

Report No.: 1

Test Time: 21.01.2020 15:41

## Luminaire Property

Luminaire Manufacturer:

Luminaire Description: FW 150 HE 2x28LED 1.25A 50W 5000K 150X55gr

Luminous Length (mm): 200

Luminous Width (mm): 150

Luminous Height (mm): 80

Voltage: 221.3 V

Current: 0.240 A

Power: 52.70 W

Power Factor: 0.988

## Photometric Results

CIE Class: Direct

Measurement Flux: 8034 lm

Downward Ratio: 99%

Total Rated Lamp Lumens: 8034.0 lm

Efficiency: 100%

Upward Ratio: 1%

Field Angle(C0/C180,C90/C270,C45/C225,C135/315): 113.4, 149.4, 137.4, 137.7

Beam Angle(C0/C180,C90/C270,C45/C225,C135/315): 52.7, 142.5, 65.5, 63.5

Luminaire Efficacy Rating (LER): 152.50

Central Intensity: 1590.78 cd

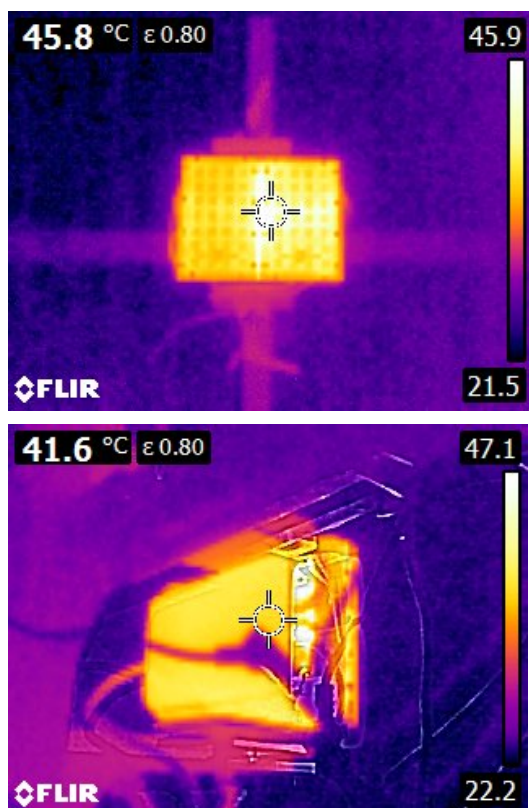
Max. Intensity: 6929.36 cd

Pos of Max. Intensity: H247.5 V62

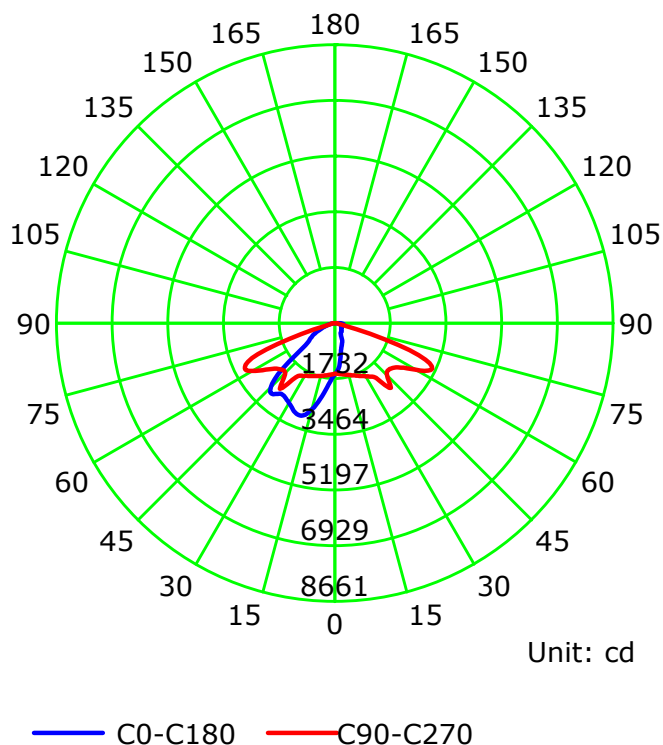
S/MH(C0/C180): 1.50

S/MH(C90/C270): 2.00

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

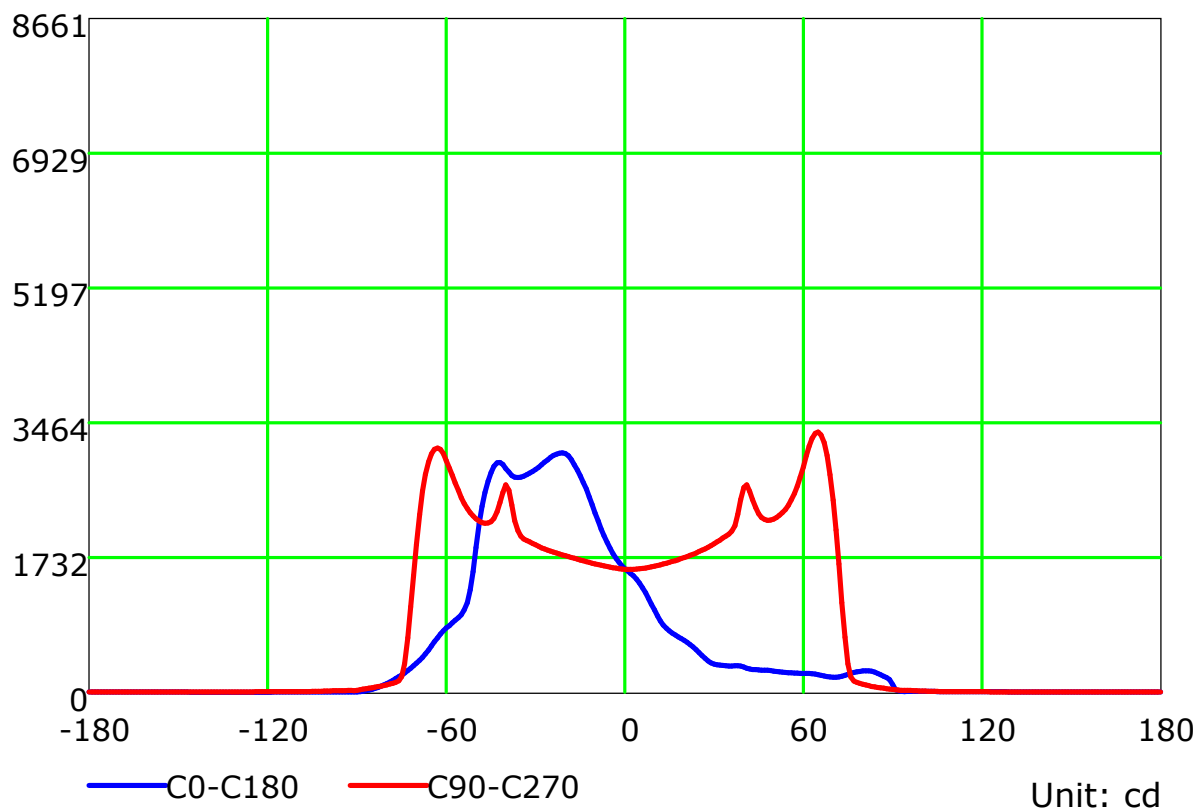
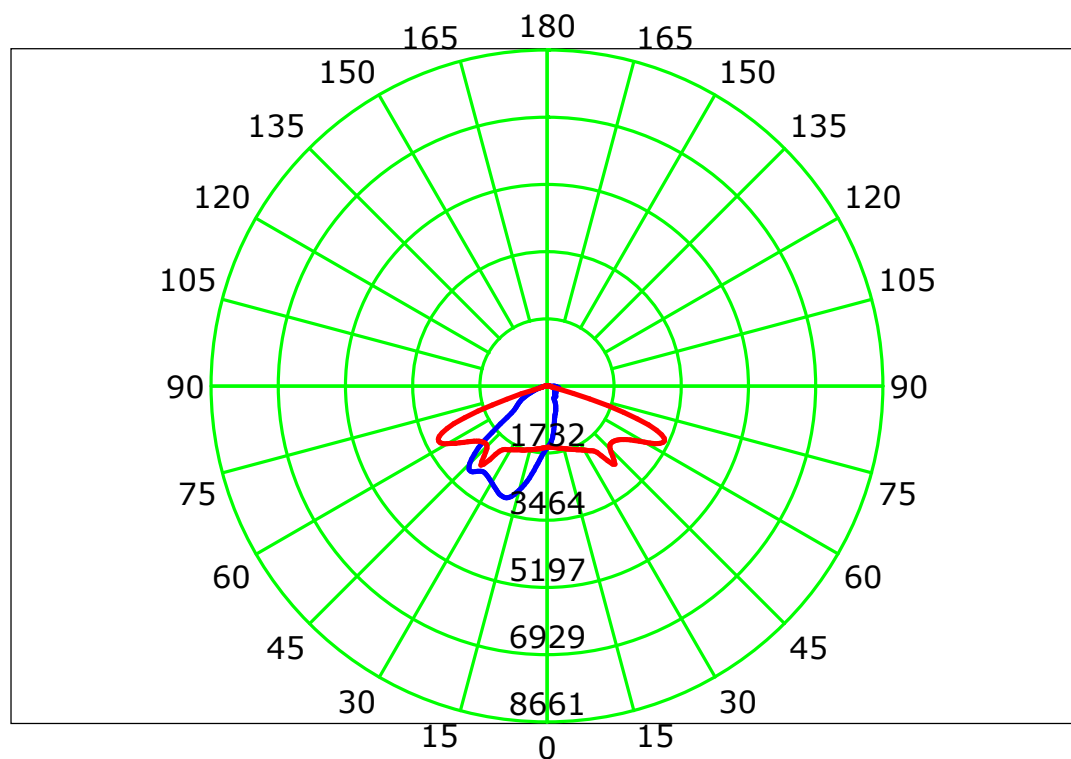
Test Device: LSG-1800B

Distance: 12.677 m

Humidity:

Inspector:

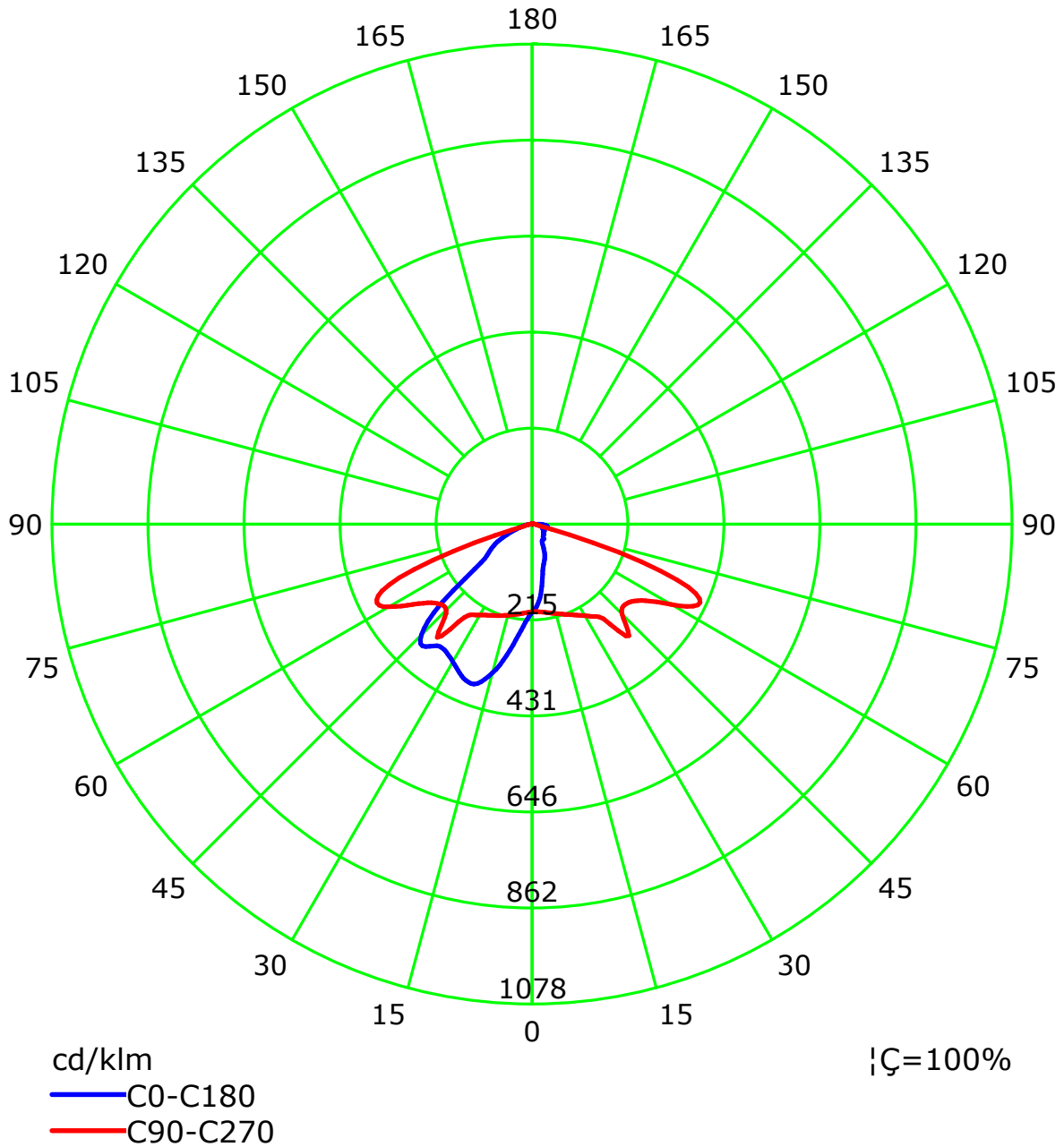
## Luminous Intensity Distribution Curve



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)



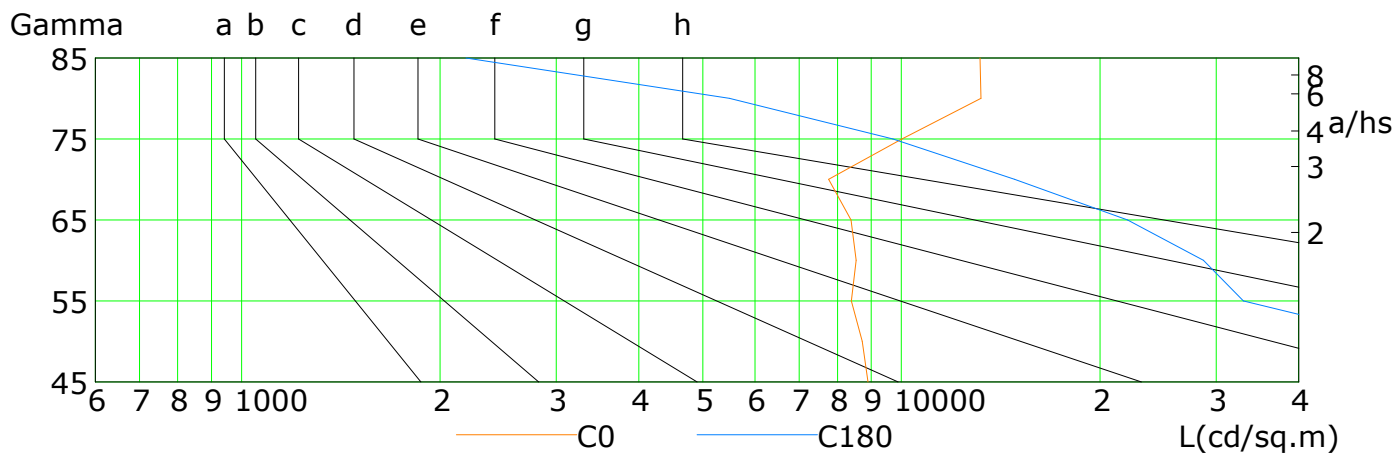
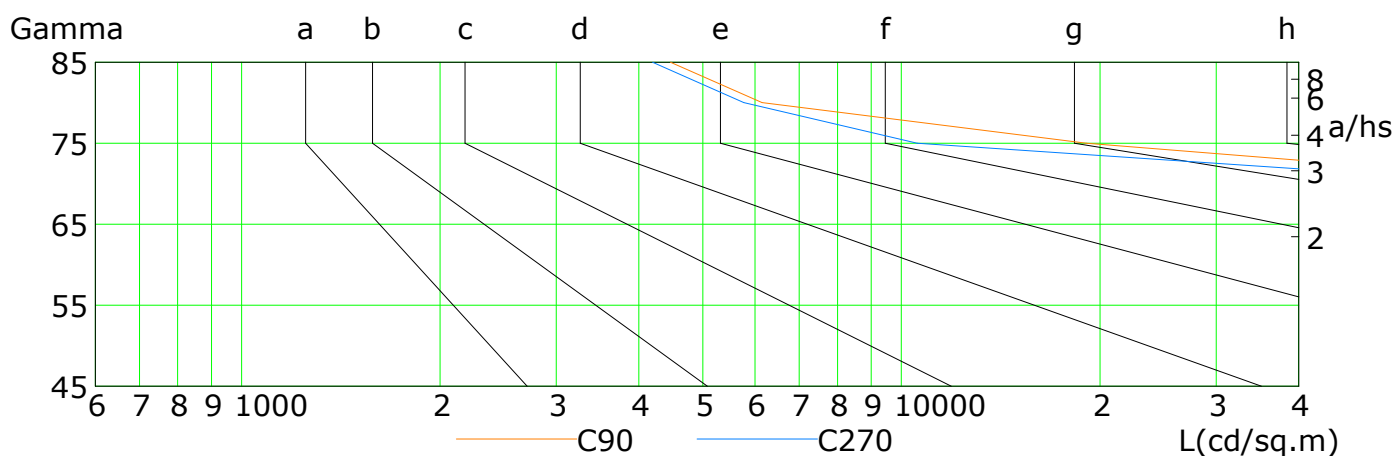
C Plane (°):0.0-360.0: 22.5  
Test Lab:  
Test Type: TYPE C  
Temperature:  
Operator:

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

## 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

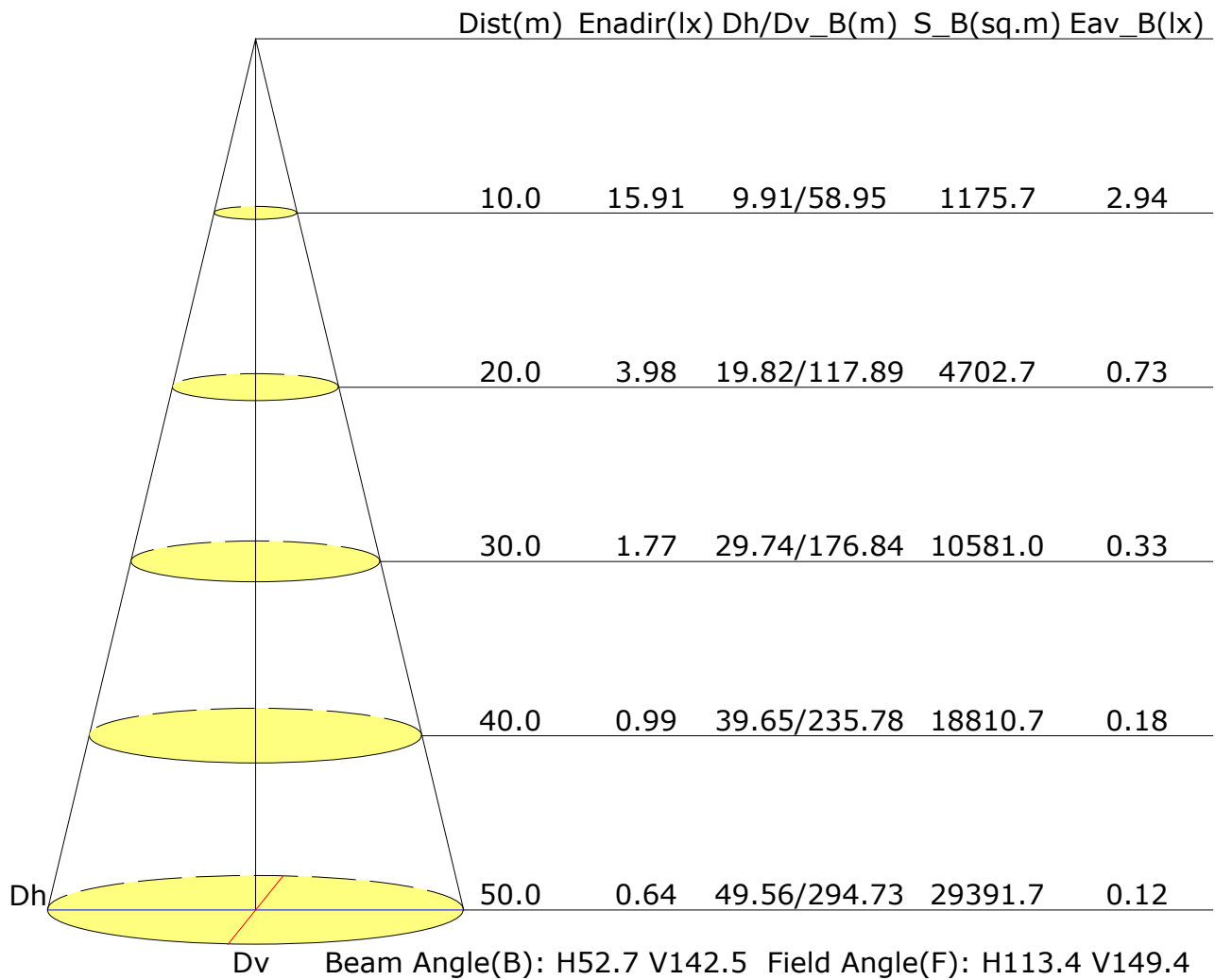


| L(cd/sq.m) | G45   | G50   | G55   | G60    | G65    | G70    | G75   | G80   | G85   |
|------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| C0         | 8896  | 8726  | 8393  | 8543   | 8388   | 7756   | 10022 | 13199 | 13164 |
| C90        | 77394 | 78278 | 88964 | 114085 | 142111 | 114674 | 19087 | 6146  | 4468  |
| C180       | 86860 | 59029 | 32974 | 28676  | 22021  | 14841  | 9715  | 5485  | 2189  |
| C270       | 73929 | 78397 | 92619 | 117423 | 130239 | 88324  | 10572 | 5768  | 4195  |

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  | 14.7             | 16.2 | 15.0 | 16.4 | 16.7 | 26.5           | 28.0 | 26.8 | 28.3 | 28.5 |
| 3H   | 16.4             | 17.7 | 16.7 | 18.0 | 18.3 | 30.3           | 31.6 | 30.6 | 31.9 | 32.2 |
| 4H   | 17.5             | 18.8 | 17.9 | 19.1 | 19.4 | 30.5           | 31.8 | 30.9 | 32.1 | 32.4 |
| 6H   | 19.2             | 20.4 | 19.6 | 20.7 | 21.0 | 30.5           | 31.6 | 30.8 | 32.0 | 32.3 |
| 8H   | 20.1             | 21.2 | 20.5 | 21.6 | 21.9 | 30.4           | 31.5 | 30.8 | 31.9 | 32.2 |
| 12H  | 20.9             | 22.0 | 21.3 | 22.4 | 22.7 | 30.4           | 31.5 | 30.8 | 31.8 | 32.2 |
| X=4H Y=2H  | 16.1             | 17.4 | 16.5 | 17.7 | 18.0 | 26.3           | 27.6 | 26.7 | 27.9 | 28.2 |
| 3H   | 17.7             | 18.8 | 18.1 | 19.1 | 19.5 | 30.2           | 31.3 | 30.6 | 31.7 | 32.0 |
| 4H   | 18.8             | 19.8 | 19.2 | 20.1 | 20.5 | 30.5           | 31.5 | 31.0 | 31.9 | 32.3 |
| 6H   | 20.4             | 21.3 | 20.9 | 21.7 | 22.1 | 30.5           | 31.4 | 30.9 | 31.8 | 32.2 |
| 8H   | 21.4             | 22.2 | 21.9 | 22.6 | 23.1 | 30.5           | 31.3 | 30.9 | 31.7 | 32.1 |
| 12H  | 22.3             | 23.1 | 22.8 | 23.5 | 23.9 | 30.5           | 31.2 | 30.9 | 31.6 | 32.1 |
| X=8H Y=4H  | 19.9             | 20.7 | 20.4 | 21.1 | 21.6 | 30.5           | 31.2 | 30.9 | 31.7 | 32.1 |
| 6H   | 21.4             | 22.1 | 21.9 | 22.5 | 23.0 | 30.5           | 31.1 | 30.9 | 31.5 | 32.0 |
| 8H   | 22.4             | 23.0 | 22.9 | 23.4 | 23.9 | 30.4           | 31.0 | 30.9 | 31.5 | 32.0 |
| 12H  | 23.4             | 23.9 | 23.9 | 24.4 | 24.9 | 30.4           | 30.9 | 30.9 | 31.4 | 31.9 |
| X=12H Y=4H   | 20.0             | 20.7 | 20.4 | 21.1 | 21.6 | 30.4           | 31.1 | 30.9 | 31.6 | 32.0 |
| 6H   | 21.5             | 22.1 | 22.0 | 22.6 | 23.1 | 30.4           | 31.0 | 30.9 | 31.5 | 32.0 |
| 8H   | 22.6             | 23.0 | 23.1 | 23.5 | 24.0 | 30.4           | 30.9 | 30.9 | 31.4 | 31.9 |
| Variations with the observer position at spacings: |                  |      |      |      |      |                |      |      |      |      |
| S=1.0H   | +0.4/-0.2        |      |      |      |      | +0.5/-0.5      |      |      |      |      |
| S=1.5H   | +0.6/-0.7        |      |      |      |      | +1.9/-2.9      |      |      |      |      |
| S=2.0H   | +0.8/-1.4        |      |      |      |      | +3.6/-5.4      |      |      |      |      |

Calculate in accordance with CIE Pub.117. The table is revised with 8034lm ( $8\log(F/F_0) = 7.2$ ).

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 = 1.75 |      |      |      |      |      |      |      |      |  |
|---|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| 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             | 0.64 | 0.72 | 0.78 | 0.86 | 0.91 | 0.94 | 0.99 | 1.02 |  |
|   | 0.30 |       | NA             | 0.56 | 0.64 | 0.71 | 0.80 | 0.85 | 0.89 | 0.95 | 0.98 |  |
|   | 0.20 |       | NA             | 0.50 | 0.59 | 0.65 | 0.75 | 0.81 | 0.85 | 0.91 | 0.95 |  |
| 0.50  | 0.50 | 0.20  | NA             | 0.62 | 0.69 | 0.75 | 0.83 | 0.87 | 0.91 | 0.95 | 0.98 |  |
|   | 0.30 |       | NA             | 0.55 | 0.63 | 0.69 | 0.78 | 0.83 | 0.87 | 0.92 | 0.95 |  |
|   | 0.20 |       | NA             | 0.49 | 0.58 | 0.64 | 0.73 | 0.79 | 0.83 | 0.89 | 0.92 |  |
| 0.30  | 0.50 | 0.20  | NA             | 0.60 | 0.67 | 0.73 | 0.80 | 0.84 | 0.87 | 0.91 | 0.94 |  |
|   | 0.30 |       | NA             | 0.54 | 0.61 | 0.67 | 0.75 | 0.80 | 0.84 | 0.88 | 0.91 |  |
|   | 0.20 |       | NA             | 0.49 | 0.57 | 0.63 | 0.72 | 0.77 | 0.81 | 0.86 | 0.89 |  |
| 0.00  | 0.00 | 0.00  | NA             | 0.46 | 0.54 | 0.60 | 0.68 | 0.73 | 0.77 | 0.81 | 0.84 |  |
| Rating:53W 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 = 1.75 |      |      |      |      |      |      |      |      |  |
|---|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| 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             | 0.84 | 0.71 | 0.61 | 0.48 | 0.39 | 0.34 | 0.26 | 0.21 |  |
|   | 0.30 |       | NA             | 0.72 | 0.62 | 0.54 | 0.43 | 0.36 | 0.31 | 0.24 | 0.20 |  |
|   | 0.20 |       | NA             | 0.63 | 0.55 | 0.48 | 0.39 | 0.33 | 0.29 | 0.23 | 0.19 |  |
| 0.50  | 0.50 | 0.20  | NA             | 0.81 | 0.68 | 0.58 | 0.45 | 0.41 | 0.32 | 0.25 | 0.20 |  |
|   | 0.30 |       | NA             | 0.70 | 0.60 | 0.52 | 0.42 | 0.35 | 0.30 | 0.23 | 0.19 |  |
|   | 0.20 |       | NA             | 0.62 | 0.54 | 0.47 | 0.38 | 0.32 | 0.28 | 0.22 | 0.18 |  |
| 0.30  | 0.50 | 0.20  | NA             | 0.78 | 0.65 | 0.56 | 0.43 | 0.36 | 0.30 | 0.23 | 0.19 |  |
|   | 0.30 |       | NA             | 0.69 | 0.59 | 0.51 | 0.40 | 0.33 | 0.29 | 0.22 | 0.18 |  |
|   | 0.20 |       | NA             | 0.61 | 0.53 | 0.46 | 0.37 | 0.31 | 0.27 | 0.21 | 0.18 |  |
| 0.00  | 0.00 | 0.00  | 0.98           | 0.52 | 0.44 | 0.38 | 0.30 | 0.25 | 0.21 | 0.16 | 0.14 |  |
| Rating:53W 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 = 1.75 |      |      |      |      |      |      |      |      |  |
|---|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| 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             | 0.18 | 0.19 | 0.20 | 0.20 | 0.21 | 0.21 | 0.22 | 0.22 |  |
|   | 0.30 |       | NA             | 0.12 | 0.13 | 0.14 | 0.16 | 0.17 | 0.18 | 0.19 | 0.20 |  |
|   | 0.20 |       | NA             | 0.07 | 0.08 | 0.10 | 0.12 | 0.13 | 0.14 | 0.16 | 0.17 |  |
| 0.50  | 0.50 | 0.20  | NA             | 0.18 | 0.18 | 0.19 | 0.20 | 0.20 | 0.20 | 0.21 | 0.21 |  |
|   | 0.30 |       | NA             | 0.11 | 0.13 | 0.14 | 0.15 | 0.16 | 0.17 | 0.18 | 0.19 |  |
|   | 0.20 |       | NA             | 0.07 | 0.08 | 0.09 | 0.11 | 0.13 | 0.14 | 0.16 | 0.17 |  |
| 0.30  | 0.50 | 0.20  | NA             | 0.17 | 0.18 | 0.18 | 0.19 | 0.19 | 0.20 | 0.20 | 0.20 |  |
|   | 0.30 |       | NA             | 0.11 | 0.12 | 0.13 | 0.15 | 0.16 | 0.16 | 0.18 | 0.18 |  |
|   | 0.20 |       | NA             | 0.07 | 0.08 | 0.09 | 0.11 | 0.13 | 0.14 | 0.15 | 0.16 |  |
| 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:53W Photometrically tested without ceiling board.<br>Multiply UF values by service correction factors<br>Calculate in accordance with CIBSE Technical Memorandum NO.5 1980 |      |       |                |      |      |      |      |      |      |      |      |  |