



## LM-79-08 Test Report

For

# L-TECH CORPORATION

(Brand Name: N/A)

Shaogantou District, Qiaotou Town, Dongguan City

## Model name(s): LMPT420(4000K)

**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(4000K)	
Remark	N/A	
Representative (Tested) Model	LMPT420(4000K)	
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-BB1(4000K)	
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	4000K



### 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(4000K)		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JCE181204-BB1	120.0	60	0.0744	8.581	0.9614	16.01

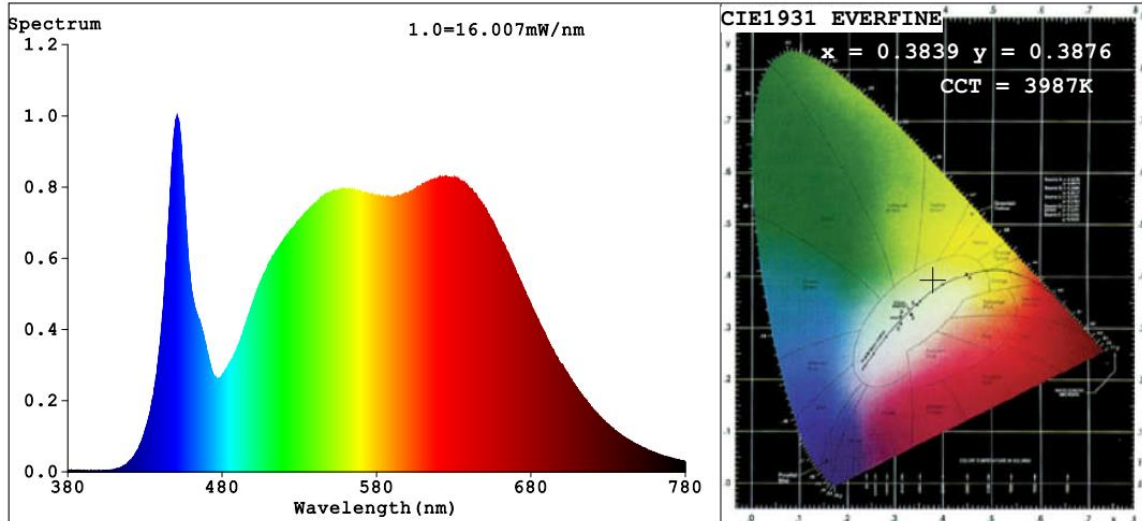
**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	91	R9	69
Frequency (Hz)	60	R2	92	R10	79
CCT (K)	3987	R3	91	R11	90
Duv	0.0040	R4	92	R12	65
Chromaticity (x, y)	x=0.3839 y=0.3876	R5	89	R13	91
Chromaticity (u', v')	u'=0.2231 v'=0.5068	R6	87	R14	94
Color Rendering Index (CRI)	90.8	R7	96	R15	90
R9	69	R8	89	--	--

**Photometric Measurement – Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	874.41
Luminous Efficacy (lm/W)	101.90
Beam Angle (°)	30.7
Center Beam Candle Power (cd)	2269

**Spectral Power Distribution & Chromaticity Diagram**

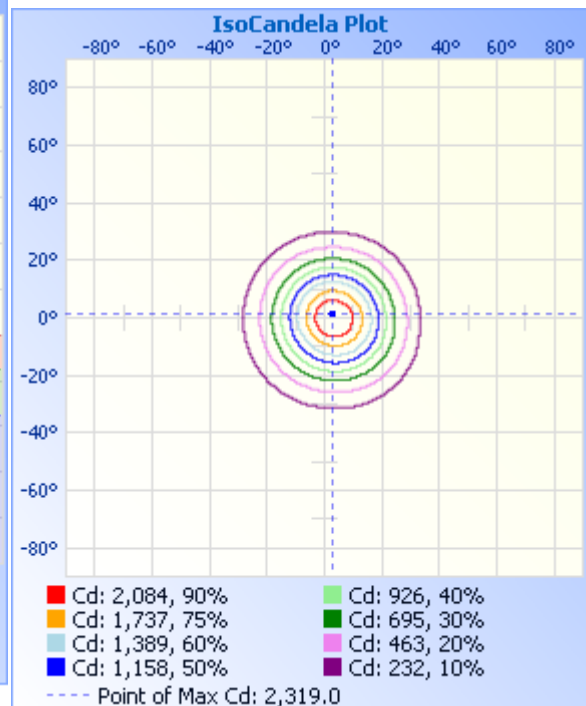
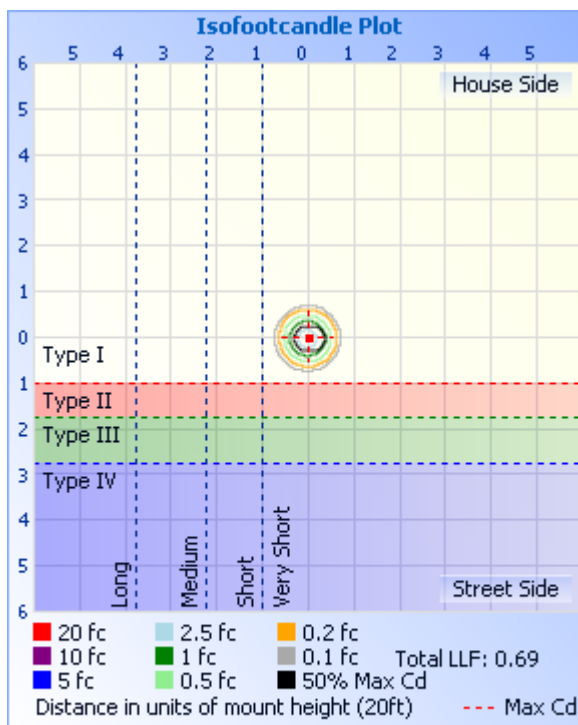
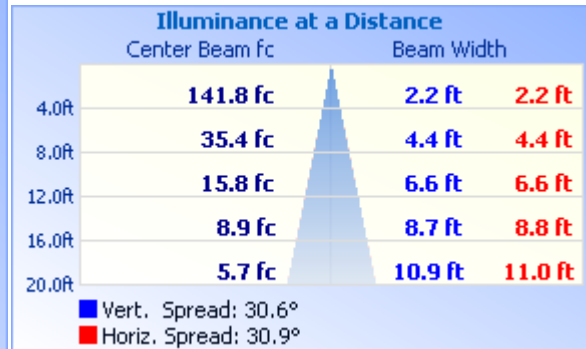
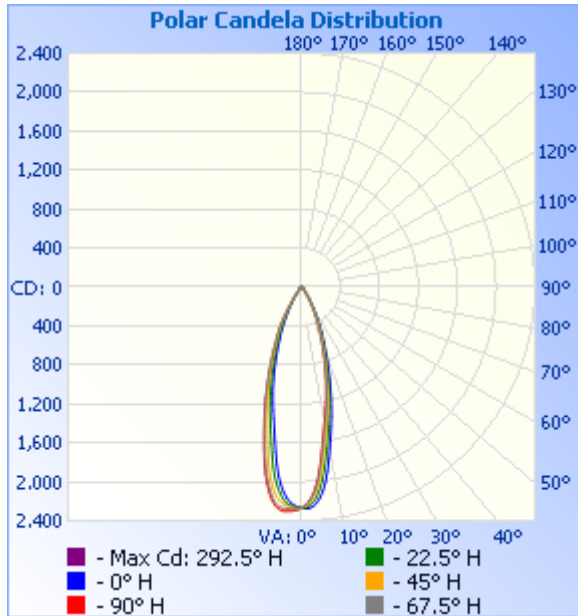


**Zonal Lumen Tabulation**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	739.0	84.6%
0-40	820.4	93.9%
0-60	857.9	98.2%
60-90	16.0	1.8%
70-100	7.9	0.9%
90-120	0.0	0%
0-90	873.9	100%
90-180	0.1	0%
0-180	873.9	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	187.9	21.5%	90-100	0	0%
10-20	327.3	37.4%	100-110	0	0%
20-30	223.8	25.6%	110-120	0.0	0%
30-40	81.4	9.3%	120-130	0.0	0%
40-50	26.0	3.0%	130-140	0.0	0%
50-60	11.5	1.3%	140-150	0.0	0%
60-70	8.1	0.9%	150-160	0.0	0%
70-80	5.9	0.7%	160-170	0.0	0%
80-90	2.0	0.2%	170-180	0.0	0%

**Photometric Data**





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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	2269	2269	2269	2269	2269	2269	2269	2269	2269	2269	2269	2269	2269	2269	2269	2269		
5	2305	2306	2282	2238	2169	2094	2026	1972	1952	1946	1976	2039	2113	2182	2228	2276		
10	2048	2015	1918	1798	1674	1562	1468	1398	1364	1349	1378	1464	1589	1755	1914	2013		
15	1497	1451	1363	1264	1170	1091	1022	971	962	960	990	1055	1145	1256	1378	1472		
20	1014	969	897	818	746	692	650	621	617	618	642	692	768	858	951	1016		
25	642	605	553	503	457	423	397	373	365	365	380	422	476	542	608	653		
30	386	348	310	268	238	214	198	189	189	193	204	230	261	309	363	399		
35	160	149	135	120	108	95.7	87.6	80.9	79.5	79.1	93.1	109	115	119	145	162		
40	73.6	69.4	63.8	60.2	54.9	51.3	48.4	46.9	47.7	48.9	51.4	55.4	56.0	59.3	66.6	73.7		
45	35.5	35.3	34.7	34.9	31.2	30.6	29.8	29.7	30.0	30.1	31.6	33.8	32.4	32.5	33.5	34.8		
50	16.1	15.7	15.8	17.7	15.8	16.1	16.3	16.6	16.8	17.5	18.8	20.5	18.9	18.2	17.8	17.0		
55	12.0	11.7	11.9	13.9	12.2	12.4	12.6	12.9	13.0	13.1	13.3	14.4	12.9	12.5	12.4	12.4		
60	8.89	8.73	8.74	9.57	8.75	8.95	9.05	9.27	9.74	10.0	10.2	11.1	9.96	9.60	9.40	9.22		
65	7.41	7.42	7.53	7.75	7.94	8.19	8.31	8.50	8.73	8.81	8.84	8.78	8.44	8.05	7.76	7.54		
70	6.66	6.64	6.73	6.87	7.01	7.16	7.28	7.42	7.66	7.79	7.85	7.82	7.57	7.23	6.98	6.79		
75	5.26	5.22	5.25	5.32	5.41	5.51	5.59	5.68	5.88	6.00	6.08	6.08	5.92	5.69	5.52	5.38		
80	3.62	3.59	3.59	3.63	3.69	3.78	3.87	3.95	4.06	4.04	4.01	3.96	3.90	3.83	3.77	3.72		
85	1.71	1.68	1.68	1.71	1.76	1.83	1.92	1.98	2.07	2.05	2.00	1.94	1.89	1.85	1.82	1.79		
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	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01		
125	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01		
130	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.02		
135	0.01	0.01	0.00	0.03	0.04	0.04	0.02	0.03	0.01	0.01	0.01	0.02	0.01	0.02	0.00	0.03		
140	0.02	0.01	0.01	0.04	0.05	0.06	0.00	0.04	0.03	0.01	0.00	0.01	0.02	0.03	0.00	0.00		
145	0.00	0.00	0.01	0.06	0.06	0.07	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.03	0.00		
150	0.01	0.02	0.01	0.06	0.05	0.06	0.00	0.00	0.00	0.00	0.05	0.05	0.04	0.03	0.05	0.07		
155	0.02	0.03	0.00	0.02	0.01	0.00	0.00	0.06	0.05	0.04	0.06	0.07	0.04	0.01	0.05	0.05		
160	0.03	0.02	0.00	0.01	0.00	0.01	0.00	0.04	0.04	0.05	0.06	0.07	0.03	0.01	0.04	0.03		
165	0.03	0.02	0.00	0.01	0.01	0.01	0.01	0.02	0.06	0.07	0.07	0.08	0.04	0.02	0.03	0.03		
170	0.02	0.03	0.01	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.03		
175	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	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		

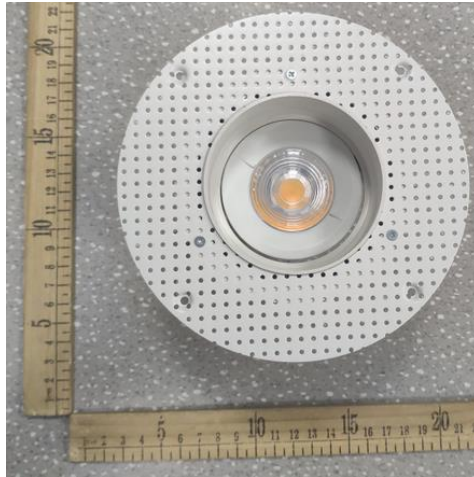


### 3. Test Equipment

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 \*\*\*\*\***