

# 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.** : TSD004-0061 (Issue 2)  
**Certificate No.** : 004-0061  
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**LUMiLiFe**

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**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

Provisional - The products have passed the safety assessment and have achieved 100 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. 004-0061.

**Table 1. *Products covered under scope***

<b>Model No.</b>	<b>Product Name</b>
HB-200D-ESS-5700K	200W LED Highbay IP65
HB-150D-ESS-5700K	150W LED Highbay IP65
HB-100D-ESS-5700K	100W LED Highbay IP65



#### 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
50104205 002	CB Test Report for Luminaires
R 50397868	Constructional Data Form for Electrical Appliances
E481931	Test Report for Luminaires
50105265 002	Test Report for LED Highbay Light
RSZ150717507-10	Measurement and Test Report for Samsung Electronics
50105269 002	EMC Test Report
PV183 Interim Report	LIA 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**

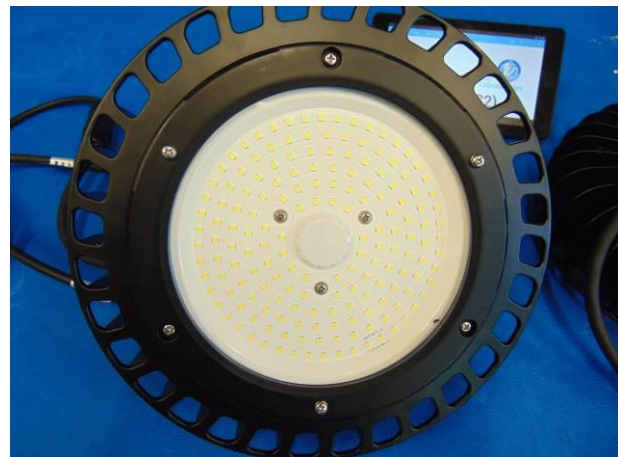
# **PRODUCT TECHNICAL SPECIFICATIONS**

## A.1. 200W LED Highbay IP65

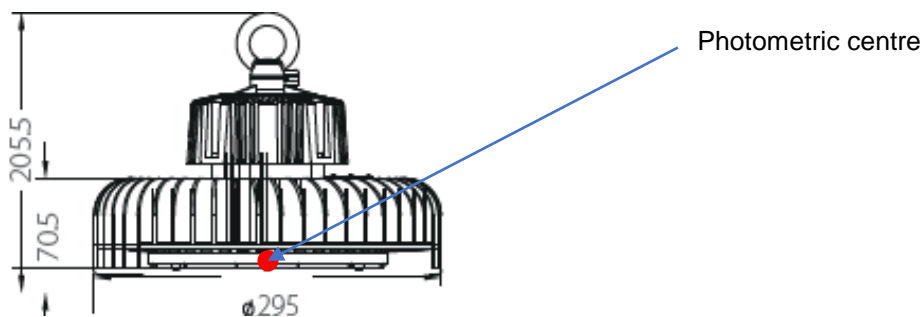
### A.1.1. PRODUCT DETAILS

**Table A.1 Product Specifications**

Product Name	200W LED Highbay IP65
Model No.	HB-200D-ESS-5700K
Product Description	LED Highbay
Nominal Dimensions	Ø - 295mm; H – 205.5mm
Product Supply Requirement	220-240V AC, 50/60Hz
Lamp Type and Power	LED, 200W



**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+AMD1:1987.

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
1.5	Marking
1.6	Construction
1.7	Creepage Distances and Clearances
1.8	Provision for Earthing
1.9	Terminals
1.10	External and Internal Wiring
1.11	Protection against Electric Shock
1.12	Endurance Tests and Thermal Tests
1.13	Resistance to Dust and Moisture – IP65
1.14	Insulation Resistance and Electric Strength
1.15	Resistance to Heat, Fire and Tracking

### A.1.3. CENTRE BEAM INTENSITY AND BEAM ANGLE

Table A.3 *Beam Angle value for model HB-200D-ESS-5700K*

Centre Beam Intensity (cd)	Beam Angle (Lamp orientation)	Beam Angle Result (°)
9251	0° - 180°	112.8
	90° - 270°	112.8

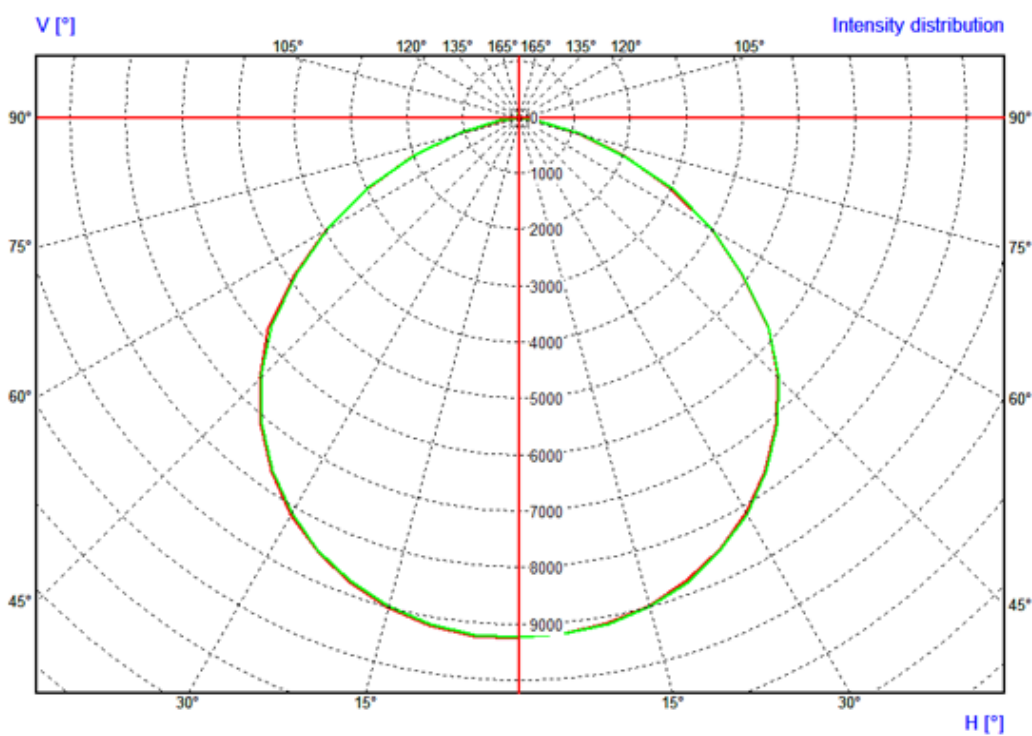


Figure 3. *Polar Diagram for model HB-200D-ESS-5700K*



#### A.1.4. COLORIMETRY

**Table A.4 Colorimetry values for model HB-200D-ESS-5700K**

<b>COLORIMETRY &amp; LUMINOUS FLUX</b>	x coordinate	0.3261
	y coordinate	0.3377
	u' coordinate	0.2038
	v' coordinate	0.4749
	Correlated Colour Temperature (K)	5789
	Ra (%)	85
	R1 (%)	83
	R2 (%)	90
	R3 (%)	93
	R4 (%)	84
	R5 (%)	84
	R6 (%)	85
	R7 (%)	88
	R8 (%)	70
	R9 (%)	13
	R10 (%)	76
	R11 (%)	83
R12 (%)	63	
R13 (%)	86	
R14 (%)	97	
Lumen Output (lm)	25878	

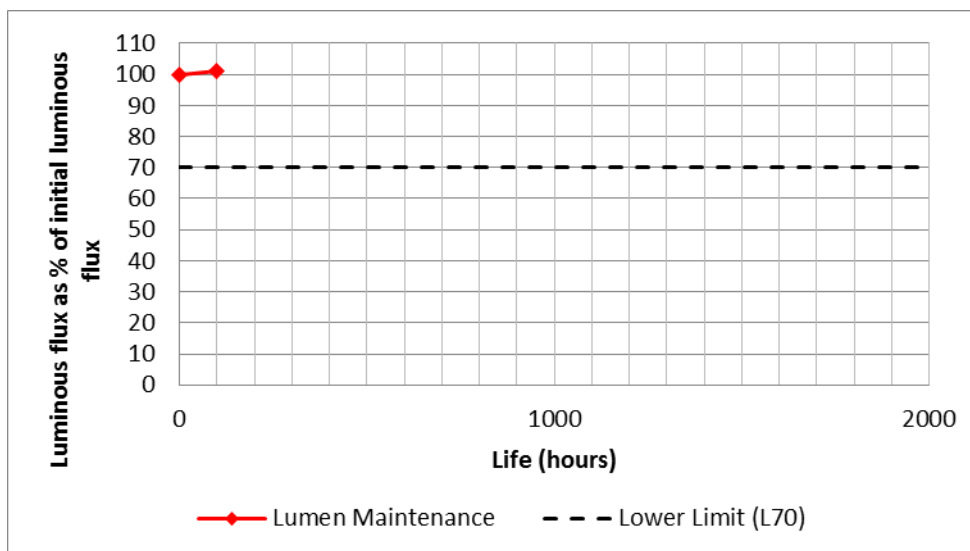


Figure 4. CIE 1931 diagram for model HB-200D-ESS-5700K

### A.1.5. LIFE TEST

**Table A.5 Colorimetry depreciation of model HB-200D-ESS-5700K**

Measured Value	0 hours	100 hours	% Maintained (0-100hrs)	2000 hours	% Maintained (0-2000hrs)
Correlated Colour Temperature (K)	5789	5782	99.9	TBC	TBC
Ra (%)	85	85	100.0	TBC	TBC
Luminous Flux (lm)	25878	26148	101.0	TBC	TBC
Luminous Efficacy (lm/W)	127	128	100.8	TBC	TBC



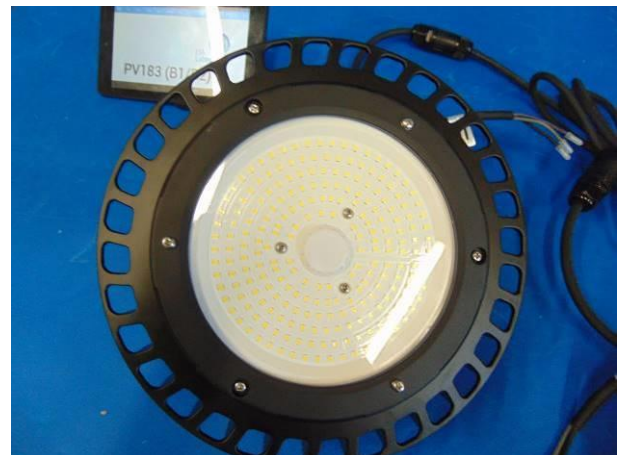
**Figure 5. Luminous flux depreciation curve for model HB-200D-ESS-5700K**

## A.2. 150W LED Highbay IP65

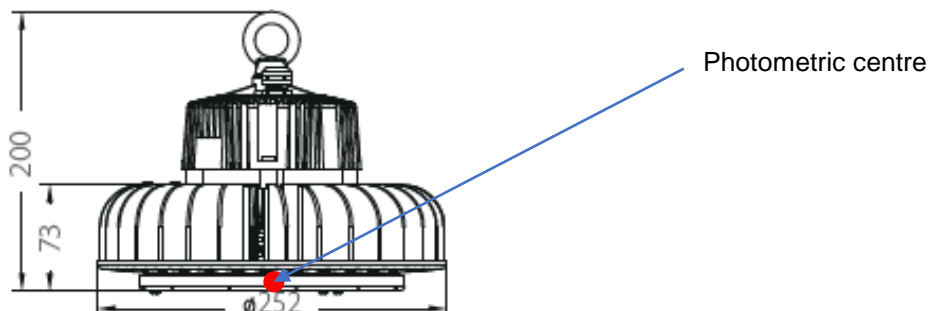
### A.2.1. PRODUCT DETAILS

**Table A.6 Product Specifications**

Product Name	150W LED Highbay IP65
Model No.	HB-150D-ESS-5700K
Product Description	LED Highbay
Nominal Dimensions	Ø - 252mm; H – 200mm
Product Supply Requirement	220-240V AC, 50/60Hz
Lamp Type and Power	LED, 150W



**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+AMD1:1987.

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
1.5	Marking
1.6	Construction
1.7	Creepage Distances and Clearances
1.8	Provision for Earthing
1.9	Terminals
1.10	External and Internal Wiring
1.11	Protection against Electric Shock
1.12	Endurance Tests and Thermal Tests
1.13	Resistance to Dust and Moisture – IP65
1.14	Insulation Resistance and Electric Strength
1.15	Resistance to Heat, Fire and Tracking

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

Table A.8 *Beam Angle value for model HB-150D-ESS-5700K*

Centre Beam Intensity (cd)	Beam Angle (Lamp orientation)	Beam Angle Result (°)
6739	0° - 180°	113.1
	90° - 270°	113.1

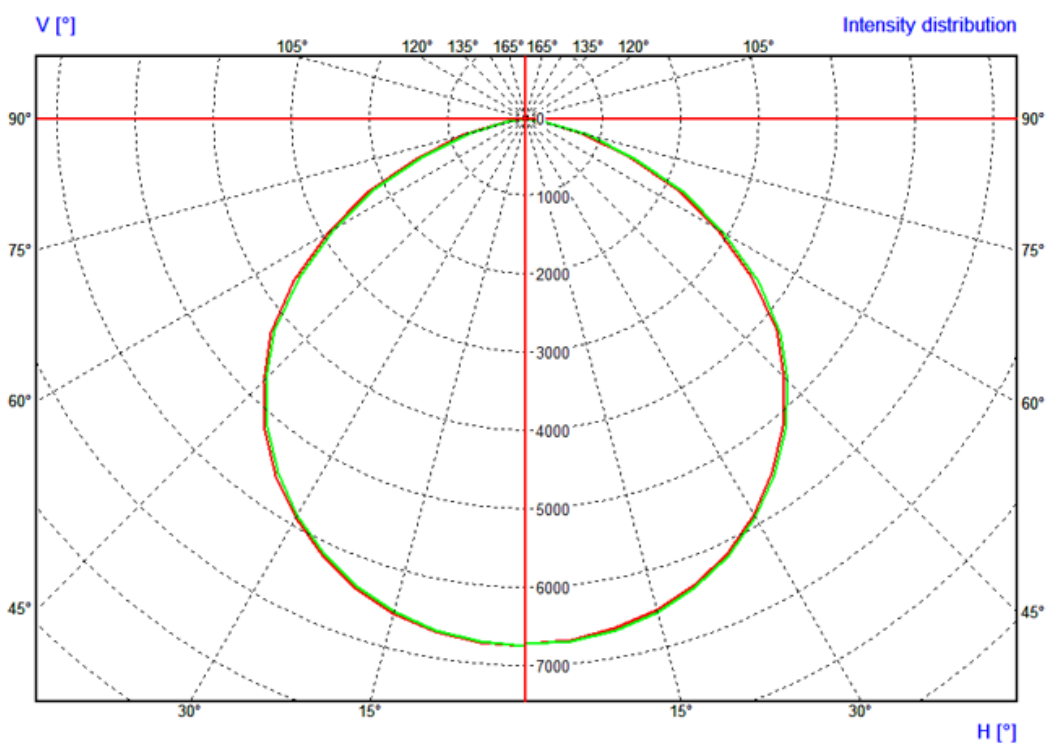


Figure 8. *Polar Diagram for model HB-150D-ESS-5700K*



## A.2.4. COLORIMETRY

**Table A.9 Colorimetry values for model HB-150D-ESS-5700K**

<b>COLORIMETRY &amp; LUMINOUS FLUX</b>	x coordinate	0.3267
	y coordinate	0.3382
	u' coordinate	0.2040
	v' coordinate	0.4752
	Dominant Wavelength (nm)	5761
	Ra (%)	85
	R1 (%)	84
	R2 (%)	90
	R3 (%)	93
	R4 (%)	84
	R5 (%)	84
	R6 (%)	85
	R7 (%)	88
	R8 (%)	70
	R9 (%)	13
	R10 (%)	76
	R11 (%)	83
	R12 (%)	63
R13 (%)	86	
R14 (%)	97	
Lumen Output (lm)	18798	

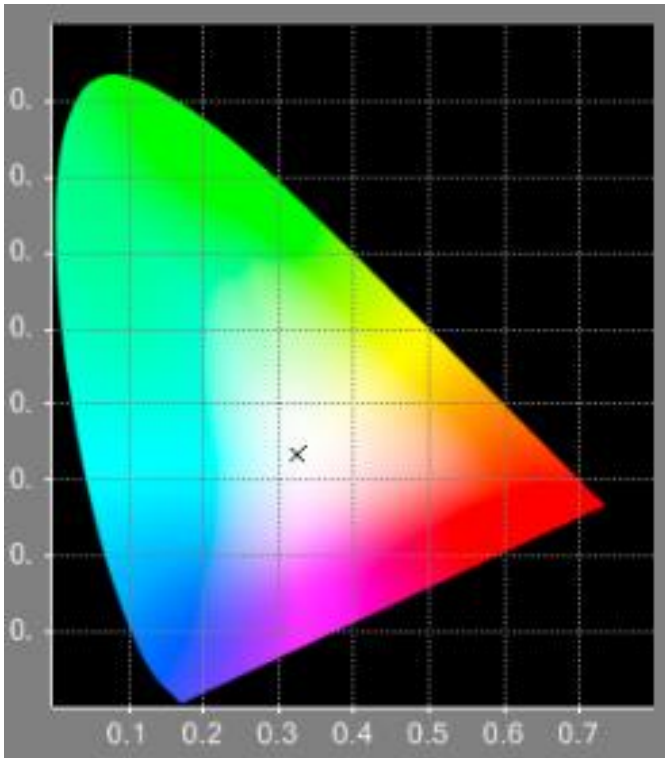


Figure 9. CIE 1931 diagram for model HB-150D-ESS-5700K

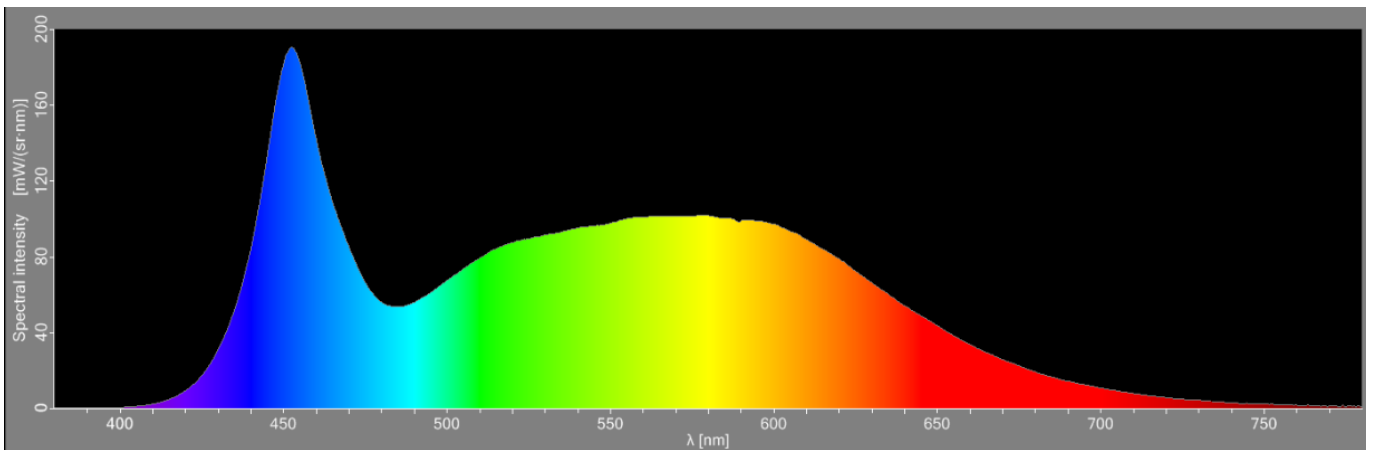


Figure 10. Spectral Flux for HB-150D-ESS-5700K





### **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 200W LED Highbay IP65 – Model No. HB-200D-ESS-5700K as this was considered to be the most onerous. Refer to section A.1.5 for the measured values

### A.3. 100W LED Highbay IP65

#### A.3.1. PRODUCT DETAILS

Table A.10 *Product Specifications*

Product Name	100W LED Highbay IP65
Model No.	HB-100D-ESS-5700K
Product Description	LED Highbay
Nominal Dimensions	Ø - 252mm; H – 200mm
Product Supply Requirement	220-240V AC, 50/60Hz
Lamp Type and Power	LED, 100W

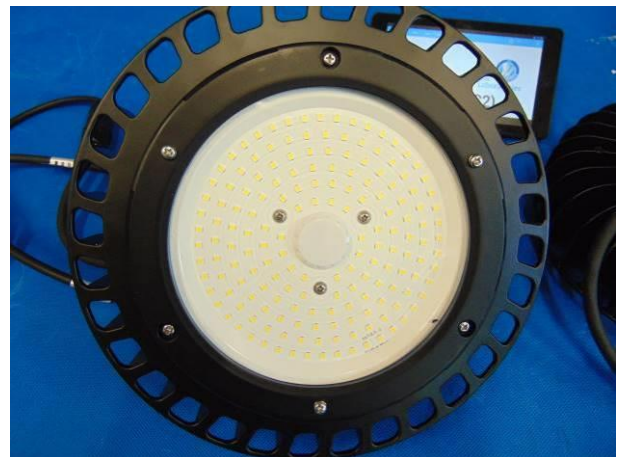


Figure 11. *Product Images*

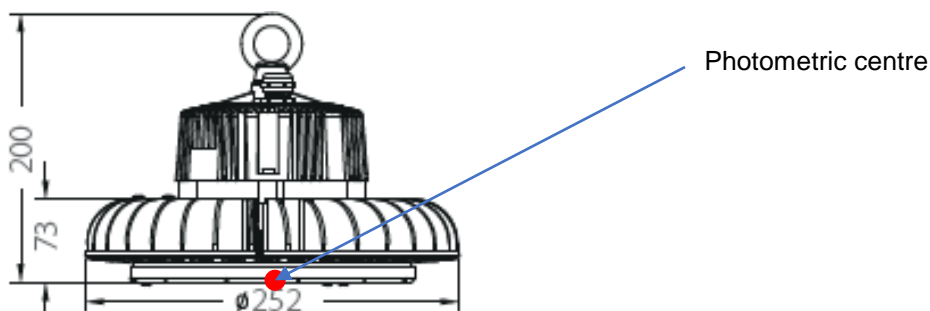


Figure 12. *Product diagram*

### A.3.2. 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+AMD1:1987.

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

**Table A.11 Safety Test Results**

Clause No.	Title
1.5	Marking
1.6	Construction
1.7	Creepage Distances and Clearances
1.8	Provision for Earthing
1.9	Terminals
1.10	External and Internal Wiring
1.11	Protection against Electric Shock
1.12	Endurance Tests and Thermal Tests
1.13	Resistance to Dust and Moisture – IP65
1.14	Insulation Resistance and Electric Strength
1.15	Resistance to Heat, Fire and Tracking

### A.3.3. CENTRE BEAM INTENSITY AND BEAM ANGLE

Table A.12 *Beam Angle value for model HB-100D-ESS-5700K*

Centre Beam Intensity (cd)	Beam Angle (Lamp orientation)	Beam Angle Result (°)
4853	0° - 180°	113.0
	90° - 270°	112.9

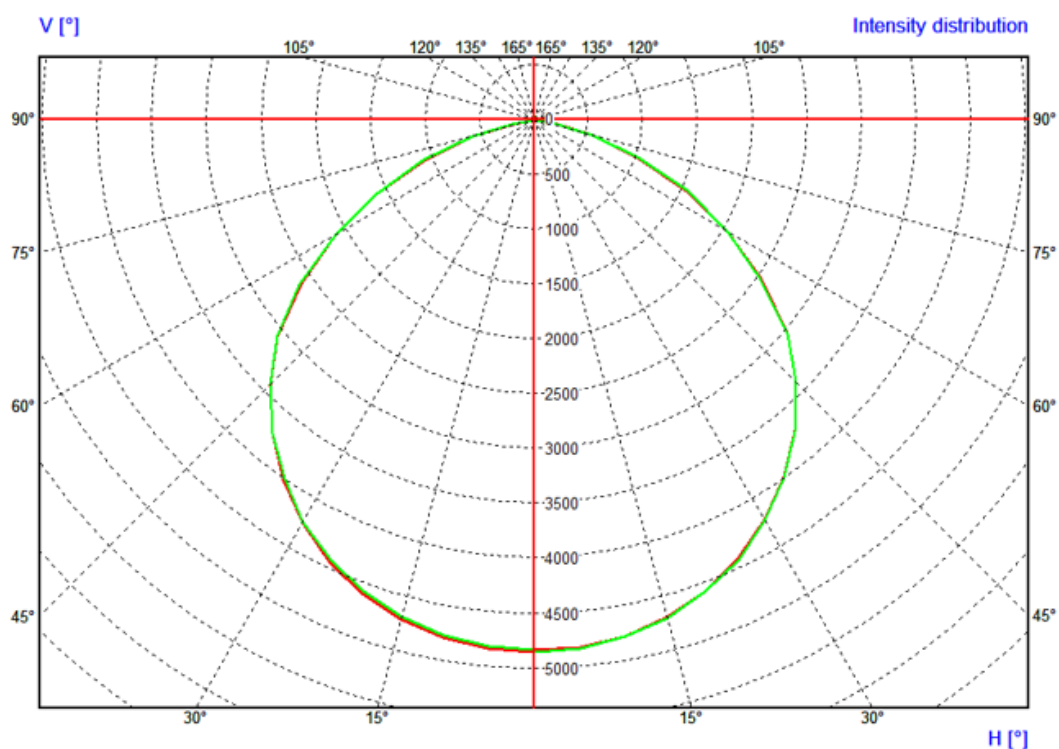


Figure 13. *Polar Diagram for model HB-100D-ESS-5700K*

### A.3.4. COLORIMETRY

Table A.13 *Colorimetry values for model HB-100D-ESS-5700K*

<b>COLORIMETRY &amp; LUMINOUS FLUX</b>	x coordinate	0.3276
	y coordinate	0.3392
	u' coordinate	0.2043
	v' coordinate	0.4759
	Correlated Colour Temperature (K)	5716
	Ra (%)	85
	R1 (%)	83
	R2 (%)	90
	R3 (%)	93
	R4 (%)	84
	R5 (%)	84
	R6 (%)	85
	R7 (%)	88
	R8 (%)	70
	R9 (%)	13
	R10 (%)	75
	R11 (%)	83
	R12 (%)	63
R13 (%)	86	
R14 (%)	96	
Lumen Output (lm)	13527	

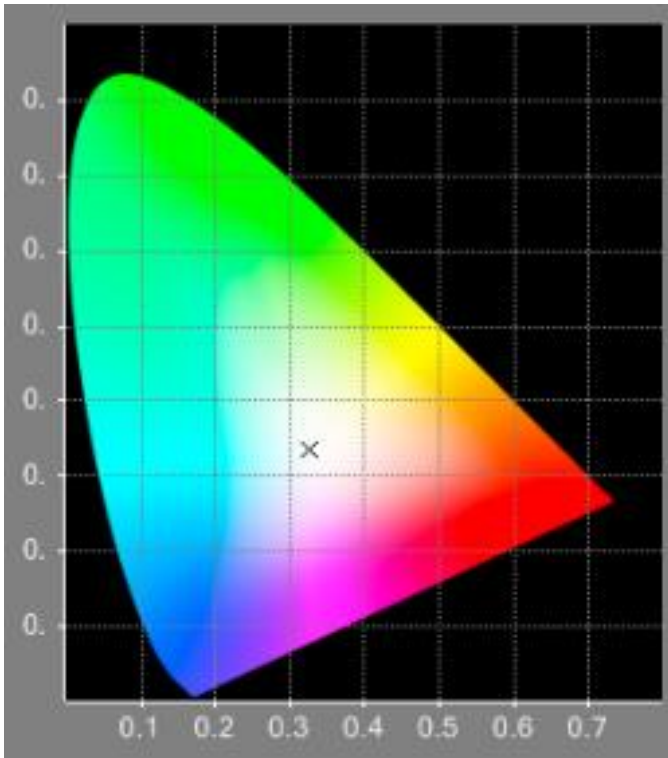


Figure 14. CIE 1931 diagram for model HB-100D-ESS-5700K

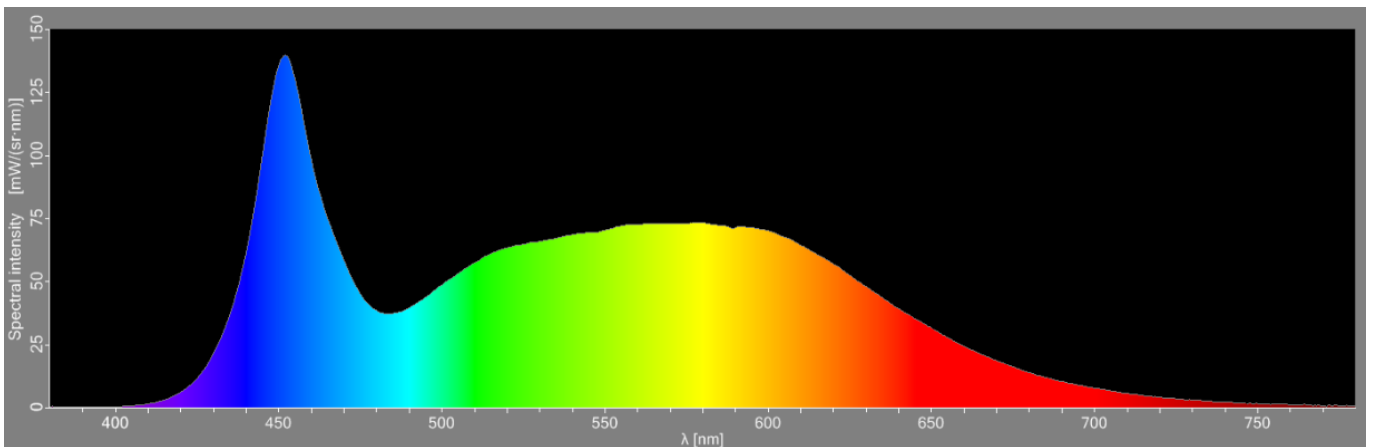


Figure 15. Spectral Flux for model HB-100D-ESS-5700K



### **A.3.5. 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 200W LED Highbay IP65 – Model No. HB-200D-ESS-5700K as this was considered to be the most onerous. Refer to section A.1.5 for the measured values

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**END**