

T e s t R e p o r t

Report No : L17660B

Client: : Astro Lighting Ltd
The Astro Building
Midas, River Way
Harlow
Essex
CM20 2GJ

Description : Mashico LED Emergency Luminaire

Manufacturer : Not disclosed

Type/Model : CL211

Test Specification : BS EN 13032-4:2015 Clause 4.5.4

Date Testing Started : 13/09/2018

Conclusion : Refer to body of report

Date of Issue : 01/10/2018

Date of Expiry : 30/09/2023

Tested by: N. GABIR
Position: Laboratory Engineer



Approved by: T. MALIK
Position: Operations Manager



INTRODUCTION

Astro Lighting Ltd have supplied the product identified in page one for determination of light output distribution.

PRODUCT DETAILS

Table 1. Test Sample Details

Product Description	Mashico LED Emergency Luminaire – Mains mode
Model No.	CL211
Number of Samples	One
Condition on Receipt	Good
Nominal Dimensions (mm)	L – 400mm; W – 400mm; H – 70mm
Product Supply Requirement	220-240V AC, 50/60Hz
Lamp Type and Power	LED, 28W
Sampling Method: Test samples selected and supplied by client, no sampling method specified by client.	

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PROCEDURE

Table 2. Test Procedure and Equipment Used for Photometric Measurements

Test Standard	BS EN 13032-4:2015 Clause 4.5.4
Equipment Used	LMT GO-DS 2000 goniophotometer (408)
Standard Lamp Used	LMT Photometer Unit 01B6081
Standard Lamp Traceability	Traceable to luminous intensity standard lamp type OSRAM Wi41/G lamp No. 934
Scan Setup	Elevation: 0°-180°, step size: 5° Azimuth: 0°-360°, step size: 5°
Power Supply	LMT GO-DS 2000 goniophotometer
Power Measurement	N4L single phase power analyser (394)
Temperature Measurement	Testo 405i Thermal Anemometer (419)

Table 3. Lamp Conditioning and Setup

Lamp ageing Time (Mins)	0
Stabilisation Time (Mins)	60
Total Operating Time (Mins)	82
Support Structure	LMT Goniophotometer Mounting Fixture

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TEST RESULTS

Table 4. Test Environmental and Operating Conditions

Ambient Temperature (°C)	24.1
Voltage (V)	240.1
Current (mA)	137.88
Power (W)	31.23
Power Factor	0.94

Table 5. Beam Angle Results

Luminous Flux of Luminaire (lm)	Luminous Efficacy (lm/W)	Centre Beam Intensity (cd)	Beam Angle (Lamp orientation)	Beam Angle Result (°)
2438	78	693	Horizontal	116.5
			Vertical	117.8

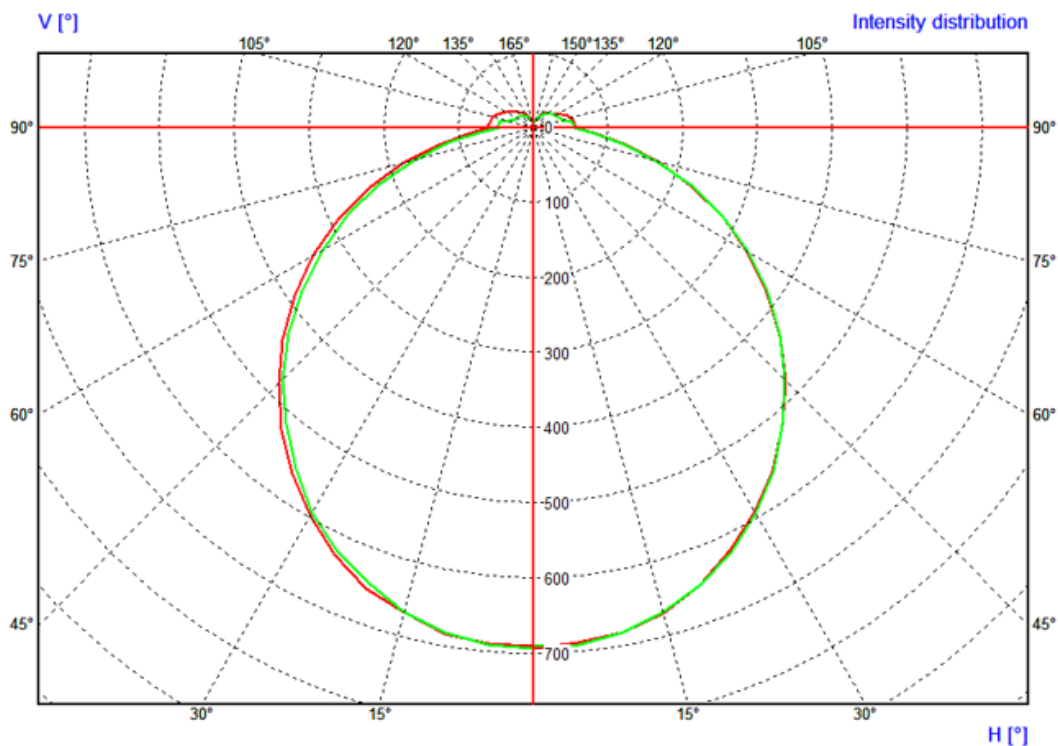


Figure 1. Polar Diagram

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Table 6. Luminous Intensities (cd)

Gamma	0	5	10	15	20	25	30	35	40	45	50	55
0	691.9	692.7	692.5	691.1	689.6	690.6	690.9	689.0	689.0	690.6	689.6	692.2
5	687.2	689.8	689.6	688.8	687.4	688.8	689.0	687.2	686.9	686.6	687.4	686.4
10	681.9	679.2	679.8	680.5	682.1	681.6	682.1	682.9	682.9	681.6	682.9	681.6
15	668.1	666.0	667.8	668.6	668.6	669.2	669.2	666.5	665.4	666.5	665.4	666.5
20	648.0	646.9	648.5	648.2	647.2	648.5	648.2	646.6	648.0	650.3	649.3	650.1
25	620.2	620.7	619.9	621.2	623.9	623.6	624.4	625.7	624.4	622.5	622.5	623.3
30	590.5	591.5	590.7	590.2	592.9	593.7	595.5	595.5	594.5	593.4	593.4	594.7
35	556.3	555.2	557.4	559.0	558.7	559.2	559.0	560.8	562.4	562.4	562.9	559.8
40	517.4	517.1	519.2	519.2	519.2	520.3	521.9	524.8	523.5	522.4	522.4	523.2
45	475.5	475.5	476.8	476.3	477.6	479.0	481.1	483.5	481.9	482.7	481.9	483.5
50	429.4	429.9	429.9	433.4	435.5	437.1	437.4	437.1	439.5	439.5	439.2	437.4
55	379.9	380.7	382.0	385.7	387.0	388.1	388.9	391.5	392.6	391.3	391.0	390.7
60	329.8	330.9	331.7	334.6	337.8	339.3	339.6	340.9	342.8	342.3	342.3	340.4
65	278.9	279.5	281.1	282.1	284.5	286.6	289.0	288.7	289.5	291.1	290.6	289.5
70	224.1	224.6	227.3	229.9	231.5	233.1	234.4	236.8	237.1	236.6	236.3	236.6
75	171.8	172.1	173.8	176.2	178.7	180.6	182.2	183.3	184.0	184.5	184.3	183.7
80	120.8	121.1	123.0	125.6	127.9	129.9	131.5	132.7	133.4	133.6	133.5	132.9
85	80.1	80.5	82.5	85.1	87.4	89.5	91.0	92.2	92.9	93.2	93.0	92.3
90	55.9	56.3	58.3	60.9	63.4	66.0	67.2	68.3	69.0	69.5	69.3	68.6
95	55.3	55.7	57.8	60.3	62.8	64.9	66.5	67.7	68.5	68.9	68.8	68.1
100	54.1	54.5	56.5	59.0	61.4	63.5	65.2	66.5	67.2	67.6	67.1	65.4
105	52.2	52.6	54.4	56.7	58.9	60.6	61.9	62.5	62.2	60.9	58.1	53.9
110	47.8	48.1	49.5	51.3	53.1	54.3	54.9	54.6	53.5	51.8	49.7	47.6
115	42.8	43.0	43.9	45.2	46.4	47.4	47.9	47.7	47.2	46.7	45.9	45.3
120	37.5	37.6	38.3	39.3	40.3	41.5	42.4	42.8	43.2	43.4	43.4	42.6
125	32.2	32.4	33.2	34.3	35.6	37.2	38.6	39.4	40.0	40.2	40.4	39.9
130	29.7	29.9	30.6	31.6	32.7	34.0	35.2	36.1	36.8	37.3	37.1	36.3
135	27.2	27.4	28.2	29.1	30.1	31.2	32.5	33.2	33.6	33.7	33.3	32.7
140	25.5	25.6	26.4	27.0	27.7	28.4	29.1	29.7	30.2	30.2	29.9	29.5
145	23.2	23.2	23.9	24.5	25.0	25.5	26.0	26.5	26.8	26.8	26.6	26.3
150	20.6	20.6	21.3	21.7	22.1	22.4	22.9	23.4	23.5	23.4	23.3	23.0
155	17.7	17.7	18.3	18.8	19.0	19.2	19.6	19.8	19.9	19.9	19.8	19.6
160	14.8	14.8	15.1	15.6	15.8	16.0	16.3	16.4	16.5	16.5	16.4	16.3
165	11.5	11.6	11.8	12.3	12.6	12.9	13.1	13.2	13.3	13.4	13.4	13.3
170	9.1	9.2	9.3	9.5	9.9	10.2	10.4	10.6	10.7	10.7	10.8	10.8
175	8.3	8.3	8.3	8.2	8.3	8.3	8.4	8.5	8.5	8.6	8.6	8.5
180	6.8	6.8	6.9	6.9	6.8	6.8	6.8	6.8	6.8	6.9	6.9	6.9

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Table 6 Continued...

Gamma	60	65	70	75	80	85	90	95	100	105	110	115
0	688.8	691.9	692.2	689.0	690.4	691.1	689.3	689.6	693.0	690.4	691.1	693.3
5	686.6	688.8	686.1	686.6	688.0	690.4	690.4	690.6	690.1	689.0	687.4	687.4
10	680.3	679.0	679.5	678.4	678.4	681.6	682.7	682.7	681.3	680.0	680.0	681.3
15	668.1	668.4	668.6	666.8	665.7	664.7	666.2	665.7	668.6	669.2	666.8	666.5
20	649.0	646.1	647.2	645.3	647.4	648.8	647.4	648.2	646.1	647.4	650.9	650.3
25	624.4	624.9	624.4	622.5	620.4	621.7	623.3	623.1	624.1	622.5	624.1	627.0
30	596.0	593.4	594.5	591.3	590.2	592.9	591.8	591.3	590.7	593.4	594.5	597.6
35	559.2	561.3	560.0	559.0	556.6	555.8	557.6	558.2	557.1	557.6	561.6	563.7
40	524.3	521.1	520.0	518.4	519.0	519.0	516.0	516.3	519.5	522.1	521.3	524.0
45	482.4	479.2	477.9	478.7	477.1	474.2	474.7	475.5	478.2	477.6	482.7	483.7
50	437.6	437.6	436.3	432.3	431.5	431.5	428.9	429.4	432.1	435.8	435.8	440.0
55	391.0	388.9	387.8	384.4	384.1	382.5	380.4	381.2	384.9	387.6	388.4	392.6
60	340.9	338.8	337.5	334.6	333.8	332.2	330.1	331.4	334.8	336.2	339.6	343.1
65	287.7	288.0	286.4	283.2	280.5	280.3	278.7	279.2	281.6	285.3	286.9	289.8
70	236.0	233.6	231.8	230.5	227.6	226.2	225.4	226.2	227.6	231.5	234.2	236.3
75	182.7	181.4	179.6	177.4	175.0	173.0	171.4	172.0	174.4	177.5	180.6	183.5
80	131.9	130.4	128.5	126.3	123.9	121.5	119.9	120.6	123.0	126.1	129.4	132.2
85	91.2	89.7	87.7	85.4	82.8	80.4	78.6	79.2	81.8	85.0	88.2	91.2
90	67.5	66.0	64.0	61.7	59.0	56.4	54.6	55.2	57.5	60.7	64.0	67.1
95	66.9	65.5	63.5	61.1	58.4	55.9	54.1	54.6	57.0	60.2	63.2	65.9
100	62.6	60.7	59.1	57.6	55.2	53.1	51.5	52.1	54.2	57.0	59.0	61.4
105	49.5	47.6	47.0	45.2	41.6	40.3	39.9	40.3	41.7	45.2	46.8	47.9
110	45.9	44.7	42.9	40.2	37.7	37.1	37.3	37.2	37.7	40.2	42.8	44.5
115	44.2	42.7	40.5	38.1	36.8	36.1	35.9	36.0	36.5	38.1	40.4	42.7
120	41.7	39.9	37.8	36.4	35.3	34.5	34.1	34.2	34.8	36.1	37.8	39.9
125	38.5	36.9	35.6	34.4	33.4	32.5	31.8	32.1	32.7	34.1	35.3	36.9
130	35.2	34.3	33.4	32.4	31.6	30.4	29.5	29.8	30.6	32.7	33.6	34.3
135	32.1	31.4	30.5	29.7	28.8	28.0	27.2	27.4	28.3	29.3	30.3	31.2
140	28.8	28.2	27.4	26.7	26.0	25.2	24.5	24.6	25.4	26.2	27.1	28.0
145	25.7	25.2	24.6	24.0	23.4	22.8	22.0	22.0	22.8	23.6	24.3	25.0
150	22.6	22.3	21.8	21.4	20.9	20.3	19.6	19.6	20.4	21.0	21.6	22.1
155	19.4	19.1	18.8	18.4	18.1	17.5	17.0	17.0	17.5	18.1	18.6	19.0
160	16.2	16.0	15.8	15.6	15.2	14.6	14.3	14.4	14.6	15.3	15.7	15.9
165	13.2	13.1	13.0	12.8	12.4	11.9	11.8	11.8	11.9	12.3	12.8	13.0
170	10.7	10.6	10.4	10.2	9.9	9.7	9.7	9.8	9.7	9.9	10.2	10.5
175	8.3	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.3
180	7.0	7.0	7.0	6.9	7.0	6.9	6.9	6.9	6.9	7.0	7.0	7.0

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Table 6 Continued...

Gamma	120	125	130	135	140	145	150	155	160	165	170	175
0	692.7	689.6	691.1	693.0	689.3	689.0	692.5	691.9	688.8	689.6	690.1	692.7
5	687.7	688.2	690.6	691.4	690.6	691.4	689.3	687.7	688.0	689.3	687.7	689.3
10	681.6	683.7	683.2	681.1	680.5	680.5	682.1	684.0	682.1	680.0	680.0	680.3
15	667.3	667.6	670.7	670.5	667.8	669.4	667.6	668.4	671.0	670.0	670.0	668.1
20	651.1	649.3	650.1	652.7	651.4	651.1	649.6	650.9	652.7	650.1	649.6	648.5
25	628.1	627.8	625.7	626.8	629.7	629.7	626.5	626.0	628.6	628.1	627.3	624.4
30	598.7	597.6	596.8	599.0	600.8	600.8	597.4	597.9	599.8	597.6	597.4	594.7
35	565.0	563.5	565.6	567.7	565.3	565.6	565.0	566.6	563.2	562.7	562.4	563.7
40	525.8	529.0	526.9	529.0	530.1	530.3	527.2	528.0	527.4	524.3	524.3	525.8
45	484.8	485.3	488.5	488.2	487.4	487.4	488.2	488.8	484.8	484.8	484.5	482.9
50	442.4	443.2	442.7	445.6	444.5	444.0	445.3	444.3	441.1	441.1	440.5	438.4
55	395.0	395.2	396.0	398.4	397.6	397.1	397.9	396.8	394.2	394.2	392.9	390.7
60	344.6	344.9	348.4	347.8	347.8	347.8	348.9	346.2	346.2	344.1	341.7	339.6
65	292.5	294.8	294.8	297.2	296.4	296.4	296.2	296.4	293.3	293.0	291.1	288.0
70	238.4	241.3	242.4	242.9	244.2	244.2	242.7	242.4	241.1	238.4	236.8	235.8
75	185.9	187.8	189.2	190.3	190.8	190.8	190.5	189.6	188.2	186.3	184.2	182.1
80	134.6	136.5	138.1	139.1	139.6	139.7	139.3	138.3	137.0	135.0	132.7	130.5
85	93.5	95.3	96.8	97.9	98.4	98.4	98.0	97.0	95.6	93.6	91.3	89.0
90	68.8	70.6	71.9	72.8	73.2	73.1	72.4	71.4	69.8	67.7	65.3	63.0
95	68.1	69.9	71.2	72.1	72.5	72.3	71.5	70.5	68.8	66.7	64.2	61.9
100	64.0	67.3	69.4	70.6	71.0	70.7	69.9	68.8	67.1	65.0	62.6	60.2
105	50.4	55.4	60.4	64.1	66.2	67.0	66.9	66.2	64.6	62.6	60.3	58.0
110	46.1	48.6	51.4	54.5	57.1	58.9	59.7	59.8	59.0	57.6	55.8	54.0
115	44.4	45.7	47.3	49.1	50.5	51.6	52.2	52.5	52.1	51.0	49.8	48.6
120	41.9	43.6	44.5	45.2	45.9	46.5	46.6	46.5	45.9	44.9	44.0	43.1
125	38.9	40.5	41.6	42.3	42.5	42.1	41.5	41.0	40.2	39.2	38.3	37.6
130	35.6	37.0	38.0	38.5	38.7	38.4	37.8	37.0	35.8	34.5	33.5	32.7
135	32.1	33.0	33.8	34.5	34.7	34.5	34.1	33.5	32.4	31.4	30.5	29.9
140	28.7	29.4	30.0	30.6	30.8	30.6	30.4	29.8	29.1	28.3	27.6	27.1
145	25.6	26.1	26.6	26.9	27.0	26.9	26.6	26.3	25.7	25.2	24.7	24.2
150	22.5	22.9	23.2	23.5	23.5	23.4	23.3	23.0	22.5	22.1	21.7	21.2
155	19.2	19.5	19.7	19.8	19.9	19.9	19.8	19.6	19.3	19.0	18.6	18.2
160	16.1	16.2	16.3	16.4	16.5	16.5	16.4	16.3	16.1	15.9	15.6	15.1
165	13.1	13.2	13.2	13.3	13.3	13.3	13.3	13.3	13.1	13.0	12.6	12.2
170	10.6	10.7	10.8	10.8	10.8	10.8	10.8	10.7	10.5	10.2	9.9	9.8
175	8.3	8.3	8.4	8.5	8.5	8.3	8.2	8.2	8.1	8.1	8.1	8.1
180	6.9	6.9	6.9	6.8	6.8	6.8	6.8	6.8	6.8	6.9	6.8	6.8

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Table 6 Continued...

Gamma	180	185	190	195	200	205	210	215	220	225	230	235
0	689.3	690.6	693.0	693.0	692.2	689.3	690.9	693.0	693.0	691.4	689.8	688.5
5	688.2	690.6	691.1	691.4	691.4	688.8	688.0	689.3	687.4	689.3	690.1	690.9
10	683.2	683.5	681.1	681.6	680.8	682.9	684.0	684.3	684.3	682.4	680.3	680.3
15	667.6	669.4	671.3	671.8	670.7	668.4	668.4	670.5	668.1	670.7	670.7	668.4
20	652.2	650.9	649.3	650.3	649.8	653.3	653.3	650.3	652.2	649.3	648.8	650.6
25	626.8	627.0	625.2	626.0	626.2	629.7	628.6	626.2	626.0	626.8	627.8	627.3
30	596.8	597.4	595.5	596.3	597.1	600.3	600.3	597.1	597.1	597.4	598.4	598.2
35	561.6	560.3	564.3	565.3	564.0	564.0	565.8	566.6	566.9	563.2	564.0	564.8
40	523.2	522.9	526.4	527.4	525.8	527.7	529.6	528.0	528.5	526.4	528.0	525.3
45	480.8	483.5	484.0	484.5	484.8	488.0	486.6	486.6	485.8	487.7	485.8	483.2
50	436.8	439.0	438.2	439.2	441.3	443.7	442.1	444.5	444.0	443.2	440.5	440.3
55	388.9	391.0	390.2	391.5	394.2	396.0	395.2	396.8	396.6	395.8	393.4	392.6
60	340.4	339.1	341.5	343.6	344.9	344.6	346.5	347.0	346.5	345.2	345.4	343.3
65	287.4	288.7	288.5	290.3	293.5	293.3	294.0	295.6	295.4	293.3	292.7	291.9
70	233.1	234.7	236.6	238.2	238.7	241.3	241.3	241.1	240.5	241.3	239.7	237.4
75	180.5	180.9	182.3	184.2	186.1	187.3	188.0	188.5	188.3	187.6	186.6	185.2
80	128.9	129.2	130.9	132.9	134.7	135.9	136.8	137.1	136.9	136.3	135.3	133.7
85	87.3	87.6	89.2	91.3	93.1	94.5	95.2	95.5	95.3	94.7	93.6	92.1
90	61.2	61.6	63.2	65.3	67.3	69.6	69.3	69.5	69.4	68.8	67.8	66.3
95	60.0	60.5	62.0	64.1	65.9	67.3	68.2	68.5	68.4	67.9	67.0	65.5
100	58.4	58.9	60.5	62.5	64.3	65.7	66.7	67.1	67.0	66.6	65.5	63.3
105	56.3	56.7	58.3	60.3	61.9	63.2	63.9	63.8	62.8	60.8	57.4	52.5
110	52.5	53.0	54.1	55.6	56.7	57.2	57.0	55.9	53.9	51.1	47.3	43.4
115	47.5	47.8	48.6	49.5	50.0	50.2	49.9	48.7	47.3	45.4	42.8	39.4
120	42.2	42.5	43.0	43.6	44.0	43.9	44.1	43.6	42.7	41.7	40.8	39.3
125	36.8	37.1	37.5	38.1	38.5	38.6	38.4	38.8	38.8	38.5	37.8	36.7
130	32.0	32.2	32.7	33.5	34.2	35.0	35.2	35.2	35.2	35.1	34.6	33.5
135	29.1	29.4	29.9	30.5	31.1	31.7	32.2	32.1	31.8	31.3	30.7	29.9
140	26.3	26.5	27.1	27.6	28.1	28.5	28.8	28.8	28.7	28.2	27.4	26.7
145	23.5	23.6	24.2	24.6	25.0	25.2	25.4	25.4	25.4	25.1	24.7	24.1
150	20.7	20.7	21.3	21.7	21.9	22.1	22.3	22.3	22.1	21.9	21.7	21.2
155	17.8	17.9	18.4	18.7	18.9	19.0	19.2	19.1	18.9	18.6	18.4	18.0
160	14.9	14.9	15.4	15.7	15.8	15.9	16.0	15.9	15.8	15.6	15.4	15.1
165	12.2	12.1	12.3	12.7	12.9	13.0	13.3	13.0	12.9	12.8	12.7	12.6
170	9.9	9.9	9.9	10.1	10.4	10.5	10.5	10.5	10.5	10.5	10.4	10.3
175	8.1	8.1	8.1	8.2	8.2	8.3	8.4	8.5	8.5	8.5	8.3	8.2
180	6.8	6.8	6.9	6.9	6.9	6.8	6.8	6.8	6.7	6.6	6.6	6.6

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Table 6 Continued...

Gamma	240	245	250	255	260	265	270	275	280	285	290	295
0	689.8	689.6	691.1	692.5	692.2	690.4	692.2	690.4	688.8	689.3	691.1	689.3
5	690.6	690.9	690.6	688.2	687.7	686.9	689.8	688.5	686.9	686.9	688.2	687.4
10	681.1	680.0	680.5	682.7	682.1	679.8	682.1	681.1	679.2	678.7	680.3	679.2
15	666.8	667.3	666.5	665.4	666.2	668.1	667.3	668.1	668.1	668.1	666.2	668.4
20	651.4	650.6	650.1	648.2	646.1	644.5	644.8	644.8	646.6	648.2	649.3	648.5
25	624.1	623.1	622.0	623.6	623.3	621.7	622.3	619.9	619.4	621.2	623.9	622.8
30	595.5	594.2	591.8	592.6	592.3	591.0	591.3	590.0	588.4	589.7	592.9	591.8
35	561.1	559.2	557.9	559.0	556.3	553.1	553.1	552.6	555.2	557.4	556.3	558.7
40	522.7	521.1	519.7	520.3	516.8	514.2	513.4	515.2	517.1	517.1	516.8	518.2
45	484.0	482.4	480.0	475.8	473.4	474.2	473.1	472.6	471.8	473.4	477.1	477.6
50	440.0	437.6	433.7	431.3	430.2	428.4	426.5	425.4	428.4	430.7	431.3	434.2
55	392.1	389.9	386.2	383.1	381.7	379.3	378.6	377.2	378.6	382.0	383.3	386.0
60	340.4	338.0	336.4	334.0	329.5	328.2	326.4	328.0	328.2	329.8	333.8	335.4
65	289.0	286.4	283.5	281.6	278.7	274.7	273.1	274.2	276.6	278.7	279.7	282.1
70	236.6	234.2	231.3	227.0	223.8	222.3	220.4	219.9	221.5	224.6	227.6	229.7
75	183.2	180.7	177.9	174.7	171.3	168.3	166.3	166.5	168.3	170.8	173.4	175.7
80	131.7	129.2	126.4	123.1	119.7	116.7	114.5	114.8	116.7	119.3	122.1	124.5
85	90.0	87.5	84.7	81.4	77.9	74.8	72.6	73.0	75.1	77.9	80.6	83.3
90	64.3	61.9	59.1	55.9	52.5	49.5	47.4	47.8	50.1	53.0	55.8	59.1
95	63.6	61.2	58.4	55.3	51.9	48.9	46.9	47.5	49.7	52.5	55.3	58.0
100	60.6	58.1	55.4	52.6	49.7	47.3	45.5	46.0	48.0	50.3	52.5	54.3
105	47.6	45.1	43.5	41.4	38.1	36.6	36.1	38.3	39.7	40.5	41.9	43.6
110	40.2	37.7	36.0	33.5	31.3	30.7	31.3	33.1	34.3	34.5	35.2	36.4
115	36.1	33.4	30.6	28.0	26.8	26.1	26.5	27.9	29.8	31.6	33.3	35.6
120	37.3	34.5	31.7	29.1	27.2	25.8	25.7	27.2	29.6	31.8	33.3	35.0
125	34.9	32.9	30.9	29.0	27.3	26.0	25.9	27.1	29.1	30.9	32.1	33.5
130	32.1	30.8	30.0	27.7	25.7	24.4	23.9	25.0	26.8	29.2	30.1	31.6
135	29.0	28.1	27.0	25.6	23.9	22.9	22.3	23.2	24.7	26.4	27.9	29.1
140	25.9	25.0	24.2	23.0	21.9	21.1	20.5	21.1	22.5	23.8	25.2	26.3
145	23.3	22.5	21.8	20.9	20.1	19.3	18.7	19.1	20.3	21.5	22.6	23.7
150	20.7	20.1	19.6	18.9	18.3	17.6	17.1	17.4	18.5	19.4	20.3	21.1
155	17.7	17.3	16.9	16.5	16.1	15.4	15.1	15.2	16.2	17.0	17.6	18.2
160	14.8	14.5	14.3	13.9	13.6	13.0	12.8	12.9	13.5	14.3	14.8	15.2
165	12.4	12.2	12.0	11.7	11.3	10.9	10.8	10.8	11.1	11.8	12.2	12.5
170	10.2	10.1	9.8	9.6	9.4	9.2	9.1	9.1	9.1	9.3	9.6	9.8
175	8.1	7.9	7.8	7.8	7.8	7.7	7.7	7.5	7.4	7.4	7.4	7.4
180	6.6	6.6	6.5	6.4	6.4	6.4	6.3	6.3	6.5	6.6	6.5	6.5

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Table 6 Continued...

Gamma	300	305	310	315	320	325	330	335	340	345	350	355
0	689.8	690.6	692.7	690.6	692.2	692.5	692.5	692.5	692.7	692.2	690.1	689.6
5	686.9	686.9	687.4	687.2	686.6	686.6	687.2	686.6	686.9	686.6	686.4	686.6
10	680.5	681.1	682.4	679.8	681.1	682.4	682.9	682.7	680.8	680.8	681.9	682.1
15	666.0	665.7	666.0	666.2	665.4	666.0	668.1	668.4	667.0	666.8	667.6	668.1
20	649.6	648.2	646.6	649.0	647.4	646.4	646.9	647.4	646.6	647.2	648.2	648.2
25	624.7	624.4	622.3	623.3	621.7	622.0	623.9	624.1	624.1	622.3	620.2	619.4
30	594.5	595.0	593.1	594.7	592.3	592.3	593.7	593.7	592.9	593.4	592.3	589.7
35	557.6	557.9	559.5	558.7	561.1	561.3	559.2	558.4	558.2	556.0	555.5	556.8
40	521.6	522.9	521.3	522.7	520.8	521.9	523.2	521.1	520.3	518.2	516.6	517.6
45	480.0	479.2	479.5	479.5	480.3	481.6	480.8	478.7	477.4	475.8	475.8	476.0
50	433.4	435.0	437.6	437.9	437.9	436.6	435.0	435.0	434.2	433.9	432.1	429.7
55	386.0	386.8	389.4	389.4	389.9	388.6	387.6	387.0	386.0	385.7	383.3	380.9
60	337.2	337.5	338.0	338.3	340.1	339.6	337.8	337.0	335.6	334.8	333.8	331.1
65	284.8	286.9	287.2	288.2	286.9	287.2	287.7	286.4	285.0	282.7	280.5	280.0
70	230.5	232.1	234.2	234.4	235.0	233.9	233.4	233.1	232.1	230.2	227.6	225.4
75	177.8	179.4	180.5	181.2	181.6	181.6	181.1	180.1	178.8	177.0	175.1	173.2
80	126.6	128.2	129.4	130.2	130.7	130.7	130.2	129.3	128.1	126.4	124.3	122.3
85	85.3	87.1	88.4	89.3	89.9	89.9	89.4	88.6	87.4	85.7	83.7	81.6
90	60.7	62.4	63.8	64.7	65.3	65.4	65.0	64.1	63.0	61.3	59.3	57.3
95	60.2	62.0	63.3	64.3	64.8	64.9	64.5	63.7	62.5	60.7	58.7	56.8
100	56.7	59.3	61.7	63.1	63.7	63.7	63.3	62.5	61.2	59.5	57.5	55.6
105	47.8	51.5	55.1	57.6	59.2	59.9	60.1	59.6	58.7	57.2	55.5	53.7
110	39.0	43.3	47.6	50.8	52.9	54.0	54.4	54.2	53.4	52.2	50.5	49.0
115	37.1	39.5	42.0	44.4	46.4	47.6	48.1	48.1	47.6	46.3	44.9	43.8
120	36.8	38.1	39.2	40.2	41.1	41.6	41.9	41.9	41.3	40.2	39.1	38.3
125	35.0	36.3	37.1	37.2	37.6	37.7	37.4	37.0	36.1	34.8	33.7	33.0
130	32.5	33.7	34.7	35.2	35.1	34.6	34.1	33.6	32.7	31.7	30.9	30.4
135	30.0	30.9	31.7	32.1	32.4	32.4	32.1	31.3	30.2	29.2	28.4	27.9
140	27.2	27.9	28.7	29.1	29.4	29.4	29.1	28.6	28.0	27.4	26.8	26.2
145	24.5	25.2	25.8	26.1	26.3	26.3	26.1	25.7	25.2	24.8	24.3	23.8
150	21.7	22.3	22.7	23.0	23.2	23.2	23.1	22.8	22.4	22.0	21.6	21.1
155	18.6	19.0	19.4	19.7	19.8	19.8	19.7	19.4	19.2	18.9	18.6	18.2
160	15.5	15.8	16.1	16.3	16.5	16.6	16.5	16.3	16.0	15.8	15.5	15.1
165	12.8	12.9	13.0	13.0	13.0	13.0	13.0	12.8	12.7	12.4	12.1	11.7
170	9.9	9.9	9.8	9.8	9.7	9.7	9.7	9.6	9.5	9.3	9.0	9.0
175	7.5	7.6	7.8	7.9	7.9	7.9	7.9	8.0	8.1	8.1	8.2	8.2
180	6.6	6.7	6.7	6.8	6.8	6.8	6.8	6.9	6.9	6.9	6.9	6.8

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CONE DIAGRAM

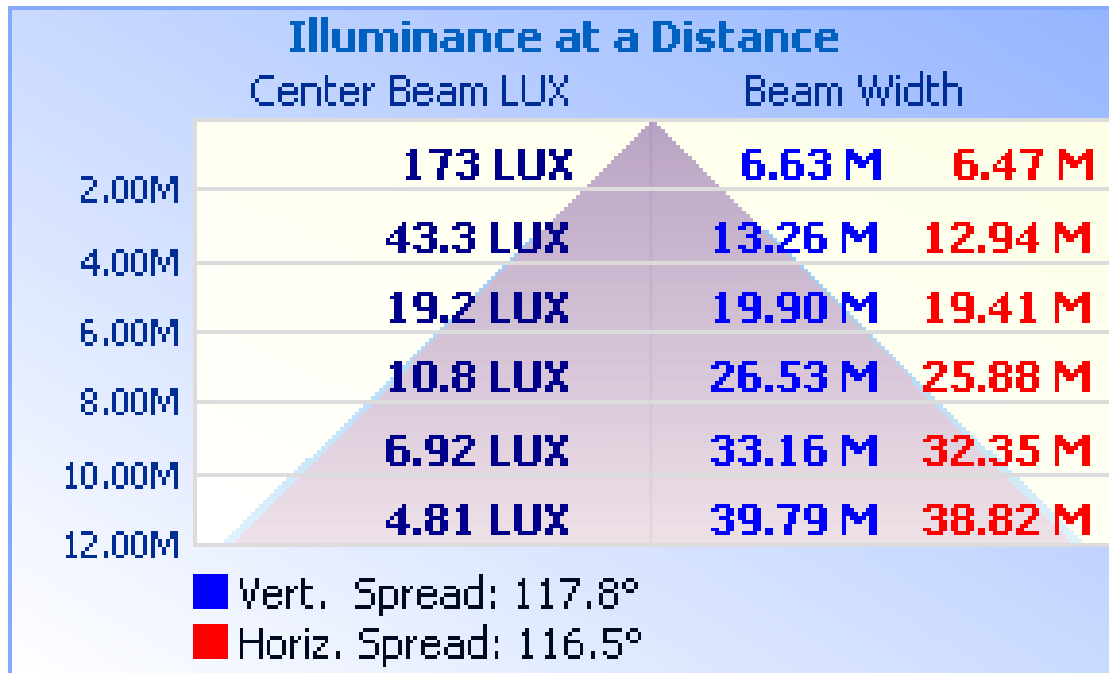


Figure 2. Cone diagram for mounting height up to 12 metres

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UNIFIED GLARE RATING

Table 7. Unified Glare Rating

Ceiling Reflectance		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall Reflectance		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Floor Cavity Reflectance		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room Dimension		Viewed endwise					Viewed crosswise				
2H	2H	15.7	17.2	16.3	17.7	18.3	15.7	17.2	16.2	17.7	18.2
2H	3H	17.4	18.7	17.9	19.3	19.8	17.3	18.7	17.9	19.2	19.8
2H	4H	18.1	19.4	18.7	19.9	20.5	18.0	19.3	18.6	19.8	20.4
2H	6H	18.7	19.9	19.2	20.4	21.0	18.6	19.7	19.1	20.3	20.9
2H	8H	18.9	20.0	19.4	20.6	21.2	18.7	19.9	19.3	20.4	21.1
2H	12H	19.0	20.1	19.6	20.7	21.4	18.9	20.0	19.4	20.5	21.2
4H	2H	16.5	17.7	17.0	18.3	18.9	16.5	17.7	17.0	18.3	18.9
4H	3H	18.3	19.4	18.9	20.0	20.6	18.3	19.3	18.8	19.9	20.6
4H	4H	19.2	20.2	19.8	20.7	21.4	19.1	20.1	19.7	20.7	21.3
4H	6H	19.9	20.7	20.5	21.3	22.0	19.7	20.6	20.4	21.2	21.9
4H	8H	20.1	21.0	20.8	21.6	22.3	20.0	20.8	20.6	21.4	22.1
4H	12H	20.4	21.2	21.0	21.8	22.5	20.2	21.0	20.9	21.6	22.3
8H	4H	19.5	20.3	20.1	20.9	21.6	19.4	20.3	20.1	20.9	21.6
8H	6H	20.3	21.0	21.0	21.7	22.4	20.2	20.9	20.9	21.6	22.3
8H	8H	20.8	21.4	21.4	22.0	22.7	20.7	21.3	21.3	21.9	22.6
8H	12H	21.1	21.6	21.8	22.3	23.0	21.0	21.5	21.6	22.2	22.9
12H	4H	19.6	20.3	20.2	20.9	21.6	19.5	20.3	20.1	20.9	21.6
12H	6H	20.5	21.1	21.1	21.7	22.5	20.4	21.0	21.0	21.7	22.4
12H	8H	20.9	21.4	21.6	22.1	22.8	20.8	21.3	21.5	22.0	22.7

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DEVIATION(S) FROM TEST STANDARD

No reported deviations from test standard.

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IDENTIFICATION OF PHOTOMETRIC CENTRE

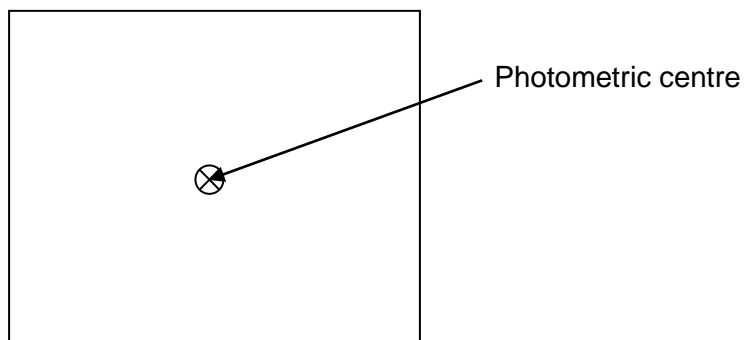


Figure 3. *Product photometric centre*

ILLUSTRATION

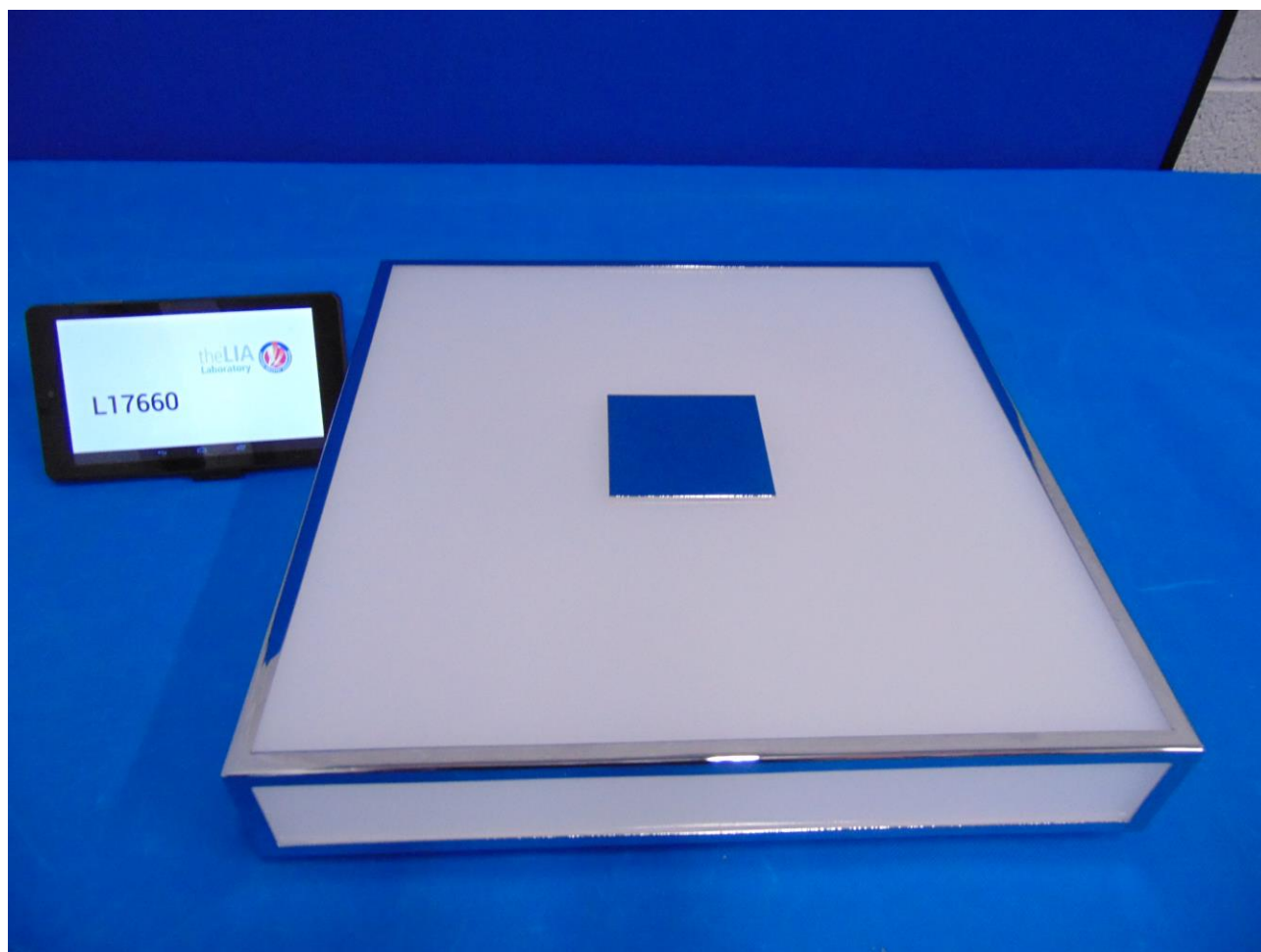


Figure 4. *Product image*

End

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