

Report No.: 1

Test Time: 16.12.2019 23:01

## Luminaire Property

Luminaire Manufacturer:

Luminaire Description: FG 180 4x24LED 0.4A 20.5W 5000K bez stekla

Luminous Length (mm): 1200

Luminous Width (mm): 180

Luminous Height (mm): 35

Voltage: 221.3 V

Current: 0.094 A

Power: 20.19 W

Power Factor: 0.962

## Photometric Results

CIE Class: Direct

Measurement Flux: 3022.5 lm

Downward Ratio: 99%

Total Rated Lamp Lumens: 3022.5 lm

Efficiency: 100%

Upward Ratio: 1%

Field Angle(C0/C180,C90/C270,C45/C225,C135/315): 161.3, 143.2, 152.6, 151.9

Beam Angle(C0/C180,C90/C270,C45/C225,C135/315): 119.2, 112.6, 117.8, 117.9

Luminaire Efficacy Rating (LER): 149.75

Central Intensity: 1053.04 cd

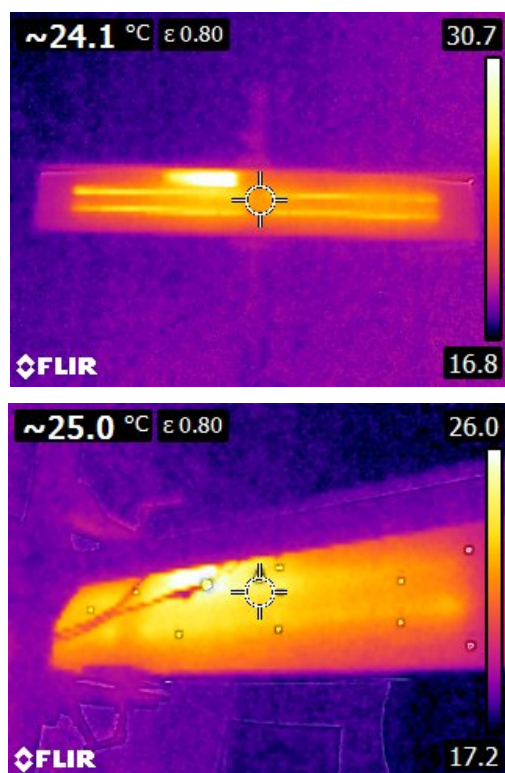
Max. Intensity: 1053.83 cd

Pos of Max. Intensity: H202.5 V1

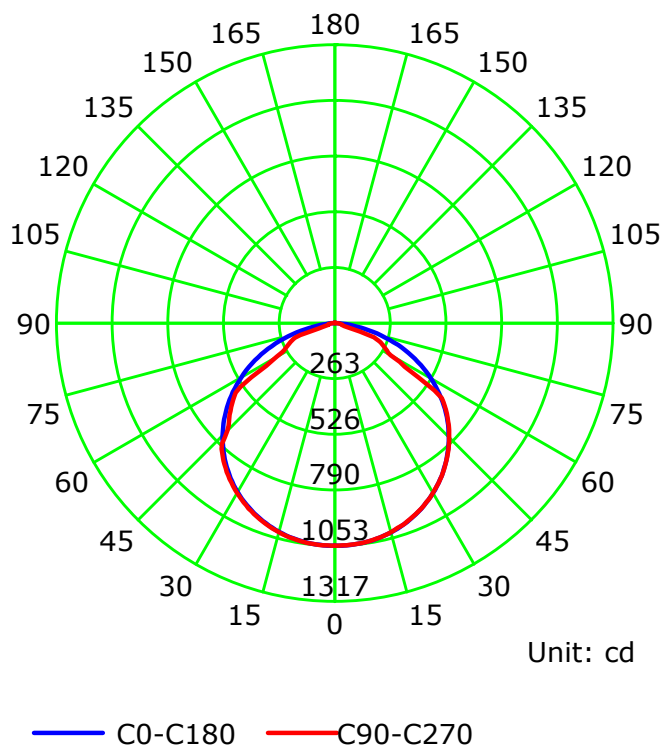
S/MH(C0/C180): 1.31

S/MH(C90/C270): 1.31

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

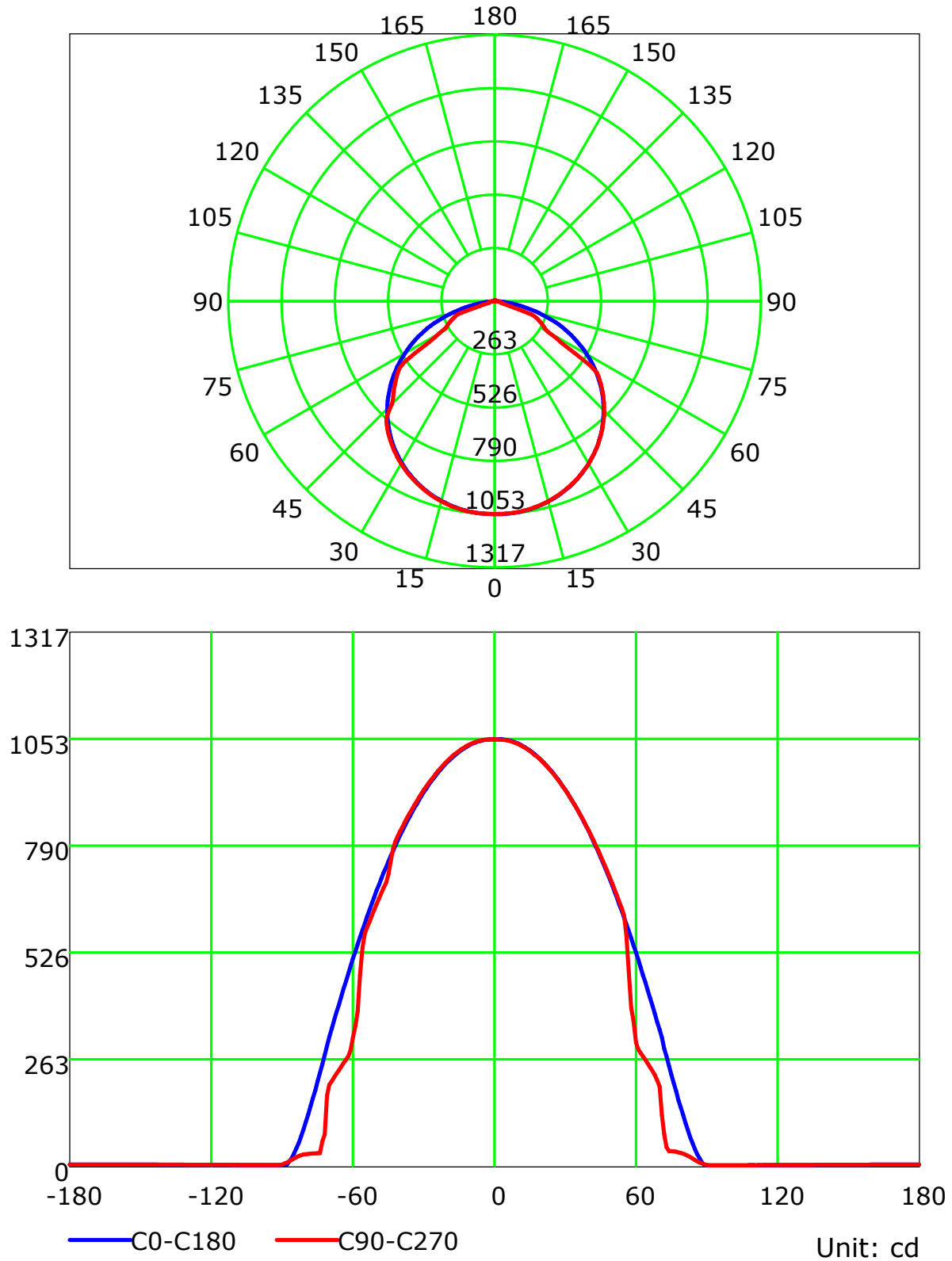
Test Device: LSG-1800B

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

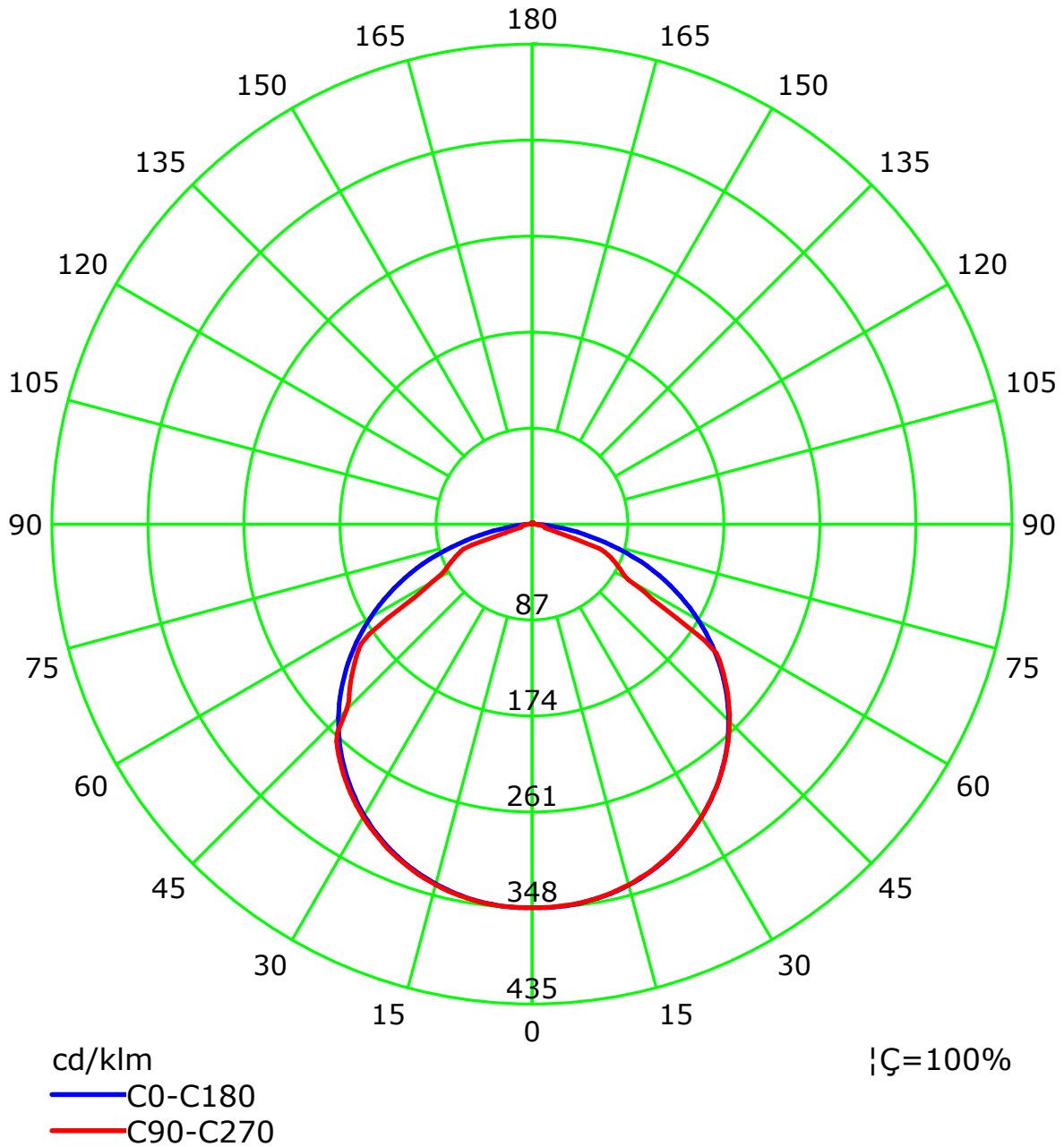
Test Device: LSG-1800B

Distance: 12.677 m

Humidity:

Inspector:

## Luminous Intensity Distribution Curve(cd/klm)



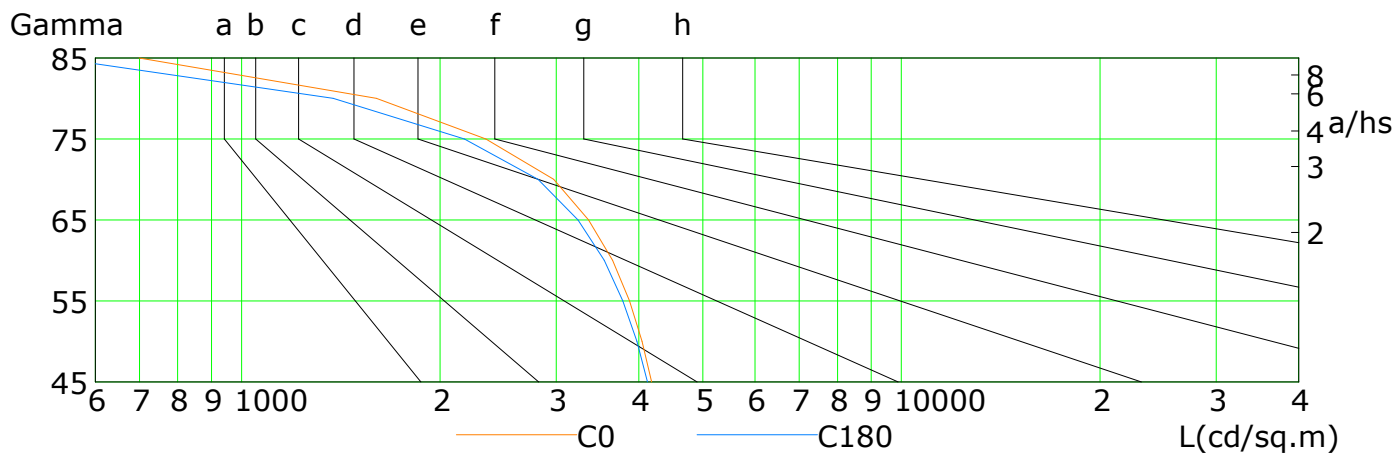
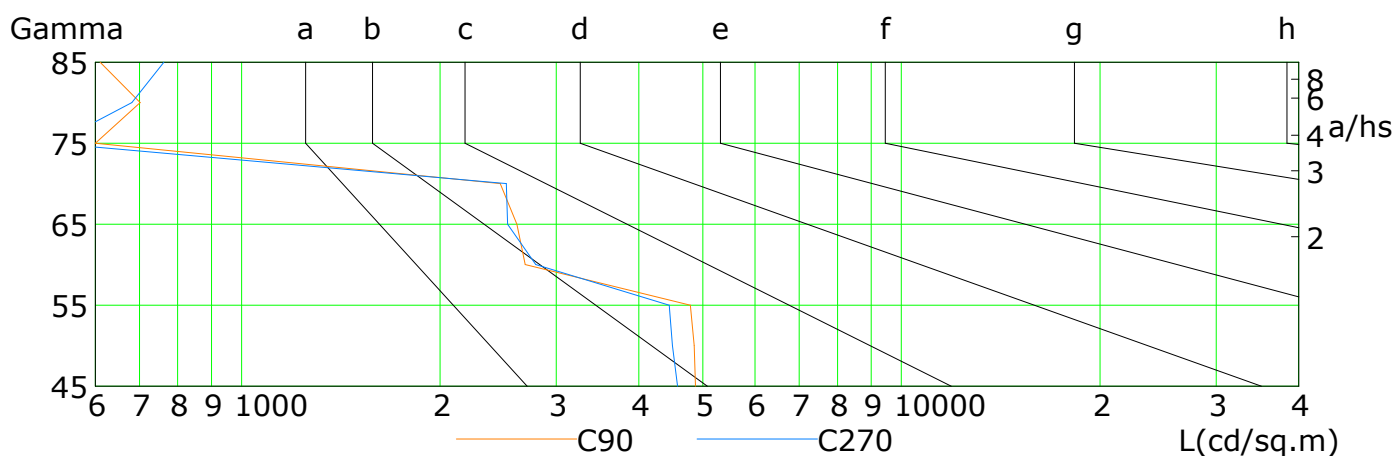
C Plane (°):0.0-360.0: 22.5  
Test Lab:  
Test Type: TYPE C  
Temperature:  
Operator:

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

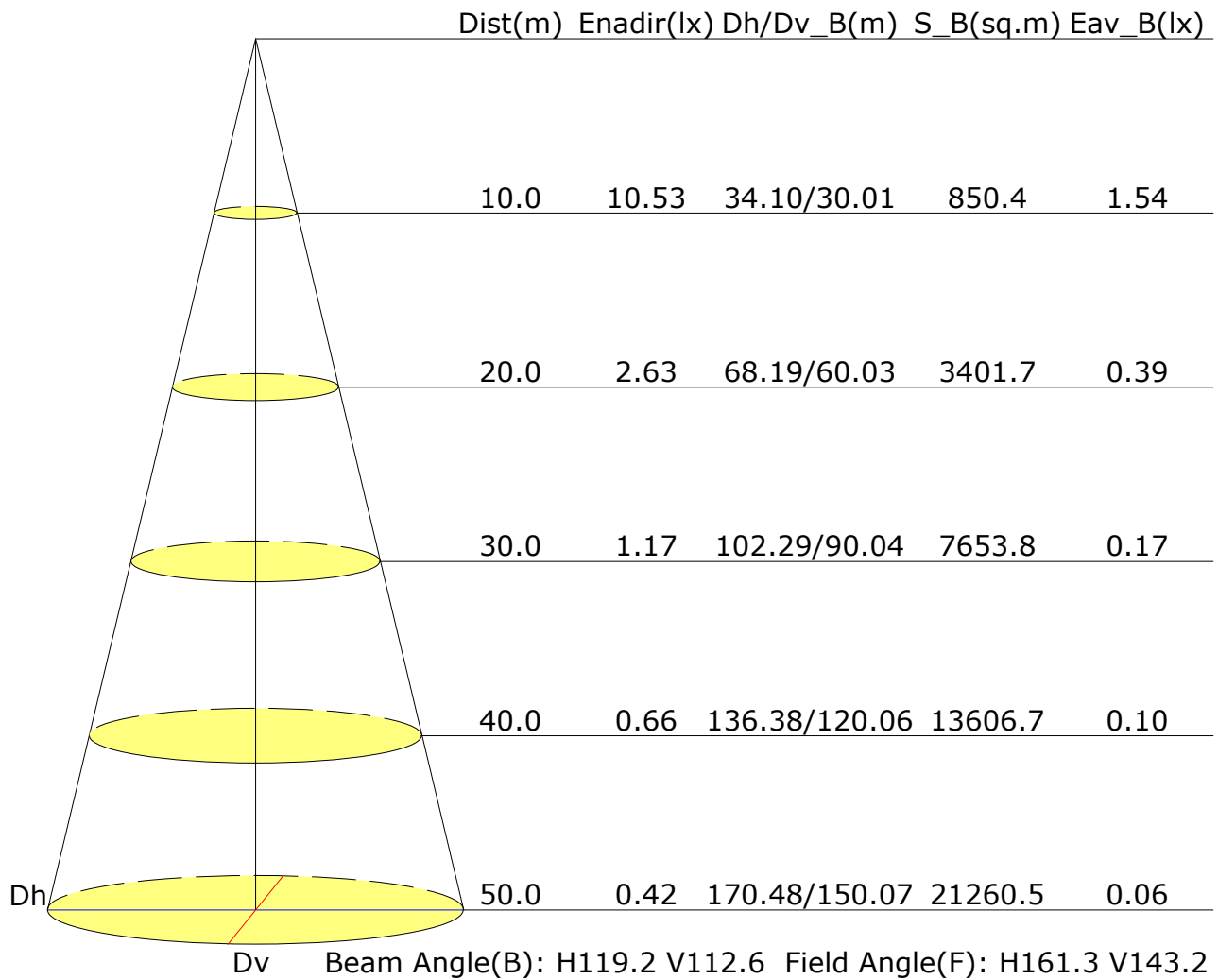


| L(cd/sq.m) | G45  | G50  | G55  | G60  | G65  | G70  | G75  | G80  | G85 |
|------------|------|------|------|------|------|------|------|------|-----|
| C0         | 4181 | 4045 | 3873 | 3652 | 3355 | 2972 | 2345 | 1600 | 699 |
| C90        | 4874 | 4851 | 4788 | 2690 | 2615 | 2466 | 600  | 702  | 611 |
| C180       | 4122 | 3974 | 3783 | 3547 | 3236 | 2814 | 2176 | 1376 | 523 |
| C270       | 4579 | 4497 | 4447 | 2792 | 2532 | 2518 | 518  | 682  | 762 |

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                                          | 17.7             | 19.1 | 18.0 | 19.3 | 19.6 | 17.1           | 18.4 | 17.4 | 18.7 | 18.9 |
| 3H                                                 | 19.2             | 20.4 | 19.5 | 20.7 | 21.0 | 17.8           | 19.0 | 18.1 | 19.3 | 19.6 |
| 4H                                                 | 19.7             | 20.8 | 20.0 | 21.1 | 21.4 | 17.8           | 18.9 | 18.1 | 19.2 | 19.5 |
| 6H                                                 | 19.9             | 20.9 | 20.2 | 21.3 | 21.6 | 17.7           | 18.8 | 18.1 | 19.1 | 19.5 |
| 8H                                                 | 19.9             | 20.9 | 20.3 | 21.3 | 21.6 | 17.7           | 18.8 | 18.1 | 19.1 | 19.4 |
| 12H                                                | 19.9             | 20.9 | 20.3 | 21.2 | 21.6 | 17.7           | 18.7 | 18.1 | 19.0 | 19.4 |
| X=4H Y=2H                                          | 18.2             | 19.4 | 18.6 | 19.7 | 20.0 | 17.6           | 18.8 | 18.0 | 19.1 | 19.4 |
| 3H                                                 | 19.8             | 20.8 | 20.2 | 21.1 | 21.5 | 18.5           | 19.5 | 18.9 | 19.8 | 20.2 |
| 4H                                                 | 20.4             | 21.3 | 20.8 | 21.6 | 22.0 | 18.5           | 19.4 | 18.9 | 19.7 | 20.1 |
| 6H                                                 | 20.7             | 21.4 | 21.1 | 21.8 | 22.2 | 18.5           | 19.2 | 18.9 | 19.6 | 20.1 |
| 8H                                                 | 20.7             | 21.4 | 21.2 | 21.8 | 22.3 | 18.5           | 19.2 | 18.9 | 19.6 | 20.0 |
| 12H                                                | 20.7             | 21.4 | 21.2 | 21.8 | 22.3 | 18.5           | 19.1 | 18.9 | 19.5 | 20.0 |
| X=8H Y=4H                                          | 20.4             | 21.1 | 20.9 | 21.5 | 22.0 | 18.6           | 19.3 | 19.1 | 19.7 | 20.2 |
| 6H                                                 | 20.7             | 21.3 | 21.2 | 21.7 | 22.2 | 18.6           | 19.2 | 19.1 | 19.6 | 20.1 |
| 8H                                                 | 20.8             | 21.3 | 21.3 | 21.8 | 22.3 | 18.6           | 19.1 | 19.1 | 19.6 | 20.1 |
| 12H                                                | 20.8             | 21.3 | 21.3 | 21.7 | 22.3 | 18.7           | 19.1 | 19.2 | 19.6 | 20.1 |
| X=12H Y=4H                                         | 20.4             | 21.0 | 20.8 | 21.5 | 21.9 | 18.6           | 19.2 | 19.1 | 19.7 | 20.1 |
| 6H                                                 | 20.7             | 21.2 | 21.2 | 21.7 | 22.2 | 18.6           | 19.1 | 19.1 | 19.6 | 20.1 |
| 8H                                                 | 20.8             | 21.2 | 21.3 | 21.7 | 22.2 | 18.6           | 19.1 | 19.1 | 19.5 | 20.1 |
| Variations with the observer position at spacings: |                  |      |      |      |      |                |      |      |      |      |
| S=1.0H                                             | +0.1/-0.2        |      |      |      |      | +0.4/-0.2      |      |      |      |      |
| S=1.5H                                             | +0.4/-0.7        |      |      |      |      | +1.2/-2.3      |      |      |      |      |
| S=2.0H                                             | +0.7/-1.2        |      |      |      |      | +1.7/-2.0      |      |      |      |      |

Calculate in accordance with CIE Pub.117. The table is revised with  $3022\text{lm}$  ( $8\log(F/F_0) = 3.8$ ).

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 = 1.50 |      |      |      |      |      |      |      |      |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| 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  | 0.61           | 0.70 | 0.78 | 0.83 | 0.90 | 0.95 | 0.98 | 1.03 | 1.05 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.54           | 0.63 | 0.71 | 0.77 | 0.85 | 0.90 | 0.94 | 0.99 | 1.02 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.49           | 0.57 | 0.66 | 0.72 | 0.80 | 0.86 | 0.90 | 0.95 | 0.99 |  |
| 0.50                                                                                                                                                                              | 0.50 | 0.20  | 0.60           | 0.68 | 0.75 | 0.80 | 0.87 | 0.91 | 0.95 | 0.98 | 1.01 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.53           | 0.62 | 0.69 | 0.75 | 0.82 | 0.87 | 0.91 | 0.95 | 0.98 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.48           | 0.57 | 0.65 | 0.70 | 0.78 | 0.84 | 0.87 | 0.93 | 0.96 |  |
| 0.30                                                                                                                                                                              | 0.50 | 0.20  | 0.58           | 0.66 | 0.73 | 0.78 | 0.84 | 0.88 | 0.91 | 0.95 | 0.97 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.52           | 0.60 | 0.68 | 0.73 | 0.80 | 0.85 | 0.88 | 0.92 | 0.95 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.48           | 0.56 | 0.64 | 0.69 | 0.77 | 0.82 | 0.85 | 0.90 | 0.93 |  |
| 0.00                                                                                                                                                                              | 0.00 | 0.00  | 0.46           | 0.54 | 0.61 | 0.66 | 0.73 | 0.78 | 0.81 | 0.85 | 0.88 |  |
| Rating:20W 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 = 1.50 |      |      |      |      |      |      |      |      |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| 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  | 0.93           | 0.78 | 0.65 | 0.56 | 0.44 | 0.37 | 0.31 | 0.24 | 0.19 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.78           | 0.67 | 0.57 | 0.50 | 0.40 | 0.34 | 0.29 | 0.23 | 0.19 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.67           | 0.58 | 0.51 | 0.45 | 0.37 | 0.31 | 0.27 | 0.21 | 0.18 |  |
| 0.50                                                                                                                                                                              | 0.50 | 0.20  | 0.90           | 0.75 | 0.63 | 0.54 | 0.42 | 0.38 | 0.30 | 0.23 | 0.18 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.76           | 0.65 | 0.55 | 0.48 | 0.39 | 0.32 | 0.28 | 0.22 | 0.18 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.66           | 0.57 | 0.50 | 0.44 | 0.36 | 0.30 | 0.26 | 0.20 | 0.17 |  |
| 0.30                                                                                                                                                                              | 0.50 | 0.20  | 0.87           | 0.72 | 0.60 | 0.51 | 0.40 | 0.33 | 0.28 | 0.22 | 0.17 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.74           | 0.63 | 0.54 | 0.47 | 0.37 | 0.31 | 0.26 | 0.21 | 0.17 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.65           | 0.57 | 0.49 | 0.43 | 0.35 | 0.29 | 0.25 | 0.20 | 0.16 |  |
| 0.00                                                                                                                                                                              | 0.00 | 0.00  | 0.54           | 0.46 | 0.39 | 0.34 | 0.27 | 0.22 | 0.19 | 0.15 | 0.12 |  |
| Rating:20W 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 = 1.50 |      |      |      |      |      |      |      |      |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| 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  | 0.16           | 0.18 | 0.19 | 0.19 | 0.20 | 0.21 | 0.21 | 0.22 | 0.22 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.10           | 0.12 | 0.13 | 0.14 | 0.16 | 0.17 | 0.18 | 0.19 | 0.20 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.05           | 0.07 | 0.09 | 0.10 | 0.12 | 0.14 | 0.15 | 0.17 | 0.18 |  |
| 0.50                                                                                                                                                                              | 0.50 | 0.20  | 0.16           | 0.17 | 0.18 | 0.19 | 0.19 | 0.20 | 0.20 | 0.21 | 0.21 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.10           | 0.11 | 0.13 | 0.14 | 0.15 | 0.16 | 0.17 | 0.18 | 0.19 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.05           | 0.07 | 0.09 | 0.10 | 0.12 | 0.13 | 0.15 | 0.16 | 0.17 |  |
| 0.30                                                                                                                                                                              | 0.50 | 0.20  | 0.15           | 0.17 | 0.17 | 0.18 | 0.19 | 0.19 | 0.20 | 0.20 | 0.20 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.10           | 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 |  |
| 0.00                                                                                                                                                                              | 0.00 | 0.00  | 0.01           | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |  |
| Rating:20W Photometrically tested without ceiling board.<br>Multiply UF values by service correction factors<br>Calculate in accordance with CIBSE Technical Memorandum NO.5 1980 |      |       |                |      |      |      |      |      |      |      |      |  |