

TRI-PROOF CLARISS



The LED CLARISS Tri-Proof Light is a durable, sealed LED fixture designed to resist water, dust, and corrosion, making it suitable for harsh environments. It uses SMD 2835 LEDs for bright, energy-efficient illumination and features a robust body, often made from ABS, PC, or aluminum, with an IP65 rating to protect against water and dust ingress. Applications include warehouses, industrial settings, and outdoor areas where protection from the elements is necessary. The LEDs use SMD technology and along with its 0.95 power factor driver achieves superb luminous efficiency.

PRODUCT ADVANTAGES AND FEATURES

- ◆ Made of Polycarbonate purity raw material supplied with stainless steel clips.
- ◆ Diffuser Polycarbonate anti yellowing unbreakable specially for LED fit over an injected gasket rubber
- ◆ High lumen LED , with 50000 hrs lifespan
- ◆ Imported optical lens , its luminous efficiency up to 95%
- ◆ High-Temperature Resistant Driver (Tc 85°-90°C):The current driver ensuring stable performance, enhanced thermal management, and long-lasting reliability in demanding outdoor environments.

Products parameter

	Product Name :	TRI-PROOF CLARISS
Electric Data	Model Number :	R838836
	Power :	36W
	Driver :	PHILIPS
	Input :	AC220-240V , 50 /60 HZ
	Power factor :	Pf>0.95
	Driver Options :	On/Off /0-10V / Dali / Triac Dimmer
	Power Efficiency :	92%
Photometric Specifications	Light source :	SMD2835
	Lumen Efficiency (±5%)	135lm/W
	Colour Temperture :	3000K-4000k-6500k
	Colour Rendering Index :	CRI>80
	SDCM :	<6
	Beam angle :	120°
Mechanical Specifications	Operating Temperature :	-20 +40°C
	Housing material :	Polycarbonate Base
	Optical material:	Polycarbonate UV Protected
	Protection Code :	IK08
	Protection class :	IP66
	Clip Material :	Stainless Steel
	Life time :	>50000Hr
	Dimension :	1200*88*82



IP66 Grade Protection

The iron plate can be separated from the driver by the male and female connector, ensure the safety in transit

High efficiency to 135lm/w, save energy

Optionable

5 Years Warranty

220-240V 50-60Hz	Angle 120°	50000Hr Long Life	4860Lm
Projection direction	Pf>0.95	IK08	IP66
3CCT	3000K Ra≥80	4000K Ra≥80	6500K Ra≥80

LED Chips

OSRAM	LUMILEDS	CREE	BMTC
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LED Drivers

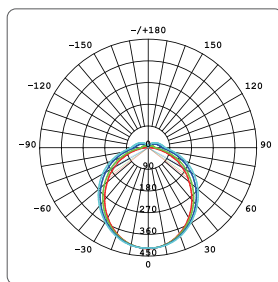
ROCHLUX	LIFUD	PHILIPS	EAGLERISE
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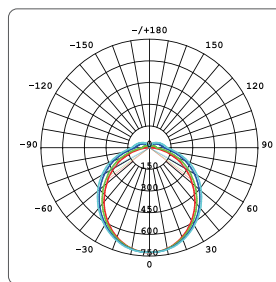
Technical Parameter

Model Number	Power	Driver	Input	Light Source	Color Temperature	Beam Angle	Product Size (mm)	Luminous Flux	Protection Class	Package Size(mm)
R838720	20W	PHILIPS	AC220-240V 50/60 HZ	SMD2835	3K/ 4K/ 6.5K	120°	60x88x82 (2Ft)	2700Lm	IP66	620x396x273
R838836	36W	PHILIPS	AC220-240V 50/60 HZ	SMD2835	3K/ 4K/ 6.5K	120°	1200x88x82 (4Ft)	4860Lm	IP66	1220x300x273
R844948	48W	PHILIPS	AC220-240V 50/60 HZ	SMD2835	3K/ 4K/ 6.5K	120°	1500x88x82 (5Ft)	6480Lm	IP66	1520x300x273

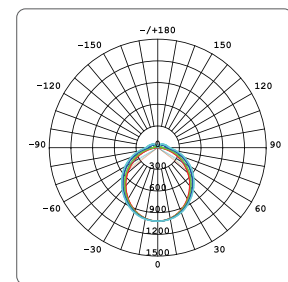
Luminous Intensity Distribution Diagram



R838720
20W Photometric

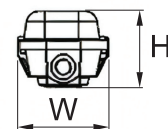
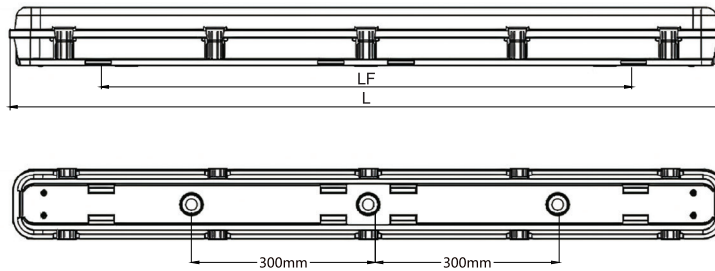


R838836
36W Photometric



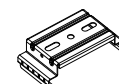
R844948
48W Photometric

Product Dimensions



Companion Accessories

Stainless steel



× 2

PG Gland



× 1

Anchor



× 2

ST4*30mm Screw



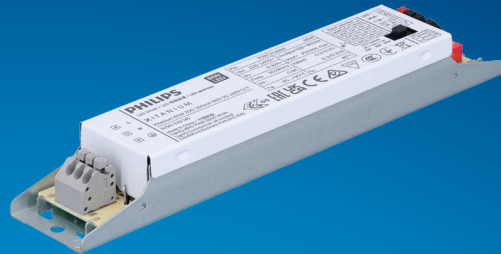
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PHILIPS

Xitanium

LED driver



Datasheet

Xitanium LED drivers – linear non-isolated Dip Switch CCT

Xitanium 65W 200-350mA 185V DS 230V CCT

9290 039 14580

Enabling future-proof LED technology

The Philips Xitanium non-isolated Dip Switch CCT Linear LED driver provide 3-way dip switch that enables quick color temperature management for luminaires, offering superior flexibility for Original Equipment Manufacturers (OEM) customers.

Xitanium drivers have common features such as low ripple output current, adjustable output current by dip switch and 50,000 hours lifetime at Tc max. They are specifically designed to ensure great EMI performance, high robustness and safe usage.

Features

- Class I application
- Flexible CCT setting via 3-step dip switch
- Low Ripple less than 4%
- 4 output currents by Dip switch
- High efficiency
- 50,000 hours lifetime @ Tc-max

Benefits

- Provides options for different luminaire designs
- Comfortable for the eyes
- Selectable output current enables flexibility and SKU reduction
- Energy saving
- Peace of mind with proven reliability

Application

- Waterproof lighting
- Linear High Bay

Logistical data

Specification item	Value
Product name	Xitanium 65W 200-350mA 185V DS 230V CCT
Logistic code 12NC	9290 039 14580
Pieces per box	50
Weight	130 gram

Electrical input data

Specification item	Value	Unit	Condition
Rated input voltage range	220...240	V _{ac}	Performance range
Rated input voltage	230	V _{ac}	
Rated input frequency	50...60	Hz	Performance range
Rated input current	0.32	A	@ full output power @ rated input voltage
Rated input power	70.0	W	@ full output power @ rated input voltage
Power factor	0.9		@maximum output power @ rated input voltage
Total harmonic distortion	20	%	@ full output power @ rated input voltage
Efficiency	94.0	%	@ full output power @ rated input voltage @ max. lout
Input voltage AC	198...264	V _{ac}	Operational range
Input frequency AC	47.5...63	Hz	Operational range
Isolation input to output	No		

Electrical output data

Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	120...185	V _{dc}	
Output voltage max.	250	V	Maximum output voltage (rms)
Output current	200 / 250 / 300 / 350	mA	Select output current via the dipswitch
Output current tolerance ±	8	%	@full load
Output current ripple LF	≤ 4	%	Ripple = peak to average, < 3kHz
Output P _{st} ^{LM}	≤ 0.1		In entire operating window
Output SVM	≤ 0.1		In entire operating window
Output power	24.0...64.7	W	
Rated output power	64.7	W	

Control interfaces

Specification item	Value	Unit	Condition
Control method	Fixed		

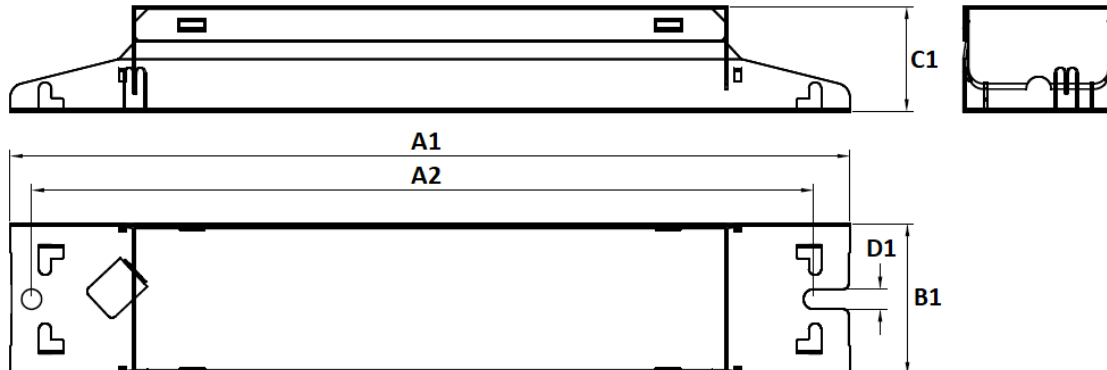
Wiring and Connections

Specification item	Value	Unit	Type
Input wire cross-section	0.5...1.5 / 20...16	mm ² / AWG	solid / stranded wire
Input wire strip length	8.5...9.5	mm	
Output wire cross-section	0.5...1.5 / 20...16	mm ² / AWG	solid / stranded wire
Output wire strip length	8.5...9.5	mm	
Maximum cable length	2	m	Total length of wiring including LED module, one way. For longer wiring please double check EMI behavior of luminaire



Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	168	mm	
Mounting hole distance (A2)	156.4	mm	
Width (B1)	30.2	mm	
Height (C1)	21	mm	
Mounting hole diameter (D1)	4	mm	
Weight	130	gram	

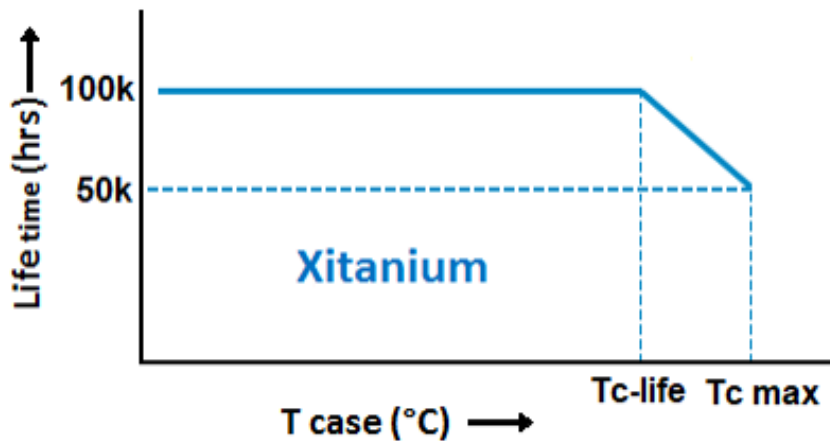


Operational temperatures and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-20...+50	°C	Higher ambient temperature allowed as long as T _{case} -max is not exceeded
T _{case} -max	85	°C	Maximum temperature measured at T _{case} -point
T _{case} -life	75	°C	Measured at T _{case} -point
Maximum housing temperature	110	°C	In case of a failure, inherent by design
Relative humidity	10...90	%	Non-condensing

Lifetime

Specification item	Value	Unit	Condition
Driver lifetime	50,000	hours	Measured temperature at Tcase-point is Tcase-life. Maximum failures = 10%
Driver lifetime	100,000	hours	Measured temperature at Tcase-point is Tcase-life -10 degrees. Maximum failures = 10%



Maximum failures = 10%

Storage temperature and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-25...+85	°C	
Relative humidity	5...95	%	Non-condensing

Programmable features

Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	DipSwitch	350 mA	Set the output current via the dipswitch, see wiring diagram for an overview
Set Adjustable CCT	DipSwitch	NW	Set CCT via the dipswitch, see wiring diagram for an overview

Non-programmable features

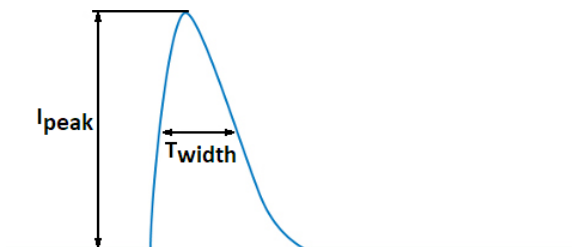
Specification item	Value		Condition
Open load protection	Yes		Automatic recovering
Short circuit protection	Yes		Automatic recovering
Over power protection	Yes		Automatic recovering
Suitable for fixtures with protection class	I		per IEC60598

Inrush current

Specification item	Value	Unit	Condition
Inrush current	31	A	Input voltage 230V
Inrush peak width	173	μs	Input voltage 230 V, measured at 50% height
Drivers / MCB 16A type B @230V AC	≤ 21	pcs	Input voltage 230V

Please refer to the driver design in guide if you use other MCB-types.

If several mini circuit breakers are used directly side-by-side (without distance pieces)
a correction factor of 80% has to be applied to the rated current



Driver touch current / protective conductor current / earth leakage current

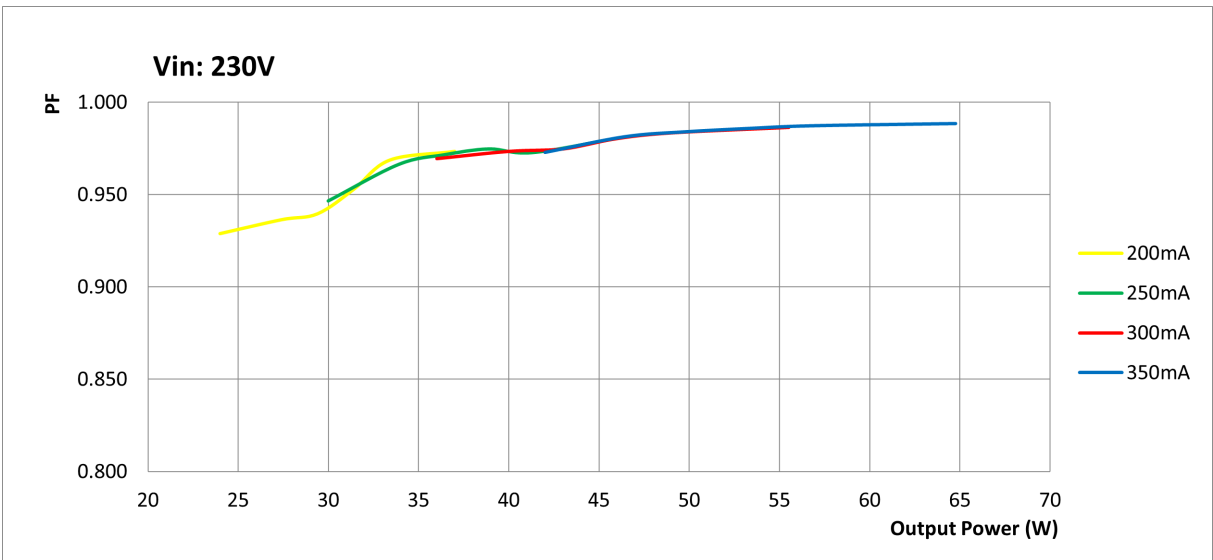
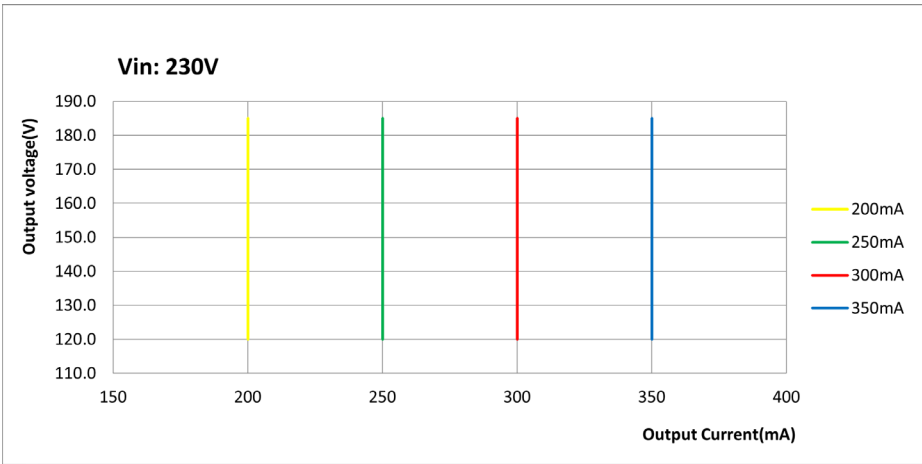
Specification item	Value	Unit	Condition
Typical Protective Conductor Current (ins. Class I)	0.7	mA rms	Acc. IEC60598-1. LED module contribution not included

Surge immunity

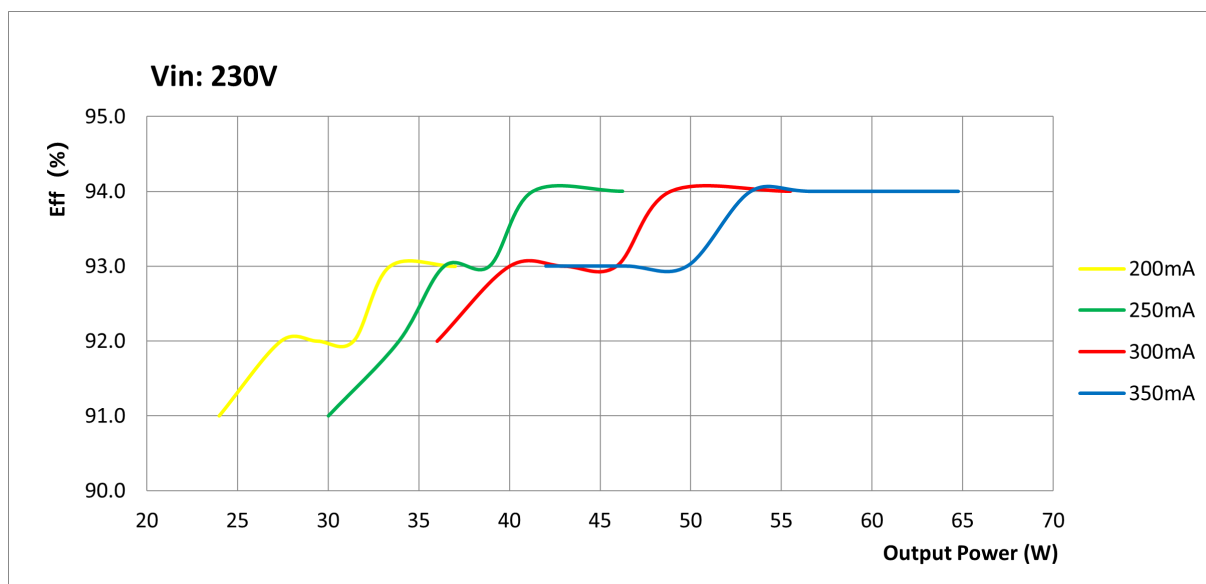
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	1	kV	Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	2	kV	Acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us

Application Info (Approbation)

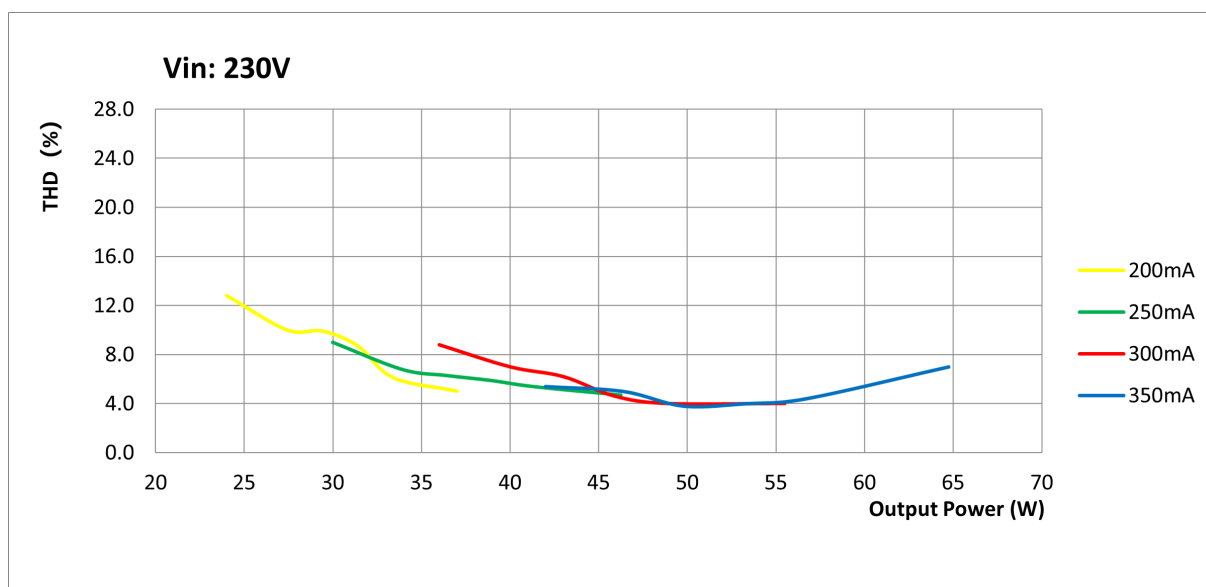
Specification item	Value
Approval marks and Certifications	CB / CCC / CE / EAC / ENEC / RCM / UA / UKCA
Ingress Protection classification (IP)	20
Application	Indoor Linear
Mounting Type	Built-in



Efficiency versus output power



THD versus output power



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Date of release: October 31, 2024 v2

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TEST REPORT

According to ANSI/IES LM-80-15
For

Shenzhen Smalite Semiconductor Co.,Ltd

8-9/F, 6th Block, Zhongyuntai Hi-Tech Industrial Park, No.1 Road, Tangtou Village, Shiyuan
Office, Baoan District, Shenzhen, China

Model: SL-IB2835FTA-12EAHH

Report Type: 17000 Hours Test Report		Product Type: LED Package	
Reviewed By:	Pote Wang <i>Pote Wang</i>		
Report Number:	DG3201109-19898E-10-17000		
Test Date:	2020-11-10 to 2022-12-20		
Report Date:	2023-02-10		
Approved by:	Bill Xiong / EE Engineer <i>Bill Xiong</i>		
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 5/F(B-West) -7/F, the 3rd Phase of Wan Li Industrial Building D, Shihua Road, Futian Free Trade Zone Shenzhen, Guangdong, China. Tel: +86-755-33320018 Fax: +86-755-33320008		
Test Facility:	Test facility was located at No.12, Pulong East 1 st Road, Tangxia Town, Dongguan, Guangdong, China.		



Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.(Shenzhen). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, or any agency of the U.S. Government.

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1 - General Information

1.1 Description of LED Light Sources[#]

Sample Size:

50 PCS test samples were in good condition and received on 2020-11-09. The samples were numbered from 1 to 25 and 26 to 50.

Manufacturer:	Shenzhen Smalite Semiconductor Co.,Ltd
Part Number:	SL-IB2835FTA-12EAHH
Part Type:	LED Package
Drive Level:	DC 150mA
Nominal CCT:	2700K
Power:	0.5W
Average Current Density per LED die:	258.34mA/mm ²
Average Power Density per LED die:	0.775W/mm ²
CRI:	80
Die Spacing:	0.15mm

Sampling Method:

LED samples for IESNA LM-80 testing consist of units built from a minimum of three manufacturing lots with each manufacturing lot built from different wafer lots built on non-consecutive days.

These manufacturing lots are picked to represent a wide parametric distribution.

Family products covered by this report:

According to *ENERGY STAR® Requirements for the Use of LM-80 Data*, the following products can be covered by this report base on the information and declaration provided by manufacturer. The information of these models shows that the covered products meet all section 4 requirements of *ENERGY STAR® Requirements for the Use of LM-80 Data* (September 28, 2017)

This report covers the following models:

Multiple model	Total Input Current (mA)	Power (W)	CCT (K)	Current Density per Die (mA/mm ²)	Power Density per PCB (W/mm ²)	Die Spacing (mm)
SL-IB2835FTA-12EAHH	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FTA-12EA*	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FTA-12EA*H	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FTA-12EA*-*	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FTA-12EA*H-*	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FTA-12EA*-**	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FTA-12EA*H-**	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FTA-12EA*-***	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FTA-12EA*H-***	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FAB-12EA*	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FAB-12EA*H	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FAB-12EA*-*	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FAB-12EA*H-*	150	0.5	2200-6500	258.34	0.051	0.15

Multiple model	Total Input Current (mA)	Power (W)	CCT (K)	Current Density per Die (mA/mm ²)	Power Density per PCB (W/mm ²)	Die Spacing (mm)
SL-**2835FAB-12EA*-**	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FAB-12EA*H-**	150	0.5	2200-6500	258.34	0.051	0.15
SL-**2835FAB-12CA*	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FAB-12CA*H	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FAB-12CA*-*	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FAB-12CA*H-*	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FAB-12CA*-**	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FAB-12CA*H-**	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FAB-12CA*	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FAB-12CA*H	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FAB-12CA*-*	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FAB-12CA*H-*	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FAB-12CA*-**	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FAB-12CA*H-**	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FTA-12CA*	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FTA-12CA*H	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FTA-12CA*-*	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FTA-12CA*H-*	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FTA-12CA*-**	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FTA-12CA*H-**	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FTA-12CA*-***	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FTA-12CA*H-***	60	0.2	2200-6500	103.34	0.021	0.15
SL-**2835FTA-12CA*	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FTA-12CA*H	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FTA-12CA*-*	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FTA-12CA*H-*	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FTA-12CA*-**	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FTA-12CA*H-**	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FTA-12CA*-***	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FTA-12CA*H-***	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FTA-12UA*	120	0.5	2200-6500	206.67	0.051	0.15

Multiple model	Total Input Current (mA)	Power (W)	CCT (K)	Current Density per Die (mA/mm ²)	Power Density per PCB (W/mm ²)	Die Spacing (mm)
SL-**2835FTA-12UA*H	120	0.5	2200-6500	206.67	0.051	0.15
SL-**2835FTA-12UA*-*	120	0.5	2200-6500	206.67	0.051	0.15
SL-**2835FTA-12UA*H-*	120	0.5	2200-6500	206.67	0.051	0.15
SL-**2835FTA-12UA*-*	120	0.5	2200-6500	206.67	0.051	0.15
SL-**2835FTA-12UA*H-**	120	0.5	2200-6500	206.67	0.051	0.15
SL-**2835FTA-12UA*-*	120	0.5	2200-6500	206.67	0.051	0.15
SL-**2835FTA-12UA*H-***	120	0.5	2200-6500	206.67	0.051	0.15
SL-**2835FTA-12AA*	20	0.1	2200-6500	34.45	0.011	0.15
SL-**2835FTA-12AA*H	20	0.1	2200-6500	34.45	0.011	0.15
SL-**2835FTA-12AA*-*	20	0.1	2200-6500	34.45	0.011	0.15
SL-**2835FTA-12AA*H-*	20	0.1	2200-6500	34.45	0.011	0.15
SL-**2835FTA-12AA*-*	20	0.1	2200-6500	34.45	0.011	0.15
SL-**2835FTA-12AA*H-**	20	0.1	2200-6500	34.45	0.011	0.15
SL-**2835FTA-12AA*-*	20	0.1	2200-6500	34.45	0.011	0.15
SL-**2835FTA-12AA*H-***	20	0.1	2200-6500	34.45	0.011	0.15
SL-**2835FTA-12HA*	10	0.05	2200-6500	17.23	0.006	0.15
SL-**2835FTA-12HA*H	10	0.05	2200-6500	17.23	0.006	0.15
SL-**2835FTA-12HA*-*	10	0.05	2200-6500	17.23	0.006	0.15
SL-**2835FTA-12HA*H-*	10	0.05	2200-6500	17.23	0.006	0.15
SL-**2835FTA-12HA*-*	10	0.05	2200-6500	17.23	0.006	0.15
SL-**2835FTA-12HA*H-**	10	0.05	2200-6500	17.23	0.006	0.15
SL-**2835FTA-12HA*-*	10	0.05	2200-6500	17.23	0.006	0.15
SL-**2835FTA-12HA*H-***	10	0.05	2200-6500	17.23	0.006	0.15
SL-**2835FTA-11CA*	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FTA-11CA*H	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FTA-11CA*-*	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FTA-11CA*H-*	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FTA-11CA*-*	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FTA-11CA*H-**	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FTA-11CA*-*	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FTA-11CA*H-***	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FTA-11CA*H-***	60	0.2	2200-6500	206.67	0.021	/

Multiple model	Total Input Current (mA)	Power (W)	CCT (K)	Current Density per Die (mA/mm ²)	Power Density per PCB (W/mm ²)	Die Spacing (mm)
SL-**2835FTA-11CA*	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FTA-11CA*H	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FTA-11CA*-*	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FTA-11CA*H-*	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FTA-11CA*-*	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FTA-11CA*H-*	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FTA-11CA*-*	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FTA-11CA*H-*	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FTA-11A0A*	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FTA-11A0A*H	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FAB-11CA*	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FAB-11CA*H	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FAB-11CA*-*	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FAB-11CA*H-*	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FAB-11CA*-*	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FAB-11CA*H-*	60	0.2	2200-6500	206.67	0.021	/
SL-**2835FAB-11CA*	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FAB-11CA*H	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FAB-11CA*	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FAB-11CA*H	65	0.2	2200-6500	223.89	0.021	/
SL-**2835FTA-12A0A*	65	0.2	2200-6500	111.95	0.021	0.15
SL-**2835FTA-12A0A*H	65	0.2	2200-6500	111.95	0.021	0.15
SL-**B2835FTA-12CA****-APH***	60	0.2	2200-6500	103.34	0.021	0.15
SL-**D2835FTA-12CA****-APH***	60	0.2	2200-6500	103.34	0.021	0.15
SL-**B2835FAB-12CA****-APH***	60	0.2	2200-6500	103.34	0.021	0.15
SL-**D2835FAB-12CA****-APH***	60	0.2	2200-6500	103.34	0.021	0.15
SL-**B2835FTA-12CA****-APH***	65	0.2	2200-6500	111.95	0.021	0.15
SL-**D2835FTA-12CA****-APH***	65	0.2	2200-6500	111.95	0.021	0.15
SL-**B2835FTA-11CA****-APH***	60	0.2	2200-6500	206.67	0.021	/
SL-**D2835FTA-11CA****-APH***	60	0.2	2200-6500	206.67	0.021	/
SL-**B2835FAB-11CA****-APH***	60	0.2	2200-6500	206.67	0.021	/

Multiple model	Total Input Current (mA)	Power (W)	CCT (K)	Current Density per Die (mA/mm ²)	Power Density per PCB (W/mm ²)	Die Spacing (mm)
SL-**D2835FAB-11CA****-APH***	60	0.2	2200-6500	206.67	0.021	/
SL-**B2835FTA-12EA****-APH***	150	0.5	2200-6500	258.34	0.051	0.15
SL-**D2835FTA-12EA****-APH***	150	0.5	2200-6500	258.34	0.051	0.15
SL-**B2835FAB-12EA****-APH***	150	0.5	2200-6500	258.34	0.051	0.15
SL-**D2835FAB-12EA****-APH***	150	0.5	2200-6500	258.34	0.051	0.15
HL-**-2835D***W-2-S1-08*-PCT-HR3(R9)-***	150	0.5	2200-6500	258.34	0.051	0.15
HL-**-2835D***W-2-S1-08*-PCT-HR3-***	150	0.5	2200-6500	258.34	0.051	0.15
HL-**-2835D***W-2-S1-08*-PCT-HR3(R9)-T6-***	150	0.5	2200-6500	258.34	0.051	0.15
HL-**-2835D***W-2-S1-08*-PCT-HR3-T6-***	150	0.5	2200-6500	258.34	0.051	0.15
HL-**-2835D***W-S1-08*-PCT-HR3(R9)-***	60	0.5	2200-6500	206.67	0.021	/
HL-**-2835D***W-S1-08*-PCT-HR3-***	60	0.5	2200-6500	206.67	0.021	/
HL-**-2835D***W-S1-08*-PCT-HR3(R9)-T6-***	60	0.5	2200-6500	206.67	0.021	/
HL-**-2835D***W-S1-08*-PCT-HR3-T6-***	60	0.5	2200-6500	206.67	0.021	/

NOTES:

- The model name begins with "SL", such as "SL-**2835FTA-12EA*H", "H" is described in detail as follows :
a. The first * is the letters I, N, W for CCT . I means 2200-3700K; N means 3700-4700 K; W means 4700-6500K.
b. The second * is a different product solution (Color coordinate and applications and special solution etc...).
c. The third "*" mean different version numbers.
- The model name begins with "SL", such as "SL-**2835FTA-12EA*H-***", "H-***" is described in detail as follows :
a. The first * is the letters I, N, W for CCT . I means 2200-3700K; N means 3700-4700 K; W means 4700-6500K.
b. The second * is a different product solution (Color coordinate and applications and special solution etc...).
c. The third ,fourth "*" mean different version numbers.
- The model name begins with "SL", such as "SL-**2835FTA-12EA*H-****", "H-****" is described in detail as follows :
a. The first * is the letters I, N, W for CCT . I means 2200-3700K; N means 3700-4700 K; W means 4700-6500K.
b. The second * is a different product solution (Color coordinate and applications and special solution etc...).
c. The third ,fourth and fifth "*" mean different version numbers.
- The model name begins with "SL", such as "SL-**2835FTA-12EA*H-*****", "H-*****" is described in detail as follows :
a. The first * is the letters I, N, W for CCT . I means 2200-3700K; N means 3700-4700 K; W means 4700-6500K.
b. The second * is a different product solution (Color coordinate and applications and special solution etc...).
c. The third ,fourth and fifth and sixth "*" mean different version numbers.
- The first and the second "*" in SL-**B2835FTA-12CA****-APH***/SL-**D2835FTA-12CA****-APH*** which can be the number 22,27, 30,35,40,50,57,65, and they stand for CCT. From the third to the sixth "*" means a different product solution, and from the seventh to the ninth "*" means different version numbers.
- The model name begins with "HL", such as "HL-**-2835D***W-2-S1-08*-PCT-HR3(R9)-****", "****" is described in detail as follows :
a. The first "****" is a letter A or AS which stands for the process type.
b. The second "****" is a number from 1 to 999 which stands for the brightness level.
c. The third "*" is a letter L or None which stands for the bonding wire style.
d. The fourth "****" is the letter, which stands for the customer code.

1.2 Standards and Reference Documentations

- ANSI/IES LM-80-15: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.
- *CIE 127:2007: Measurement of LEDs (This standard was not accredited by NVLAP)
- *ENERGY STAR® Requirements for the Use of LM-80 Data (This standard was not accredited by NVLAP)

1.3 Testing Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
High Accuracy Array Spectroradiometer	EVERFINE	HAAS 2000	P600674CM5391140	2022-09-27	2023-09-26
0.5M Integrating Sphere	EVERFINE	0.5m	NA	2022-09-27	2023-09-26
LED Test Source	EVERFINE	LTS-300	P185616CJ1391143	2022-11-18	2023-11-17
Standard Light Source	EVERFINE	D062	1011093	2021-10-15	2023-10-14
Multilayer aging machine	BACL	B2-270	20023	2022-11-18	2023-11-17
Programmable D.C. power supply	Xinnuoer	ATP-5005	N/A	2022-11-18	2023-11-17

1.4 Drive Level

Samples are driven with a constant direct current (DC) during maintenance test, photometric and electrical measurement. The current value was regulated to within $\pm 3\%$ of the specified value of the manufacturer during maintenance test, and was within $\pm 0.5\%$ during photometric and electrical measurement test.

1.5 Ambient Conditions for Maintenance Test

For lumen maintenance test, samples within one data set, were installed on cooling boards in thermal chambers with minimal ambient airflow. The case temperature and ambient temperature was monitored by thermocouples which one was soldered to the coldest DUTs' case (TMP_{LED}) location, while the other is mounted at a distance of 5 mm above the TMP location.

During life testing, TMP_{LED} of the coldest LEDs were maintained at a temperature that was greater than or equal to 2°C below the corresponding nominal case temperature. Surrounding air was maintained at a temperature that was greater than or equal to 5°C below the corresponding nominal case temperature. Thermocouples were shielded from direct DUT optical radiation and comply with ASTM E230 Table 1 "Special Limits".

Samples were connected to DC power supply in series circuits with a constant current. The forward current was regulated to within $\pm 3\%$ of the specified value of the manufacturer.

The relative humidity within chamber was kept less than 65% during test.

For photometry measurement, the ambient temperature during test was set to $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$, RH <65%.

1.6 Photometric Measurement Method and Uncertainty

Integrating sphere and spectroradiometer is used to measure luminous flux and chromaticity coordinate $u'v'$. 2π measurement was used and sample was driven by DC power supply. The forward current was regulated to within $\pm 0.5\%$ of the nominal value. The test system was calibrated by halogen reference lamp. The ambient temperature during test was set to $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$, RH <65%. The temperature measurement point was located in the sphere and the temperature was detected by a temperature probe.

The uncertainty of the light output measurements is $U=1.59\%$ ($K=2$), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is $U=21\text{K}$ ($K=2$), at the 95% confidence level.

The uncertainty of the temperature is $U=0.8671^{\circ}\text{C}$ ($K=2$), at the 95% confidence level.

1.7 Statement of Traceability

Bay Area Compliance Laboratories Corp. (Shenzhen) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

1.8 Sample Set

Data Set 1: 85°C, 150mA

Part Number: SL-IB2835FTA-12EAHH
Number of Units: 25
Case Temperature: >83°C
Ambient Temperature: >80°C
Life Test Drive Current: 150mA
Measurement Current: 150mA

Data Set 2: 105°C, 150mA

Part Number: SL-IB2835FTA-12EAHH
Number of Units: 25
Case Temperature: >103°C
Ambient Temperature: >100°C
Life Test Drive Current: 150mA
Measurement Current: 150mA

2 - Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	α	β	Reported TM-21 L ₇₀ Lifetime	Reported TM-21 L ₉₀ Lifetime
1	25	0	1000hrs	17000hrs	2.073E-06	1.003	>102000 hours	52,000 hours
2	25	0	1000hrs	17000hrs	2.522E-06	1.003	>102000 hours	43,000 hours

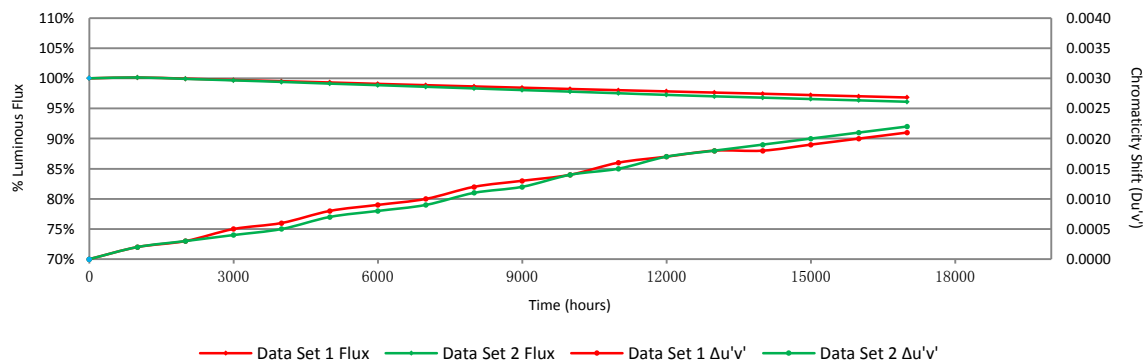
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
1	100.14%	99.94%	99.73%	99.52%	99.31%	99.08%	98.86%	98.65%	98.44%	98.23%	98.03%	97.83%
2	100.14%	99.90%	99.66%	99.40%	99.12%	98.86%	98.59%	98.32%	98.05%	97.79%	97.52%	97.25%
	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs							
	97.63%	97.44%	97.22%	97.02%	96.82%							
	97.01%	96.79%	96.56%	96.34%	96.11%							

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
1	0.0002	0.0003	0.0005	0.0006	0.0008	0.0009	0.0010	0.0012	0.0013	0.0014	0.0016	0.0017
2	0.0002	0.0003	0.0004	0.0005	0.0007	0.0008	0.0009	0.0011	0.0012	0.0014	0.0015	0.0017
	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs							
	0.0018	0.0018	0.0019	0.0020	0.0021							
	0.0018	0.0019	0.0020	0.0021	0.0022							

Average Lumen Maintenance and Chromaticity Shift VS. Time



3 - Test Data

3.1 Data Set 1, 85°C, 150mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)											
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
1	74.33	100.27	100.17	99.95	99.83	99.70	99.49	99.33	99.18	98.95	98.74	98.53	98.28
2	73.91	100.18	100.04	99.82	99.62	99.35	99.08	98.84	98.61	98.40	98.15	97.92	97.78
3	72.56	100.32	100.07	99.94	99.81	99.53	99.19	98.97	98.79	98.54	98.26	98.13	97.91
4	72.03	100.07	99.81	99.60	99.47	99.33	99.11	98.90	98.72	98.51	98.38	98.15	97.85
5	73.56	100.18	100.01	99.71	99.58	99.36	99.05	98.82	98.53	98.26	97.96	97.69	97.46
6	73.57	100.20	100.07	99.90	99.65	99.43	99.25	99.03	98.91	98.60	98.31	97.97	97.74
7	72.72	100.14	99.96	99.85	99.72	99.48	99.24	99.06	98.94	98.82	98.61	98.31	98.06
8	74.57	99.93	99.68	99.54	99.32	99.02	98.71	98.38	98.10	97.87	97.67	97.52	97.39
9	72.93	99.96	99.67	99.49	99.29	98.97	98.70	98.40	98.12	98.03	97.85	97.66	97.46
10	73.72	100.11	99.88	99.59	99.19	99.00	98.85	98.67	98.59	98.44	98.24	98.13	97.91
11	73.55	100.08	99.86	99.71	99.46	99.31	99.02	98.78	98.56	98.29	98.18	97.99	97.82
12	73.20	100.03	99.69	99.60	99.29	99.07	98.72	98.48	98.20	97.99	97.80	97.68	97.46
13	73.72	100.03	99.88	99.73	99.61	99.44	99.20	98.98	98.81	98.60	98.43	98.22	97.92
14	73.29	100.31	100.23	100.05	99.92	99.74	99.51	99.22	98.96	98.80	98.51	98.32	98.06
15	72.84	100.37	100.25	100.08	99.89	99.75	99.44	99.22	99.00	98.83	98.48	98.31	97.97
16	72.32	100.22	100.15	99.93	99.81	99.63	99.39	99.17	98.99	98.71	98.56	98.41	98.23
17	73.20	100.15	100.04	99.88	99.60	99.39	99.13	98.83	98.62	98.47	98.22	98.07	97.94
18	74.48	100.03	99.93	99.69	99.41	99.05	98.82	98.56	98.23	97.91	97.77	97.54	97.41
19	74.42	100.11	100.03	99.79	99.54	99.37	99.11	98.84	98.63	98.36	98.12	97.98	97.65
20	73.61	100.19	100.10	99.76	99.55	99.29	99.20	98.97	98.79	98.64	98.49	98.36	98.19
21	73.14	100.14	100.01	99.90	99.71	99.34	99.25	99.08	98.93	98.70	98.52	98.36	98.25
22	72.93	100.10	99.70	99.41	99.22	99.10	98.86	98.74	98.46	98.20	98.09	97.92	97.74
23	73.28	100.19	99.71	99.48	99.26	99.13	98.96	98.76	98.34	98.25	97.95	97.69	97.52
24	74.03	100.16	99.80	99.46	99.30	99.18	99.03	98.87	98.68	98.34	98.11	97.83	97.65
25	73.80	100.01	99.80	99.43	99.02	98.89	98.78	98.69	98.52	98.36	98.27	98.13	97.99
Avg.	73.43	100.14	99.94	99.73	99.52	99.31	99.08	98.86	98.65	98.44	98.23	98.03	97.83
Med.	73.55	100.14	99.96	99.73	99.55	99.34	99.11	98.84	98.63	98.44	98.24	98.07	97.85
st dev	0.67	0.11	0.18	0.20	0.24	0.25	0.24	0.25	0.29	0.30	0.28	0.29	0.28
Min.	72.03	99.93	99.67	99.41	99.02	98.89	98.70	98.38	98.10	97.87	97.67	97.52	97.39
Max.	74.57	100.37	100.25	100.08	99.92	99.75	99.51	99.33	99.18	98.95	98.74	98.53	98.28

No.	Lumen Maintenance (%)				
	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
1	98.08	97.91	97.77	97.50	97.34
2	97.61	97.47	97.27	97.12	96.90
3	97.64	97.42	97.12	96.90	96.65
4	97.74	97.60	97.49	97.38	97.18
5	97.23	97.02	96.81	96.62	96.45
6	97.54	97.38	97.09	96.82	96.56
7	97.87	97.68	97.41	97.17	96.95
8	97.18	96.96	96.85	96.74	96.59
9	97.29	97.15	96.97	96.83	96.70
10	97.75	97.46	97.18	96.89	96.74
11	97.57	97.40	97.27	97.05	96.79
12	97.23	97.06	96.79	96.61	96.34
13	97.76	97.50	97.25	97.02	96.77
14	97.80	97.54	97.37	97.11	96.93
15	97.86	97.60	97.32	97.05	96.79
16	98.02	97.83	97.65	97.51	97.33
17	97.76	97.51	97.30	97.05	96.95
18	97.33	97.21	97.03	96.91	96.80
19	97.49	97.31	97.18	96.98	96.75
20	97.98	97.77	97.60	97.47	97.28
21	98.03	97.87	97.59	97.36	97.14
22	97.53	97.24	97.00	96.81	96.64
23	97.28	97.13	96.86	96.66	96.51
24	97.46	97.30	97.11	96.97	96.70
25	97.82	97.63	97.37	97.09	96.80
Avg.	97.63	97.44	97.22	97.02	96.82
Med.	97.64	97.46	97.25	97.02	96.79
st dev	0.2733	0.2659	0.2702	0.2639	0.2676
Min.	97.18	96.96	96.79	96.61	96.34
Max.	98.08	97.91	97.77	97.51	97.34

3.2 Data Set 1, 85°C, 150mA (Forward Voltage)

No.	Forward Voltage (V)												
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
1	2.919	2.921	2.936	2.936	2.931	2.933	2.935	2.934	2.934	2.933	2.940	2.938	2.932
2	2.917	2.920	2.908	2.907	2.904	2.908	2.907	2.906	2.904	2.905	2.908	2.913	2.916
3	2.923	2.924	2.909	2.909	2.907	2.907	2.910	2.906	2.908	2.907	2.913	2.911	2.945
4	2.915	2.904	2.900	2.899	2.897	2.899	2.900	2.900	2.898	2.900	2.908	2.903	2.913
5	2.902	2.910	2.902	2.903	2.899	2.901	2.902	2.901	2.899	2.901	2.913	2.905	2.909
6	2.914	2.912	2.909	2.910	2.908	2.908	2.911	2.909	2.908	2.909	2.914	2.914	2.917
7	2.902	2.903	2.901	2.902	2.899	2.900	2.903	2.904	2.900	2.901	2.920	2.906	2.910
8	2.922	2.923	2.920	2.924	2.917	2.919	2.921	2.921	2.919	2.919	2.914	2.923	2.950
9	2.913	2.915	2.910	2.913	2.909	2.911	2.914	2.911	2.912	2.912	2.935	2.920	2.923
10	2.915	2.913	2.915	2.912	2.910	2.909	2.915	2.912	2.913	2.912	2.933	2.919	2.919
11	2.935	2.934	2.933	2.934	2.931	2.933	2.937	2.933	2.932	2.932	2.934	2.938	2.951
12	2.910	2.933	2.917	2.908	2.906	2.909	2.921	2.908	2.910	2.909	2.919	2.911	2.939
13	2.914	2.913	2.933	2.915	2.914	2.915	2.921	2.912	2.916	2.916	2.938	2.922	2.926
14	2.932	2.934	2.931	2.930	2.932	2.930	2.931	2.931	2.929	2.930	2.943	2.937	2.932
15	2.907	2.913	2.906	2.908	2.907	2.908	2.909	2.908	2.906	2.908	2.911	2.912	2.922
16	2.899	2.901	2.898	2.895	2.895	2.897	2.895	2.898	2.896	2.897	2.903	2.907	2.911
17	2.910	2.912	2.908	2.909	2.910	2.909	2.910	2.909	2.908	2.910	2.934	2.924	2.917
18	2.908	2.925	2.908	2.906	2.908	2.905	2.907	2.908	2.905	2.907	2.909	2.914	2.938
19	2.936	2.940	2.934	2.934	2.933	2.933	2.934	2.937	2.934	2.937	2.940	2.941	2.944
20	2.900	2.912	2.899	2.898	2.897	2.897	2.898	2.908	2.898	2.901	2.911	2.907	2.915
21	2.929	2.925	2.931	2.928	2.928	2.929	2.932	2.930	2.930	2.930	2.929	2.936	2.950
22	2.908	2.936	2.911	2.907	2.908	2.909	2.929	2.908	2.908	2.909	2.906	2.920	2.935
23	2.896	2.912	2.898	2.897	2.898	2.898	2.899	2.899	2.897	2.897	2.897	2.904	2.902
24	2.908	2.907	2.908	2.907	2.908	2.907	2.911	2.906	2.907	2.907	2.907	2.914	2.917
25	2.907	2.910	2.910	2.909	2.909	2.908	2.918	2.907	2.908	2.910	2.909	2.915	2.919
Avg.	2.914	2.918	2.913	2.912	2.911	2.911	2.915	2.912	2.911	2.912	2.920	2.918	2.926
Med.	2.913	2.913	2.909	2.909	2.908	2.908	2.911	2.908	2.908	2.909	2.914	2.914	2.922
st dev	0.011	0.011	0.013	0.012	0.012	0.012	0.013	0.012	0.012	0.012	0.014	0.012	0.014
Min.	2.896	2.901	2.898	2.895	2.895	2.897	2.895	2.898	2.896	2.897	2.897	2.903	2.902
Max.	2.936	2.940	2.936	2.936	2.933	2.933	2.937	2.937	2.934	2.937	2.943	2.941	2.951

No.	Forward Voltage (V)				
	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
1	2.939	2.941	2.935	2.945	2.952
2	2.911	2.914	2.907	2.915	2.921
3	2.914	2.913	2.910	2.920	2.930
4	2.905	2.901	2.900	2.910	2.916
5	2.905	2.904	2.902	2.912	2.924
6	2.915	2.914	2.911	2.920	2.934
7	2.910	2.904	2.901	2.908	2.921
8	2.927	2.922	2.922	2.929	2.946
9	2.922	2.916	2.914	2.921	2.935
10	2.922	2.914	2.913	2.919	2.938
11	2.946	2.943	2.936	2.944	2.960
12	2.917	2.922	2.912	2.917	2.931
13	2.928	2.934	2.919	2.919	2.940
14	2.938	2.938	2.934	2.938	2.934
15	2.916	2.917	2.910	2.913	2.953
16	2.903	2.907	2.900	2.903	2.912
17	2.917	2.915	2.913	2.915	2.928
18	2.914	2.910	2.909	2.914	2.924
19	2.943	2.941	2.944	2.947	2.960
20	2.904	2.928	2.905	2.906	2.914
21	2.936	2.933	2.935	2.933	2.947
22	2.912	2.910	2.916	2.912	2.932
23	2.906	2.900	2.902	2.905	2.929
24	2.913	2.909	2.912	2.915	2.946
25	2.917	2.910	2.911	2.920	2.928
Avg.	2.919	2.918	2.915	2.920	2.934
Med.	2.916	2.914	2.912	2.917	2.932
st dev	0.013	0.013	0.013	0.013	0.014
Min.	2.903	2.900	2.900	2.903	2.912
Max.	2.946	2.943	2.944	2.947	2.960

3.3 Data Set 1, 85°C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)											
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
1	0.2635	0.5274	2680	0.0002	0.0003	0.0004	0.0006	0.0008	0.0009	0.0010	0.0011	0.0013	0.0015	0.0017	0.0018
2	0.2636	0.5284	2672	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0011	0.0012
3	0.2633	0.5280	2681	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0011	0.0012	0.0014	0.0015
4	0.2631	0.5284	2684	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0012	0.0013	0.0014	0.0015
5	0.2630	0.5291	2683	0.0001	0.0003	0.0005	0.0007	0.0009	0.0010	0.0012	0.0013	0.0015	0.0017	0.0018	0.0020
6	0.2627	0.5264	2700	0.0001	0.0002	0.0003	0.0004	0.0006	0.0007	0.0009	0.0010	0.0012	0.0013	0.0015	0.0017
7	0.2632	0.5284	2681	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0009	0.0011	0.0012	0.0013	0.0014
8	0.2614	0.5288	2716	0.0002	0.0004	0.0005	0.0007	0.0009	0.0011	0.0012	0.0013	0.0014	0.0016	0.0017	0.0018
9	0.2614	0.5273	2723	0.0002	0.0004	0.0005	0.0006	0.0008	0.0009	0.0011	0.0012	0.0013	0.0014	0.0016	0.0017
10	0.2632	0.5279	2683	0.0002	0.0003	0.0004	0.0006	0.0008	0.0010	0.0011	0.0012	0.0013	0.0014	0.0016	0.0017
11	0.2637	0.5279	2674	0.0002	0.0004	0.0005	0.0006	0.0008	0.0010	0.0011	0.0013	0.0015	0.0017	0.0019	0.0021
12	0.2625	0.5293	2693	0.0002	0.0004	0.0005	0.0006	0.0008	0.0010	0.0011	0.0012	0.0014	0.0016	0.0017	0.0018
13	0.2611	0.5279	2726	0.0001	0.0003	0.0004	0.0006	0.0008	0.0009	0.0011	0.0012	0.0013	0.0014	0.0016	0.0018
14	0.2633	0.5279	2681	0.0001	0.0002	0.0004	0.0005	0.0007	0.0008	0.0010	0.0011	0.0012	0.0014	0.0016	0.0017
15	0.2645	0.5276	2659	0.0002	0.0004	0.0006	0.0007	0.0009	0.0010	0.0012	0.0013	0.0014	0.0016	0.0017	0.0019
16	0.2619	0.5267	2714	0.0001	0.0003	0.0004	0.0006	0.0007	0.0009	0.0011	0.0012	0.0014	0.0016	0.0018	0.0020
17	0.2617	0.5271	2718	0.0001	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0011	0.0012	0.0013	0.0015	0.0017
18	0.2612	0.5290	2720	0.0002	0.0004	0.0006	0.0007	0.0009	0.0009	0.0010	0.0011	0.0013	0.0014	0.0016	0.0018
19	0.2621	0.5265	2712	0.0003	0.0004	0.0006	0.0007	0.0009	0.0010	0.0012	0.0013	0.0014	0.0015	0.0016	0.0018
20	0.2636	0.5284	2673	0.0001	0.0002	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0015	0.0016	0.0018
21	0.2623	0.5265	2708	0.0002	0.0004	0.0005	0.0007	0.0008	0.0009	0.0011	0.0012	0.0013	0.0014	0.0015	0.0017
22	0.2629	0.5270	2692	0.0001	0.0002	0.0004	0.0006	0.0007	0.0008	0.0010	0.0011	0.0012	0.0013	0.0014	0.0015
23	0.2635	0.5271	2681	0.0002	0.0004	0.0006	0.0007	0.0009	0.0011	0.0012	0.0014	0.0015	0.0016	0.0017	0.0019
24	0.2611	0.5295	2720	0.0001	0.0002	0.0004	0.0006	0.0008	0.0010	0.0011	0.0013	0.0014	0.0015	0.0016	0.0018
25	0.2632	0.5272	2686	0.0002	0.0004	0.0005	0.0006	0.0007	0.0009	0.0011	0.0012	0.0014	0.0015	0.0017	0.0020
Avg.	0.2627	0.5278	2694	0.0002	0.0003	0.0005	0.0006	0.0008	0.0009	0.0010	0.0012	0.0013	0.0014	0.0016	0.0017
Med.	0.2630	0.5279	2686	0.0002	0.0003	0.0005	0.0006	0.0008	0.0009	0.0011	0.0012	0.0013	0.0014	0.0016	0.0018
st dev	0.0010	0.0009	19	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002
Min.	0.2611	0.5264	2659	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0011	0.0012
Max.	0.2645	0.5295	2726	0.0003	0.0004	0.0006	0.0007	0.0009	0.0011	0.0012	0.0014	0.0015	0.0017	0.0019	0.0021

No.	Chromaticity Shift ($\Delta u'v'$)				
	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
1	0.0018	0.0020	0.0020	0.0022	0.0022
2	0.0017	0.0017	0.0019	0.0019	0.0021
3	0.0016	0.0017	0.0019	0.0020	0.0020
4	0.0015	0.0016	0.0017	0.0017	0.0019
5	0.0020	0.0020	0.0022	0.0022	0.0023
6	0.0020	0.0019	0.0020	0.0022	0.0022
7	0.0015	0.0015	0.0013	0.0014	0.0015
8	0.0017	0.0020	0.0018	0.0019	0.0021
9	0.0017	0.0020	0.0018	0.0018	0.0021
10	0.0016	0.0019	0.0017	0.0019	0.0020
11	0.0018	0.0021	0.0020	0.0020	0.0021
12	0.0018	0.0019	0.0019	0.0022	0.0024
13	0.0014	0.0013	0.0013	0.0015	0.0017
14	0.0019	0.0017	0.0018	0.0019	0.0021
15	0.0021	0.0018	0.0019	0.0021	0.0023
16	0.0019	0.0018	0.0018	0.0018	0.0020
17	0.0018	0.0018	0.0020	0.0022	0.0023
18	0.0019	0.0019	0.0020	0.0021	0.0023
19	0.0019	0.0019	0.0021	0.0021	0.0022
20	0.0017	0.0017	0.0018	0.0019	0.0021
21	0.0017	0.0017	0.0019	0.0020	0.0020
22	0.0016	0.0016	0.0017	0.0020	0.0020
23	0.0016	0.0016	0.0019	0.0019	0.0019
24	0.0018	0.0017	0.0020	0.0021	0.0022
25	0.0018	0.0019	0.0022	0.0023	0.0022
Avg.	0.0018	0.0018	0.0019	0.0020	0.0021
Med.	0.0018	0.0018	0.0019	0.0020	0.0021
st dev	0.0002	0.0002	0.0002	0.0002	0.0002
Min.	0.0014	0.0013	0.0013	0.0014	0.0015
Max.	0.0021	0.0021	0.0022	0.0023	0.0024

3.4 Data Set 2, 105°C, 150mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)											
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
26	73.06	100.11	99.99	99.81	99.66	99.45	99.17	98.78	98.49	98.17	97.97	97.60	97.43
27	73.35	99.84	99.73	99.60	99.45	99.35	99.13	98.91	98.69	98.40	98.10	97.82	97.55
28	74.01	100.12	99.95	99.77	99.59	99.43	99.20	98.82	98.49	98.20	97.87	97.54	97.18
29	74.17	100.23	99.95	99.68	99.49	99.18	98.93	98.62	98.37	98.06	97.71	97.34	97.01
30	73.31	100.10	99.99	99.69	99.48	99.21	98.94	98.76	98.58	98.31	98.08	97.87	97.60
31	73.05	100.08	99.99	99.79	99.56	99.25	99.00	98.80	98.54	98.26	98.08	97.82	97.59
32	72.14	100.18	100.01	99.81	99.47	99.14	98.78	98.50	98.28	98.05	97.81	97.71	97.50
33	73.55	100.20	99.97	99.76	99.43	99.13	98.89	98.60	98.44	98.25	98.01	97.77	97.48
34	73.75	100.14	99.84	99.62	99.32	99.06	98.77	98.52	98.17	97.90	97.60	97.26	96.98
35	73.77	100.20	99.92	99.80	99.61	99.32	98.94	98.75	98.48	98.20	97.93	97.72	97.52
36	73.31	100.12	99.96	99.85	99.70	99.44	99.15	98.84	98.58	98.36	97.99	97.69	97.44
37	73.74	100.09	99.81	99.40	99.24	99.12	98.85	98.58	98.33	98.14	97.75	97.37	97.07
38	73.42	100.25	99.97	99.66	99.41	99.09	98.75	98.38	98.07	97.77	97.49	97.17	96.91
39	73.52	100.20	99.99	99.88	99.59	99.31	99.10	98.80	98.41	98.19	97.92	97.70	97.59
40	72.84	100.22	99.99	99.86	99.57	99.24	98.97	98.76	98.42	98.22	98.04	97.80	97.65
41	73.25	100.11	100.07	99.84	99.59	99.33	99.10	98.87	98.54	98.32	98.13	97.95	97.61
42	73.81	100.16	99.84	99.61	99.38	99.09	98.86	98.70	98.28	98.04	97.74	97.52	97.22
43	72.89	100.01	99.90	99.63	99.29	99.00	98.85	98.66	98.29	97.96	97.63	97.17	96.93
44	72.98	100.19	99.93	99.53	99.42	99.03	98.77	98.44	98.22	97.96	97.68	97.31	97.03
45	73.23	100.16	99.80	99.43	99.07	98.72	98.32	97.98	97.72	97.34	97.15	96.86	96.64
46	73.10	100.07	99.67	99.33	99.02	98.62	98.32	98.00	97.91	97.63	97.40	97.24	97.00
47	73.64	100.10	99.69	99.31	98.98	98.64	98.29	97.90	97.80	97.56	97.31	97.16	96.85
48	72.49	100.17	99.74	99.42	99.05	98.73	98.54	98.15	97.92	97.75	97.59	97.30	97.03
49	73.68	100.19	99.81	99.46	99.09	98.98	98.74	98.62	98.37	98.03	97.86	97.64	97.22
50	73.90	100.18	99.99	99.88	99.47	99.26	99.05	98.90	98.53	98.32	97.93	97.70	97.31
Avg.	73.36	100.14	99.90	99.66	99.40	99.12	98.86	98.59	98.32	98.05	97.79	97.52	97.25
Med.	73.35	100.16	99.95	99.68	99.45	99.14	98.89	98.66	98.37	98.14	97.86	97.60	97.22
st dev	0.48	0.08	0.11	0.18	0.21	0.24	0.26	0.30	0.26	0.27	0.26	0.28	0.29
Min.	72.14	99.84	99.67	99.31	98.98	98.62	98.29	97.90	97.72	97.34	97.15	96.86	96.64
Max.	74.17	100.25	100.07	99.88	99.70	99.45	99.20	98.91	98.69	98.40	98.13	97.95	97.65

No.	Lumen Maintenance (%)				
	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
26	97.29	97.08	96.89	96.63	96.45
27	97.23	96.95	96.65	96.31	96.05
28	96.93	96.62	96.43	96.19	95.91
29	96.78	96.53	96.25	95.97	95.67
30	97.31	97.16	97.00	96.86	96.71
31	97.25	96.97	96.67	96.32	96.04
32	97.32	97.19	97.03	96.91	96.78
33	97.23	96.97	96.68	96.37	96.06
34	96.73	96.58	96.34	96.12	95.81
35	97.30	97.02	96.76	96.46	96.14
36	97.14	96.92	96.66	96.52	96.28
37	96.79	96.51	96.22	96.00	95.80
38	96.73	96.59	96.43	96.25	96.04
39	97.37	97.10	96.83	96.53	96.25
40	97.38	97.03	96.75	96.61	96.39
41	97.38	97.20	97.00	96.75	96.55
42	96.95	96.71	96.53	96.30	95.99
43	96.69	96.43	96.30	96.16	96.04
44	96.73	96.45	96.23	95.93	95.72
45	96.50	96.35	96.24	96.14	95.96
46	96.88	96.70	96.53	96.37	96.25
47	96.61	96.41	96.25	96.03	95.80
48	96.84	96.72	96.59	96.37	96.18
49	96.88	96.58	96.29	96.08	95.85
50	97.10	96.87	96.56	96.28	96.05
Avg.	97.01	96.79	96.56	96.34	96.11
Med.	96.95	96.72	96.56	96.31	96.05
st dev	0.2790	0.2709	0.2622	0.2703	0.2939
Min.	96.50	96.35	96.22	95.93	95.67
Max.	97.38	97.20	97.03	96.91	96.78

3.5 Data Set 2, 105°C, 150mA (Forward Voltage)

No.	Forward Voltage (V)												
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
26	2.915	2.913	2.916	2.913	2.914	2.923	2.921	2.914	2.912	2.915	2.915	2.920	2.926
27	2.931	2.938	2.934	2.933	2.932	2.936	2.937	2.933	2.932	2.934	2.935	2.938	2.947
28	2.899	2.899	2.904	2.900	2.899	2.902	2.904	2.901	2.898	2.900	2.898	2.903	2.922
29	2.914	2.919	2.920	2.917	2.916	2.922	2.920	2.921	2.915	2.917	2.916	2.920	2.929
30	2.896	2.901	2.904	2.900	2.904	2.900	2.899	2.898	2.898	2.900	2.897	2.903	2.916
31	2.926	2.932	2.929	2.925	2.922	2.926	2.925	2.927	2.923	2.925	2.924	2.930	2.939
32	2.911	2.921	2.920	2.911	2.909	2.913	2.912	2.915	2.911	2.913	2.912	2.917	2.926
33	2.904	2.913	2.910	2.908	2.909	2.913	2.912	2.916	2.906	2.913	2.909	2.911	2.917
34	2.917	2.922	2.916	2.915	2.914	2.916	2.919	2.915	2.914	2.935	2.915	2.919	2.934
35	2.903	2.910	2.907	2.905	2.906	2.907	2.906	2.904	2.904	2.913	2.905	2.908	2.910
36	2.919	2.923	2.925	2.922	2.923	2.926	2.920	2.922	2.939	2.931	2.923	2.926	2.935
37	2.906	2.906	2.908	2.905	2.905	2.906	2.906	2.906	2.905	2.911	2.904	2.914	2.910
38	2.895	2.898	2.900	2.897	2.898	2.898	2.898	2.899	2.897	2.903	2.898	2.902	2.901
39	2.919	2.923	2.925	2.923	2.922	2.925	2.920	2.921	2.921	2.929	2.923	2.933	2.928
40	2.900	2.907	2.906	2.904	2.903	2.904	2.903	2.902	2.902	2.915	2.902	2.912	2.910
41	2.910	2.910	2.919	2.907	2.907	2.908	2.905	2.905	2.907	2.923	2.907	2.913	2.909
42	2.923	2.931	2.932	2.927	2.929	2.929	2.926	2.926	2.927	2.933	2.930	2.938	2.932
43	2.919	2.928	2.925	2.922	2.922	2.924	2.919	2.919	2.921	2.929	2.922	2.938	2.924
44	2.908	2.922	2.913	2.909	2.912	2.911	2.907	2.907	2.911	2.913	2.910	2.921	2.910
45	2.904	2.911	2.910	2.905	2.909	2.909	2.905	2.905	2.909	2.914	2.905	2.930	2.910
46	2.899	2.902	2.901	2.898	2.901	2.936	2.899	2.896	2.901	2.900	2.899	2.907	2.903
47	2.921	2.917	2.921	2.915	2.921	2.920	2.913	2.914	2.938	2.919	2.917	2.934	2.924
48	2.913	2.915	2.917	2.911	2.915	2.913	2.911	2.910	2.914	2.916	2.915	2.924	2.917
49	2.928	2.929	2.929	2.925	2.929	2.928	2.924	2.925	2.928	2.929	2.926	2.935	2.931
50	2.932	2.933	2.936	2.931	2.934	2.936	2.930	2.929	2.933	2.937	2.935	2.945	2.938
Avg.	2.912	2.917	2.917	2.913	2.914	2.917	2.914	2.913	2.915	2.919	2.914	2.922	2.922
Med.	2.913	2.917	2.917	2.911	2.914	2.916	2.912	2.914	2.912	2.916	2.915	2.920	2.924
st dev	0.011	0.011	0.011	0.011	0.010	0.012	0.010	0.011	0.013	0.011	0.011	0.013	0.012
Min.	2.895	2.898	2.900	2.897	2.898	2.898	2.898	2.896	2.897	2.900	2.897	2.902	2.901
Max.	2.932	2.938	2.936	2.933	2.934	2.936	2.937	2.933	2.939	2.937	2.935	2.945	2.947

No.	Forward Voltage (V)				
	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
26	2.923	2.915	2.927	2.937	2.940
27	2.943	2.935	2.936	2.929	2.937
28	2.909	2.899	2.907	2.929	2.946
29	2.930	2.919	2.924	2.920	2.924
30	2.905	2.900	2.915	2.928	2.925
31	2.935	2.926	2.935	2.948	2.943
32	2.921	2.912	2.936	2.934	2.934
33	2.915	2.910	2.915	2.924	2.923
34	2.926	2.917	2.925	2.933	2.931
35	2.915	2.908	2.910	2.921	2.936
36	2.935	2.924	2.924	2.936	2.939
37	2.915	2.909	2.913	2.927	2.923
38	2.908	2.900	2.909	2.919	2.921
39	2.929	2.925	2.927	2.943	2.937
40	2.912	2.907	2.920	2.934	2.939
41	2.912	2.908	2.916	2.933	2.939
42	2.934	2.929	2.938	2.952	2.925
43	2.925	2.923	2.939	2.924	2.927
44	2.913	2.912	2.923	2.920	2.929
45	2.907	2.907	2.919	2.930	2.920
46	2.905	2.900	2.917	2.922	2.939
47	2.921	2.917	2.928	2.935	2.934
48	2.917	2.914	2.926	2.937	2.939
49	2.931	2.928	2.930	2.925	2.936
50	2.940	2.936	2.944	2.952	2.933
Avg.	2.921	2.915	2.924	2.932	2.933
Med.	2.921	2.914	2.924	2.930	2.934
st dev	0.011	0.011	0.010	0.010	0.007
Min.	2.905	2.899	2.907	2.919	2.920
Max.	2.943	2.936	2.944	2.952	2.946

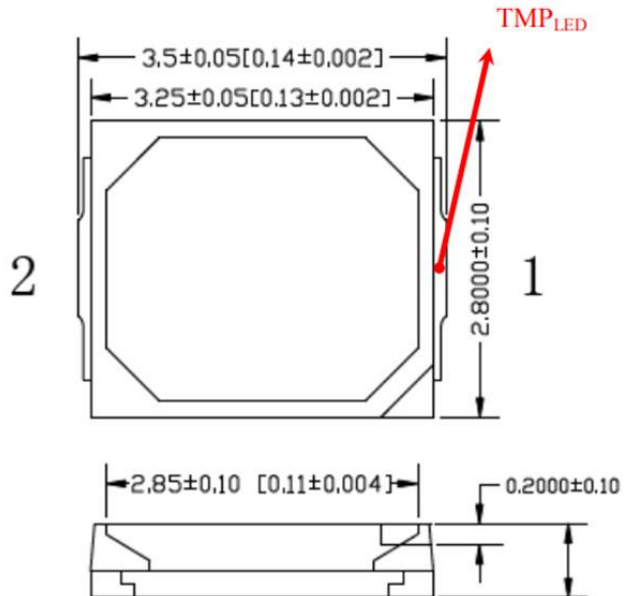
3.6 Data Set 2, 105°C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)											
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
26	0.2646	0.5276	2655	0.0003	0.0004	0.0006	0.0007	0.0008	0.0010	0.0011	0.0012	0.0013	0.0014	0.0015	0.0017
27	0.2629	0.5274	2691	0.0002	0.0004	0.0005	0.0007	0.0008	0.0009	0.0010	0.0012	0.0014	0.0016	0.0017	0.0019
28	0.2630	0.5308	2676	0.0001	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0011	0.0012	0.0014	0.0016
29	0.2634	0.5296	2673	0.0001	0.0002	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0015	0.0016	0.0019
30	0.2638	0.5272	2673	0.0002	0.0003	0.0004	0.0006	0.0008	0.0009	0.0010	0.0011	0.0012	0.0013	0.0015	0.0018
31	0.2616	0.5270	2721	0.0001	0.0002	0.0003	0.0005	0.0006	0.0008	0.0010	0.0011	0.0013	0.0014	0.0015	0.0017
32	0.2642	0.5291	2659	0.0001	0.0002	0.0004	0.0005	0.0007	0.0008	0.0010	0.0012	0.0013	0.0014	0.0015	0.0018
33	0.2610	0.5265	2734	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0013	0.0015
34	0.2628	0.5286	2689	0.0001	0.0002	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012	0.0013	0.0015
35	0.2642	0.5284	2662	0.0002	0.0003	0.0004	0.0005	0.0007	0.0008	0.0009	0.0010	0.0011	0.0012	0.0013	0.0015
36	0.2636	0.5265	2681	0.0001	0.0002	0.0003	0.0004	0.0006	0.0008	0.0009	0.0010	0.0011	0.0013	0.0015	0.0017
37	0.2623	0.5275	2704	0.0001	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0009	0.0011	0.0012	0.0013
38	0.2606	0.5266	2743	0.0001	0.0003	0.0004	0.0006	0.0007	0.0008	0.0009	0.0010	0.0011	0.0012	0.0013	0.0015
39	0.2619	0.5271	2713	0.0001	0.0002	0.0003	0.0005	0.0007	0.0009	0.0010	0.0011	0.0012	0.0013	0.0014	0.0016
40	0.2621	0.5284	2704	0.0002	0.0004	0.0005	0.0006	0.0007	0.0009	0.0011	0.0012	0.0013	0.0014	0.0015	0.0016
41	0.2622	0.5279	2704	0.0001	0.0002	0.0004	0.0006	0.0008	0.0009	0.0011	0.0013	0.0015	0.0016	0.0017	0.0018
42	0.2629	0.5289	2686	0.0001	0.0001	0.0003	0.0005	0.0006	0.0007	0.0009	0.0011	0.0012	0.0013	0.0015	0.0018
43	0.2635	0.5270	2680	0.0001	0.0001	0.0002	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0011	0.0012	0.0014
44	0.2622	0.5264	2711	0.0001	0.0002	0.0004	0.0005	0.0006	0.0008	0.0009	0.0011	0.0012	0.0013	0.0014	0.0016
45	0.2633	0.5286	2679	0.0002	0.0004	0.0006	0.0007	0.0009	0.0011	0.0012	0.0013	0.0015	0.0016	0.0018	0.0019
46	0.2644	0.5287	2657	0.0001	0.0003	0.0005	0.0007	0.0009	0.0011	0.0012	0.0014	0.0016	0.0018	0.0019	0.0021
47	0.2636	0.5284	2674	0.0002	0.0003	0.0004	0.0005	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0018	0.0020
48	0.2633	0.5256	2691	0.0001	0.0003	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0014	0.0016	0.0018	0.0020
49	0.2622	0.5259	2712	0.0001	0.0002	0.0004	0.0005	0.0006	0.0008	0.0010	0.0011	0.0012	0.0014	0.0016	0.0018
50	0.2618	0.5281	2711	0.0001	0.0002	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012	0.0013	0.0015
Avg.	0.2629	0.5278	2691	0.0002	0.0003	0.0004	0.0005	0.0007	0.0008	0.0009	0.0011	0.0012	0.0014	0.0015	0.0017
Med.	0.2629	0.5276	2689	0.0001	0.0002	0.0004	0.0005	0.0007	0.0008	0.0010	0.0011	0.0012	0.0013	0.0015	0.0017
st dev	0.0011	0.0012	24	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Min.	0.2606	0.5256	2655	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0009	0.0011	0.0012	0.0013
Max.	0.2646	0.5308	2743	0.0003	0.0004	0.0006	0.0007	0.0009	0.0011	0.0012	0.0014	0.0016	0.0018	0.0019	0.0021

No.	Chromaticity Shift ($\Delta u'v'$)				
	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
26	0.0018	0.0018	0.0021	0.0019	0.0020
27	0.0019	0.0020	0.0022	0.0020	0.0022
28	0.0017	0.0018	0.0018	0.0019	0.0019
29	0.0017	0.0020	0.0022	0.0022	0.0023
30	0.0018	0.0020	0.0021	0.0021	0.0022
31	0.0016	0.0018	0.0019	0.0020	0.0021
32	0.0021	0.0022	0.0022	0.0023	0.0024
33	0.0019	0.0020	0.0021	0.0021	0.0023
34	0.0019	0.0019	0.0022	0.0023	0.0024
35	0.0019	0.0019	0.0022	0.0023	0.0022
36	0.0017	0.0016	0.0017	0.0018	0.0021
37	0.0018	0.0016	0.0018	0.0019	0.0021
38	0.0019	0.0019	0.0020	0.0021	0.0022
39	0.0018	0.0020	0.0020	0.0021	0.0024
40	0.0018	0.0021	0.0020	0.0019	0.0022
41	0.0017	0.0019	0.0020	0.0020	0.0021
42	0.0017	0.0020	0.0020	0.0021	0.0022
43	0.0016	0.0016	0.0016	0.0017	0.0019
44	0.0017	0.0016	0.0016	0.0017	0.0018
45	0.0021	0.0020	0.0020	0.0021	0.0021
46	0.0020	0.0020	0.0020	0.0023	0.0024
47	0.0020	0.0019	0.0019	0.0021	0.0022
48	0.0019	0.0019	0.0020	0.0022	0.0022
49	0.0018	0.0018	0.0018	0.0020	0.0021
50	0.0016	0.0016	0.0016	0.0020	0.0017
Avg.	0.0018	0.0019	0.0020	0.0021	0.0022
Med.	0.0018	0.0019	0.0020	0.0021	0.0022
st dev	0.0001	0.0002	0.0002	0.0002	0.0002
Min.	0.0016	0.0016	0.0016	0.0017	0.0017
Max.	0.0021	0.0022	0.0022	0.0023	0.0024

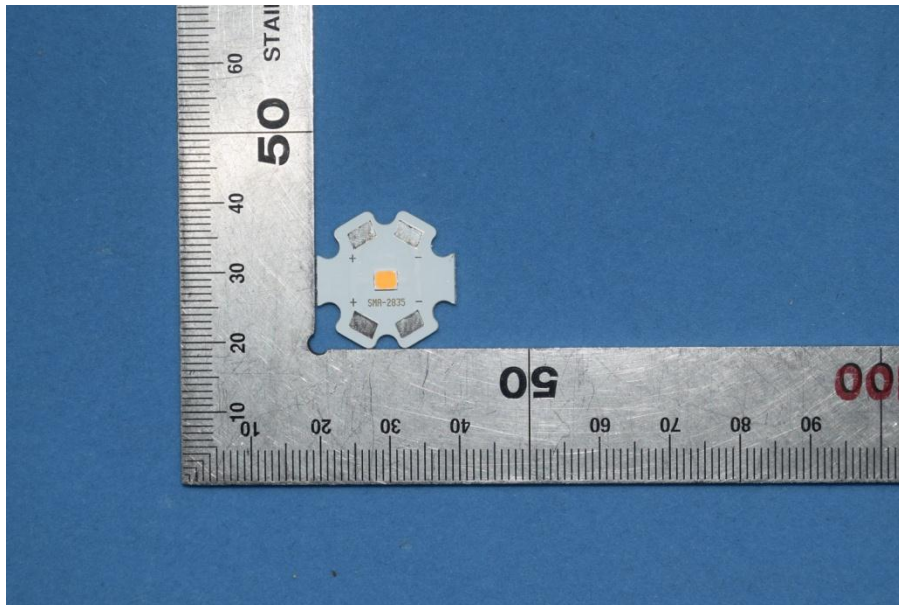
4 - DUT Photo

4.1 Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



Directions

1. The information marked “superscript #” is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. This report includes some test methods are not in NVLAP accreditation scope marked *.
3. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
5. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor $K=2$ with the 95% confidence interval.
6. This report cannot be reproduced except in full, without prior written approval of the Company.
7. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

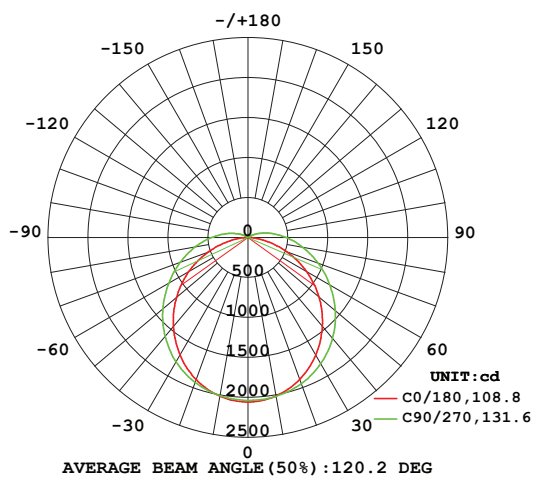
*****END OF REPORT*****

LUMINAIRE PHOTOMETRIC TEST REPORT

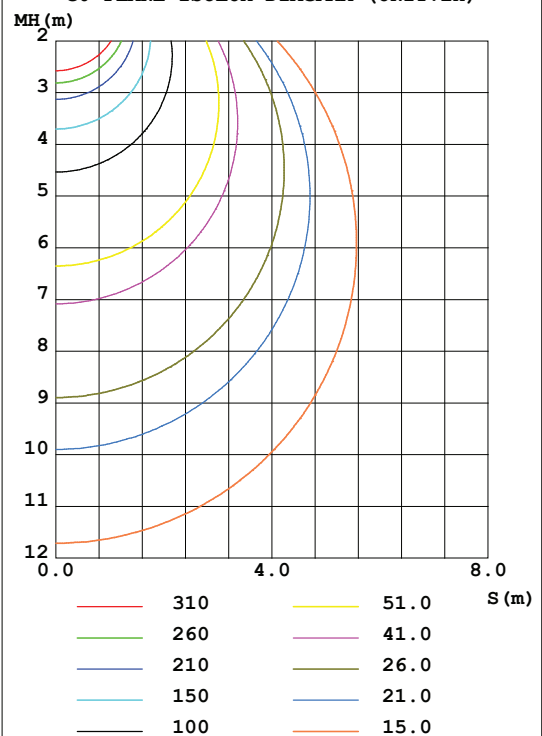
Test:U:230.04V I:0.2149A P:48.003W PF:0.9710 Freq:49.99Hz Lamp Flux:7071.89x1 lm		
NAME: TRI-PROOF	TYPE:LED	WEIGHT:
SPEC.:R844948	DIM.: 1580*93*75	SERIAL No.:
MFR.: ROCHLUX	SUR.:1540*93	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 147.32 lm/W			
MODEL	CWP115ZHL	I _{max} (cd)	2058	S/MH (C0/180)	1.23
NOMINAL POWER (W)	48	LOR (%)	100.0	S/MH (C90/270)	1.31
RATED VOLTAGE (V)	230	TOTAL FLUX (lm)	7071.9	η UP,DN (C0-180)	3.2,46.5
NOMINAL FLUX (lm)	7071.89	CIE CLASS	DIRECT	η UP,DN (C180-360)	3.2,47.1
LAMPS INSIDE	1	η up (%)	6.4	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	230	η down (%)	93.6	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators: !
Test Date:2025-07-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:21.800m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

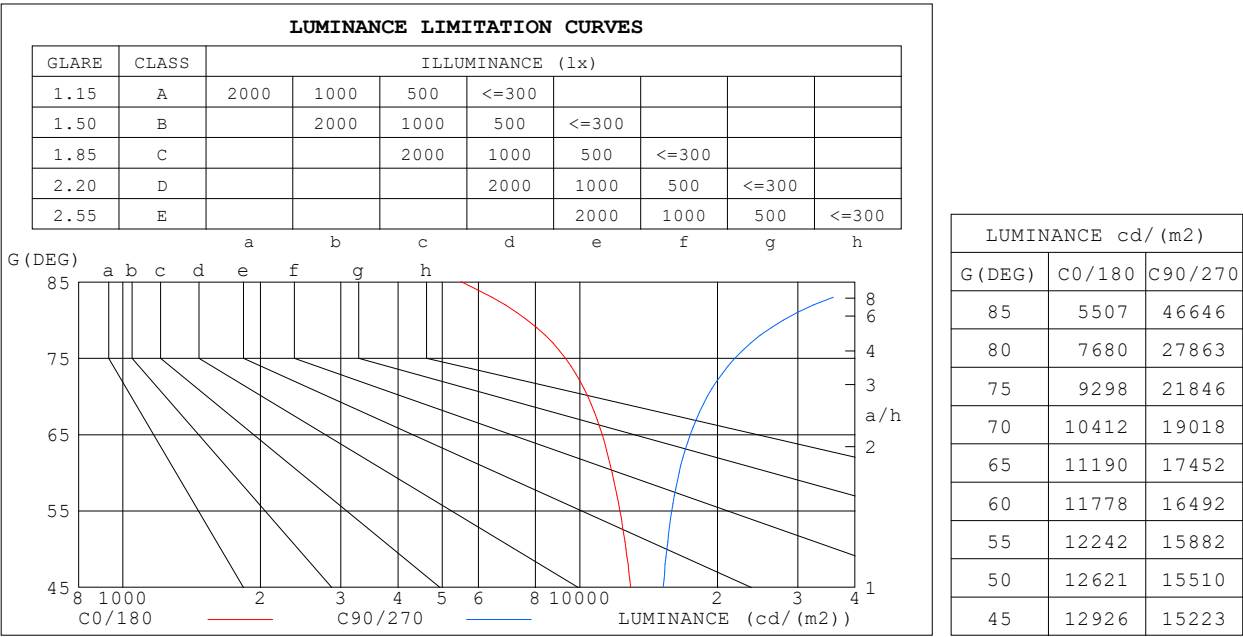
ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	2014	1999	2019	2004	2016	2034	2010	1988	0~ 10	193.4	193.4	2.73,2.73
20	1891	1881	1946	1920	1894	1953	1931	1885	10~ 20	556.0	749.3	10.6,10.6
30	1696	1695	1822	1771	1699	1809	1798	1719	20~ 30	848.1	1597	22.6,22.6
40	1449	1462	1646	1562	1453	1611	1612	1497	30~ 40	1032	2630	37.2,37.2
50	1162	1194	1428	1313	1168	1368	1391	1235	40~ 50	1091	3720	52.6,52.6
60	843.4	912.9	1181	1045	854.8	1099	1145	955.8	50~ 60	1024	4744	67.1,67.1
70	510.0	650.2	931.6	775.1	523.6	822.6	899.2	687.1	60~ 70	855.6	5600	79.2,79.2
80	191.0	418.6	692.9	533.2	204.8	574.9	666.5	452.5	70~ 80	626.3	6226	88,88
90	13.09	234.7	480.0	330.5	15.39	364.7	457.8	261.1	80~ 90	392.7	6619	93.6,93.6
100	11.76	103.2	301.1	177.1	11.65	202.6	283.7	121.2	90~100	226.7	6846	96.8,96.8
110	10.83	26.39	158.7	66.09	10.60	80.80	142.3	36.62	100~110	112.4	6958	98.4,98.4
120	13.07	21.16	58.04	18.86	12.93	19.20	47.79	19.50	110~120	42.91	7001	99,99
130	16.08	22.39	26.21	20.61	16.06	19.09	25.22	20.67	120~130	19.33	7020	99.3,99.3
140	19.15	23.24	26.10	22.10	19.21	20.61	25.34	21.98	130~140	16.66	7037	99.5,99.5
150	21.74	24.02	25.92	23.44	21.92	22.39	25.45	23.03	140~150	14.35	7051	99.7,99.7
160	23.82	24.64	25.78	24.64	24.08	23.96	25.72	24.17	150~160	11.12	7062	99.9,99.9
170	25.31	25.95	25.78	25.43	25.63	25.22	26.45	25.19	160~170	7.102	7069	100,100
180	26.18	26.24	25.75	26.21	26.18	25.98	25.95	26.21	170~180	2.468	7072	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:钟国琴
Test Date:2025-07-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:21.800m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

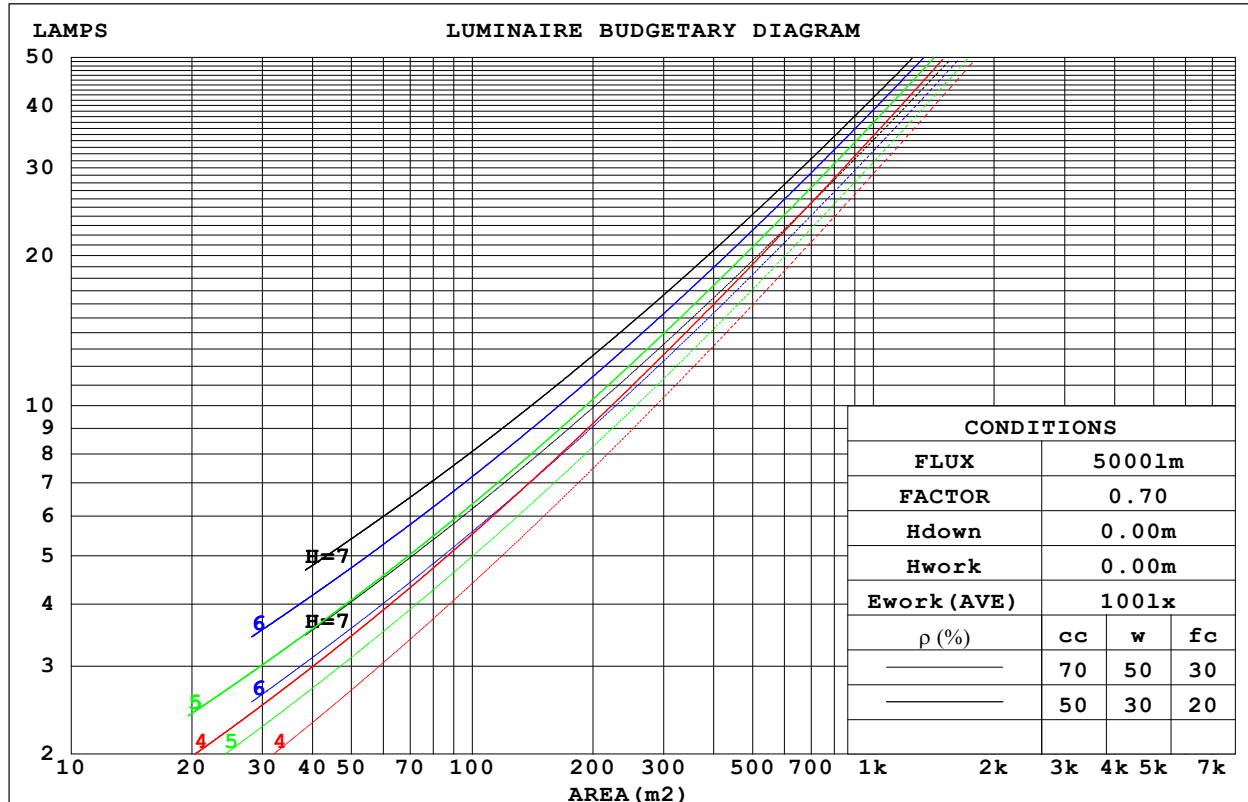


C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:钟国琴
Test Date:2025-07-08

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:21.800m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio			Coefficients of Utilization(CU)												
0.0	1.18	1.18	1.18	1.14	1.14	1.14	1.08	1.08	1.08	1.02	1.02	1.02	.96	.96	.96	.94
1.0	.00	.95	.90	.97	.92	.88	.91	.88	.84	.86	.83	.80	.82	.79	.77	.74
2.0	.86	.78	.72	.83	.77	.71	.79	.73	.68	.75	.70	.66	.71	.67	.63	.60
3.0	.75	.66	.59	.73	.65	.58	.69	.62	.56	.65	.59	.55	.62	.57	.53	.50
4.0	.66	.57	.50	.64	.56	.49	.61	.54	.48	.58	.51	.46	.55	.49	.45	.42
5.0	.59	.49	.43	.57	.49	.42	.54	.47	.41	.52	.45	.40	.49	.43	.39	.36
6.0	.53	.44	.37	.52	.43	.36	.49	.41	.36	.47	.40	.35	.45	.39	.34	.32
7.0	.48	.39	.32	.47	.38	.32	.45	.37	.31	.43	.36	.31	.41	.35	.30	.28
8.0	.44	.35	.29	.43	.34	.29	.41	.33	.28	.39	.32	.27	.37	.31	.27	.25
9.0	.40	.32	.26	.39	.31	.26	.37	.30	.25	.36	.29	.25	.34	.29	.24	.22
10.0	.37	.29	.23	.36	.28	.23	.35	.28	.23	.33	.27	.22	.32	.26	.22	.20



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: 钟国琴
Test Date: 2025-07-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity: 65.0%
Test Distance: 21.800m [K=1.0000]
Remarks:

WEC AND CCEC

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.359	.204	.065	.350	.200	.063	.333	.191	.061	.317	.183	.059	.303	.175	.057	
2.0	.320	.175	.054	.312	.172	.053	.296	.165	.051	.282	.158	.050	.269	.152	.048	
3.0	.288	.153	.046	.281	.150	.045	.267	.145	.044	.254	.139	.043	.243	.134	.042	
4.0	.262	.136	.040	.255	.134	.039	.243	.129	.038	.231	.124	.037	.221	.120	.037	
5.0	.239	.122	.035	.233	.120	.035	.222	.116	.034	.212	.112	.033	.203	.108	.033	
6.0	.220	.110	.032	.215	.109	.031	.205	.105	.031	.196	.102	.030	.187	.098	.029	
7.0	.204	.101	.029	.199	.099	.028	.190	.096	.028	.182	.093	.027	.174	.090	.027	
8.0	.189	.093	.026	.185	.091	.026	.177	.088	.025	.169	.086	.025	.162	.083	.024	
9.0	.177	.086	.024	.173	.084	.024	.166	.082	.023	.159	.080	.023	.152	.077	.022	
10.0	.166	.080	.022	.162	.078	.022	.156	.076	.021	.149	.074	.021	.143	.072	.021	

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio			Ceiling Cavity Exitance Coefficients(CCEC)												
0.0	.239	.239	.239	.205	.205	.205	.140	.140	.140	.080	.080	.080	.026	.026	.026	
1.0	.233	.205	.180	.199	.176	.155	.136	.121	.107	.078	.070	.062	.025	.023	.020	
2.0	.226	.181	.144	.193	.156	.125	.132	.108	.087	.076	.063	.051	.024	.020	.017	
3.0	.218	.164	.122	.187	.142	.105	.128	.098	.074	.074	.057	.044	.024	.019	.014	
4.0	.210	.151	.106	.180	.131	.093	.124	.091	.065	.072	.053	.039	.023	.017	.013	
5.0	.202	.141	.096	.174	.122	.084	.120	.085	.059	.069	.050	.035	.022	.016	.012	
6.0	.195	.133	.089	.167	.115	.077	.116	.081	.055	.067	.047	.032	.022	.015	.011	
7.0	.188	.126	.083	.162	.109	.072	.112	.077	.051	.065	.045	.031	.021	.015	.010	
8.0	.181	.120	.079	.156	.104	.069	.108	.073	.049	.063	.043	.029	.020	.014	.010	
9.0	.175	.116	.076	.151	.100	.066	.104	.070	.047	.061	.042	.028	.020	.014	.009	
10.0	.169	.111	.073	.146	.097	.064	.101	.068	.045	.059	.040	.027	.019	.013	.009	

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: 钟国琴
 Test Date: 2025-07-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity: 65.0%
 Test Distance: 21.800m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions	Viewed crosswise					Viewed endwise				
x = 2H y = 2H	20.8	22.3	21.1	22.6	22.9	22.0	23.5	22.3	23.8	24.1
3H	22.2	23.6	22.6	24.0	24.4	24.2	25.6	24.6	26.0	26.3
4H	22.8	24.1	23.2	24.5	24.9	25.5	26.8	25.9	27.1	27.5
6H	23.2	24.5	23.6	24.8	25.3	26.8	28.0	27.2	28.4	28.8
8H	23.3	24.5	23.7	24.9	25.3	27.5	28.7	27.9	29.1	29.5
12H	23.3	24.5	23.8	24.9	25.4	28.3	29.4	28.7	29.9	30.3
4H 2H	21.5	22.8	21.9	23.2	23.6	22.4	23.8	22.9	24.1	24.5
3H	23.2	24.4	23.7	24.8	25.2	24.9	26.1	25.4	26.5	26.9
4H	24.0	25.0	24.4	25.5	25.9	26.3	27.3	26.8	27.8	28.3
6H	24.5	25.5	25.0	25.9	26.5	27.8	28.7	28.3	29.2	29.7
8H	24.7	25.6	25.2	26.1	26.6	28.6	29.5	29.1	30.0	30.5
12H	24.8	25.6	25.3	26.1	26.7	29.6	30.4	30.1	30.9	31.5
8H 4H	24.6	25.4	25.1	25.9	26.5	26.5	27.4	27.0	27.9	28.4
6H	25.4	26.1	25.9	26.6	27.2	28.3	29.0	28.8	29.5	30.1
8H	25.7	26.4	26.3	26.9	27.5	29.3	30.0	29.8	30.5	31.1
12H	26.0	26.5	26.5	27.1	27.7	30.5	31.1	31.1	31.6	32.3
12H 4H	24.7	25.5	25.2	26.0	26.6	26.5	27.4	27.1	27.9	28.4
6H	25.7	26.3	26.2	26.9	27.5	28.3	29.0	28.9	29.6	30.2
8H	26.1	26.7	26.7	27.3	27.9	29.4	30.0	30.0	30.6	31.2
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.1				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.2				
2.0H	+ 0.1 / - 0.3					+ 0.2 / - 0.3				

CIE Pub.117, 7072 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 6.8$)

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: 钟国琴
 Test Date: 2025-07-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity: 65.0%
 Test Distance: 21.800m [K=1.0000]
 Remarks:

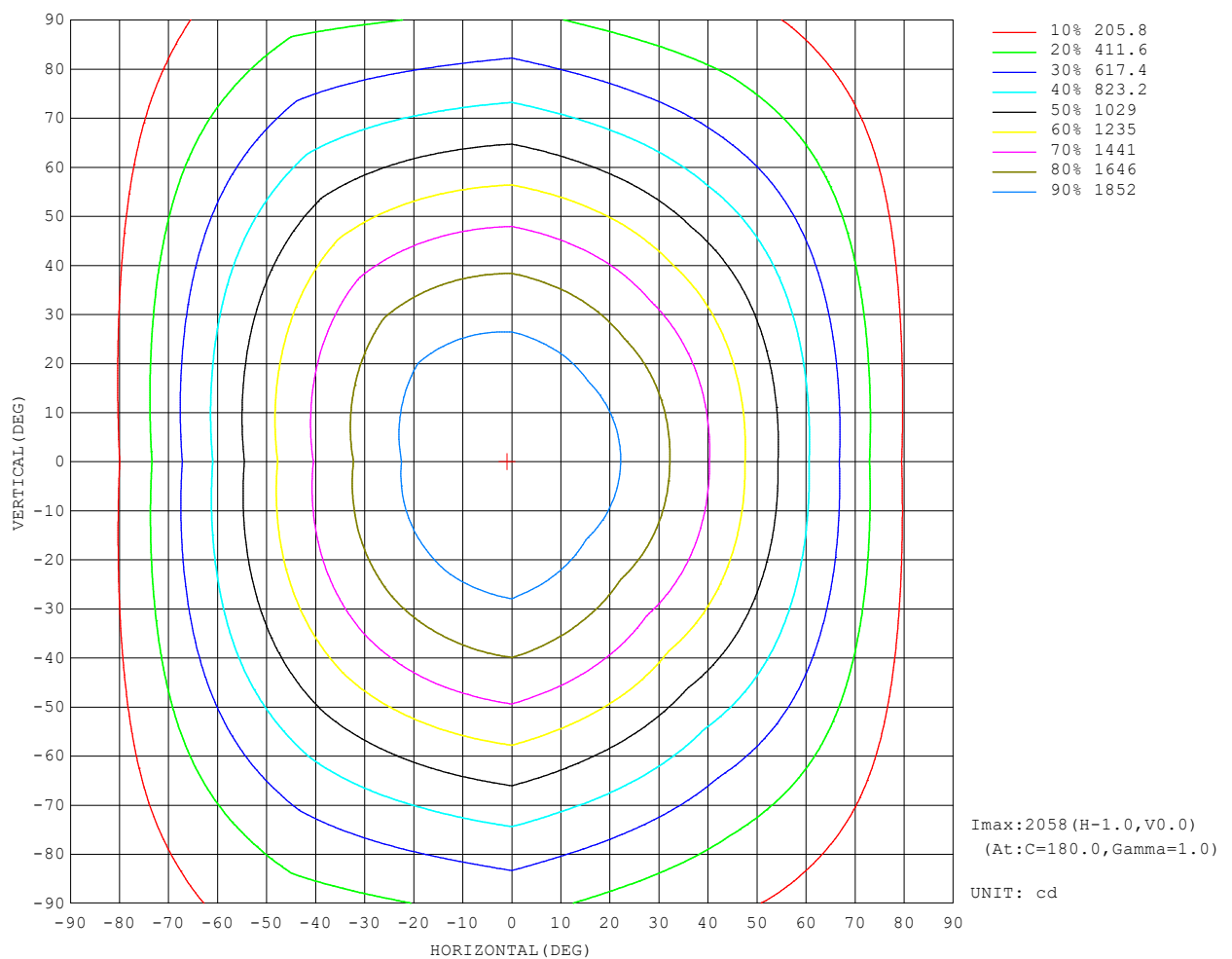
UTILIZATION FACTORS TABLE

REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	53	41	34	52	41	34	51	40	33	27
0.80	63	50	42	61	50	42	59	49	42	34
1.00	71	59	51	69	58	50	67	59	50	42
1.25	78	66	58	76	65	57	73	63	56	48
1.50	83	71	64	81	70	63	77	68	62	53
2.00	90	80	72	87	78	71	83	75	69	60
2.50	94	85	78	91	83	76	87	80	74	64
3.00	97	89	83	95	87	81	90	84	78	68
4.00	102	95	89	99	93	87	94	88	84	73
5.00	105	98	93	102	96	91	96	92	88	76
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: 钟国琴
 Test Date: 2025-07-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity: 65.0%
 Test Distance: 21.800m [K=1.0000]
 Remarks:

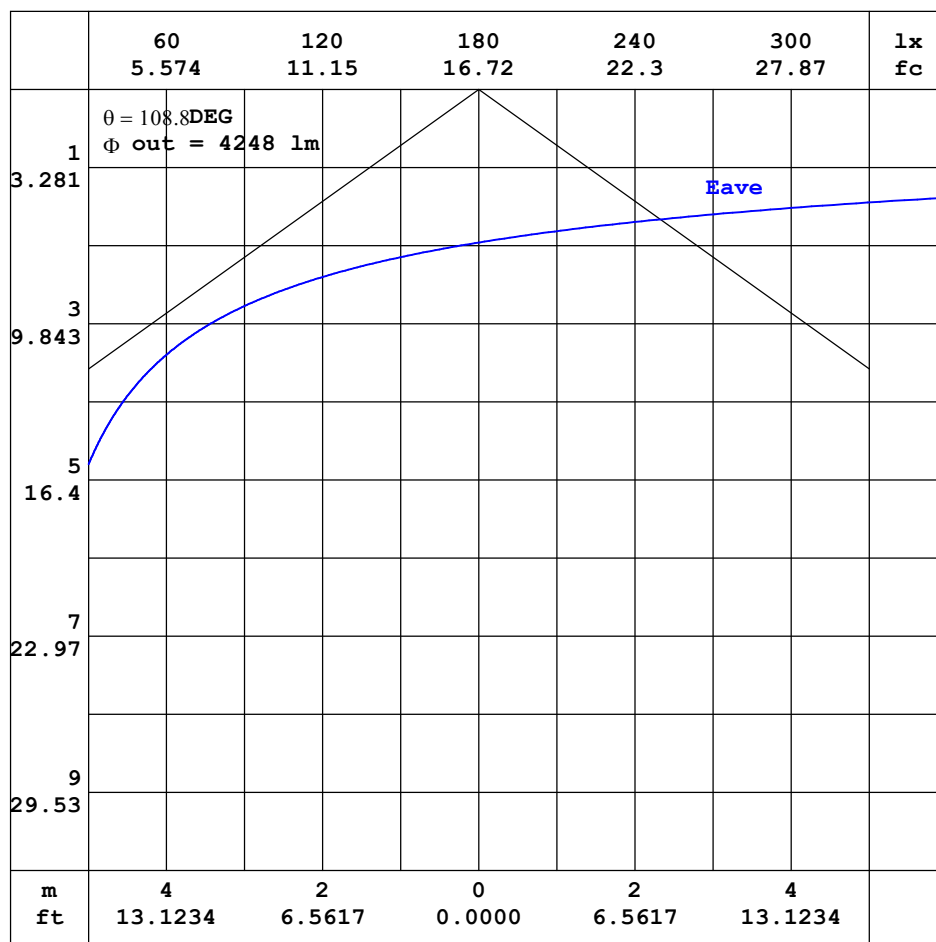
ISOCANDELA DIAGRAM



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: 钟国琴
Test Date: 2025-07-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity: 65.0%
Test Distance: 21.800m [K=1.0000]
Remarks:

AAI CURVES

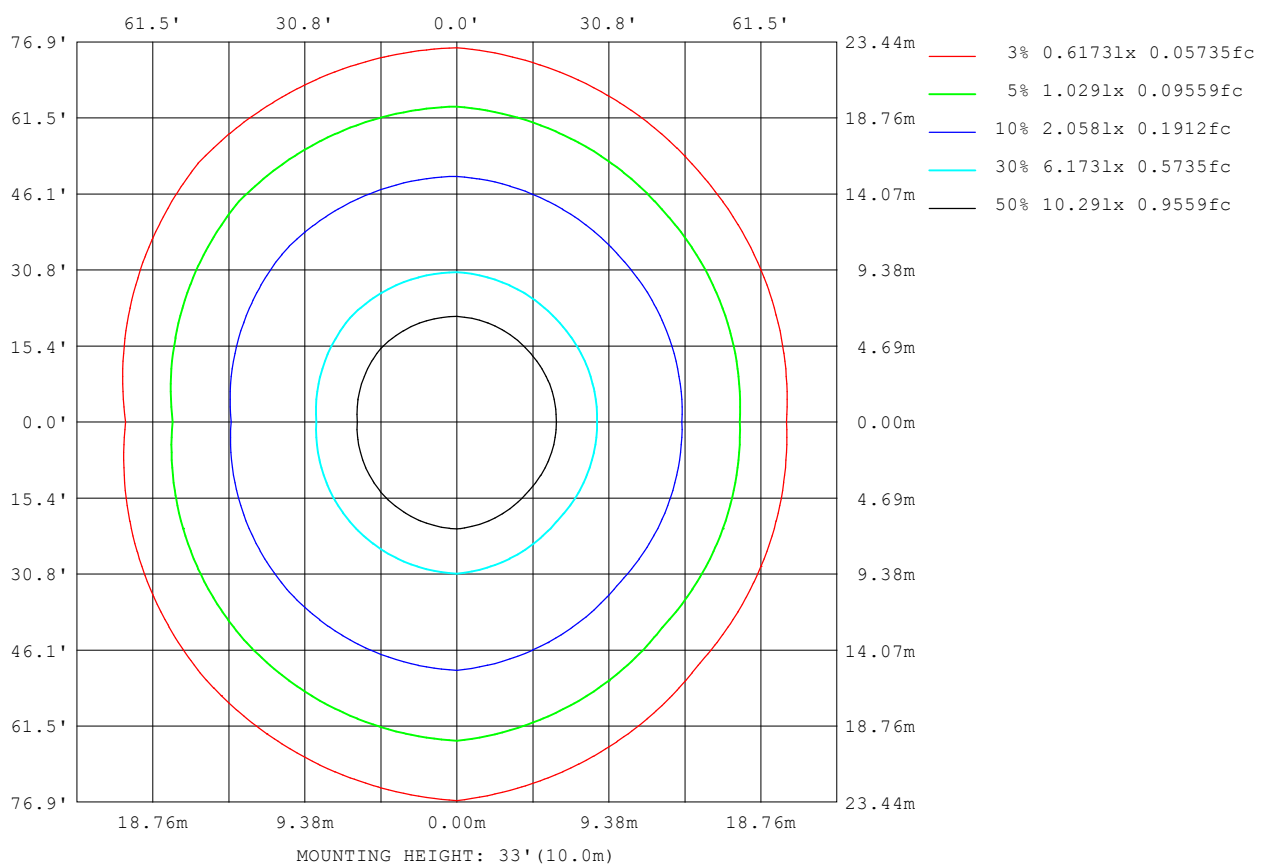


Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: 钟国琴
 Test Date: 2025-07-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity: 65.0%
 Test Distance: 21.800m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: 钟国琴
Test Date: 2025-07-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity: 65.0%
Test Distance: 21.800m [K=1.0000]
Remarks:

LED Avg.L Report

Test:U:230.04V I:0.2149A P:48.003W PF:0.9710 Freq:49.99Hz Lamp Flux:7071.89x1 lm		
NAME: TRI-PROOF	TYPE:LED	WEIGHT:
SPEC.:R844948	DIM.: 1580*93*75	SERIAL No.:
MFR.: ROCHLUX	SUR.:1540*93	Shielding Angle:

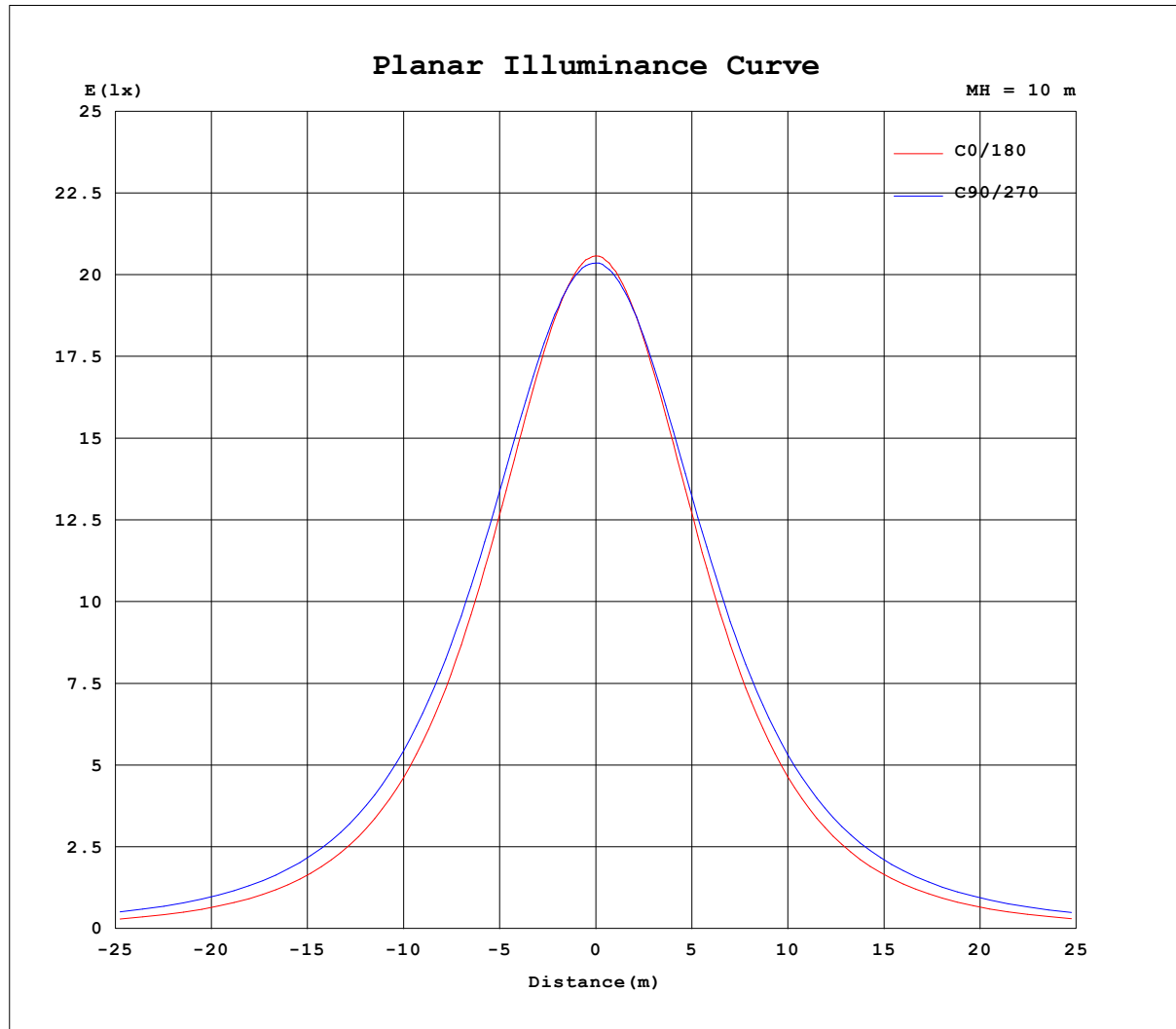
AvgL	cd/m2
L_0~180 (65) av	11299
L_0~180 (75) av	9488
L_0~180 (85) av	5905
L_90~270 (65) av	17162
L_90~270 (75) av	21444
L_90~270 (85) av	45685
L_45 (65) av	14305
L_45 (75) av	16451
L_45 (85) av	31241

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators: !"
Test Date:2025-07-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:21.800m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: 钟国琴
Test Date: 2025-07-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity: 65.0%
Test Distance: 21.800m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	45	90	135	180	225	270	315										
0	2058	2050	2037	2022	2058	2050	2037	2022										
5	2047	2032	2033	2021	2046	2049	2030	2014										
10	2014	1999	2019	2004	2016	2034	2010	1988										
15	1961	1949	1989	1971	1964	2000	1977	1945										
20	1891	1881	1946	1920	1894	1953	1931	1885										
25	1801	1798	1892	1851	1806	1888	1871	1810										
30	1696	1695	1822	1771	1699	1809	1798	1719										
35	1579	1584	1740	1669	1582	1716	1709	1613										
40	1449	1462	1646	1562	1453	1611	1612	1497										
45	1309	1330	1542	1441	1315	1494	1506	1369										
50	1162	1194	1428	1313	1168	1368	1391	1235										
55	1006	1055	1305	1180	1014	1235	1268	1097										
60	843	913	1181	1045	855	1099	1145	956										
65	677	779	1056	907	690	960	1021	818										
70	510	650	932	775	524	823	899	687										
75	345	530	810	650	359	695	780	565										
80	191	419	693	533	205	575	666	452										
85	68.7	320	582	426	78.7	464	558	350										
90	13.1	235	480	331	15.4	365	458	261										
95	12.1	162	387	248	12.2	277	367	185										
100	11.8	103	301	177	11.6	203	284	121										
105	11.1	57.9	224	115	11.2	136	208	72.2										
110	10.8	26.4	159	66.1	10.6	80.8	142	36.6										
115	11.6	20.9	103	32.8	11.7	41.9	88.8	19.6										
120	13.1	21.2	58.0	18.9	12.9	19.2	47.8	19.5										
125	14.5	21.8	27.6	19.6	14.5	18.3	25.0	20.0										
130	16.1	22.4	26.2	20.6	16.1	19.1	25.2	20.7										
135	17.7	22.9	26.2	21.5	17.7	19.8	25.3	21.5										
140	19.1	23.2	26.1	22.1	19.2	20.6	25.3	22.0										
145	20.5	23.7	26.0	22.7	20.6	21.5	25.4	22.5										
150	21.7	24.0	25.9	23.4	21.9	22.4	25.5	23.0										
155	22.9	24.3	25.9	24.1	23.1	23.3	25.5	23.6										
160	23.8	24.6	25.8	24.6	24.1	24.0	25.7	24.2										
165	24.8	25.1	25.8	25.1	24.9	24.8	26.0	24.7										
170	25.3	26.0	25.8	25.4	25.6	25.2	26.4	25.2										
175	25.8	26.2	26.1	25.6	26.2	25.6	26.6	25.8										
180	26.2	26.2	25.7	26.2	26.2	26.0	26.0	26.2										

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
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Operators: 钟国琴
Test Date: 2025-07-08

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity: 65.0%
Test Distance: 21.800m [K=1.0000]
Remarks: