



Report No.: RHL21101814-9

LM-79-08 Test Report

For

GREEN CREATIVE LTD

(Brand Name: GREEN CREATIVE)

Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road,
Kowloon Bay, KL, Hong Kong

LED Lamps

Model name(s): 9.5A19DIM/830

Test & Report By:

Peter Zhou

Engineer: Peter Zhou

Date: Oct,25,2021

Review By:

Ryan Liang

Manager: Ryan Liang

1.1 Product Information:

Organization Name	GREEN CREATIVE LTD	
Brand Name	GREEN CREATIVE	
Model Number	9.5A19DIM/830	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Lamps	
Rated Voltage / Frequency	120Vac, 60 Hz	
Nominal Power	9.5W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K	
LED Manufacturer	OSRAM OPTO SEMICONDUCTORS (MALAYSIA) SDN.BHD	
LED Model	GWx JTL6Sx.xM-xxxx-xxxx-x-x	
Sample Number	RHL21101814-901	
Lamp Length	--	mm
Lamp Width	--	mm
Number of Units (modular products)	N/A	s

Photo





1.2 Test Specifications:

Date of Receipt	Oct. 18, 2021
Date of Test	Oct. 20, 2021
Test item	<ol style="list-style-type: none">1. Total Luminous Flux2. Luminous Distribution Intensity3. Luminous Efficacy4. Correlated Color Temperature5. Color Rendering Index6. Chromaticity Coordinate7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none">1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products and IES-LM-79-2019 OPTICAL AND ELECTRICAL MEASUREMENTS OF SOLID-STATE LIGHTING PRODUCTS2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources4. CIE 15-2004 Technical Report Colorimetry5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	HL-WI-EE-001, HL-WI-EE-002

1.3 Test Methods

1) Photometric and Light Distribution Measurement – Goniophotometer Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.

2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.

3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.



2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction HL-WI-EE-001, HL-WI-EE-002)

Test date	2021-10-20	Test Ambient:	25.1 °C
Model Number	9.5A19DIM/830	Stabilization Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
RHL2110 1814-901	120.0	60	0.100	9.32	0.777	80.1

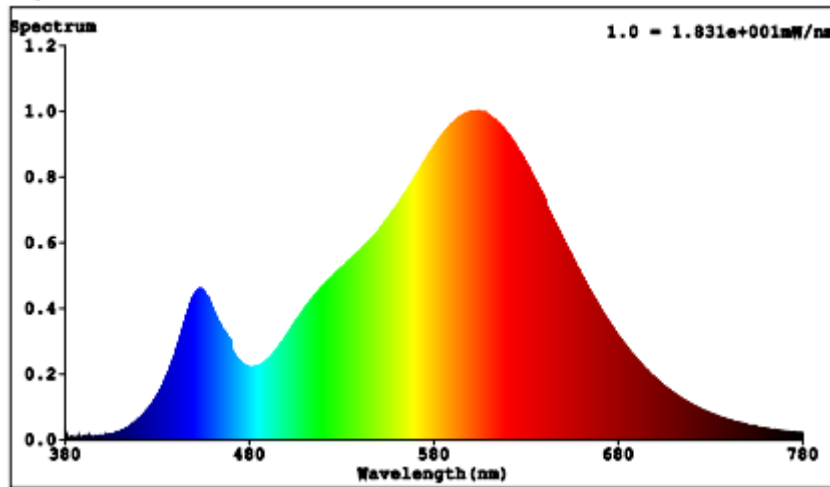
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	11
Frequency (Hz)	60	R2	91	R10	78
CCT (K)	3053	R3	97	R11	79
Duv	-0.0006	R4	80	R12	73
Chromaticity (x, y)	x = 0.4326 y = 0.4014	R5	81	R13	83
Chromaticity (u', v')	u' = 0.2489 v' = 0.5197	R6	88	R14	99
Color Rendering Index (CRI)	83	R7	84	R15	74
R9	11	R8	61	--	--
Rf	85	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-11	--	--	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

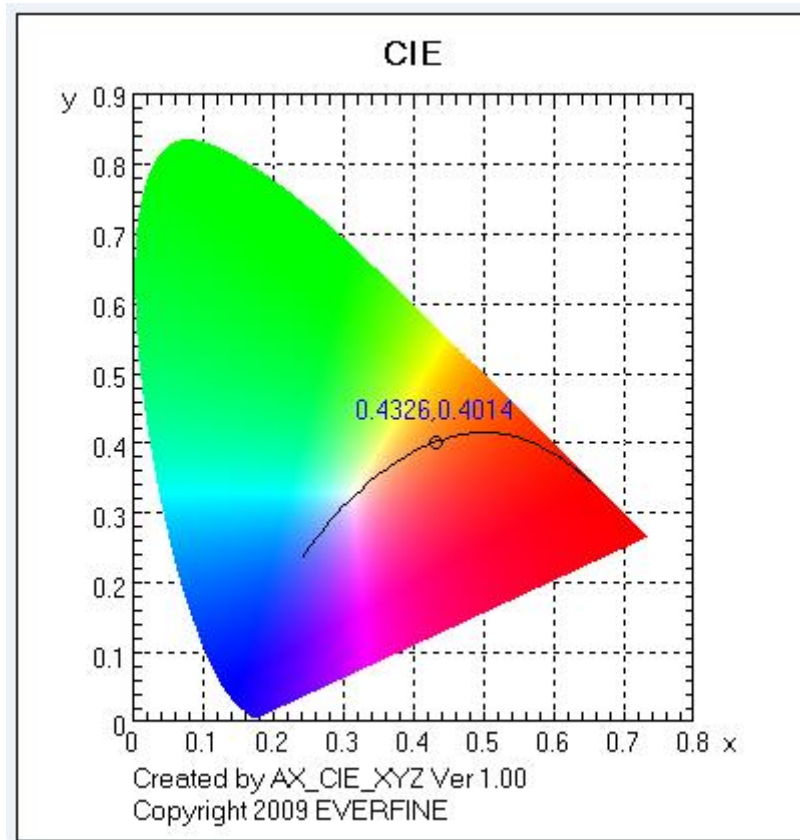
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	917.54
Luminous Efficacy (lm/W)	98.41

Relative Spectral Power Distribution

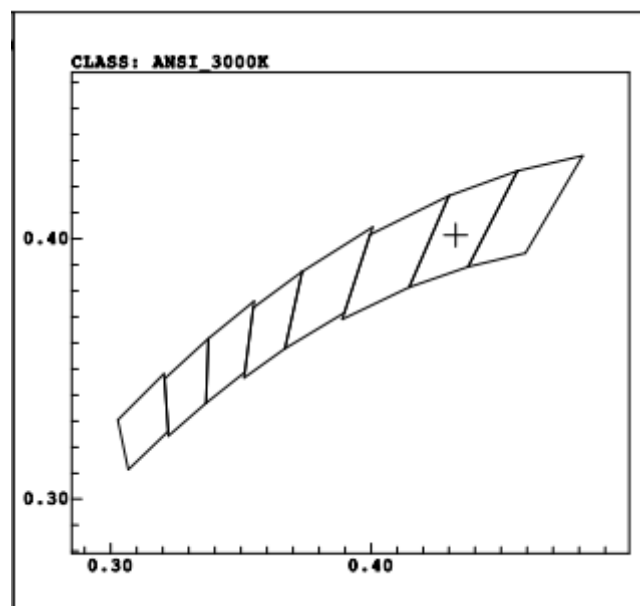


Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	0,0155	485	0,2247	590	0,9598	695	0,2136
385	0,0044	490	0,2439	595	0,9855	700	0,1874
390	0,0085	495	0,2759	600	0,9970	705	0,1614
395	0,0056	500	0,3171	605	0,9967	710	0,1409
400	0,0107	505	0,3607	610	0,9856	715	0,1221
405	0,0153	510	0,3993	615	0,9632	720	0,1048
410	0,0244	515	0,4344	620	0,9293	725	0,0904
415	0,0400	520	0,4669	625	0,8879	730	0,0794
420	0,0631	525	0,4949	630	0,8414	735	0,0681
425	0,0929	530	0,5225	635	0,7870	740	0,0589
430	0,1350	535	0,5490	640	0,7336	745	0,0501
435	0,1922	540	0,5747	645	0,6659	750	0,0435
440	0,2662	545	0,6026	650	0,6105	755	0,0377
445	0,3594	550	0,6335	655	0,5556	760	0,0322
450	0,4392	555	0,6725	660	0,5006	765	0,0281
455	0,4500	560	0,7081	665	0,4500	770	0,0238
460	0,3963	565	0,7535	670	0,4011	775	0,0209
465	0,3395	570	0,8006	675	0,3568	780	0,0192
470	0,2987	575	0,8471	680	0,3150		
475	0,2376	580	0,8906	685	0,2785		
480	0,2199	585	0,9290	690	0,2436		

CIE 1931xy Chromaticity Diagram



Chromaticity Quadrangles



**2.2 Electrical, Photometric and Chromaticity Measurements***(Refer to Work Instruction HL-WI-EE-001, HL-WI-EE-002)*

Test date	2021-10-20	Test Ambient:	25.1 ° C
Model Number	9.5A19DIM/830	Stabilization Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
RHL2110 1814-901	120.0	60	0.101	9.35	0.772	80.52

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	875.8
Luminous Efficacy (lm/W)	93.67
Beam Angle (°)	221.7
Center Beam Candle Power (cd)	106



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Zonal Lumen Tabulation

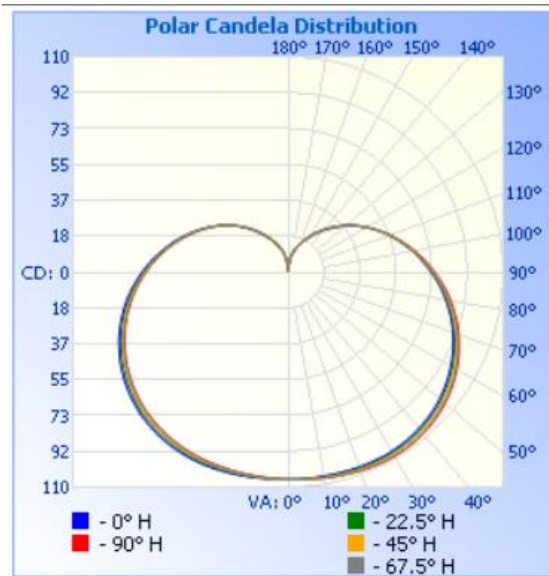
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	89.7	10.2%	10.2%
0-40	156.3	17.8%	17.8%
0-60	326.3	37.3%	37.3%
60-90	271.0	30.9%	30.9%
70-100	253.1	28.9%	28.9%
90-120	189.2	21.6%	21.6%
0-90	597.3	68.2%	68.2%
90-180	278.5	31.8%	31.8%
0-180	875.8	100%	100%

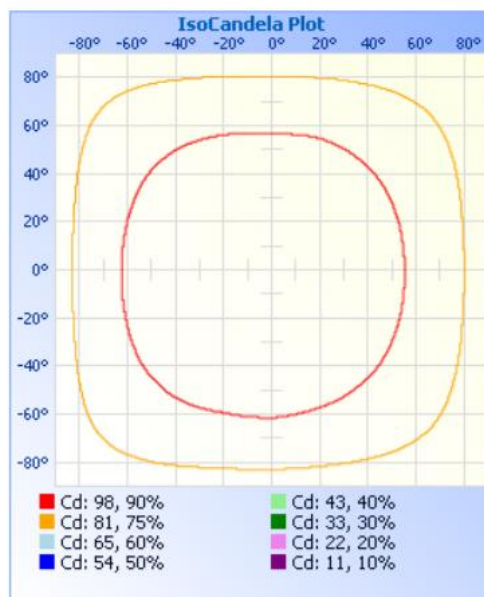
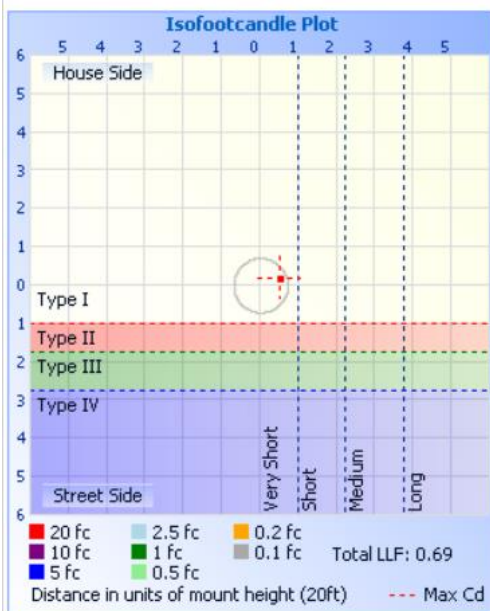
Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	10.1	1.2%	90-100	75.6	8.6%
10-20	30.2	3.4%	100-110	63.4	7.2%
20-30	49.4	5.6%	110-120	50.3	5.7%
30-40	66.6	7.6%	120-130	37.3	4.3%
40-50	80.4	9.2%	130-140	25.3	2.9%
50-60	89.6	10.2%	140-150	15.3	1.7%
60-70	93.4	10.7%	150-160	7.8	0.9%
70-80	92.0	10.5%	160-170	3.2	0.4%
80-90	85.6	9.8%	170-180	0.4	0.1%

Photometric Data

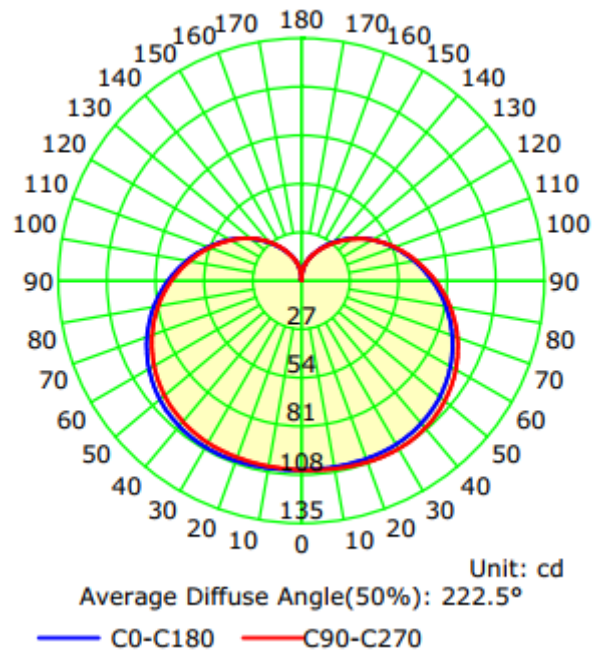


Illuminance at a Distance		
	Center Beam fc	Beam Width
17.0ft	0.37 fc	
34.0ft	0.09 fc	
51.0ft	0.04 fc	
68.0ft	0.02 fc	
85.0ft	0.01 fc	
102.0ft	0.01 fc	





Luminous Intensity Distribution Curve



	C0/C180	C90/C270	C45/C225	C135/315	Avg.
Field Angle	330.7	330.5	331.7	327.5	330.10
Beam Angle	223.3	221.7	222.7	222.5	222.55



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Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
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Laboratory: Hopestar Test Lab Limited, NVLAP Code: 600245-0
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Laboratory: Hopestar Test Lab Limited, NVLAP Code: 600245-0
Add: Room 212, 24 Building, 7 Qingyi Road, Hi-Tech Zone, Ningbo, China
www.hopestartest.com

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3. Test Equipment

Equipment Name	Model No.	Serial No.	Next Calibration Date
Goniophotometric System	GPM-3000	91N827816	2022-09-26
AC Power Source	CHP-1000	213630	2022-09-19
Total Luminous Flux Standard Lamp	24V150W	24V150W	2022-08-10
Digital Power Meter	WT500	TBS1012 C020506	2022-09-19
Integral Sphere (2M)	2m sphere	N.A	N/A
Digital Power Meter	PF310A	P609877CD1391157	2022-04-02
Optical Color and Electrical Measurement System	HAAS-2000	M108544CM5351115	2022-09-26
Expand Uncertainty: Photometric Measurement (Sphere): 2.08%, k=2 Chromaticity Measurement(Sphere):25.6K, k=2 Photometric Measurement(Goniophotometer):2.645%, k=2			

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