | 0.93 | 0.96 | 0.98 |
| | 0.30 | | 0.57 | 0.66 | 0.72 | 0.77 | 0.83 | 0.88 | 0.90 | 0.94 | 0.97 |
| | 0.20 | | 0.52 | 0.62 | 0.69 | 0.74 | 0.80 | 0.85 | 0.88 | 0.92 | 0.95 |
| 0.00 | 0.00 | 0.00 | 0.50 | 0.60 | 0.66 | 0.71 | 0.77 | 0.81 | 0.84 | 0.88 | 0.90 |
| <p>Rating: 12W Photometrically tested without ceiling board.</p> <p>Multiply UF values by service correction factors</p> <p>Calculate in accordance with CIBSE Technical Memorandum NO.5 1980</p> | | | | | | | | | | | |

Utilisation Factor Table(Wall)

| Utilisation Factors UF(W) | | | SHR NOM = 1.25 | | | | | | | | |
|---|------|-------|----------------|------|------|------|------|------|------|------|------|
| Room Reflectance | | | Room Index(RI) | | | | | | | | |
| Ceiling | Wall | Floor | 0.75 | 1.00 | 1.25 | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | 5.00 |
| 0.70 | 0.50 | 0.20 | 0.87 | 0.71 | 0.59 | 0.51 | 0.40 | 0.33 | 0.28 | 0.21 | 0.17 |
| | 0.30 | | 0.73 | 0.60 | 0.52 | 0.45 | 0.36 | 0.30 | 0.26 | 0.20 | 0.17 |
| | 0.20 | | 0.62 | 0.53 | 0.46 | 0.41 | 0.33 | 0.28 | 0.24 | 0.19 | 0.16 |
| 0.50 | 0.50 | 0.20 | 0.84 | 0.68 | 0.57 | 0.49 | 0.38 | 0.35 | 0.26 | 0.20 | 0.16 |
| | 0.30 | | 0.71 | 0.59 | 0.50 | 0.44 | 0.35 | 0.29 | 0.25 | 0.19 | 0.16 |
| | 0.20 | | 0.62 | 0.52 | 0.45 | 0.40 | 0.32 | 0.27 | 0.23 | 0.18 | 0.15 |
| 0.30 | 0.50 | 0.20 | 0.81 | 0.65 | 0.54 | 0.47 | 0.36 | 0.30 | 0.25 | 0.19 | 0.15 |
| | 0.30 | | 0.69 | 0.57 | 0.48 | 0.42 | 0.34 | 0.28 | 0.24 | 0.18 | 0.15 |
| | 0.20 | | 0.61 | 0.51 | 0.44 | 0.39 | 0.31 | 0.26 | 0.22 | 0.17 | 0.14 |
| 0.00 | 0.00 | 0.00 | 0.50 | 0.40 | 0.34 | 0.29 | 0.23 | 0.19 | 0.16 | 0.12 | 0.10 |
| <p>Rating: 12W Photometrically tested without ceiling board.</p> <p>Multiply UF values by service correction factors</p> <p>Calculate in accordance with CIBSE Technical Memorandum NO.5 1980</p> | | | | | | | | | | | |

Utilisation Factor Table(Ceiling cavity)

| Utilisation Factors UF(C) | | | SHR NOM = 1.25 | | | | | | | | | |
|--|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| Room Reflectance | | | Room Index(RI) | | | | | | | | | |
| Ceiling | Wall | Floor | 0.75 | 1.00 | 1.25 | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | 5.00 | |
| 0.70 | 0.50 | 0.20 | 0.15 | 0.17 | 0.17 | 0.18 | 0.19 | 0.20 | 0.20 | 0.21 | 0.21 | |
| | 0.30 | | 0.09 | 0.11 | 0.12 | 0.13 | 0.15 | 0.16 | 0.17 | 0.18 | 0.19 | |
| | 0.20 | | 0.05 | 0.07 | 0.08 | 0.10 | 0.12 | 0.13 | 0.15 | 0.16 | 0.17 | |
| 0.50 | 0.50 | 0.20 | 0.15 | 0.16 | 0.17 | 0.17 | 0.18 | 0.19 | 0.19 | 0.20 | 0.20 | |
| | 0.30 | | 0.09 | 0.11 | 0.12 | 0.13 | 0.15 | 0.16 | 0.17 | 0.18 | 0.19 | |
| | 0.20 | | 0.05 | 0.07 | 0.08 | 0.10 | 0.12 | 0.13 | 0.14 | 0.16 | 0.17 | |
| 0.30 | 0.50 | 0.20 | 0.14 | 0.15 | 0.16 | 0.17 | 0.18 | 0.18 | 0.19 | 0.19 | 0.20 | |
| | 0.30 | | 0.09 | 0.10 | 0.12 | 0.13 | 0.14 | 0.15 | 0.16 | 0.17 | 0.18 | |
| | 0.20 | | 0.05 | 0.07 | 0.08 | 0.09 | 0.11 | 0.13 | 0.14 | 0.15 | 0.16 | |
| 0.00 | 0.00 | 0.00 | NA | NA | NA | NA | NA | NA | NA | NA | NA | |
| Rating: 12W Photometrically tested without ceiling board. Multiply UF values by service correction factors Calculate in accordance with CIBSE Technical Memorandum NO.5 1980 | | | | | | | | | | | | |

Zonal Lumen

| Gamma [°] | I _{mean} [cd] | Zonal Flux [lm] | Sum Zonal Flux [lm] | Rel Zonal Flux [%] | Sum Rel Zonal Flux [%] |
|--------------|---------------------------|--------------------|------------------------|-----------------------|---------------------------|
| 0.0-1.0 | 511.4 | 0.5 | 0.5 | 0.05 | 0.05 |
| 1.0-2.0 | 511.0 | 1.5 | 2.0 | 0.14 | 0.19 |
| 2.0-3.0 | 510.3 | 2.4 | 4.4 | 0.24 | 0.43 |
| 3.0-4.0 | 509.4 | 3.4 | 7.8 | 0.33 | 0.77 |
| 4.0-5.0 | 507.9 | 4.4 | 12.2 | 0.43 | 1.19 |
| 5.0-6.0 | 505.9 | 5.3 | 17.5 | 0.52 | 1.72 |
| 6.0-7.0 | 503.7 | 6.3 | 23.7 | 0.61 | 2.33 |
| 7.0-8.0 | 501.2 | 7.2 | 30.9 | 0.70 | 3.03 |
| 8.0-9.0 | 498.3 | 8.1 | 39.0 | 0.79 | 3.82 |
| 9.0-10.0 | 495.2 | 9.0 | 48.0 | 0.88 | 4.70 |
| 10.0-11.0 | 491.8 | 9.8 | 57.8 | 0.96 | 5.67 |
| 11.0-12.0 | 487.9 | 10.7 | 68.5 | 1.05 | 6.71 |
| 12.0-13.0 | 483.9 | 11.5 | 79.9 | 1.13 | 7.84 |
| 13.0-14.0 | 479.4 | 12.3 | 92.2 | 1.20 | 9.04 |
| 14.0-15.0 | 474.7 | 13.0 | 105.2 | 1.28 | 10.32 |
| 15.0-16.0 | 469.6 | 13.8 | 119.0 | 1.35 | 11.67 |
| 16.0-17.0 | 464.3 | 14.5 | 133.5 | 1.42 | 13.09 |
| 17.0-18.0 | 458.9 | 15.1 | 148.6 | 1.48 | 14.57 |
| 18.0-19.0 | 453.2 | 15.8 | 164.4 | 1.55 | 16.12 |
| 19.0-20.0 | 447.1 | 16.4 | 180.7 | 1.60 | 17.72 |
| 20.0-21.0 | 440.7 | 16.9 | 197.7 | 1.66 | 19.38 |
| 21.0-22.0 | 434.2 | 17.5 | 215.1 | 1.71 | 21.09 |
| 22.0-23.0 | 427.6 | 17.9 | 233.1 | 1.76 | 22.85 |
| 23.0-24.0 | 420.6 | 18.4 | 251.5 | 1.80 | 24.65 |
| 24.0-25.0 | 413.3 | 18.8 | 270.2 | 1.84 | 26.50 |
| 25.0-26.0 | 405.9 | 19.2 | 289.4 | 1.88 | 28.38 |
| 26.0-27.0 | 398.4 | 19.5 | 308.9 | 1.91 | 30.29 |
| 27.0-28.0 | 390.4 | 19.8 | 328.7 | 1.94 | 32.22 |
| 28.0-29.0 | 382.2 | 20.0 | 348.7 | 1.96 | 34.19 |
| 29.0-30.0 | 374.0 | 20.2 | 368.9 | 1.98 | 36.17 |
| 30.0-31.0 | 365.4 | 20.3 | 389.2 | 1.99 | 38.16 |
| 31.0-32.0 | 356.7 | 20.4 | 409.6 | 2.00 | 40.16 |
| 32.0-33.0 | 348.1 | 20.5 | 430.2 | 2.01 | 42.17 |
| 33.0-34.0 | 339.3 | 20.5 | 450.7 | 2.01 | 44.19 |
| 34.0-35.0 | 330.5 | 20.5 | 471.2 | 2.01 | 46.20 |
| 35.0-36.0 | 321.7 | 20.5 | 491.7 | 2.01 | 48.21 |

C Plane (°): 0.0-360.0: 90.0
 Test Lab:
 Test Type: TYPE C
 Temperature: 25°C
 Operator: XU

Gamma Plane (°): 0.0-90.0: 1.0
 Test Device: GPM-1600
 Distance: 8.350 m
 Humidity: 50%
 Inspector:

Zonal Lumen (Continue 1)

| Gamma [°] | I _{mean} [cd] | Zonal Flux [lm] | Sum Zonal Flux [lm] | Rel Zonal Flux [%] | Sum Rel Zonal Flux [%] |
|--------------|---------------------------|--------------------|------------------------|-----------------------|---------------------------|
| 36.0-37.0 | 312.7 | 20.4 | 512.1 | 2.00 | 50.21 |
| 37.0-38.0 | 303.7 | 20.3 | 532.4 | 1.99 | 52.20 |
| 38.0-39.0 | 294.8 | 20.1 | 552.5 | 1.97 | 54.17 |
| 39.0-40.0 | 285.8 | 19.9 | 572.4 | 1.95 | 56.12 |
| 40.0-41.0 | 276.9 | 19.7 | 592.2 | 1.93 | 58.06 |
| 41.0-42.0 | 268.1 | 19.5 | 611.6 | 1.91 | 59.97 |
| 42.0-43.0 | 259.3 | 19.2 | 630.8 | 1.88 | 61.85 |
| 43.0-44.0 | 250.6 | 18.9 | 649.8 | 1.85 | 63.71 |
| 44.0-45.0 | 241.9 | 18.6 | 668.4 | 1.82 | 65.53 |
| 45.0-46.0 | 233.2 | 18.2 | 686.6 | 1.79 | 67.32 |
| 46.0-47.0 | 224.7 | 17.9 | 704.5 | 1.75 | 69.07 |
| 47.0-48.0 | 216.3 | 17.5 | 722.0 | 1.71 | 70.79 |
| 48.0-49.0 | 208.1 | 17.1 | 739.1 | 1.68 | 72.46 |
| 49.0-50.0 | 199.6 | 16.6 | 755.7 | 1.63 | 74.09 |
| 50.0-51.0 | 191.0 | 16.2 | 771.9 | 1.58 | 75.68 |
| 51.0-52.0 | 183.0 | 15.7 | 787.6 | 1.54 | 77.22 |
| 52.0-53.0 | 175.4 | 15.3 | 802.8 | 1.50 | 78.71 |
| 53.0-54.0 | 167.6 | 14.8 | 817.6 | 1.45 | 80.16 |
| 54.0-55.0 | 159.9 | 14.3 | 831.9 | 1.40 | 81.56 |
| 55.0-56.0 | 152.4 | 13.8 | 845.7 | 1.35 | 82.91 |
| 56.0-57.0 | 144.9 | 13.3 | 858.9 | 1.30 | 84.21 |
| 57.0-58.0 | 137.6 | 12.7 | 871.6 | 1.25 | 85.46 |
| 58.0-59.0 | 130.7 | 12.2 | 883.9 | 1.20 | 86.66 |
| 59.0-60.0 | 123.6 | 11.7 | 895.5 | 1.15 | 87.80 |
| 60.0-61.0 | 116.8 | 11.1 | 906.7 | 1.09 | 88.90 |
| 61.0-62.0 | 109.9 | 10.6 | 917.3 | 1.04 | 89.93 |
| 62.0-63.0 | 103.3 | 10.0 | 927.3 | 0.98 | 90.92 |
| 63.0-64.0 | 96.8 | 9.5 | 936.8 | 0.93 | 91.85 |
| 64.0-65.0 | 90.4 | 8.9 | 945.8 | 0.88 | 92.73 |
| 65.0-66.0 | 84.2 | 8.4 | 954.1 | 0.82 | 93.55 |
| 66.0-67.0 | 78.1 | 7.9 | 962.0 | 0.77 | 94.32 |
| 67.0-68.0 | 72.0 | 7.3 | 969.3 | 0.71 | 95.03 |
| 68.0-69.0 | 66.1 | 6.7 | 976.0 | 0.66 | 95.70 |
| 69.0-70.0 | 60.4 | 6.2 | 982.2 | 0.61 | 96.30 |
| 70.0-71.0 | 54.8 | 5.7 | 987.9 | 0.55 | 96.86 |
| 71.0-72.0 | 49.4 | 5.1 | 993.0 | 0.50 | 97.36 |

C Plane (°): 0.0-360.0: 90.0
 Test Lab:
 Test Type: TYPE C
 Temperature: 25°C
 Operator: XU

Gamma Plane (°): 0.0-90.0: 1.0
 Test Device: GPM-1600
 Distance: 8.350 m
 Humidity: 50%
 Inspector:

Zonal Lumen (Continue 2)

[illegible]

C Plane (°):0.0-360.0: 90.0
Test Lab:
Test Type: TYPE C
Temperature: 25°C
Operator: XU

Gamma Plane (°):0.0-90.0:1.0
Test Device: GPM-1600
Distance: 8.350 m
Humidity: 50%
Inspector:

Candlepower Table

Unit: cd

| G\C | C0.0 | C90.0 | C180.0 | C270.0 | C360.0 | | | | | |
|-------|-------|-------|--------|--------|--------|--|--|--|--|--|
| G0.0 | 515.3 | 507.7 | 515.3 | 507.7 | 515.3 | | | | | |
| G1.0 | 515.3 | 507.6 | 515.0 | 507.2 | 515.3 | | | | | |
| G2.0 | 515.1 | 507.4 | 514.0 | 506.3 | 515.1 | | | | | |
| G3.0 | 514.7 | 506.8 | 512.8 | 505.2 | 514.7 | | | | | |
| G4.0 | 513.6 | 506.2 | 511.7 | 503.9 | 513.6 | | | | | |
| G5.0 | 512.0 | 504.4 | 509.3 | 501.9 | 512.0 | | | | | |
| G6.0 | 510.0 | 502.6 | 507.0 | 499.6 | 510.0 | | | | | |
| G7.0 | 508.1 | 500.4 | 504.5 | 497.1 | 508.1 | | | | | |
| G8.0 | 505.5 | 497.9 | 501.8 | 494.0 | 505.5 | | | | | |
| G9.0 | 502.7 | 495.1 | 498.6 | 490.9 | 502.7 | | | | | |
| G10.0 | 499.4 | 492.4 | 495.0 | 487.7 | 499.4 | | | | | |
| G11.0 | 495.9 | 488.6 | 491.5 | 483.6 | 495.9 | | | | | |
| G12.0 | 492.4 | 485.0 | 487.1 | 479.2 | 492.4 | | | | | |
| G13.0 | 488.2 | 481.1 | 483.0 | 474.7 | 488.2 | | | | | |
| G14.0 | 484.1 | 476.6 | 477.7 | 470.0 | 484.1 | | | | | |
| G15.0 | 479.1 | 471.8 | 472.8 | 465.1 | 479.1 | | | | | |
| G16.0 | 473.9 | 466.9 | 467.4 | 459.7 | 473.9 | | | | | |
| G17.0 | 468.5 | 462.5 | 461.6 | 454.2 | 468.5 | | | | | |
| G18.0 | 463.6 | 456.7 | 456.0 | 448.4 | 463.6 | | | | | |
| G19.0 | 457.0 | 451.4 | 449.7 | 442.8 | 457.0 | | | | | |
| G20.0 | 451.8 | 445.2 | 443.2 | 435.7 | 451.8 | | | | | |
| G21.0 | 444.9 | 438.9 | 436.9 | 429.2 | 444.9 | | | | | |
| G22.0 | 438.7 | 432.5 | 430.1 | 422.6 | 438.7 | | | | | |
| G23.0 | 431.8 | 426.0 | 423.4 | 415.7 | 431.8 | | | | | |
| G24.0 | 424.7 | 419.0 | 415.9 | 408.1 | 424.7 | | | | | |
| G25.0 | 417.4 | 412.2 | 408.5 | 400.5 | 417.4 | | | | | |
| G26.0 | 410.5 | 404.9 | 400.4 | 393.1 | 410.5 | | | | | |
| G27.0 | 402.9 | 397.9 | 392.3 | 385.0 | 402.9 | | | | | |
| G28.0 | 395.0 | 389.5 | 383.8 | 376.4 | 395.0 | | | | | |
| G29.0 | 386.9 | 382.1 | 375.4 | 368.6 | 386.9 | | | | | |
| G30.0 | 378.3 | 373.5 | 367.1 | 360.2 | 378.3 | | | | | |
| G31.0 | 369.9 | 364.5 | 358.3 | 351.5 | 369.9 | | | | | |
| G32.0 | 361.9 | 355.5 | 349.4 | 342.7 | 361.9 | | | | | |
| G33.0 | 352.9 | 348.0 | 340.3 | 333.8 | 352.9 | | | | | |
| G34.0 | 343.9 | 339.0 | 331.5 | 325.2 | 343.9 | | | | | |
| G35.0 | 335.5 | 330.2 | 322.1 | 316.6 | 335.5 | | | | | |
| G36.0 | 326.3 | 321.9 | 313.4 | 307.4 | 326.3 | | | | | |

C Plane (°): 0.0-360.0: 90.0
Test Lab:
Test Type: TYPE C
Temperature: 25°C
Operator: XU

Gamma Plane (°): 0.0-90.0: 1.0
Test Device: GPM-1600
Distance: 8.350 m
Humidity: 50%
Inspector:

Candlepower Table (Continue 1)

Unit: cd

| G\C | C0.0 | C90.0 | C180.0 | C270.0 | C360.0 | | | | | |
|-------|-------|-------|--------|--------|--------|--|--|--|--|--|
| G37.0 | 317.4 | 312.5 | 304.1 | 298.5 | 317.4 | | | | | |
| G38.0 | 308.3 | 304.0 | 295.1 | 289.8 | 308.3 | | | | | |
| G39.0 | 299.2 | 295.0 | 285.8 | 280.8 | 299.2 | | | | | |
| G40.0 | 290.4 | 286.1 | 277.4 | 271.4 | 290.4 | | | | | |
| G41.0 | 281.5 | 277.6 | 268.0 | 263.1 | 281.5 | | | | | |
| G42.0 | 272.6 | 268.9 | 259.3 | 254.1 | 272.6 | | | | | |
| G43.0 | 263.5 | 259.8 | 250.7 | 245.5 | 263.5 | | | | | |
| G44.0 | 255.1 | 251.3 | 241.6 | 237.2 | 255.1 | | | | | |
| G45.0 | 245.9 | 242.4 | 233.2 | 228.4 | 245.9 | | | | | |
| G46.0 | 237.2 | 234.2 | 224.5 | 220.0 | 237.2 | | | | | |
| G47.0 | 229.0 | 225.5 | 215.8 | 211.6 | 229.0 | | | | | |
| G48.0 | 220.4 | 217.6 | 207.5 | 203.4 | 220.4 | | | | | |
| G49.0 | 212.0 | 209.0 | 199.2 | 195.3 | 212.0 | | | | | |
| G50.0 | 203.6 | 200.7 | 189.5 | 187.1 | 203.6 | | | | | |
| G51.0 | 195.7 | 191.3 | 181.1 | 179.3 | 195.7 | | | | | |
| G52.0 | 187.4 | 183.4 | 174.9 | 171.2 | 187.4 | | | | | |
| G53.0 | 179.8 | 175.5 | 166.9 | 163.7 | 179.8 | | | | | |
| G54.0 | 171.7 | 167.7 | 159.3 | 156.2 | 171.7 | | | | | |
| G55.0 | 164.0 | 160.2 | 151.7 | 148.7 | 164.0 | | | | | |
| G56.0 | 156.4 | 152.8 | 144.4 | 141.4 | 156.4 | | | | | |
| G57.0 | 149.1 | 145.4 | 136.9 | 132.8 | 149.1 | | | | | |
| G58.0 | 141.8 | 138.1 | 129.8 | 127.3 | 141.8 | | | | | |
| G59.0 | 134.4 | 131.0 | 122.8 | 120.2 | 134.4 | | | | | |
| G60.0 | 127.4 | 124.1 | 115.7 | 113.5 | 127.4 | | | | | |
| G61.0 | 120.6 | 117.3 | 108.8 | 106.7 | 120.6 | | | | | |
| G62.0 | 113.5 | 110.4 | 102.0 | 100.1 | 113.5 | | | | | |
| G63.0 | 107.0 | 103.6 | 95.8 | 93.8 | 107.0 | | | | | |
| G64.0 | 100.4 | 97.3 | 89.0 | 87.4 | 100.4 | | | | | |
| G65.0 | 94.0 | 90.5 | 82.9 | 81.2 | 94.0 | | | | | |
| G66.0 | 87.8 | 84.4 | 77.1 | 75.3 | 87.8 | | | | | |
| G67.0 | 81.7 | 78.0 | 70.9 | 69.4 | 81.7 | | | | | |
| G68.0 | 75.5 | 71.6 | 65.0 | 63.7 | 75.5 | | | | | |
| G69.0 | 70.0 | 65.5 | 59.3 | 58.2 | 70.0 | | | | | |
| G70.0 | 64.1 | 59.5 | 53.8 | 52.7 | 64.1 | | | | | |
| G71.0 | 58.5 | 53.6 | 48.5 | 47.4 | 58.5 | | | | | |
| G72.0 | 53.2 | 48.0 | 43.4 | 42.4 | 53.2 | | | | | |
| G73.0 | 47.7 | 42.4 | 38.4 | 37.5 | 47.7 | | | | | |

C Plane (°):0.0-360.0: 90.0
 Test Lab:
 Test Type: TYPE C
 Temperature: 25°C
 Operator: XU

Gamma Plane (°):0.0-90.0:1.0
 Test Device: GPM-1600
 Distance: 8.350 m
 Humidity: 50%
 Inspector:

Unit: cd

C Plane (°):0.0-360.0: 90.0
Test Lab:
Test Type: TYPE C
Temperature: 25°C
Operator: XU

Gamma Plane (°):0.0-90.0:1.0
Test Device: GPM-1600
Distance: 8.350 m
Humidity: 50%
Inspector: