

Report No.:

Test Time: 30.04.2020 14:33

## Luminaire Property

Luminaire Manufacturer:

Luminaire Description: FL 58 L 200LED 62W Refond 3N 4000K 104x90 rp

Number of Lamps: 1

Luminous Length (mm): 1500

Luminous Width (mm): 75

Luminous Height (mm): 60

Voltage: 229.1 V

Current: 0.275 A

Power: 62.47 W

Power Factor: 0.991

## Photometric Results

CIE Class: Direct

Total Rated Lamp Lumens: 9545.4 lm

Measurement Flux: 9545.4 lm

Efficiency: 100%

Downward Ratio: 100%

Upward Ratio: 0%

Field Angle(C0/C180,C90/C270,C45/C225,C135/315): 161.2, 128.4, 137.9, 138.5

Beam Angle(C0/C180,C90/C270,C45/C225,C135/315): 100.2, 87.2, 87.6, 86.9

Luminaire Efficacy Rating (LER): 152.85

Central Intensity: 4427.45 cd

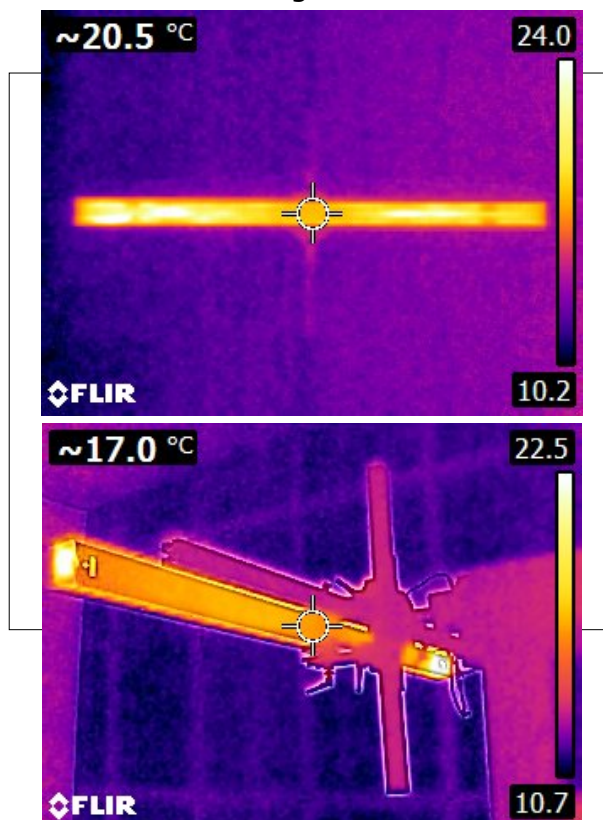
Max. Intensity: 4523.51 cd

Pos of Max. Intensity: H112.5 V2

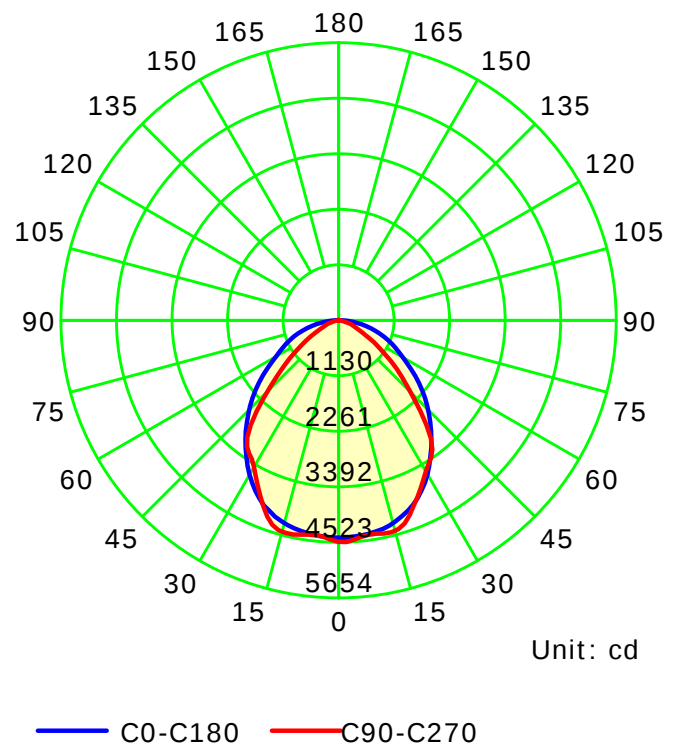
S/MH(C0/C180): 1.21

S/MH(C90/C270): 1.16

Termogramma



Luminous Intensity Distribution Curve



C Plane (°):0.0-360.0: 22.5

Gamma Plane (°):0.0-180.0:2.0

Test Lab:

Test Device: LSG-1800B

Test Type: TYPE C

Distance: 12.677 m

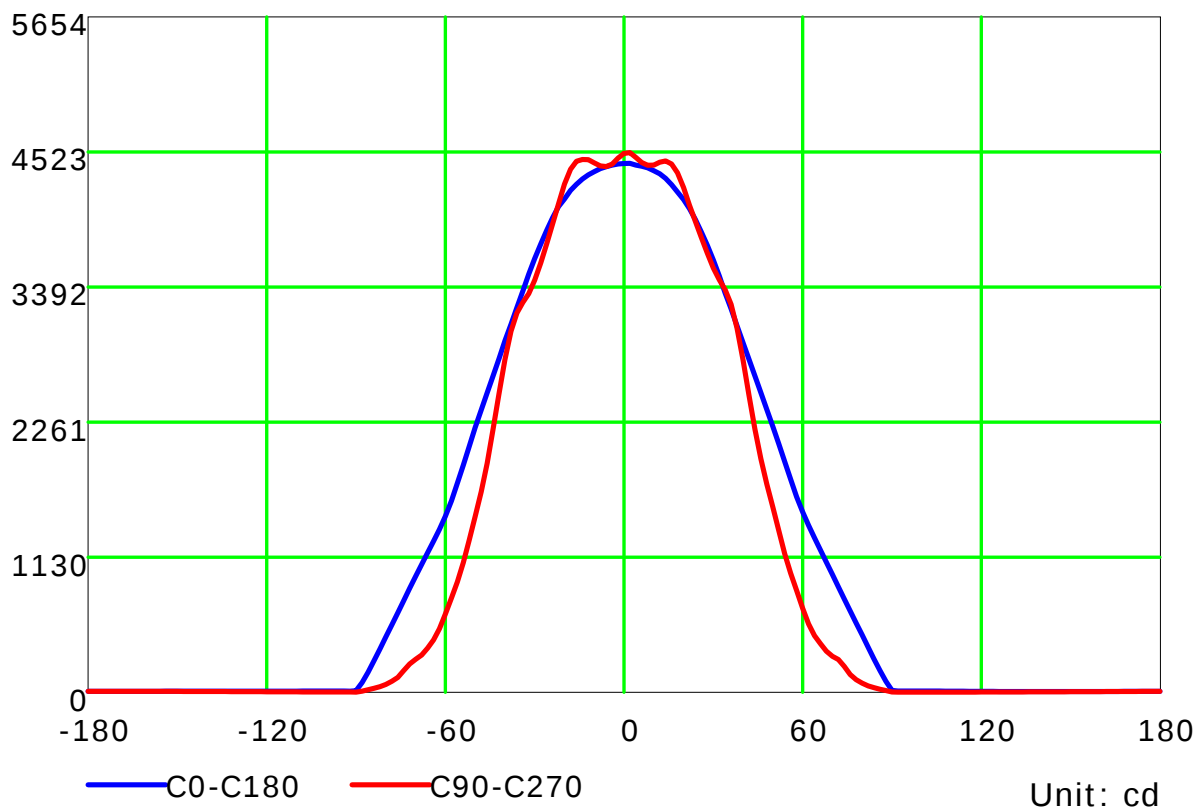
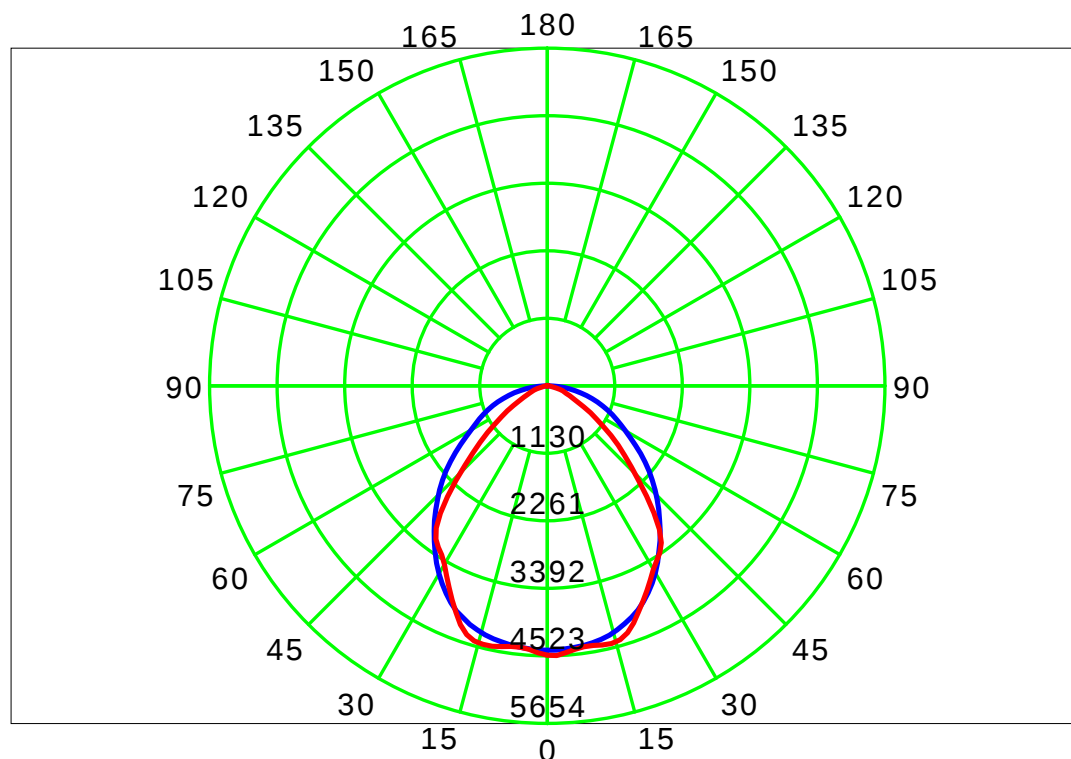
Temperature:

Humidity:

Operator:

Inspector:

## Luminous Intensity Distribution Curve



C Plane (°):0.0-360.0: 22.5

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:2.0

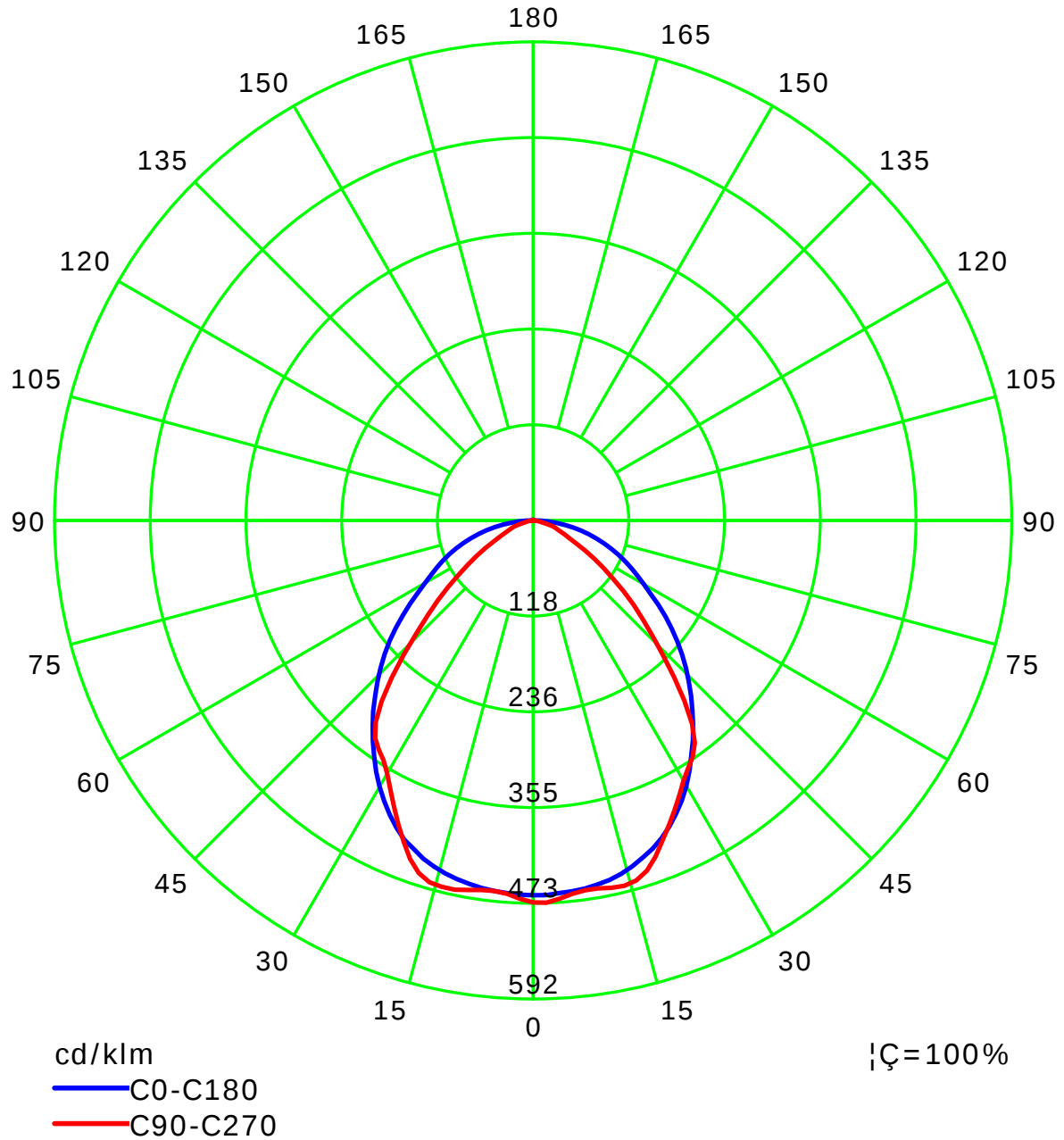
Test Device: LSG-1800B

Distance: 12.677 m

Humidity:

Inspector:

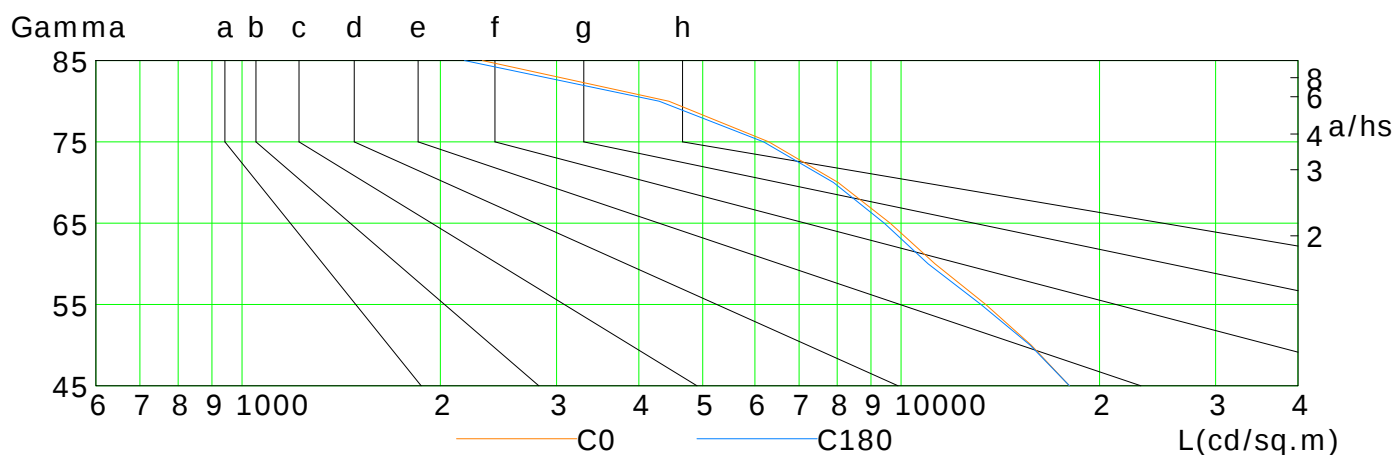
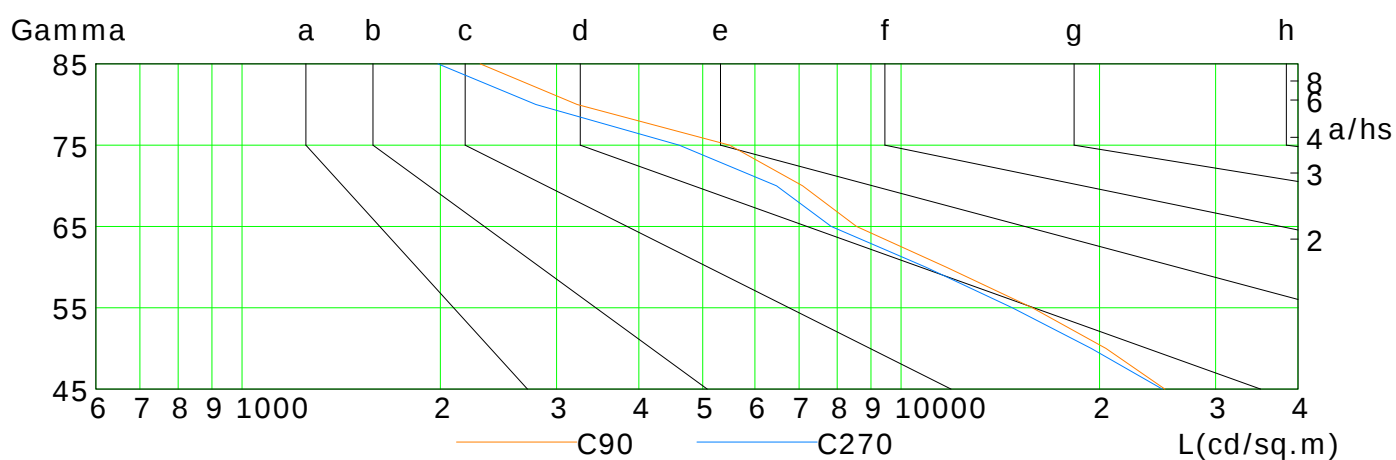
## Luminous Intensity Distribution Curve(cd / klm)



## 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         | 18008 | 15751 | 13438 | 11257 | 9624 | 8023 | 6300 | 4442 | 2316 |
| C90        | 25132 | 20458 | 15814 | 11707 | 8556 | 7087 | 5493 | 3225 | 2298 |
| C180       | 18009 | 15689 | 13213 | 10989 | 9426 | 7894 | 6184 | 4294 | 2175 |
| C270       | 24900 | 19430 | 14743 | 10896 | 7833 | 6471 | 4606 | 2791 | 1983 |

C Plane (°):0.0-360.0: 22.5

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:2.0

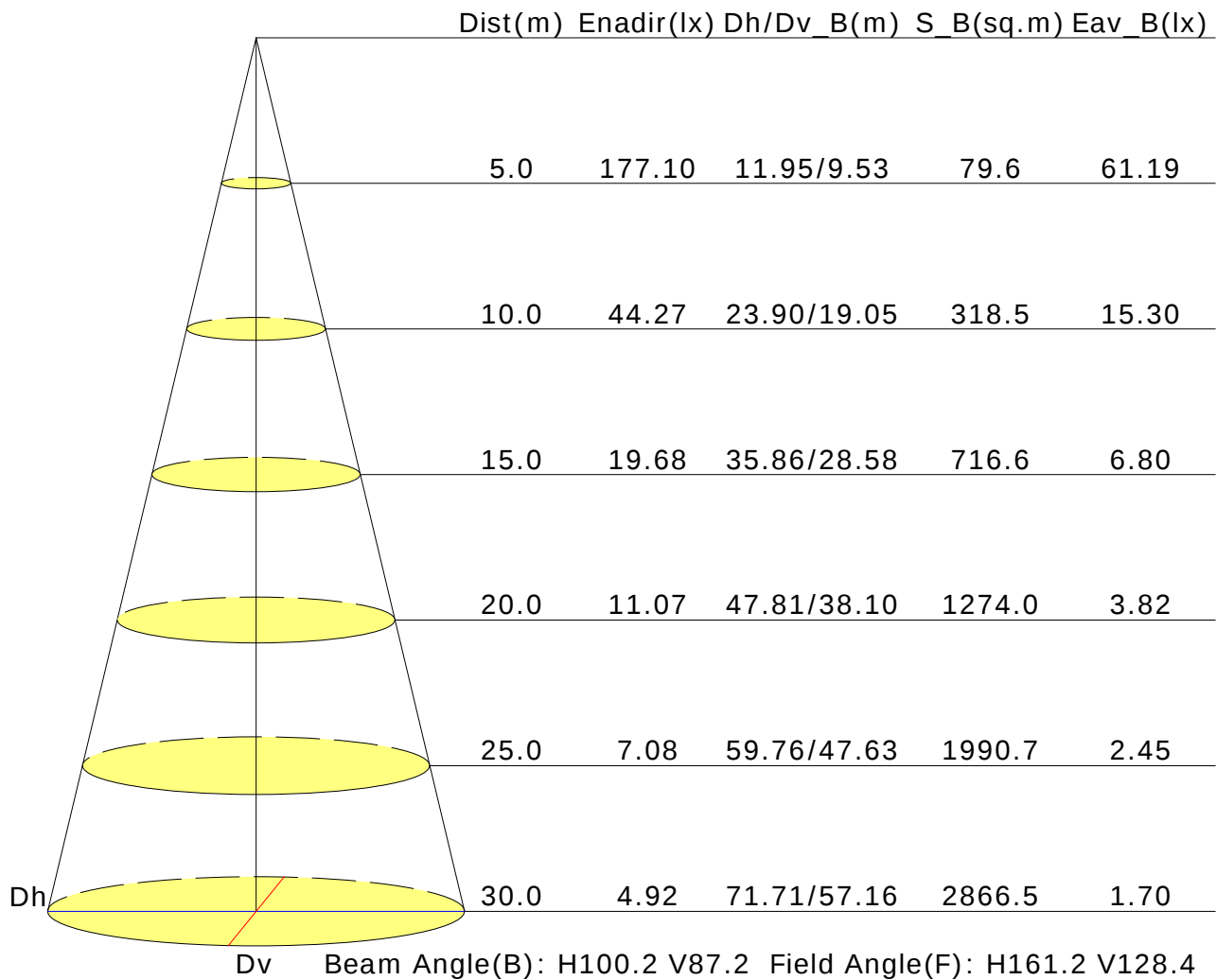
Test Device: LSG-1800B

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                                          | 21.0             | 22.2 | 21.3 | 22.5 | 22.7 | 20.6           | 21.9 | 20.9 | 22.1 | 22.3 |
| 3H                                                 | 22.1             | 23.2 | 22.4 | 23.5 | 23.8 | 20.9           | 22.0 | 21.2 | 22.3 | 22.6 |
| 4H                                                 | 22.5             | 23.6 | 22.9 | 23.9 | 24.2 | 21.0           | 22.1 | 21.3 | 22.3 | 22.6 |
| 6H                                                 | 22.9             | 23.8 | 23.2 | 24.1 | 24.5 | 21.0           | 22.0 | 21.4 | 22.3 | 22.6 |
| 8H                                                 | 22.9             | 23.9 | 23.3 | 24.2 | 24.5 | 21.0           | 21.9 | 21.4 | 22.2 | 22.6 |
| 12H                                                | 23.0             | 23.9 | 23.4 | 24.2 | 24.6 | 21.0           | 21.9 | 21.3 | 22.2 | 22.5 |
| X=4H Y=2H                                          | 21.2             | 22.2 | 21.5 | 22.5 | 22.8 | 20.8           | 21.9 | 21.2 | 22.2 | 22.5 |
| 3H                                                 | 22.4             | 23.3 | 22.8 | 23.6 | 24.0 | 21.2           | 22.1 | 21.6 | 22.4 | 22.8 |
| 4H                                                 | 22.9             | 23.7 | 23.3 | 24.1 | 24.5 | 21.4           | 22.2 | 21.8 | 22.5 | 22.9 |
| 6H                                                 | 23.3             | 24.0 | 23.8 | 24.4 | 24.8 | 21.4           | 22.1 | 21.8 | 22.5 | 22.9 |
| 8H                                                 | 23.5             | 24.1 | 23.9 | 24.5 | 25.0 | 21.4           | 22.0 | 21.8 | 22.4 | 22.8 |
| 12H                                                | 23.5             | 24.1 | 24.0 | 24.6 | 25.0 | 21.4           | 21.9 | 21.8 | 22.4 | 22.8 |
| X=8H Y=4H                                          | 22.9             | 23.6 | 23.4 | 24.0 | 24.4 | 21.4           | 22.0 | 21.8 | 22.4 | 22.9 |
| 6H                                                 | 23.4             | 23.9 | 23.9 | 24.3 | 24.8 | 21.4           | 22.0 | 21.9 | 22.4 | 22.9 |
| 8H                                                 | 23.5             | 24.0 | 24.0 | 24.5 | 25.0 | 21.5           | 21.9 | 21.9 | 22.4 | 22.9 |
| 12H                                                | 23.7             | 24.1 | 24.2 | 24.5 | 25.0 | 21.4           | 21.8 | 21.9 | 22.3 | 22.8 |
| X=12H Y=4H                                         | 22.9             | 23.5 | 23.3 | 23.9 | 24.3 | 21.4           | 22.0 | 21.8 | 22.4 | 22.8 |
| 6H                                                 | 23.4             | 23.8 | 23.8 | 24.3 | 24.8 | 21.4           | 21.9 | 21.9 | 22.4 | 22.9 |
| 8H                                                 | 23.5             | 23.9 | 24.0 | 24.4 | 24.9 | 21.5           | 21.8 | 22.0 | 22.3 | 22.8 |
| Variations with the observer position at spacings: |                  |      |      |      |      |                |      |      |      |      |
| S=1.0H                                             | +0.2/-0.4        |      |      |      |      | +0.6/-0.9      |      |      |      |      |
| S=1.5H                                             | +0.7/-1.0        |      |      |      |      | +1.7/-2.3      |      |      |      |      |
| S=2.0H                                             | +1.5/-1.8        |      |      |      |      | +3.2/-3.8      |      |      |      |      |

Calculate in accordance with CIE Pub.117. The table is revised with 9545lm ( $8\log(F/F_0) = 7.8$ ).

C Plane (°):0.0-360.0: 22.5

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:2.0

Test Device: LSG-1800B

Distance: 12.677 m

Humidity:

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 | 1.03 | 1.06 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.58           | 0.68 | 0.75 | 0.80 | 0.87 | 0.92 | 0.95 | 1.00 | 1.03 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.54           | 0.63 | 0.70 | 0.76 | 0.83 | 0.88 | 0.92 | 0.97 | 1.00 |  |
| 0.50                                                                                                                                                                              | 0.50 | 0.20  | 0.64           | 0.73 | 0.79 | 0.84 | 0.89 | 0.93 | 0.96 | 0.99 | 1.02 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.58           | 0.67 | 0.74 | 0.79 | 0.85 | 0.89 | 0.93 | 0.97 | 0.99 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.53           | 0.63 | 0.70 | 0.74 | 0.81 | 0.86 | 0.89 | 0.94 | 0.97 |  |
| 0.30                                                                                                                                                                              | 0.50 | 0.20  | 0.62           | 0.71 | 0.77 | 0.81 | 0.87 | 0.90 | 0.93 | 0.96 | 0.98 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.57           | 0.66 | 0.72 | 0.77 | 0.83 | 0.87 | 0.90 | 0.93 | 0.96 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.53           | 0.62 | 0.69 | 0.73 | 0.80 | 0.84 | 0.87 | 0.91 | 0.94 |  |
| 0.00                                                                                                                                                                              | 0.00 | 0.00  | 0.51           | 0.60 | 0.66 | 0.70 | 0.76 | 0.80 | 0.83 | 0.87 | 0.89 |  |
| Rating:62W 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 = 1.25 |      |      |      |      |      |      |      |      |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| 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           | 0.70 | 0.59 | 0.51 | 0.41 | 0.34 | 0.29 | 0.22 | 0.18 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.72           | 0.60 | 0.52 | 0.45 | 0.37 | 0.31 | 0.26 | 0.21 | 0.17 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.62           | 0.52 | 0.46 | 0.41 | 0.33 | 0.28 | 0.25 | 0.20 | 0.16 |  |
| 0.50                                                                                                                                                                              | 0.50 | 0.20  | 0.83           | 0.67 | 0.56 | 0.49 | 0.38 | 0.35 | 0.27 | 0.21 | 0.17 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.70           | 0.58 | 0.50 | 0.44 | 0.35 | 0.29 | 0.25 | 0.20 | 0.16 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.61           | 0.52 | 0.45 | 0.40 | 0.32 | 0.27 | 0.24 | 0.19 | 0.16 |  |
| 0.30                                                                                                                                                                              | 0.50 | 0.20  | 0.81           | 0.64 | 0.54 | 0.47 | 0.37 | 0.30 | 0.26 | 0.20 | 0.16 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.69           | 0.57 | 0.48 | 0.42 | 0.34 | 0.28 | 0.24 | 0.19 | 0.15 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.60           | 0.51 | 0.44 | 0.39 | 0.31 | 0.26 | 0.23 | 0.18 | 0.15 |  |
| 0.00                                                                                                                                                                              | 0.00 | 0.00  | 0.49           | 0.40 | 0.34 | 0.29 | 0.23 | 0.19 | 0.16 | 0.13 | 0.10 |  |
| Rating:62W 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 = 1.25 |      |      |      |      |      |      |      |      |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| 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  | 0.16           | 0.17 | 0.18 | 0.19 | 0.20 | 0.20 | 0.21 | 0.21 | 0.22 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.10           | 0.11 | 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  | 0.15           | 0.16 | 0.17 | 0.18 | 0.19 | 0.19 | 0.20 | 0.21 | 0.21 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.10           | 0.11 | 0.12 | 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           | 0.16 | 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 | 0.18 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.05           | 0.07 | 0.09 | 0.10 | 0.12 | 0.13 | 0.14 | 0.16 | 0.17 |  |
| 0.00                                                                                                                                                                              | 0.00 | 0.00  | 0.00           | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |  |
| Rating:62W Photometrically tested without ceiling board.<br>Multiply UF values by service correction factors<br>Calculate in accordance with CIBSE Technical Memorandum NO.5 1980 |      |       |                |      |      |      |      |      |      |      |      |  |