



Report No.: RHL21111101-9

## 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/835

Test & Report By:

*Peter Zhou*

Engineer: Peter Zhou

Date: Nov.15, 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/835	
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	3500K	
LED Manufacturer	OSRAM OPTO SEMICONDUCTORS (MALAYSIA) SDN.BHD	
LED Model	GWx JTL6Sx.xM-xxxx-xxxx-x-x	
Sample Number	RHL21111101-901	
Lamp Length	--	mm
Lamp Width	--	mm
Number of Units (modular products)	N/A	s

#### Photo





## 1.2 Test Specifications:

Date of Receipt	Nov. 11, 2021
Date of Test	Nov. 12, 2021
Test item	<ol style="list-style-type: none"><li>1. Total Luminous Flux</li><li>2. Luminous Distribution Intensity</li><li>3. Luminous Efficacy</li><li>4. Correlated Color Temperature</li><li>5. Color Rendering Index</li><li>6. Chromaticity Coordinate</li><li>7. Electrical Parameters</li></ol>
Reference Standard	<ol style="list-style-type: none"><li>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 PRODUCTS</li><li>2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products</li><li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li><li>4. CIE 15-2004 Technical Report Colorimetry</li><li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li><li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li></ol>
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  $1^{\circ}$  vertical intervals and  $22.5^{\circ}$  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	2021-11-12	Test Ambient:	25.1 °C
Model Number	9.5A19DIM/835	Stabilization Time (min)	90

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
RHL21111 101-901	120.0	60	0.1	9.32	0.77	80.4

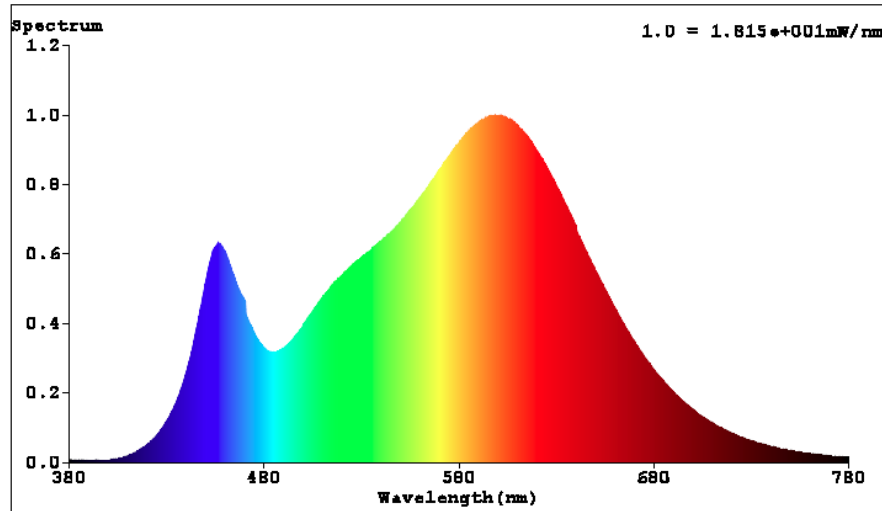
**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	11
Frequency (Hz)	60	R2	91	R10	78
CCT (K)	3436	R3	97	R11	79
Duv	0.0005	R4	80	R12	73
Chromaticity (x, y)	x = 0.4095 y = 0.3940	R5	81	R13	83
Chromaticity (u', v')	u' = 0.2371 v' = 0.5132	R6	88	R14	99
Color Rendering Index (CRI)	84	R7	84	R15	74
R9	11	R8	61	--	--
Rf	85	--	--	--	--
Rg	93	--	--	--	--
Rcs,h1(%)	-12	--	--	--	--

**Photometric Measurement – Sphere-Spectroradiometer Method:**

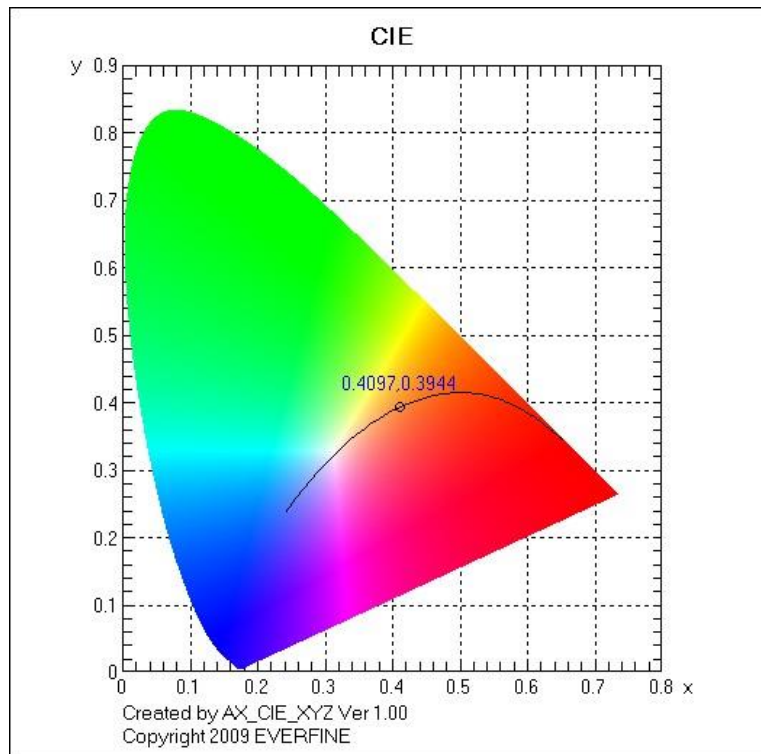
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	963.13
Luminous Efficacy (lm/W)	103.34

## Relative Spectral Power Distribution

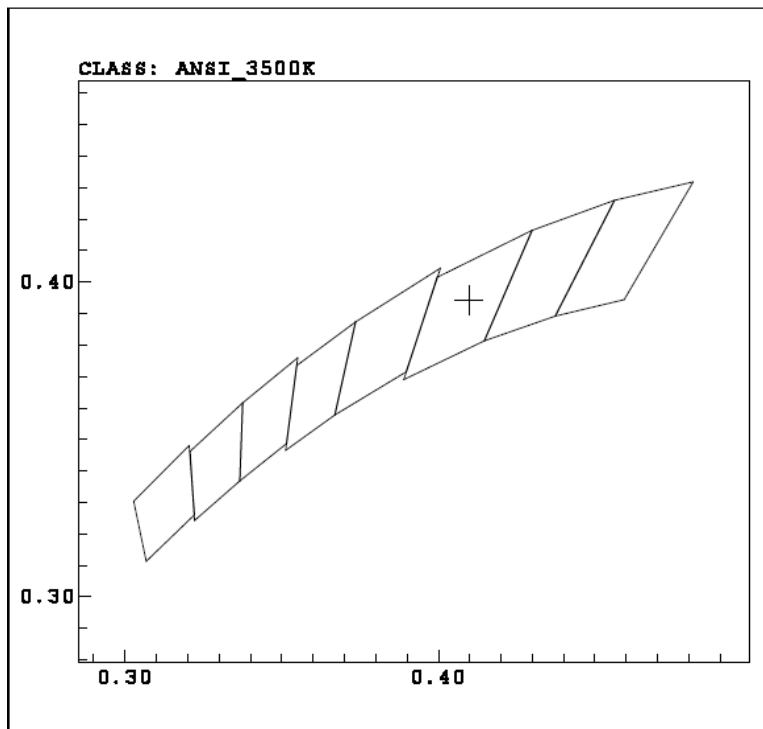


Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	0.0031	485	0.3163	590	0.9795	695	0.1751
385	0.0048	490	0.3284	595	0.9946	700	0.1526
390	0.0041	495	0.3567	600	0.9975	705	0.1312
395	0.0049	500	0.3940	605	0.9898	710	0.1133
400	0.0064	505	0.4354	610	0.9695	715	0.0973
405	0.0101	510	0.4750	615	0.9388	720	0.0835
410	0.0183	515	0.5117	620	0.8966	725	0.0717
415	0.0320	520	0.5398	625	0.8505	730	0.0618
420	0.0512	525	0.5664	630	0.7962	735	0.0529
425	0.0792	530	0.5909	635	0.7395	740	0.0454
430	0.1186	535	0.6119	640	0.6810	745	0.0395
435	0.1747	540	0.6374	645	0.6106	750	0.0337
440	0.2576	545	0.6632	650	0.5513	755	0.0289
445	0.3779	550	0.6906	655	0.4967	760	0.0250
450	0.5198	555	0.7272	660	0.4440	765	0.0216
455	0.6205	560	0.7630	665	0.3930	770	0.0185
460	0.6061	565	0.8022	670	0.3478	775	0.0162
465	0.5284	570	0.8438	675	0.3044	780	0.0152
470	0.4664	575	0.8831	680	0.2669		
475	0.3719	580	0.9187	685	0.2338		
480	0.3291	585	0.9556	690	0.2031		

## 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	2021-11-12	Test Ambient:	25.1 ° C
Model Number	9.5A19DIM/835	Stabilization Time (min)	90

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor	THD %
RHL21111 101-901	120.0	60	0.1	9.37	0.784	81.1

**Photometric Measurement – Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	918.3
Luminous Efficacy (lm/W)	98.0
Beam Angle (°)	237
Center Beam Candle Power (cd)	109



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## Zonal Lumen Tabulation

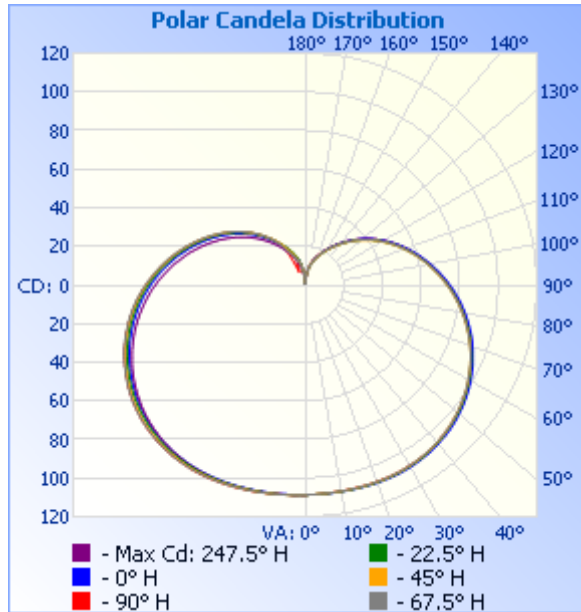
### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	92.1	10%	10%
0-40	160.9	17.5%	17.5%
0-60	337.3	36.7%	36.7%
60-90	284.2	30.9%	30.9%
70-100	266.5	29%	29%
90-120	200.6	21.8%	21.8%
0-90	621.5	67.7%	67.7%
90-180	296.8	32.3%	32.3%
0-180	918.3	100%	100%

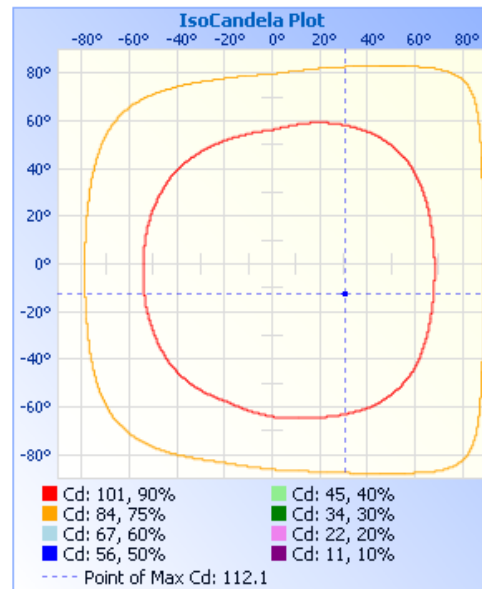
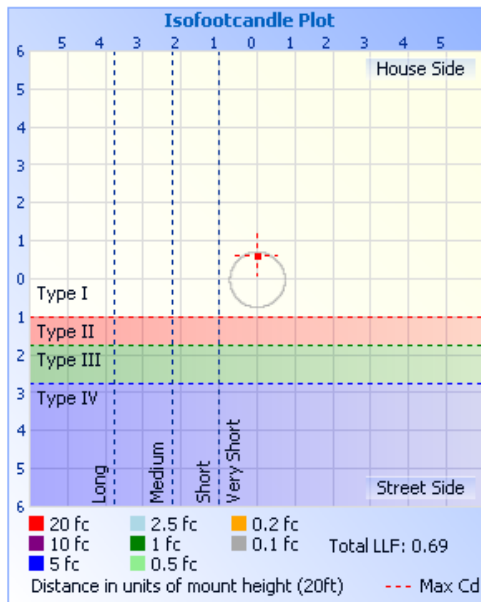
### Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	10.4	1.1%	90-100	79.9	8.7%
10-20	31.0	3.4%	100-110	67.2	7.3%
20-30	50.8	5.5%	110-120	53.5	5.8%
30-40	68.7	7.5%	120-130	39.9	4.3%
40-50	83.3	9.1%	130-140	27.2	3%
50-60	93.1	10.1%	140-150	16.6	1.8%
60-70	97.6	10.6%	150-160	8.5	0.9%
70-80	96.4	10.5%	160-170	3.5	0.4%
80-90	90.2	9.8%	170-180	0.5	0.1%

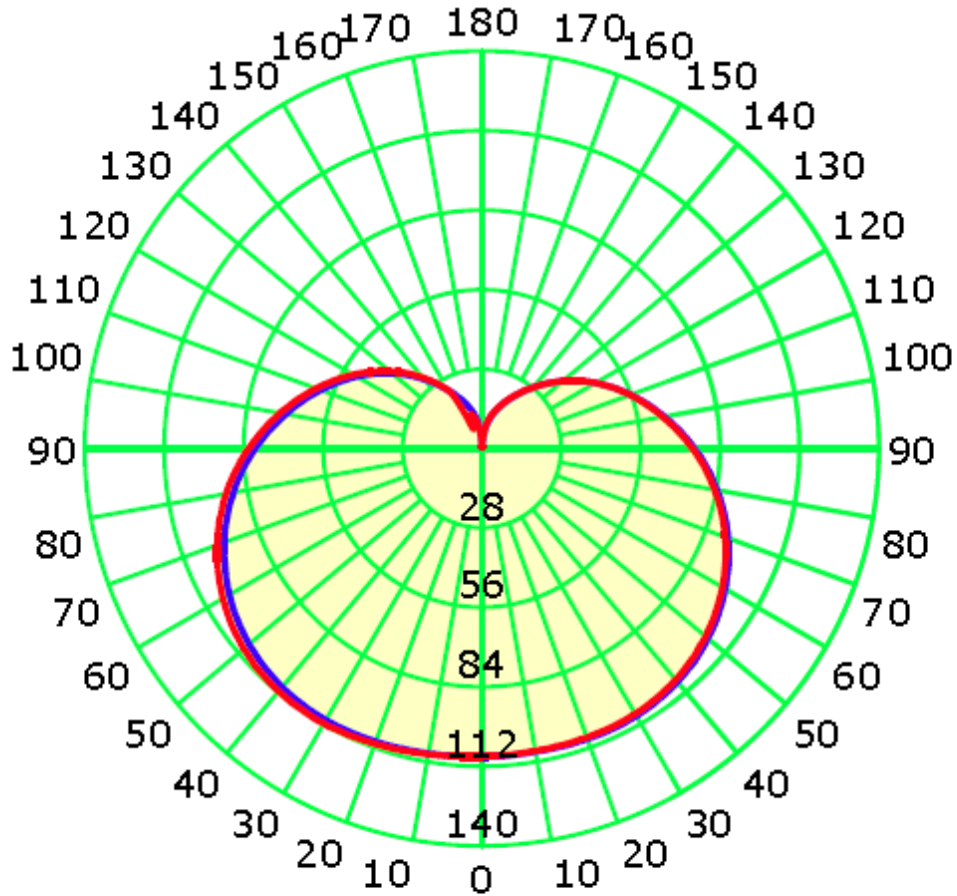
## Photometric Data



Illuminance at a Distance		
	Center Beam fc	Beam Width
17.0ft	<b>0.38 fc</b>	
34.0ft	<b>0.09 fc</b>	
51.0ft	<b>0.04 fc</b>	
68.0ft	<b>0.02 fc</b>	
85.0ft	<b>0.02 fc</b>	
102.0ft	<b>0.01 fc</b>	



### Luminous Intensity Distribution Curve



Unit: cd

Average Diffuse Angle(50%): 226.0°

— C0-C180 — C90-C270

	C0/C180	C90/C270	C45/C225	C135/315	Avg.
Field Angle	334.1	331.6	332.7	333.1	332.9
Beam Angle	226.2	225.8	225.4	226.5	226.0



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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	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
1	140	140	140	140	140	140	140	140	140	141	141	141	140	140	140	140	140
2	139	139	140	140	140	140	140	141	141	141	141	141	140	140	140	140	139
3	139	139	139	139	140	140	140	141	141	141	141	141	141	140	140	139	139
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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  
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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 \*\*\*\*\*