

L I A V e r i f i e d S c h e d u l e o f C e r t i f i c a t i o n



Schedule No. : TSD004-0048 (Issue 1)
Certificate No. : 004-0048
Certificate Holder: : White Label Lighting Ltd
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Date of Initial Registration : 08/02/2018
Date of Issue : 08/02/2018
Date of Expiry : 07/02/2021



This Schedule is to be read in conjunction with the accompanying certificate. The data shown relates only to the unit(s) tested. This schedule and any subsequent schedule(s) may not be reproduced except in full without the written approval of the Testing Laboratory.

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1. INTRODUCTION

This Schedule of certification accompanies the certificate identified on page one as part of the LIA Verified scheme for LED products. Assessment is carried out in line with the requirements set out in LIA Laboratories Technical Scheme Document TSD-004.

2. CERTIFICATION STATUS

Final - The products have passed the safety assessment and have achieved 2000 hours of operation as required by the scheme.

3. SCOPE

The products listed in Table 1, supplied by the certificate holder identified on page one have been assessed and are covered under certificate no. 004-0048.

Table 1. Products covered under scope

Model No.	Product Name
D1-RGB	APP Control RGB Halo LED Downlight
D1-CCT	APP Control White Halo LED Downlight

4. DOCUMENTATION

As part of the assessment process the following documents have been evaluated and form part of the Technical File held by the certificate holder and LIA Laboratories Ltd. It should be noted that in order to maintain certification the certificate holder is required to maintain up to date technical documentation related to all of the products identified in section three of this schedule.

All client documentation held by LIA Laboratories Ltd is maintained as strictly confidential.

Table 2. Critical Documents

Document reference	Title/Description
LCS1703223085E	Certificate of Conformity
LCS1703223085E	EMC Test Report
LCS1703223084S	Certificate of Conformity
LCS1703223086S	LVD Report
CFR1602231	30min fire test
CFR1602241	60min fire test
CFR1602251	90min fire test
17-211033	EU-Type Examination Certificate
LCS170322013AS	IEC 60950-1 Test Report
LCS170322013BS	EN 62471 Test Report
LCS1703223087E	EMC Test Report
LCS1703223088E	Radio Test Report
LCS1703223089E	Health Test Report

5. OBSERVATIONS AND LIMITATIONS

When installed in accordance with the manufacturer's instructions, this product is deemed to comply with the specified end use.



APPENDIX A

PRODUCT TECHNICAL SPECIFICATIONS

A.1. APP Control RGB Halo LED Downlight

A.1.1. PRODUCT DETAILS

Table A.1 *Product Specifications*

Product Name	APP Control RGB Halo LED Downlight
Model No.	D1-RGB
Product Description	LED Downlight
Nominal Dimensions	Ø – 85mm; H – 40mm
Product Supply Requirement	200-240V, 50/60Hz
Lamp Type and Power	LED, 10W



Figure 1. *Product Images*

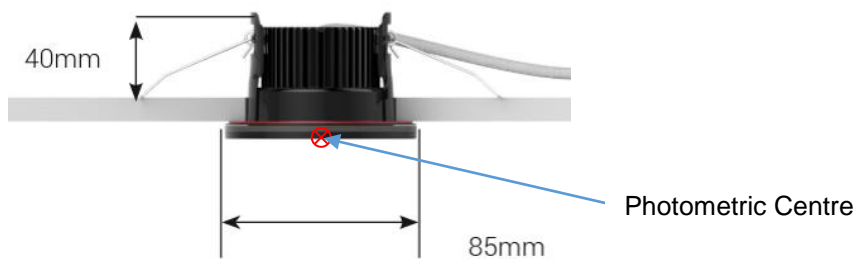


Figure 2. *Product diagram*

A.1.2. SAFETY EVALUATION

Safety assessment was carried out in accordance with the requirements set in LIA Laboratories' technical scheme document TSD-004, the clauses verified are shown in Table 2 and have been evaluated against IEC 60598-1:2014 and IEC 60598-2-1:1979.

The product has been found to conform to the requirements laid out in the identified clauses.

Table A.2 Safety Test Results

Clause No.	Title
2.6	Marking
2.7	Construction
2.12	Protection against Electric Shock
2.15	Insulation Resistance and Electric Strength, Touch Current and Protective Conductor Current
2.8	Creepage Distances and Clearances
2.13	Thermal Test Only (Normal Operation)

A.1.3. CENTRE BEAM INTENSITY AND BEAM ANGLE

Table A.3 *Beam Angle value for APP Control RGB Halo LED Downlight*

Centre Beam Intensity (cd)	Beam Angle (<i>Lamp orientation</i>)	Beam Angle Result (°)
507	0° - 180°	75.4
	90° - 270°	73.6

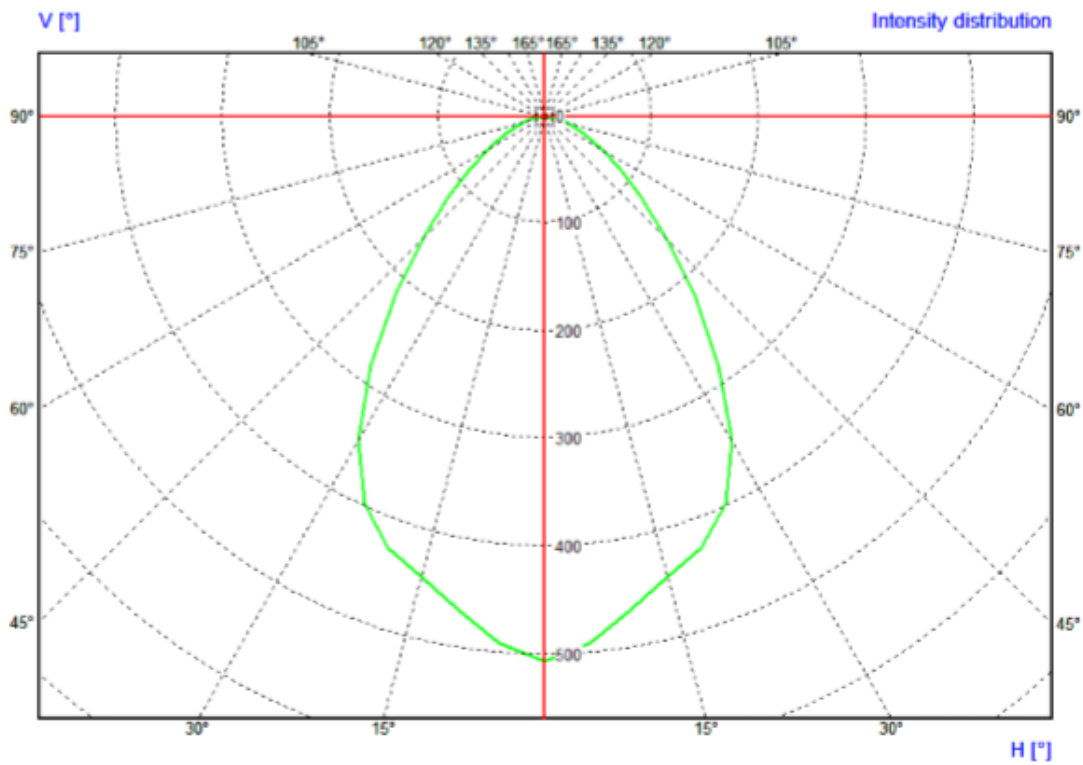


Figure 3. *Polar Diagram for APP Control RGB Halo LED Downlight*

A.1.4. COLORIMETRY

Table A.4 *Colorimetry values for APP Control RGB Halo LED Downlight*

COLORIMETRY & LUMINOUS FLUX	x coordinate	0.3151
	y coordinate	0.3317
	u' coordinate	0.1985
	v' coordinate	0.4701
	Colour Temperature (K)	6357
	Ra (%)	85.9
	R1 (%)	85.6
	R2 (%)	94.9
	R3 (%)	94.6
	R4 (%)	80.6
	R5 (%)	84.4
	R6 (%)	89.3
	R7 (%)	86.3
	R8 (%)	71.5
	R9 (%)	23.1
	R10 (%)	85.5
	R11 (%)	80.3
R12 (%)	61.1	
R13 (%)	89.4	
R14 (%)	97.8	
Lumen Output (lm)	770	

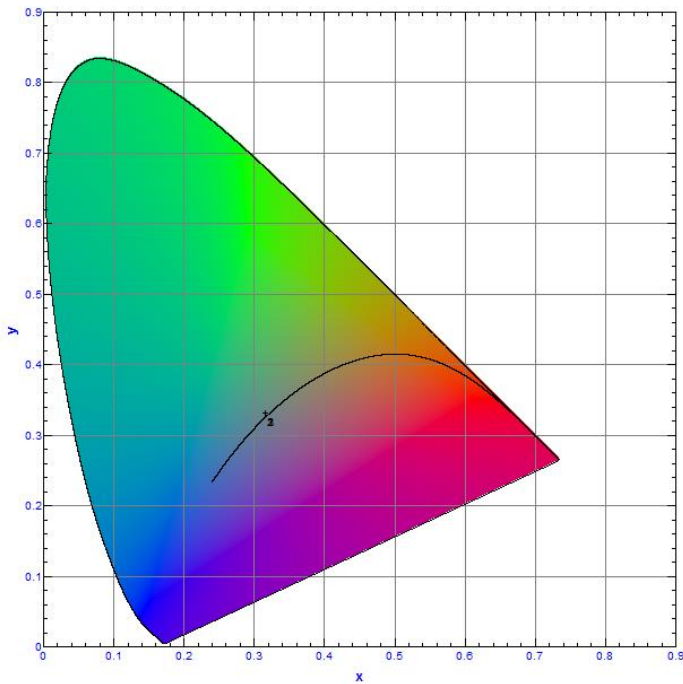


Figure 4. CIE 1931 diagram for APP Control RGB Halo LED Downlight

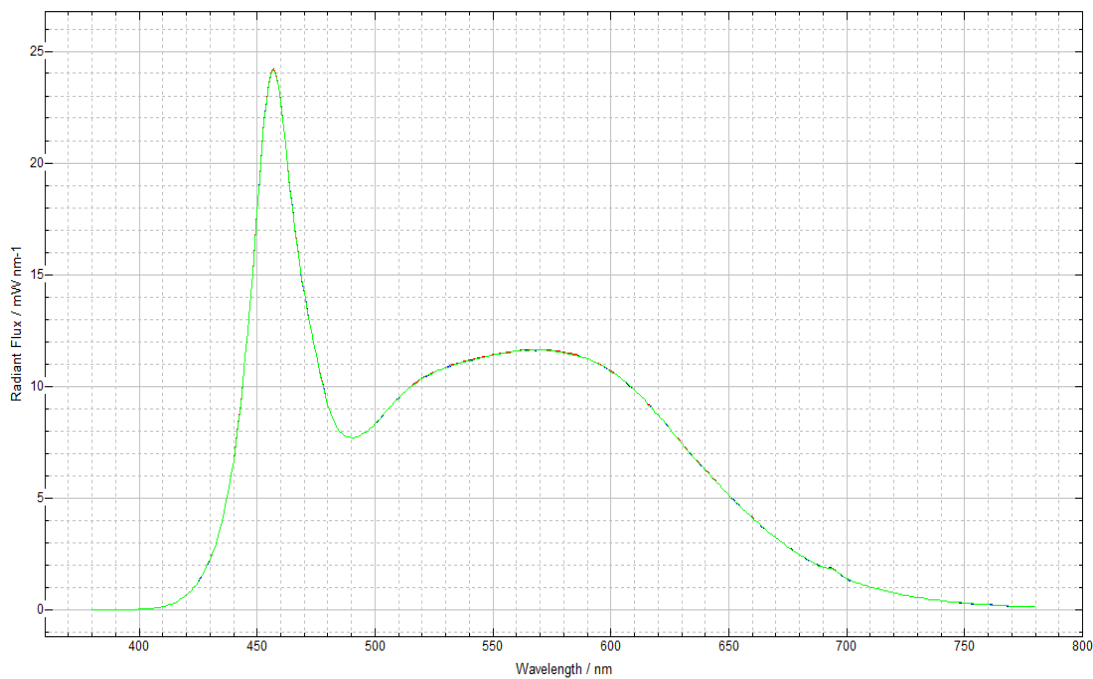


Figure 5. Spectral flux for APP Control RGB Halo LED Downlight

A.1.5. LIFE TEST

Table A.5 *Colorimetry depreciation of APP Control RGB Halo LED Downlight*

Measured Value	0 hours	100 hours	% Maintained (0-100hrs)	2000 hours	% Maintained (0-2000hrs)
Correlated Colour Temperature (K)	6357	6334	99.6	6491	102.1
Ra (%)	85.9	85.8	99.9	85.5	99.5
Luminous Flux (lm)	770	793	103.0	732	95.1
Luminous Efficacy (lm/W)	76.2	79.1	103.8	72.8	95.5

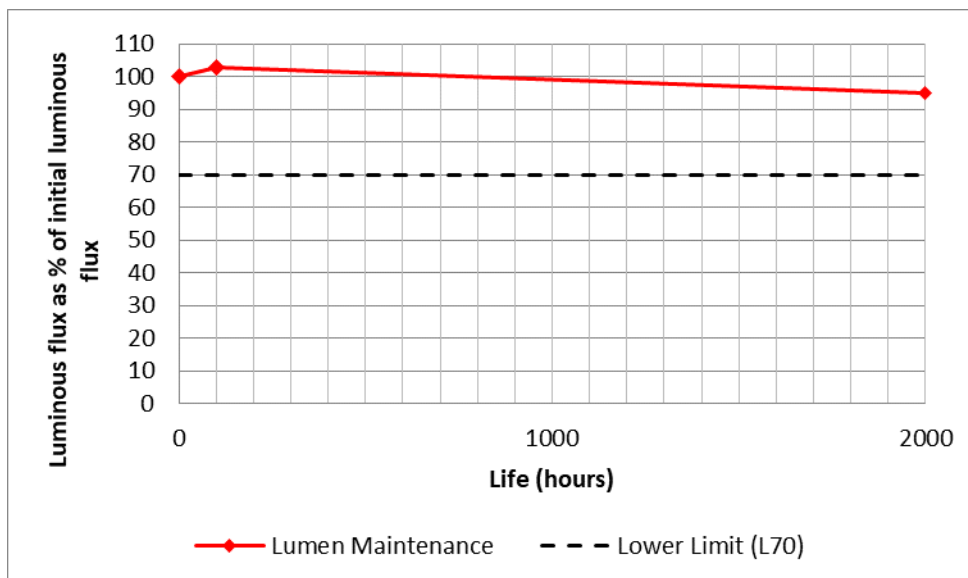


Figure 5. *Luminous flux depreciation curve for APP Control RGB Halo LED Downlight*

A.2. APP Control White Halo LED Downlight

A.2.1. PRODUCT DETAILS

Table A.6 Product Specifications

Product Name	APP Control White Halo LED Downlight
Model No.	D1-CCT
Product Description	LED Downlight
Nominal Dimensions	Ø – 85mm; H – 40mm
Product Supply Requirement	200-240V, 50/60Hz
Lamp Type and Power	LED, 10W

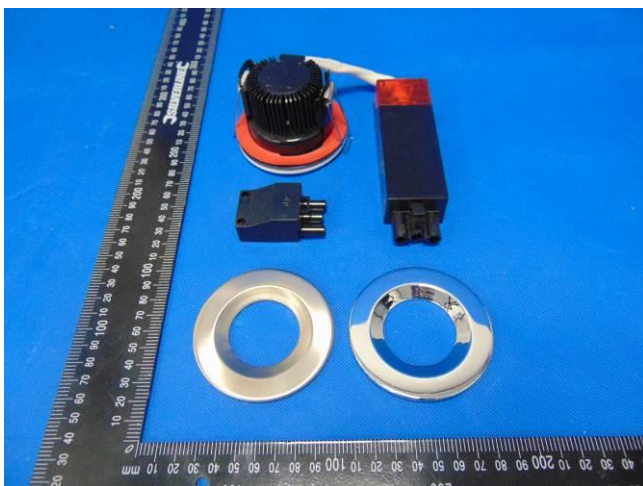


Figure 6. Product Images

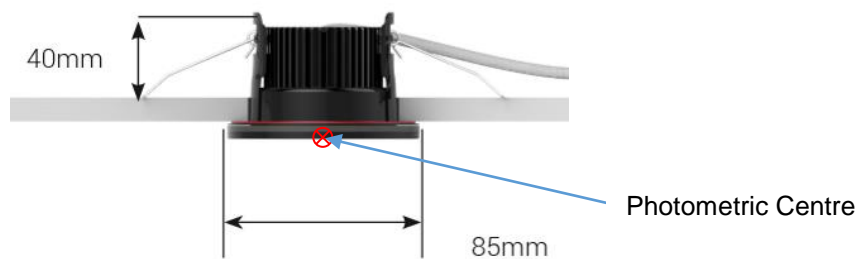


Figure 7. Product diagram

A.2.2. SAFETY EVALUATION

Safety assessment was carried out in accordance with the requirements set in LIA Laboratories' technical scheme document TSD-004, the clauses verified are shown in Table 2 and have been evaluated against IEC 60598-1:2014 and IEC 60598-2-1:1979.

The product has been found to conform to the requirements laid out in the identified clauses.

Table A.7 Safety Test Results

Clause No.	Title
2.6	Marking
2.7	Construction
2.12	Protection against Electric Shock
2.15	Insulation Resistance and Electric Strength, Touch Current and Protective Conductor Current
2.8	Creepage Distances and Clearances
2.13	Thermal Test Only (Normal Operation)

A.2.3. CENTRE BEAM INTENSITY AND BEAM ANGLE

Table A.8 *Beam Angle value for APP Control White Halo LED Downlight*

Centre Beam Intensity (cd)	Beam Angle (Lamp orientation)	Beam Angle Result (°)
505	0° - 180°	70.9
	90° - 270°	73.2

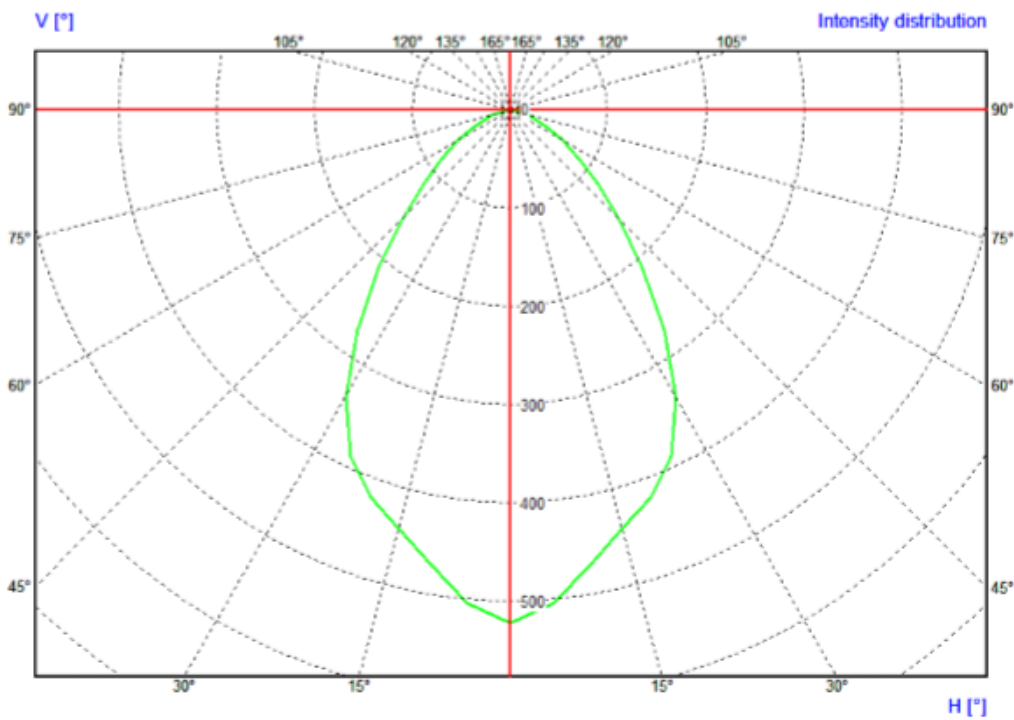


Figure 8. *Polar Diagram for APP Control White Halo LED Downlight*

A.2.4. COLORIMETRY

Table A.9 *Colorimetry values for APP Control White Halo LED Downlight*

COLORIMETRY & LUMINOUS FLUX	x coordinate	0.3152
	y coordinate	0.3326
	u' coordinate	0.1982
	v' coordinate	0.4706
	Colour Temperature (K)	6348
	Ra (%)	85.7
	R1 (%)	85.4
	R2 (%)	94.9
	R3 (%)	94.6
	R4 (%)	80.2
	R5 (%)	84.1
	R6 (%)	89.2
	R7 (%)	86.2
	R8 (%)	71.2
	R9 (%)	22.2
	R10 (%)	85.6
R11 (%)	80.0	
R12 (%)	60.7	
R13 (%)	89.2	
R14 (%)	97.7	
Lumen Output (lm)	753	

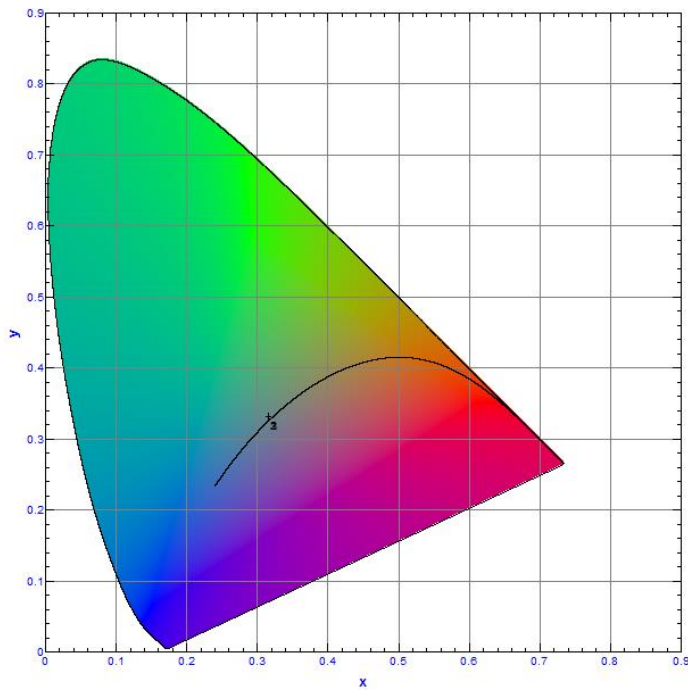


Figure 6. CIE 1931 diagram for APP Control White Halo LED Downlight

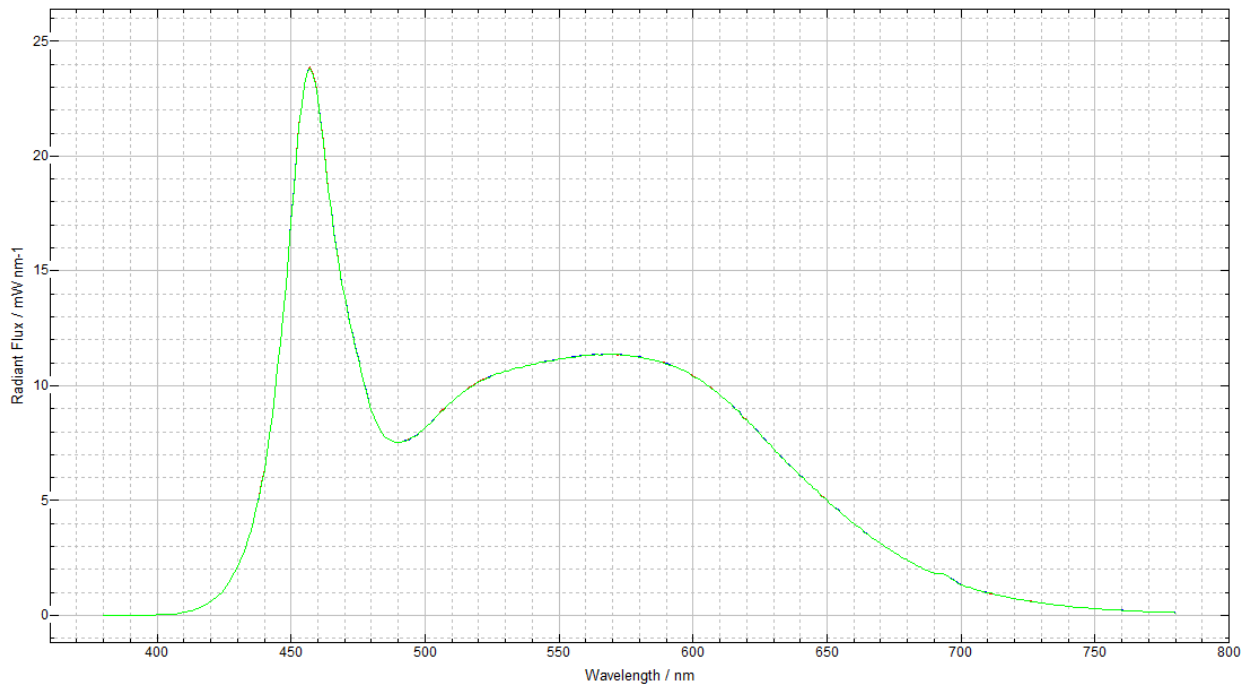


Figure 7. Spectral flux for APP Control White Halo LED Downlight



A.2.5. LIFE TEST

Due to the identical construction and critical components used in this model, the life assessment was carried out as a family variant. Life testing was conducted on the APP Control RGB Halo LED Downlight as this was considered to be the most onerous. Refer to section A.1.5 for the measured values.

END