



## LM-79-08 Test Report

For

# L-TECH CORPORATION

(Brand Name: N/A)

Shaogantou District, Qiaotou Town, Dongguan City

## Model name(s): LMPT420(3000K)

**Report Type:** Testing and Report According to IES LM-79-2008  
**Type of Luminaire:** LED Luminaires  
**Report Date:** 2019-07-19  
Ningbo TengLi Testing Co., Ltd  
**Prepared By:** 2nd floor, Block B, Ningbo Testing and Certification Base,  
No. 66 Qingyi Road, Ningbo National Hi-Tech Zone,  
Ningbo, Zhejiang

Test & Report By:

*Xeon Ren*

Engineer: Xeon Ren

Review By:

*Johnson Sun*

Manager: Johnson Sun

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.



Certificate#4703.02

**Ningbo TengLi Testing Co., Ltd**

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<b>1.1 Product Information:</b>		
Model Number	LMPT420(3000K)	
Remark	N/A	
Representative (Tested) Model	LMPT420(3000K)	
Model Difference	N/A	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaires	
LED Manufacturer	Luminus Devices, Inc.	
LED Model	CXM-9	
Dimming	Dimmable	
Sample Number	JCE181204-AA1(3000K)	
Date of Receipt	Mar.15,2019	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

<b>1.2 Rated Values:</b>	
Rated Voltage / Frequency	120Vac, 60Hz
Nominal Power	9W
Rated Initial Lamp Lumen	--
Declared CCT	3000K



### 1.3 Test Specifications:

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</li> <li>2. ANSI C78.377-2015 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	QD25

### 1.4 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  $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ , 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  $1\text{ }^{\circ}$  vertical intervals and  $22.5\text{ }^{\circ}$  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  $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ . 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  $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ . 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.



**2.2 Electrical, Photometric and Chromaticity Measurements**

<b>Test date</b>	2019-03-20	<b>Test Ambient:</b>	23.5 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LMPT420(3000K)		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JCE181204-AA1	120.0	60	0.0751	8.599	0.9538	16.20

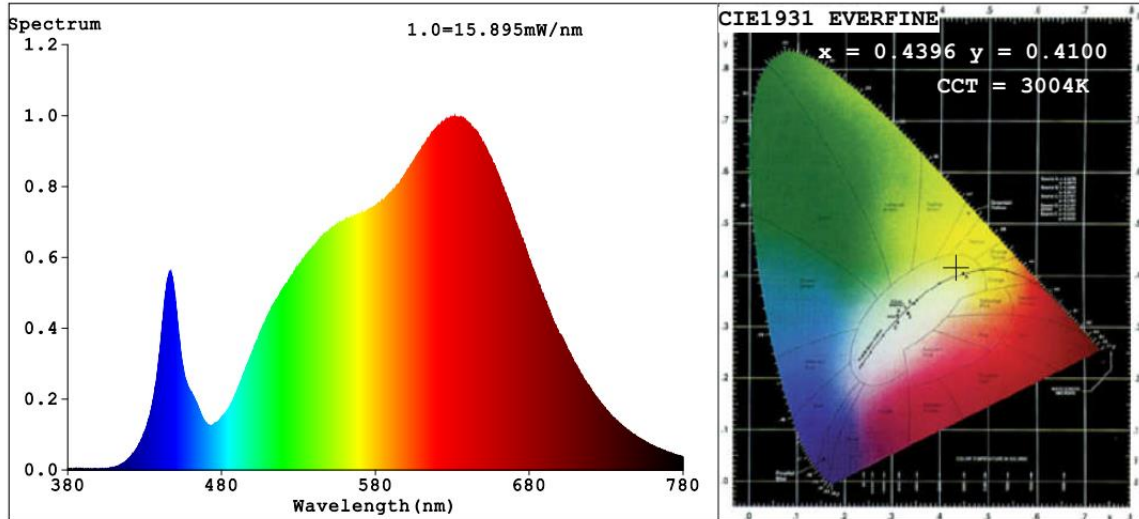
**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	94	R9	75
Frequency (Hz)	60	R2	92	R10	81
CCT (K)	3004	R3	89	R11	94
Duv	0.0020	R4	93	R12	75
Chromaticity (x, y)	x=0.4396 y=0.4100	R5	92	R13	93
Chromaticity (u', v')	u'=0.2497 v'=0.5241	R6	89	R14	93
Color Rendering Index (CRI)	91.8	R7	94	R15	92
R9	75	R8	91	--	--

**Photometric Measurement – Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	803.63
Luminous Efficacy (lm/W)	93.46
Beam Angle (°)	31.9
Center Beam Candle Power (cd)	2002

**Spectral Power Distribution & Chromaticity Diagram**

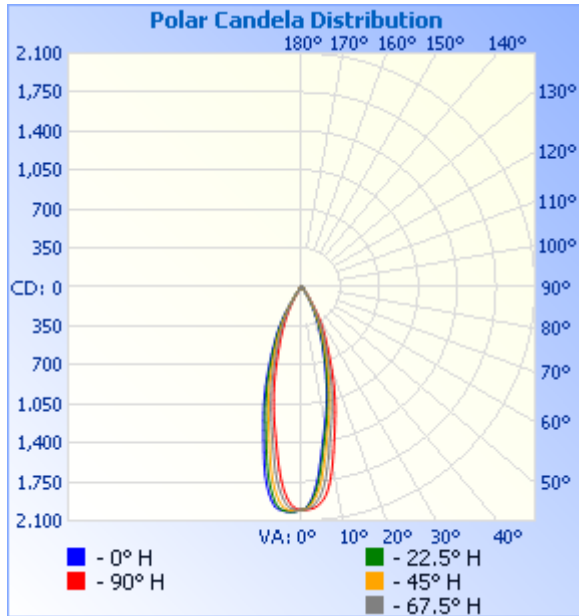


**Zonal Lumen Tabulation**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	672.7	83.8%
0-40	749.4	93.3%
0-60	786.8	98%
60-90	16.3	2%
70-100	7.8	1%
90-120	0.0	0%
0-90	803.1	100%
90-180	0.1	0%
0-180	803.2	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	166.4	20.7%	90-100	0	0%
10-20	296.9	37.0%	100-110	0	0%
20-30	209.4	26.1%	110-120	0.0	0%
30-40	76.7	9.5%	120-130	0.0	0%
40-50	25.2	3.1%	130-140	0.0	0%
50-60	12.3	1.5%	140-150	0.0	0%
60-70	8.5	1.1%	150-160	0.0	0%
70-80	6.2	0.8%	160-170	0.0	0%
80-90	1.6	0.2%	170-180	0.0	0%

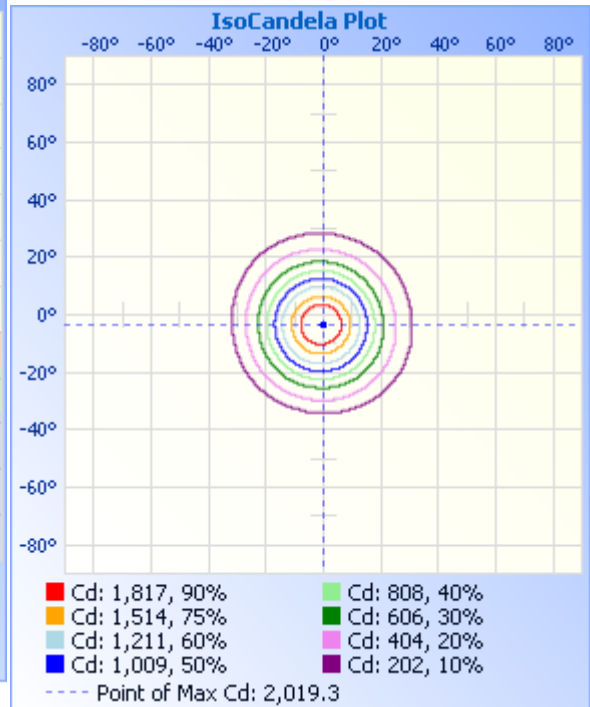
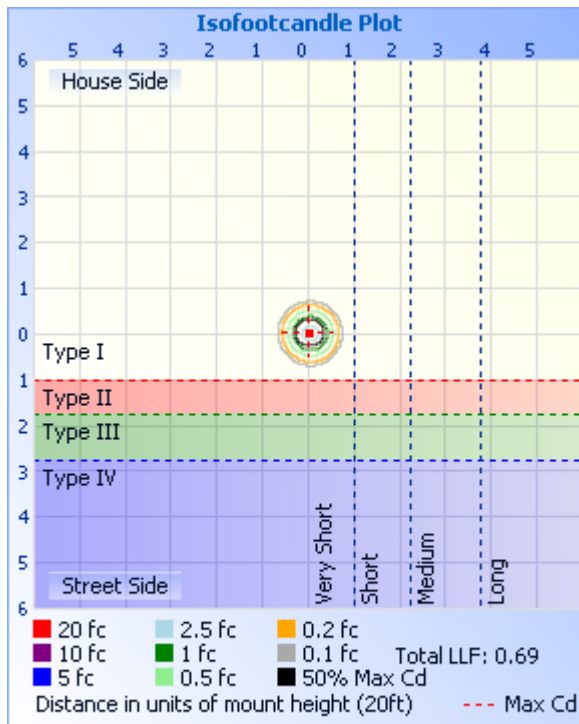
**Photometric Data**



**Illuminance at a Distance**

	Center Beam fc	Beam Width	
4.0ft	125.1 fc	2.3 ft	2.3 ft
8.0ft	31.3 fc	4.6 ft	4.6 ft
12.0ft	13.9 fc	6.9 ft	6.9 ft
16.0ft	7.8 fc	9.2 ft	9.2 ft
20.0ft	5.0 fc	11.5 ft	11.5 ft

■ Vert. Spread: 32.1°  
 ■ Horiz. Spread: 32.2°





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Table--1

UNIT: cd

γ (DEG) \ C (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	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002		
5	1831	1763	1720	1692	1707	1748	1813	1890	1948	1981	1999	2006	2013	2010	1977	1909		
10	1354	1276	1227	1209	1223	1260	1335	1447	1606	1733	1825	1847	1806	1725	1614	1475		
15	967	892	842	831	853	898	965	1060	1168	1258	1337	1359	1329	1254	1164	1073		
20	612	552	523	519	542	575	626	697	794	877	939	965	947	892	802	709		
25	380	334	307	305	325	354	397	449	504	552	589	613	609	573	515	452		
30	205	174	157	158	169	185	212	249	293	325	358	377	379	345	300	254		
35	80.7	74.9	71.0	69.9	70.3	75.0	82.8	94.0	115	125	142	145	144	138	132	109		
40	47.7	46.2	44.8	43.4	43.5	44.2	46.2	48.7	53.1	57.5	64.6	67.9	69.5	64.7	57.4	51.9		
45	30.4	29.9	29.4	28.1	28.1	28.1	29.1	29.9	32.2	34.2	36.2	35.0	34.9	34.2	33.2	31.8		
50	17.6	18.2	18.7	17.4	17.2	17.0	16.9	17.0	18.0	18.9	20.5	19.4	20.1	20.0	19.3	18.4		
55	13.9	14.9	15.5	14.0	13.5	13.3	13.2	13.3	13.7	14.0	14.8	12.8	12.7	12.7	12.9	13.4		
60	10.8	10.7	10.4	10.0	9.66	9.19	9.28	9.59	10.1	10.6	11.5	10.1	10.1	10.0	10.2	10.5		
65	9.12	9.44	9.58	9.27	8.93	8.51	8.26	8.06	8.07	8.02	8.00	7.87	7.91	8.01	8.30	8.62		
70	8.00	8.27	8.34	8.14	7.87	7.55	7.36	7.23	7.28	7.26	7.22	7.12	7.14	7.22	7.45	7.68		
75	6.15	6.35	6.41	6.27	6.05	5.91	5.77	5.68	5.77	5.78	5.75	5.65	5.62	5.70	5.88	6.00		
80	4.12	4.27	4.11	3.61	3.52	3.71	4.00	3.97	4.06	4.09	3.92	3.47	3.35	3.61	3.96	4.07		
85	2.04	1.79	0.72	0.14	0.11	0.37	1.30	2.03	2.08	1.85	1.04	0.56	0.45	0.69	1.34	2.04		
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	0.00	0.00	0.00		
115	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		
120	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00		
125	0.01	0.02	0.01	0.00	0.02	0.01	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.01	0.01		
130	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.03	0.02	0.02	0.00	0.00	0.01	0.01	0.00	0.02		
135	0.03	0.04	0.00	0.02	0.04	0.03	0.00	0.04	0.04	0.03	0.00	0.01	0.01	0.02	0.00	0.03		
140	0.03	0.04	0.00	0.03	0.05	0.04	0.02	0.03	0.06	0.02	0.00	0.00	0.01	0.00	0.00	0.00		
145	0.00	0.00	0.01	0.05	0.07	0.05	0.03	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.06	0.01		
150	0.00	0.04	0.01	0.05	0.07	0.06	0.02	0.02	0.01	0.05	0.03	0.03	0.01	0.06	0.08	0.06		
155	0.04	0.06	0.00	0.00	0.03	0.02	0.00	0.05	0.07	0.07	0.03	0.02	0.01	0.03	0.04	0.07		
160	0.07	0.04	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.06	0.03	0.03	0.01	0.01	0.03	0.07		
165	0.09	0.06	0.02	0.02	0.01	0.01	0.01	0.04	0.05	0.05	0.05	0.05	0.02	0.03	0.05	0.08		
170	0.06	0.04	0.02	0.01	0.01	0.01	0.01	0.04	0.05	0.05	0.05	0.06	0.04	0.03	0.03	0.08		
175	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.04	0.05	0.05	0.04	0.03	0.03	0.03		
180	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		

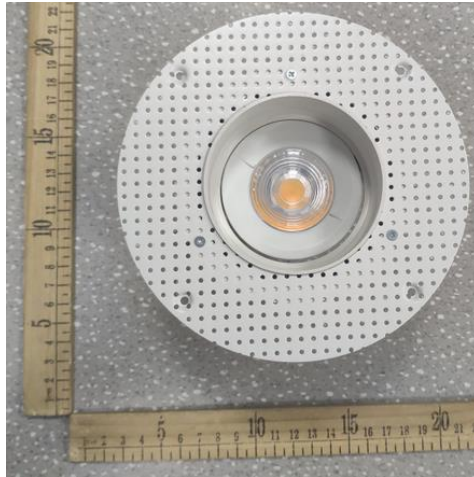


### 3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-702	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-701	Spectral analysis system HAAS-2000	Verified by D204 standard lamp	
ST-R-705	Standard Lamp	2019-02-07	2020-02-06
ST-R-704	Power Meter for Integrating Sphere	2019-01-06	2020-01-05
ST-R-714	Goniophotometer system	Verified by D908S standard lamp	
ST-R-710	Standard Lamp	2019-02-12	2020-02-11
ST-R-711	Power Meter for Goniophotometer	2019-01-06	2020-01-05
Uncertainty: Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			



#### 4. Product Photo



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