

Report No.: 1

Test Time: 22.01.2020 15:40

## Luminaire Property

Luminaire Manufacturer:

Luminaire Description: FP 150 HE 4x28LED 2.4A 100W 5000K 2x40-100gr.

Luminous Length (mm): 604

Luminous Width (mm): 153

Luminous Height (mm): 80

Voltage: 221.3 V

Current: 0.466 A

Power: 100.90 W

Power Factor: 0.978

## Photometric Results

CIE Class: Direct

Measurement Flux: 15129.4 lm

Downward Ratio: 99%

Total Rated Lamp Lumens: 15129.4 lm

Efficiency: 100%

Upward Ratio: 1%

Field Angle(C0/C180,C90/C270,C45/C225,C135/315): 118.2, 135.0, 135.9, 134.8

Beam Angle(C0/C180,C90/C270,C45/C225,C135/315): 102.6, 112.0, 118.4, 117.5

Luminaire Efficacy Rating (LER): 149.99

Central Intensity: 2516.32 cd

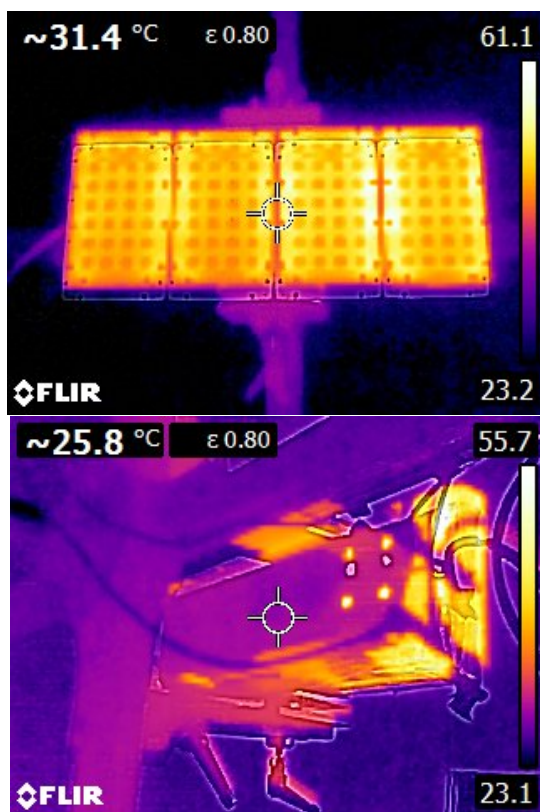
Max. Intensity: 7092.19 cd

Pos of Max. Intensity: H0 V37

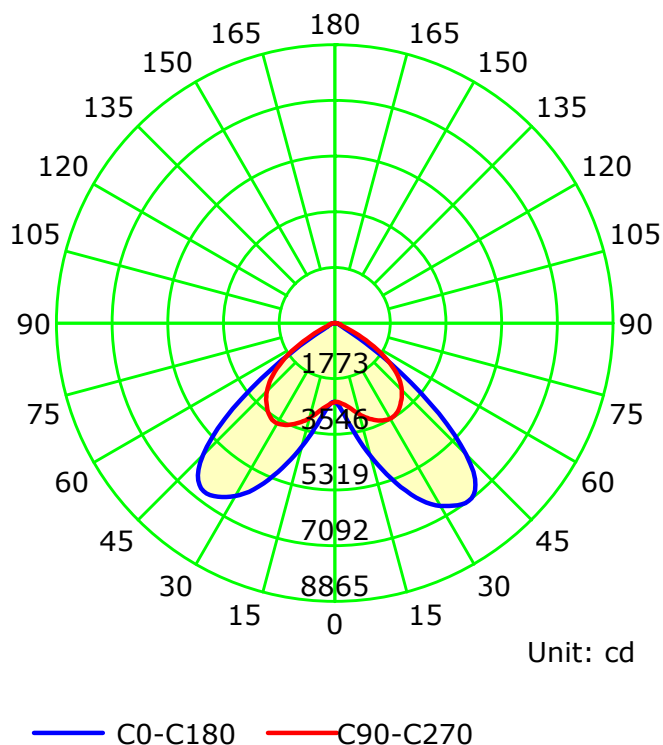
S/MH(C0/C180): 2.31

S/MH(C90/C270): 1.85

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

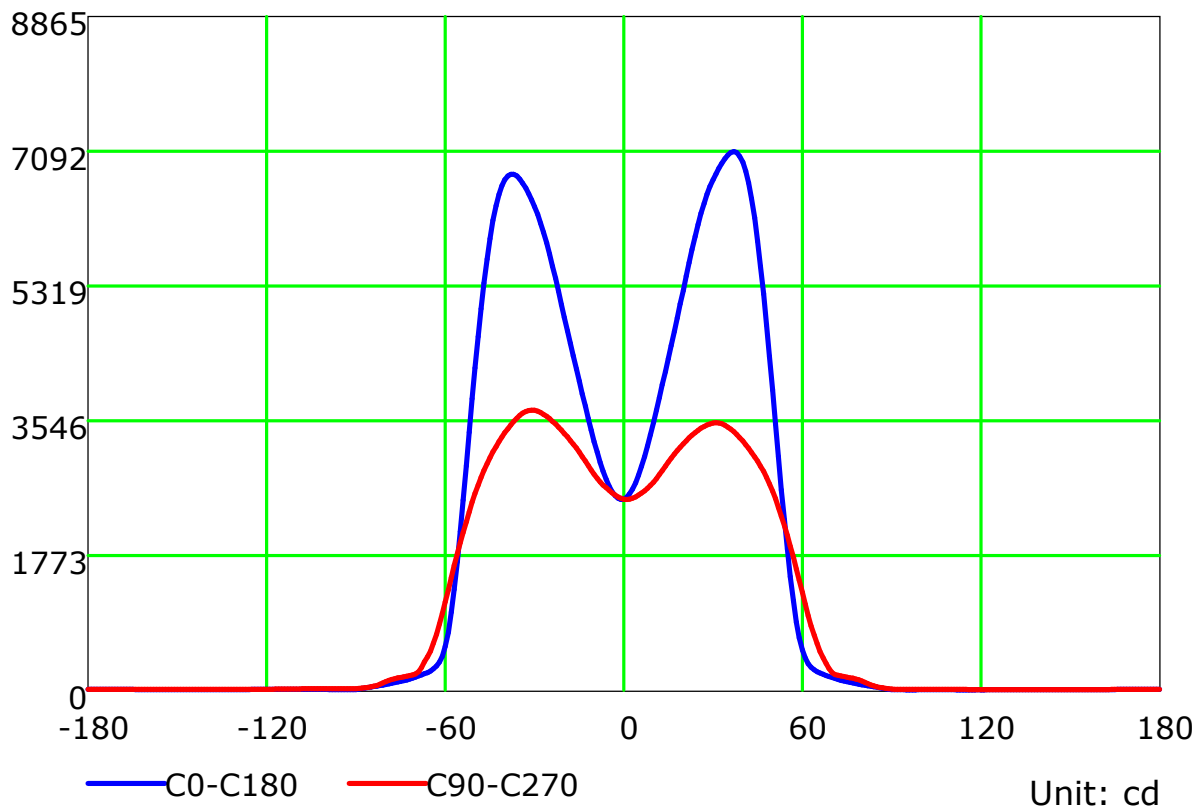
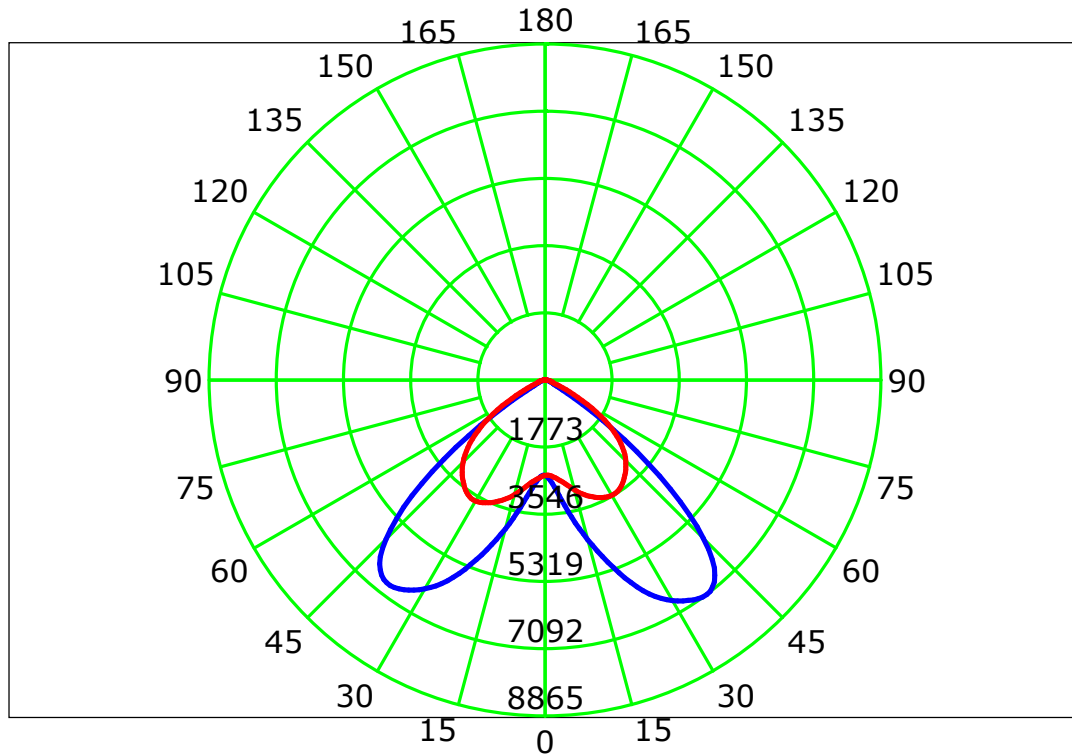
Test Device: LSG-1800B

Distance: 12.677 m

Humidity:

Inspector:

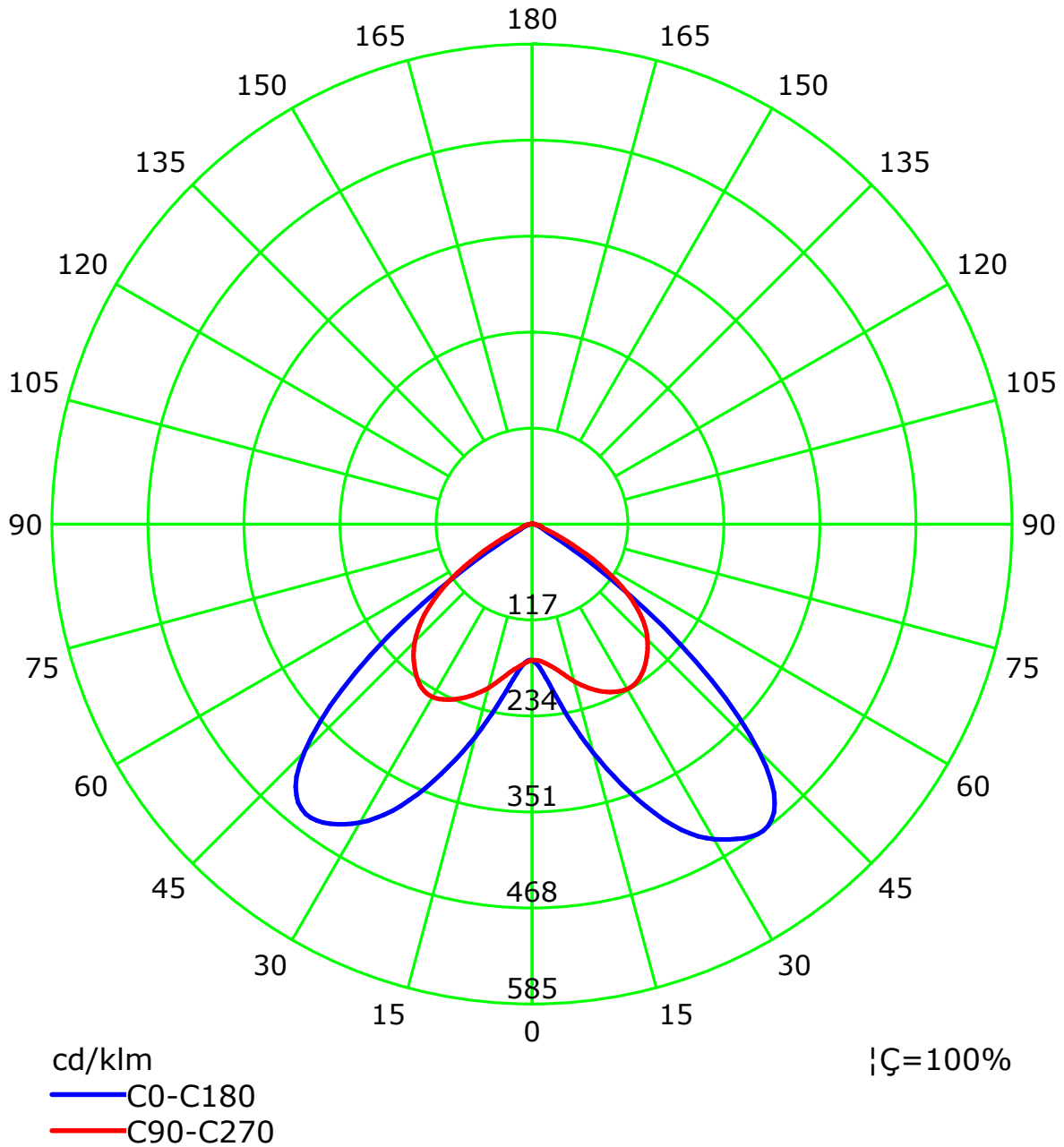
## Luminous Intensity Distribution Curve



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)



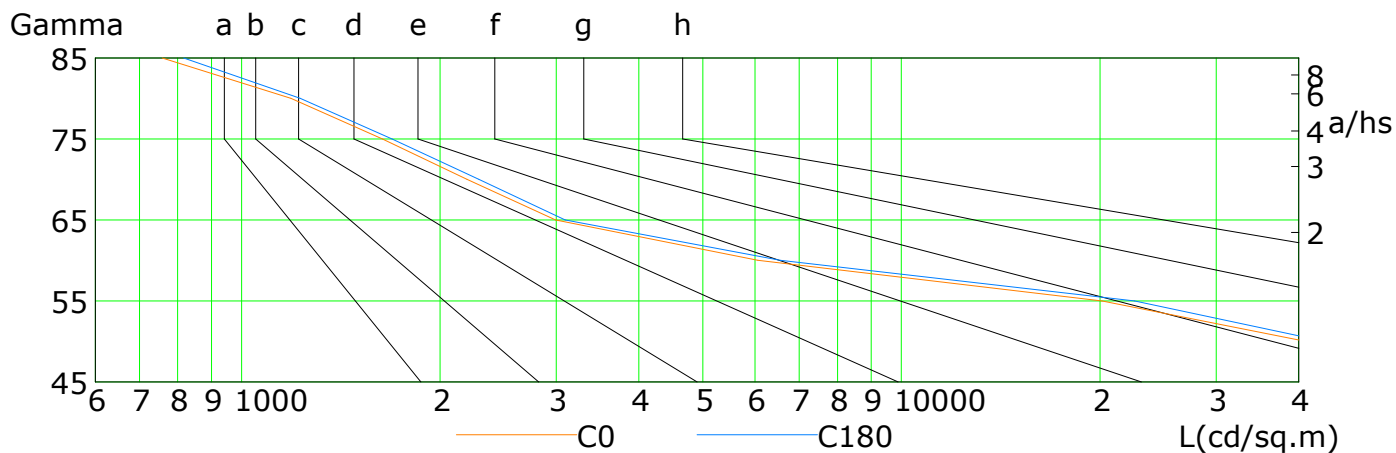
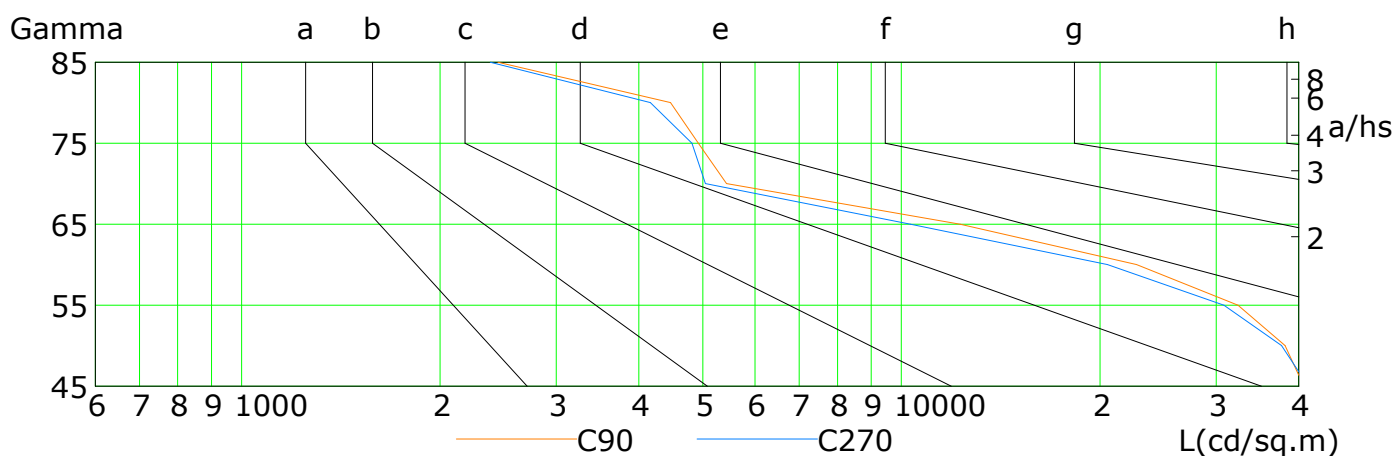
C Plane (°):0.0-360.0: 22.5  
Test Lab:  
Test Type: TYPE C  
Temperature:  
Operator:

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

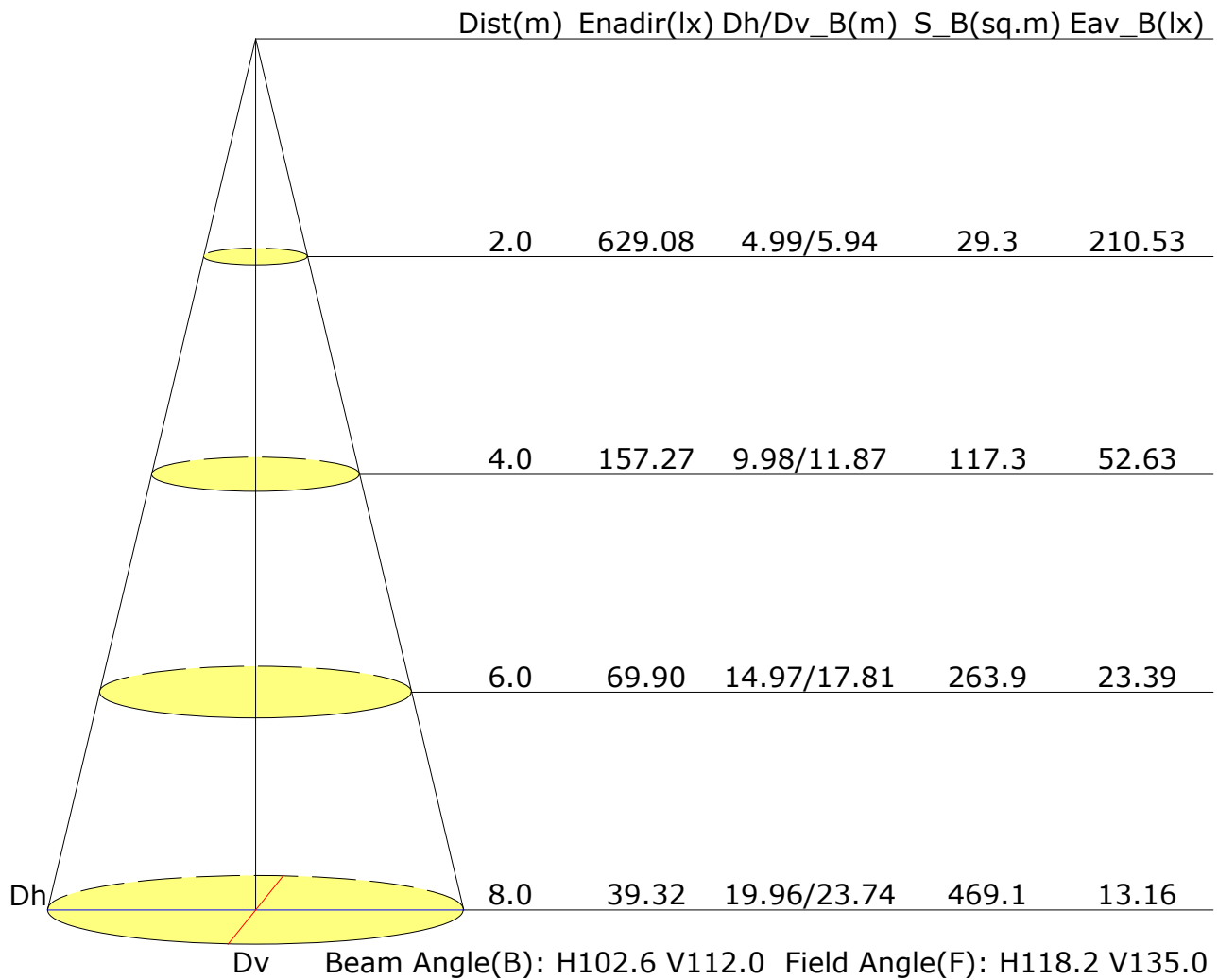


| L(cd/sq.m) | G45   | G50   | G55   | G60   | G65   | G70  | G75  | G80  | G85  |
|------------|-------|-------|-------|-------|-------|------|------|------|------|
| C0         | 59386 | 40974 | 20147 | 6062  | 2991  | 2196 | 1635 | 1188 | 758  |
| C90        | 40751 | 38139 | 32352 | 22727 | 12278 | 5434 | 4923 | 4470 | 2446 |
| C180       | 59722 | 44028 | 22576 | 6555  | 3094  | 2288 | 1691 | 1227 | 817  |
| C270       | 41400 | 37684 | 30805 | 20512 | 10327 | 5048 | 4815 | 4166 | 2382 |

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                                          | 25.1             | 26.4 | 25.4 | 26.7 | 26.9 | 25.7           | 27.0 | 26.0 | 27.3 | 27.5 |
| 3H                                                 | 25.0             | 26.1 | 25.3 | 26.4 | 26.7 | 25.7           | 26.9 | 26.0 | 27.2 | 27.4 |
| 4H                                                 | 24.9             | 26.0 | 25.2 | 26.3 | 26.6 | 25.7           | 26.8 | 26.0 | 27.1 | 27.4 |
| 6H                                                 | 24.8             | 25.8 | 25.2 | 26.1 | 26.5 | 25.6           | 26.6 | 26.0 | 26.9 | 27.3 |
| 8H                                                 | 24.8             | 25.8 | 25.2 | 26.1 | 26.4 | 25.6           | 26.6 | 26.0 | 26.9 | 27.2 |
| 12H                                                | 24.7             | 25.7 | 25.1 | 26.0 | 26.4 | 25.5           | 26.5 | 25.9 | 26.8 | 27.2 |
| X=4H Y=2H                                          | 25.4             | 26.5 | 25.8 | 26.8 | 27.1 | 25.9           | 27.0 | 26.3 | 27.3 | 27.6 |
| 3H                                                 | 25.3             | 26.2 | 25.7 | 26.6 | 26.9 | 26.0           | 26.9 | 26.3 | 27.2 | 27.6 |
| 4H                                                 | 25.2             | 26.1 | 25.7 | 26.4 | 26.8 | 25.9           | 26.7 | 26.3 | 27.1 | 27.5 |
| 6H                                                 | 25.2             | 25.9 | 25.6 | 26.3 | 26.7 | 25.9           | 26.6 | 26.3 | 27.0 | 27.4 |
| 8H                                                 | 25.2             | 25.8 | 25.6 | 26.2 | 26.6 | 25.9           | 26.5 | 26.3 | 26.9 | 27.4 |
| 12H                                                | 25.1             | 25.7 | 25.6 | 26.1 | 26.6 | 25.8           | 26.4 | 26.3 | 26.8 | 27.3 |
| X=8H Y=4H                                          | 25.2             | 25.8 | 25.6 | 26.2 | 26.7 | 25.8           | 26.5 | 26.3 | 26.9 | 27.3 |
| 6H                                                 | 25.1             | 25.6 | 25.6 | 26.1 | 26.5 | 25.8           | 26.3 | 26.3 | 26.8 | 27.2 |
| 8H                                                 | 25.1             | 25.5 | 25.6 | 26.0 | 26.5 | 25.8           | 26.2 | 26.3 | 26.7 | 27.2 |
| 12H                                                | 25.1             | 25.4 | 25.6 | 25.9 | 26.4 | 25.8           | 26.2 | 26.3 | 26.6 | 27.1 |
| X=12H Y=4H                                         | 25.1             | 25.7 | 25.6 | 26.1 | 26.6 | 25.8           | 26.4 | 26.3 | 26.8 | 27.3 |
| 6H                                                 | 25.1             | 25.5 | 25.6 | 26.0 | 26.5 | 25.8           | 26.2 | 26.3 | 26.7 | 27.2 |
| 8H                                                 | 25.1             | 25.4 | 25.6 | 25.9 | 26.4 | 25.8           | 26.1 | 26.3 | 26.6 | 27.1 |
| Variations with the observer position at spacings: |                  |      |      |      |      |                |      |      |      |      |
| S=1.0H                                             | +1.3/-2.4        |      |      |      |      | +0.6/-0.9      |      |      |      |      |
| S=1.5H                                             | +2.9/-9.6        |      |      |      |      | +2.5/-4.7      |      |      |      |      |
| S=2.0H                                             | +3.8/-12.2       |      |      |      |      | +3.0/-8.5      |      |      |      |      |

Calculate in accordance with CIE Pub.117. The table is revised with  $15129\text{Im}$  ( $8\log(F/F_0) = 9.4$ ).

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             | 0.82 | 0.87 | 0.91 | 0.97 | 1.01 | 1.03 | 1.06 | 1.08 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.76 | 0.82 | 0.86 | 0.93 | 0.97 | 0.99 | 1.03 | 1.06 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.72 | 0.77 | 0.82 | 0.89 | 0.94 | 0.97 | 1.01 | 1.03 |  |
| 0.50                                                                                                                                                                               | 0.50 | 0.20  | NA             | 0.80 | 0.85 | 0.89 | 0.94 | 0.97 | 0.99 | 1.02 | 1.04 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.75 | 0.80 | 0.84 | 0.90 | 0.94 | 0.96 | 1.00 | 1.02 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.71 | 0.76 | 0.81 | 0.87 | 0.91 | 0.94 | 0.98 | 1.00 |  |
| 0.30                                                                                                                                                                               | 0.50 | 0.20  | NA             | 0.78 | 0.83 | 0.86 | 0.91 | 0.94 | 0.96 | 0.98 | 1.00 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.74 | 0.79 | 0.83 | 0.88 | 0.92 | 0.94 | 0.97 | 0.98 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.70 | 0.75 | 0.80 | 0.86 | 0.89 | 0.92 | 0.95 | 0.97 |  |
| 0.00                                                                                                                                                                               | 0.00 | 0.00  | NA             | 0.68 | 0.73 | 0.77 | 0.82 | 0.86 | 0.88 | 0.91 | 0.92 |  |
| Rating:101W 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 | 0.43 | 0.33 | 0.27 | 0.23 | 0.18 | 0.15 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.51 | 0.44 | 0.38 | 0.30 | 0.25 | 0.22 | 0.17 | 0.14 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.45 | 0.39 | 0.34 | 0.28 | 0.23 | 0.20 | 0.16 | 0.13 |  |
| 0.50                                                                                                                                                                               | 0.50 | 0.20  | NA             | 0.57 | 0.48 | 0.41 | 0.31 | 0.29 | 0.22 | 0.17 | 0.13 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.49 | 0.42 | 0.37 | 0.29 | 0.24 | 0.20 | 0.16 | 0.13 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.44 | 0.38 | 0.33 | 0.26 | 0.22 | 0.19 | 0.15 | 0.12 |  |
| 0.30                                                                                                                                                                               | 0.50 | 0.20  | NA             | 0.54 | 0.46 | 0.39 | 0.30 | 0.24 | 0.20 | 0.15 | 0.13 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.48 | 0.41 | 0.35 | 0.27 | 0.22 | 0.19 | 0.15 | 0.12 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.43 | 0.37 | 0.32 | 0.25 | 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:101W 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             | 0.16 | 0.17 | 0.18 | 0.19 | 0.20 | 0.20 | 0.21 | 0.22 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.11 | 0.13 | 0.14 | 0.16 | 0.17 | 0.18 | 0.19 | 0.20 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.08 | 0.09 | 0.11 | 0.13 | 0.14 | 0.15 | 0.17 | 0.18 |  |
| 0.50                                                                                                                                                                               | 0.50 | 0.20  | NA             | 0.15 | 0.16 | 0.17 | 0.18 | 0.19 | 0.19 | 0.20 | 0.21 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.11 | 0.12 | 0.14 | 0.15 | 0.16 | 0.17 | 0.18 | 0.19 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.08 | 0.09 | 0.11 | 0.13 | 0.14 | 0.15 | 0.17 | 0.18 |  |
| 0.30                                                                                                                                                                               | 0.50 | 0.20  | NA             | 0.15 | 0.16 | 0.17 | 0.18 | 0.18 | 0.19 | 0.19 | 0.20 |  |
|                                                                                                                                                                                    | 0.30 |       | NA             | 0.11 | 0.12 | 0.13 | 0.15 | 0.16 | 0.17 | 0.18 | 0.18 |  |
|                                                                                                                                                                                    | 0.20 |       | NA             | 0.08 | 0.09 | 0.10 | 0.12 | 0.14 | 0.15 | 0.16 | 0.17 |  |
| 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:101W Photometrically tested without ceiling board.<br>Multiply UF values by service correction factors<br>Calculate in accordance with CIBSE Technical Memorandum NO.5 1980 |      |       |                |      |      |      |      |      |      |      |      |  |