

Report No.:

Test Time: 23.04.2020 14:59

## Luminaire Property

Luminaire Manufacturer:

Luminaire Description: FL 58 L 200LED 55W Refond 3N 5000K 2x25-90

Number of Lamps: 1

Luminous Length (mm): 1500

Luminous Width (mm): 75

Luminous Height (mm): 60

Voltage: 229.0 V

Current: 0.228 A

Power: 51.43 W

Power Factor: 0.986

## Photometric Results

CIE Class: Direct

Total Rated Lamp Lumens: 8477.4 lm

Measurement Flux: 8477.4 lm

Efficiency: 100%

Downward Ratio: 100%

Upward Ratio: 0%

Field Angle(C0/C180,C90/C270,C45/C225,C135/315): 159.2, 125.9, 134.9, 134.8

Beam Angle(C0/C180,C90/C270,C45/C225,C135/315): 103.6, 73.2, 86.8, 86.4

Luminaire Efficacy Rating (LER): 164.88

Central Intensity: 2631.63 cd

Max. Intensity: 4894.05 cd

Pos of Max. Intensity: H270 V22

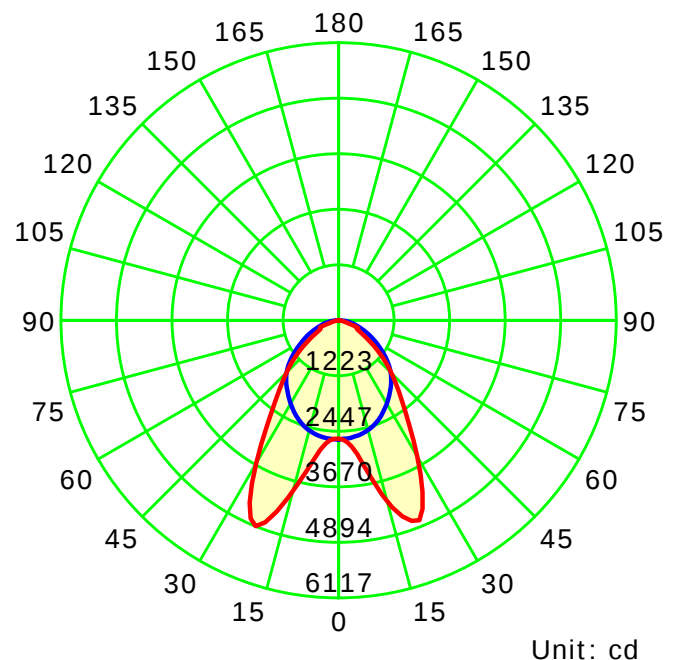
S/MH(C0/C180): 1.20

S/MH(C90/C270): 1.47

Picture Of Luminaire



Luminous Intensity Distribution Curve



— C0-C180 — C90-C270

C Plane (°):0.0-360.0: 22.5

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:2.0

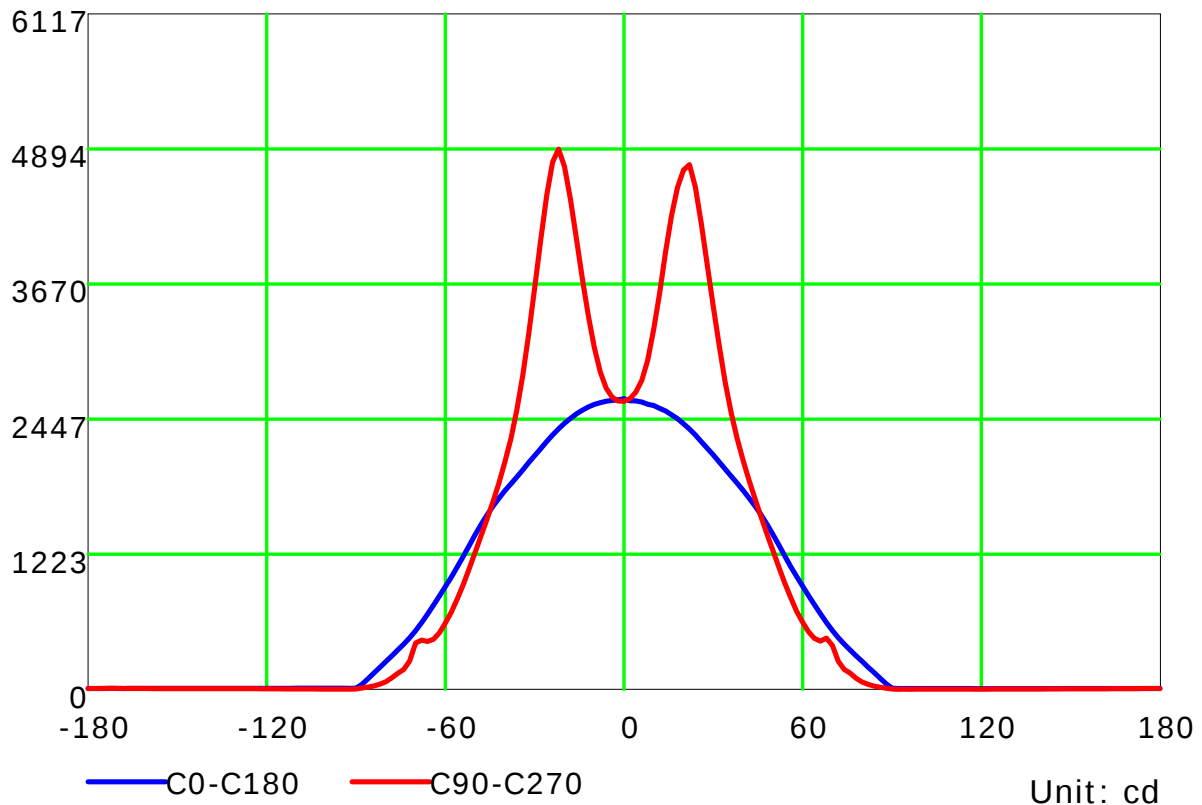
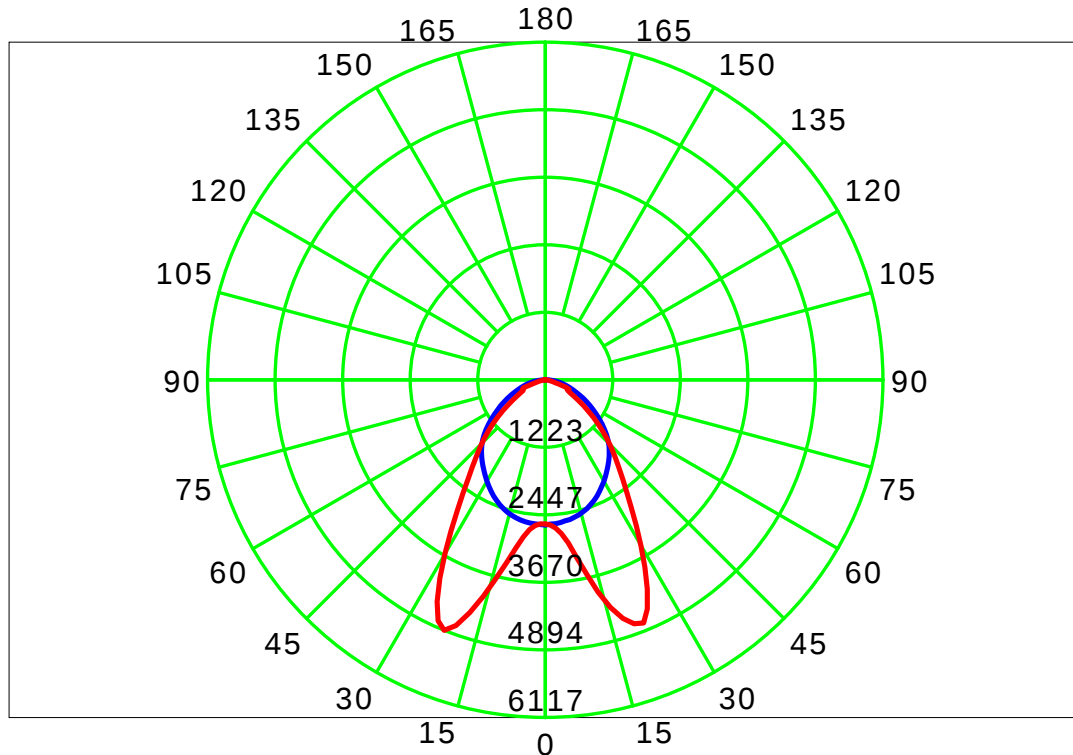
Test Device: LSG-1800B

Distance: 12.677 m

Humidity:

Inspector:

## Luminous Intensity Distribution Curve



C Plane (°):0.0-360.0: 22.5

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:2.0

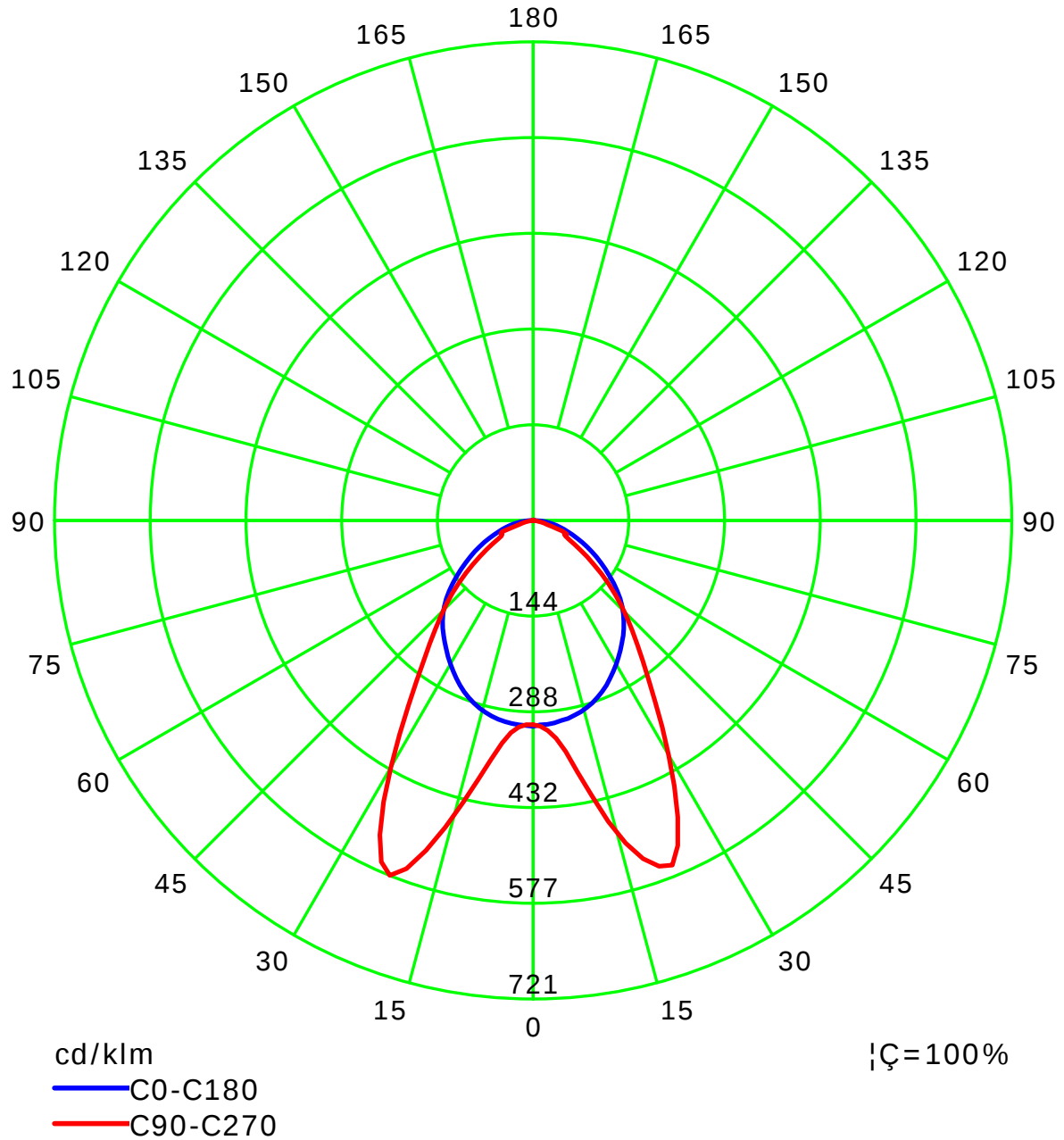
Test Device: LSG-1800B

Distance: 12.677 m

Humidity:

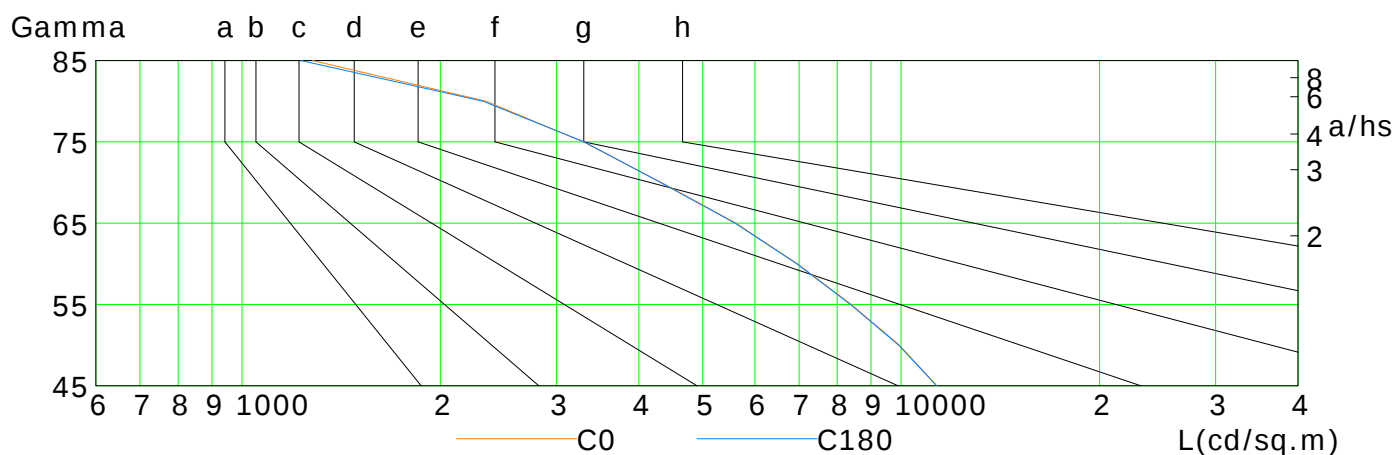
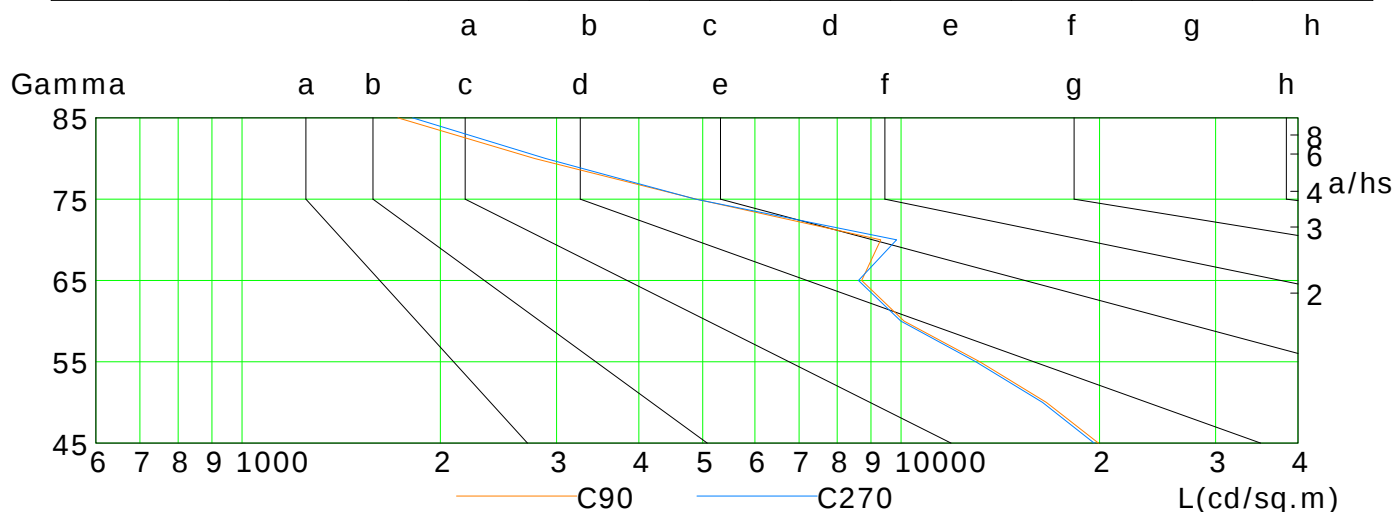
Inspector:

## 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 |



| L(cd/sq.m) | G45   | G50   | G55   | G60   | G65  | G70  | G75  | G80  | G85  |
|------------|-------|-------|-------|-------|------|------|------|------|------|
| C0         | 11329 | 9934  | 8401  | 6963  | 5618 | 4329 | 3295 | 2345 | 1280 |
| C90        | 19921 | 16611 | 13167 | 10104 | 8711 | 9313 | 4889 | 2780 | 1724 |
| C180       | 11318 | 9915  | 8380  | 6945  | 5598 | 4315 | 3303 | 2321 | 1229 |
| C270       | 19626 | 16388 | 12983 | 9993  | 8615 | 9843 | 4878 | 2888 | 1816 |

C Plane (°):0.0-360.0: 22.5

Test Lab:

Test Type: TYPE C

Temperature:

Operator:

Gamma Plane (°):0.0-180.0:2.0

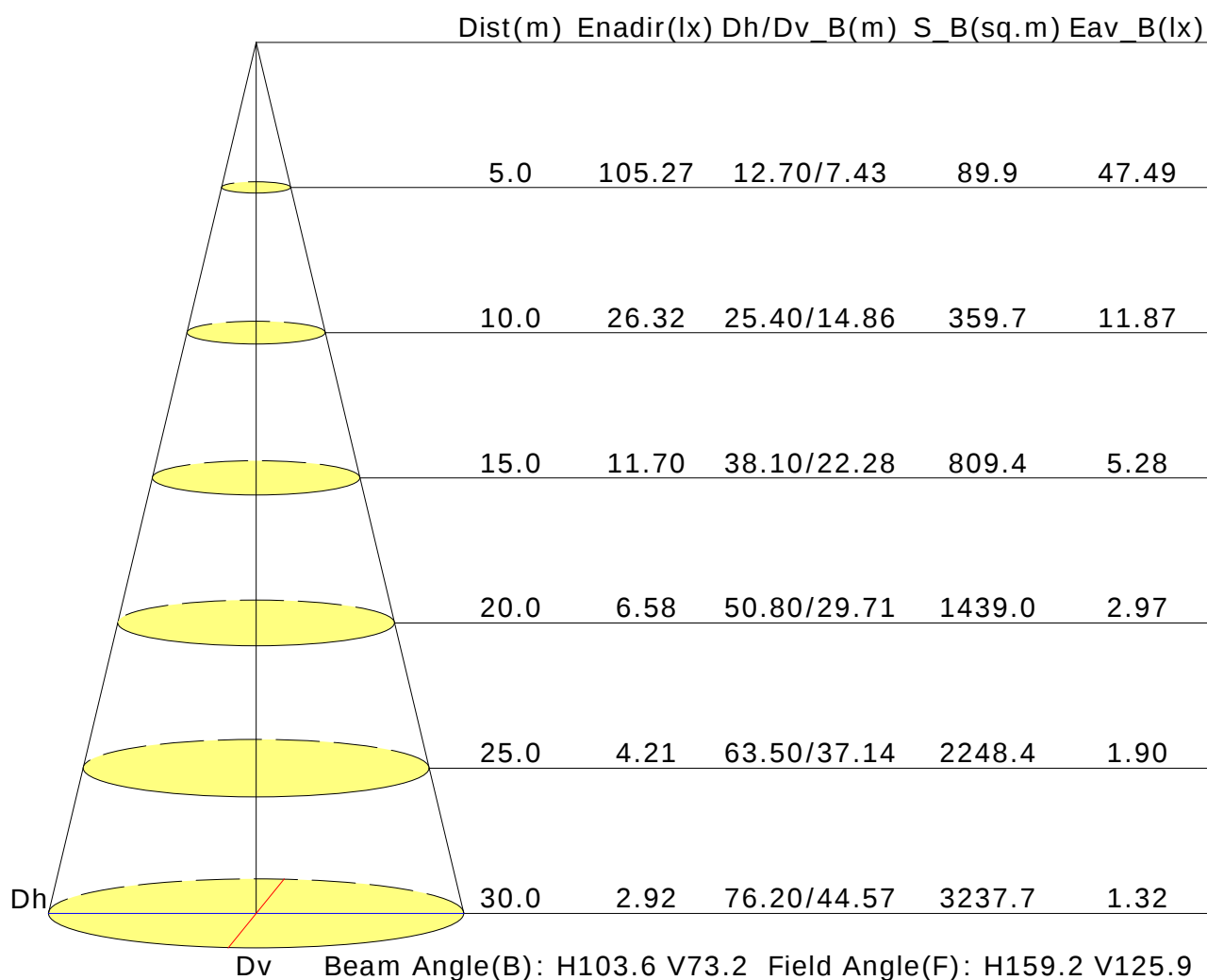
Test Device: LSG-1800B

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                                          | 20.9             | 22.1 | 21.2 | 22.4 | 22.6 | 19.9           | 21.1 | 20.2 | 21.4 | 21.6 |
| 3H                                                 | 21.4             | 22.5 | 21.7 | 22.8 | 23.1 | 20.6           | 21.7 | 20.9 | 22.0 | 22.3 |
| 4H                                                 | 21.6             | 22.7 | 21.9 | 22.9 | 23.2 | 20.7           | 21.8 | 21.1 | 22.1 | 22.4 |
| 6H                                                 | 21.7             | 22.7 | 22.1 | 23.0 | 23.3 | 20.8           | 21.7 | 21.1 | 22.0 | 22.4 |
| 8H                                                 | 21.7             | 22.7 | 22.1 | 23.0 | 23.3 | 20.7           | 21.7 | 21.1 | 22.0 | 22.3 |
| 12H                                                | 21.7             | 22.6 | 22.1 | 23.0 | 23.3 | 20.7           | 21.6 | 21.1 | 21.9 | 22.3 |
| X=4H Y=2H                                          | 21.0             | 22.0 | 21.3 | 22.3 | 22.6 | 20.1           | 21.2 | 20.5 | 21.5 | 21.8 |
| 3H                                                 | 21.7             | 22.6 | 22.0 | 22.9 | 23.3 | 21.0           | 21.9 | 21.3 | 22.2 | 22.5 |
| 4H                                                 | 22.0             | 22.8 | 22.4 | 23.1 | 23.5 | 21.1           | 22.0 | 21.6 | 22.3 | 22.7 |
| 6H                                                 | 22.2             | 22.9 | 22.6 | 23.3 | 23.7 | 21.2           | 21.9 | 21.6 | 22.3 | 22.7 |
| 8H                                                 | 22.2             | 22.9 | 22.7 | 23.3 | 23.7 | 21.2           | 21.9 | 21.6 | 22.3 | 22.7 |
| 12H                                                | 22.3             | 22.8 | 22.7 | 23.3 | 23.7 | 21.2           | 21.8 | 21.6 | 22.2 | 22.6 |
| X=8H Y=4H                                          | 22.0             | 22.6 | 22.4 | 23.0 | 23.5 | 21.2           | 21.9 | 21.7 | 22.3 | 22.7 |
| 6H                                                 | 22.3             | 22.8 | 22.7 | 23.2 | 23.7 | 21.3           | 21.8 | 21.8 | 22.3 | 22.8 |
| 8H                                                 | 22.4             | 22.8 | 22.9 | 23.3 | 23.8 | 21.3           | 21.8 | 21.8 | 22.2 | 22.7 |
| 12H                                                | 22.4             | 22.8 | 22.9 | 23.3 | 23.8 | 21.3           | 21.7 | 21.8 | 22.2 | 22.7 |
| X=12H Y=4H                                         | 22.0             | 22.5 | 22.4 | 23.0 | 23.4 | 21.2           | 21.8 | 21.7 | 22.2 | 22.7 |
| 6H                                                 | 22.3             | 22.7 | 22.7 | 23.2 | 23.7 | 21.3           | 21.8 | 21.8 | 22.2 | 22.7 |
| 8H                                                 | 22.4             | 22.8 | 22.9 | 23.2 | 23.8 | 21.3           | 21.7 | 21.8 | 22.2 | 22.7 |
| Variations with the observer position at spacings: |                  |      |      |      |      |                |      |      |      |      |
| S=1.0H                                             | +0.9/-0.9        |      |      |      |      | +0.7/-0.8      |      |      |      |      |
| S=1.5H                                             | +1.5/-1.7        |      |      |      |      | +1.3/-2.2      |      |      |      |      |
| S=2.0H                                             | +2.7/-2.4        |      |      |      |      | +2.7/-2.3      |      |      |      |      |

Calculate in accordance with CIE Pub.117. The table is revised with 8477lm ( $8\log(F/F_0) = 7.4$ ).

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 = 1.50 |      |      |      |      |      |      |      |      |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|----------------|------|------|------|------|------|------|------|------|--|
| 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  | 0.70           | 0.78 | 0.84 | 0.88 | 0.94 | 0.98 | 1.01 | 1.04 | 1.06 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.64           | 0.71 | 0.78 | 0.83 | 0.89 | 0.94 | 0.97 | 1.01 | 1.04 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.59           | 0.67 | 0.74 | 0.78 | 0.85 | 0.90 | 0.93 | 0.98 | 1.01 |  |
| 0.50                                                                                                                                                                              | 0.50 | 0.20  | 0.68           | 0.76 | 0.82 | 0.86 | 0.91 | 0.95 | 0.97 | 1.00 | 1.02 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.63           | 0.70 | 0.77 | 0.81 | 0.87 | 0.91 | 0.94 | 0.98 | 1.00 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.59           | 0.66 | 0.73 | 0.77 | 0.84 | 0.88 | 0.91 | 0.95 | 0.98 |  |
| 0.30                                                                                                                                                                              | 0.50 | 0.20  | 0.67           | 0.74 | 0.79 | 0.83 | 0.88 | 0.91 | 0.94 | 0.97 | 0.98 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.62           | 0.69 | 0.75 | 0.79 | 0.85 | 0.89 | 0.91 | 0.94 | 0.97 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.58           | 0.65 | 0.72 | 0.76 | 0.82 | 0.86 | 0.89 | 0.93 | 0.95 |  |
| 0.00                                                                                                                                                                              | 0.00 | 0.00  | 0.56           | 0.63 | 0.69 | 0.73 | 0.79 | 0.82 | 0.85 | 0.88 | 0.90 |  |
| Rating:51W 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  | 0.79           | 0.66 | 0.55 | 0.48 | 0.38 | 0.31 | 0.27 | 0.21 | 0.17 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.66           | 0.56 | 0.48 | 0.42 | 0.34 | 0.29 | 0.25 | 0.19 | 0.16 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.57           | 0.49 | 0.43 | 0.38 | 0.31 | 0.26 | 0.23 | 0.18 | 0.15 |  |
| 0.50                                                                                                                                                                              | 0.50 | 0.20  | 0.76           | 0.63 | 0.53 | 0.45 | 0.36 | 0.33 | 0.25 | 0.19 | 0.16 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.64           | 0.55 | 0.46 | 0.41 | 0.33 | 0.27 | 0.23 | 0.18 | 0.15 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.56           | 0.48 | 0.42 | 0.37 | 0.30 | 0.25 | 0.22 | 0.17 | 0.14 |  |
| 0.30                                                                                                                                                                              | 0.50 | 0.20  | 0.74           | 0.60 | 0.50 | 0.43 | 0.34 | 0.28 | 0.24 | 0.18 | 0.15 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.63           | 0.53 | 0.45 | 0.39 | 0.31 | 0.26 | 0.22 | 0.17 | 0.14 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.55           | 0.47 | 0.41 | 0.36 | 0.29 | 0.24 | 0.21 | 0.17 | 0.14 |  |
| 0.00                                                                                                                                                                              | 0.00 | 0.00  | 0.43           | 0.36 | 0.30 | 0.26 | 0.21 | 0.17 | 0.15 | 0.11 | 0.09 |  |
| Rating:51W 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  | 0.15           | 0.17 | 0.17 | 0.18 | 0.19 | 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 |       | 0.06           | 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 | 0.20 | 0.21 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.09           | 0.11 | 0.12 | 0.13 | 0.15 | 0.16 | 0.17 | 0.18 | 0.19 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.06           | 0.07 | 0.09 | 0.10 | 0.12 | 0.14 | 0.15 | 0.16 | 0.17 |  |
| 0.30                                                                                                                                                                              | 0.50 | 0.20  | 0.14           | 0.15 | 0.16 | 0.17 | 0.18 | 0.18 | 0.19 | 0.19 | 0.20 |  |
|                                                                                                                                                                                   | 0.30 |       | 0.09           | 0.11 | 0.12 | 0.13 | 0.15 | 0.16 | 0.17 | 0.18 | 0.18 |  |
|                                                                                                                                                                                   | 0.20 |       | 0.06           | 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:51W Photometrically tested without ceiling board.<br>Multiply UF values by service correction factors<br>Calculate in accordance with CIBSE Technical Memorandum NO.5 1980 |      |       |                |      |      |      |      |      |      |      |      |  |