



Report No.: RHL21101813-9

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/827

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/827	
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	2700K	
LED Manufacturer	OSRAM OPTO SEMICONDUCTORS (MALAYSIA) SDN.BHD	
LED Model	GWx JTL6Sx.xM-xxxx-xxxx-x-x	
Sample Number	RHL21101813-901	
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/827	Stabilization Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
RHL2110 1813-901	120.0	60	0.095	9.006	0.790	76.7

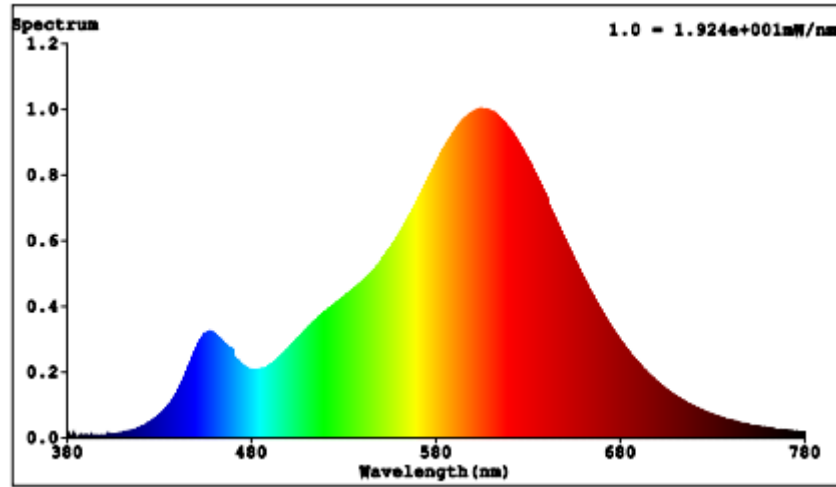
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	5
Frequency (Hz)	60	R2	92	R10	83
CCT (K)	2729	R3	94	R11	77
Duv	-0.0001	R4	78	R12	78
Chromaticity (x, y)	x = 0.4574 y = 0.4098	R5	81	R13	83
Chromaticity (u', v')	u' = 0.2612 v' = 0.5267	R6	92	R14	97
Color Rendering Index (CRI)	82	R7	80	R15	72
R9	5	R8	56	--	--
Rf	85	--	--	--	--
Rg	94	--	--	--	--
Rcs,h1(%)	-12	--	--	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

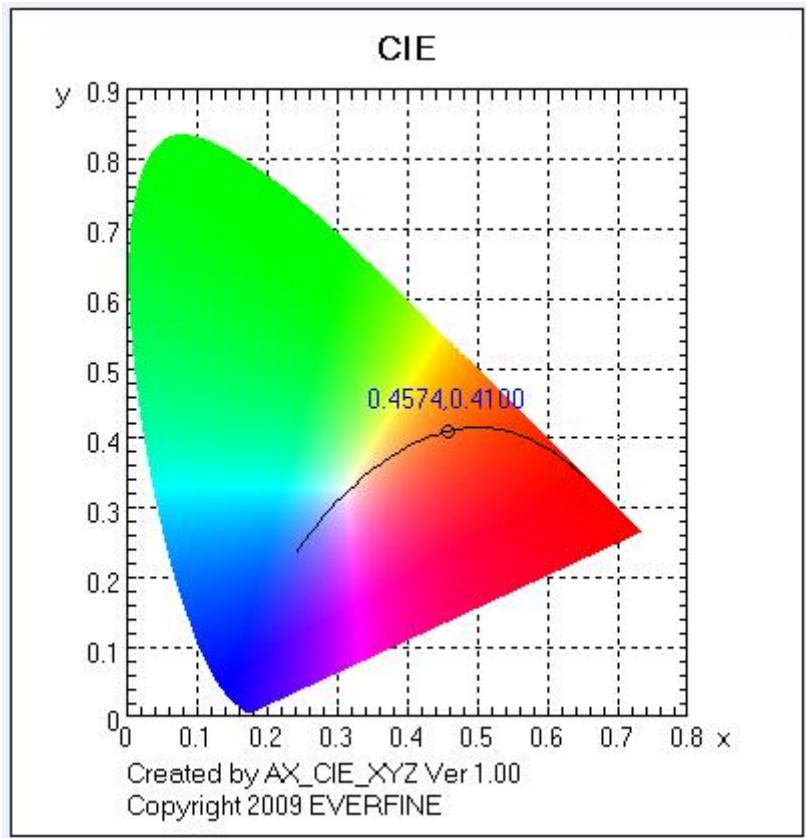
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	878.28
Luminous Efficacy (lm/W)	97.52

Relative Spectral Power Distribution

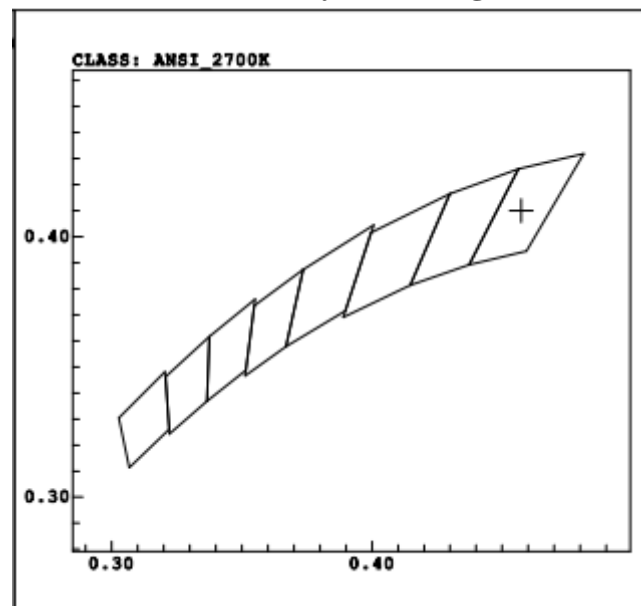


Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	0,0085	485	0,2073	590	0,9295	695	0,1937
385	0,0000	490	0,2202	595	0,9677	700	0,1695
390	0,0054	495	0,2429	600	0,9892	705	0,1450
395	0,0054	500	0,2703	605	0,9962	710	0,1261
400	0,0056	505	0,3010	610	0,9915	715	0,1080
405	0,0079	510	0,3301	615	0,9697	720	0,0933
410	0,0149	515	0,3574	620	0,9387	725	0,0800
415	0,0201	520	0,3829	625	0,8951	730	0,0689
420	0,0310	525	0,4042	630	0,8452	735	0,0595
425	0,0457	530	0,4262	635	0,7887	740	0,0508
430	0,0680	535	0,4487	640	0,7312	745	0,0434
435	0,0970	540	0,4746	645	0,6637	750	0,0374
440	0,1407	545	0,5026	650	0,6013	755	0,0325
445	0,2021	550	0,5318	655	0,5426	760	0,0273
450	0,2670	555	0,5756	660	0,4873	765	0,0239
455	0,3157	560	0,6175	665	0,4331	770	0,0207
460	0,3143	565	0,6656	670	0,3833	775	0,0178
465	0,2872	570	0,7203	675	0,3364	780	0,0167
470	0,2654	575	0,7781	680	0,2948		
475	0,2207	580	0,8322	685	0,2582		
480	0,2058	585	0,8855	690	0,2253		

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/827	Stabilization Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
RHL2110 1813-901	120.0	60	0.098	9.21	0.787	76.91

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	851.5
Luminous Efficacy (lm/W)	92.45
Beam Angle (°)	221.4
Center Beam Candle Power (cd)	104



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Zonal Lumen Tabulation

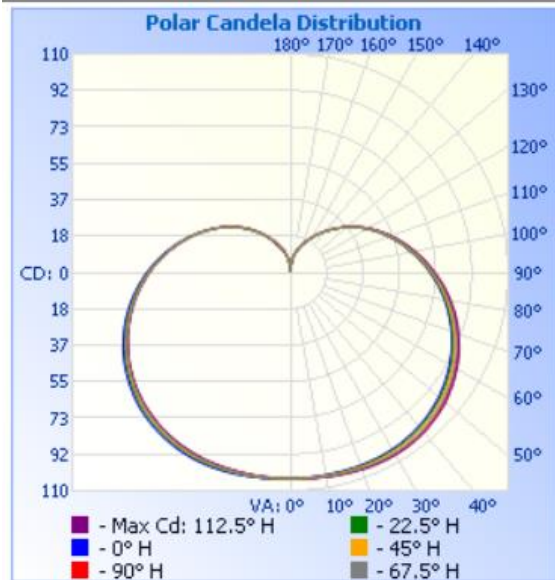
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	87.9	10.3%	10.3%
0-40	153.0	18%	18%
0-60	318.9	37.4%	37.4%
60-90	263.4	30.9%	30.9%
70-100	245.7	28.9%	28.9%
90-120	183.2	21.5%	21.5%
0-90	582.3	68.4%	68.4%
90-180	269.2	31.6%	31.6%
0-180	851.5	100%	100%

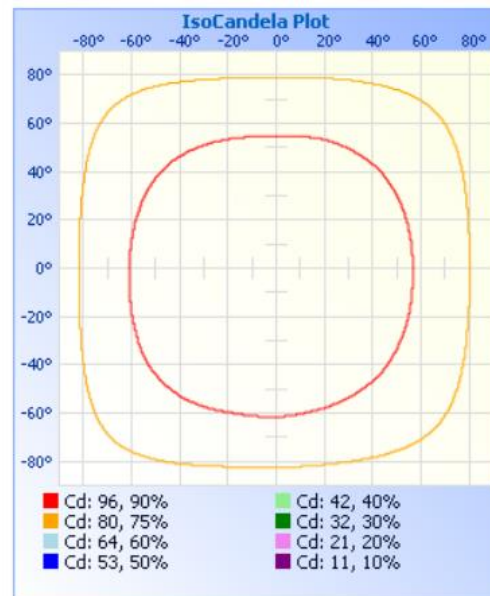
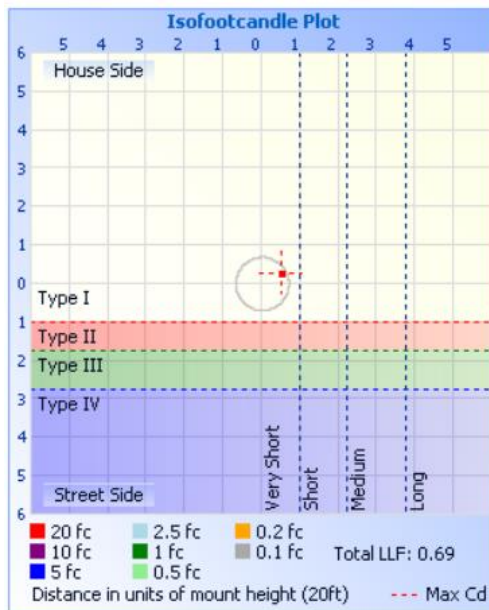
Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	9.9	1.2%	90-100	73.3	8.6%
10-20	29.6	3.5%	100-110	61.4	7.2%
20-30	48.4	5.7%	110-120	48.6	5.7%
30-40	65.2	7.7%	120-130	36.0	4.2%
40-50	78.5	9.2%	130-140	24.3	2.9%
50-60	87.3	10.3%	140-150	14.7	1.7%
60-70	91.0	10.7%	150-160	7.5	0.9%
70-80	89.4	10.5%	160-170	3.1	0.4%
80-90	83.1	9.8%	170-180	0.4	0%

Photometric Data

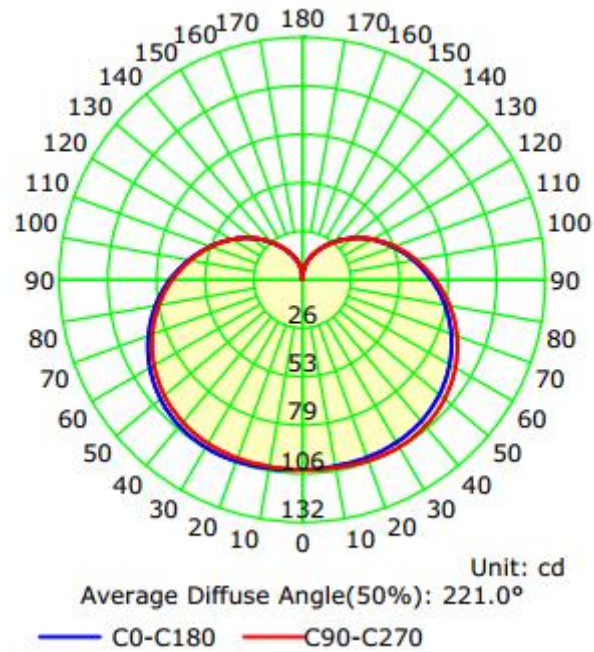


Illuminance at a Distance		
	Center Beam fc	Beam Width
17.0ft	0.36 fc	
34.0ft	0.09 fc	
51.0ft	0.04 fc	
68.0ft	0.02 fc	
85.0ft	0.01 fc	
102.0ft	0.01 fc	





Luminous Intensity Distribution Curve



	C0/C180	C90/C270	C45/C225	C135/315	Avg.
Field Angle	329.5	329.9	331.0	319.3	327.43
Beam Angle	220.6	221.4	222.0	221.5	221.38



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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
0	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104
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86	74	74	75	76	76	77	77	76	76	76	75	75	75	75	75	74	74
87	73	74	74	75	75	76	76	75	75	75	74	74	74	74	74	74	73

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131	35	35	34	34	35	35	35	35	35	35	35	35	35	35	35	35
132	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34

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178	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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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 *****