



42 Partners Limited

21 Woden Road
Wolverhampton
WV10 0AU
UK

www.42partners.com

42@42partners.com

T +44 (0) 1902 453650

F +44 (0) 8721 153400

Registered in England: Company Number 3021552
VAT Registration Number: GB 661 1596 34

Photometric Report

Job / Report / Date 42 / 10692 / 10692-15a / 2013.06.17

Customer	Encapsulite International Ltd.
Luminaire Range	MT70 IP68
Luminaire catalog No.	MT70 SC 18W
Luminaire description	linear cylindrical luminaire with opal cover data derived from range test series
Lamp description	18W/840 L Osram SmartLux Pro
Lamp lumen output	1,350 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 / 10692-15a / 2013.06.17

Customer

Encapsulite International Ltd.

Luminaire Range

MT70 IP68

Luminaire catalog No.

MT70 SC 18W

Luminaire description

linear cylindrical luminaire
with opal cover

data derived from range test series

Lamp description

18W/840 L Osram SmartLux Pro

Lamp lumen output

1,350 lm

Lamp quantity

1



Helvar
www.helvar.com

ELECTRONIC BALLAST EL1x18s
220-240V 0/50-60Hz



T8: 18W 0.09-0.08A λ 0.98
 $t_a = -20...+50^{\circ}\text{C}$



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Luminaire physical characteristics

Overall Dimensions

Length	705mm
Width	70mm
Height	70mm

Visible Dimensions when installed

Length	705mm
Width	70mm
Height	70mm

Luminous Dimensions

Length	635mm
Width	70mm
Height 0°	35mm
Height 90°	0mm
Height 180°	35mm
Height 270°	0mm

Luminous Areas

Base	0.044445m ²
Sides	0.022225m 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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Electrical input & Photometric output characteristics

Control gear

1 * Helvar EL1x18s

Ballast Voltage Range 220-240V
Ballast Current Range 0.08-0.09A
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	82.1	0.969	18.3	18.9	998	74%	54.5
Lamp	230.0	83.9	0.971	18.7	19.3	1,227	91%	65.5

Electrical characteristics at 25°C

Ballast Nominal	230V	84.8mA	0.98PF	19.1W	19.5VA
Lamp Nominal	230V	78.3mA	1.00PF	18.0W	18.0VA
Luminaire	230V	82.1mA	0.97PF	18.3W	18.9VA
Lamp	230V	83.9mA	0.97PF	18.7W	19.3VA

Measured Electrical characteristics relative to Ballast Nominal

Luminaire	Current	97%	Power	96%	VA	97%
Lamp	Current	99%	Power	98%	VA	99%

Measured Electrical characteristics relative to Lamp Nominal

Luminaire	Current	105%	Power	102%	VA	105%
Lamp	Current	107%	Power	104%	VA	107%

Lumen Output figures used in this report (lumens)

Nominal Lamp Output	1,350
Measured Luminaire Output	998
Measured Lamp Output	1,227

Measured Lumen Output characteristics relative to Lamp Nominal Total

Luminaire	74%
Lamp	91%

Measured luminous efficacy at 25°C

Luminaire	54.5 lm/W
Lamp	65.5 lm/W

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The light output ratio of the luminaire was measured as 0.813 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 998 lumens at 25°C.
This figure can be related to the nominal lumen output of the lamp quoted by the manufacturer of 1,350 lumens, to give a nominal light output ratio of 0.739.

The measured lumen output of the lamp was 1,227 lumens at 25°C.
This figure can be related to the nominal lumen output of the lamp quoted by the manufacturer of 1,350 lumens, to give a nominal BLF of 0.909.

For lighting design calculations:

A light output ratio of 1 should be used in conjunction with the measured lumen output of the luminaire of 998 lumens.

or

The nominal light output ratio of 0.739 should be used in conjunction with the nominal lumen output of the lamp of 1,350 lumens.

or

The measured light output ratio of 0.813 should be used in conjunction with the measured lumen output of the lamp of 1,227 lumens.

or

The measured light output ratio of 0.813 should be used in conjunction with the nominal lumen output of the lamp of 1,350 lumens and the nominal BLF of 0.909.

This report is based on the following parameters:

The Light Output Ratio is the nominal value of 0.739.

The lamp output is the nominal value of 1,350 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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data derived from range test series

Lamp description

18W/840 L Osram SmartLux Pro

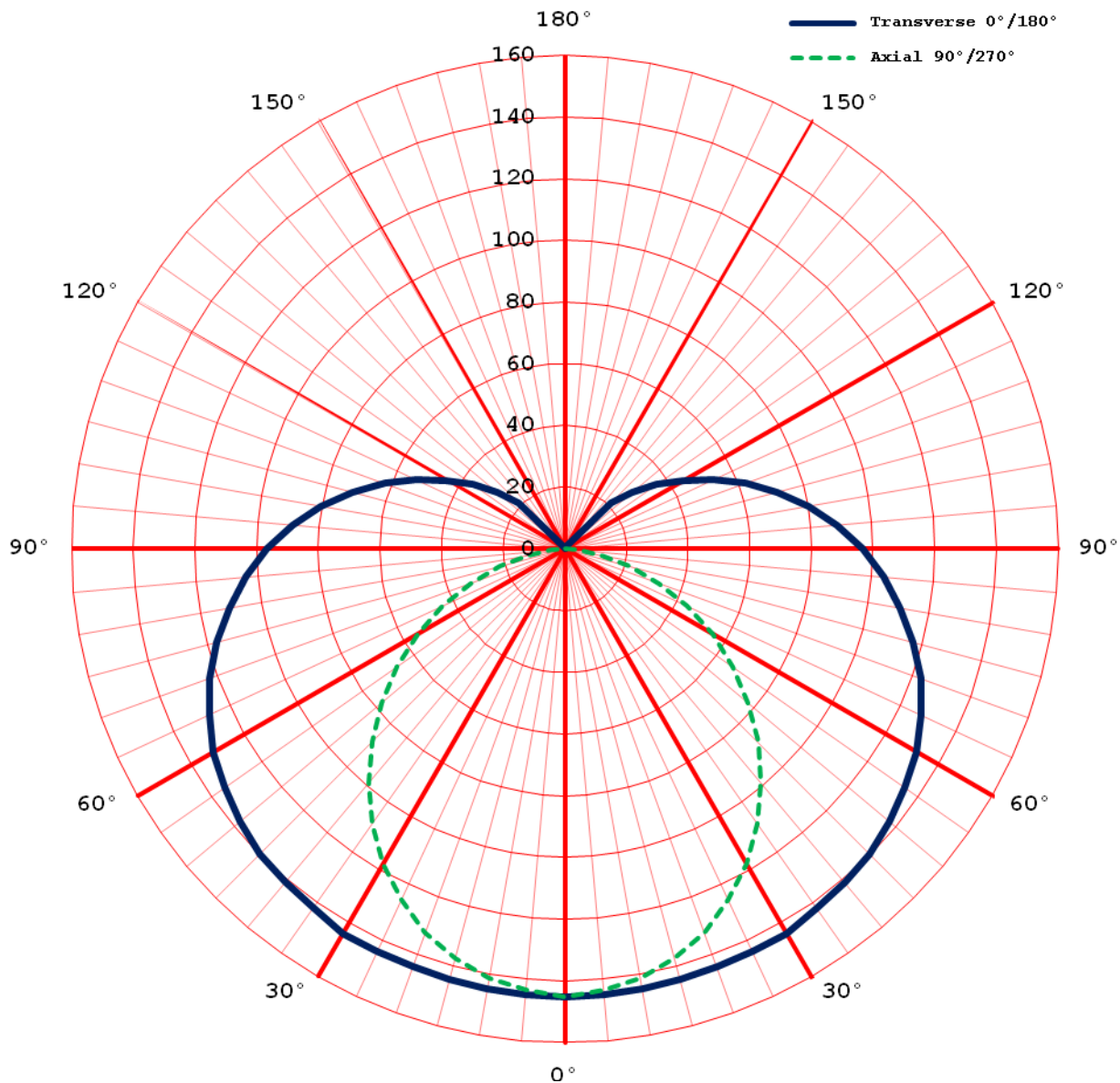
Lamp lumen output

1,350 lm

Lamp quantity

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Average Principal Axes Luminous Intensities (cd/klm)



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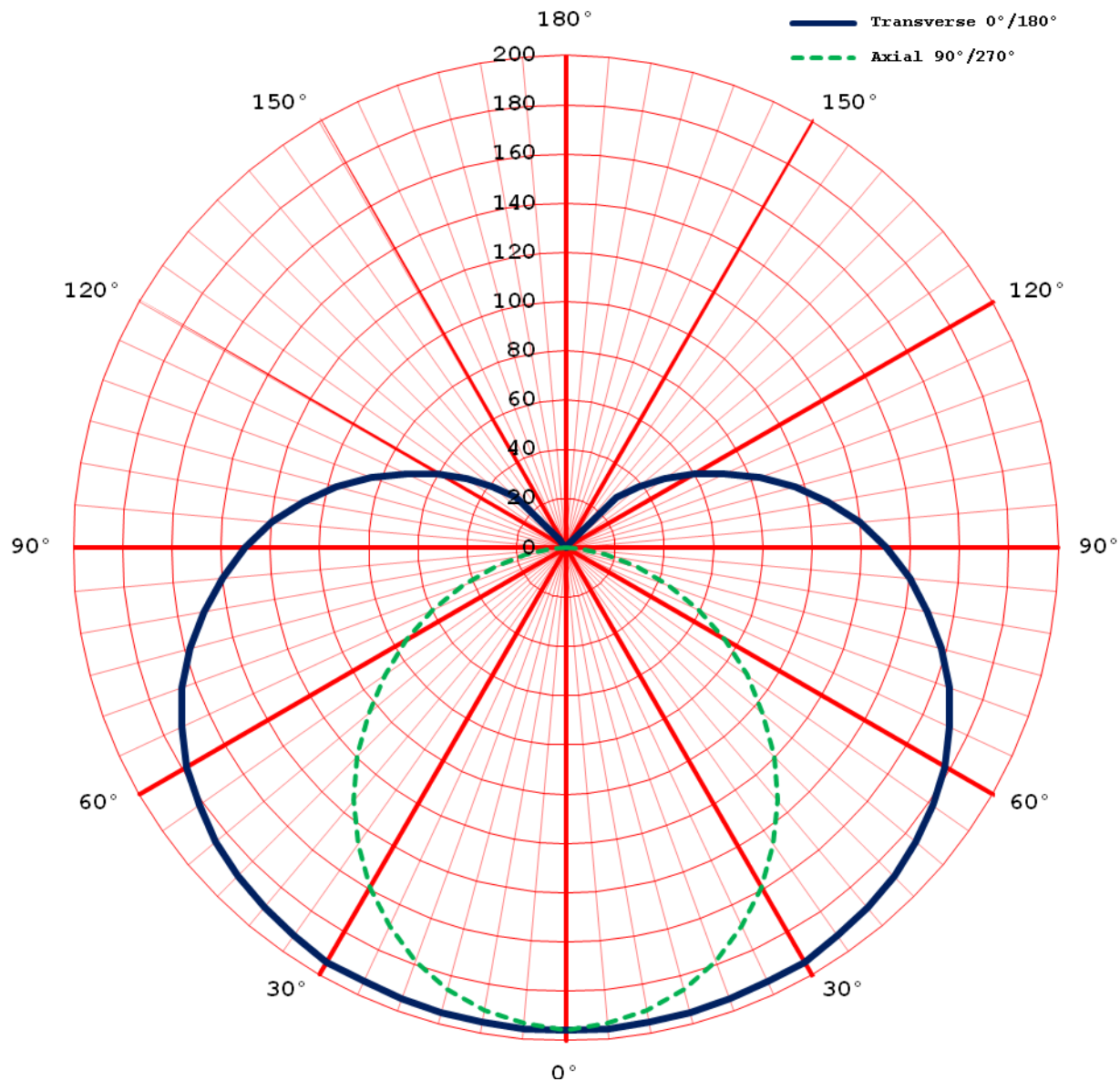
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Lamp quantity

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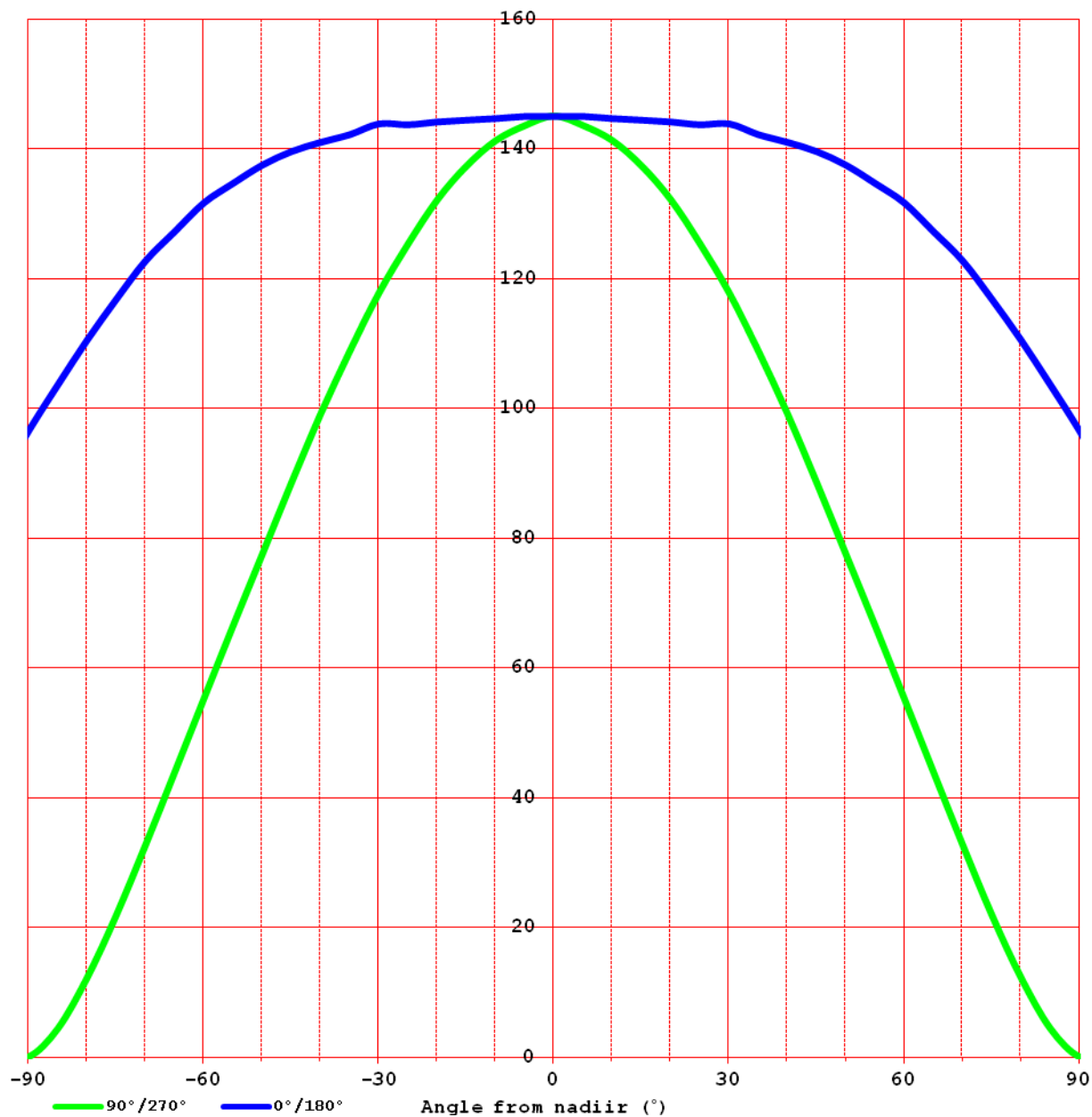
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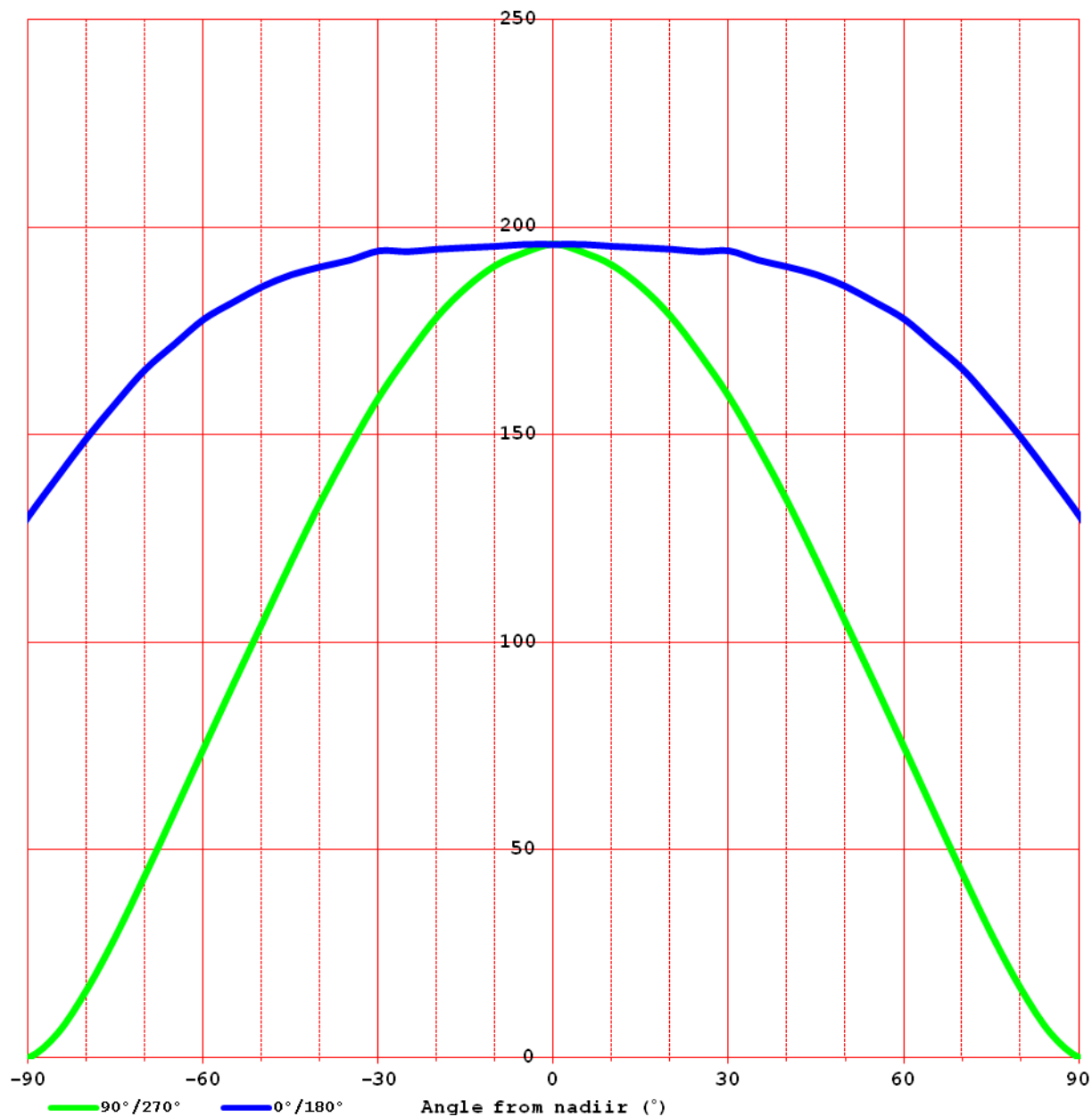
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42 / 10692 / 10692-15a / 2013.06.17

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Average Luminous Intensities (cd/Klm)

Angle	Transverse plane	Axial plane
0°	145.12	145.12
5°	145.13	143.65
10°	144.79	141.33
15°	144.55	137.43
20°	144.27	132.22
25°	143.84	125.42
30°	143.97	117.84
35°	142.31	108.86
40°	141.12	99.16
45°	139.69	88.55
50°	137.60	77.50
55°	134.79	66.49
60°	131.78	55.25
65°	127.34	43.91
70°	122.82	32.67
75°	116.90	21.86
80°	110.60	12.21
85°	103.73	4.39
90°	96.62	0.00
95°	88.71	0.00
100°	80.26	0.00
105°	71.43	0.00
110°	62.22	0.00
115°	53.10	0.00
120°	44.40	0.00
125°	36.33	0.00
130°	28.63	0.00
135°	21.37	0.00
140°	2.72	0.00
145°	2.05	0.00
150°	1.06	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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Average Luminous Intensities (cd)

Angle	Transverse plane	Axial plane
0°	195.92	195.92
5°	195.92	193.92
10°	195.46	190.80
15°	195.14	185.53
20°	194.76	178.50
25°	194.18	169.31
30°	194.36	159.08
35°	192.12	146.97
40°	190.52	133.87
45°	188.59	119.54
50°	185.76	104.62
55°	181.96	89.77
60°	177.90	74.59
65°	171.91	59.28
70°	165.81	44.10
75°	157.82	29.51
80°	149.32	16.48
85°	140.04	5.93
90°	130.44	0.00
95°	119.75	0.00
100°	108.35	0.00
105°	96.44	0.00
110°	83.99	0.00
115°	71.68	0.00
120°	59.94	0.00
125°	49.05	0.00
130°	38.65	0.00
135°	28.85	0.00
140°	3.67	0.00
145°	2.77	0.00
150°	1.44	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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Light Output Ratios Up 0.14
Down 0.60
Total 0.74

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	.42	.47	.50	.56	.59	.62	.66	.68	
	.30		N/A	.36	.41	.45	.50	.54	.57	.62	.65	
	.10		N/A	.31	.36	.40	.46	.50	.53	.58	.61	
.50	.50	.20	N/A	.39	.43	.46	.51	.54	.57	.60	.62	
	.30		N/A	.34	.38	.42	.47	.50	.53	.57	.59	
	.10		N/A	.30	.34	.38	.43	.47	.50	.54	.57	
.30	.50	.20	N/A	.36	.40	.43	.47	.50	.52	.55	.57	
	.30		N/A	.32	.36	.39	.43	.47	.49	.53	.55	
	.10		N/A	.28	.32	.36	.40	.44	.46	.50	.53	
.00	.00	.00	N/A	.25	.28	.31	.35	.39	.41	.44	.46	
BZ Class			N/A	6	6	6	6	6	6	6	6	

CIE Flux code 34 / 62 / 84 / 82 / 74

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 0.74 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 1,350 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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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°	4000	3844	3522	3803	3522	3844	4000
50°	4074	3873	3416	3662	3416	3873	4074
55°	4164	3917	3338	3521	3338	3917	4164
60°	4290	3984	3256	3356	3256	3984	4290
65°	4416	4071	3201	3156	3201	4071	4416
70°	4595	4197	3159	2901	3159	4197	4595
75°	4786	4334	3162	2565	3162	4334	4786
80°	5043	4576	3235	2135	3235	4576	5043
85°	5383	4885	3426	1529	3426	4885	5383
	180.0°	210.0°	240.0°	270.0°	300.0°	330.0°	0.0°
45°	4000	3844	3522	3803	3522	3844	4000
50°	4074	3873	3416	3662	3416	3873	4074
55°	4164	3917	3338	3521	3338	3917	4164
60°	4290	3984	3256	3356	3256	3984	4290
65°	4416	4071	3201	3156	3201	4071	4416
70°	4595	4197	3159	2901	3159	4197	4595
75°	4786	4334	3162	2565	3162	4334	4786
80°	5043	4576	3235	2135	3235	4576	5043
85°	5383	4885	3426	1529	3426	4885	5383

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Lamp lumen output

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Lamp quantity

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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°	3969	3825	3482	3759	3549	3868	4031
50°	4034	3843	3374	3621	3458	3908	4113
55°	4113	3877	3283	3486	3383	3963	4214
60°	4233	3930	3192	3320	3307	4043	4346
65°	4343	4007	3119	3125	3266	4153	4489
70°	4484	4112	3060	2877	3254	4292	4705
75°	4661	4156	3050	2546	3261	4474	4912
80°	4894	4446	3099	2137	3355	4725	5192
85°	5203	4723	3260	1551	3571	5066	5563
	180.0°	210.0°	240.0°	270.0°	300.0°	330.0°	0.0°
45°	4031	3834	3513	3847	3544	3849	3969
50°	4113	3869	3419	3703	3415	3870	4034
55°	4214	3929	3336	3556	3349	3898	4113
60°	4346	4011	3267	3392	3259	3950	4233
65°	4489	4104	3216	3187	3201	4020	4343
70°	4705	4259	3185	2925	3137	4126	4484
75°	4912	4451	3209	2584	3128	4254	4661
80°	5192	4704	3306	2132	3179	4430	4894
85°	5563	5054	3533	1508	3340	4699	5203

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Averaged Luminance Values (cd/m²/klm)

Elevation(°)	Azimuth(°)						
	0.0°	30.0°	60.0°	90.0°	120.0°	150.0°	180.0°
45°	2963	2848	2609	2817	2609	2848	2963
50°	3018	2869	2531	2712	2531	2869	3018
55°	3084	2901	2472	2608	2472	2901	3084
60°	3178	2951	2412	2486	2412	2951	3178
65°	3271	3016	2371	2338	2371	3016	3271
70°	3403	3109	2340	2149	2340	3109	3403
75°	3545	3210	2342	1900	2342	3210	3545
80°	3736	3390	2396	1581	2396	3390	3736
85°	3987	3619	2538	1133	2538	3619	3987
	180.0°	210.0°	240.0°	270.0°	300.0°	330.0°	0.0°
45°	2963	2848	2609	2817	2609	2848	2963
50°	3018	2869	2531	2712	2531	2869	3018
55°	3084	2901	2472	2608	2472	2901	3084
60°	3178	2951	2412	2486	2412	2951	3178
65°	3271	3016	2371	2338	2371	3016	3271
70°	3403	3109	2340	2149	2340	3109	3403
75°	3545	3210	2342	1900	2342	3210	3545
80°	3736	3390	2396	1581	2396	3390	3736
85°	3987	3619	2538	1133	2538	3619	3987

Job / Report / Date

42 / 10692 / 10692-15a / 2013.06.17

Customer

Encapsulite International Ltd.

Luminaire Range

MT70 IP68

Luminaire catalog No.

MT70 SC 18W

Luminaire description

linear cylindrical luminaire
with opal cover

data derived from range test series

Lamp description

18W/840 L Osram SmartLux Pro

Lamp lumen output

1,350 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°	2940	2834	2579	2785	2629	2865	2986
50°	2988	2847	2500	2682	2561	2895	3047
55°	3047	2872	2432	2582	2506	2936	3122
60°	3136	2911	2365	2459	2449	2995	3219
65°	3217	2968	2310	2315	2419	3076	3325
70°	3322	3046	2267	2131	2410	3179	3485
75°	3453	3078	2259	1886	2415	3314	3638
80°	3625	3293	2295	1583	2485	3500	3846
85°	3854	3499	2415	1149	2646	3753	4121
	180.0°	210.0°	240.0°	270.0°	300.0°	330.0°	0.0°
45°	2986	2840	2602	2850	2625	2851	2940
50°	3047	2866	2532	2743	2529	2867	2988
55°	3122	2911	2471	2634	2481	2887	3047
60°	3219	2971	2420	2513	2414	2926	3136
65°	3325	3040	2382	2361	2371	2978	3217
70°	3485	3155	2359	2167	2323	3057	3322
75°	3638	3297	2377	1914	2317	3151	3453
80°	3846	3485	2449	1580	2355	3281	3625
85°	4121	3744	2617	1117	2474	3480	3854

Job / Report / Date 42 / 10692 / 10692-15a / 2013.06.17

Customer Encapsulite International Ltd.
Luminaire Range MT70 IP68
Luminaire catalog No. MT70 SC 18W
Luminaire description linear cylindrical luminaire
with opal cover
data derived from range test series
Lamp description 18W/840 L Osram SmartLux Pro
Lamp lumen output 1,350 lm
Lamp quantity 1

Maximum Non averaged Luminance Values (cd/m²)

Elevation(°)

Maximum Azimuth Angle

45°	4031	180°
50°	4113	180°
55°	4214	180°
60°	4346	180°
65°	4489	180°
70°	4705	180°
75°	4912	180°
80°	5192	180°
85°	5563	180°

Job / Report / Date 42 / 10692 / 10692-15a / 2013.06.17

Customer Encapsulite International Ltd.
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Luminaire catalog No. MT70 SC 18W
Luminaire description linear cylindrical luminaire
with opal cover
data derived from range test series
Lamp description 18W/840 L Osram SmartLux Pro
Lamp lumen output 1,350 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 18W
 Luminaire description linear cylindrical luminaire
 with opal cover
 data derived from range test series
 Lamp description 18W/840 L Osram SmartLux Pro
 Lamp lumen output 1,350 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	15.0	16.8	15.8	17.6	18.5	11.4	13.1	12.1	13.9	14.8	
3H	18.4	20.0	19.2	20.8	21.8	13.4	15.0	14.1	15.8	16.7	
4H	20.0	21.6	20.8	22.4	23.4	14.1	15.6	14.9	16.4	17.4	
6H	21.8	23.3	22.6	24.1	25.1	14.6	16.1	15.4	16.9	17.9	
8H	22.7	24.1	23.5	24.9	25.9	14.8	16.2	15.6	17.0	18.0	
12H	23.6	25.0	24.5	25.8	26.8	14.8	16.2	15.7	17.0	18.0	
4H 2H	15.9	17.4	16.7	18.3	19.2	13.5	15.0	14.3	15.8	16.8	
3H	19.6	21.0	20.4	21.8	22.8	15.7	17.1	16.5	17.9	18.9	
4H	21.6	22.8	22.4	23.7	24.7	16.7	17.9	17.5	18.8	19.8	
6H	23.5	24.6	24.4	25.5	26.6	17.4	18.5	18.3	19.4	20.4	
8H	24.6	25.6	25.4	26.5	27.6	17.7	18.7	18.5	19.6	20.7	
12H	25.7	26.7	26.6	27.6	28.6	17.9	18.8	18.7	19.7	20.8	
8H 4H	22.2	23.2	23.1	24.1	25.2	18.7	19.8	19.6	20.7	21.7	
6H	24.4	25.4	25.3	26.3	27.4	19.8	20.7	20.7	21.6	22.7	
8H	25.8	26.6	26.7	27.5	28.6	20.3	21.1	21.2	22.0	23.1	
12H	27.1	27.8	28.1	28.8	29.9	20.6	21.3	21.5	22.3	23.4	
12H 4H	22.3	23.3	23.2	24.2	25.3	19.7	20.7	20.6	21.5	22.6	
6H	24.8	25.6	25.7	26.5	27.6	21.0	21.8	21.9	22.7	23.8	
8H	26.1	26.8	27.1	27.8	28.9	21.6	22.3	22.5	23.2	24.3	

Calculated in accordance with CIBSE Technical Memorandum No. 10 1985

Customer

Encapsulite International Ltd.

Luminaire Range

MT70 IP68

Luminaire catalog No.

MT70 SC 18W

Luminaire description

linear cylindrical luminaire
with opal cover

data derived from range test series

Lamp description

18W/840 L Osram SmartLux Pro

Lamp lumen output

1,350 lm

Lamp quantity

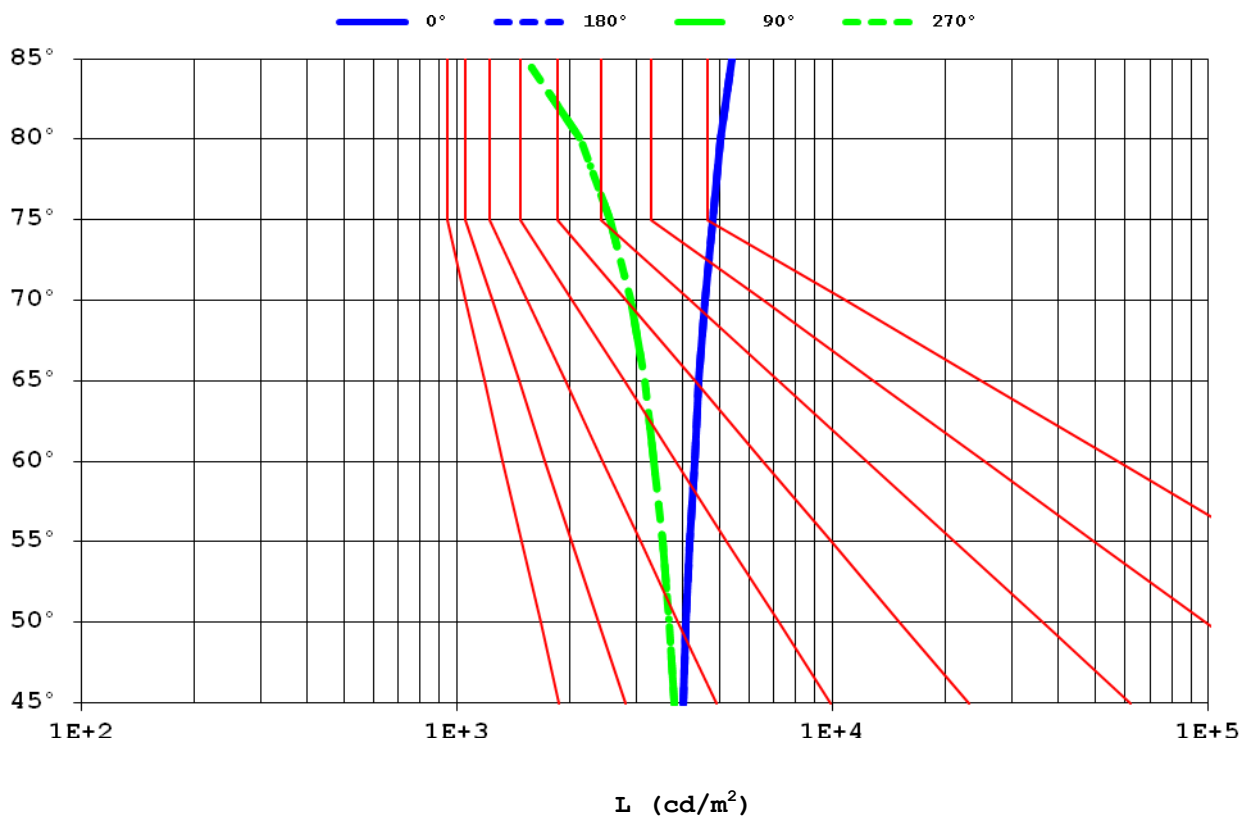
1

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



Job / Report / Date 42 / 10692 / 10692-15a / 2013.06.17

Customer	Encapsulite International Ltd.
Luminaire Range	MT70 IP68
Luminaire catalog No.	MT70 SC 18W
Luminaire description	linear cylindrical luminaire with opal cover data derived from range test series
Lamp description	18W/840 L Osram SmartLux Pro
Lamp lumen output	1,350 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.

Job / Report / Date 42 / 10692 / 10692-15a / 2013.06.17

Customer Encapsulite International Ltd.
Luminaire Range MT70 IP68
Luminaire catalog No. MT70 SC 18W
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data derived from range test series
Lamp description 18W/840 L Osram SmartLux Pro
Lamp lumen output 1,350 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 = 1350 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	2.9	4.3	5.8	7.2	11.6	14.5	28.9	43.4	72.4