

## **T e s t   R e p o r t**

**Report No** : L18028A

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

**Description** : Avalon 900 LED

**Manufacturer** : Not Disclosed

**Type/Model** : 8603

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

**Date Testing Started** : 02/01/2019

**Conclusion** : Refer to body of report

**Date of Issue** : 22/01/2019

**Date of Expiry** : 21/01/2024

**Tested by:** **N.GABIR**

**Position:** Head of Department -  
Photometry

**Approved by:** **D.CHAMBERS**

**Position:** Lead Engineer

## **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	Avalon 900 LED
Model No.	8603
Number of Samples	One
Condition on Receipt	Good
Nominal Dimensions (mm)	L.900 , W.600 , H50.
Product Supply Requirement	180-264V AC 47-63Hz
Lamp Type and Power	LED
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	Hewlett Packard 6813A AC Power Source (478)
Power Measurement	N4L single phase power analyser (394)
Temperature Measurement	Testo 405i Thermal Anemometer (419)

**Table 3. Lamp Conditioning and Setup**

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

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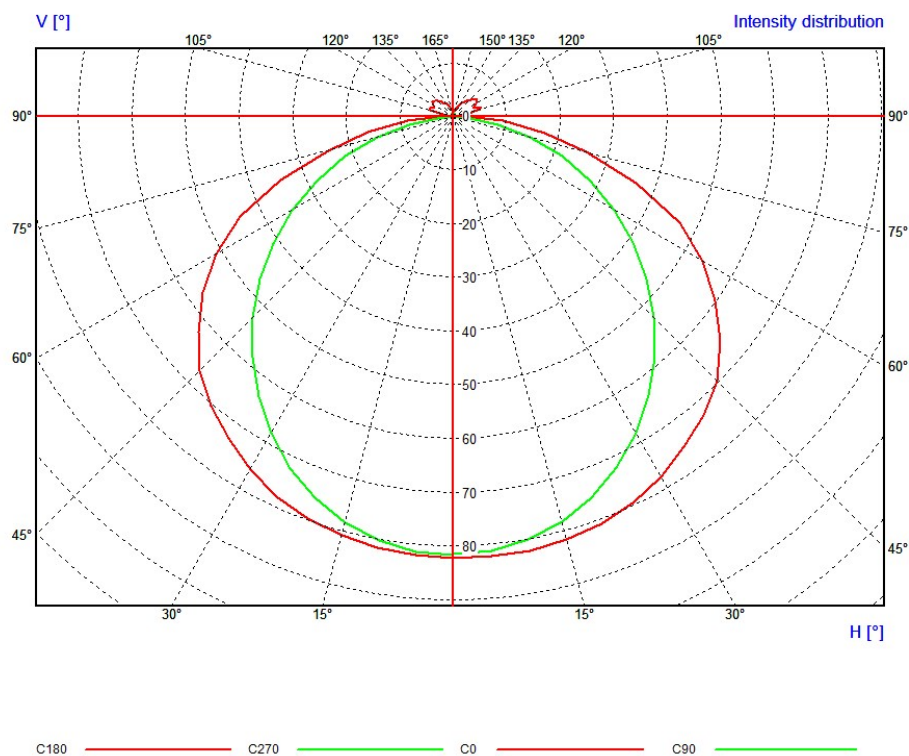
## TEST RESULTS

**Table 4. Test Environmental and Operating Conditions**

Ambient Temperature (°C)	25.1
Voltage (V)	240
Current (mA)	259
Power (W)	24.78
Power Factor	0.40

**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 (°)
281	11	82.2	Horizontal	110.2
			Vertical	134.2



**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	82.0	82.0	82.0	82.0	81.9	81.9	81.9	81.9	81.9	82.0	82.0	82.0
5	82.1	82.2	82.1	82.1	82.0	82.0	82.0	82.0	82.0	81.9	82.0	81.9
10	82.0	82.0	81.9	81.9	81.8	81.7	81.7	81.6	81.5	81.4	81.3	81.1
15	81.4	81.5	81.4	81.2	81.1	80.9	80.8	80.7	80.5	80.2	80.0	79.8
20	80.6	80.6	80.6	80.4	80.1	79.8	79.6	79.3	78.9	78.5	78.2	77.9
25	79.3	79.3	79.3	79.0	78.7	78.3	77.9	77.4	76.9	76.5	75.9	75.3
30	77.4	77.4	77.3	77.1	76.7	76.2	75.7	75.1	74.4	73.7	73.0	72.2
35	74.9	74.9	74.8	74.6	74.1	73.5	72.8	72.2	71.3	70.4	69.5	68.6
40	72.5	72.5	72.3	71.8	71.2	70.5	69.7	68.8	67.7	66.6	65.5	64.4
45	69.4	69.4	69.2	68.8	68.1	67.3	66.4	65.3	64.1	62.8	61.5	60.1
50	64.8	64.8	64.5	64.0	63.3	62.5	61.6	60.5	59.2	57.8	56.4	55.0
55	59.6	59.5	59.2	58.7	57.9	57.1	55.9	54.7	53.3	51.9	50.5	49.0
60	53.7	53.6	53.3	52.8	52.0	51.0	49.9	48.5	47.0	45.5	44.1	42.6
65	46.4	46.4	46.1	45.7	45.0	44.0	42.9	41.7	40.3	38.8	37.3	35.8
70	36.2	36.2	36.1	35.9	35.5	35.0	34.2	33.2	32.1	30.9	29.7	28.4
75	25.5	25.5	25.4	25.1	24.7	24.2	23.7	23.0	22.4	21.5	20.7	19.8
80	17.3	17.3	17.2	17.0	16.7	16.2	15.7	15.1	14.5	13.8	13.1	12.4
85	9.2	9.2	9.2	9.1	9.0	8.7	8.5	8.1	7.7	7.3	6.8	6.3
90	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.0	1.9	1.8	1.6
95	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.0	1.8	1.7	1.5
100	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.0	1.9	1.9	1.8
105	5.2	5.2	5.1	4.8	4.5	4.2	3.9	3.6	3.3	3.1	2.7	2.4
110	5.5	5.5	5.4	5.2	4.8	4.5	4.0	3.6	3.2	2.8	2.5	2.1
115	4.0	4.0	3.9	3.9	3.8	3.6	3.5	3.4	3.2	2.9	2.6	2.4
120	4.8	4.8	4.7	4.6	4.5	4.3	4.1	3.9	3.6	3.3	3.0	2.7
125	5.4	5.4	5.3	5.2	5.0	4.7	4.5	4.1	3.8	3.5	3.1	2.7
130	5.2	5.1	5.0	4.9	4.7	4.5	4.2	3.9	3.6	3.3	2.9	2.5
135	4.6	4.6	4.5	4.4	4.2	4.1	3.8	3.5	3.3	3.0	2.6	2.3
140	3.9	3.9	3.8	3.7	3.5	3.3	3.2	2.9	2.7	2.5	2.2	2.0
145	3.2	3.2	3.2	3.1	3.0	2.9	2.8	2.6	2.5	2.3	2.0	1.6
150	2.9	2.9	2.9	2.8	2.7	2.6	2.5	2.3	2.1	1.8	1.7	1.5
155	2.3	2.3	2.3	2.2	2.1	2.0	1.9	1.7	1.6	1.5	1.4	1.3
160	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.4	1.4	1.3	1.2	1.1
165	1.4	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.0
170	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1.0	1.0	1.0	0.9
175	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9
180	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

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**Table 6 Continued...**

Gamma	60	65	70	75	80	85	90	95	100	105	110	115
0	81.9	82.0	82.0	82.1	81.9	81.9	81.4	81.2	81.4	81.8	82.0	82.1
5	81.8	81.8	81.8	81.8	81.6	81.5	81.1	80.9	81.1	81.5	81.6	81.8
10	80.9	80.9	80.7	80.8	80.5	80.4	79.9	79.8	79.8	80.3	80.5	80.7
15	79.5	79.3	79.1	79.1	78.7	78.4	77.9	77.8	77.9	78.5	78.7	78.9
20	77.4	77.1	76.8	76.6	76.2	75.8	75.3	75.2	75.3	75.9	76.2	76.5
25	74.7	74.3	73.8	73.5	72.9	72.5	71.9	71.9	71.9	72.7	73.0	73.5
30	71.4	70.7	70.1	69.7	69.0	68.4	67.9	67.9	68.0	68.8	69.2	69.8
35	67.7	66.8	66.0	65.4	64.7	63.9	63.3	63.3	63.4	64.4	64.9	65.5
40	63.3	62.4	61.3	60.5	59.8	58.9	58.3	58.3	58.5	59.5	60.1	60.8
45	58.7	57.5	56.3	55.2	54.4	53.4	52.7	52.8	53.1	54.1	54.9	55.8
50	53.6	52.4	51.2	49.9	48.8	47.8	47.0	47.1	47.4	48.5	49.6	50.7
55	47.6	46.4	45.2	43.9	42.8	41.8	40.9	41.1	41.5	42.6	43.6	44.6
60	41.2	40.0	38.8	37.5	36.4	35.4	34.7	34.7	35.2	36.2	37.2	38.4
65	34.4	33.3	32.1	30.9	29.8	28.9	28.1	28.2	28.7	29.6	30.7	31.9
70	27.2	26.1	25.1	24.0	23.0	22.2	21.5	21.5	22.0	22.9	23.9	24.9
75	19.0	18.3	17.6	16.8	16.0	15.3	14.8	14.9	15.3	15.9	16.6	17.4
80	11.7	11.1	10.5	9.9	9.3	8.8	8.4	8.6	8.9	9.3	9.8	10.4
85	5.8	5.3	4.8	4.3	3.9	3.5	3.2	3.3	3.8	4.2	4.3	4.8
90	1.4	1.2	1.0	0.8	0.7	0.5	0.4	0.9	1.4	1.3	0.9	1.0
95	1.3	1.2	1.0	0.9	0.7	0.6	0.5	0.7	0.7	0.9	0.9	1.0
100	1.7	1.6	1.4	1.1	0.9	0.7	0.5	0.6	0.7	0.9	1.1	1.3
105	2.1	1.9	1.6	1.3	1.0	0.7	0.6	0.7	1.0	1.2	1.4	1.6
110	1.9	1.6	1.5	1.2	1.0	0.8	0.6	0.6	0.8	1.1	1.3	1.5
115	2.1	1.9	1.6	1.3	1.0	0.7	0.6	0.6	0.8	1.1	1.3	1.6
120	2.4	2.0	1.6	1.3	1.0	0.7	0.5	0.5	0.7	1.0	1.3	1.6
125	2.3	2.0	1.6	1.2	0.9	0.7	0.5	0.5	0.7	0.9	1.2	1.6
130	2.2	1.9	1.4	1.1	0.8	0.6	0.5	0.5	0.7	0.9	1.1	1.4
135	1.9	1.5	1.2	1.0	0.8	0.6	0.5	0.5	0.6	0.8	1.0	1.2
140	1.6	1.4	1.2	1.0	0.8	0.6	0.5	0.5	0.6	0.8	1.0	1.1
145	1.4	1.3	1.1	0.9	0.7	0.6	0.5	0.5	0.6	0.7	0.9	1.1
150	1.3	1.2	1.0	0.9	0.7	0.6	0.6	0.6	0.6	0.7	0.9	1.0
155	1.2	1.1	1.0	0.8	0.7	0.7	0.6	0.6	0.6	0.7	0.8	0.9
160	1.0	0.9	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.8
165	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8
170	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
175	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.9
180	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

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**Table 6 Continued...**

Gamma	120	125	130	135	140	145	150	155	160	165	170	175
0	82.0	81.9	82.0	82.0	81.9	81.9	81.9	81.9	81.8	81.8	81.8	81.9
5	81.7	81.6	81.7	81.7	81.7	81.7	81.8	81.7	81.6	81.7	81.7	81.8
10	80.7	80.7	80.8	81.0	80.9	81.0	81.0	81.1	81.1	81.2	81.2	81.3
15	79.0	79.1	79.3	79.5	79.6	79.8	79.9	80.0	80.1	80.2	80.3	80.5
20	76.7	76.9	77.2	77.5	77.8	78.1	78.4	78.7	78.8	79.0	79.2	79.4
25	73.8	74.1	74.6	75.2	75.6	76.0	76.5	76.9	77.1	77.5	77.6	77.8
30	70.2	70.8	71.4	72.2	72.7	73.3	73.9	74.4	74.8	75.2	75.4	75.6
35	66.2	66.9	67.8	68.6	69.4	70.1	70.8	71.4	71.9	72.3	72.6	72.9
40	61.7	62.6	63.6	64.5	65.4	66.4	67.3	68.1	68.7	69.3	69.8	70.1
45	56.8	58.0	59.2	60.5	61.6	62.7	63.7	64.6	65.3	66.0	66.5	66.8
50	51.7	52.9	54.1	55.3	56.5	57.6	58.7	59.6	60.4	61.1	61.6	62.0
55	45.8	46.9	48.2	49.4	50.6	51.7	53.0	54.2	55.1	55.9	56.5	56.9
60	39.5	40.6	41.8	43.0	44.4	45.7	47.0	48.2	49.2	49.9	50.6	51.0
65	32.8	33.9	35.1	36.4	37.7	39.0	40.2	41.2	42.2	42.9	43.5	43.8
70	25.8	26.8	27.8	29.0	30.0	31.0	32.0	32.8	33.5	33.9	34.1	34.3
75	18.1	18.7	19.4	20.2	20.9	21.6	22.1	22.8	23.3	23.7	24.0	24.2
80	11.0	11.5	12.1	12.7	13.2	13.9	14.5	15.0	15.4	15.7	16.0	16.1
85	5.2	5.7	6.1	6.5	7.0	7.4	7.7	8.0	8.2	8.4	8.5	8.6
90	1.2	1.4	1.6	1.7	1.9	2.0	2.1	2.1	2.2	2.2	2.2	2.1
95	1.2	1.3	1.5	1.6	1.8	2.0	2.0	2.0	1.9	1.9	1.9	1.8
100	1.5	1.6	1.7	1.8	1.8	1.9	2.0	2.0	2.0	2.1	2.1	2.1
105	1.7	2.0	2.1	2.4	2.6	2.8	3.1	3.4	3.7	3.9	4.2	4.4
110	1.7	1.9	2.1	2.4	2.7	2.9	3.3	3.6	4.0	4.3	4.6	4.8
115	1.8	2.1	2.3	2.6	2.8	3.0	3.3	3.5	3.6	3.7	3.9	3.9
120	1.9	2.3	2.6	2.9	3.2	3.5	3.7	3.9	4.1	4.2	4.3	4.3
125	1.9	2.2	2.6	2.9	3.3	3.6	3.9	4.1	4.3	4.6	4.7	4.8
130	1.8	2.1	2.5	2.8	3.1	3.4	3.7	3.9	4.1	4.3	4.5	4.6
135	1.6	1.9	2.3	2.5	2.8	3.1	3.3	3.5	3.7	3.9	4.0	4.1
140	1.3	1.6	1.9	2.2	2.4	2.6	2.8	3.0	3.2	3.3	3.4	3.5
145	1.2	1.4	1.6	1.9	2.1	2.3	2.5	2.6	2.7	2.8	2.9	2.9
150	1.1	1.3	1.4	1.6	1.8	2.0	2.2	2.4	2.5	2.5	2.6	2.6
155	1.0	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.1
160	0.9	1.0	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.5	1.6	1.6
165	0.8	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.2	1.3	1.3
170	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.1
175	0.9	0.9	0.8	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0
180	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7

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**Table 6 Continued...**

Gamma	180	185	190	195	200	205	210	215	220	225	230	235
0	82.0	82.1	82.1	82.0	81.9	81.9	82.0	82.0	82.0	82.0	82.0	82.0
5	81.8	81.9	81.9	81.9	81.8	81.8	81.8	81.8	81.8	81.8	81.8	81.7
10	81.4	81.5	81.4	81.4	81.3	81.2	81.2	81.2	81.1	81.0	80.9	80.8
15	80.6	80.7	80.6	80.5	80.4	80.2	80.1	80.0	79.8	79.7	79.5	79.3
20	79.5	79.6	79.5	79.4	79.2	78.9	78.7	78.4	78.1	77.8	77.5	77.2
25	78.0	78.0	77.9	77.8	77.5	77.2	76.8	76.4	75.9	75.5	75.0	74.5
30	75.8	75.7	75.6	75.5	75.2	74.8	74.3	73.8	73.2	72.6	71.9	71.3
35	73.1	73.0	72.9	72.7	72.3	71.8	71.3	70.7	69.9	69.2	68.4	67.6
40	70.3	70.3	70.1	69.8	69.2	68.6	67.8	67.0	66.1	65.2	64.2	63.3
45	66.9	66.9	66.7	66.4	65.8	65.1	64.3	63.4	62.4	61.3	60.0	58.9
50	62.2	62.1	61.8	61.5	60.9	60.2	59.5	58.5	57.3	56.1	54.9	53.7
55	57.1	57.0	56.7	56.2	55.6	54.8	53.9	52.6	51.3	50.2	49.0	47.7
60	51.1	51.1	50.8	50.3	49.6	48.8	47.8	46.6	45.3	43.9	42.6	41.4
65	44.0	44.0	43.8	43.4	42.7	41.9	40.9	39.8	38.5	37.2	35.9	34.6
70	34.4	34.4	34.3	34.1	33.7	33.2	32.5	31.7	30.6	29.6	28.5	27.4
75	24.2	24.2	24.1	23.9	23.5	23.1	22.5	21.9	21.4	20.6	19.9	19.2
80	16.2	16.2	16.1	15.9	15.6	15.2	14.8	14.2	13.6	13.0	12.4	11.8
85	8.6	8.6	8.6	8.5	8.3	8.1	7.9	7.6	7.2	6.8	6.3	5.9
90	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.0	1.9	1.8	1.7	1.5
95	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.0	1.9	1.7	1.5	1.3
100	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.8	1.7	1.7	1.6
105	4.5	4.5	4.3	4.1	3.9	3.6	3.3	3.0	2.8	2.6	2.4	2.1
110	4.9	4.8	4.7	4.5	4.2	3.8	3.5	3.2	2.8	2.6	2.3	2.1
115	4.0	4.0	3.9	3.8	3.7	3.5	3.4	3.2	3.0	2.8	2.5	2.2
120	4.4	4.4	4.3	4.3	4.1	4.0	3.9	3.7	3.4	3.1	2.8	2.5
125	4.8	4.8	4.8	4.7	4.5	4.3	4.1	3.8	3.5	3.2	2.8	2.5
130	4.6	4.6	4.5	4.4	4.2	4.1	3.8	3.6	3.3	3.0	2.7	2.4
135	4.2	4.2	4.1	4.0	3.9	3.7	3.5	3.3	3.0	2.8	2.5	2.2
140	3.6	3.5	3.5	3.4	3.3	3.1	3.0	2.8	2.6	2.4	2.1	1.9
145	3.0	3.0	2.9	2.9	2.8	2.7	2.6	2.5	2.3	2.1	1.9	1.6
150	2.7	2.7	2.6	2.6	2.5	2.5	2.4	2.2	2.0	1.7	1.6	1.4
155	2.2	2.2	2.1	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.2
160	1.6	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.3	1.2	1.1	1.1
165	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.1	1.1	1.0	1.0	1.0
170	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1.0	1.0	1.0	0.9	0.9
175	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.8	0.8
180	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

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**Table 6 Continued...**

Gamma	240	245	250	255	260	265	270	275	280	285	290	295
0	81.9	81.9	82.0	82.2	81.9	82.0	81.6	81.3	81.5	81.8	82.0	82.1
5	81.6	81.6	81.7	81.8	81.5	81.6	81.1	80.9	81.1	81.5	81.7	81.9
10	80.6	80.6	80.6	80.7	80.4	80.5	80.0	79.8	80.0	80.4	80.7	80.9
15	79.0	78.9	78.8	78.9	78.5	78.5	78.1	77.9	78.1	78.6	78.9	79.2
20	76.8	76.6	76.4	76.4	75.9	75.9	75.4	75.3	75.5	76.2	76.5	76.9
25	74.0	73.7	73.3	73.2	72.7	72.5	72.1	72.0	72.2	73.0	73.4	73.9
30	70.7	70.0	69.6	69.4	68.8	68.4	68.0	68.0	68.3	69.1	69.7	70.2
35	66.8	66.0	65.3	65.0	64.3	63.8	63.4	63.5	63.8	64.7	65.4	66.1
40	62.4	61.5	60.6	60.1	59.4	58.8	58.3	58.4	58.8	59.8	60.6	61.5
45	57.7	56.7	55.6	54.8	54.0	53.3	52.9	53.0	53.5	54.5	55.4	56.6
50	52.5	51.6	50.5	49.4	48.4	47.6	47.0	47.2	47.8	48.9	50.1	51.4
55	46.5	45.5	44.5	43.4	42.4	41.6	41.0	41.2	41.8	42.9	44.1	45.4
60	40.2	39.2	38.1	37.0	36.0	35.2	34.7	34.8	35.4	36.5	37.7	39.0
65	33.4	32.5	31.5	30.4	29.4	28.7	28.2	28.3	28.9	29.9	31.1	32.4
70	26.3	25.4	24.6	23.6	22.7	22.0	21.5	21.6	22.1	23.1	24.2	25.3
75	18.5	17.9	17.2	16.5	15.8	15.2	14.8	14.9	15.3	16.1	16.8	17.7
80	11.2	10.7	10.2	9.6	9.1	8.7	8.3	8.4	8.8	9.3	9.9	10.6
85	5.5	5.0	4.5	4.1	3.7	3.3	3.0	3.1	3.4	3.9	4.3	4.9
90	1.3	1.2	1.0	0.7	0.6	0.4	0.3	0.3	0.4	0.6	0.8	1.0
95	1.2	1.1	0.9	0.8	0.6	0.5	0.3	0.4	0.5	0.7	0.9	1.0
100	1.6	1.5	1.2	1.0	0.7	0.6	0.4	0.5	0.6	0.9	1.1	1.4
105	1.9	1.7	1.5	1.2	1.0	0.8	0.6	0.6	0.8	1.0	1.2	1.6
110	1.8	1.6	1.4	1.1	0.9	0.7	0.5	0.6	0.7	1.0	1.3	1.5
115	2.0	1.7	1.5	1.2	0.9	0.6	0.5	0.6	0.7	1.0	1.3	1.6
120	2.1	1.9	1.5	1.2	0.8	0.6	0.5	0.5	0.7	1.0	1.4	1.7
125	2.1	1.8	1.5	1.1	0.8	0.6	0.5	0.5	0.7	0.9	1.2	1.7
130	2.0	1.7	1.3	1.0	0.8	0.6	0.5	0.5	0.7	0.9	1.1	1.5
135	1.9	1.5	1.2	1.0	0.7	0.6	0.5	0.5	0.6	0.8	1.0	1.3
140	1.5	1.3	1.1	0.9	0.7	0.6	0.5	0.5	0.6	0.8	1.0	1.2
145	1.4	1.2	1.0	0.8	0.7	0.6	0.5	0.5	0.6	0.8	0.9	1.1
150	1.3	1.1	1.0	0.8	0.7	0.6	0.6	0.6	0.7	0.8	0.9	1.0
155	1.1	1.0	0.9	0.8	0.7	0.6	0.6	0.6	0.7	0.7	0.8	1.0
160	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.8
165	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8
170	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9
175	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9
180	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

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**Table 6 Continued...**

Gamma	300	305	310	315	320	325	330	335	340	345	350	355
0	82.0	81.9	81.9	82.0	81.9	81.9	82.0	81.9	81.8	81.8	81.8	81.9
5	81.9	81.8	81.9	81.9	81.9	81.9	81.9	81.9	81.8	81.9	81.9	82.0
10	81.0	80.9	81.1	81.3	81.3	81.4	81.5	81.6	81.6	81.7	81.7	81.9
15	79.4	79.5	79.8	80.1	80.2	80.4	80.7	80.8	80.8	81.0	81.1	81.3
20	77.2	77.5	77.9	78.3	78.6	78.9	79.3	79.6	79.8	80.1	80.2	80.5
25	74.4	74.8	75.4	76.1	76.5	77.0	77.6	78.0	78.4	78.7	78.9	79.2
30	70.9	71.6	72.4	73.2	73.9	74.6	75.3	75.9	76.3	76.7	77.0	77.2
35	67.0	67.9	68.9	69.8	70.7	71.6	72.3	73.1	73.7	74.1	74.5	74.8
40	62.5	63.6	64.7	65.9	66.9	68.0	69.0	69.9	70.7	71.4	72.0	72.3
45	57.8	59.2	60.6	61.9	63.2	64.5	65.6	66.7	67.6	68.3	68.9	69.3
50	52.7	54.0	55.4	56.8	58.2	59.5	60.8	61.9	62.9	63.7	64.2	64.7
55	46.7	48.0	49.4	50.9	52.3	53.7	55.0	56.3	57.4	58.3	58.9	59.4
60	40.3	41.6	43.0	44.5	46.0	47.4	48.9	50.2	51.3	52.3	53.0	53.5
65	33.6	34.8	36.2	37.7	39.2	40.7	42.0	43.3	44.3	45.2	45.8	46.2
70	26.4	27.6	28.8	30.0	31.2	32.4	33.5	34.4	35.1	35.6	35.9	36.1
75	18.4	19.2	20.0	20.8	21.7	22.5	23.1	23.8	24.4	24.8	25.2	25.4
80	11.3	11.9	12.6	13.2	13.9	14.6	15.2	15.8	16.3	16.7	17.0	17.2
85	5.4	5.9	6.4	6.9	7.3	7.8	8.1	8.5	8.8	9.0	9.1	9.2
90	1.2	1.4	1.6	1.8	1.9	2.0	2.2	2.2	2.3	2.3	2.3	2.2
95	1.2	1.3	1.5	1.7	1.9	2.0	2.1	2.0	2.0	2.0	2.0	2.0
100	1.6	1.7	1.8	1.9	1.9	2.0	2.1	2.1	2.2	2.2	2.3	2.3
105	1.9	2.1	2.4	2.6	3.0	3.2	3.5	3.8	4.1	4.4	4.7	5.0
110	1.7	2.0	2.2	2.5	2.7	3.0	3.4	3.8	4.4	4.9	5.2	5.4
115	1.9	2.2	2.5	2.8	3.0	3.3	3.5	3.7	3.7	3.7	3.8	3.9
120	2.1	2.4	2.8	3.2	3.5	3.9	4.2	4.4	4.5	4.6	4.7	4.7
125	2.0	2.4	2.7	3.2	3.5	3.9	4.3	4.6	4.9	5.1	5.3	5.4
130	1.9	2.3	2.6	3.0	3.3	3.7	4.0	4.3	4.5	4.8	5.0	5.1
135	1.6	2.0	2.4	2.7	3.0	3.4	3.6	3.8	4.1	4.2	4.4	4.5
140	1.4	1.7	2.0	2.3	2.5	2.8	3.0	3.2	3.4	3.6	3.8	3.9
145	1.3	1.5	1.7	2.0	2.3	2.5	2.6	2.8	2.9	3.0	3.1	3.2
150	1.2	1.4	1.5	1.6	1.8	2.1	2.4	2.5	2.6	2.7	2.8	2.9
155	1.1	1.2	1.3	1.4	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3
160	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.6	1.7
165	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.4
170	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.2
175	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0
180	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7

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## CONE DIAGRAM

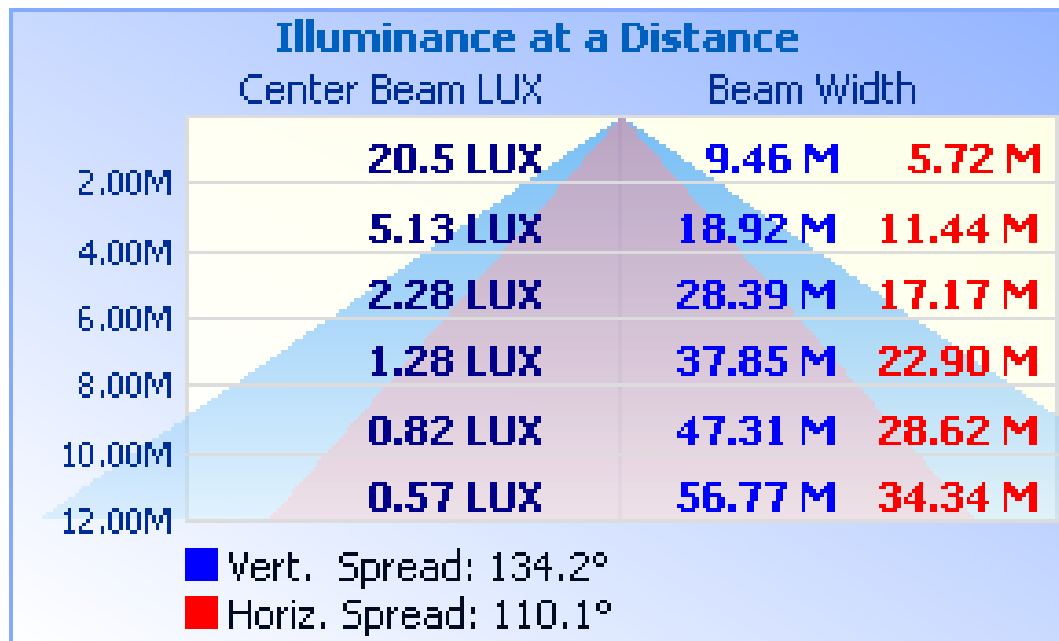


Figure 2. Cone diagram for mounting height up to 12 metres

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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	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2H	3H	<10.0	10.8	<10.0	11.3	11.7	<10.0	<10.0	<10.0	<10.0	<10.0
2H	4H	10.2	11.5	10.6	12	12.5	<10.0	<10.0	<10.0	<10.0	<10.0
2H	6H	10.8	12.1	11.3	12.6	13.1	<10.0	<10.0	<10.0	<10.0	10.2
2H	8H	11.1	12.3	11.6	12.8	13.3	<10.0	<10.0	<10.0	<10.0	10.3
2H	12H	11.3	12.4	11.8	12.9	13.4	<10.0	<10.0	<10.0	<10.0	10.3
4H	2H	<10.0	<10.0	<10.0	<10.0	10.3	<10.0	<10.0	<10.0	<10.0	<10.0
4H	3H	10.2	11.4	10.7	11.9	12.4	<10.0	<10.0	<10.0	<10.0	10.4
4H	4H	11.2	12.2	11.7	12.7	13.3	<10.0	10	<10.0	10.5	11.1
4H	6H	11.9	12.9	12.5	13.4	14	<10.0	10.4	<10.0	10.9	11.4
4H	8H	12.3	13.2	12.8	13.7	14.3	<10.0	10.4	10.1	11	11.5
4H	12H	12.6	13.4	13.1	13.9	14.5	<10.0	10.5	10.2	11	11.6
8H	4H	11.4	12.3	11.9	12.8	13.4	<10.0	10.3	10	10.9	11.4
8H	6H	12.3	13.1	12.9	13.6	14.2	10.1	10.8	10.6	11.4	12
8H	8H	12.8	13.5	13.4	14.1	14.7	10.4	11	10.9	11.6	12.2
8H	12H	13.2	13.8	13.8	14.4	15	10.5	11	11.1	11.6	12.2
12H	4H	11.4	12.2	12	12.8	13.4	<10.0	10.4	10.1	10.9	11.5
12H	6H	12.4	13.1	13	13.7	14.3	10.3	10.9	10.9	11.5	12.1
12H	8H	12.9	13.5	13.5	14.1	14.7	10.5	11.1	11.1	11.7	12.3

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**DEVIATION(S) FROM TEST STANDARD**

No reported deviations from test standard.

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## IDENTIFICATION OF PHOTOMETRIC CENTRE

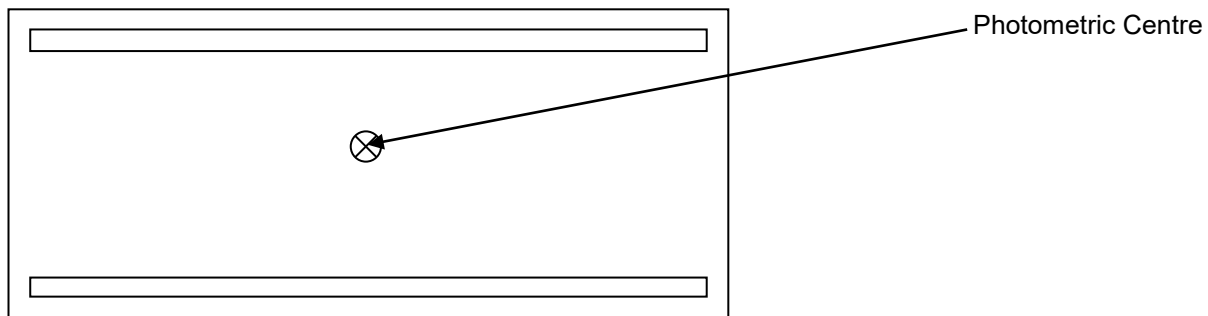


Figure 3. *Product photometric centre*

## ILLUSTRATION



Figure 4. *Product image*

End