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VAT Registration Number: GB 661 1596 34

Photometric Report

Job / Report / Date 42 / 10692 / 10692-18a / 2013.06.17

| | |
|-----------------------|--|
| Customer | Encapsulite International Ltd. |
| Luminaire Range | MT70 IP68 |
| Luminaire catalog No. | MT70 SC 70W |
| Luminaire description | linear cylindrical luminaire with opal cover data derived from range test series |
| Lamp description | 70W/840 F T8 Sylvania Luxline Plus |
| Lamp lumen output | 6,200 lm |
| Lamp quantity | 1 |

Photometric Report

- Pictures
- Luminaire information
- Report basis
- Polar Curves
- HV Distribution Curves
- Principal Axes Intensities
- Light Output Ratios & CIBSE TM5 Results
- Aspect Factors
- Luminous intensities
- Zonal Flux Calculations
- Luminance calculations
- VDI Luminance table
- CIBSE TM10 Glare Index Results
- CIE Glare Limiting (Soellnor) Diagram
- Comments
- Quick Design Table

Job / Report / Date

42 / 10692 / 10692-18a / 2013.06.17

Customer

Encapsulite International Ltd.

Luminaire Range

MT70 IP68

Luminaire catalog No.

MT70 SC 70W

Luminaire description

linear cylindrical luminaire
with opal cover

Lamp description

data derived from range test series

Lamp lumen output

70W/840 F T8 Sylvania Luxline Plus

Lamp quantity

1



Helvar
www.helvar.com

ELECTRONIC BALLAST EL1x70s
220-240V 0/50-60Hz



T8: 70W 0.30-0.28A λ 0.98
 $t_a = -20...+50^{\circ}\text{C}$

SYLVANIA
LUXLINE PLUS

F70W / 840 -T8

COOL WHITE DE LUXE

www.havells-sylvania.com

MADE IN GERMANY



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Luminaire physical characteristics

Overall Dimensions

| | |
|--------|--------|
| Length | 1875mm |
| Width | 70mm |
| Height | 70mm |

Visible Dimensions when installed

| | |
|--------|--------|
| Length | 1875mm |
| Width | 70mm |
| Height | 70mm |

Luminous Dimensions

| | |
|-------------|--------|
| Length | 1810mm |
| Width | 70mm |
| Height 0° | 35mm |
| Height 90° | 0mm |
| Height 180° | 35mm |
| Height 270° | 0mm |

Luminous Areas

| | |
|-------|--|
| Base | 0.1267m ² |
| Sides | 0.06335m ² (0°/180° azimuth) |
| Ends | 0m ² (90°/270° azimuth) |

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Report Basis

All measurements taken in accordance with EN13032.

Lamp tests were performed with the lamps in a horizontal orientation.

Luminaire tests were performed with the lamps in a horizontal orientation.

The photometric centre of the luminaire was taken as the geometric centre of the lamp.

The photometric nadir was taken to be perpendicular to the front face of the reflector.

The luminaire has been treated as though it has 2 planes of symmetry through the 0°/180° plane and the 90°/270° plane.

The lumen output, light output ratio (LORL) and power consumption of the luminaire were determined at 25°C after 100 hours pre-conditioning.

Lamps used for test were provided by the customer.

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Lamp description 70W/840 F T8 Sylvania Luxline Plus
Lamp lumen output 6,200 lm
Lamp quantity 1

Electrical input & Photometric output characteristics

Control gear

1 * Helvar EL1x70s

Ballast Voltage Range 220-240V
Ballast Current Range 0.28-0.30A
Ballast Power Factor 0.98

| Sample | Voltage (V) | Current (mA) | Power Factor | Power (W) | VA | Output (lm) | % of Nominal | Efficacy (lm/W) |
|-----------|----------------|-----------------|-----------------|--------------|------|----------------|-----------------|--------------------|
| Luminaire | 230.0 | 262.8 | 0.991 | 59.9 | 60.4 | 4,101 | 66% | 68.5 |
| Lamp | 230.0 | 273.7 | 0.992 | 62.4 | 62.9 | 5,092 | 82% | 81.6 |

Electrical characteristics at 25°C

| | | | | | |
|-----------------|------|---------|--------|-------|--------|
| Ballast Nominal | 230V | 289.6mA | 0.98PF | 65.3W | 66.6VA |
| Lamp Nominal | 230V | 304.3mA | 1.00PF | 70.0W | 70.0VA |
| Luminaire | 230V | 262.8mA | 0.99PF | 59.9W | 60.4VA |
| Lamp | 230V | 273.7mA | 0.99PF | 62.4W | 62.9VA |

Measured Electrical characteristics relative to Ballast Nominal

| | | | | | | |
|-----------|---------|-----|-------|-----|----|-----|
| Luminaire | Current | 91% | Power | 92% | VA | 91% |
| Lamp | Current | 95% | Power | 96% | VA | 95% |

Measured Electrical characteristics relative to Lamp Nominal

| | | | | | | |
|-----------|---------|-----|-------|-----|----|-----|
| Luminaire | Current | 86% | Power | 86% | VA | 86% |
| Lamp | Current | 90% | Power | 89% | VA | 90% |

Lumen Output figures used in this report (lumens)

| | |
|---------------------------|-------|
| Nominal Lamp Output | 6,200 |
| Measured Luminaire Output | 4,101 |
| Measured Lamp Output | 5,092 |

Measured Lumen Output characteristics relative to Lamp Nominal Total

| | |
|-----------|-----|
| Luminaire | 66% |
| Lamp | 82% |

Measured luminous efficacy at 25°C

| | |
|-----------|-----------|
| Luminaire | 68.5 lm/W |
| Lamp | 81.6 lm/W |

| | |
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The light output ratio of the luminaire was measured as 0.805 at 25°C.
This is the ratio of the output of the luminaire to the output of the lamp.

The measured lumen output of the luminaire was 4,101 lumens at 25°C.
This figure can be related to the nominal lumen output of the lamp quoted by the manufacturer of 6,200 lumens, to give a nominal light output ratio of 0.661.

The measured lumen output of the lamp was 5,092 lumens at 25°C.
This figure can be related to the nominal lumen output of the lamp quoted by the manufacturer of 6,200 lumens, to give a nominal BLF of 0.821.

For lighting design calculations:

A light output ratio of 1 should be used in conjunction with the measured lumen output of the luminaire of 4,101 lumens.

or

The nominal light output ratio of 0.661 should be used in conjunction with the nominal lumen output of the lamp of 6,200 lumens.

or

The measured light output ratio of 0.805 should be used in conjunction with the measured lumen output of the lamp of 5,092 lumens.

or

The measured light output ratio of 0.805 should be used in conjunction with the nominal lumen output of the lamp of 6,200 lumens and the nominal BLF of 0.821.

This report is based on the following parameters:

The Light Output Ratio is the nominal value of 0.661.

The lamp output is the nominal value of 6,200 lumens.

There is 1 lamp in the luminaire.

No measurements relating to the ballast factor of the control gear were made.

The nominal ballast factor represented by the ratio of the measured lumen output of the lamp to the declared lumen output has been incorporated into the nominal Light Output Ratio figure. The resultant nominal LOR allows lighting calculations to be performed using the declared lamp output without having to incorporate a separate BLF calculation to allow for deviation from the nominal output due to thermal and gear effects.

If the measured LOR figure is used, the measured lumen output of the lamp should be used to perform lighting calculations. If the nominal lamp output is used with the measured LOR figure, an allowance should be made for any deviation of the lamp and gear combination from the published lumen output, represented by the nominal BLF.

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Lamp description

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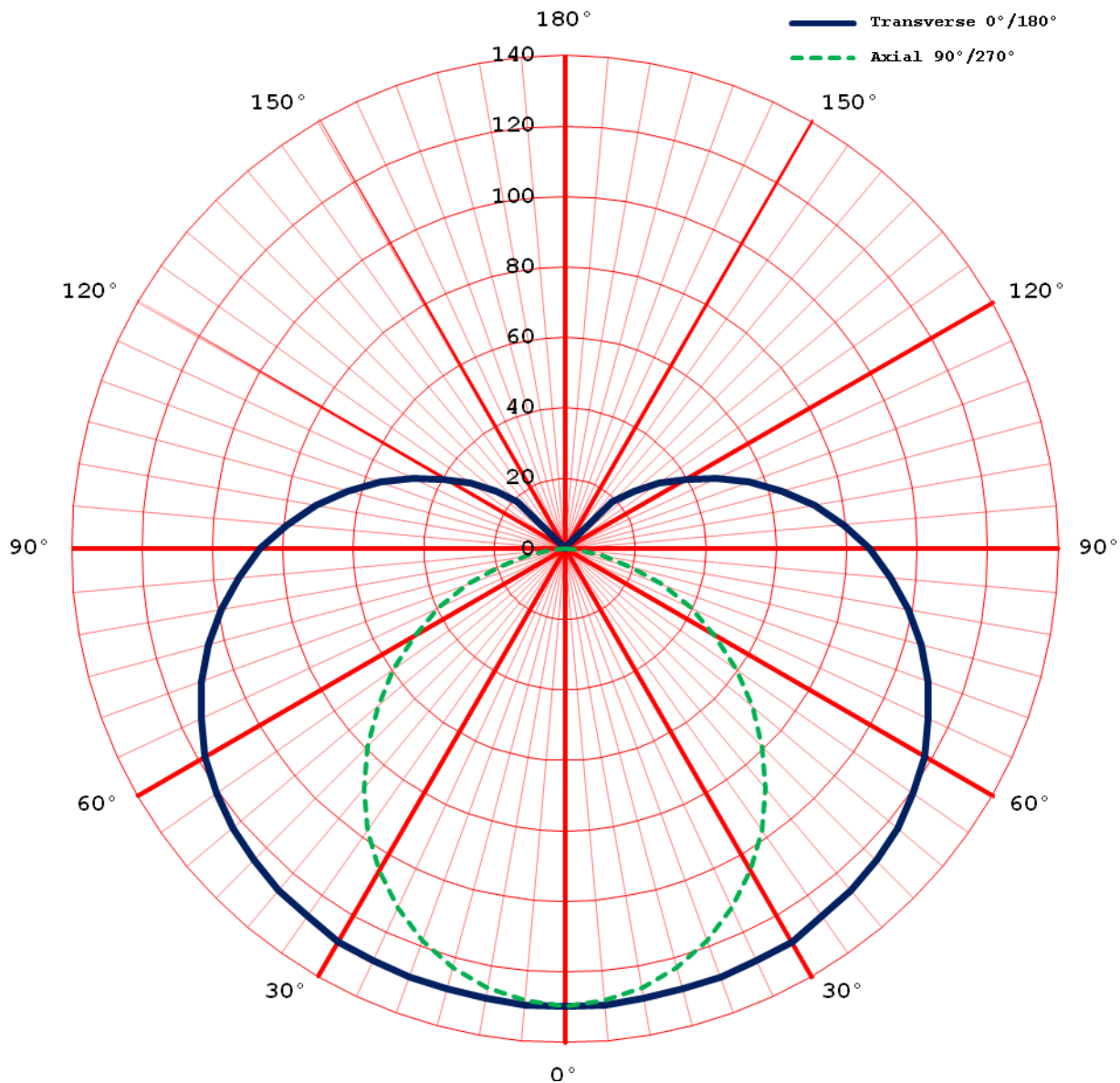
Lamp lumen output

6,200 lm

Lamp quantity

1

Average Principal Axes Luminous Intensities (cd/klm)



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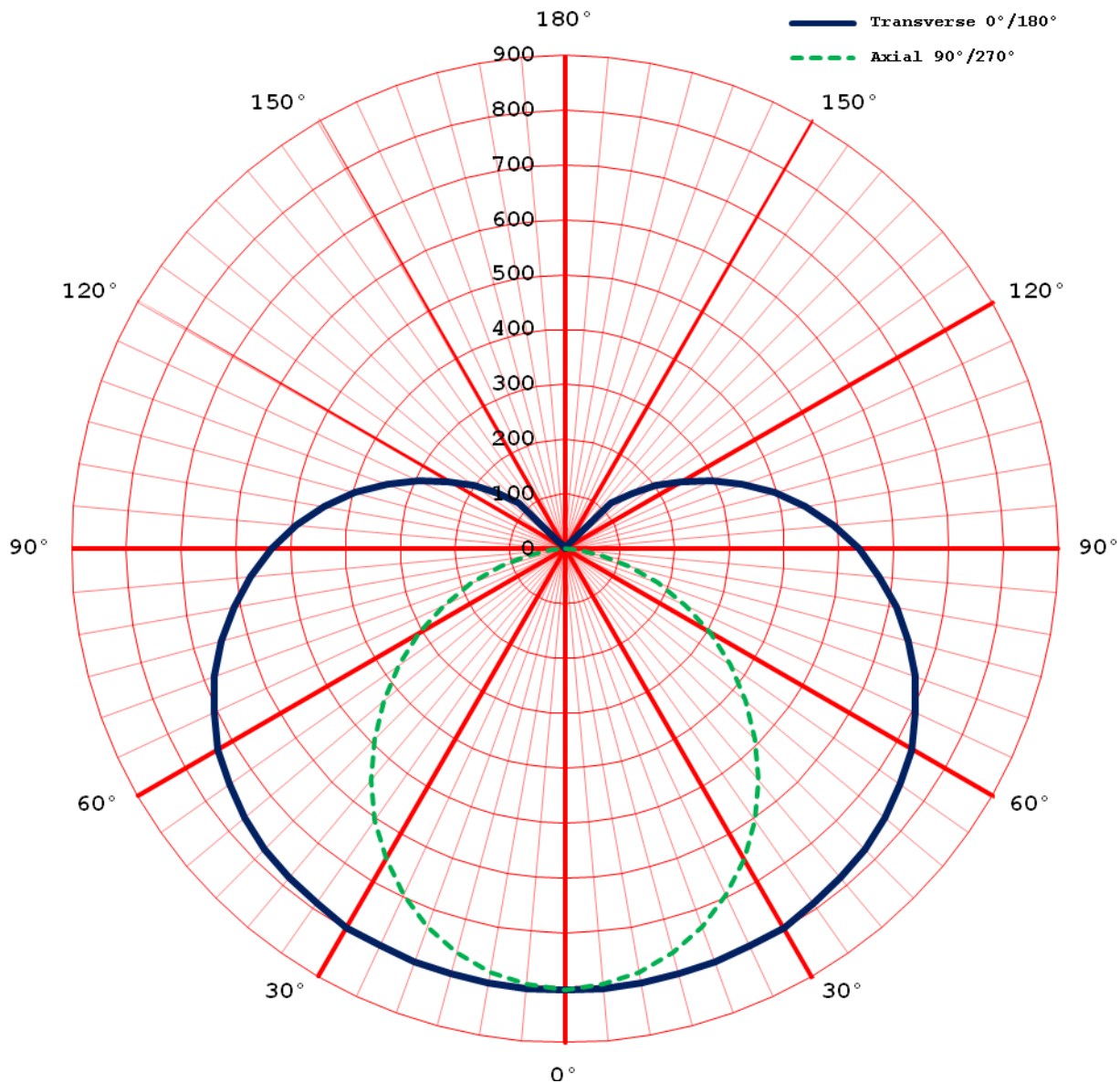
Lamp lumen output

6,200 lm

Lamp quantity

1

Average Principal Axes Luminous Intensities (cd)



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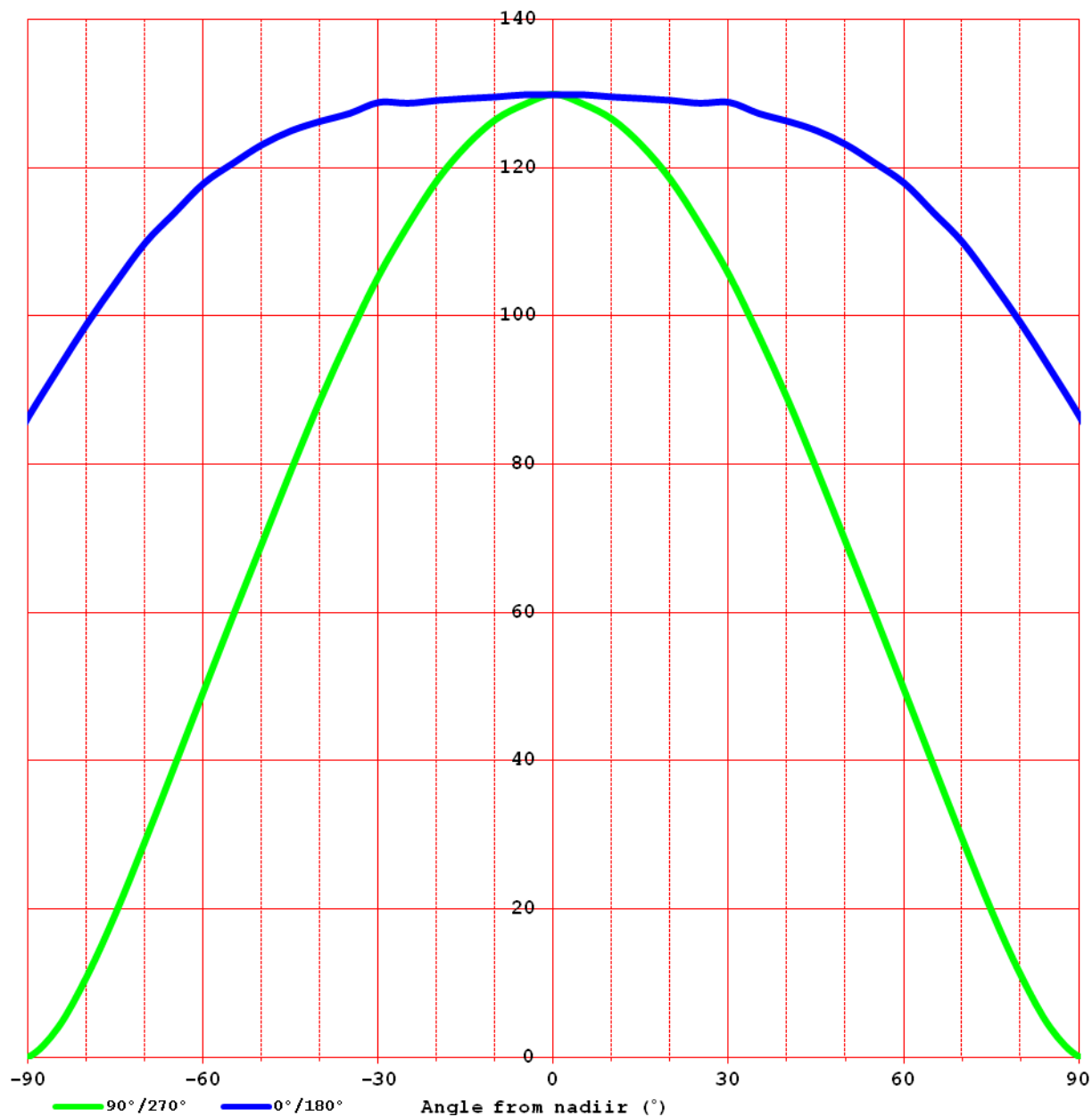
Lamp lumen output

6,200 lm

Lamp quantity

1

Average Principal Axes Luminous Intensities (cd/klm)



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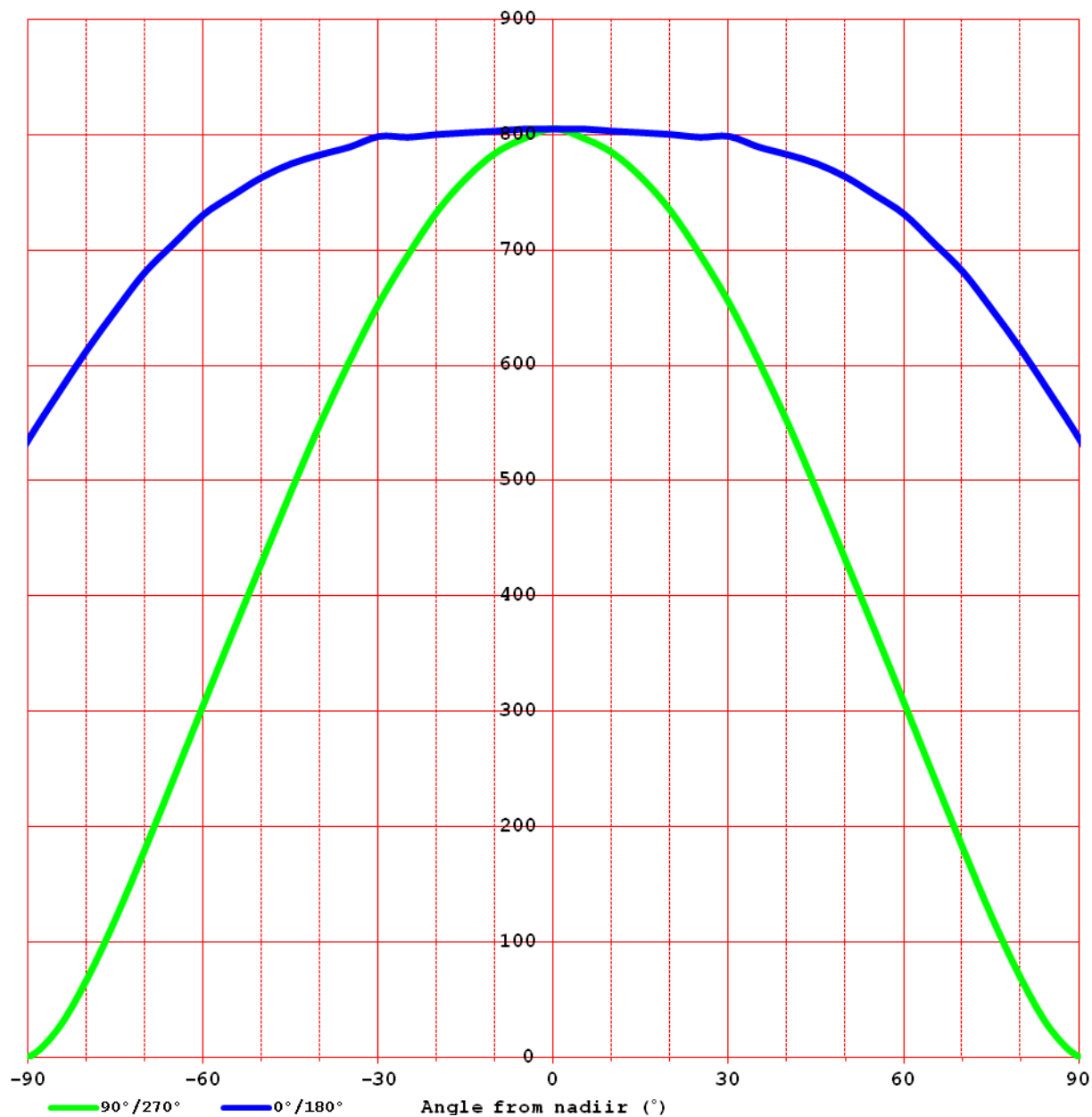
Lamp lumen output

6,200 lm

Lamp quantity

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Average Principal Axes Luminous Intensities (cd)



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Lamp lumen output

6,200 lm

Lamp quantity

1

Average Luminous Intensities (cd/Klm)

| Angle | Transverse plane | Axial plane |
|-------|---------------------|----------------|
| 0° | 129.86 | 129.86 |
| 5° | 129.87 | 128.54 |
| 10° | 129.57 | 126.47 |
| 15° | 129.35 | 122.98 |
| 20° | 129.10 | 118.32 |
| 25° | 128.72 | 112.23 |
| 30° | 128.83 | 105.45 |
| 35° | 127.35 | 97.42 |
| 40° | 126.28 | 88.74 |
| 45° | 125.01 | 79.24 |
| 50° | 123.13 | 69.35 |
| 55° | 120.61 | 59.50 |
| 60° | 117.92 | 49.44 |
| 65° | 113.96 | 39.29 |
| 70° | 109.91 | 29.23 |
| 75° | 104.61 | 19.56 |
| 80° | 98.97 | 10.92 |
| 85° | 92.83 | 3.93 |
| 90° | 86.46 | 0.00 |
| 95° | 79.38 | 0.00 |
| 100° | 71.82 | 0.00 |
| 105° | 63.92 | 0.00 |
| 110° | 55.68 | 0.00 |
| 115° | 47.51 | 0.00 |
| 120° | 39.73 | 0.00 |
| 125° | 32.51 | 0.00 |
| 130° | 25.62 | 0.00 |
| 135° | 19.12 | 0.00 |
| 140° | 2.44 | 0.00 |
| 145° | 1.84 | 0.00 |
| 150° | 0.95 | 0.00 |
| 155° | 0.00 | 0.00 |
| 160° | 0.00 | 0.00 |
| 165° | 0.00 | 0.00 |
| 170° | 0.00 | 0.00 |
| 175° | 0.00 | 0.00 |
| 180° | 0.00 | 0.00 |

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Lamp description

70W/840 F T8 Sylvania Luxline Plus

Lamp lumen output

6,200 lm

Lamp quantity

1

Average Luminous Intensities (cd)

| Angle | Transverse plane | Axial plane |
|-------|---------------------|----------------|
| 0° | 805.16 | 805.16 |
| 5° | 805.17 | 796.98 |
| 10° | 803.30 | 784.14 |
| 15° | 801.99 | 762.46 |
| 20° | 800.41 | 733.57 |
| 25° | 798.03 | 695.82 |
| 30° | 798.77 | 653.78 |
| 35° | 789.58 | 603.99 |
| 40° | 782.97 | 550.16 |
| 45° | 775.05 | 491.29 |
| 50° | 763.41 | 429.97 |
| 55° | 747.81 | 368.92 |
| 60° | 731.13 | 306.55 |
| 65° | 706.52 | 243.63 |
| 70° | 681.42 | 181.24 |
| 75° | 648.59 | 121.27 |
| 80° | 613.64 | 67.72 |
| 85° | 575.52 | 24.35 |
| 90° | 536.08 | 0.00 |
| 95° | 492.15 | 0.00 |
| 100° | 445.29 | 0.00 |
| 105° | 396.32 | 0.00 |
| 110° | 345.19 | 0.00 |
| 115° | 294.59 | 0.00 |
| 120° | 246.35 | 0.00 |
| 125° | 201.56 | 0.00 |
| 130° | 158.85 | 0.00 |
| 135° | 118.57 | 0.00 |
| 140° | 15.10 | 0.00 |
| 145° | 11.39 | 0.00 |
| 150° | 5.90 | 0.00 |
| 155° | 0.00 | 0.00 |
| 160° | 0.00 | 0.00 |
| 165° | 0.00 | 0.00 |
| 170° | 0.00 | 0.00 |
| 175° | 0.00 | 0.00 |
| 180° | 0.00 | 0.00 |

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Lamp lumen output 6,200 lm
Lamp quantity 1

Light Output Ratios Up 0.12
Down 0.54
Total 0.66

Spacing to Height Ratios SHR NOM 1.75
SHR MAX 1.82
SHR MAX TRANS 2.38

Utilisation Factors UF(F) Standard Presentation SHR NOM = 1.75

| Room Reflectances | | | Room Index | | | | | | | | |
|-------------------|-----|-----|------------|------|------|------|------|------|------|------|------|
| C | W | F | 0.75 | 1.00 | 1.25 | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | 5.00 |
| .70 | .50 | .20 | N/A | .38 | .42 | .45 | .50 | .53 | .55 | .59 | .61 |
| | .30 | | N/A | .32 | .36 | .40 | .45 | .49 | .51 | .55 | .58 |
| | .10 | | N/A | .28 | .32 | .36 | .41 | .45 | .48 | .52 | .55 |
| .50 | .50 | .20 | N/A | .35 | .39 | .42 | .46 | .49 | .51 | .54 | .56 |
| | .30 | | N/A | .30 | .34 | .37 | .42 | .45 | .48 | .51 | .53 |
| | .10 | | N/A | .27 | .31 | .34 | .39 | .42 | .45 | .48 | .51 |
| .30 | .50 | .20 | N/A | .32 | .36 | .38 | .42 | .45 | .47 | .49 | .51 |
| | .30 | | N/A | .28 | .32 | .35 | .39 | .42 | .44 | .47 | .49 |
| | .10 | | N/A | .25 | .29 | .32 | .36 | .39 | .42 | .45 | .47 |
| .00 | .00 | .00 | N/A | .22 | .25 | .28 | .32 | .34 | .37 | .39 | .41 |
| BZ Class | | | N/A | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |

CIE Flux code 34 / 62 / 84 / 82 / 66

CIE Room Index 0.60 0.80 1.00 1.25 1.50 2.00 2.50 3.00 4.00 5.00 10.0 20.0
CIE DRR 0.22 0.29 0.36 0.42 0.47 0.56 0.61 0.65 0.71 0.74 0.80 0.82
CIE class 7 / 7 / 7 / 7 / 7 / 7 / 7 / 7 / 8 / 8 / 9 / -

Flux Fraction Ratio 0.22
DIN Class 0.66 B

Calculated in accordance with CIBSE Technical Memorandum No. 5 1980

In accordance with TM5, this UF table is valid for values of SHR from 0.5 below SHR NOM to 0.5 above SHR NOM. SHR MAX is a separate limitation.

Reflectances given in the UF table are the effective reflectances of the ceiling cavity, walls and floor cavity, and must be determined for the actual room in which the luminaire will be used.

UF(F), UF(W), and UF(C) for 0% reflectance of the room surfaces are equivalent to DF(F), DF(W) and DF(C) respectively.

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Lamp lumen output 6,200 lm
Lamp quantity 1

Angle Aspect Factors

| | Parallel plane | Perpendicular plane |
|-----|-------------------|------------------------|
| 0° | 0.000 | 0.000 |
| 5° | 0.087 | 0.004 |
| 10° | 0.172 | 0.015 |
| 15° | 0.253 | 0.033 |
| 20° | 0.331 | 0.057 |
| 25° | 0.402 | 0.087 |
| 30° | 0.467 | 0.121 |
| 35° | 0.525 | 0.157 |
| 40° | 0.574 | 0.196 |
| 45° | 0.616 | 0.234 |
| 50° | 0.650 | 0.270 |
| 55° | 0.676 | 0.305 |
| 60° | 0.696 | 0.336 |
| 65° | 0.709 | 0.362 |
| 70° | 0.718 | 0.383 |
| 75° | 0.723 | 0.399 |
| 80° | 0.725 | 0.409 |
| 85° | 0.726 | 0.414 |
| 90° | 0.726 | 0.415 |

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Lamp description

70W/840 F T8 Sylvania Luxline Plus

Lamp lumen output

6,200 lm

Lamp quantity

1

Zonal Flux Calculations

| Angles | Individual | Cumulative |
|-------------|------------|------------|
| 0° - 5° | 0.5% | 0.5% |
| 5° - 10° | 1.4% | 1.9% |
| 10° - 15° | 2.3% | 4.2% |
| 15° - 20° | 3.1% | 7.3% |
| 20° - 25° | 3.9% | 11.2% |
| 25° - 30° | 4.6% | 15.7% |
| 30° - 35° | 5.1% | 20.9% |
| 35° - 40° | 5.6% | 26.4% |
| 40° - 45° | 5.9% | 32.3% |
| 45° - 50° | 6.1% | 38.5% |
| 50° - 55° | 6.2% | 44.6% |
| 55° - 60° | 6.2% | 50.8% |
| 60° - 65° | 6.0% | 56.8% |
| 65° - 70° | 5.8% | 62.6% |
| 70° - 75° | 5.4% | 68.0% |
| 75° - 80° | 5.0% | 73.0% |
| 80° - 85° | 4.6% | 77.6% |
| 85° - 90° | 4.1% | 81.7% |
| 90° - 95° | 3.7% | 85.3% |
| 95° - 100° | 3.3% | 88.6% |
| 100° - 105° | 2.8% | 91.4% |
| 105° - 110° | 2.4% | 93.8% |
| 110° - 115° | 2.0% | 95.8% |
| 115° - 120° | 1.5% | 97.3% |
| 120° - 125° | 1.1% | 98.5% |
| 125° - 130° | 0.8% | 99.3% |
| 130° - 135° | 0.5% | 99.8% |
| 135° - 140° | 0.2% | 99.9% |
| 140° - 145° | 0.0% | 100.0% |
| 145° - 150° | 0.0% | 100.0% |
| 150° - 155° | 0.0% | 100.0% |
| 155° - 160° | 0.0% | 100.0% |
| 160° - 165° | 0.0% | 100.0% |
| 165° - 170° | 0.0% | 100.0% |
| 170° - 175° | 0.0% | 100.0% |
| 175° - 180° | 0.0% | 100.0% |

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Averaged Luminance Values (cd/m²)

Elevation(°)

Azimuth(°)

| | 0.0° | 30.0° | 60.0° | 90.0° | 120.0° | 150.0° | 180.0° |
|-----|--------|--------|--------|--------|--------|--------|--------|
| 45° | 5767 | 5543 | 5078 | 5484 | 5078 | 5543 | 5767 |
| 50° | 5874 | 5584 | 4926 | 5280 | 4926 | 5584 | 5874 |
| 55° | 6003 | 5647 | 4812 | 5077 | 4812 | 5647 | 6003 |
| 60° | 6185 | 5743 | 4695 | 4839 | 4695 | 5743 | 6185 |
| 65° | 6367 | 5870 | 4615 | 4550 | 4615 | 5870 | 6367 |
| 70° | 6625 | 6052 | 4554 | 4182 | 4554 | 6052 | 6625 |
| 75° | 6901 | 6249 | 4559 | 3698 | 4559 | 6249 | 6901 |
| 80° | 7272 | 6598 | 4664 | 3078 | 4664 | 6598 | 7272 |
| 85° | 7761 | 7044 | 4940 | 2205 | 4940 | 7044 | 7761 |
| | 180.0° | 210.0° | 240.0° | 270.0° | 300.0° | 330.0° | 0.0° |
| 45° | 5767 | 5543 | 5078 | 5484 | 5078 | 5543 | 5767 |
| 50° | 5874 | 5584 | 4926 | 5280 | 4926 | 5584 | 5874 |
| 55° | 6003 | 5647 | 4812 | 5077 | 4812 | 5647 | 6003 |
| 60° | 6185 | 5743 | 4695 | 4839 | 4695 | 5743 | 6185 |
| 65° | 6367 | 5870 | 4615 | 4550 | 4615 | 5870 | 6367 |
| 70° | 6625 | 6052 | 4554 | 4182 | 4554 | 6052 | 6625 |
| 75° | 6901 | 6249 | 4559 | 3698 | 4559 | 6249 | 6901 |
| 80° | 7272 | 6598 | 4664 | 3078 | 4664 | 6598 | 7272 |
| 85° | 7761 | 7044 | 4940 | 2205 | 4940 | 7044 | 7761 |

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Non averaged Luminance Values (cd/m²)

Elevation(°)

Azimuth(°)

| | 0.0° | 30.0° | 60.0° | 90.0° | 120.0° | 150.0° | 180.0° |
|-----|--------|--------|--------|--------|--------|--------|--------|
| 45° | 5723 | 5516 | 5021 | 5420 | 5116 | 5577 | 5812 |
| 50° | 5817 | 5541 | 4865 | 5221 | 4985 | 5634 | 5931 |
| 55° | 5931 | 5590 | 4734 | 5026 | 4877 | 5714 | 6076 |
| 60° | 6103 | 5666 | 4603 | 4787 | 4768 | 5830 | 6266 |
| 65° | 6262 | 5778 | 4497 | 4505 | 4709 | 5988 | 6473 |
| 70° | 6465 | 5929 | 4412 | 4148 | 4691 | 6189 | 6784 |
| 75° | 6720 | 5992 | 4398 | 3670 | 4701 | 6451 | 7082 |
| 80° | 7057 | 6410 | 4468 | 3082 | 4837 | 6813 | 7487 |
| 85° | 7502 | 6810 | 4701 | 2237 | 5149 | 7304 | 8021 |
| | 180.0° | 210.0° | 240.0° | 270.0° | 300.0° | 330.0° | 0.0° |
| 45° | 5812 | 5528 | 5065 | 5547 | 5110 | 5550 | 5723 |
| 50° | 5931 | 5579 | 4929 | 5338 | 4923 | 5580 | 5817 |
| 55° | 6076 | 5665 | 4809 | 5127 | 4829 | 5620 | 5931 |
| 60° | 6266 | 5783 | 4710 | 4891 | 4699 | 5695 | 6103 |
| 65° | 6473 | 5918 | 4636 | 4595 | 4616 | 5796 | 6262 |
| 70° | 6784 | 6141 | 4593 | 4217 | 4522 | 5950 | 6465 |
| 75° | 7082 | 6418 | 4627 | 3726 | 4509 | 6134 | 6720 |
| 80° | 7487 | 6783 | 4766 | 3074 | 4584 | 6387 | 7057 |
| 85° | 8021 | 7287 | 5094 | 2174 | 4815 | 6774 | 7502 |

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Customer

Encapsulite International Ltd.

Luminaire Range

MT70 IP68

Luminaire catalog No.

MT70 SC 70W

Luminaire description

linear cylindrical luminaire
with opal cover

data derived from range test series

Lamp description

70W/840 F T8 Sylvania Luxline Plus

Lamp lumen output

6,200 lm

Lamp quantity

1

Averaged Luminance Values (cd/m²/klm)

Elevation(°)

Azimuth(°)

| | 0.0° | 30.0° | 60.0° | 90.0° | 120.0° | 150.0° | 180.0° |
|-----|--------|--------|--------|--------|--------|--------|--------|
| 45° | 930 | 894 | 819 | 884 | 819 | 894 | 930 |
| 50° | 947 | 901 | 794 | 852 | 794 | 901 | 947 |
| 55° | 968 | 911 | 776 | 819 | 776 | 911 | 968 |
| 60° | 998 | 926 | 757 | 780 | 757 | 926 | 998 |
| 65° | 1027 | 947 | 744 | 734 | 744 | 947 | 1027 |
| 70° | 1068 | 976 | 735 | 675 | 735 | 976 | 1068 |
| 75° | 1113 | 1008 | 735 | 596 | 735 | 1008 | 1113 |
| 80° | 1173 | 1064 | 752 | 496 | 752 | 1064 | 1173 |
| 85° | 1252 | 1136 | 797 | 356 | 797 | 1136 | 1252 |
| | 180.0° | 210.0° | 240.0° | 270.0° | 300.0° | 330.0° | 0.0° |
| 45° | 930 | 894 | 819 | 884 | 819 | 894 | 930 |
| 50° | 947 | 901 | 794 | 852 | 794 | 901 | 947 |
| 55° | 968 | 911 | 776 | 819 | 776 | 911 | 968 |
| 60° | 998 | 926 | 757 | 780 | 757 | 926 | 998 |
| 65° | 1027 | 947 | 744 | 734 | 744 | 947 | 1027 |
| 70° | 1068 | 976 | 735 | 675 | 735 | 976 | 1068 |
| 75° | 1113 | 1008 | 735 | 596 | 735 | 1008 | 1113 |
| 80° | 1173 | 1064 | 752 | 496 | 752 | 1064 | 1173 |
| 85° | 1252 | 1136 | 797 | 356 | 797 | 1136 | 1252 |

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Customer

Encapsulite International Ltd.

Luminaire Range

MT70 IP68

Luminaire catalog No.

MT70 SC 70W

Luminaire description

linear cylindrical luminaire
with opal cover

data derived from range test series

Lamp description

70W/840 F T8 Sylvania Luxline Plus

Lamp lumen output

6,200 lm

Lamp quantity

1

Non averaged Luminance Values (cd/m²/klm)

Elevation(°)

Azimuth(°)

| | 0.0° | 30.0° | 60.0° | 90.0° | 120.0° | 150.0° | 180.0° |
|-----|--------|--------|--------|--------|--------|--------|--------|
| 45° | 923 | 890 | 810 | 874 | 825 | 900 | 937 |
| 50° | 938 | 894 | 785 | 842 | 804 | 909 | 957 |
| 55° | 957 | 902 | 764 | 811 | 787 | 922 | 980 |
| 60° | 984 | 914 | 742 | 772 | 769 | 940 | 1011 |
| 65° | 1010 | 932 | 725 | 727 | 760 | 966 | 1044 |
| 70° | 1043 | 956 | 712 | 669 | 757 | 998 | 1094 |
| 75° | 1084 | 966 | 709 | 592 | 758 | 1041 | 1142 |
| 80° | 1138 | 1034 | 721 | 497 | 780 | 1099 | 1208 |
| 85° | 1210 | 1098 | 758 | 361 | 831 | 1178 | 1294 |
| | 180.0° | 210.0° | 240.0° | 270.0° | 300.0° | 330.0° | 0.0° |
| 45° | 937 | 892 | 817 | 895 | 824 | 895 | 923 |
| 50° | 957 | 900 | 795 | 861 | 794 | 900 | 938 |
| 55° | 980 | 914 | 776 | 827 | 779 | 906 | 957 |
| 60° | 1011 | 933 | 760 | 789 | 758 | 919 | 984 |
| 65° | 1044 | 954 | 748 | 741 | 744 | 935 | 1010 |
| 70° | 1094 | 990 | 741 | 680 | 729 | 960 | 1043 |
| 75° | 1142 | 1035 | 746 | 601 | 727 | 989 | 1084 |
| 80° | 1208 | 1094 | 769 | 496 | 739 | 1030 | 1138 |
| 85° | 1294 | 1175 | 822 | 351 | 777 | 1093 | 1210 |

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Customer Encapsulite International Ltd.
Luminaire Range MT70 IP68
Luminaire catalog No. MT70 SC 70W
Luminaire description linear cylindrical luminaire
with opal cover
data derived from range test series
Lamp description 70W/840 F T8 Sylvania Luxline Plus
Lamp lumen output 6,200 lm
Lamp quantity 1

Maximum Non averaged Luminance Values (cd/m²)

Elevation(°)

Maximum Azimuth Angle

| | | |
|-----|------|------|
| 45° | 5812 | 180° |
| 50° | 5931 | 180° |
| 55° | 6076 | 180° |
| 60° | 6266 | 180° |
| 65° | 6473 | 180° |
| 70° | 6784 | 180° |
| 75° | 7082 | 180° |
| 80° | 7487 | 180° |
| 85° | 8021 | 180° |

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Customer Encapsulite International Ltd.
Luminaire Range MT70 IP68
Luminaire catalog No. MT70 SC 70W
Luminaire description linear cylindrical luminaire
with opal cover
data derived from range test series
Lamp description 70W/840 F T8 Sylvania Luxline Plus
Lamp lumen output 6,200 lm
Lamp quantity 1

VDT Luminance Information

BS EN 12464 (2002) / CIBSE LG7 (2005) / CIBSE LG3 (2001)

| Permitted Usage according to Screen Type and Luminance Limit Angle | Limiting luminance (cd/m ²) | Use permitted at Luminance Limit Angle(°) | |
|--|---|---|-----|
| | | 55° | 65° |
| Screen Type III (No screen treatment) used with some negative polarity software | 200 | NO | NO |
| Screen Type I and II (Good or moderate screen treatment) used with some negative polarity software | 500 | NO | NO |
| Screen Type III (No screen treatment) used with only positive polarity software | 1000 | NO | NO |
| Screen Type I and II (Good or moderate screen treatment) used with only positive polarity software | 1500 | NO | NO |

VDT Luminance Information

BS EN 12464 (2011) / CIBSE LG7 (2012)

| Permitted Usage according to Screen Type and Luminance Limit Angle | Limiting luminance (cd/m ²) | Use permitted at Luminance Limit Angle(°) | |
|---|---|---|-----|
| | | 55° | 65° |
| Medium luminance screen (L <= 200 cdm ²) Case B negative polarity and/or higher requirements | 1000 | - | NO |
| Medium luminance screen (L <= 200 cdm ²) Case A positive polarity and normal requirements | 1500 | - | NO |
| High luminance screen (L > 200 cd/m ²) Case B negative polarity and/or higher requirements | 1500 | - | NO |
| High luminance screen (L > 200 cd/m ²) Case A positive polarity and normal requirements | 3000 | - | NO |

Customer Encapsulite International Ltd.
 Luminaire Range MT70 IP68
 Luminaire catalog No. MT70 SC 70W
 Luminaire description linear cylindrical luminaire
 with opal cover
 data derived from range test series
 Lamp description 70W/840 F T8 Sylvania Luxline Plus
 Lamp lumen output 6,200 lm
 Lamp quantity 1

Uncorrected Glare Indices

| | | | | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Reflectance of | | | | | | | | | | |
| Ceiling | .70 | .70 | .50 | .50 | .30 | .70 | .70 | .50 | .50 | .30 |
| Wall | .50 | .30 | .50 | .30 | .30 | .50 | .30 | .50 | .30 | .30 |
| Floor Cavity | .20 | .20 | .20 | .20 | .20 | .20 | .20 | .20 | .20 | .20 |

Room dimension

Viewed crosswise

Viewed endwise

| X | Y | 0° | | | | | 90° | | | | |
|-----|-----|------|------|------|------|------|------|------|------|------|------|
| 2H | 2H | 11.1 | 12.8 | 11.8 | 13.6 | 14.5 | 7.4 | 9.2 | 8.2 | 10.0 | 10.9 |
| | 3H | 14.5 | 16.1 | 15.2 | 16.9 | 17.8 | 9.4 | 11.1 | 10.2 | 11.9 | 12.8 |
| | 4H | 16.1 | 17.7 | 16.9 | 18.5 | 19.4 | 10.2 | 11.7 | 10.9 | 12.5 | 13.5 |
| | 6H | 17.9 | 19.3 | 18.7 | 20.2 | 21.2 | 10.7 | 12.1 | 11.5 | 13.0 | 14.0 |
| | 8H | 18.8 | 20.2 | 19.6 | 21.0 | 22.0 | 10.8 | 12.2 | 11.7 | 13.1 | 14.1 |
| | 12H | 19.7 | 21.1 | 20.5 | 21.9 | 22.9 | 10.9 | 12.3 | 11.7 | 13.1 | 14.1 |
| 4H | 2H | 12.0 | 13.5 | 12.8 | 14.3 | 15.3 | 9.5 | 11.1 | 10.3 | 11.9 | 12.8 |
| | 3H | 15.7 | 17.0 | 16.5 | 17.9 | 18.9 | 11.8 | 13.1 | 12.6 | 14.0 | 15.0 |
| | 4H | 17.6 | 18.9 | 18.5 | 19.7 | 20.8 | 12.8 | 14.0 | 13.6 | 14.9 | 15.9 |
| | 6H | 19.6 | 20.7 | 20.5 | 21.6 | 22.6 | 13.5 | 14.6 | 14.3 | 15.5 | 16.5 |
| | 8H | 20.6 | 21.7 | 21.5 | 22.6 | 23.6 | 13.7 | 14.8 | 14.6 | 15.7 | 16.7 |
| | 12H | 21.8 | 22.7 | 22.6 | 23.6 | 24.7 | 13.9 | 14.9 | 14.8 | 15.8 | 16.9 |
| 8H | 4H | 18.3 | 19.3 | 19.1 | 20.2 | 21.2 | 14.8 | 15.9 | 15.7 | 16.8 | 17.8 |
| | 6H | 20.5 | 21.4 | 21.4 | 22.3 | 23.4 | 15.8 | 16.7 | 16.7 | 17.7 | 18.7 |
| | 8H | 21.9 | 22.7 | 22.8 | 23.6 | 24.7 | 16.4 | 17.2 | 17.3 | 18.1 | 19.2 |
| | 12H | 23.2 | 23.9 | 24.1 | 24.9 | 26.0 | 16.7 | 17.4 | 17.6 | 18.4 | 19.4 |
| 12H | 4H | 18.4 | 19.4 | 19.3 | 20.2 | 21.3 | 15.7 | 16.7 | 16.6 | 17.6 | 18.7 |
| | 6H | 20.8 | 21.6 | 21.7 | 22.6 | 23.7 | 17.0 | 17.8 | 18.0 | 18.8 | 19.9 |
| | 8H | 22.2 | 22.9 | 23.1 | 23.9 | 25.0 | 17.6 | 18.3 | 18.5 | 19.3 | 20.4 |

Calculated in accordance with CIBSE Technical Memorandum No. 10 1985

Customer

Encapsulite International Ltd.

Luminaire Range

MT70 IP68

Luminaire catalog No.

MT70 SC 70W

Luminaire description

linear cylindrical luminaire

with opal cover

data derived from range test series

Lamp description

70W/840 F T8 Sylvania Luxline Plus

Lamp lumen output

6,200 lm

Lamp quantity

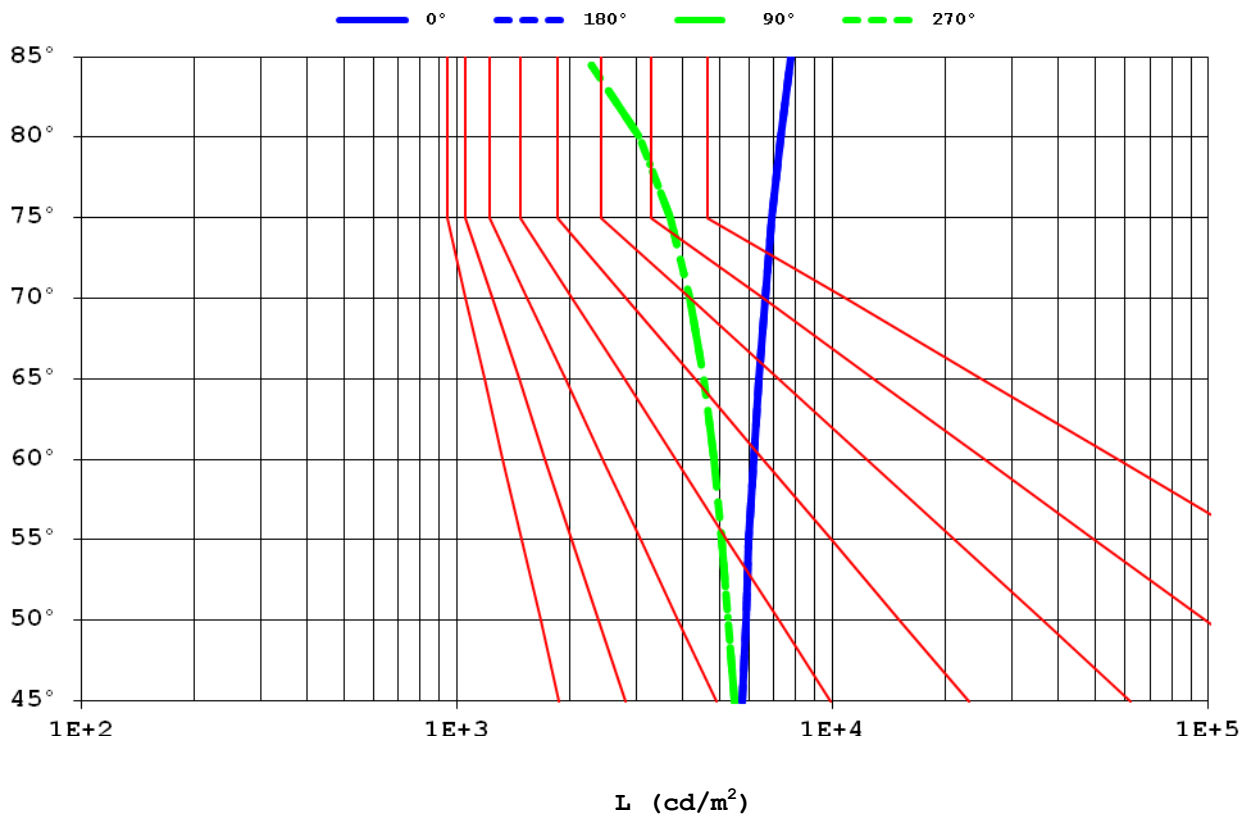
1

CIE Glare Limiting (Soellnor) Diagram

Glare Quality
Rating Class

Service values of illuminance

| | | | | | | | | | |
|------|---|------|------|------|------|------|------|------|------|
| 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 |



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| | |
|-----------------------|--|
| Customer | Encapsulite International Ltd. |
| Luminaire Range | MT70 IP68 |
| Luminaire catalog No. | MT70 SC 70W |
| Luminaire description | linear cylindrical luminaire with opal cover data derived from range test series |
| Lamp description | 70W/840 F T8 Sylvania Luxline Plus |
| Lamp lumen output | 6,200 lm |
| Lamp quantity | 1 |

Comments

It is recommended that point to point calculations are used when designing lighting schemes in order to accurately predict uniformity. Data files in various formats are available to allow easy transfer of this data to a computer. Please enquire for details.

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Customer Encapsulite International Ltd.
Luminaire Range MT70 IP68
Luminaire catalog No. MT70 SC 70W
Luminaire description linear cylindrical luminaire
with opal cover
data derived from range test series
Lamp description 70W/840 F T8 Sylvania Luxline Plus
Lamp lumen output 6,200 lm
Lamp quantity 1

Quick Design Table

Based on: reflectances of Ceiling = 0.5
Wall = 0.5
Floor = 0.2
Room Index = 2.00
lamp output = 6200 lumens
ballast lumen factor = 1.00

To achieve an Illuminance of 100 lux

| | | | | | | | | | |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|------|------|
| Surface Area (m ²) | 20 | 30 | 40 | 50 | 80 | 100 | 200 | 300 | 500 |
| No. of luminaires | 0.7 | 1.1 | 1.4 | 1.8 | 2.8 | 3.5 | 7.0 | 10.6 | 17.6 |