



**42 Partners Limited**

21 Woden Road  
Wolverhampton  
WV10 0AU  
UK

[www.42partners.com](http://www.42partners.com)

[42@42partners.com](mailto: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 / 10685 / 10685-20a / 2013.05.24

Customer

Encapsulite International Ltd.

Luminaire catalog No.

MT360/SC/21W

Luminaire description

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

Lamp description

HE 21W/840 OSRAM Lumilux Cool White

Lamp lumen output

1,900 lm

Lamp quantity

2

#### Photometric Report

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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  $\lambda$  0.98  
 $t_a = -20...+50^\circ\text{C}$



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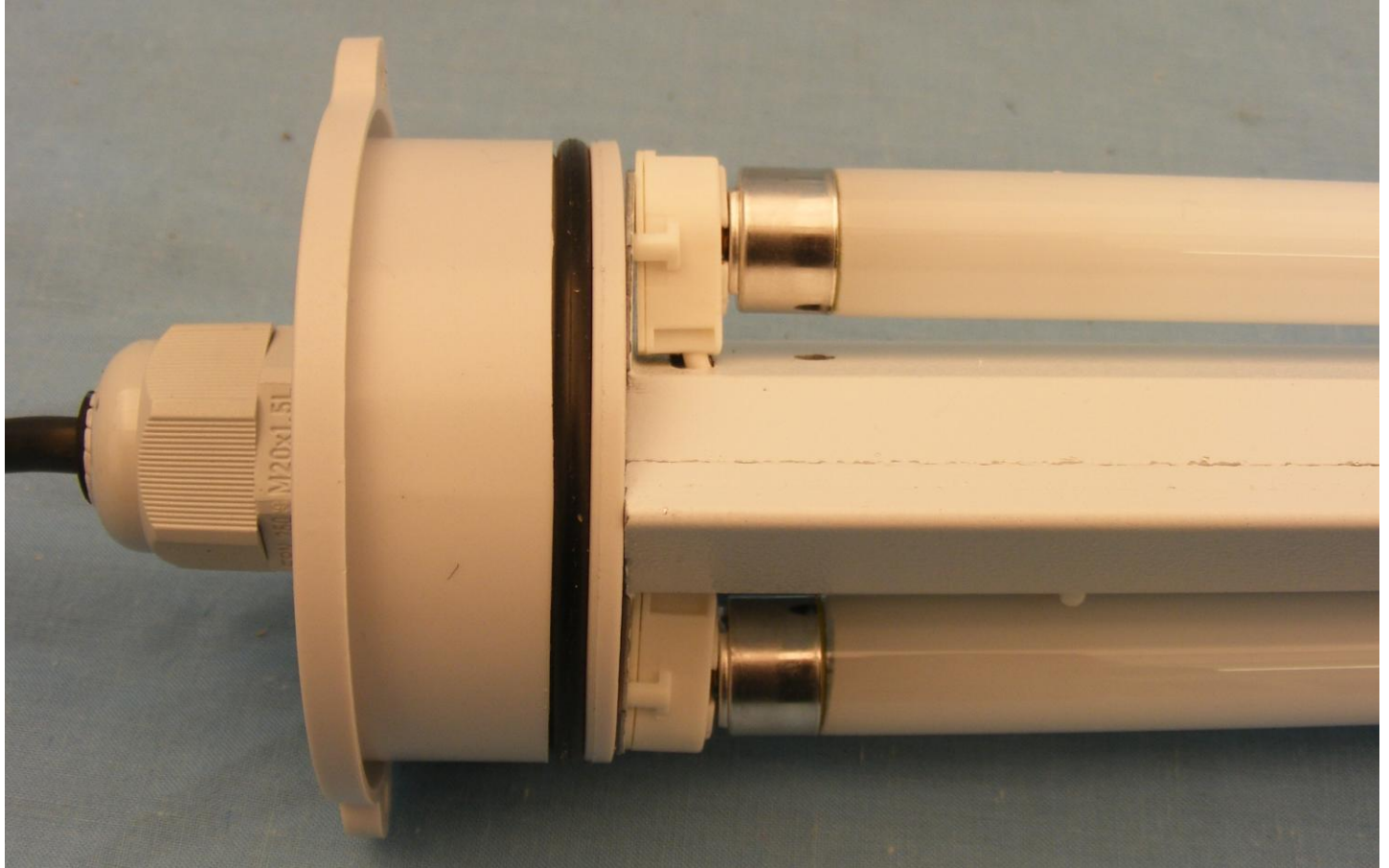
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#### Luminaire physical characteristics

##### Overall Dimensions

Length	935mm
Width	75mm
Height	75mm

##### Visible Dimensions when installed

Length	935mm
Width	75mm
Height	75mm

##### Luminous Dimensions

Length	875mm
Width	69mm
Height 0°	69mm
Height 90°	69mm
Height 180°	69mm
Height 270°	69mm

##### Luminous Areas

Base	0.060375m <sup>2</sup>
Sides	0.060375m <sup>2</sup> ( 0°/180° azimuth)
Ends	0.004761m <sup>2</sup> (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 &amp; 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	185.0	0.978	41.6	42.6	2,699	71%	64.9
Lamp	230.0	198.7	0.982	44.9	45.7	1,678	88%	37.4
Lamp 2	230.0	198.8	0.982	44.9	45.7	1,636	86%	36.4
Lamp Average	230.0	198.7	0.982	44.9	45.7	1,657	87%	36.9
Lamp Total	230.0	198.7	0.982	44.9	45.7	3,314	87%	73.8

## Electrical characteristics at 25°C

Ballast Nominal	230V	215.9mA	0.98PF	48.7W	49.7VA
Lamp Nominal	230V	182.6mA	1.00PF	42.0W	42.0VA
Luminaire	230V	185.0mA	0.98PF	41.6W	42.6VA
Lamp Total	230V	198.7mA	0.98PF	44.9W	45.7VA

## Measured Electrical characteristics relative to Ballast Nominal

Luminaire	Current	86%	Power	85%	VA	86%
Lamp Total	Current	92%	Power	92%	VA	92%

## Measured Electrical characteristics relative to Lamp Nominal

Luminaire	Current	101%	Power	99%	VA	101%
Lamp Total	Current	109%	Power	107%	VA	109%

## Lumen Output figures used in this report (lumens)

Nominal Lamp Total Output	3,800
Measured Luminaire Output	2,699
Measured Lamp Total Output	3,314

## Measured Lumen Output characteristics relative to Lamp Nominal Total

Luminaire	71%
Lamp Total	87%

## Measured luminous efficacy at 25°C

Luminaire	64.9 lm/W
Lamp Total	73.8 lm/W



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The light output ratio of the luminaire was measured as 0.814 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 2,699 lumens at 25°C.

This figure can be related to the total nominal lumen output of the lamps quoted by the manufacturer of 3,800 ( $2 * 1,900$ ) lumens, to give a nominal light output ratio of 0.710.

The total measured lumen output of the lamps and gear combination and gear combination was 3,314 lumens at 25°C.

The average of the measured lumen output of the lamps was therefore 1,657 lumens at 25°C.

This figure can be related to the total nominal lumen output of the lamps quoted by the manufacturer of 3,800 ( $2 * 1,900$ ) lumens, to give a nominal BLF of 0.872.

For lighting design calculations:

A light output ratio of 1 should be used in conjunction with the measured lumen output of the luminaire of 2,699 lumens.

or

The nominal light output ratio of 0.710 should be used in conjunction with the nominal lumen output of the lamps of 3,800 ( $2 * 1,900$ ) lumens.

or

The measured light output ratio of 0.814 should be used in conjunction with the total measured lumen output of the lamps of 3,314 ( $2 * 1,657$ ) lumens.

or

The measured light output ratio of 0.814 should be used in conjunction with the nominal lumen output of the lamps of 3,800 ( $2 * 1,900$ ) lumens and the nominal BLF of 0.872.

This report is based on the following parameters:

The Light Output Ratio is the nominal value of 0.710.

The lamp output is the nominal value of 1,900 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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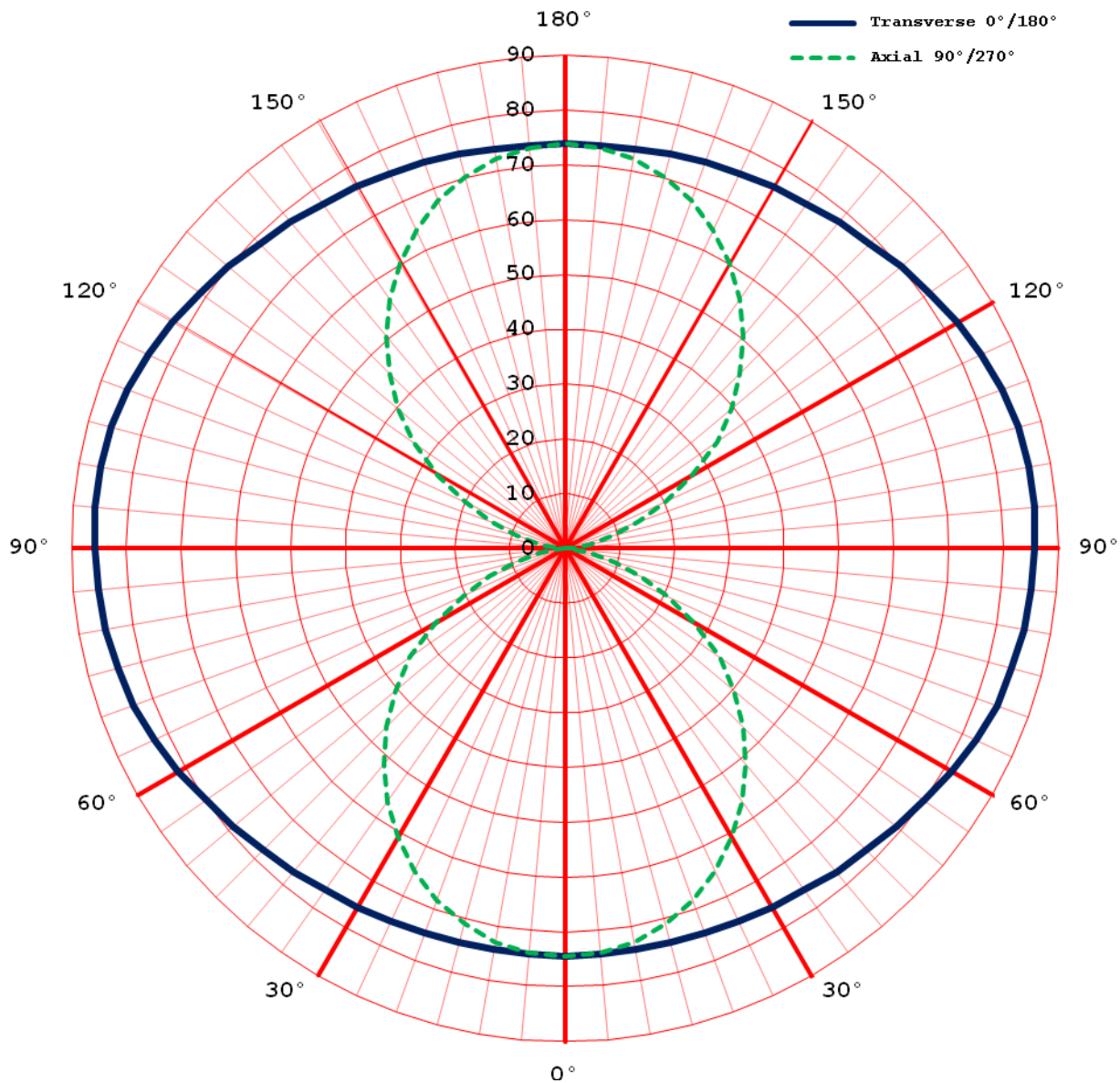
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Average Principal Axes Luminous Intensities (cd/klm)



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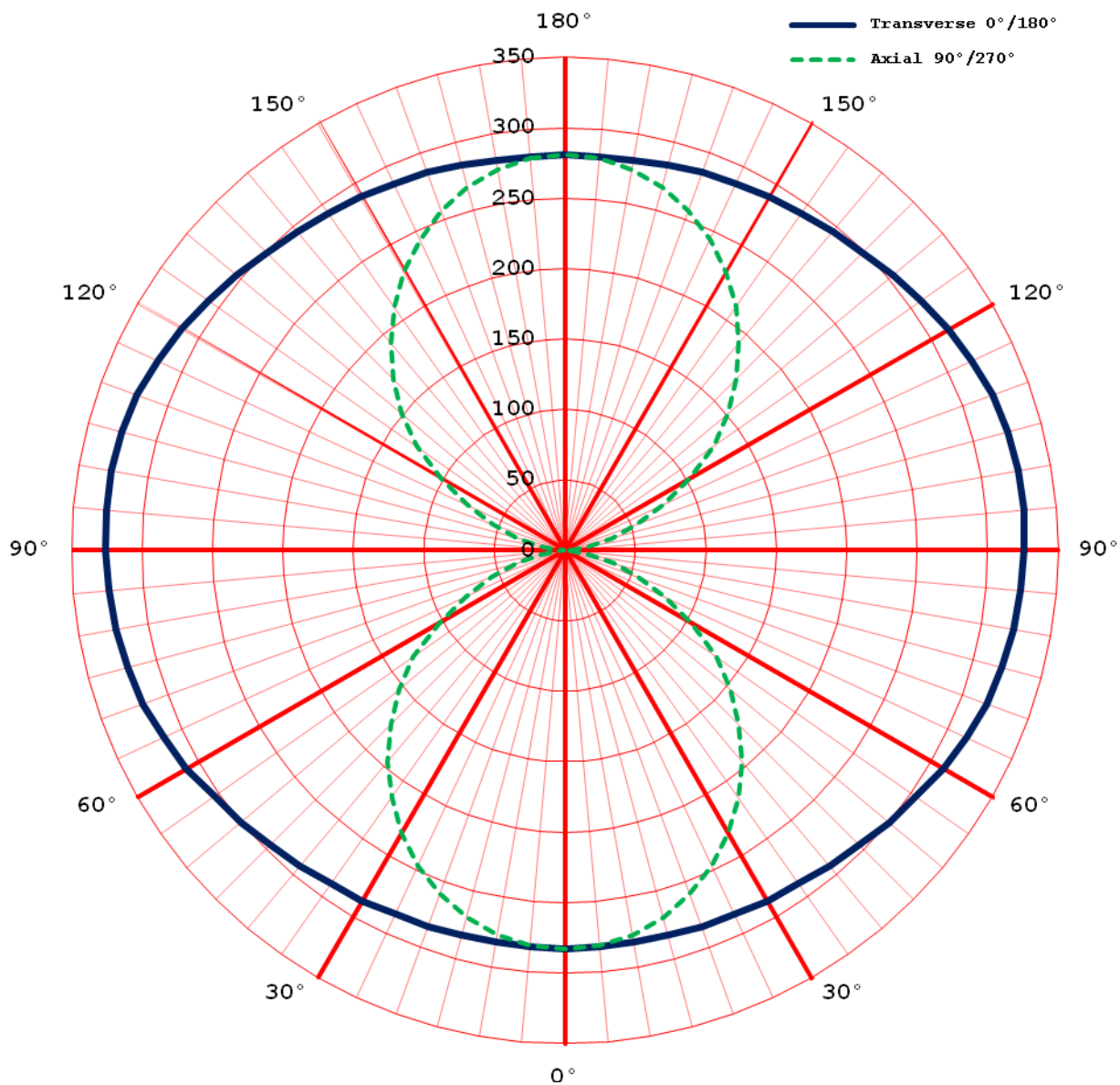
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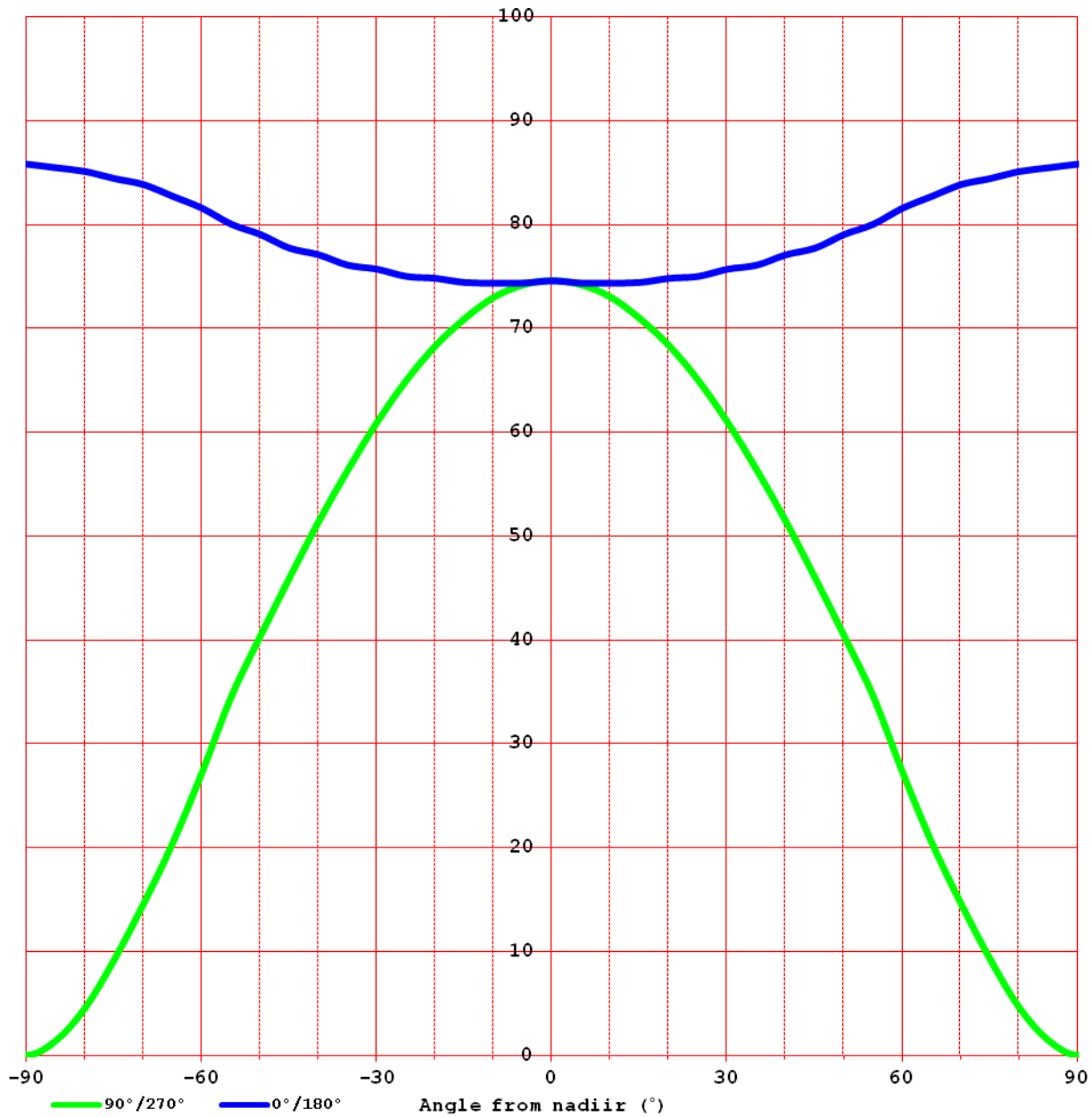
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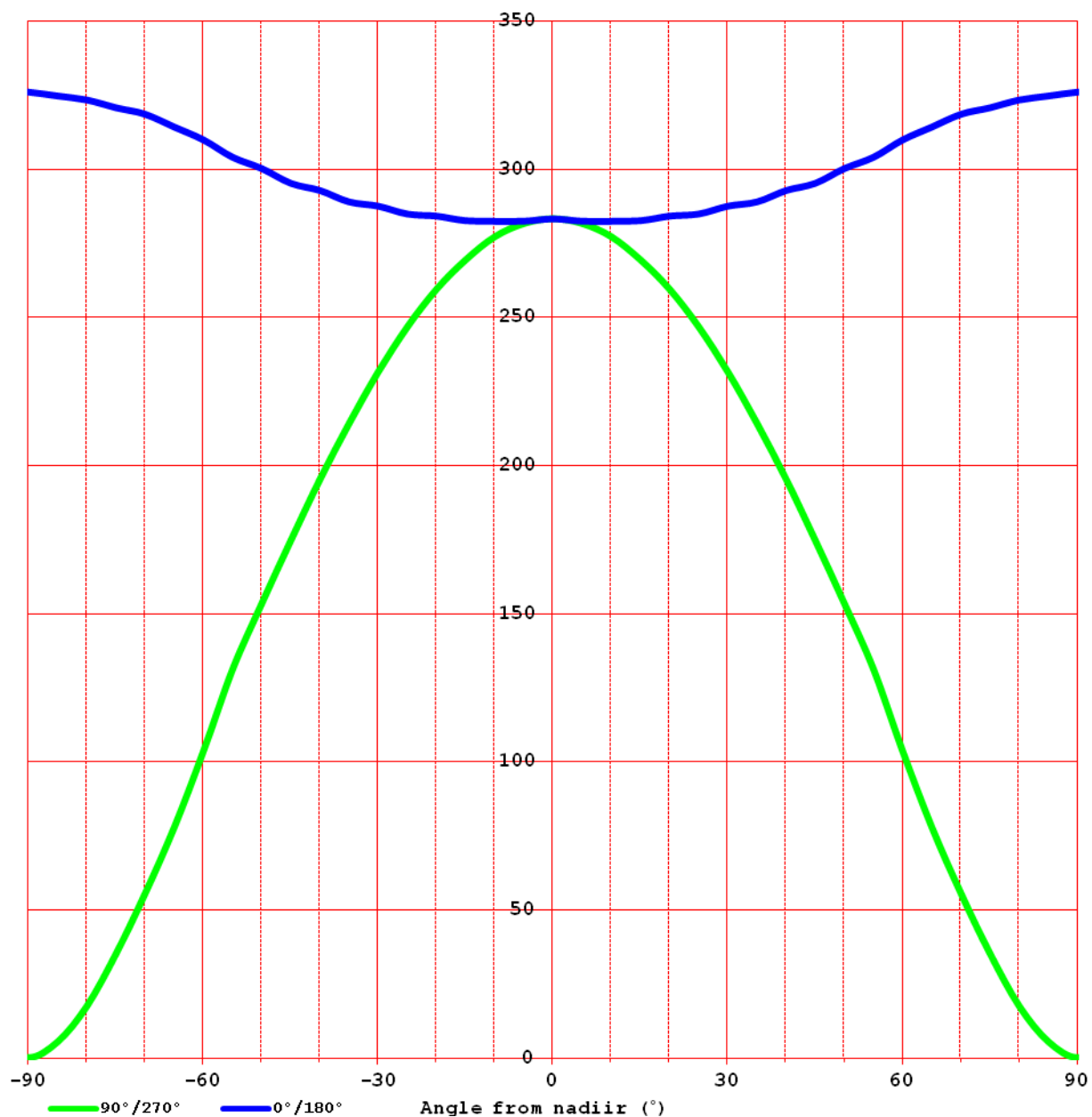
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Average Luminous Intensities (cd/Klm)

Angle	Transverse plane	Axial plane
0°	74.554	74.554
5°	74.345	74.122
10°	74.335	72.951
15°	74.396	70.897
20°	74.801	68.292
25°	74.986	64.944
30°	75.684	60.944
35°	76.066	56.364
40°	77.071	51.403
45°	77.716	45.978
50°	79.031	40.363
55°	80.030	34.525
60°	81.573	27.254
65°	82.715	20.495
70°	83.851	14.620
75°	84.430	9.266
80°	85.117	4.609
85°	85.475	1.452
90°	85.818	0.042
95°	86.008	1.502
100°	86.034	4.608
105°	85.729	9.152
110°	84.968	14.365
115°	83.861	20.274
120°	82.681	26.756
125°	81.291	33.889
130°	80.113	39.755
135°	78.760	45.220
140°	77.834	50.628
145°	76.825	55.596
150°	76.208	60.155
155°	75.472	64.093
160°	75.097	67.597
165°	74.511	70.263
170°	74.001	72.263
175°	73.832	73.477
180°	73.890	73.890

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## Average Luminous Intensities (cd)

Angle	Transverse plane	Axial plane
0°	283.305	283.305
5°	282.513	281.665
10°	282.473	277.214
15°	282.706	269.408
20°	284.243	259.510
25°	284.948	246.787
30°	287.600	231.586
35°	289.051	214.182
40°	292.871	195.332
45°	295.319	174.717
50°	300.317	153.380
55°	304.112	131.193
60°	309.978	103.565
65°	314.316	77.881
70°	318.634	55.556
75°	320.834	35.212
80°	323.444	17.516
85°	324.804	5.516
90°	326.107	0.160
95°	326.829	5.707
100°	326.928	17.512
105°	325.770	34.776
110°	322.877	54.585
115°	318.670	77.040
120°	314.186	101.672
125°	308.905	128.777
130°	304.430	151.070
135°	299.287	171.838
140°	295.769	192.386
145°	291.934	211.263
150°	289.590	228.588
155°	286.795	243.554
160°	285.370	256.869
165°	283.143	266.998
170°	281.203	274.601
175°	280.563	279.212
180°	280.782	280.782

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Light Output Ratios	Up	0.35
	Down	0.36
	Total	0.71

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	.35	.39	.43	.47	.51	.53	.56	.59	
	.30		N/A	.30	.34	.38	.43	.46	.49	.53	.56	
	.10		N/A	.26	.30	.33	.39	.43	.46	.50	.53	
.50	.50	.20	N/A	.30	.33	.36	.40	.43	.45	.47	.49	
	.30		N/A	.25	.29	.32	.36	.39	.41	.45	.47	
	.10		N/A	.22	.26	.29	.33	.36	.39	.42	.45	
.30	.50	.20	N/A	.25	.27	.30	.33	.35	.37	.39	.40	
	.30		N/A	.21	.24	.27	.30	.33	.34	.37	.39	
	.10		N/A	.19	.22	.24	.28	.30	.32	.35	.37	
.00	.00	.00	N/A	.13	.15	.17	.19	.21	.23	.25	.26	
BZ Class			N/A	6	7	7	7	7	7	7	7	

CIE Flux code 30 / 56 / 79 / 50 / 71

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	/	9	/	9	/	-	/	-

Flux Fraction Ratio 0.98  
DIN Class 0.71 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/m<sup>2</sup>)

Elevation(°)	Azimuth(°)						
	0.0°	15.0°	30.0°	45.0°	60.0°	75.0°	90.0°
45°	3459	3325	3340	3203	3110	3207	3793
50°	3531	3377	3361	3158	2988	3013	3613
55°	3617	3418	3400	3129	2866	2800	3405
60°	3759	3509	3463	3121	2736	2504	3018
65°	3917	3607	3552	3151	2651	2242	2611
70°	4118	3779	3686	3220	2617	2038	2211
75°	4339	3968	3855	3330	2607	1858	1741
80°	4624	4202	4057	3497	2652	1735	1154
85°	4966	4481	4320	3745	2802	1640	551
	90.0°	105.0°	120.0°	135.0°	150.0°	165.0°	180.0°
45°	3793	3207	3110	3203	3340	3325	3459
50°	3613	3013	2988	3158	3361	3377	3531
55°	3405	2800	2866	3129	3400	3418	3617
60°	3018	2504	2736	3121	3463	3509	3759
65°	2611	2242	2651	3151	3552	3607	3917
70°	2211	2038	2617	3220	3686	3779	4118
75°	1741	1858	2607	3330	3855	3968	4339
80°	1154	1735	2652	3497	4057	4202	4624
85°	551	1640	2802	3745	4320	4481	4966
	180.0°	195.0°	210.0°	225.0°	240.0°	255.0°	270.0°
45°	3459	3325	3340	3203	3110	3207	3793
50°	3531	3377	3361	3158	2988	3013	3613
55°	3617	3418	3400	3129	2866	2800	3405
60°	3759	3509	3463	3121	2736	2504	3018
65°	3917	3607	3552	3151	2651	2242	2611
70°	4118	3779	3686	3220	2617	2038	2211
75°	4339	3968	3855	3330	2607	1858	1741
80°	4624	4202	4057	3497	2652	1735	1154
85°	4966	4481	4320	3745	2802	1640	551
	270.0°	285.0°	300.0°	315.0°	330.0°	345.0°	0.0°
45°	3793	3207	3110	3203	3340	3325	3459
50°	3613	3013	2988	3158	3361	3377	3531
55°	3405	2800	2866	3129	3400	3418	3617
60°	3018	2504	2736	3121	3463	3509	3759
65°	2611	2242	2651	3151	3552	3607	3917
70°	2211	2038	2617	3220	3686	3779	4118
75°	1741	1858	2607	3330	3855	3968	4339
80°	1154	1735	2651	3497	4057	4202	4624
85°	551	1640	2802	3745	4320	4481	4966

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 Luminaire description linear IP67 twin T5 fluorescent Direct/Indirect luminaire with satin cover  
 Lamp description HE 21W/840 OSRAM Lumilux Cool White  
 Lamp lumen output 1,900 lm  
 Lamp quantity 2

Non averaged Luminance Values (cd/m<sup>2</sup>)

Elevation(°)

Azimuth(°)

	0.0°	15.0°	30.0°	45.0°	60.0°	75.0°	90.0°
45°	3305	3179	3213	3099	3041	3169	3795
50°	3358	3212	3220	3047	2911	2981	3613
55°	3436	3247	3253	3012	2778	2767	3400
60°	3588	3375	3339	3011	2672	2477	3017
65°	3770	3520	3464	3049	2595	2239	2600
70°	4001	3731	3634	3134	2562	2037	2218
75°	4246	3953	3833	3260	2556	1868	1743
80°	4545	4244	4084	3445	2613	1710	1173
85°	4885	4560	4382	3704	2773	1607	565
	90.0°	105.0°	120.0°	135.0°	150.0°	165.0°	180.0°
45°	3795	3265	3199	3327	3491	3485	3613
50°	3613	3073	3080	3296	3527	3559	3704
55°	3400	2864	2964	3281	3574	3609	3797
60°	3017	2566	2822	3267	3622	3668	3929
65°	2600	2281	2729	3286	3690	3718	4065
70°	2218	2073	2692	3337	3798	3848	4234
75°	1743	1890	2674	3425	3951	3999	4432
80°	1173	1783	2705	3571	4110	4192	4704
85°	565	1690	2844	3809	4339	4453	5047
	180.0°	195.0°	210.0°	225.0°	240.0°	255.0°	270.0°
45°	3613	3456	3458	3283	3167	3220	3792
50°	3704	3525	3491	3246	3046	3025	3613
55°	3797	3572	3544	3219	2925	2810	3410
60°	3929	3647	3599	3204	2778	2510	3020
65°	4065	3707	3669	3225	2682	2238	2622
70°	4234	3855	3781	3277	2642	2022	2205
75°	4432	4016	3925	3367	2624	1838	1739
80°	4704	4243	4122	3522	2664	1728	1136
85°	5047	4522	4386	3766	2817	1645	537
	270.0°	285.0°	300.0°	315.0°	330.0°	345.0°	0.0°
45°	3792	3173	3034	3103	3199	3182	3305
50°	3613	2973	2915	3043	3206	3212	3358
55°	3410	2759	2799	3004	3229	3243	3436
60°	3020	2462	2674	3000	3292	3347	3588
65°	2622	2210	2600	3042	3385	3483	3770
70°	2205	2020	2572	3131	3532	3683	4001
75°	1739	1836	2572	3270	3710	3903	4246
80°	1136	1719	2624	3450	3913	4130	4545
85°	537	1620	2775	3702	4174	4389	4885



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Averaged Luminance Values (cd/m<sup>2</sup>/klm)

Elevation(°)	Azimuth(°)						
	0.0°	15.0°	30.0°	45.0°	60.0°	75.0°	90.0°
45°	910	875	879	843	818	844	998
50°	929	889	884	831	786	793	951
55°	952	899	895	823	754	737	896
60°	989	923	911	821	720	659	794
65°	1031	949	935	829	698	590	687
70°	1084	995	970	847	689	536	582
75°	1142	1044	1014	876	686	489	458
80°	1217	1106	1068	920	698	457	304
85°	1307	1179	1137	986	737	432	145
	90.0°	105.0°	120.0°	135.0°	150.0°	165.0°	180.0°
45°	998	844	818	843	879	875	910
50°	951	793	786	831	884	889	929
55°	896	737	754	823	895	899	952
60°	794	659	720	821	911	923	989
65°	687	590	698	829	935	949	1031
70°	582	536	689	847	970	995	1084
75°	458	489	686	876	1014	1044	1142
80°	304	457	698	920	1068	1106	1217
85°	145	432	737	986	1137	1179	1307
	180.0°	195.0°	210.0°	225.0°	240.0°	255.0°	270.0°
45°	910	875	879	843	818	844	998
50°	929	889	884	831	786	793	951
55°	952	899	895	823	754	737	896
60°	989	923	911	821	720	659	794
65°	1031	949	935	829	698	590	687
70°	1084	995	970	847	689	536	582
75°	1142	1044	1014	876	686	489	458
80°	1217	1106	1068	920	698	457	304
85°	1307	1179	1137	986	737	432	145
	270.0°	285.0°	300.0°	315.0°	330.0°	345.0°	0.0°
45°	998	844	818	843	879	875	910
50°	951	793	786	831	884	889	929
55°	896	737	754	823	895	899	952
60°	794	659	720	821	911	923	989
65°	687	590	698	829	935	949	1031
70°	582	536	689	847	970	995	1084
75°	458	489	686	876	1014	1044	1142
80°	304	457	698	920	1068	1106	1217
85°	145	432	737	986	1137	1179	1307

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 Lamp lumen output 1,900 lm  
 Lamp quantity 2

Non averaged Luminance Values (cd/m<sup>2</sup>/klm)

Elevation(°)

Azimuth(°)

	0.0°	15.0°	30.0°	45.0°	60.0°	75.0°	90.0°
45°	870	837	846	815	800	834	999
50°	884	845	847	802	766	784	951
55°	904	855	856	793	731	728	895
60°	944	888	879	792	703	652	794
65°	992	926	912	802	683	589	684
70°	1053	982	956	825	674	536	584
75°	1117	1040	1009	858	673	492	459
80°	1196	1117	1075	907	688	450	309
85°	1285	1200	1153	975	730	423	149
	90.0°	105.0°	120.0°	135.0°	150.0°	165.0°	180.0°
45°	999	859	842	875	919	917	951
50°	951	809	811	867	928	936	975
55°	895	754	780	864	941	950	999
60°	794	675	743	860	953	965	1034
65°	684	600	718	865	971	978	1070
70°	584	546	708	878	999	1013	1114
75°	459	497	704	901	1040	1052	1166
80°	309	469	712	940	1081	1103	1238
85°	149	445	749	1002	1142	1172	1328
	180.0°	195.0°	210.0°	225.0°	240.0°	255.0°	270.0°
45°	951	909	910	864	833	847	998
50°	975	928	919	854	802	796	951
55°	999	940	933	847	770	739	897
60°	1034	960	947	843	731	660	795
65°	1070	976	965	849	706	589	690
70°	1114	1014	995	862	695	532	580
75°	1166	1057	1033	886	691	484	458
80°	1238	1117	1085	927	701	455	299
85°	1328	1190	1154	991	741	433	141
	270.0°	285.0°	300.0°	315.0°	330.0°	345.0°	0.0°
45°	998	835	798	816	842	837	870
50°	951	782	767	801	844	845	884
55°	897	726	736	791	850	853	904
60°	795	648	704	790	866	881	944
65°	690	582	684	800	891	917	992
70°	580	532	677	824	929	969	1053
75°	458	483	677	861	976	1027	1117
80°	299	452	691	908	1030	1087	1196
85°	141	426	730	974	1098	1155	1285

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with satin cover  
Lamp description HE 21W/840 OSRAM Lumilux Cool White  
Lamp lumen output 1,900 lm  
Lamp quantity 2

Maximum Non averaged Luminance Values (cd/m<sup>2</sup>)

Elevation(°)

-----		
	Maximum	Azimuth Angle
-----		
45°	3795	90°
50°	3704	180°
55°	3797	180°
60°	3929	180°
65°	4065	180°
70°	4234	180°
75°	4432	180°
80°	4704	180°
85°	5047	180°

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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 <sup>2</sup> )	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 <sup>2</sup> )	Use permitted at Luminance Limit Angle (°)	
		55°	65°
Medium luminance screen ( L ≤ 200 cdm <sup>2</sup> ) Case B negative polarity and/or higher requirements	1000	-	NO
Medium luminance screen ( L ≤ 200 cdm <sup>2</sup> ) Case A positive polarity and normal requirements	1500	-	NO
High luminance screen ( L > 200 cd/m <sup>2</sup> ) Case B negative polarity and/or higher requirements	1500	-	NO
High luminance screen ( L > 200 cd/m <sup>2</sup> ) Case A positive polarity and normal requirements	3000	-	NO

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Customer

Encapsulite International Ltd.

Luminaire catalog No.

MT360/SC/21W

Luminaire description

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

Lamp description

HE 21W/840 OSRAM Lumilux Cool White

Lamp lumen output

1,900 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	8.4	9.6	9.6	10.8	12.4	4.0	5.2	5.1	6.4	8.0
3H	12.0	13.1	13.2	14.3	15.9	5.8	6.9	7.0	8.1	9.7
4H	13.8	14.9	15.0	16.1	17.7	6.4	7.5	7.6	8.7	10.3
6H	15.8	16.8	17.0	18.0	19.6	6.8	7.8	8.0	9.1	10.7
8H	16.7	17.7	17.9	18.9	20.6	6.9	7.9	8.1	9.1	10.8
12H	17.8	18.7	19.0	19.9	21.6	7.0	7.9	8.2	9.1	10.8
4H 2H	9.3	10.3	10.4	11.5	13.1	6.4	7.4	7.6	8.7	10.3
3H	13.2	14.1	14.4	15.4	17.0	8.5	9.4	9.7	10.7	12.3
4H	15.3	16.1	16.5	17.4	19.0	9.4	10.2	10.6	11.5	13.1
6H	17.4	18.2	18.7	19.5	21.1	10.0	10.8	11.3	12.1	13.7
8H	18.6	19.3	19.8	20.6	22.2	10.3	11.0	11.5	12.3	13.9
12H	19.8	20.4	21.0	21.7	23.4	10.5	11.1	11.7	12.4	14.1
8H 4H	15.9	16.6	17.1	17.9	19.5	11.9	12.6	13.2	13.9	15.6
6H	18.3	19.0	19.6	20.2	21.9	12.9	13.5	14.2	14.8	16.5
8H	19.8	20.3	21.0	21.6	23.3	13.4	13.9	14.7	15.2	16.9
12H	21.2	21.7	22.5	23.0	24.7	13.7	14.2	15.0	15.5	17.2
12H 4H	16.0	16.7	17.2	17.9	19.6	13.1	13.7	14.3	15.0	16.7
6H	18.6	19.2	19.9	20.5	22.1	14.3	14.9	15.6	16.2	17.9
8H	20.1	20.6	21.4	21.9	23.6	14.9	15.4	16.2	16.7	18.4

Calculated in accordance with CIBSE Technical Memorandum No. 10 1985

Customer

Encapsulite International Ltd.

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MT360/SC/21W

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

Lamp description

HE 21W/840 OSRAM Lumilux Cool White

Lamp lumen output

1,900 lm

Lamp quantity

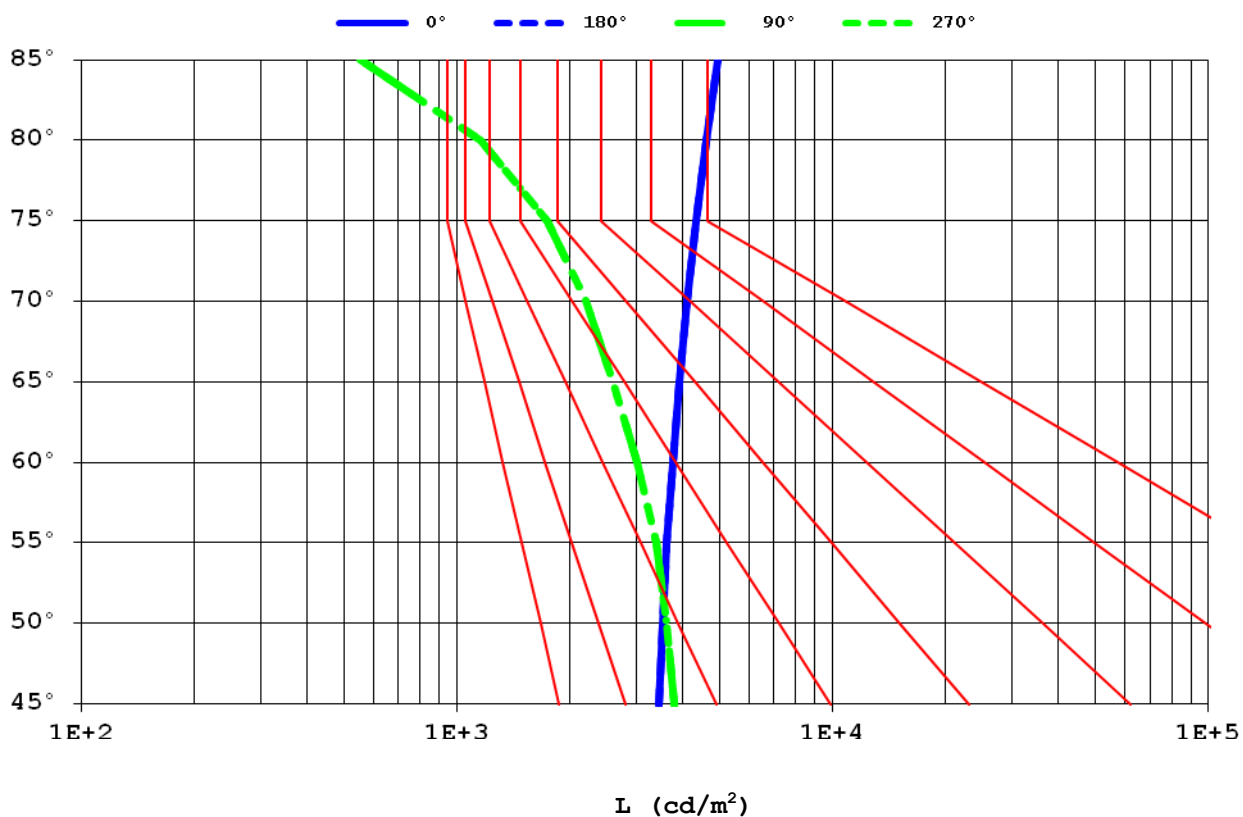
2

## 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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Lamp lumen output	1,900 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 lumen output 1,900 lm  
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#### Quick Design Table

Based on: reflectances of Ceiling = 0.5  
Wall = 0.5  
Floor = 0.2  
Room Index = 2.00  
lamp output = 1900 lumens  
ballast lumen factor = 1.00

To achieve an Illuminance of 100 lux

Surface Area (m <sup>2</sup> )	20	30	40	50	80	100	200	300	500
No. of luminaires	1.3	2.0	2.6	3.3	5.3	6.6	13.2	19.8	33.0