

LM-79-08 Test Report

For

L-TECH CORPORATION

(Brand Name: N/A)

Shaogangtou District, Qiaotou Town , Dongguan City

LED Luminaires

Model name(s): LMPT420(5000K)

Representative (Tested) Model: LMPT420(5000K)

Model Different: N/A

Test & Report By:

Leo Wang

Engineer: Leo Wang

Date: Dec.06,2019

Review By:

Garman Mo

Manager: Garman Mo

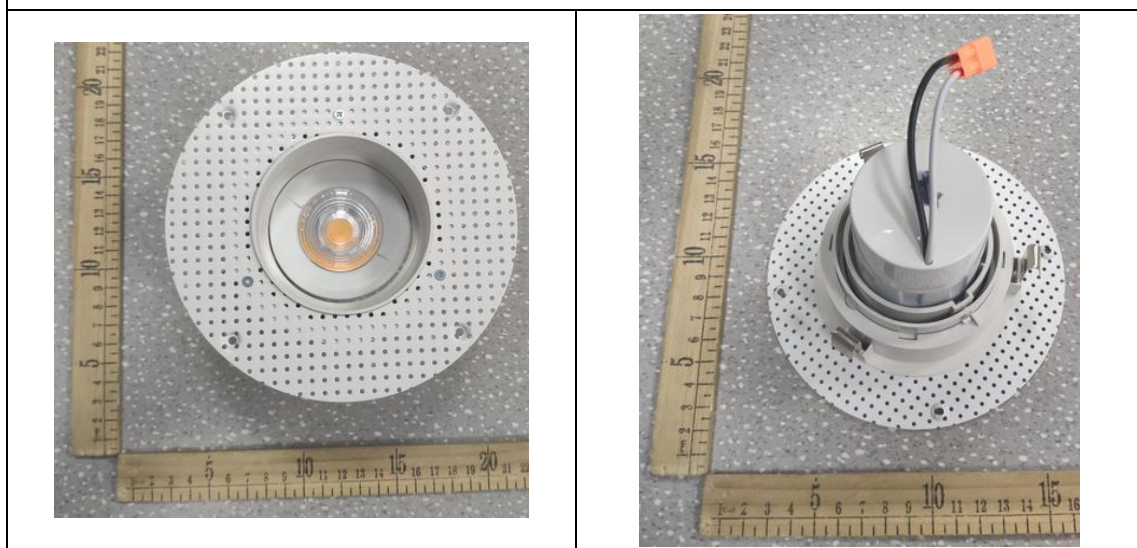
Note: 1.The results contained in this report pertain only to the tested samples.

2.This report does not imply product certification, approval, or endorsement by A2LA, or any agency of the Federal Government.

1.1 Product Information:

Organization Name	L-TECH CORPORATION	
Brand Name	N/A	
Model Number	LMPT420(5000K)	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaires	
Rated Voltage / Frequency	120Vac, 60Hz	
Nominal Power	9W	
Rated Initial Lamp Lumen	--	
Declared CCT	5000K	
LED Manufacturer	Luminus Devices, Inc.	
LED Model	CXM-9	
Sample Number	JCE181204-CC1(5000K)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Photo



1.2 Test Specifications:

Date of Receipt	Jul.10,2019
Date of Test	Dec.03,2019
Test item	<ol style="list-style-type: none"> 1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none"> 1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems

1.3 Test Methods

<p>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 °C ± 1 °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.</p>
<p>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 °C ± 1 °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.</p>
<p>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 °C ± 1 °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.</p>

2.1 Electrical, Photometric and Chromaticity Measurements

Test date	2019-12-03	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LMPT420(5000K)	Total Operating Time (min)	90

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JCE181204-CC1	120.0	60	0.0737	8.541	0.9661	11.70

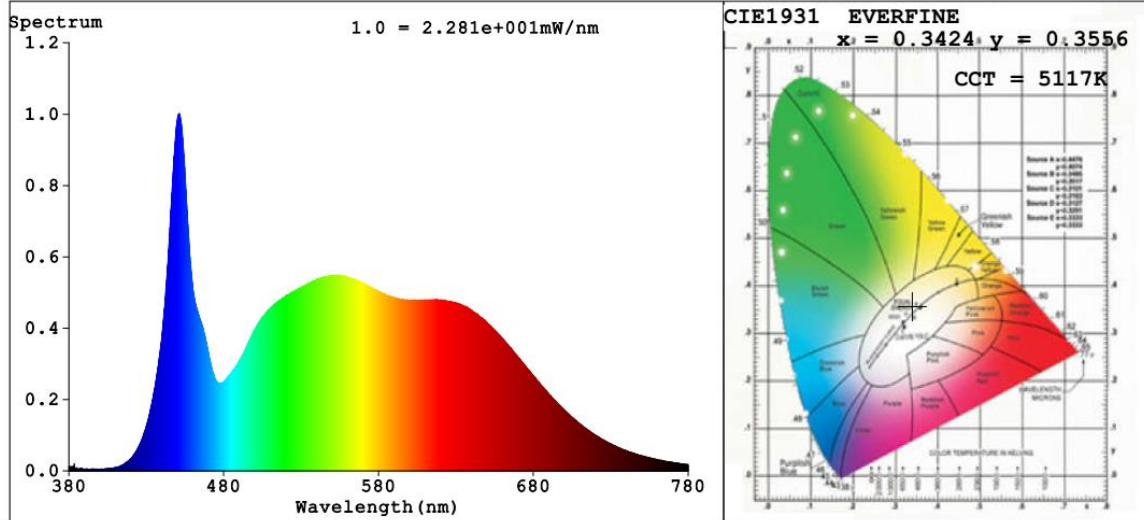
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	91	R9	68
Frequency (Hz)	60	R2	92	R10	80
CCT (K)	5117	R3	91	R11	91
Duv	0.0031	R4	92	R12	68
Chromaticity (x, y)	x=0.3424 y=0.3556	R5	90	R13	91
Chromaticity (u', v')	u'=0.2080 v'=0.4862	R6	88	R14	95
Color Rendering Index (CRI)	90.8	R7	95	R15	90
R9	68	R8	89	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	893.84
Luminous Efficacy (lm/W)	104.65
Beam Angle (°)	31.8
Center Beam Candle Power (cd)	2238

Spectral Power Distribution & Chromaticity Diagram

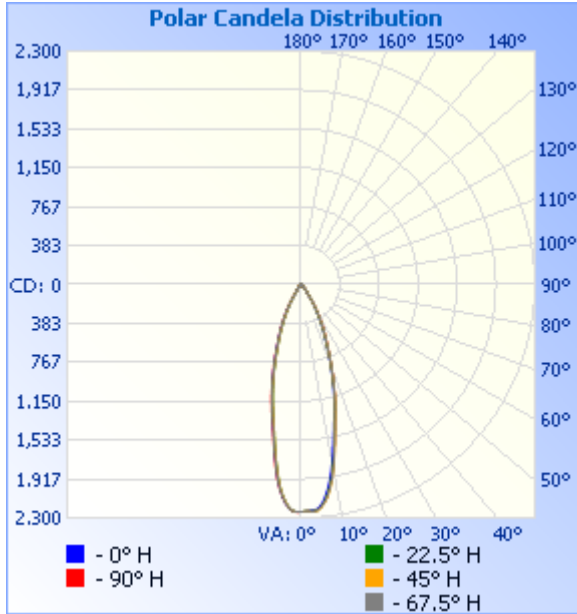


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	749.3	83.9%
0-40	833.5	93.3%
0-60	875.2	98%
60-90	17.9	2%
70-100	8.6	1%
90-120	0.0	0%
0-90	893.1	100%
90-180	0.2	0%
0-180	893.3	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	189.2	21.2%	90-100	0	0%
10-20	328.0	36.7%	100-110	0.0	0%
20-30	232.1	26.0%	110-120	0.0	0%
30-40	84.1	9.4%	120-130	0.0	0%
40-50	28.1	3.1%	130-140	0.0	0%
50-60	13.6	1.5%	140-150	0.0	0%
60-70	9.3	1.0%	150-160	0.0	0%
70-80	6.8	0.8%	160-170	0.0	0%
80-90	1.8	0.2%	170-180	0.0	0%

Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
4.0ft	139.9 fc	2.3 ft	2.3 ft
8.0ft	35.0 fc	4.5 ft	4.6 ft
12.0ft	15.5 fc	6.8 ft	6.9 ft
16.0ft	8.7 fc	9.1 ft	9.2 ft
20.0ft	5.6 fc	11.3 ft	11.5 ft

■ Vert. Spread: 31.6°
■ Horiz. Spread: 32.2°

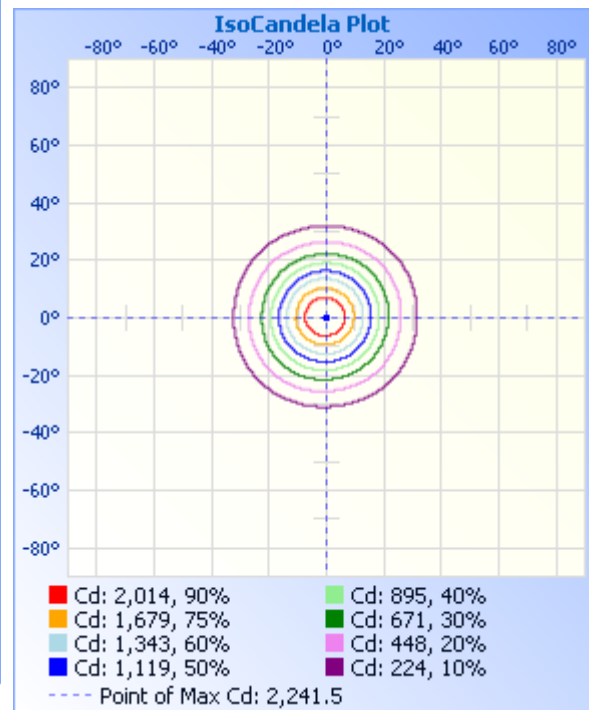
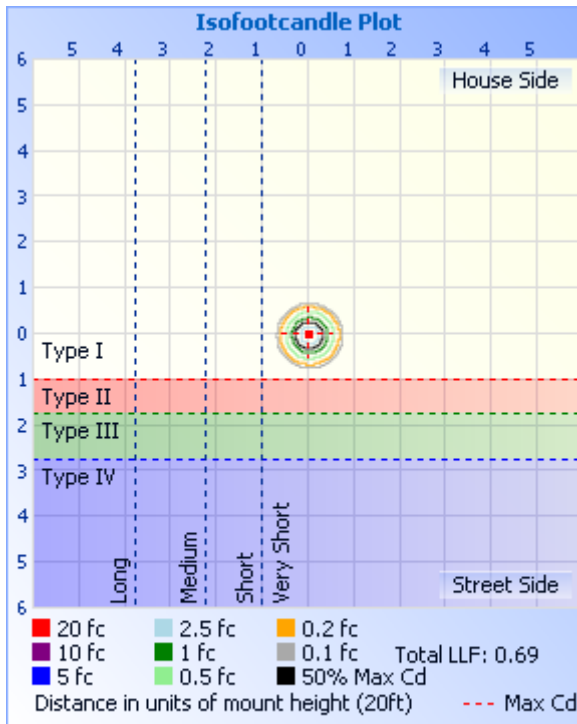


Table--1 UNIT: cd

C (DEG) \ γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	
0	2238	2238	2238	2238	2238	2238	2238	2238	2238	2238	2238	2238	2238	2238	2238	2238	
5	2102	2124	2146	2165	2188	2205	2210	2204	2198	2175	2154	2121	2096	2087	2084	2094	
10	1567	1616	1667	1711	1767	1809	1836	1825	1804	1748	1666	1596	1544	1522	1522	1551	
15	1129	1169	1199	1229	1260	1279	1289	1282	1287	1245	1184	1141	1108	1086	1090	1104	
20	748	782	822	834	852	863	872	870	878	848	802	764	730	705	701	718	
25	472	498	515	527	534	540	552	556	564	547	516	489	456	438	441	453	
30	264	280	288	299	309	315	326	330	337	317	288	265	247	231	233	245	
35	100	109	119	129	139	144	155	144	135	117	101	90.9	87.6	88.7	92.9	98.8	
40	52.4	56.0	59.5	62.6	68.0	71.3	75.7	72.1	67.6	58.3	51.7	47.9	46.9	47.0	49.6	50.8	
45	32.9	34.6	36.2	38.3	40.5	41.5	43.2	40.2	38.5	35.0	32.2	30.5	29.6	29.7	32.4	31.9	
50	18.8	19.7	21.3	22.7	24.3	24.7	26.4	22.9	21.8	20.9	19.1	18.5	18.4	18.9	19.9	19.6	
55	14.7	15.1	15.6	15.5	15.7	15.8	17.7	15.5	14.9	14.1	13.7	13.4	13.4	13.8	16.0	14.6	
60	11.0	11.5	12.0	12.1	12.4	12.3	13.8	12.0	11.6	10.9	10.3	10.0	9.93	10.1	11.5	10.8	
65	9.34	9.40	9.53	9.64	9.81	9.81	9.82	9.52	9.32	8.94	8.72	8.66	8.77	8.95	9.25	9.29	
70	8.34	8.43	8.57	8.65	8.82	8.86	8.85	8.60	8.40	8.04	7.80	7.69	7.75	7.94	8.23	8.31	
75	6.54	6.66	6.80	6.86	6.87	7.00	7.06	6.82	6.63	6.33	6.09	5.80	5.71	5.92	6.35	6.50	
80	4.48	4.64	4.71	4.42	4.29	4.45	4.86	4.79	4.67	4.46	3.96	3.33	3.08	3.25	3.91	4.41	
85	2.26	2.41	1.81	1.24	0.92	1.18	1.77	2.43	2.47	2.18	1.20	0.56	0.30	0.48	1.00	1.91	
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	
115	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
120	0.02	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	
125	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.03	0.03	
130	0.04	0.03	0.01	0.01	0.01	0.01	0.03	0.03	0.04	0.03	0.02	0.02	0.01	0.01	0.04	0.04	
135	0.06	0.05	0.03	0.02	0.02	0.03	0.04	0.05	0.05	0.05	0.03	0.02	0.04	0.03	0.06	0.05	
140	0.08	0.07	0.05	0.03	0.04	0.06	0.06	0.07	0.07	0.07	0.04	0.02	0.05	0.08	0.07	0.07	
145	0.11	0.07	0.04	0.06	0.08	0.08	0.04	0.10	0.09	0.09	0.04	0.07	0.06	0.09	0.04	0.10	
150	0.11	0.13	0.08	0.08	0.11	0.12	0.10	0.08	0.11	0.11	0.05	0.04	0.07	0.07	0.04	0.10	
155	0.09	0.08	0.10	0.12	0.14	0.14	0.14	0.07	0.06	0.05	0.07	0.09	0.05	0.05	0.08	0.07	
160	0.15	0.11	0.13	0.15	0.16	0.17	0.14	0.11	0.12	0.11	0.11	0.11	0.11	0.10	0.11	0.12	
165	0.18	0.14	0.11	0.16	0.15	0.16	0.11	0.14	0.14	0.13	0.13	0.12	0.12	0.11	0.12	0.12	
170	0.15	0.15	0.19	0.14	0.13	0.13	0.18	0.16	0.15	0.15	0.15	0.14	0.12	0.11	0.12	0.12	
175	0.11	0.12	0.13	0.12	0.13	0.13	0.13	0.13	0.10	0.10	0.09	0.09	0.08	0.09	0.09	0.07	
180	0.04	0.04	0.04	0.04	0.01	0.03	0.04	0.06	0.04	0.04	0.04	0.04	0.05	0.05	0.04	0.03	

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-331	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-327	Spectral analysis system HAAS-2000	Verified by D204 standard lamp	
ST-R-332	Standard Lamp	2019-07-03	2020-07-02
ST-R-333	Power Meter for Integrating Sphere	2019-06-27	2020-06-26
ST-R-355	Goniophotometer system	Verified by D908S standard lamp	
ST-R-359	Standard Lamp	2019-07-03	2020-07-02
ST-R-358	Power Meter for Goniophotometer	2019-06-27	2020-06-26
Expand Uncertainty: Photometric Measurement (Sphere):2.66%, k=2 Chromaticity Measurement(Sphere):28.6K, k=2 Photometric Measurement(Goniophotometer):2.76%, k=2			

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