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Photometric Report

Job / Report / Date

42 / 10685 / 10685-30a / 2013.05.24

Customer

Encapsulite International Ltd.

Luminaire catalog No.

MT360/SC/28W

Luminaire description

linear IP67 twin T5 fluorescent Direct/Indirect luminaire
with satin cover

Lamp description

HE 28W/840 OSRAM Lumilux Cool White

Lamp lumen output

2,600 lm

Lamp quantity

2

Photometric Report

Pictures

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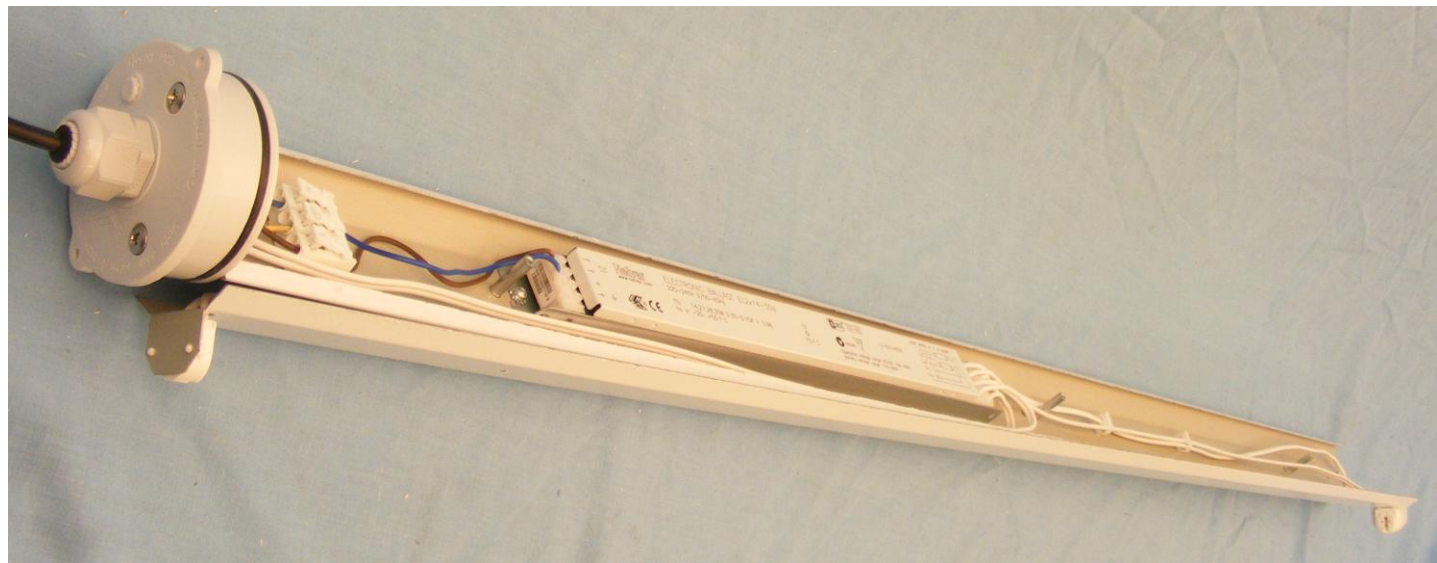
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Helvar
www.helvar.com

ELECTRONIC BALLAST EL2x14-35s
220-240V 0/50-60Hz



T5: 14,21,28,35W 0.35-0.15A λ 0.98
 $t_a = -20...+50^\circ\text{C}$



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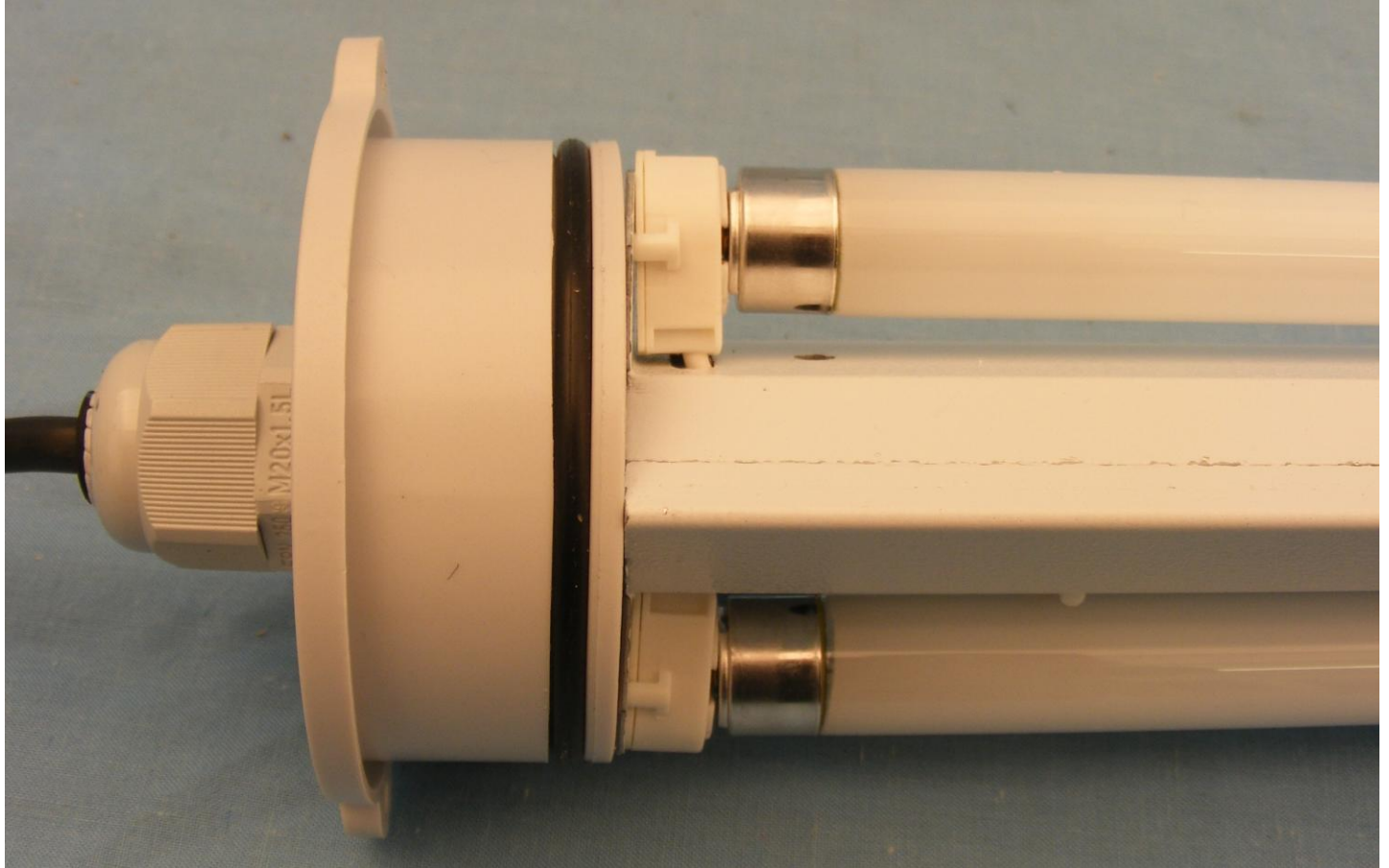
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Luminaire physical characteristics

Overall Dimensions

Length	1235mm
Width	75mm
Height	75mm

Visible Dimensions when installed

Length	1235mm
Width	75mm
Height	75mm

Luminous Dimensions

Length	1175mm
Width	69mm
Height 0°	69mm
Height 90°	69mm
Height 180°	69mm
Height 270°	69mm

Luminous Areas

Base	0.081075m ²
Sides	0.081075m ² (0°/180° azimuth)
Ends	0.004761m 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 and geartray in a horizontal orientation.

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

The photometric nadir was taken to be perpendicular to the geartray.

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 EL2x14-35s

Ballast Voltage Range 220-240V

Ballast Current Range 0.15-0.35A

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	246.8	0.990	56.2	56.7	3,881	75%	69.1
Lamp 1	230.0	266.2	0.990	60.6	61.2	2,347	90%	-
Lamp 2	230.0	267.4	0.990	60.9	61.5	2,416	93%	-
Lamp Average	230.0	266.8	0.990	60.8	61.4	2,382	92%	-
Lamp Total	230.0	266.8	0.990	60.8	61.4	4,763	92%	78.4

Electrical characteristics at 25°C

Ballast Nominal	230V	275.4mA	0.98PF	62.1W	63.3VA
Lamp Nominal	230V	243.5mA	1.00PF	56.0W	56.0VA
Luminaire	230V	246.8mA	0.99PF	56.2W	56.7VA
Lamp Total	230V	266.8mA	0.99PF	60.8W	61.4VA

Measured Electrical characteristics relative to Ballast Nominal

Luminaire	Current	90%	Power	90%	VA	90%
Lamp Total	Current	97%	Power	98%	VA	97%

Measured Electrical characteristics relative to Lamp Nominal

Luminaire	Current	101%	Power	100%	VA	101%
Lamp Total	Current	110%	Power	109%	VA	110%

Lumen Output figures used in this report (lumens)

Nominal Lamp Total Output	5,200
Measured Luminaire Output	3,881
Measured Lamp Total Output	4,763

Measured Lumen Output characteristics relative to Lamp Nominal Total

Luminaire	75%
Lamp Total	92%

Measured luminous efficacy at 25°C

Luminaire	69.1 lm/W
Lamp Total	78.4 lm/W

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The light output ratio of the luminaire was measured as 0.815 at 25°C.
This is the ratio of the output of the luminaire to the output of the sum of the lamps.

The measured lumen output of the luminaire was 3,881 lumens at 25°C.
This figure can be related to the total nominal lumen output of the lamps quoted by the manufacturer of 5,200 ($2 * 2,600$) lumens, to give a nominal light output ratio of 0.746.

The total measured lumen output of the lamps and gear combination and gear combination was 4,763 lumens at 25°C.
The average of the measured lumen output of the lamps was therefore 2,382 lumens at 25°C.
This figure can be related to the total nominal lumen output of the lamps quoted by the manufacturer of 5,200 ($2 * 2,600$) lumens, to give a nominal BLF of 0.916.

For lighting design calculations:

A light output ratio of 1 should be used in conjunction with the measured lumen output of the luminaire of 3,881 lumens.

or

The nominal light output ratio of 0.746 should be used in conjunction with the nominal lumen output of the lamps of 5,200 ($2 * 2,600$) lumens.

or

The measured light output ratio of 0.815 should be used in conjunction with the total measured lumen output of the lamps of 4,763 ($2 * 2,382$) lumens.

or

The measured light output ratio of 0.815 should be used in conjunction with the nominal lumen output of the lamps of 5,200 ($2 * 2,600$) lumens and the nominal BLF of 0.916.

This report is based on the following parameters:

The Light Output Ratio is the nominal value of 0.746.

The lamp output is the nominal value of 2,600 lumens.

There are 2 lamps 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 lamps 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 from the published lumen output, represented by the nominal BLF.

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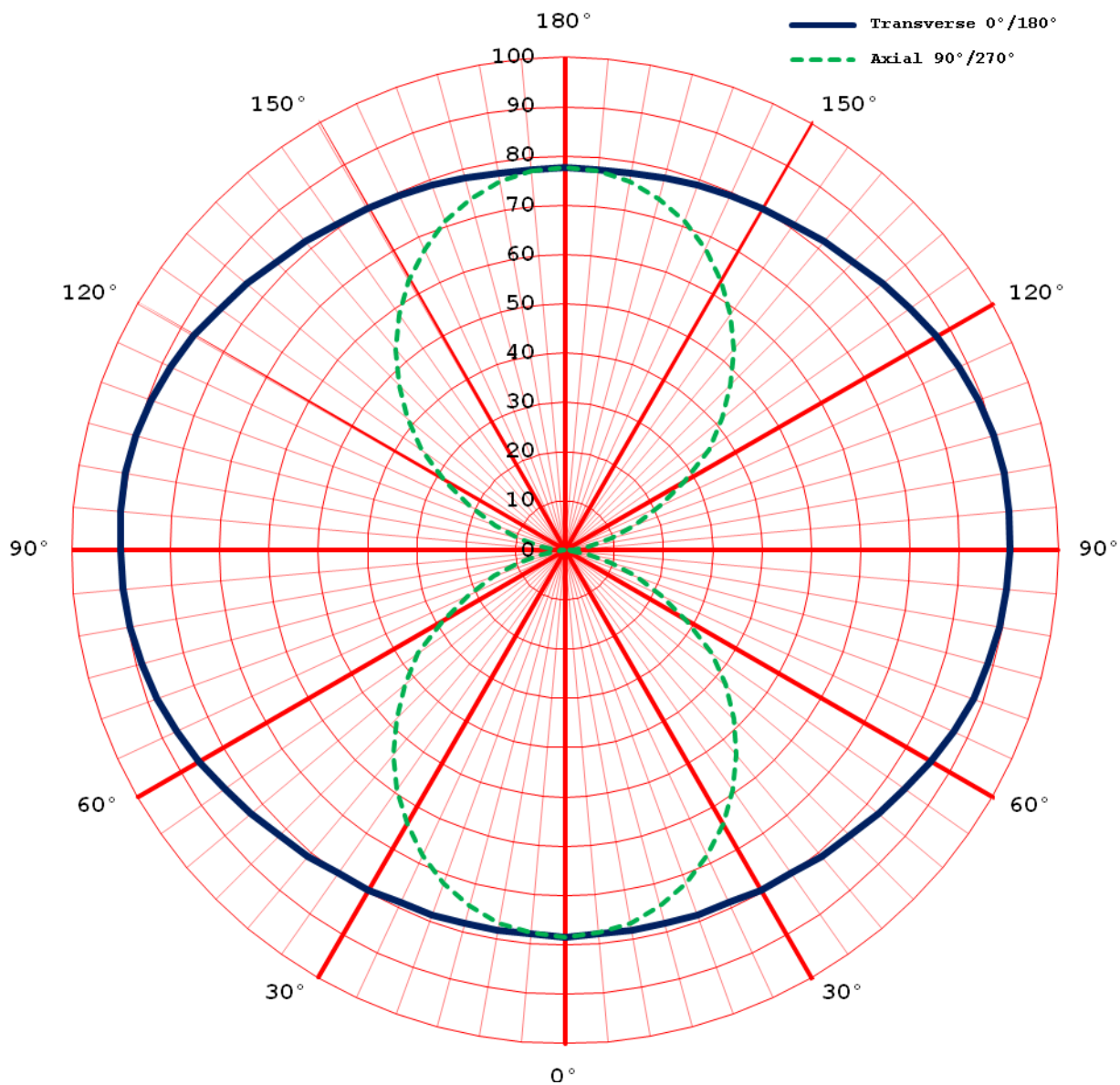
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Average Principal Axes Luminous Intensities (cd/klm)



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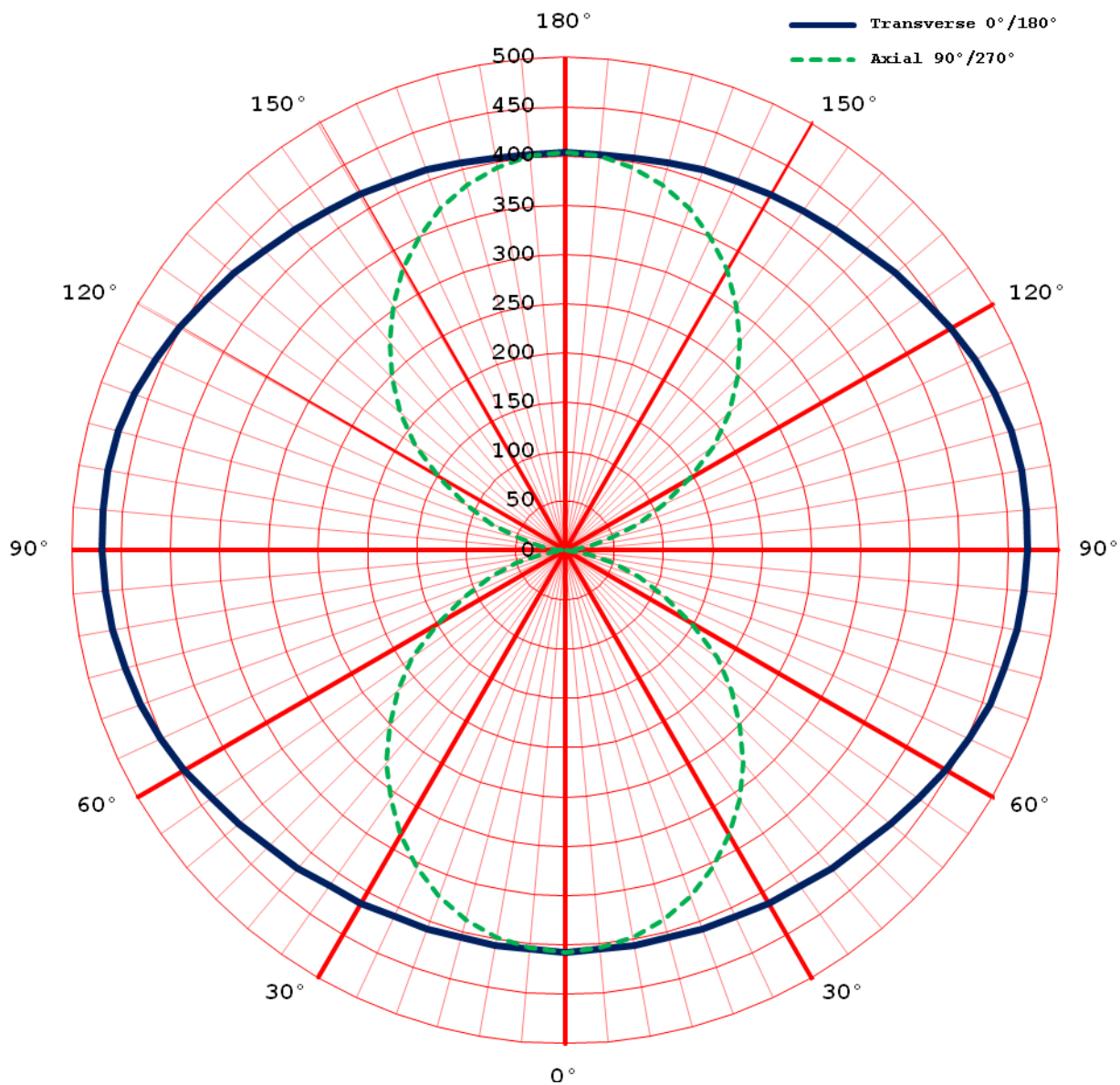
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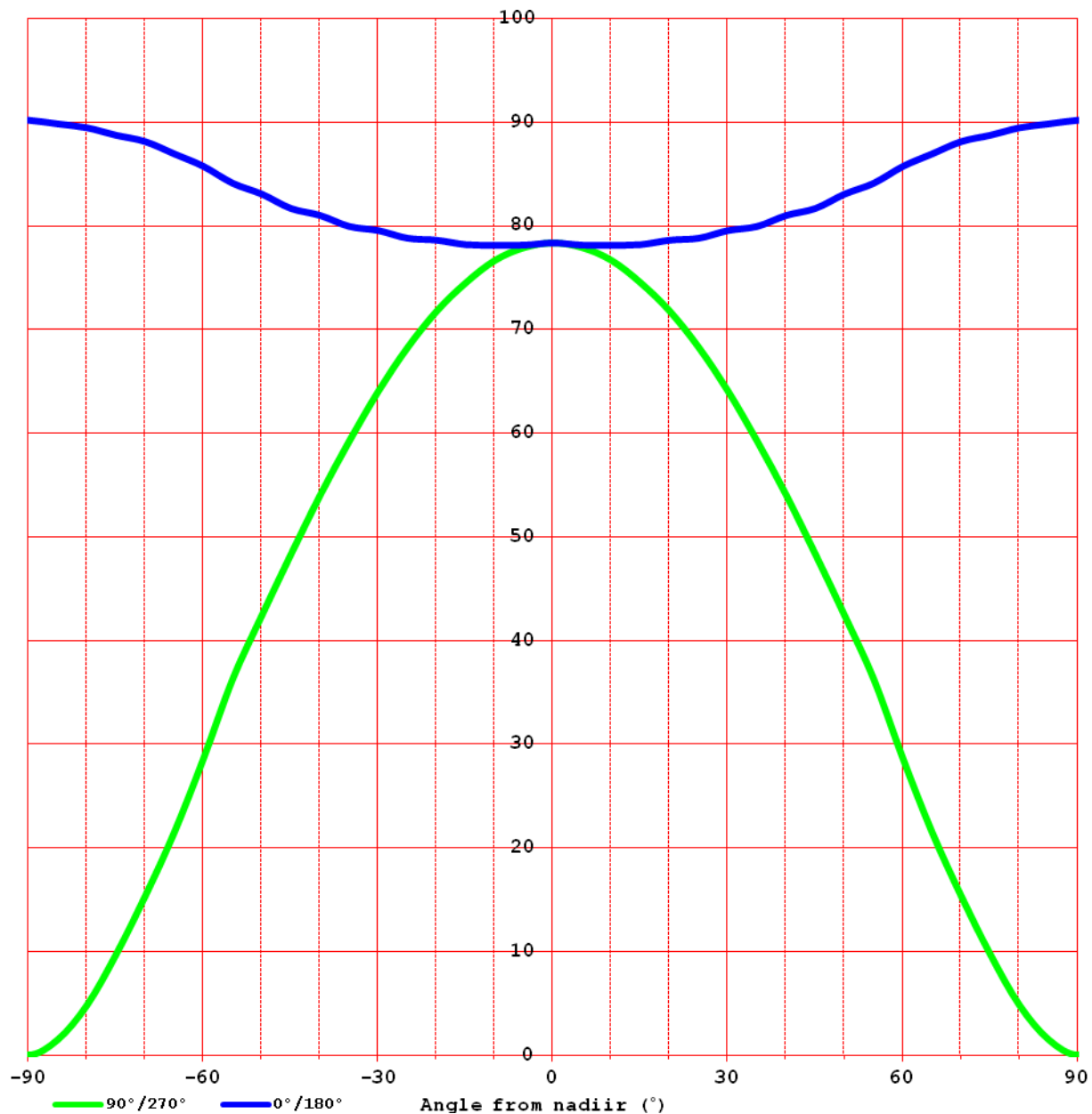
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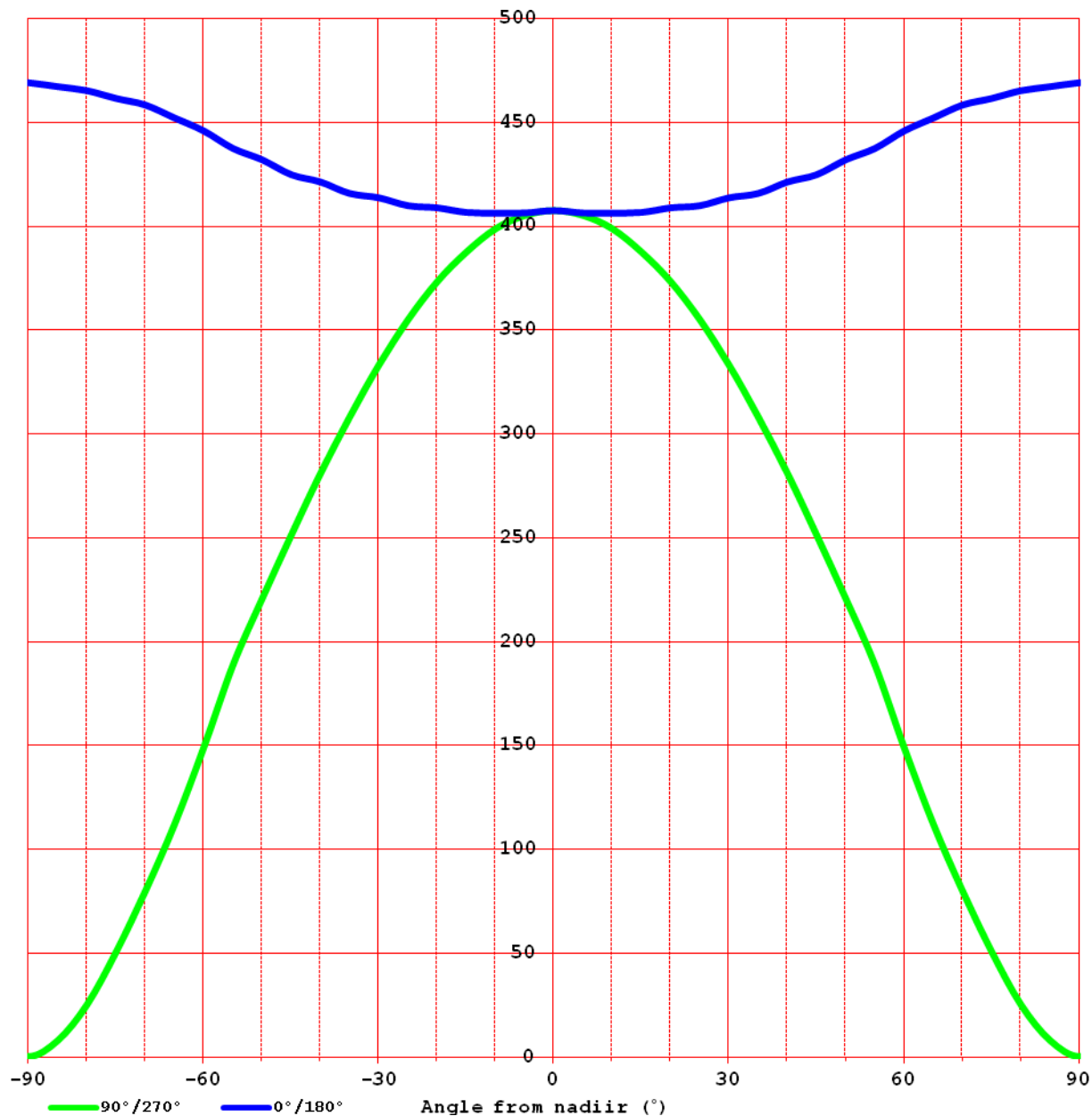
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Average Luminous Intensities (cd/Klm)

Angle	Transverse plane	Axial plane
0°	78.349	78.349
5°	78.130	77.896
10°	78.119	76.665
15°	78.184	74.506
20°	78.609	71.769
25°	78.804	68.250
30°	79.537	64.046
35°	79.939	59.233
40°	80.995	54.020
45°	81.672	48.319
50°	83.054	42.418
55°	84.104	36.282
60°	85.726	28.641
65°	86.926	21.538
70°	88.120	15.364
75°	88.728	9.738
80°	89.450	4.844
85°	89.826	1.525
90°	90.187	0.044
95°	90.386	1.578
100°	90.414	4.843
105°	90.094	9.618
110°	89.293	15.096
115°	88.130	21.306
120°	86.890	28.118
125°	85.429	35.614
130°	84.192	41.779
135°	82.769	47.523
140°	81.797	53.205
145°	80.736	58.426
150°	80.088	63.217
155°	79.315	67.356
160°	78.921	71.039
165°	78.305	73.840
170°	77.768	75.942
175°	77.591	77.218
180°	77.652	77.652

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Average Luminous Intensities (cd)

Angle	Transverse plane	Axial plane
0°	407.417	407.417
5°	406.278	405.059
10°	406.221	398.657
15°	406.556	387.432
20°	408.766	373.198
25°	409.779	354.901
30°	413.593	333.041
35°	415.680	308.012
40°	421.175	280.905
45°	424.695	251.258
50°	431.882	220.574
55°	437.340	188.668
60°	445.776	148.935
65°	452.014	112.000
70°	458.224	79.894
75°	461.388	50.638
80°	465.141	25.189
85°	467.097	7.932
90°	468.970	0.229
95°	470.009	8.207
100°	470.151	25.184
105°	468.486	50.012
110°	464.326	78.498
115°	458.276	110.791
120°	451.828	146.213
125°	444.232	185.192
130°	437.797	217.253
135°	430.401	247.118
140°	425.342	276.668
145°	419.826	303.815
150°	416.456	328.729
155°	412.436	350.251
160°	410.387	369.401
165°	407.184	383.966
170°	404.395	394.900
175°	403.474	401.531
180°	403.789	403.789

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Light Output Ratios	Up	0.37
	Down	0.38
	Total	0.75

Spacing to Height Ratios	SHR NOM	1.75
	SHR MAX	1.89
	SHR MAX TRANS	2.61

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	.37	.41	.45	.50	.53	.56	.59	.62	
	.30		N/A	.31	.36	.39	.45	.49	.52	.56	.58	
	.10		N/A	.27	.31	.35	.41	.45	.48	.52	.56	
.50	.50	.20	N/A	.31	.35	.38	.42	.45	.47	.50	.52	
	.30		N/A	.27	.31	.34	.38	.41	.44	.47	.49	
	.10		N/A	.23	.27	.30	.35	.38	.41	.45	.47	
.30	.50	.20	N/A	.26	.29	.31	.35	.37	.39	.41	.43	
	.30		N/A	.22	.26	.28	.32	.34	.36	.39	.41	
	.10		N/A	.20	.23	.25	.29	.32	.34	.37	.39	
.00	.00	.00	N/A	.14	.16	.18	.20	.22	.24	.26	.28	
BZ Class			N/A	6	7	7	7	7	7	7	7	

CIE Flux code 30 / 56 / 79 / 50 / 75

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	0.21	0.26	0.32	0.38	0.43	0.51	0.57	0.60	0.65	0.66	0.68	0.65
CIE class	8 /	8 /	8 /	8 /	8 /	8 /	8 /	8 /	9 /	9 /	- /	-

Flux Fraction Ratio 0.98
DIN Class 0.75 C

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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Angle

Aspect Factors

	Parallel plane	Perpendicular plane
0°	0.000	0.000
5°	0.087	0.004
10°	0.172	0.015
15°	0.254	0.033
20°	0.332	0.058
25°	0.404	0.088
30°	0.469	0.122
35°	0.527	0.158
40°	0.577	0.197
45°	0.619	0.235
50°	0.653	0.273
55°	0.680	0.307
60°	0.700	0.338
65°	0.712	0.363
70°	0.720	0.382
75°	0.724	0.395
80°	0.726	0.403
85°	0.727	0.406
90°	0.727	0.407

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Zonal Flux Calculations

Angles	Individual	Cumulative
0° - 5°	0.3%	0.3%
5° - 10°	0.7%	1.0%
10° - 15°	1.2%	2.2%
15° - 20°	1.7%	3.9%
20° - 25°	2.1%	6.0%
25° - 30°	2.5%	8.5%
30° - 35°	2.8%	11.3%
35° - 40°	3.1%	14.3%
40° - 45°	3.3%	17.6%
45° - 50°	3.5%	21.1%
50° - 55°	3.6%	24.8%
55° - 60°	3.7%	28.4%
60° - 65°	3.7%	32.2%
65° - 70°	3.7%	35.9%
70° - 75°	3.7%	39.6%
75° - 80°	3.7%	43.2%
80° - 85°	3.6%	46.8%
85° - 90°	3.6%	50.4%
90° - 95°	3.5%	53.9%
95° - 100°	3.6%	57.5%
100° - 105°	3.6%	61.1%
105° - 110°	3.6%	64.7%
110° - 115°	3.6%	68.4%
115° - 120°	3.6%	72.0%
120° - 125°	3.6%	75.6%
125° - 130°	3.5%	79.2%
130° - 135°	3.4%	82.6%
135° - 140°	3.3%	85.8%
140° - 145°	3.0%	88.9%
145° - 150°	2.8%	91.6%
150° - 155°	2.4%	94.1%
155° - 160°	2.1%	96.1%
160° - 165°	1.7%	97.8%
165° - 170°	1.2%	99.0%
170° - 175°	0.7%	99.8%
175° - 180°	0.2%	100.0%

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Averaged Luminance Values (cd/m²)

Elevation(°)

Azimuth(°)

	0.0°	15.0°	30.0°	45.0°	60.0°	75.0°	90.0°
45°	3704	3571	3596	3458	3368	3485	4140
50°	3781	3627	3620	3412	3240	3281	3956
55°	3873	3671	3664	3384	3113	3056	3743
60°	4025	3771	3734	3378	2975	2740	3335
65°	4195	3877	3832	3414	2888	2461	2903
70°	4410	4063	3979	3492	2856	2245	2481
75°	4647	4267	4164	3616	2851	2056	1979
80°	4952	4520	4386	3803	2908	1931	1342
85°	5318	4822	4674	4079	3083	1841	672
	90.0°	105.0°	120.0°	135.0°	150.0°	165.0°	180.0°
45°	4140	3485	3368	3458	3596	3571	3704
50°	3956	3281	3240	3412	3620	3627	3781
55°	3743	3056	3113	3384	3664	3671	3873
60°	3335	2740	2975	3378	3734	3771	4025
65°	2903	2461	2888	3414	3832	3877	4195
70°	2481	2245	2856	3492	3979	4063	4410
75°	1979	2056	2851	3616	4164	4267	4647
80°	1342	1931	2908	3803	4386	4520	4952
85°	672	1841	3083	4079	4674	4822	5318
	180.0°	195.0°	210.0°	225.0°	240.0°	255.0°	270.0°
45°	3704	3571	3596	3458	3368	3485	4140
50°	3781	3627	3620	3412	3240	3281	3956
55°	3873	3671	3664	3384	3113	3056	3743
60°	4025	3771	3734	3378	2975	2740	3335
65°	4195	3877	3832	3414	2888	2461	2903
70°	4410	4063	3979	3492	2856	2245	2481
75°	4647	4267	4164	3616	2851	2056	1979
80°	4952	4520	4386	3803	2908	1931	1342
85°	5318	4822	4674	4079	3083	1841	672
	270.0°	285.0°	300.0°	315.0°	330.0°	345.0°	0.0°
45°	4140	3485	3368	3458	3596	3571	3704
50°	3956	3281	3240	3412	3620	3627	3781
55°	3743	3056	3113	3384	3664	3671	3873
60°	3335	2740	2975	3378	3734	3771	4025
65°	2903	2461	2888	3414	3832	3877	4195
70°	2481	2245	2856	3492	3979	4063	4410
75°	1979	2056	2851	3616	4164	4267	4647
80°	1342	1931	2908	3803	4386	4520	4952
85°	672	1841	3083	4079	4674	4822	5318

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 Luminaire catalog No. MT360/SC/28W
 Luminaire description linear IP67 twin T5 fluorescent Direct/Indirect luminaire with satin cover
 Lamp description HE 28W/840 OSRAM Lumilux Cool White
 Lamp lumen output 2,600 lm
 Lamp quantity 2

Non averaged Luminance Values (cd/m²)

Elevation(°)

Azimuth(°)

	0.0°	15.0°	30.0°	45.0°	60.0°	75.0°	90.0°
45°	3539	3413	3460	3346	3293	3443	4141
50°	3596	3450	3469	3293	3157	3246	3956
55°	3680	3488	3506	3257	3016	3020	3737
60°	3843	3627	3600	3260	2905	2711	3333
65°	4037	3784	3737	3304	2826	2458	2891
70°	4285	4011	3923	3399	2796	2244	2488
75°	4547	4251	4140	3540	2796	2067	1981
80°	4867	4565	4415	3746	2866	1904	1363
85°	5231	4907	4740	4034	3051	1803	689
	90.0°	105.0°	120.0°	135.0°	150.0°	165.0°	180.0°
45°	4141	3548	3464	3592	3758	3742	3869
50°	3956	3346	3340	3562	3799	3822	3966
55°	3737	3126	3219	3549	3852	3877	4066
60°	3333	2808	3068	3536	3905	3941	4207
65°	2891	2504	2973	3561	3981	3996	4353
70°	2488	2284	2937	3620	4099	4137	4535
75°	1981	2091	2925	3719	4268	4300	4746
80°	1363	1985	2967	3883	4442	4509	5038
85°	689	1898	3129	4149	4695	4792	5405
	180.0°	195.0°	210.0°	225.0°	240.0°	255.0°	270.0°
45°	3869	3710	3723	3544	3430	3499	4138
50°	3966	3786	3760	3508	3303	3294	3956
55°	4066	3837	3819	3481	3176	3067	3749
60°	4207	3918	3881	3469	3021	2746	3337
65°	4353	3984	3958	3494	2921	2457	2916
70°	4535	4144	4081	3555	2884	2227	2474
75°	4746	4319	4239	3656	2870	2034	1977
80°	5038	4565	4456	3830	2921	1924	1321
85°	5405	4866	4746	4102	3099	1846	654
	270.0°	285.0°	300.0°	315.0°	330.0°	345.0°	0.0°
45°	4138	3448	3285	3350	3444	3416	3539
50°	3956	3237	3161	3288	3453	3450	3596
55°	3749	3011	3039	3249	3480	3483	3680
60°	3337	2694	2907	3248	3550	3596	3843
65°	2916	2426	2832	3295	3652	3744	4037
70°	2474	2226	2807	3396	3812	3960	4285
75°	1977	2031	2814	3551	4008	4198	4547
80°	1321	1914	2877	3752	4230	4442	4867
85°	654	1818	3053	4032	4516	4723	5231

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 with satin cover
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 Lamp lumen output 2,600 lm
 Lamp quantity 2

Averaged Luminance Values (cd/m²/klm)

Elevation(°)	Azimuth(°)						
	0.0°	15.0°	30.0°	45.0°	60.0°	75.0°	90.0°
45°	712	687	692	665	648	670	796
50°	727	697	696	656	623	631	761
55°	745	706	705	651	599	588	720
60°	774	725	718	650	572	527	641
65°	807	746	737	656	555	473	558
70°	848	781	765	672	549	432	477
75°	894	821	801	695	548	395	381
80°	952	869	843	731	559	371	258
85°	1023	927	899	784	593	354	129
	90.0°	105.0°	120.0°	135.0°	150.0°	165.0°	180.0°
45°	796	670	648	665	692	687	712
50°	761	631	623	656	696	697	727
55°	720	588	599	651	705	706	745
60°	641	527	572	650	718	725	774
65°	558	473	555	656	737	746	807
70°	477	432	549	672	765	781	848
75°	381	395	548	695	801	821	894
80°	258	371	559	731	843	869	952
85°	129	354	593	784	899	927	1023
	180.0°	195.0°	210.0°	225.0°	240.0°	255.0°	270.0°
45°	712	687	692	665	648	670	796
50°	727	697	696	656	623	631	761
55°	745	706	705	651	599	588	720
60°	774	725	718	650	572	527	641
65°	807	746	737	656	555	473	558
70°	848	781	765	672	549	432	477
75°	894	821	801	695	548	395	381
80°	952	869	843	731	559	371	258
85°	1023	927	899	784	593	354	129
	270.0°	285.0°	300.0°	315.0°	330.0°	345.0°	0.0°
45°	796	670	648	665	692	687	712
50°	761	631	623	656	696	697	727
55°	720	588	599	651	705	706	745
60°	641	527	572	650	718	725	774
65°	558	473	555	656	737	746	807
70°	477	432	549	672	765	781	848
75°	381	395	548	695	801	821	894
80°	258	371	559	731	843	869	952
85°	129	354	593	784	899	927	1023

Customer Encapsulite International Ltd.
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 Luminaire description linear IP67 twin T5 fluorescent Direct/Indirect luminaire with satin cover
 Lamp description HE 28W/840 OSRAM Lumilux Cool White
 Lamp lumen output 2,600 lm
 Lamp quantity 2

Non averaged Luminance Values (cd/m²/klm)

Elevation(°)

Azimuth(°)

	0.0°	15.0°	30.0°	45.0°	60.0°	75.0°	90.0°
45°	681	656	665	643	633	662	796
50°	692	663	667	633	607	624	761
55°	708	671	674	626	580	581	719
60°	739	697	692	627	559	521	641
65°	776	728	719	635	544	473	556
70°	824	771	754	654	538	432	478
75°	874	817	796	681	538	398	381
80°	936	878	849	720	551	366	262
85°	1006	944	912	776	587	347	132
	90.0°	105.0°	120.0°	135.0°	150.0°	165.0°	180.0°
45°	796	682	666	691	723	720	744
50°	761	644	642	685	731	735	763
55°	719	601	619	682	741	746	782
60°	641	540	590	680	751	758	809
65°	556	481	572	685	766	768	837
70°	478	439	565	696	788	796	872
75°	381	402	562	715	821	827	913
80°	262	382	570	747	854	867	969
85°	132	365	602	798	903	922	1039
	180.0°	195.0°	210.0°	225.0°	240.0°	255.0°	270.0°
45°	744	714	716	682	660	673	796
50°	763	728	723	675	635	633	761
55°	782	738	734	670	611	590	721
60°	809	754	746	667	581	528	642
65°	837	766	761	672	562	472	561
70°	872	797	785	684	555	428	476
75°	913	831	815	703	552	391	380
80°	969	878	857	737	562	370	254
85°	1039	936	913	789	596	355	126
	270.0°	285.0°	300.0°	315.0°	330.0°	345.0°	0.0°
45°	796	663	632	644	662	657	681
50°	761	623	608	632	664	663	692
55°	721	579	584	625	669	670	708
60°	642	518	559	625	683	692	739
65°	561	467	545	634	702	720	776
70°	476	428	540	653	733	761	824
75°	380	391	541	683	771	807	874
80°	254	368	553	722	814	854	936
85°	126	350	587	775	868	908	1006

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Customer Encapsulite International Ltd.
Luminaire catalog No. MT360/SC/28W
Luminaire description linear IP67 twin T5 fluorescent Direct/Indirect luminaire
with satin cover
Lamp description HE 28W/840 OSRAM Lumilux Cool White
Lamp lumen output 2,600 lm
Lamp quantity 2

Maximum Non averaged Luminance Values (cd/m²)

Elevation(°)

	Maximum	Azimuth Angle

45°	4141	90°
50°	3966	180°
55°	4066	180°
60°	4207	180°
65°	4353	180°
70°	4535	180°
75°	4746	180°
80°	5038	180°
85°	5405	180°

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Lamp description HE 28W/840 OSRAM Lumilux Cool White
Lamp lumen output 2,600 lm
Lamp quantity 2

VDI 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

VDI 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

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Customer

Encapsulite International Ltd.

Luminaire catalog No.

MT360/SC/28W

Luminaire description

linear IP67 twin T5 fluorescent Direct/Indirect luminaire
with satin cover

Lamp description

HE 28W/840 OSRAM Lumilux Cool White

Lamp lumen output

2,600 lm

Lamp quantity

2

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°

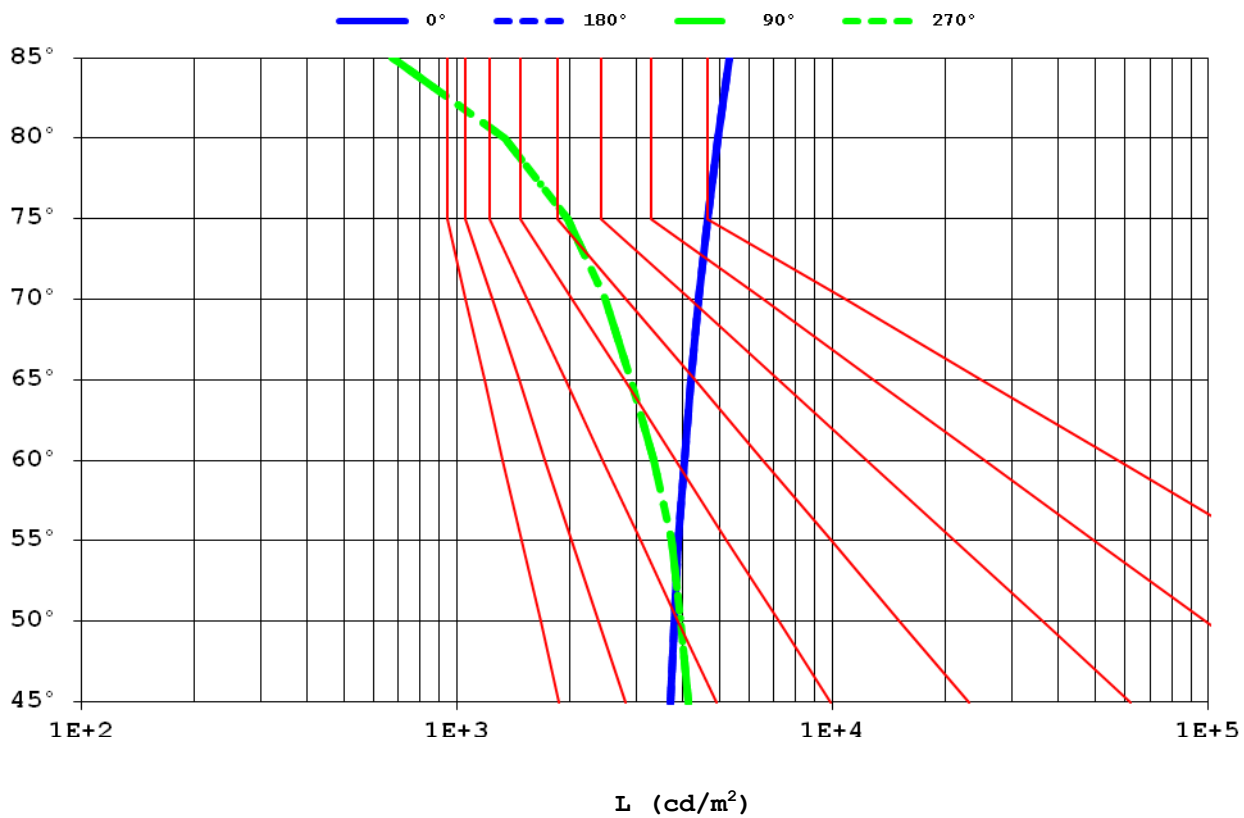
2H 2H	7.5	8.8	8.7	10.0	11.5	3.1	4.3	4.3	5.5	7.1
3H	11.1	12.2	12.3	13.5	15.0	4.9	6.0	6.1	7.2	8.8
4H	12.9	14.0	14.1	15.2	16.8	5.5	6.6	6.7	7.8	9.4
6H	14.9	15.9	16.1	17.1	18.7	6.0	6.9	7.2	8.2	9.8
8H	15.8	16.8	17.0	18.0	19.7	6.1	7.0	7.3	8.3	9.9
12H	16.9	17.8	18.1	19.0	20.7	6.1	7.0	7.3	8.3	9.9
4H 2H	8.4	9.4	9.6	10.7	12.3	5.5	6.6	6.7	7.8	9.4
3H	12.3	13.3	13.5	14.5	16.1	7.6	8.5	8.8	9.8	11.4
4H	14.4	15.3	15.6	16.5	18.2	8.5	9.4	9.8	10.6	12.3
6H	16.5	17.3	17.8	18.6	20.2	9.2	9.9	10.4	11.2	12.8
8H	17.7	18.4	18.9	19.7	21.3	9.4	10.1	10.7	11.4	13.1
12H	18.9	19.6	20.1	20.8	22.5	9.6	10.2	10.8	11.5	13.2
8H 4H	15.0	15.7	16.3	17.0	18.7	11.1	11.8	12.3	13.1	14.7
6H	17.5	18.1	18.7	19.4	21.0	12.0	12.7	13.3	13.9	15.6
8H	18.9	19.4	20.2	20.7	22.4	12.5	13.1	13.8	14.4	16.1
12H	20.3	20.8	21.6	22.1	23.8	12.9	13.3	14.1	14.6	16.3
12H 4H	15.1	15.8	16.4	17.1	18.7	12.2	12.9	13.5	14.1	15.8
6H	17.8	18.3	19.0	19.6	21.3	13.5	14.0	14.8	15.3	17.0
8H	19.2	19.7	20.5	21.0	22.7	14.1	14.5	15.3	15.9	17.5

Calculated in accordance with CIBSE Technical Memorandum No. 10 1985

Customer Encapsulite International Ltd.
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Lamp lumen output 2,600 lm
Lamp quantity 2

CIE Glare Limiting (Soellnor) Diagram

Glare Rating	Quality 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 catalog No.	MT360/SC/28W
Luminaire description	linear IP67 twin T5 fluorescent Direct/Indirect luminaire with satin cover
Lamp description	HE 28W/840 OSRAM Lumilux Cool White
Lamp lumen output	2,600 lm
Lamp quantity	2

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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Lamp description HE 28W/840 OSRAM Lumilux Cool White
Lamp lumen output 2,600 lm
Lamp quantity 2

Quick Design Table

Based on: reflectances of Ceiling = 0.5
Wall = 0.5
Floor = 0.2
Room Index = 2.00
lamp output = 2600 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	0.9	1.4	1.8	2.3	3.7	4.6	9.2	13.8	23.0