

Report No.: 1

Test Time: 29.01.2020 21:33

## Luminaire Property

Luminaire Manufacturer:

Luminaire Description: FW 150 HE 4x28LED 125W 5000K 2x40-100gr.

Luminous Length (mm): 404

Luminous Width (mm): 153

Luminous Height (mm): 80

Voltage: 221.1 V

Current: 0.571 A

Power: 125.47 W

Power Factor: 0.993

## Photometric Results

CIE Class: Direct

Measurement Flux: 18403.9 lm

Downward Ratio: 99%

Total Rated Lamp Lumens: 18403.9 lm

Efficiency: 100%

Upward Ratio: 1%

Field Angle(C0/C180,C90/C270,C45/C225,C135/315): 117.7, 135.2, 135.1, 134.2

Beam Angle(C0/C180,C90/C270,C45/C225,C135/315): 102.8, 113.3, 118.6, 118.3

Luminaire Efficacy Rating (LER): 146.73

Central Intensity: 3040.3 cd

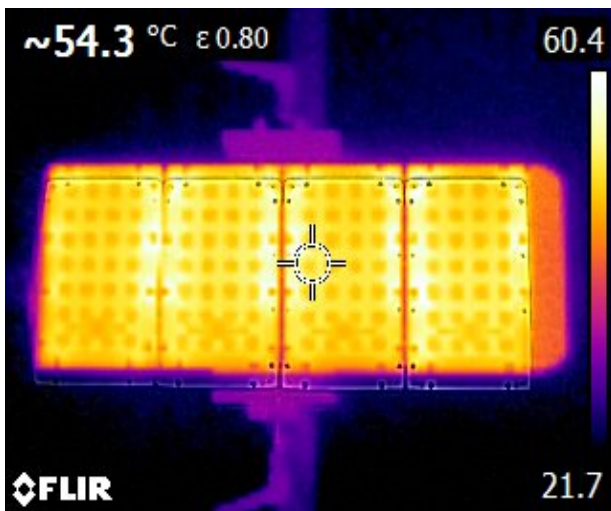
Max. Intensity: 8708.51 cd

Pos of Max. Intensity: H180 V37

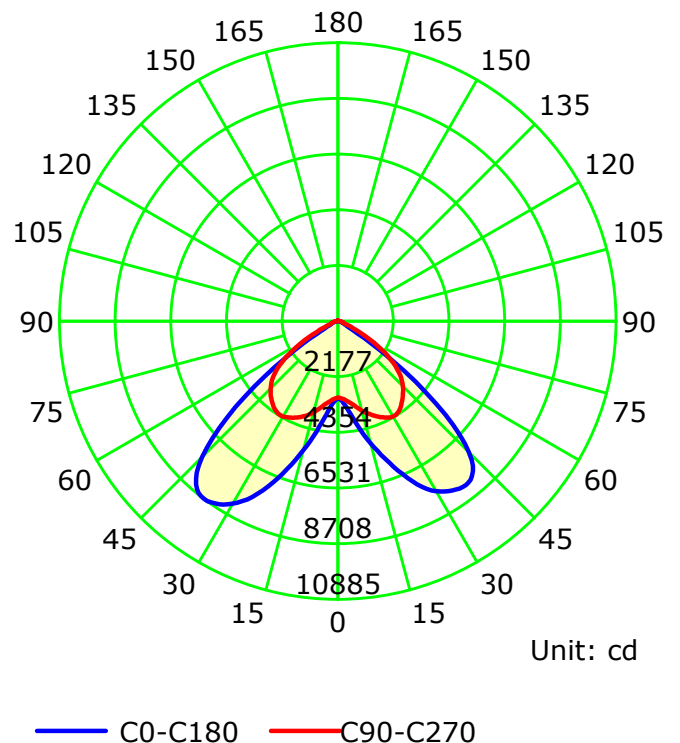
S/MH(C0/C180): 2.33

S/MH(C90/C270): 1.86

Termogramma



Luminous Intensity Distribution Curve



C Plane (°):0.0-360.0: 22.5

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:1.0

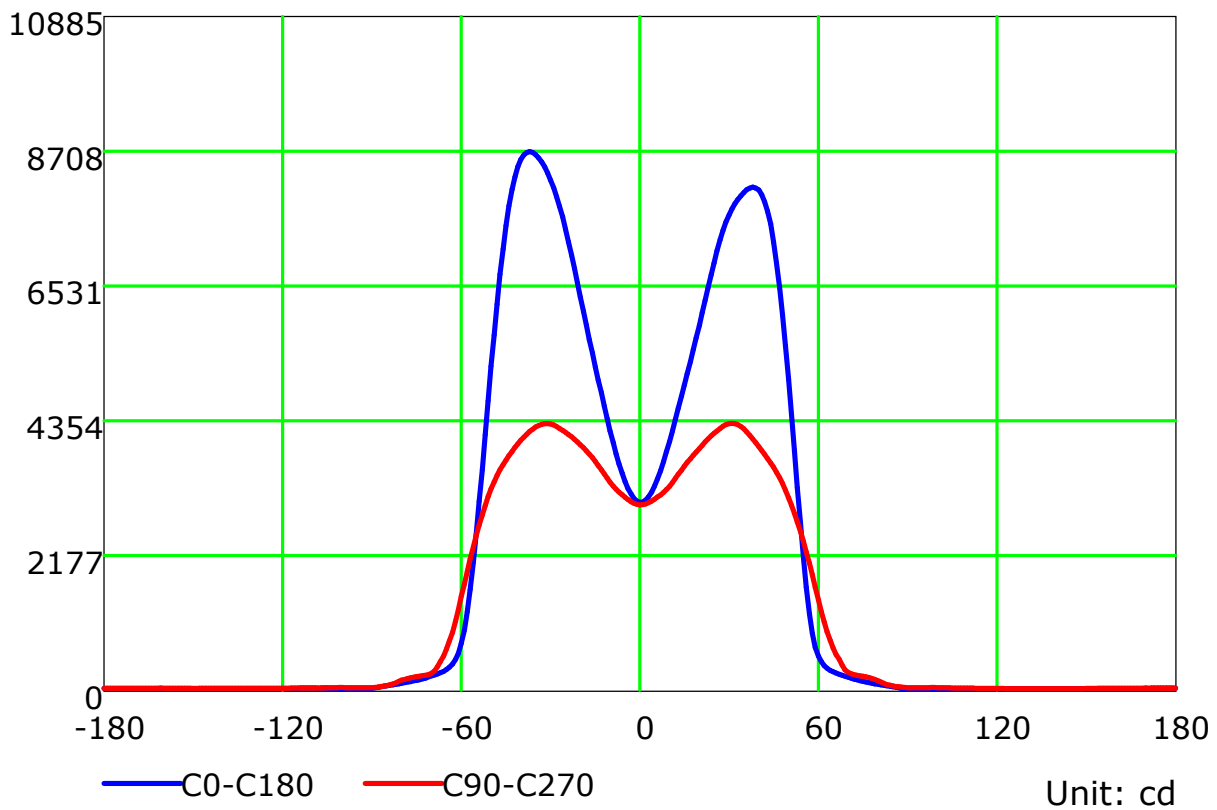
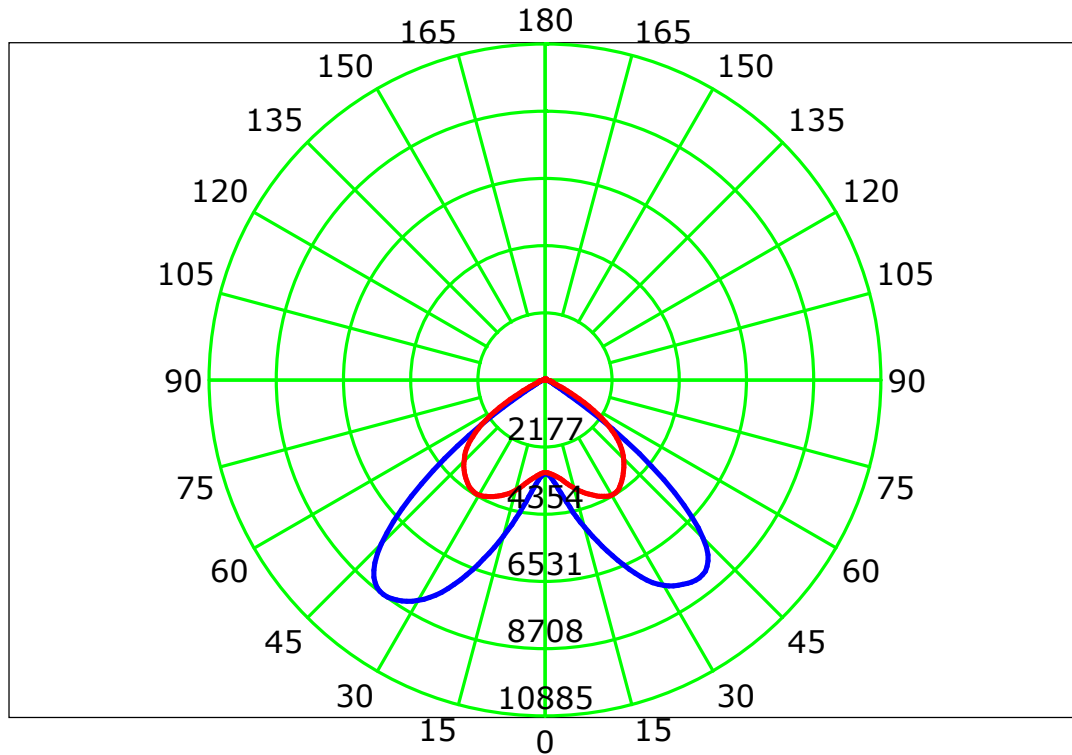
Test Device: LSG-1800B

Distance: 12.677 m

Humidity:

Inspector:

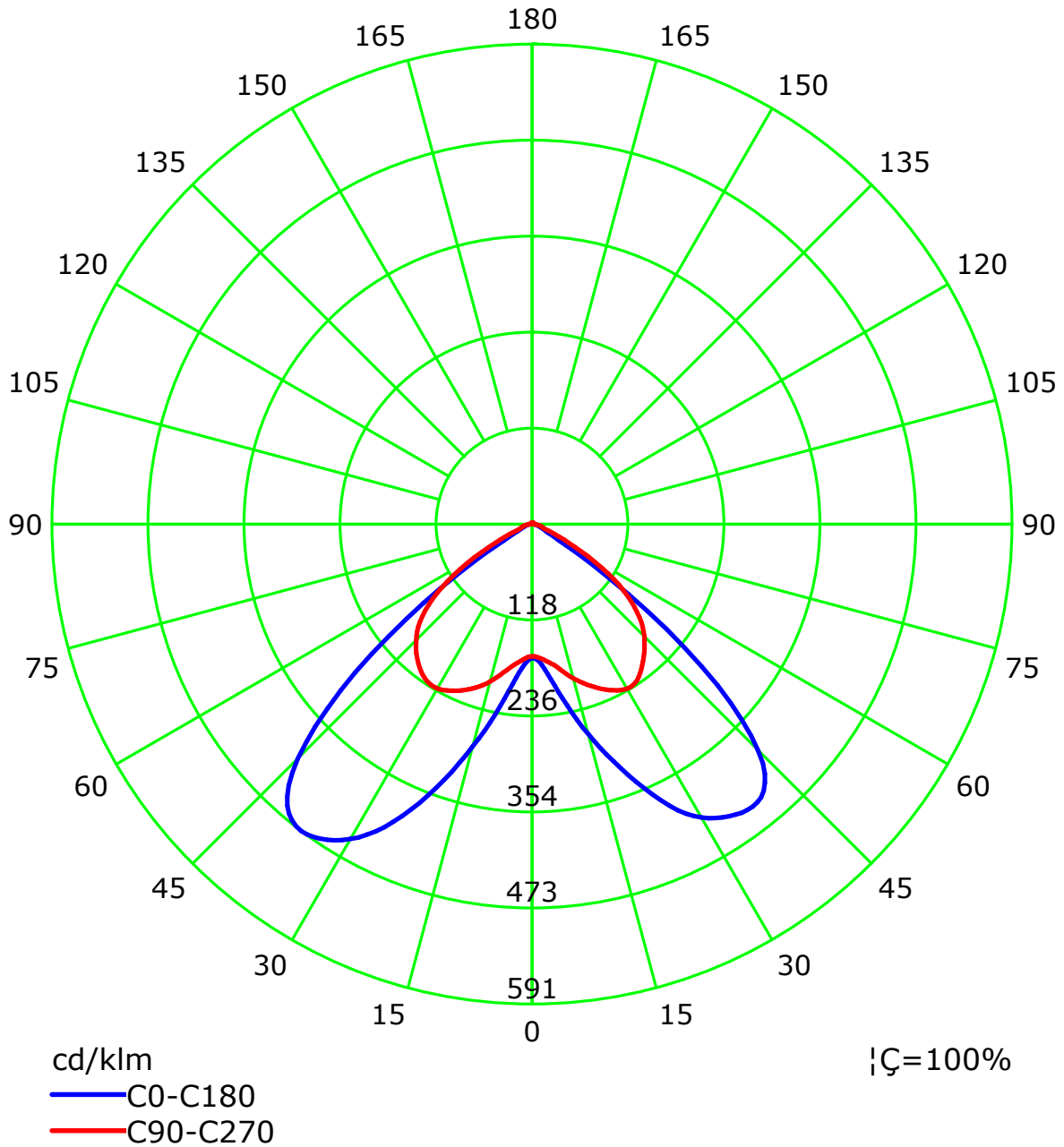
## Luminous Intensity Distribution Curve



C Plane (°):0.0-360.0: 22.5  
Test Lab:  
Test Type: TYPE C  
Temperature:  
Operator:

Gamma Plane (°):0.0-180.0:1.0  
Test Device: LSG-1800B  
Distance: 12.677 m  
Humidity:  
Inspector:

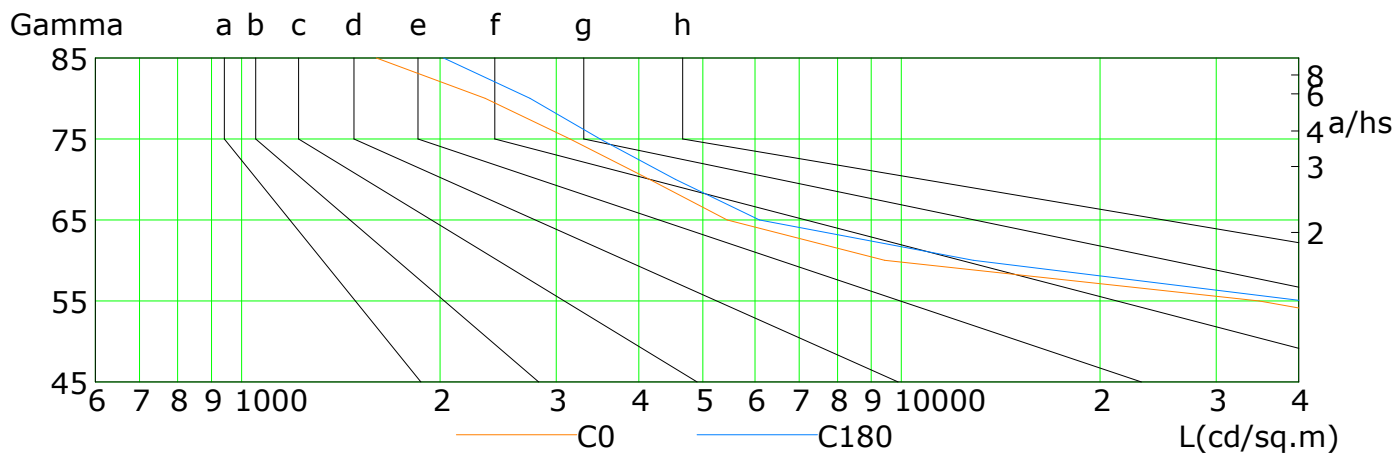
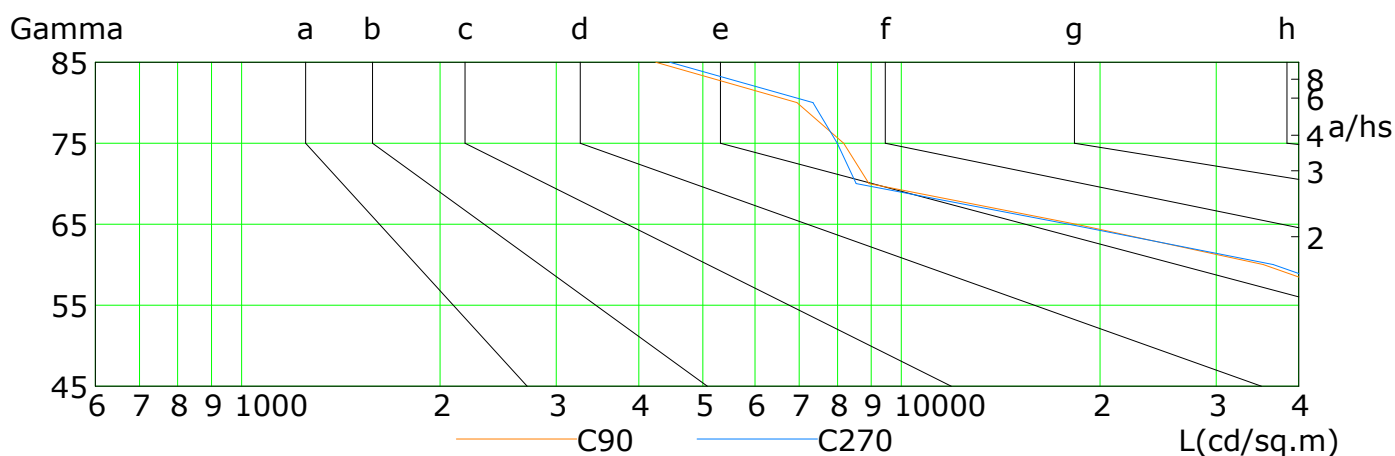
## Luminous Intensity Distribution Curve(cd/klm)



## 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

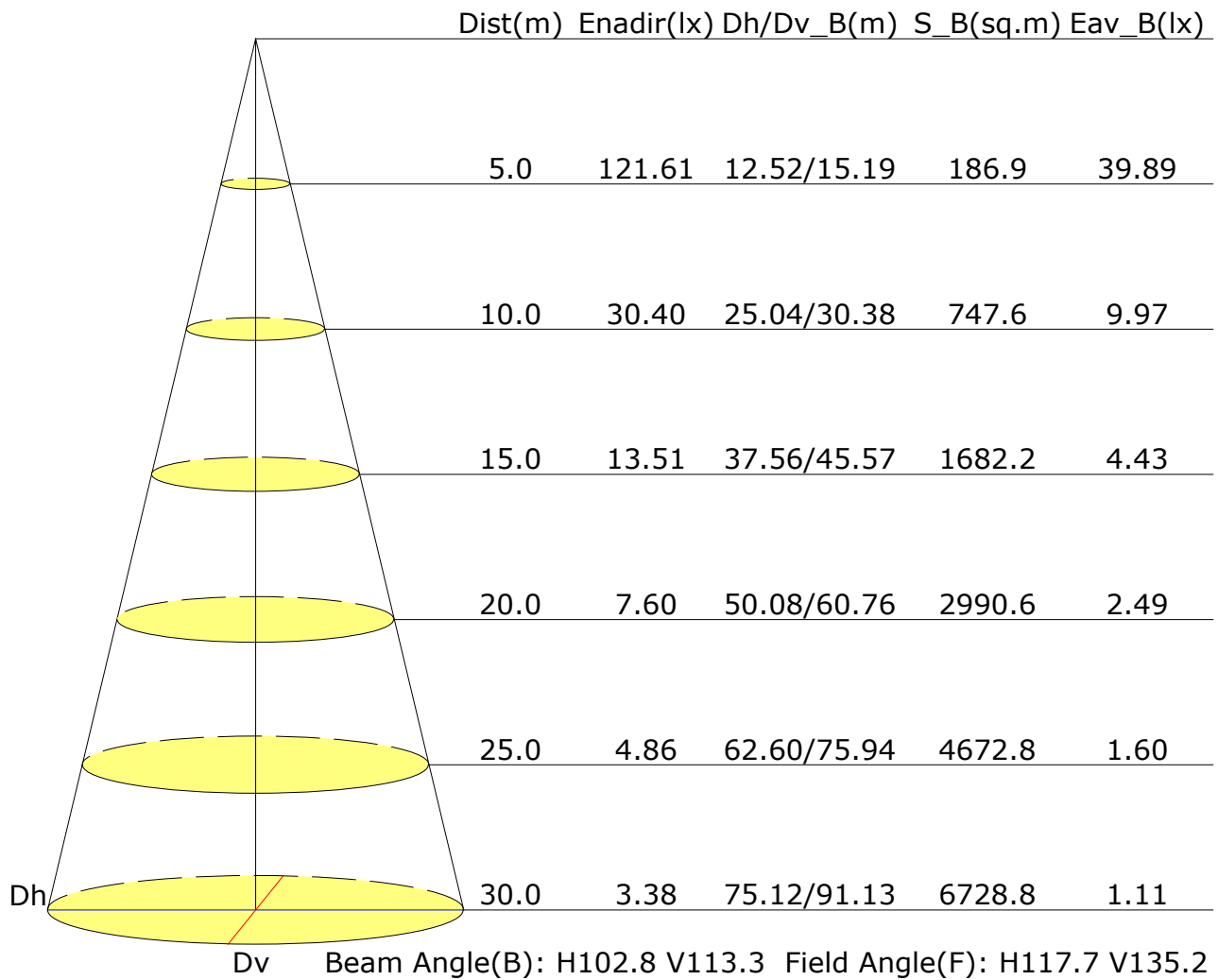


| L(cd/sq.m) | G45    | G50   | G55   | G60   | G65   | G70  | G75  | G80  | G85  |
|------------|--------|-------|-------|-------|-------|------|------|------|------|
| C0         | 108793 | 77942 | 34828 | 9429  | 5447  | 4149 | 3147 | 2341 | 1600 |
| C90        | 68843  | 63387 | 53050 | 35346 | 18392 | 8931 | 8180 | 6946 | 4242 |
| C180       | 112854 | 81168 | 40935 | 12853 | 6096  | 4544 | 3496 | 2736 | 2023 |
| C270       | 71044  | 66328 | 55104 | 36589 | 17932 | 8543 | 7999 | 7347 | 4460 |

C Plane (°):0.0-360.0: 22.5  
 Test Lab:  
 Test Type: TYPE C  
 Temperature:  
 Operator:

Gamma Plane (°):0.0-180.0:1.0  
 Test Device: LSG-1800B  
 Distance: 12.677 m  
 Humidity:  
 Inspector:

## Illuminance at a Distance



## 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                                          | 27.0             | 28.3 | 27.3 | 28.5 | 28.8 | 27.3           | 28.6 | 27.6 | 28.9 | 29.1 |
| 3H                                                 | 26.8             | 28.0 | 27.2 | 28.3 | 28.6 | 27.3           | 28.4 | 27.6 | 28.7 | 29.0 |
| 4H                                                 | 26.8             | 27.9 | 27.1 | 28.2 | 28.5 | 27.2           | 28.3 | 27.6 | 28.6 | 28.9 |
| 6H                                                 | 26.7             | 27.7 | 27.1 | 28.0 | 28.4 | 27.2           | 28.2 | 27.5 | 28.5 | 28.8 |
| 8H                                                 | 26.7             | 27.6 | 27.0 | 28.0 | 28.3 | 27.1           | 28.1 | 27.5 | 28.4 | 28.8 |
| 12H                                                | 26.6             | 27.5 | 27.0 | 27.9 | 28.2 | 27.1           | 28.0 | 27.5 | 28.4 | 28.7 |
| X=4H Y=2H                                          | 27.3             | 28.4 | 27.6 | 28.7 | 29.0 | 27.5           | 28.6 | 27.9 | 28.9 | 29.2 |
| 3H                                                 | 27.1             | 28.1 | 27.5 | 28.4 | 28.8 | 27.5           | 28.4 | 27.9 | 28.8 | 29.2 |
| 4H                                                 | 27.1             | 27.9 | 27.5 | 28.3 | 28.7 | 27.5           | 28.3 | 27.9 | 28.7 | 29.1 |
| 6H                                                 | 27.0             | 27.7 | 27.5 | 28.1 | 28.6 | 27.4           | 28.2 | 27.9 | 28.6 | 29.0 |
| 8H                                                 | 27.0             | 27.7 | 27.5 | 28.1 | 28.5 | 27.4           | 28.1 | 27.9 | 28.5 | 28.9 |
| 12H                                                | 27.0             | 27.6 | 27.4 | 28.0 | 28.5 | 27.4           | 28.0 | 27.9 | 28.4 | 28.9 |
| X=8H Y=4H                                          | 27.0             | 27.7 | 27.5 | 28.1 | 28.5 | 27.4           | 28.0 | 27.8 | 28.5 | 28.9 |
| 6H                                                 | 27.0             | 27.5 | 27.4 | 27.9 | 28.4 | 27.4           | 27.9 | 27.9 | 28.3 | 28.8 |
| 8H                                                 | 26.9             | 27.4 | 27.4 | 27.8 | 28.4 | 27.4           | 27.8 | 27.9 | 28.3 | 28.8 |
| 12H                                                | 26.9             | 27.3 | 27.4 | 27.8 | 28.3 | 27.3           | 27.7 | 27.8 | 28.2 | 28.7 |
| X=12H Y=4H                                         | 27.0             | 27.6 | 27.4 | 28.0 | 28.5 | 27.4           | 27.9 | 27.8 | 28.4 | 28.8 |
| 6H                                                 | 26.9             | 27.4 | 27.4 | 27.8 | 28.4 | 27.3           | 27.8 | 27.8 | 28.3 | 28.8 |
| 8H                                                 | 26.9             | 27.3 | 27.4 | 27.8 | 28.3 | 27.3           | 27.7 | 27.8 | 28.2 | 28.7 |
| Variations with the observer position at spacings: |                  |      |      |      |      |                |      |      |      |      |
| S=1.0H                                             | +1.2/-2.4        |      |      |      |      | +0.5/-0.7      |      |      |      |      |
| S=1.5H                                             | +2.9/-10.0       |      |      |      |      | +2.6/-4.7      |      |      |      |      |
| S=2.0H                                             | +3.7/-12.0       |      |      |      |      | +3.4/-8.6      |      |      |      |      |

Calculate in accordance with CIE Pub.117. The table is revised with  $18404 \ln (8 \log(F/F_0) = 10.1)$ .

C Plane (°):0.0-360.0: 22.5  
 Test Lab:  
 Test Type: TYPE C  
 Temperature:  
 Operator:

Gamma Plane (°):0.0-180.0:1.0  
 Test Device: LSG-1800B  
 Distance: 12.677 m  
 Humidity:  
 Inspector:

## Utilisation Factor Table(Floor cavity)

| Utilisation Factors UF(F)                                                                                                                                                          |      |       | SHR NOM = 2.00 |      |      |      |      |      |      |      |      |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| 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  | NA             | 0.81 | 0.86 | 0.91 | 0.97 | 1.00 | 1.02 | 1.06 | 1.07 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.75 | 0.81 | 0.86 | 0.92 | 0.96 | 0.99 | 1.03 | 1.05 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.71 | 0.77 | 0.82 | 0.89 | 0.93 | 0.96 | 1.00 | 1.03 |  |
| 0.50                                                                                                                                                                               | 0.50 | 0.20  | NA             | 0.79 | 0.84 | 0.88 | 0.93 | 0.97 | 0.99 | 1.02 | 1.03 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.74 | 0.79 | 0.84 | 0.90 | 0.94 | 0.96 | 0.99 | 1.01 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.70 | 0.76 | 0.80 | 0.87 | 0.91 | 0.93 | 0.97 | 1.00 |  |
| 0.30                                                                                                                                                                               | 0.50 | 0.20  | NA             | 0.77 | 0.82 | 0.86 | 0.91 | 0.93 | 0.95 | 0.98 | 0.99 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.73 | 0.78 | 0.82 | 0.88 | 0.91 | 0.93 | 0.96 | 0.98 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.70 | 0.75 | 0.79 | 0.85 | 0.89 | 0.91 | 0.94 | 0.96 |  |
| 0.00                                                                                                                                                                               | 0.00 | 0.00  | NA             | 0.67 | 0.72 | 0.76 | 0.82 | 0.85 | 0.87 | 0.90 | 0.91 |  |
| Rating:125W Photometrically tested without ceiling board.<br>Multiply UF values by service correction factors<br>Calculate in accordance with CIBSE Technical Memorandum NO.5 1980 |      |       |                |      |      |      |      |      |      |      |      |  |

## Utilisation Factor Table(Wall)

| Utilisation Factors UF(W)                                                                                                                                                          |      |       | SHR NOM = 2.00 |      |      |      |      |      |      |      |      |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| 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  | NA             | 0.60 | 0.51 | 0.44 | 0.34 | 0.28 | 0.24 | 0.18 | 0.15 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.52 | 0.45 | 0.39 | 0.31 | 0.25 | 0.22 | 0.17 | 0.14 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.45 | 0.40 | 0.35 | 0.28 | 0.23 | 0.20 | 0.16 | 0.13 |  |
| 0.50                                                                                                                                                                               | 0.50 | 0.20  | NA             | 0.57 | 0.48 | 0.41 | 0.32 | 0.30 | 0.22 | 0.17 | 0.14 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.50 | 0.43 | 0.37 | 0.29 | 0.24 | 0.21 | 0.16 | 0.13 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.44 | 0.38 | 0.34 | 0.27 | 0.22 | 0.19 | 0.15 | 0.13 |  |
| 0.30                                                                                                                                                                               | 0.50 | 0.20  | NA             | 0.54 | 0.46 | 0.39 | 0.30 | 0.24 | 0.21 | 0.16 | 0.13 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.48 | 0.41 | 0.35 | 0.27 | 0.23 | 0.19 | 0.15 | 0.12 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.43 | 0.37 | 0.32 | 0.26 | 0.21 | 0.18 | 0.14 | 0.12 |  |
| 0.00                                                                                                                                                                               | 0.00 | 0.00  | 0.99           | 0.31 | 0.27 | 0.23 | 0.17 | 0.14 | 0.12 | 0.09 | 0.07 |  |
| Rating:125W Photometrically tested without ceiling board.<br>Multiply UF values by service correction factors<br>Calculate in accordance with CIBSE Technical Memorandum NO.5 1980 |      |       |                |      |      |      |      |      |      |      |      |  |

## Utilisation Factor Table(Ceiling cavity)

| Utilisation Factors UF(C)                                                                                                                                                          |      |       | SHR NOM = 2.00 |      |      |      |      |      |      |      |      |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| 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  | NA             | 0.17 | 0.18 | 0.18 | 0.20 | 0.20 | 0.21 | 0.22 | 0.22 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.12 | 0.13 | 0.14 | 0.16 | 0.17 | 0.18 | 0.20 | 0.20 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.08 | 0.10 | 0.11 | 0.13 | 0.15 | 0.16 | 0.18 | 0.19 |  |
| 0.50                                                                                                                                                                               | 0.50 | 0.20  | NA             | 0.16 | 0.17 | 0.18 | 0.19 | 0.19 | 0.20 | 0.21 | 0.21 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.12 | 0.13 | 0.14 | 0.16 | 0.17 | 0.18 | 0.19 | 0.20 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.08 | 0.10 | 0.11 | 0.13 | 0.15 | 0.16 | 0.17 | 0.18 |  |
| 0.30                                                                                                                                                                               | 0.50 | 0.20  | NA             | 0.16 | 0.17 | 0.17 | 0.18 | 0.19 | 0.19 | 0.20 | 0.20 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.11 | 0.13 | 0.14 | 0.15 | 0.16 | 0.17 | 0.18 | 0.19 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.08 | 0.10 | 0.11 | 0.13 | 0.14 | 0.15 | 0.17 | 0.18 |  |
| 0.00                                                                                                                                                                               | 0.00 | 0.00  | 0.01           | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |  |
| Rating:125W Photometrically tested without ceiling board.<br>Multiply UF values by service correction factors<br>Calculate in accordance with CIBSE Technical Memorandum NO.5 1980 |      |       |                |      |      |      |      |      |      |      |      |  |