

Report No.:

Test Time: 2021/11/16 16:02

## Luminaire Property

Luminaire Manufacturer:

Luminaire Category: COB RIBBONLYTE

Luminaire Description: RBOLINEA204.3VW-2700

Lamp Catalog: FCOB-24V-D576-VW-14W-10MM-IP20 RA>80

Lamp Description: 2700K

Number of Lamps: 576/M

Luminous Length (mm): 500

Luminous Width (mm): 10

Luminous Height (mm): 1.5

Voltage: 24.0 V

Current: 0.203 A

Power: 4.86 W

Power Factor: 1.000

## Photometric Results

CIE Class: Direct

Total Rated Lamp Lumens: 414.3 lm

Measurement Flux: 414.3 lm

Efficiency: 100%

Downward Ratio: 96%

Upward Ratio: 4%

Horizontal Diffuse Angle(10%,50%): H160.4,H115.4

Vertical Diffuse Angle(10%,50%): V195.9,V142.2

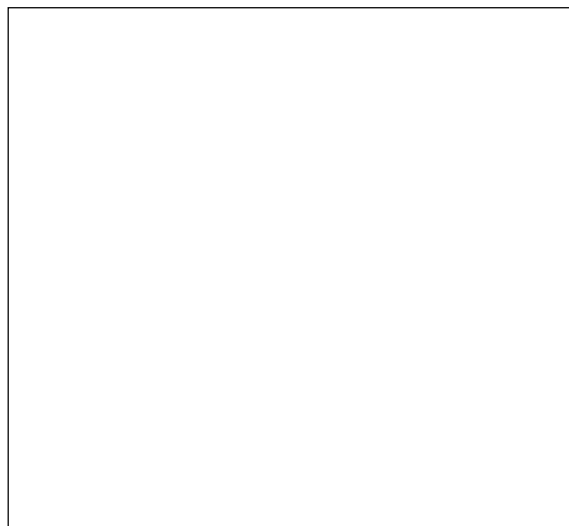
Luminaire Efficacy Rating (LER): 85

Central Intensity: 114.49 cd

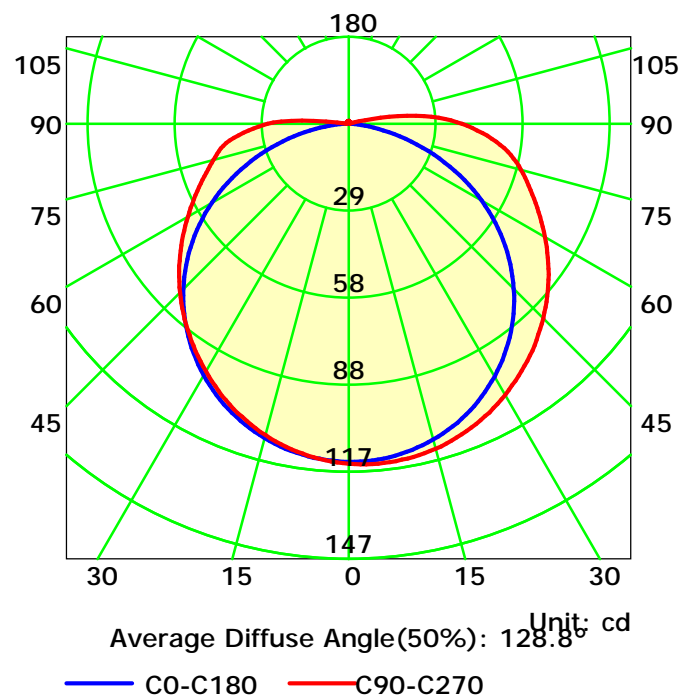
Max. Intensity: 115.52 cd

Pos of Max. Intensity: H90 V5

Picture Of Luminaire



Luminous Intensity Distribution Curve



C Plane (°):0.0-360.0: 30.0

Test Lab:

Test Type: TYPE C

Temperature: 25

Operator: Kerr

Gamma Plane (°):0.0-180.0: 1.0

Test Device: GPM-1800B

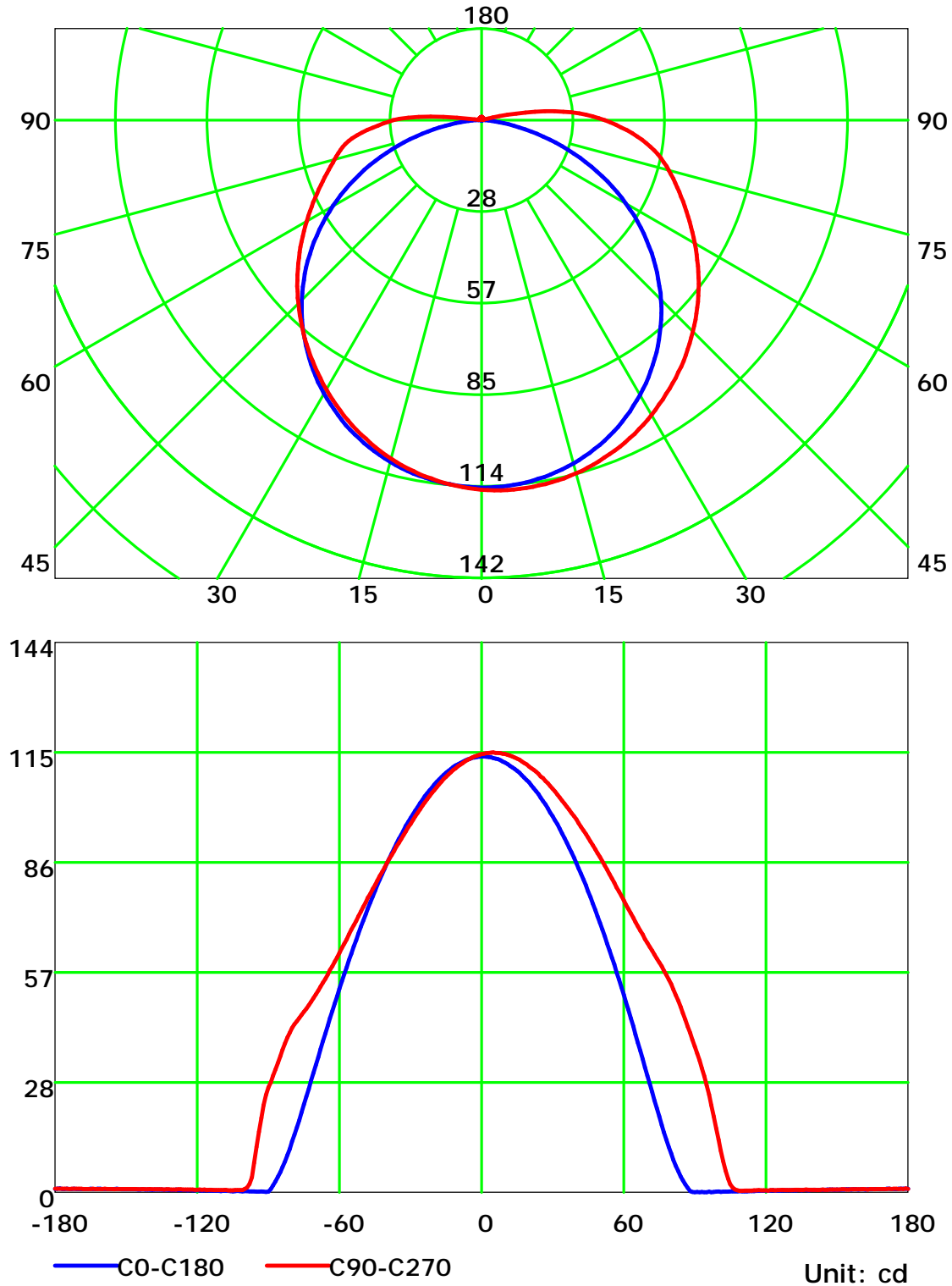
Distance: 9.028 m

Humidity: 60%

Inspector:



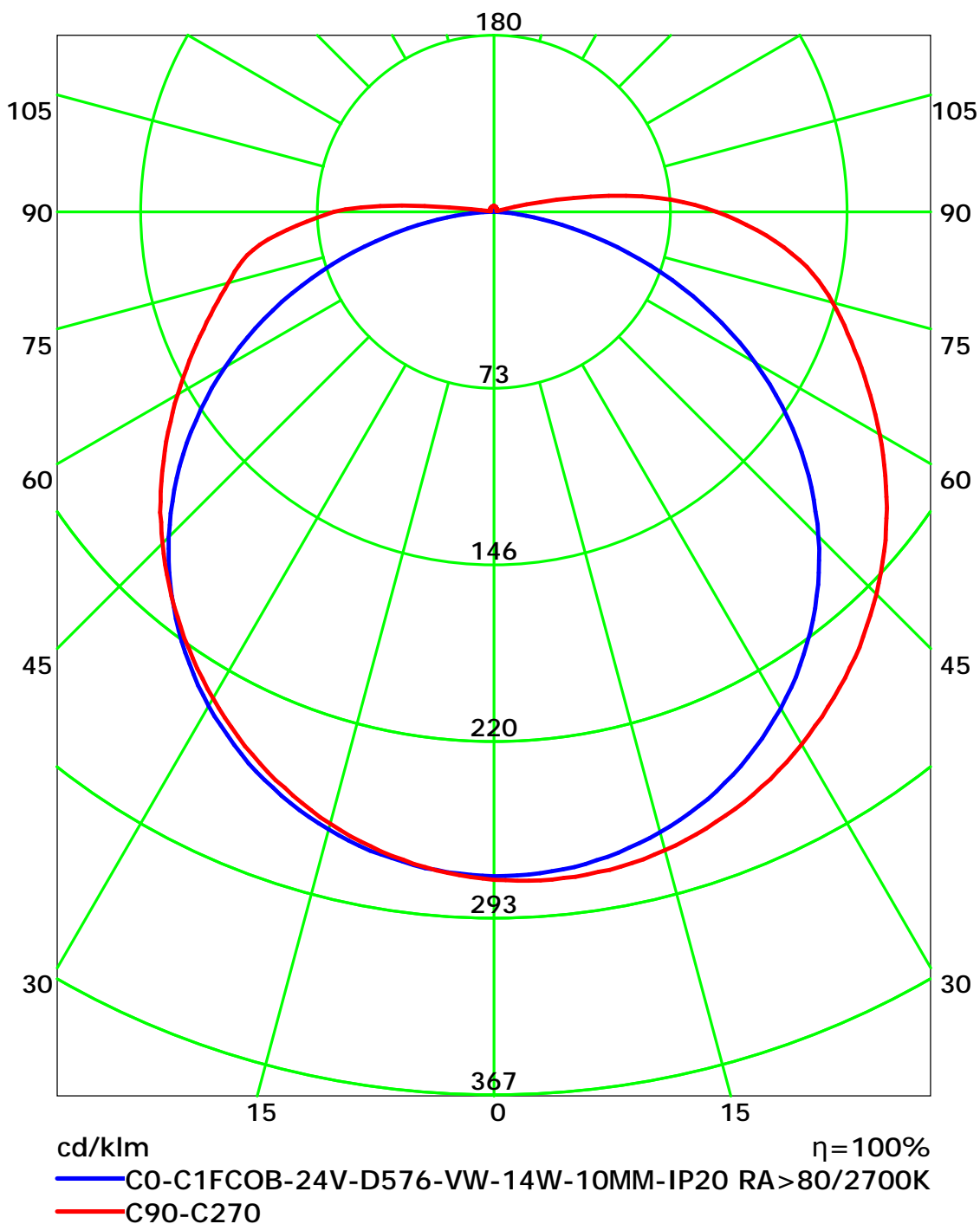
## Luminous Intensity Distribution Curve



C Plane (°):0.0-360.0: 30.0  
Test Lab:  
Test Type: TYPE C  
Temperature: 25  
Operator: Kerr

Gamma Plane (°):0.0-180.0:1.0  
Test Device: GPM-1800B  
Distance: 9.028 m  
Humidity: 60%  
Inspector:

## Luminous Intensity Distribution Curve(cd/klm)



C Plane (°):0.0-360.0: 30.0  
Test Lab:  
Test Type: TYPE C  
Temperature: 25  
Operator: Kerr

Gamma Plane (°):0.0-180.0:1.0  
Test Device: GPM-1800B  
Distance: 9.028 m  
Humidity: 60%  
Inspector:

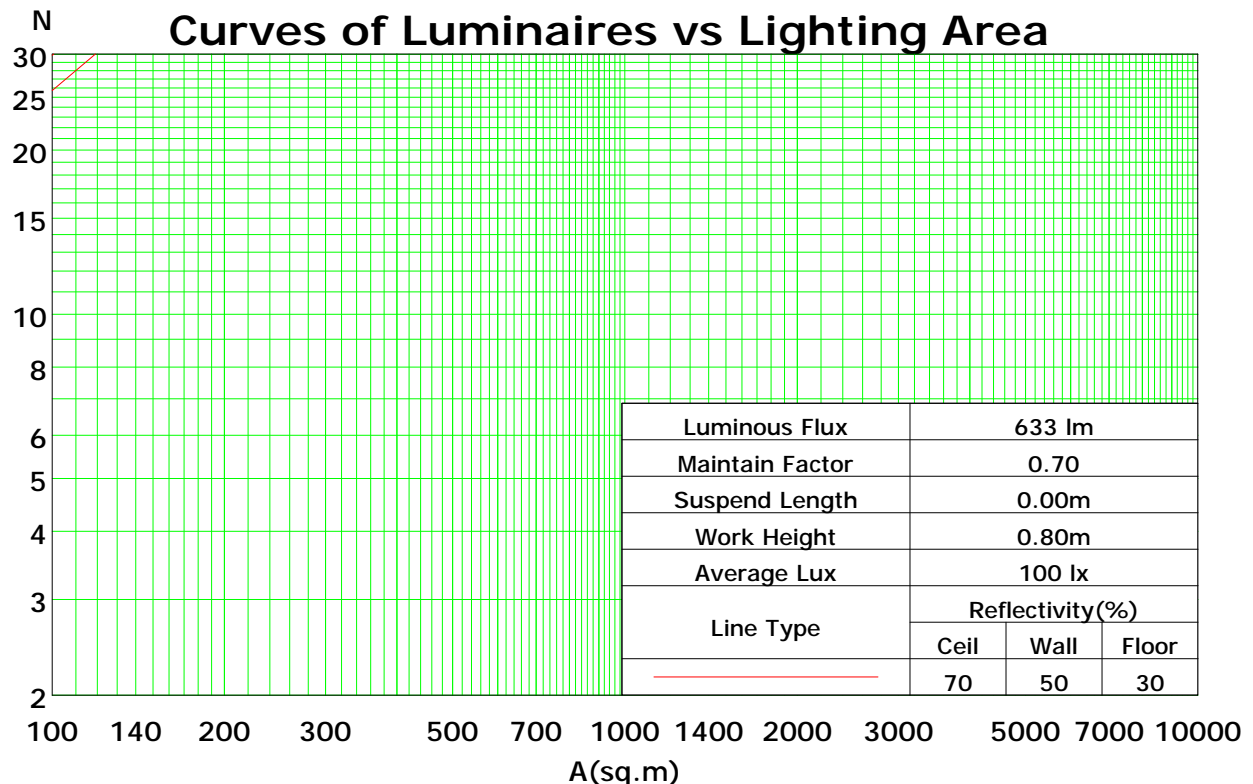
## Coefficients Of Utilization - Zonal Cavity Method

|     |          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| RC  | 0.8      | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 | 0.7 | 0.5 | 0.5 | 0.5 | 0.3 | 0.3 | 0.3 | 0.1 | 0.1 | 0.1 | 0  |
| RW  | 0.7      | 0.5 | 0.3 | 0.1 | 0.7 | 0.5 | 0.3 | 0.1 | 0.5 | 0.3 | 0.1 | 0.5 | 0.3 | 0.1 | 0.5 | 0.3 | 0.1 | 0  |
| RCR | RF = 0.2 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| 0   | 118      | 118 | 118 | 118 | 115 | 115 | 115 | 115 | 109 | 109 | 109 | 104 | 104 | 104 | 99  | 99  | 99  | 96 |
| 1   | 105      | 99  | 94  | 89  | 102 | 97  | 92  | 87  | 92  | 88  | 84  | 87  | 84  | 81  | 83  | 80  | 78  | 75 |
| 2   | 95       | 85  | 77  | 71  | 92  | 83  | 76  | 70  | 79  | 73  | 67  | 75  | 70  | 65  | 71  | 67  | 63  | 61 |
| 3   | 86       | 74  | 65  | 58  | 83  | 72  | 64  | 57  | 68  | 61  | 55  | 65  | 59  | 54  | 62  | 57  | 53  | 50 |
| 4   | 78       | 65  | 56  | 48  | 75  | 64  | 55  | 48  | 60  | 53  | 47  | 58  | 51  | 46  | 55  | 49  | 45  | 42 |
| 5   | 72       | 58  | 48  | 41  | 69  | 57  | 47  | 41  | 54  | 46  | 40  | 52  | 45  | 39  | 49  | 43  | 38  | 36 |
| 6   | 66       | 52  | 42  | 36  | 64  | 51  | 42  | 35  | 49  | 41  | 35  | 46  | 39  | 34  | 45  | 38  | 33  | 31 |
| 7   | 61       | 47  | 38  | 31  | 59  | 46  | 37  | 31  | 44  | 36  | 30  | 42  | 35  | 30  | 41  | 34  | 30  | 27 |
| 8   | 57       | 43  | 34  | 28  | 55  | 42  | 33  | 28  | 40  | 33  | 27  | 39  | 32  | 27  | 37  | 31  | 26  | 24 |
| 9   | 53       | 39  | 31  | 25  | 51  | 38  | 30  | 25  | 37  | 30  | 24  | 36  | 29  | 24  | 34  | 28  | 24  | 22 |
| 10  | 50       | 36  | 28  | 22  | 48  | 35  | 28  | 22  | 34  | 27  | 22  | 33  | 26  | 22  | 32  | 26  | 21  | 20 |

Spacing Criteria (0-180): 1.28

Spacing Criteria (90-270): 1.31

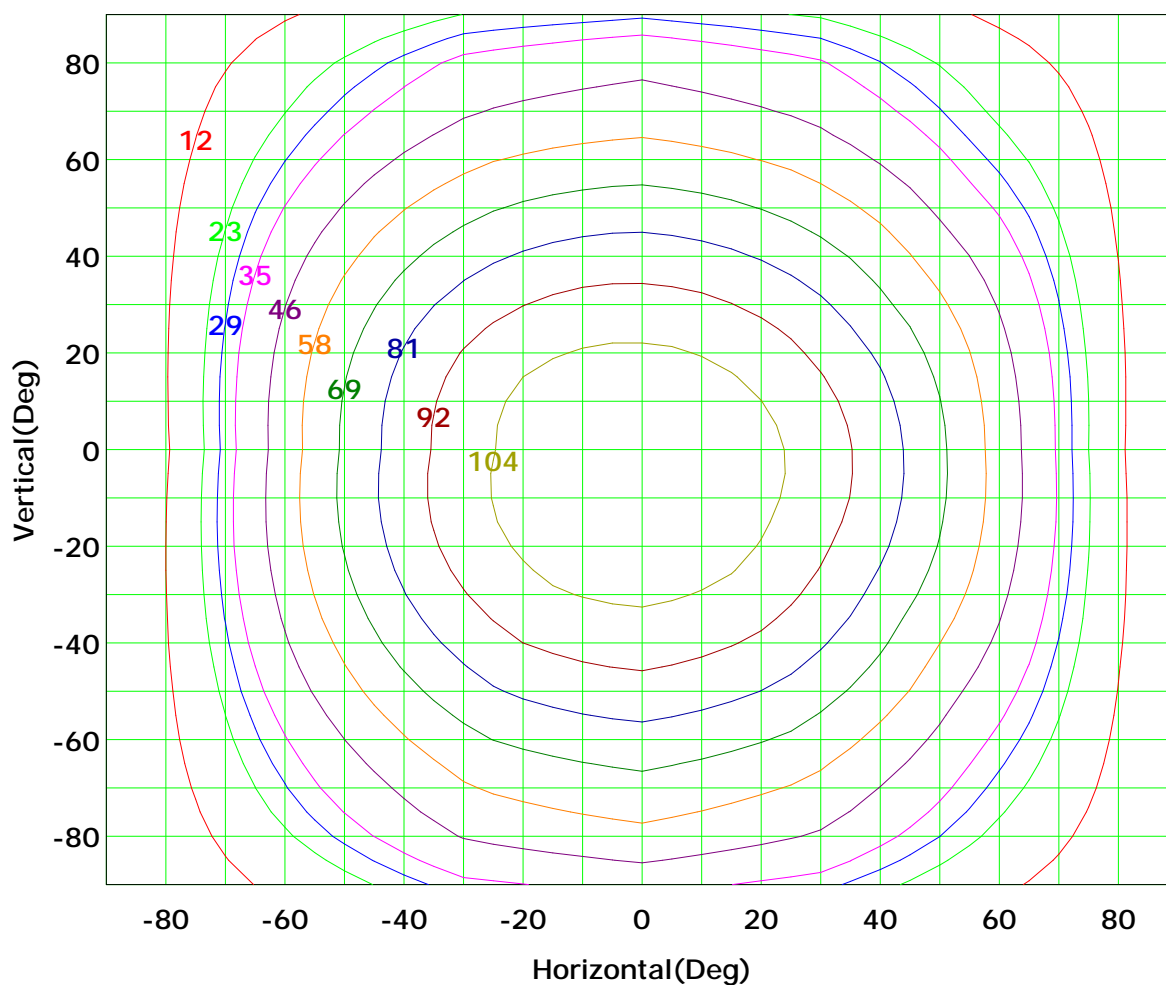
Spacing Criteria (Diagonal): 1.43



C Plane (°):0.0-360.0: 30.0  
Test Lab:  
Test Type: TYPE C  
Temperature: 25  
Operator: Kerr

Gamma Plane (°):0.0-180.0: 1.0  
Test Device: GPM-1800B  
Distance: 9.028 m  
Humidity: 60%  
Inspector:

## Isocandela (rectangle)



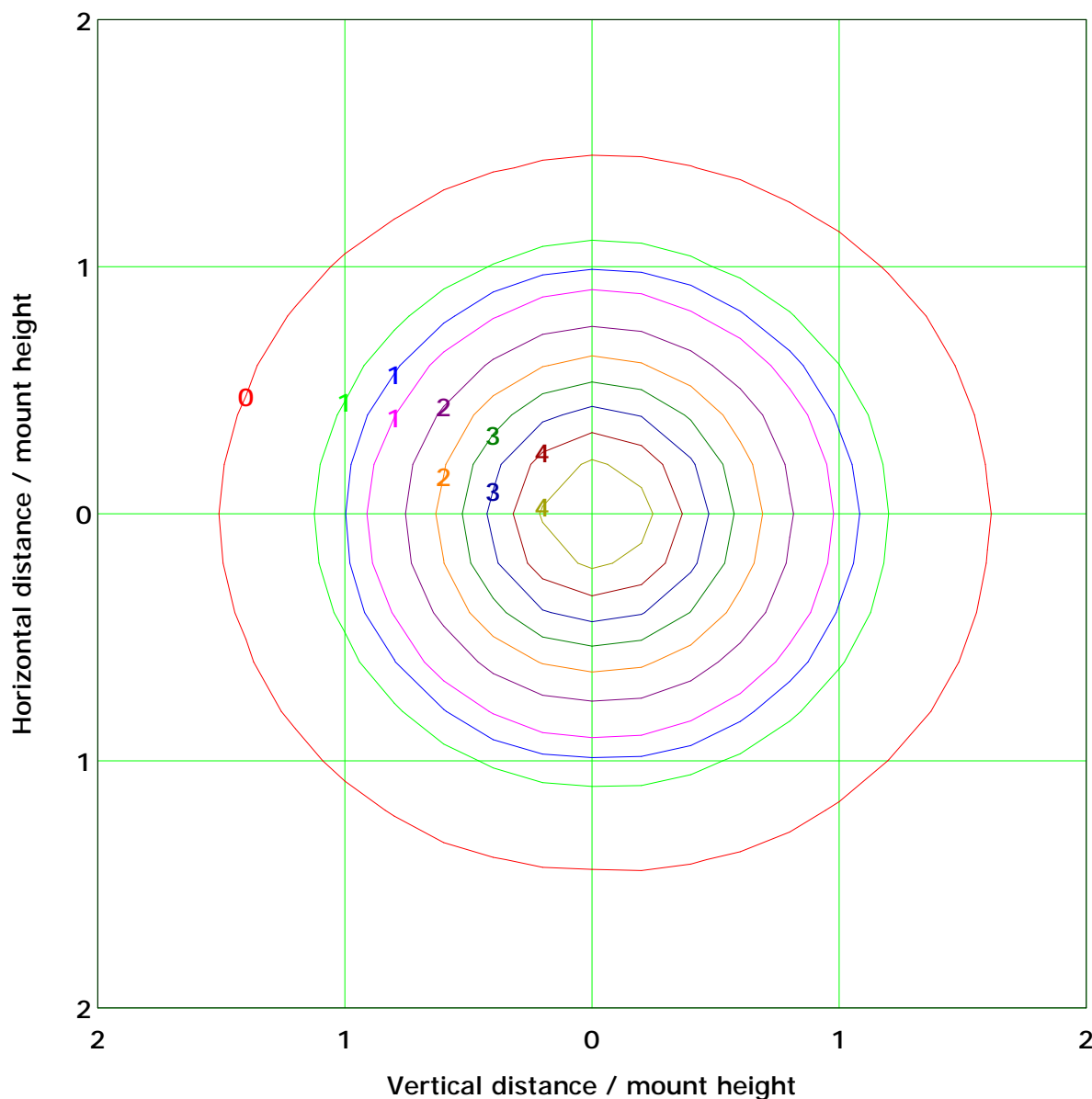
I<sub>max</sub> (100%): 116 cd

|         |       |         |        |
|---------|-------|---------|--------|
| ( 10%): | 12 cd | ( 20%): | 23 cd  |
| ( 25%): | 29 cd | ( 30%): | 35 cd  |
| ( 40%): | 46 cd | ( 50%): | 58 cd  |
| ( 60%): | 69 cd | ( 70%): | 81 cd  |
| ( 80%): | 92 cd | ( 90%): | 104 cd |

C Plane (°):0.0-360.0: 30.0  
Test Lab:  
Test Type: TYPE C  
Temperature: 25  
Operator: Kerr

Gamma Plane (°):0.0-180.0:1.0  
Test Device: GPM-1800B  
Distance: 9.028 m  
Humidity: 60%  
Inspector:

## IsoLux Plot



Mounting Height: 5.0m Max Lux(100%): 4.6 lx

|                |                |
|----------------|----------------|
| ( 10%): 0.5 lx | ( 20%): 0.9 lx |
| ( 25%): 1.2 lx | ( 30%): 1.4 lx |
| ( 40%): 1.8 lx | ( 50%): 2.3 lx |
| ( 60%): 2.8 lx | ( 70%): 3.2 lx |
| ( 80%): 3.7 lx | ( 90%): 4.1 lx |

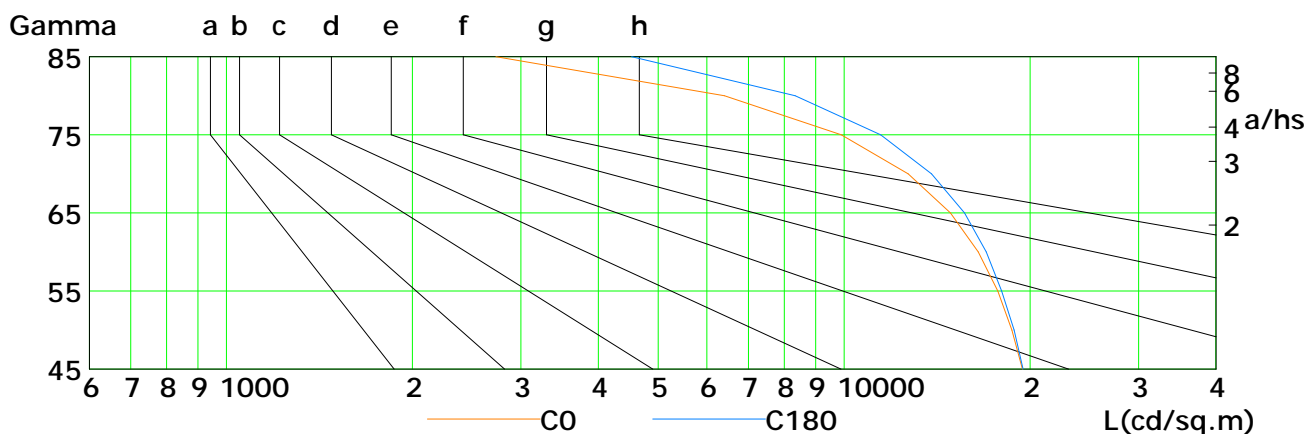
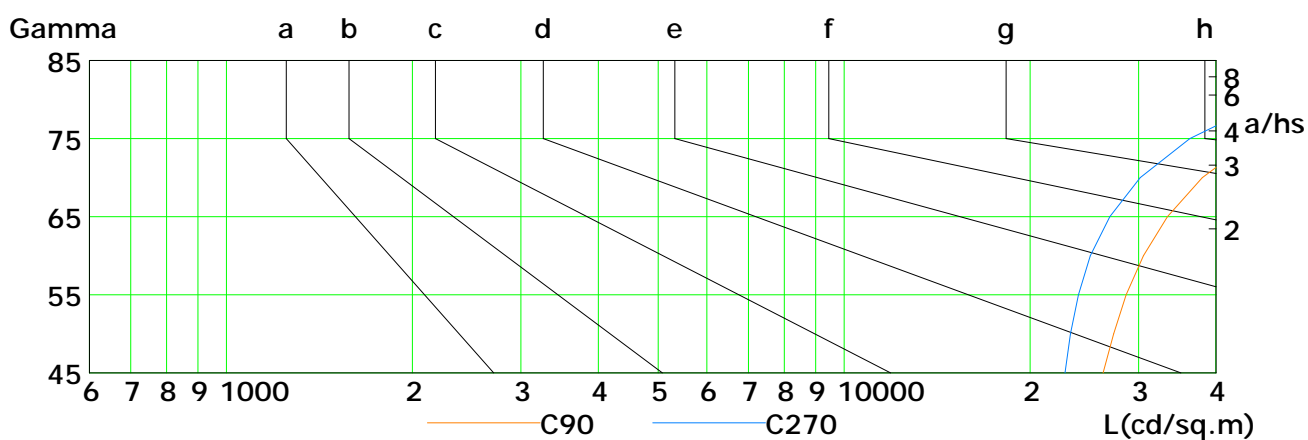
C Plane (°):0.0-360.0: 30.0  
Test Lab:  
Test Type: TYPE C  
Temperature: 25  
Operator: Kerr

Gamma Plane (°):0.0-180.0:1.0  
Test Device: GPM-1800B  
Distance: 9.028 m  
Humidity: 60%  
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

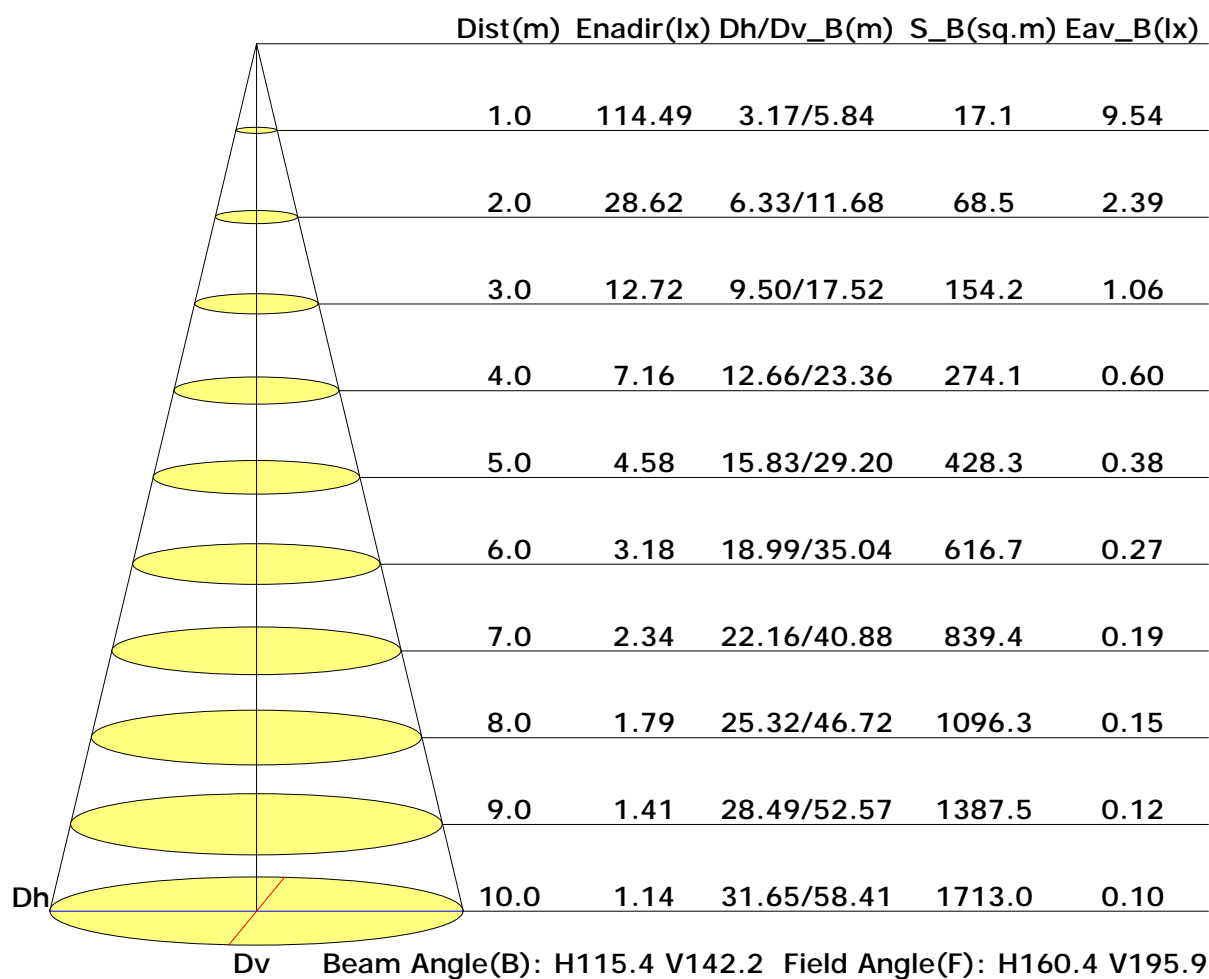


| L(cd/sq.m) | G45   | G50   | G55   | G60   | G65   | G70   | G75   | G80   | G85    |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| C0         | 19440 | 18694 | 17730 | 16488 | 14863 | 12700 | 9903  | 6404  | 2731   |
| C90        | 26282 | 27308 | 28627 | 30541 | 33385 | 38035 | 46164 | 61981 | 104521 |
| C180       | 19496 | 18847 | 18006 | 16987 | 15665 | 13852 | 11459 | 8339  | 4531   |
| C270       | 22780 | 23253 | 23957 | 25038 | 26925 | 30159 | 36276 | 48901 | 79428  |

C Plane (°): 0.0-360.0: 30.0  
Test Lab:  
Test Type: TYPE C  
Temperature: 25  
Operator: Kerr

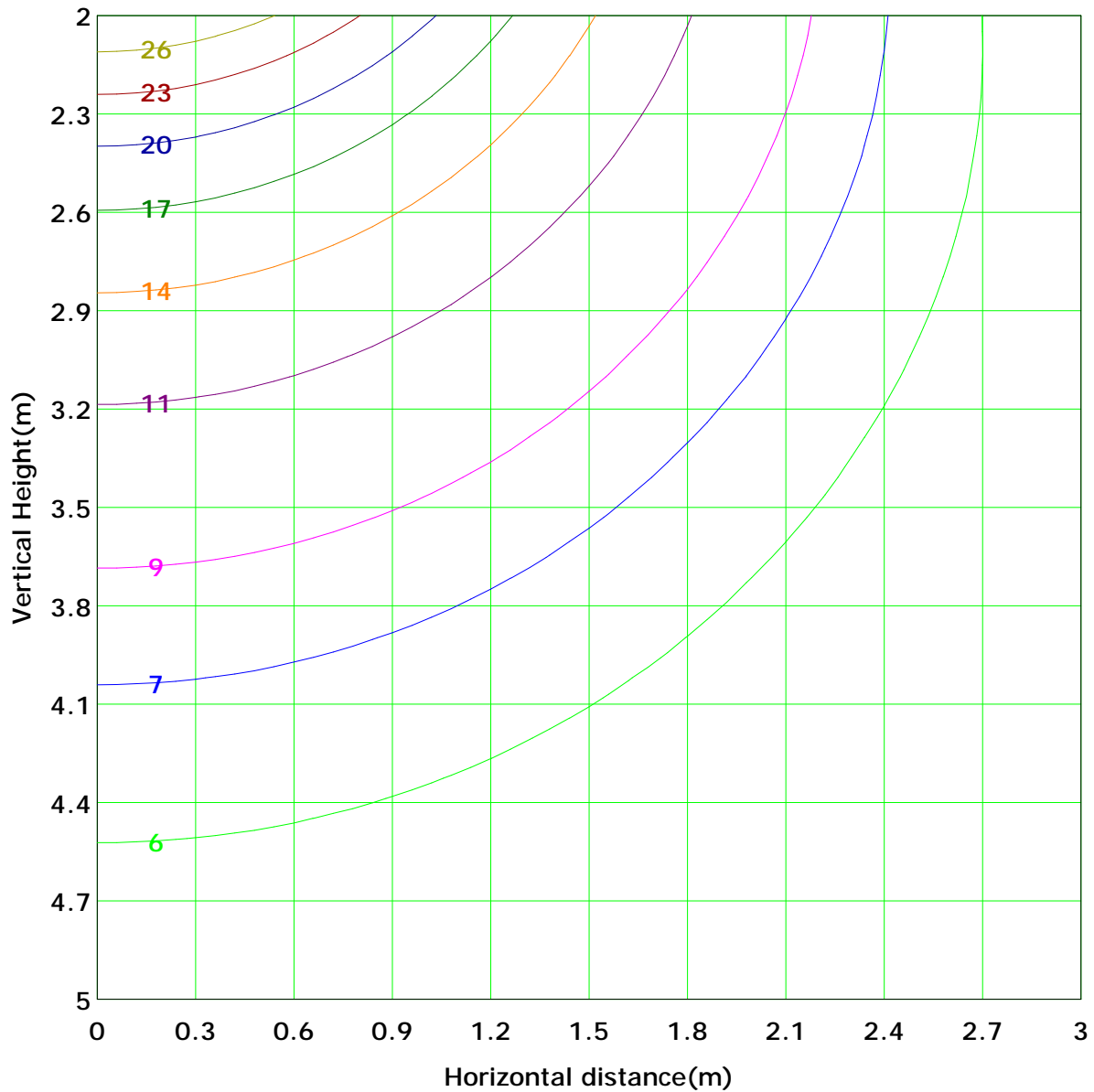
Gamma Plane (°): 0.0-180.0: 1.0  
Test Device: GPM-1800B  
Distance: 9.028 m  
Humidity: 60%  
Inspector:

## Illuminance at a Distance





## Vertical IsoLux Plot



|                 |                  |                  |
|-----------------|------------------|------------------|
| Lowest(m): 2.0m | Highest(m): 5.0m | Max Lux: 28.6 lx |
| ( 10%): 2.9 lx  | ( 20%): 5.7 lx   |                  |
| ( 25%): 7.2 lx  | ( 30%): 8.6 lx   |                  |
| ( 40%): 11.4 lx | ( 50%): 14.3 lx  |                  |
| ( 60%): 17.2 lx | ( 70%): 20.0 lx  |                  |
| ( 80%): 22.9 lx | ( 90%): 25.8 lx  |                  |

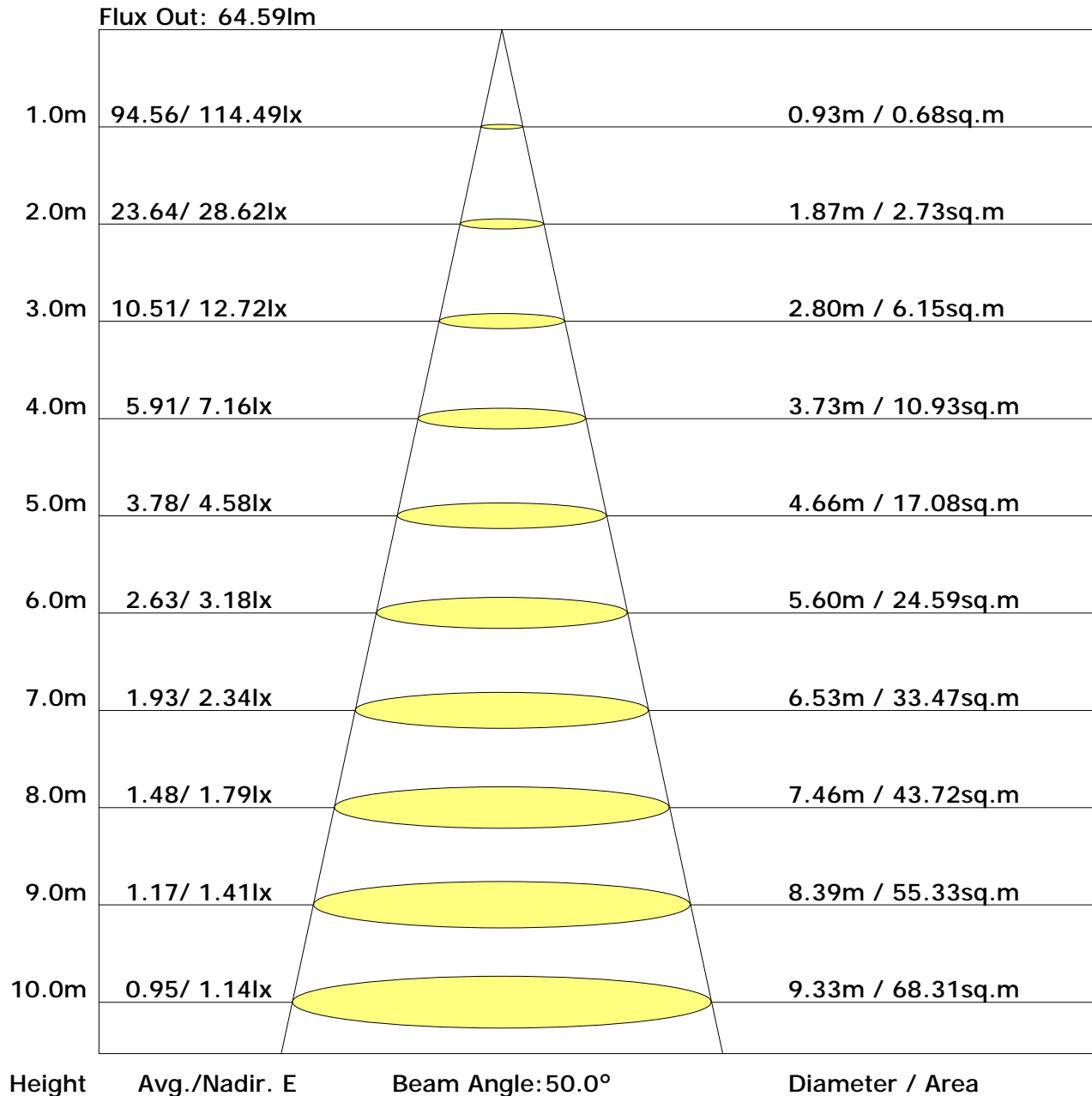
C Plane (°):0.0-360.0: 30.0  
Test Lab:  
Test Type: TYPE C  
Temperature: 25  
Operator: Kerr

Gamma Plane (°):0.0-180.0:1.0  
Test Device: GPM-1800B  
Distance: 9.028 m  
Humidity: 60%  
Inspector:

Gamma Plane (°):0.0-180.0:1.0  
Test Device: GPM-1800B  
Distance: 9.028 m  
Humidity: 60%  
Inspector:



## The Average Illuminance Effective Figure



C Plane (°):0.0-360.0: 30.0  
Test Lab:  
Test Type: TYPE C  
Temperature: 25  
Operator: Kerr

Gamma Plane (°):0.0-180.0: 1.0  
Test Device: GPM-1800B  
Distance: 9.028 m  
Humidity: 60%  
Inspector:

## 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        | 25.2             | 26.8 | 25.6 | 27.2 | 27.6 | 26.4           | 28.0 | 26.8 | 28.4 | 28.8 |
| 3H               | 27.0             | 28.5 | 27.4 | 28.9 | 29.3 | 29.0           | 30.5 | 29.4 | 30.9 | 31.4 |
| 4H               | 27.6             | 29.0 | 28.0 | 29.4 | 29.9 | 30.3           | 31.8 | 30.8 | 32.2 | 32.6 |
| 6H               | 28.0             | 29.4 | 28.5 | 29.8 | 30.3 | 31.7           | 33.0 | 32.1 | 33.4 | 33.9 |
| 8H               | 28.1             | 29.4 | 28.6 | 29.9 | 30.3 | 32.3           | 33.6 | 32.8 | 34.1 | 34.5 |
| 12H              | 28.2             | 29.4 | 28.6 | 29.9 | 30.4 | 32.9           | 34.2 | 33.4 | 34.6 | 35.1 |
| X=4H Y=2H        | 26.0             | 27.4 | 26.4 | 27.9 | 28.3 | 27.0           | 28.5 | 27.5 | 28.9 | 29.3 |
| 3H               | 28.1             | 29.3 | 28.5 | 29.8 | 30.3 | 29.9           | 31.2 | 30.4 | 31.7 | 32.1 |
| 4H               | 28.9             | 30.1 | 29.4 | 30.5 | 31.0 | 31.5           | 32.6 | 31.9 | 33.1 | 33.6 |
| 6H               | 29.5             | 30.5 | 30.0 | 31.0 | 31.6 | 33.0           | 34.0 | 33.5 | 34.5 | 35.0 |
| 8H               | 29.7             | 30.7 | 30.2 | 31.2 | 31.7 | 33.7           | 34.7 | 34.2 | 35.2 | 35.7 |
| 12H              | 29.8             | 30.7 | 30.4 | 31.2 | 31.8 | 34.5           | 35.4 | 35.0 | 35.9 | 36.4 |
| X=8H Y=4H        | 29.7             | 30.6 | 30.2 | 31.1 | 31.7 | 31.9           | 32.8 | 32.4 | 33.3 | 33.8 |
| 6H               | 30.5             | 31.4 | 31.1 | 31.9 | 32.4 | 33.6           | 34.5 | 34.2 | 35.0 | 35.6 |
| 8H               | 30.9             | 31.6 | 31.4 | 32.2 | 32.7 | 34.6           | 35.3 | 35.1 | 35.9 | 36.4 |
| 12H              | 31.2             | 31.8 | 31.7 | 32.4 | 33.0 | 35.5           | 36.2 | 36.1 | 36.7 | 37.4 |
| X=12H Y=4H       | 29.9             | 30.7 | 30.4 | 31.3 | 31.8 | 31.9           | 32.8 | 32.4 | 33.3 | 33.9 |
| 6H               | 30.9             | 31.6 | 31.5 | 32.2 | 32.8 | 33.8           | 34.5 | 34.3 | 35.0 | 35.6 |
| 8H               | 31.4             | 32.0 | 31.9 | 32.6 | 33.2 | 34.8           | 35.5 | 35.3 | 36.0 | 36.6 |

Calculate in accordance with CIE 190:2010

C Plane (°):0.0-360.0: 30.0  
Test Lab:  
Test Type: TYPE C  
Temperature: 25  
Operator: Kerr

Gamma Plane (°):0.0-180.0: 1.0  
Test Device: GPM-1800B  
Distance: 9.028 m  
Humidity: 60%  
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  | 0.54           | 0.62 | 0.69 | 0.74 | 0.81 | 0.86 | 0.90 | 0.95 | 0.98 |
|  | 0.30 |       | 0.46           | 0.53 | 0.61 | 0.66 | 0.74 | 0.80 | 0.84 | 0.90 | 0.94 |
|  | 0.20 |       | 0.40           | 0.47 | 0.55 | 0.60 | 0.68 | 0.74 | 0.79 | 0.85 | 0.90 |
| 0.50   | 0.50 | 0.20  | 0.52           | 0.59 | 0.66 | 0.71 | 0.78 | 0.82 | 0.86 | 0.90 | 0.93 |
|  | 0.30 |       | 0.44           | 0.52 | 0.59 | 0.64 | 0.72 | 0.77 | 0.81 | 0.86 | 0.90 |
|  | 0.20 |       | 0.39           | 0.46 | 0.54 | 0.59 | 0.67 | 0.72 | 0.76 | 0.82 | 0.86 |
| 0.30   | 0.50 | 0.20  | 0.50           | 0.57 | 0.63 | 0.68 | 0.74 | 0.78 | 0.82 | 0.86 | 0.89 |
|  | 0.30 |       | 0.43           | 0.50 | 0.57 | 0.62 | 0.69 | 0.74 | 0.78 | 0.82 | 0.86 |
|  | 0.20 |       | 0.39           | 0.45 | 0.52 | 0.57 | 0.65 | 0.70 | 0.74 | 0.79 | 0.83 |
| 0.00   | 0.00 | 0.00  | 0.36           | 0.43 | 0.49 | 0.54 | 0.61 | 0.66 | 0.69 | 0.74 | 0.78 |
| Rating:5W 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  | 1.02           | 0.88 | 0.76 | 0.68 | 0.55 | 0.47 | 0.41 | 0.33 | 0.27 |  |
|  | 0.30 |       | 0.85           | 0.76 | 0.66 | 0.60 | 0.50 | 0.43 | 0.38 | 0.31 | 0.26 |  |
|  | 0.20 |       | 0.73           | 0.66 | 0.59 | 0.54 | 0.46 | 0.40 | 0.35 | 0.29 | 0.25 |  |
| 0.50   | 0.50 | 0.20  | 0.98           | 0.85 | 0.73 | 0.65 | 0.53 | 0.48 | 0.39 | 0.31 | 0.26 |  |
|  | 0.30 |       | 0.83           | 0.73 | 0.64 | 0.58 | 0.48 | 0.42 | 0.37 | 0.30 | 0.25 |  |
|  | 0.20 |       | 0.72           | 0.65 | 0.58 | 0.52 | 0.45 | 0.39 | 0.34 | 0.28 | 0.24 |  |
| 0.30   | 0.50 | 0.20  | 0.95           | 0.81 | 0.70 | 0.62 | 0.50 | 0.43 | 0.37 | 0.30 | 0.25 |  |
|  | 0.30 |       | 0.81           | 0.71 | 0.62 | 0.56 | 0.47 | 0.40 | 0.35 | 0.29 | 0.24 |  |
|  | 0.20 |       | 0.71           | 0.64 | 0.56 | 0.51 | 0.43 | 0.38 | 0.33 | 0.27 | 0.23 |  |
| 0.00   | 0.00 | 0.00  | 0.61           | 0.54 | 0.47 | 0.43 | 0.36 | 0.31 | 0.27 | 0.22 | 0.19 |  |
| Rating:5W 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  | 0.20           | 0.21 | 0.22 | 0.23 | 0.24 | 0.24 | 0.25 | 0.25 | 0.25 |
|  | 0.30 |       | 0.13           | 0.14 | 0.16 | 0.17 | 0.18 | 0.19 | 0.20 | 0.21 | 0.22 |
|  | 0.20 |       | 0.08           | 0.09 | 0.11 | 0.12 | 0.14 | 0.15 | 0.16 | 0.18 | 0.19 |
| 0.50   | 0.50 | 0.20  | 0.19           | 0.21 | 0.21 | 0.22 | 0.23 | 0.23 | 0.24 | 0.24 | 0.24 |
|  | 0.30 |       | 0.12           | 0.14 | 0.15 | 0.16 | 0.18 | 0.19 | 0.19 | 0.21 | 0.21 |
|  | 0.20 |       | 0.08           | 0.09 | 0.10 | 0.12 | 0.13 | 0.15 | 0.16 | 0.17 | 0.19 |
| 0.30   | 0.50 | 0.20  | 0.18           | 0.20 | 0.21 | 0.21 | 0.22 | 0.22 | 0.23 | 0.23 | 0.23 |
|  | 0.30 |       | 0.12           | 0.14 | 0.15 | 0.16 | 0.17 | 0.18 | 0.19 | 0.20 | 0.21 |
|  | 0.20 |       | 0.08           | 0.09 | 0.10 | 0.11 | 0.13 | 0.14 | 0.15 | 0.17 | 0.18 |
| 0.00   | 0.00 | 0.00  | 0.03           | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| Rating:5W Photometrically tested without ceiling board.<br>Multiply UF values by service correction factors<br>Calculate in accordance with CIBSE Technical Memorandum NO.5 1980 |      |       |                |      |      |      |      |      |      |      |      |

## Zonal Lumen

| Gamma<br>[°] | I <sub>mean</sub><br>[cd] | Zonal Flux<br>[lm] | Sum Zonal Flux<br>[lm] | Rel Zonal Flux<br>[%] | Sum Rel Zonal Flux<br>[%] |
|--------------|---------------------------|--------------------|------------------------|-----------------------|---------------------------|
| 0.0-1.0      | 114.9                     | 0.1                | 0.1                    | 0.03                  | 0.03                      |
| 1.0-2.0      | 114.9                     | 0.3                | 0.4                    | 0.08                  | 0.11                      |
| 2.0-3.0      | 114.8                     | 0.5                | 1.0                    | 0.13                  | 0.24                      |
| 3.0-4.0      | 114.7                     | 0.8                | 1.8                    | 0.19                  | 0.42                      |
| 4.0-5.0      | 114.6                     | 1.0                | 2.7                    | 0.24                  | 0.66                      |
| 5.0-6.0      | 114.4                     | 1.2                | 3.9                    | 0.29                  | 0.95                      |
| 6.0-7.0      | 114.2                     | 1.4                | 5.4                    | 0.34                  | 1.29                      |
| 7.0-8.0      | 114.0                     | 1.6                | 7.0                    | 0.39                  | 1.69                      |
| 8.0-9.0      | 113.7                     | 1.8                | 8.8                    | 0.44                  | 2.13                      |
| 9.0-10.0     | 113.4                     | 2.1                | 10.9                   | 0.50                  | 2.63                      |
| 10.0-11.0    | 113.1                     | 2.3                | 13.1                   | 0.55                  | 3.17                      |
| 11.0-12.0    | 112.7                     | 2.5                | 15.6                   | 0.59                  | 3.77                      |
| 12.0-13.0    | 112.3                     | 2.7                | 18.3                   | 0.64                  | 4.41                      |
| 13.0-14.0    | 111.9                     | 2.9                | 21.1                   | 0.69                  | 5.10                      |
| 14.0-15.0    | 111.4                     | 3.1                | 24.2                   | 0.74                  | 5.84                      |
| 15.0-16.0    | 110.9                     | 3.2                | 27.4                   | 0.78                  | 6.63                      |
| 16.0-17.0    | 110.4                     | 3.4                | 30.9                   | 0.83                  | 7.45                      |
| 17.0-18.0    | 109.8                     | 3.6                | 34.5                   | 0.87                  | 8.33                      |
| 18.0-19.0    | 109.2                     | 3.8                | 38.3                   | 0.92                  | 9.25                      |
| 19.0-20.0    | 108.6                     | 4.0                | 42.3                   | 0.96                  | 10.20                     |
| 20.0-21.0    | 107.9                     | 4.1                | 46.4                   | 1.00                  | 11.20                     |
| 21.0-22.0    | 107.2                     | 4.3                | 50.7                   | 1.04                  | 12.24                     |
| 22.0-23.0    | 106.5                     | 4.5                | 55.2                   | 1.08                  | 13.32                     |
| 23.0-24.0    | 105.7                     | 4.6                | 59.8                   | 1.12                  | 14.44                     |
| 24.0-25.0    | 104.9                     | 4.8                | 64.6                   | 1.15                  | 15.59                     |
| 25.0-26.0    | 104.1                     | 4.9                | 69.5                   | 1.19                  | 16.78                     |
| 26.0-27.0    | 103.3                     | 5.1                | 74.6                   | 1.22                  | 18.00                     |
| 27.0-28.0    | 102.4                     | 5.2                | 79.7                   | 1.25                  | 19.25                     |
| 28.0-29.0    | 101.5                     | 5.3                | 85.1                   | 1.28                  | 20.53                     |
| 29.0-30.0    | 100.6                     | 5.4                | 90.5                   | 1.31                  | 21.84                     |
| 30.0-31.0    | 99.6                      | 5.5                | 96.0                   | 1.34                  | 23.18                     |
| 31.0-32.0    | 98.6                      | 5.7                | 101.7                  | 1.36                  | 24.54                     |
| 32.0-33.0    | 97.6                      | 5.8                | 107.4                  | 1.39                  | 25.93                     |
| 33.0-34.0    | 96.6                      | 5.8                | 113.3                  | 1.41                  | 27.34                     |
| 34.0-35.0    | 95.5                      | 5.9                | 119.2                  | 1.43                  | 28.78                     |
| 35.0-36.0    | 94.4                      | 6.0                | 125.2                  | 1.45                  | 30.23                     |

C Plane (°): 0.0-360.0: 30.0  
 Test Lab:  
 Test Type: TYPE C  
 Temperature: 25  
 Operator: Kerr

Gamma Plane (°): 0.0-180.0: 1.0  
 Test Device: GPM-1800B  
 Distance: 9.028 m  
 Humidity: 60%  
 Inspector:



## Zonal Lumen (Continue 1)

| Gamma<br>[°] | I <sub>mean</sub><br>[cd] | Zonal Flux<br>[lm] | Sum Zonal Flux<br>[lm] | Rel Zonal Flux<br>[%] | Sum Rel Zonal Flux<br>[%] |
|--------------|---------------------------|--------------------|------------------------|-----------------------|---------------------------|
| 36.0-37.0    | 93.4                      | 6.1                | 131.3                  | 1.47                  | 31.70                     |
| 37.0-38.0    | 92.2                      | 6.2                | 137.5                  | 1.49                  | 33.18                     |
| 38.0-39.0    | 91.1                      | 6.2                | 143.7                  | 1.50                  | 34.68                     |
| 39.0-40.0    | 89.9                      | 6.3                | 150.0                  | 1.51                  | 36.20                     |
| 40.0-41.0    | 88.7                      | 6.3                | 156.3                  | 1.53                  | 37.72                     |
| 41.0-42.0    | 87.5                      | 6.4                | 162.6                  | 1.53                  | 39.26                     |
| 42.0-43.0    | 86.3                      | 6.4                | 169.0                  | 1.54                  | 40.80                     |
| 43.0-44.0    | 85.0                      | 6.4                | 175.5                  | 1.55                  | 42.35                     |
| 44.0-45.0    | 83.7                      | 6.4                | 181.9                  | 1.55                  | 43.90                     |
| 45.0-46.0    | 82.4                      | 6.4                | 188.3                  | 1.56                  | 45.46                     |
| 46.0-47.0    | 81.1                      | 6.4                | 194.8                  | 1.56                  | 47.01                     |
| 47.0-48.0    | 79.7                      | 6.4                | 201.2                  | 1.56                  | 48.57                     |
| 48.0-49.0    | 78.4                      | 6.4                | 207.7                  | 1.55                  | 50.12                     |
| 49.0-50.0    | 77.0                      | 6.4                | 214.1                  | 1.55                  | 51.67                     |
| 50.0-51.0    | 75.6                      | 6.4                | 220.5                  | 1.54                  | 53.22                     |
| 51.0-52.0    | 74.2                      | 6.4                | 226.8                  | 1.54                  | 54.75                     |
| 52.0-53.0    | 72.7                      | 6.3                | 233.2                  | 1.53                  | 56.28                     |
| 53.0-54.0    | 71.3                      | 6.3                | 239.5                  | 1.52                  | 57.80                     |
| 54.0-55.0    | 69.8                      | 6.2                | 245.7                  | 1.50                  | 59.30                     |
| 55.0-56.0    | 68.4                      | 6.2                | 251.9                  | 1.49                  | 60.79                     |
| 56.0-57.0    | 66.9                      | 6.1                | 258.0                  | 1.48                  | 62.27                     |
| 57.0-58.0    | 65.4                      | 6.0                | 264.0                  | 1.46                  | 63.73                     |
| 58.0-59.0    | 63.9                      | 6.0                | 270.0                  | 1.44                  | 65.17                     |
| 59.0-60.0    | 62.4                      | 5.9                | 275.9                  | 1.42                  | 66.59                     |
| 60.0-61.0    | 60.9                      | 5.8                | 281.7                  | 1.40                  | 68.00                     |
| 61.0-62.0    | 59.4                      | 5.7                | 287.4                  | 1.38                  | 69.38                     |
| 62.0-63.0    | 57.9                      | 5.6                | 293.1                  | 1.36                  | 70.74                     |
| 63.0-64.0    | 56.3                      | 5.5                | 298.6                  | 1.33                  | 72.07                     |
| 64.0-65.0    | 54.8                      | 5.4                | 304.0                  | 1.31                  | 73.38                     |
| 65.0-66.0    | 53.3                      | 5.3                | 309.3                  | 1.28                  | 74.66                     |
| 66.0-67.0    | 51.8                      | 5.2                | 314.5                  | 1.26                  | 75.92                     |
| 67.0-68.0    | 50.3                      | 5.1                | 319.6                  | 1.23                  | 77.15                     |
| 68.0-69.0    | 48.8                      | 5.0                | 324.6                  | 1.20                  | 78.35                     |
| 69.0-70.0    | 47.3                      | 4.9                | 329.5                  | 1.17                  | 79.52                     |
| 70.0-71.0    | 45.8                      | 4.7                | 334.2                  | 1.14                  | 80.67                     |
| 71.0-72.0    | 44.4                      | 4.6                | 338.8                  | 1.11                  | 81.78                     |

C Plane (°): 0.0-360.0: 30.0  
 Test Lab:  
 Test Type: TYPE C  
 Temperature: 25  
 Operator: Kerr

Gamma Plane (°): 0.0-180.0: 1.0  
 Test Device: GPM-1800B  
 Distance: 9.028 m  
 Humidity: 60%  
 Inspector:

## Zonal Lumen (Continue 2)

| Gamma<br>[°] | I <sub>mean</sub><br>[cd] | Zonal Flux<br>[lm] | Sum Zonal Flux<br>[lm] | Rel Zonal Flux<br>[%] | Sum Rel Zonal Flux<br>[%] |
|--------------|---------------------------|--------------------|------------------------|-----------------------|---------------------------|
| 72.0-73.0    | 43.0                      | 4.5                | 343.3                  | 1.09                  | 82.87                     |
| 73.0-74.0    | 41.6                      | 4.4                | 347.7                  | 1.06                  | 83.92                     |
| 74.0-75.0    | 40.2                      | 4.2                | 351.9                  | 1.03                  | 84.95                     |
| 75.0-76.0    | 38.9                      | 4.1                | 356.1                  | 1.00                  | 85.94                     |
| 76.0-77.0    | 37.5                      | 4.0                | 360.1                  | 0.97                  | 86.91                     |
| 77.0-78.0    | 36.2                      | 3.9                | 363.9                  | 0.94                  | 87.85                     |
| 78.0-79.0    | 34.9                      | 3.8                | 367.7                  | 0.91                  | 88.75                     |
| 79.0-80.0    | 33.7                      | 3.6                | 371.3                  | 0.88                  | 89.63                     |
| 80.0-81.0    | 32.4                      | 3.5                | 374.8                  | 0.84                  | 90.47                     |
| 81.0-82.0    | 31.0                      | 3.4                | 378.2                  | 0.81                  | 91.28                     |
| 82.0-83.0    | 29.6                      | 3.2                | 381.4                  | 0.78                  | 92.06                     |
| 83.0-84.0    | 28.2                      | 3.1                | 384.5                  | 0.74                  | 92.80                     |
| 84.0-85.0    | 26.7                      | 2.9                | 387.4                  | 0.70                  | 93.51                     |
| 85.0-86.0    | 25.2                      | 2.8                | 390.2                  | 0.66                  | 94.17                     |
| 86.0-87.0    | 23.6                      | 2.6                | 392.7                  | 0.62                  | 94.79                     |
| 87.0-88.0    | 22.1                      | 2.4                | 395.2                  | 0.58                  | 95.38                     |
| 88.0-89.0    | 20.6                      | 2.3                | 397.4                  | 0.55                  | 95.92                     |
| 89.0-90.0    | 19.2                      | 2.1                | 399.5                  | 0.51                  | 96.43                     |
| 90.0-91.0    | 17.8                      | 2.0                | 401.5                  | 0.47                  | 96.90                     |
| 91.0-92.0    | 16.2                      | 1.8                | 403.3                  | 0.43                  | 97.33                     |
| 92.0-93.0    | 14.3                      | 1.6                | 404.8                  | 0.38                  | 97.71                     |
| 93.0-94.0    | 12.2                      | 1.3                | 406.2                  | 0.32                  | 98.03                     |
| 94.0-95.0    | 10.1                      | 1.1                | 407.3                  | 0.27                  | 98.30                     |
| 95.0-96.0    | 8.0                       | 0.9                | 408.1                  | 0.21                  | 98.51                     |
| 96.0-97.0    | 6.3                       | 0.7                | 408.8                  | 0.17                  | 98.68                     |
| 97.0-98.0    | 5.0                       | 0.5                | 409.4                  | 0.13                  | 98.81                     |
| 98.0-99.0    | 4.0                       | 0.4                | 409.8                  | 0.11                  | 98.91                     |
| 99.0-100.0   | 3.2                       | 0.3                | 410.2                  | 0.08                  | 99.00                     |
| 100.0-101.0  | 2.5                       | 0.3                | 410.4                  | 0.06                  | 99.06                     |
| 101.0-102.0  | 1.9                       | 0.2                | 410.6                  | 0.05                  | 99.11                     |
| 102.0-103.0  | 1.4                       | 0.1                | 410.8                  | 0.04                  | 99.15                     |
| 103.0-104.0  | 1.0                       | 0.1                | 410.9                  | 0.03                  | 99.17                     |
| 104.0-105.0  | 0.7                       | 0.1                | 411.0                  | 0.02                  | 99.19                     |
| 105.0-106.0  | 0.6                       | 0.1                | 411.0                  | 0.02                  | 99.21                     |
| 106.0-107.0  | 0.5                       | 0.1                | 411.1                  | 0.01                  | 99.22                     |
| 107.0-108.0  | 0.5                       | 0.1                | 411.1                  | 0.01                  | 99.23                     |

C Plane (°): 0.0-360.0: 30.0  
 Test Lab:  
 Test Type: TYPE C  
 Temperature: 25  
 Operator: Kerr

Gamma Plane (°): 0.0-180.0: 1.0  
 Test Device: GPM-1800B  
 Distance: 9.028 m  
 Humidity: 60%  
 Inspector:

## Zonal Lumen (Continue 3)

| Gamma<br>[°] | I <sub>mean</sub><br>[cd] | Zonal Flux<br>[lm] | Sum Zonal Flux<br>[lm] | Rel Zonal Flux<br>[%] | Sum Rel Zonal Flux<br>[%] |
|--------------|---------------------------|--------------------|------------------------|-----------------------|---------------------------|
| 108.0-109.0  | 0.5                       | 0.1                | 411.2                  | 0.01                  | 99.24                     |
| 109.0-110.0  | 0.5                       | 0.1                | 411.2                  | 0.01                  | 99.26                     |
| 110.0-111.0  | 0.5                       | 0.1                | 411.3                  | 0.01                  | 99.27                     |
| 111.0-112.0  | 0.5                       | 0.1                | 411.3                  | 0.01                  | 99.28                     |
| 112.0-113.0  | 0.5                       | 0.1                | 411.4                  | 0.01                  | 99.30                     |
| 113.0-114.0  | 0.6                       | 0.1                | 411.4                  | 0.01                  | 99.31                     |
| 114.0-115.0  | 0.6                       | 0.1                | 411.5                  | 0.01                  | 99.32                     |
| 115.0-116.0  | 0.6                       | 0.1                | 411.6                  | 0.01                  | 99.34                     |
| 116.0-117.0  | 0.6                       | 0.1                | 411.6                  | 0.01                  | 99.35                     |
| 117.0-118.0  | 0.6                       | 0.1                | 411.7                  | 0.01                  | 99.37                     |
| 118.0-119.0  | 0.6                       | 0.1                | 411.7                  | 0.01                  | 99.38                     |
| 119.0-120.0  | 0.6                       | 0.1                | 411.8                  | 0.01                  | 99.39                     |
| 120.0-121.0  | 0.6                       | 0.1                | 411.9                  | 0.01                  | 99.41                     |
| 121.0-122.0  | 0.6                       | 0.1                | 411.9                  | 0.01                  | 99.42                     |
| 122.0-123.0  | 0.7                       | 0.1                | 412.0                  | 0.01                  | 99.44                     |
| 123.0-124.0  | 0.7                       | 0.1                | 412.0                  | 0.01                  | 99.45                     |
| 124.0-125.0  | 0.7                       | 0.1                | 412.1                  | 0.01                  | 99.47                     |
| 125.0-126.0  | 0.7                       | 0.1                | 412.2                  | 0.01                  | 99.48                     |
| 126.0-127.0  | 0.7                       | 0.1                | 412.2                  | 0.01                  | 99.50                     |
| 127.0-128.0  | 0.7                       | 0.1                | 412.3                  | 0.01                  | 99.51                     |
| 128.0-129.0  | 0.7                       | 0.1                | 412.3                  | 0.01                  | 99.53                     |
| 129.0-130.0  | 0.7                       | 0.1                | 412.4                  | 0.01                  | 99.54                     |
| 130.0-131.0  | 0.7                       | 0.1                | 412.5                  | 0.01                  | 99.56                     |
| 131.0-132.0  | 0.7                       | 0.1                | 412.5                  | 0.01                  | 99.57                     |
| 132.0-133.0  | 0.8                       | 0.1                | 412.6                  | 0.01                  | 99.58                     |
| 133.0-134.0  | 0.8                       | 0.1                | 412.6                  | 0.01                  | 99.60                     |
| 134.0-135.0  | 0.8                       | 0.1                | 412.7                  | 0.01                  | 99.61                     |
| 135.0-136.0  | 0.8                       | 0.1                | 412.8                  | 0.01                  | 99.63                     |
| 136.0-137.0  | 0.8                       | 0.1                | 412.8                  | 0.01                  | 99.64                     |
| 137.0-138.0  | 0.8                       | 0.1                | 412.9                  | 0.01                  | 99.66                     |
| 138.0-139.0  | 0.8                       | 0.1                | 412.9                  | 0.01                  | 99.67                     |
| 139.0-140.0  | 0.8                       | 0.1                | 413.0                  | 0.01                  | 99.68                     |
| 140.0-141.0  | 0.8                       | 0.1                | 413.1                  | 0.01                  | 99.70                     |
| 141.0-142.0  | 0.8                       | 0.1                | 413.1                  | 0.01                  | 99.71                     |
| 142.0-143.0  | 0.8                       | 0.1                | 413.2                  | 0.01                  | 99.72                     |
| 143.0-144.0  | 0.8                       | 0.1                | 413.2                  | 0.01                  | 99.74                     |

C Plane (°): 0.0-360.0: 30.0  
 Test Lab:  
 Test Type: TYPE C  
 Temperature: 25  
 Operator: Kerr

Gamma Plane (°): 0.0-180.0: 1.0  
 Test Device: GPM-1800B  
 Distance: 9.028 m  
 Humidity: 60%  
 Inspector:

## Zonal Lumen (Continue 4)

| Gamma<br>[°] | I <sub>mean</sub><br>[cd] | Zonal Flux<br>[lm] | Sum Zonal Flux<br>[lm] | Rel Zonal Flux<br>[%] | Sum Rel Zonal Flux<br>[%] |
|--------------|---------------------------|--------------------|------------------------|-----------------------|---------------------------|
| 144.0-145.0  | 0.8                       | 0.1                | 413.3                  | 0.01                  | 99.75                     |
| 145.0-146.0  | 0.8                       | 0.1                | 413.3                  | 0.01                  | 99.76                     |
| 146.0-147.0  | 0.9                       | 0.1                | 413.4                  | 0.01                  | 99.77                     |
| 147.0-148.0  | 0.9                       | 0.1                | 413.4                  | 0.01                  | 99.79                     |
| 148.0-149.0  | 0.9                       | 0.0                | 413.5                  | 0.01                  | 99.80                     |
| 149.0-150.0  | 0.9                       | 0.0                | 413.5                  | 0.01                  | 99.81                     |
| 150.0-151.0  | 0.9                       | 0.0                | 413.6                  | 0.01                  | 99.82                     |
| 151.0-152.0  | 0.9                       | 0.0                | 413.6                  | 0.01                  | 99.83                     |
| 152.0-153.0  | 0.9                       | 0.0                | 413.7                  | 0.01                  | 99.84                     |
| 153.0-154.0  | 0.9                       | 0.0                | 413.7                  | 0.01                  | 99.85                     |
| 154.0-155.0  | 0.9                       | 0.0                | 413.7                  | 0.01                  | 99.87                     |
| 155.0-156.0  | 0.9                       | 0.0                | 413.8                  | 0.01                  | 99.88                     |
| 156.0-157.0  | 0.9                       | 0.0                | 413.8                  | 0.01                  | 99.88                     |
| 157.0-158.0  | 0.9                       | 0.0                | 413.9                  | 0.01                  | 99.89                     |
| 158.0-159.0  | 0.9                       | 0.0                | 413.9                  | 0.01                  | 99.90                     |
| 159.0-160.0  | 0.9                       | 0.0                | 413.9                  | 0.01                  | 99.91                     |
| 160.0-161.0  | 0.9                       | 0.0                | 414.0                  | 0.01                  | 99.92                     |
| 161.0-162.0  | 0.9                       | 0.0                | 414.0                  | 0.01                  | 99.93                     |
| 162.0-163.0  | 0.9                       | 0.0                | 414.0                  | 0.01                  | 99.94                     |
| 163.0-164.0  | 1.0                       | 0.0                | 414.1                  | 0.01                  | 99.94                     |
| 164.0-165.0  | 1.0                       | 0.0                | 414.1                  | 0.01                  | 99.95                     |
| 165.0-166.0  | 1.0                       | 0.0                | 414.1                  | 0.01                  | 99.96                     |
| 166.0-167.0  | 1.0                       | 0.0                | 414.1                  | 0.01                  | 99.96                     |
| 167.0-168.0  | 1.0                       | 0.0                | 414.2                  | 0.01                  | 99.97                     |
| 168.0-169.0  | 1.0                       | 0.0                | 414.2                  | 0.01                  | 99.97                     |
| 169.0-170.0  | 1.0                       | 0.0                | 414.2                  | 0.00                  | 99.98                     |
| 170.0-171.0  | 1.0                       | 0.0                | 414.2                  | 0.00                  | 99.98                     |
| 171.0-172.0  | 1.0                       | 0.0                | 414.2                  | 0.00                  | 99.99                     |
| 172.0-173.0  | 1.0                       | 0.0                | 414.3                  | 0.00                  | 99.99                     |
| 173.0-174.0  | 1.0                       | 0.0                | 414.3                  | 0.00                  | 99.99                     |
| 174.0-175.0  | 1.0                       | 0.0                | 414.3                  | 0.00                  | 99.99                     |
| 175.0-176.0  | 1.0                       | 0.0                | 414.3                  | 0.00                  | 100.00                    |
| 176.0-177.0  | 1.0                       | 0.0                | 414.3                  | 0.00                  | 100.00                    |
| 177.0-178.0  | 1.0                       | 0.0                | 414.3                  | 0.00                  | 100.00                    |
| 178.0-179.0  | 1.0                       | 0.0                | 414.3                  | 0.00                  | 100.00                    |
| 179.0-180.0  | 1.0                       | 0.0                | 414.3                  | 0.00                  | 100.00                    |

C Plane (°): 0.0-360.0: 30.0  
 Test Lab:  
 Test Type: TYPE C  
 Temperature: 25  
 Operator: Kerr

Gamma Plane (°): 0.0-180.0: 1.0  
 Test Device: GPM-1800B  
 Distance: 9.028 m  
 Humidity: 60%  
 Inspector: