

# 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.** : TSD004-0050 (Issue 2)

**Certificate No.** : 004-0050

**Certificate Holder:** : Collingwood Lighting  
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**Date of Initial Registration** : 04/12/2017

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**Date of Expiry** : 04/12/2020

**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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## 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.

### 1. CERTIFICATION STATUS

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

### 2. 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. 004-0050.

**Table 1. Products covered under scope**

Model No.	Product Name
DLT4074530	H2 Pro Elect
DLT4074540	H2 Pro Elect T



### 3. 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	Revision	Date of submission
17061202-E0	EMC of CW407 DTW 20170616	001	24/07/2017
17061201-E0	EMC of CW407 Standard 20170616	001	24/07/2017
HLI1115V2	HLI 1115 V2	001	24/07/2017
HLI1117V2	HLI 1117 V2	001	24/07/2017
17061301-L0	IEC 60598-2-2(2011) IEC 60598-1(2014) LVD for CW407 whole fitting 20170616	001	24/07/2017
17061301-LC0	IEC 61347-2-13(2016) LVD for CW407driver 20170616	001	24/07/2017

### 4. 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. DLT4074530

### A.1.1 PRODUCT DETAILS

Table A.1 *Product Specifications*

Product Name	H2 Pro Elect
Model No.	DLT4074530
Product Description	H2 Pro Elect LED Downlight
Nominal Dimensions	L - 156mm; W - 85mm; H - 51mm
Product Supply Requirement	220-240V AC, 50/60Hz
Lamp Type and Power	LED, 8.5W



Figure 1. *Product Images*

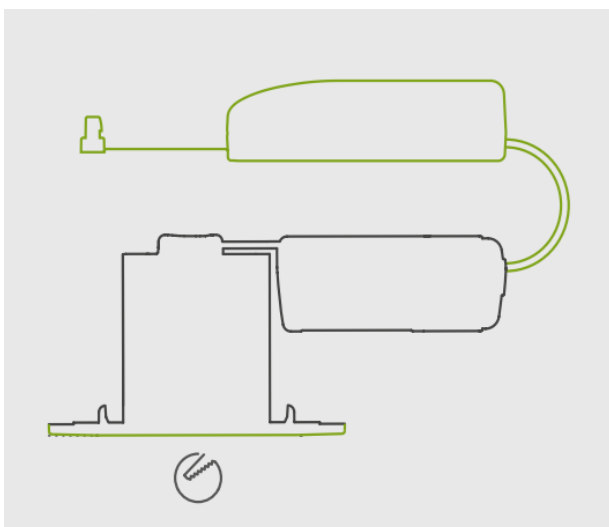


Figure 2. *Product diagram*

## 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 60598-2-2:2011.

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	Thermals test (normal operation only)

### A.1. 3 CENTRE BEAM INTENSITY AND BEAM ANGLE

Table A. 3 *Beam Angle value for DLT4074530*

Centre Beam Intensity (cd)	Beam Angle (Lamp orientation)	Beam Angle Result (°)
1347	0° - 180°	45.0
	90° - 270°	44.4

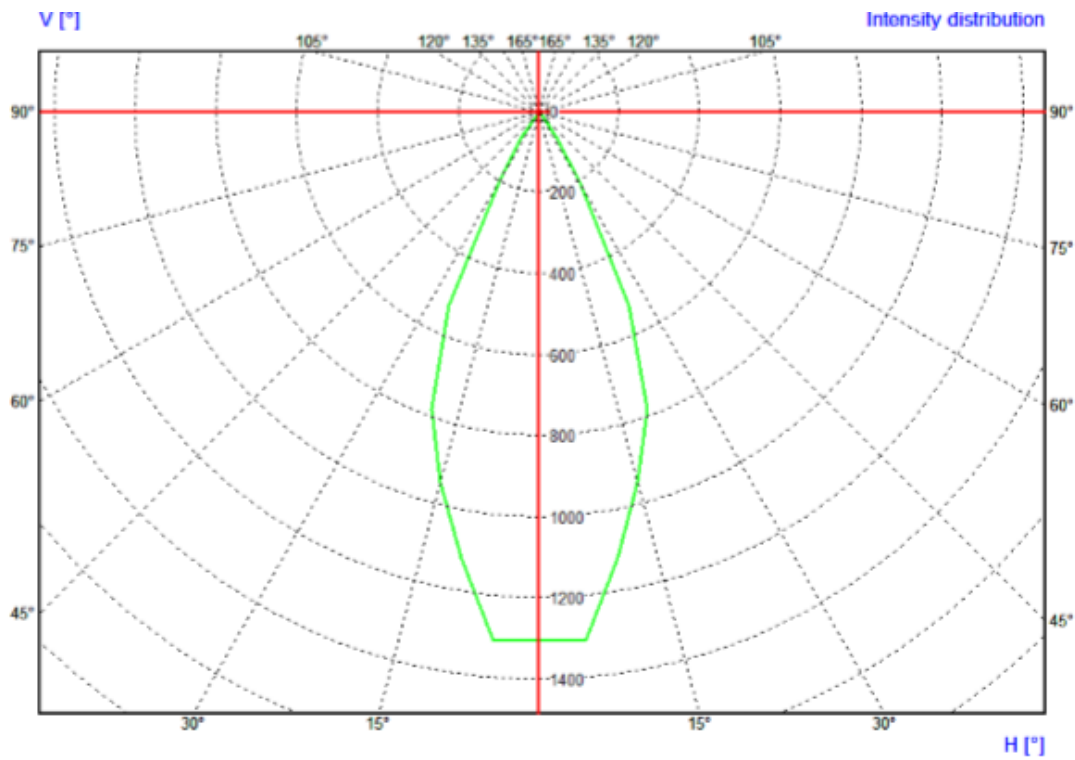


Figure 3. *Polar Diagram for DLT4074530*



## A.1. 4 COLORIMETRY

Table A. 4 *Colorimetry values for DLT4074530*

COLORIMETRY & LUMINOUS FLUX	x coordinate	0.4332
	y coordinate	0.3996
	u coordinate	0.2501
	v coordinate	0.3460
	u' coordinate	0.2501
	v' coordinate	0.5190
	Dominant Wavelength (nm)	583.2
	Purity (%)	50.0
	Correlated Colour Temperature (K)	3025
	Ra (%)	83.8
	R1 (%)	83.3
	R2 (%)	94.7
	R3 (%)	92.7
	R4 (%)	80.1
	R5 (%)	83.8
	R6 (%)	93.7
	R7 (%)	81.5
	R8 (%)	60.5
	R9 (%)	14.7
	R10 (%)	87.7
R11 (%)	79.1	
R12 (%)	78.2	
R13 (%)	86.5	
R14 (%)	96.6	
Lumen Output (lm)	665	

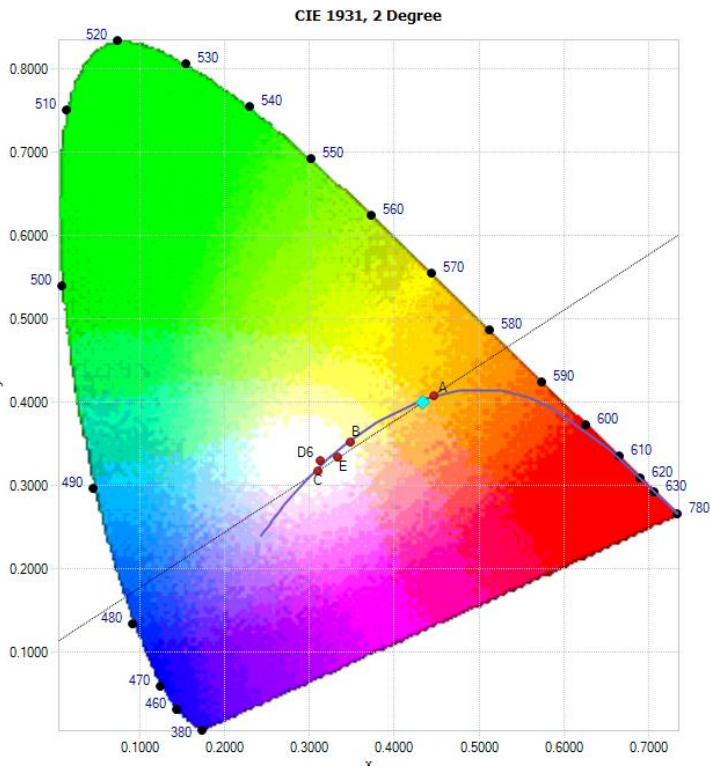


Figure 4. CIE 1931 diagram for DLT4074530

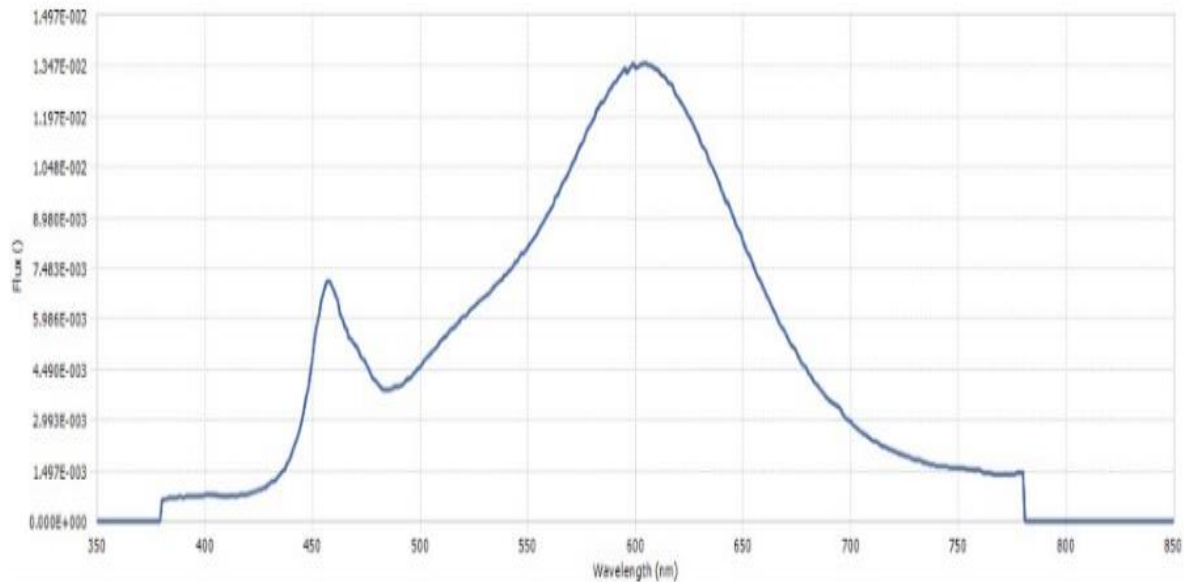


Figure 5. Spectral Irradiance for DLT4074530

### A.1. 5 LIFE TEST

Table A. 5 *Colorimetry depreciation of DLT4074530*

Measured Value	0 hours	100 hours	% Maintained (0-100hrs)	2000 hours	% Maintained (0-2000hrs)
Correlated Colour Temperature (K)	3025	3017	99.7	3076	101.7
Ra (%)	83.8	83.8	100.0	83.1	99.2
Luminous Flux (lm)	665	638	95.9	618	92.9
Luminous Efficacy (lm/W)	75.7	77.5	102.4	70.5	93.1

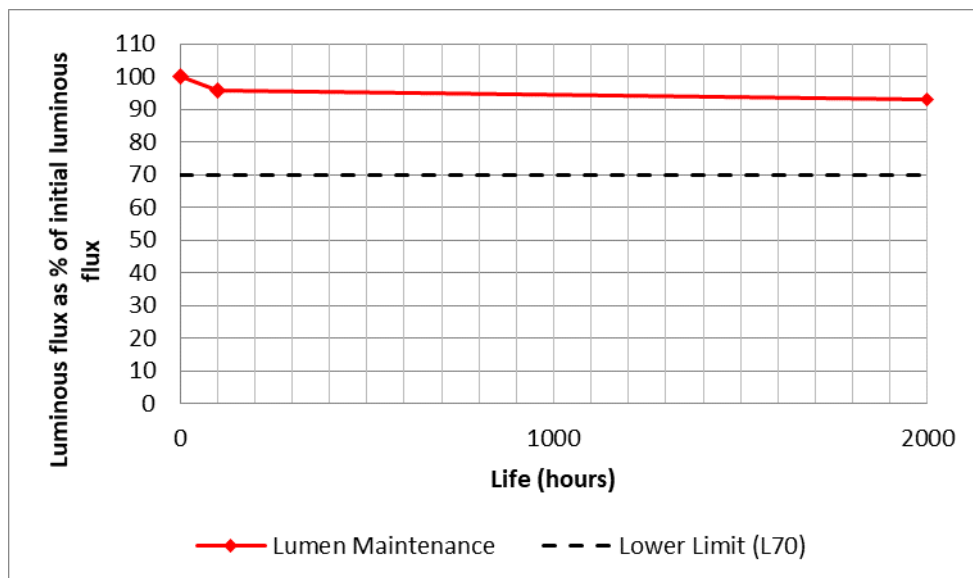


Figure 6. *Luminous flux depreciation curve for DLT4074530*

## A.2 DLT4074540

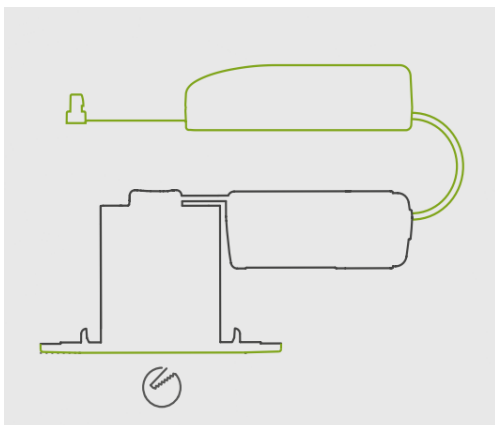
### A.2.1 PRODUCT DETAILS

**Table A. 6 Product Specifications**

Product Name	H2 Pro Elect T
Model No.	DLT4074540
Product Description	H2 Pro Elect
Nominal Dimensions	L - 156mm; W - 85mm; H - 51mm
Product Supply Requirement	220-240V AC, 50/60Hz
Lamp Type and Power	LED, 8.5W



**Figure 7. Product Images**



**Figure 8. 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 60598-2-2:2011.

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 (normal operation)

### A.2.3 CENTRE BEAM INTENSITY AND BEAM ANGLE

Table A. 8 *Beam Angle value for DLT4074540*

Centre Beam Intensity (cd)	Beam Angle (Lamp orientation)	Beam Angle Result (°)
1290	0° - 180°	42.9
	90° - 270°	43.7

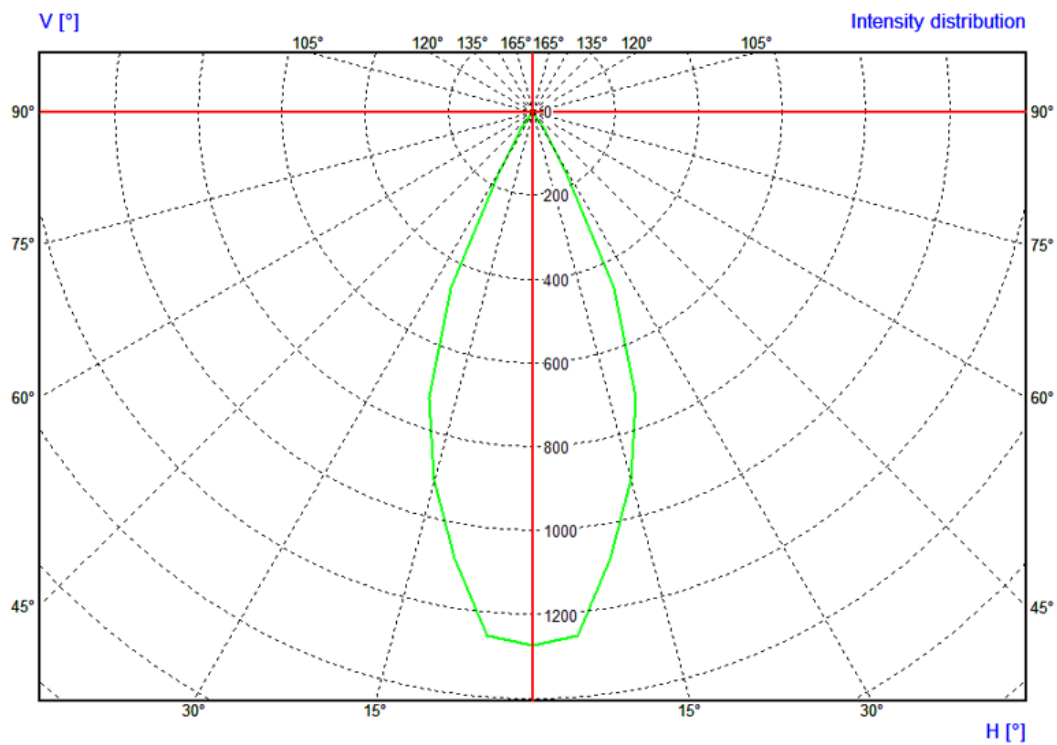
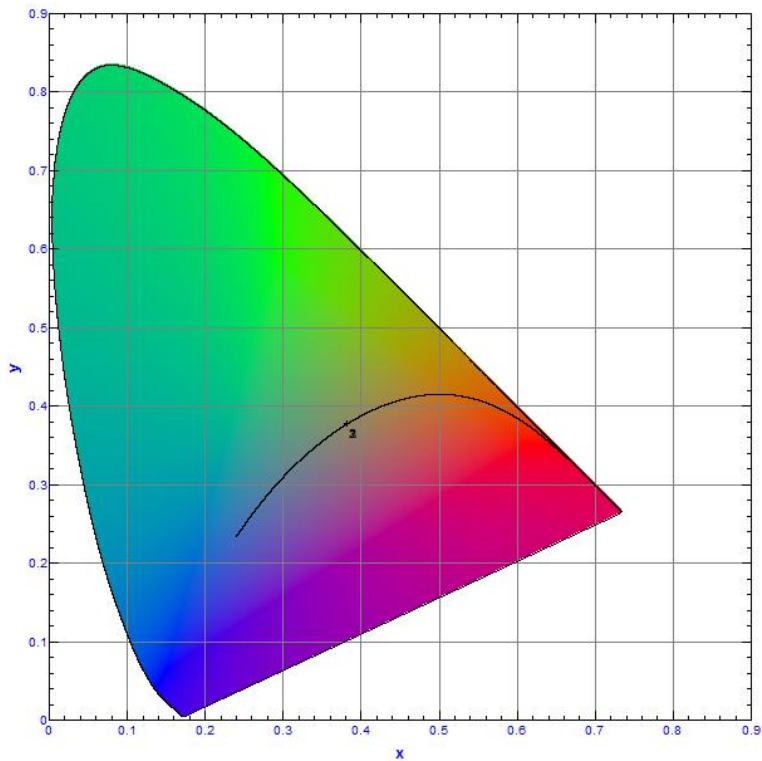


Figure 9. *Polar Diagram for DLT4074540*

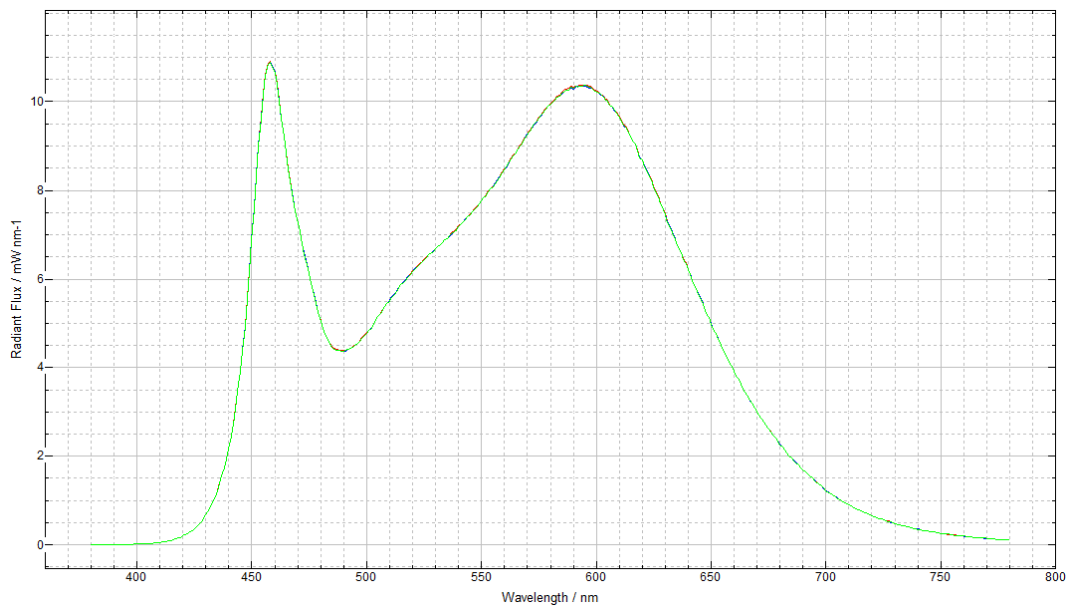
## A.2.4 COLORIMETRY

Table A. 9 *Colorimetry values for DLT4074540*

<b>COLORIMETRY &amp; LUMINOUS FLUX</b>	x coordinate	0.3815
	y coordinate	0.3782
	u coordinate	0.2253
	v coordinate	0.3349
	u' coordinate	0.2253
	v' coordinate	0.5024
	Dominant Wavelength (nm)	581.0
	Purity (%)	33.3
	Correlated Colour Temperature (K)	3981
	Ra (%)	82.6
	R1 (%)	82.3
	R2 (%)	94.5
	R3 (%)	92.8
	R4 (%)	76.8
	R5 (%)	81.8
	R6 (%)	90.9
	R7 (%)	81.2
	R8 (%)	60.5
	R9 (%)	6.8
	R10 (%)	85.8
R11 (%)	75.5	
R12 (%)	63.5	
R13 (%)	86.1	
R14 (%)	96.7	
Lumen Output (lm)	578	



**Figure 10. CIE 1931 diagram for sample DLT4074540**



**Figure 11. Spectral Irradiance for sample DLT4074540**





## **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 H2 Pro Elect. Model No. DLT4074530 as this was considered to be the most onerous. Refer to section A.1.5 for the measured values.

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**END**