



# TEST REPORT

For

## P.Q.L., Inc.

2285 Ward Avenue / Simi Valley, CA 93065

<b>Model Number:</b>	55761-35K 55761-40K 55761-50K	
<b>Report Type:</b>	Electrical, Photometric and ISTMT tests according to the following standards and show the compliance to DLC Program SSL Technical Requirements V5.1	
<b>Standards:</b>	IES LM-79-08: Approved Method: Electrical & Photometric Measurement of Solid-state Lighting Products ANSI C82.77-10-2014: Harmonic Emission Limits – Related Power Quality Requirements for Lighting ANSI/UL 1598-2008: Standard for Safety of Luminaires CIE 190:2010 Calculation and presentation of unified glare rating tables for indoor lighting luminaires IES TM-30-18: IES Method for Evaluating Light Source Color Rendition	
<b>Project Engineer:</b>	Bay Wang	
<b>Report Number:</b>	RKSB221208009-10	
<b>Sample Size:</b>	One sample was received on 2022-12-08 and used for testing.	
<b>Test Date:</b>	2022-12-21 to 2022-12-22	
<b>Report Date:</b>	2022-12-22	
<b>Reviewed By:</b>	Seven Xia/ EE Engineer	
<b>Prepared By:</b>	Bay Area Compliance Laboratories Corp. (Kunshan). No. 248 Chenghu Road, Kunshan, Jiangsu, People's Republic of China Tel: +86-0512-86175000 Fax: +86-0512-88934268	

### 1. Product Information and Description #

Product Primary Use: Direct Linear Ambient Luminaires  
 Voltage and Frequency: 120-277VAC, 50/60Hz  
 LED Source Manufacturer: Bridgelux Inc.  
 LED Source Model: BXEN-(A)E-11M-3AA  
 Driver Model: SIF30-I0550 120-277 W D1 F-S1S2  
 Luminaire length: 2ft  
 Auxiliary Ballast Model: NA  
 Auxiliary Housing Model: NA  
 White Tunable: Yes  
 Field-Adjustable Light Output: Yes

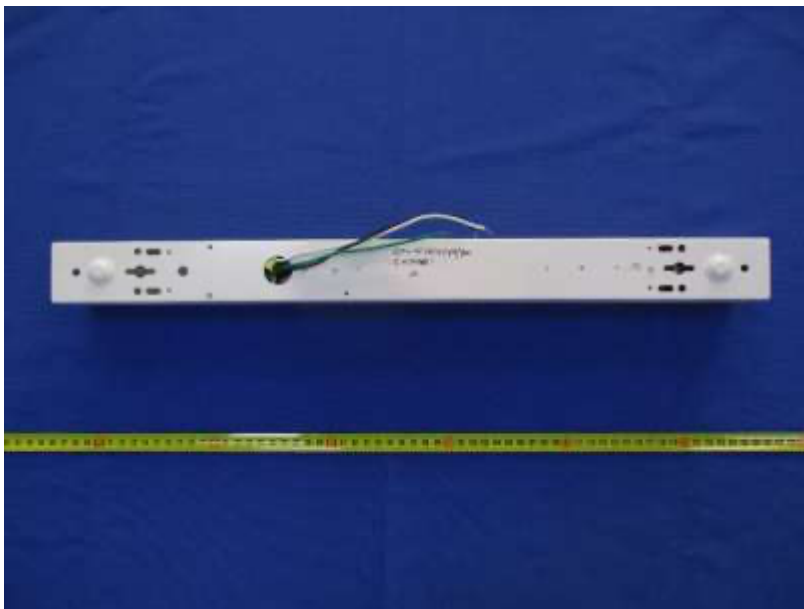
### 2. Product Rated Values#

Test Model	CCT(K)	Light Output (lm)	Power(W)	Luminous Efficacy (lm/W)
55761-35K	3500	3300	25	132
		2760	20	138
		2145	15	143
55761-40K	4000	3550	25	142
		2960	20	148
		2295	15	153
55761-50K	5000	3350	25	134
		2800	20	140
		2175	15	145

### 3. Test List

Test Model	Power(W)	Test Item			
		Goniophotometer Test	Integrating Sphere Test	THDi and PF Test	In-Situ Temperature Measurement Test
55761-35K	25	Yes	Yes	Yes	Yes
	20	NA	Yes	Yes	NA
	15	NA	Yes	Yes	NA
55761-40K	25	NA	Yes	Yes	NA
55761-50K	25	Yes	Yes	Yes	NA

#### 4. Product Photo



LED Driver Photo



## 5. Test Result

**Test Model: 55761-35K**

**Control setting: 25W**

Integrating Sphere Test; Orientation: Downward; Test Voltage: 120V 60Hz;

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances only)	Conclusion
Light Output(lm)	3302.6	≥750	≥675	Pass
Power(W)	24.89	None.	None.	N/A
Total Efficacy(lm/W)	132.67	≥115	≥111.55	Pass
CCT(K)	3481	None <sup>i</sup>	None.	N/A
Duv	-0.000151	None <sup>i</sup>	None.	N/A
IES R <sub>r</sub>	84	70	69	Pass
IES R <sub>g</sub>	93	89	88	
IES Rcs,h1	-12%	-12%~23%	-13%~24%	
R <sub>a</sub>	82.9	≥80	≥79	
R <sub>9</sub>	6	≥0	≥-1	

Note:

- i. White-tunable products are not required to meet the chromaticity requirements in DLC V5.1.

Goniophotometer Test; Orientation: Downward; Test Voltage: 120V 60Hz;

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances only)	Conclusion
Light Output(lm)	3305.2	≥750	≥675	Pass
Power(W)	24.86	None.	None.	N/A
Total Efficacy(lm/W)	133	≥115	≥111.55	Pass
Zonal Lumen Distribution(0-60°)	60.67%	0-60°≥40%	0-60°≥37%	Pass

Goniophotometer THDi、PF Test; Orientation: Downward;

Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
120	Power Factor	0.995	≥0.9	≥0.87	Pass
120	THDi	9.22%	≤20%	≤25%	Pass
277	Power Factor	0.976	≥0.9	≥0.87	Pass
277	THDi	13.38%	≤20%	≤25%	Pass

Integrating Sphere THDi、PF Test; Orientation: Downward;

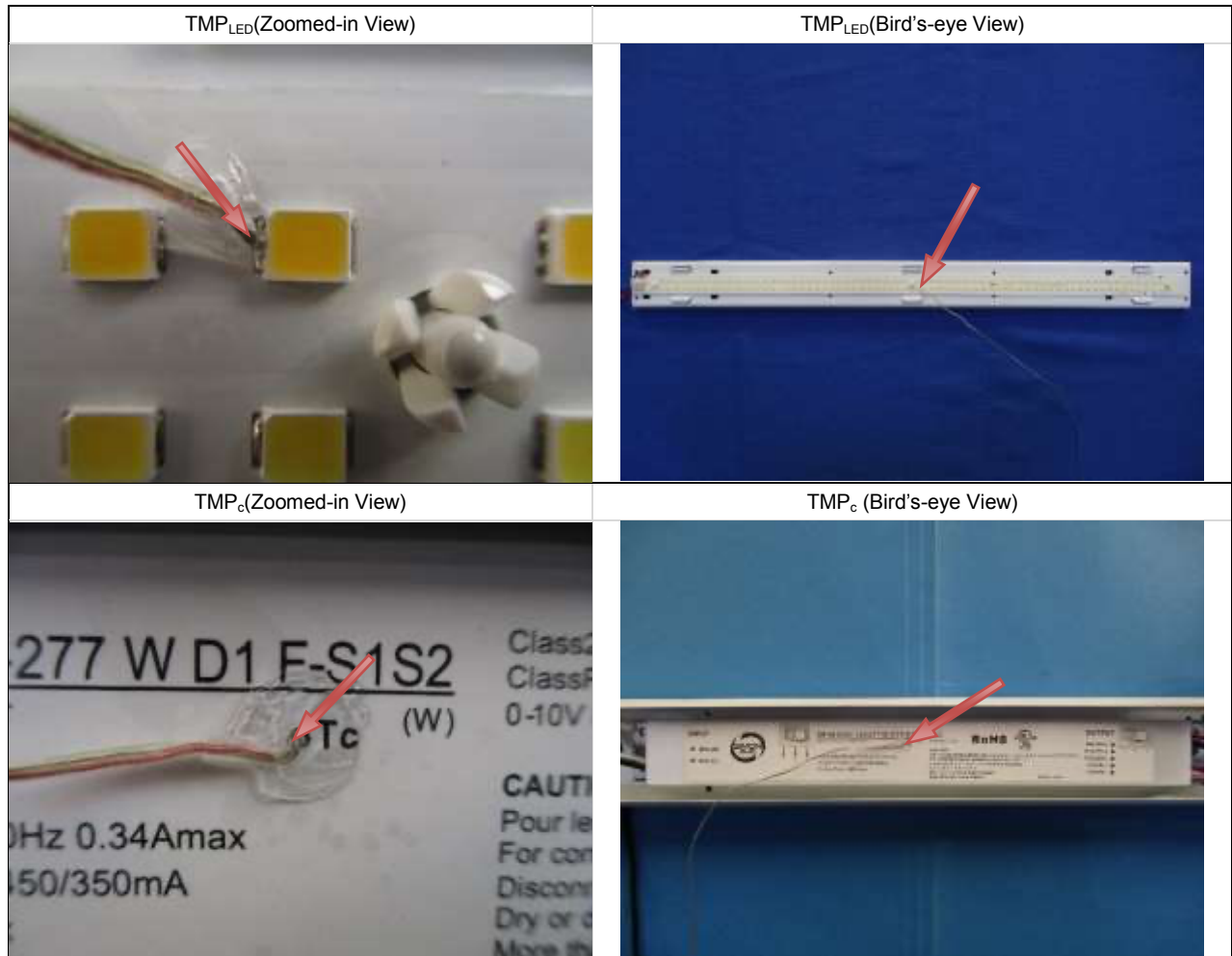
Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
120	Power Factor	0.9903	≥0.9	≥0.87	Pass
120	THDi	9.19%	≤20%	≤25%	Pass
277	Power Factor	0.9716	≥0.9	≥0.87	Pass
277	THDi	14.09%	≤20%	≤25%	Pass

In-Situ Temperature Measurement Test: Test Voltage: 120V 60Hz:

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
TMP <sub>LED</sub> (°C)	51.9	≤105	With tolerance of ≤ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
TMP <sub>c</sub> (°C)	52.1	≤90	With tolerance of ≤ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
Drive Current/Individual LED source(mA)	107.6	≤150	With +5% tolerance	Pass
L <sub>70</sub> Lumen Maintenance Life (Hours)	> 60000	≥50000	None.	Pass
Color Maintenance	0.0017	≤0.004	≤0.0044	Pass

Note:

1. The test results were measured directly from the test equipment.
2. The DLC requirements were listed according to DLC Technical Requirements V5.1.
3. The conclusion is for reference only. Test report that indicate product performance meets DLC Technical Requirements do not represent official DLC product qualification. All decisions regarding product qualification are made by the DLC.



**Test Data**

**[Integrating Sphere System]**

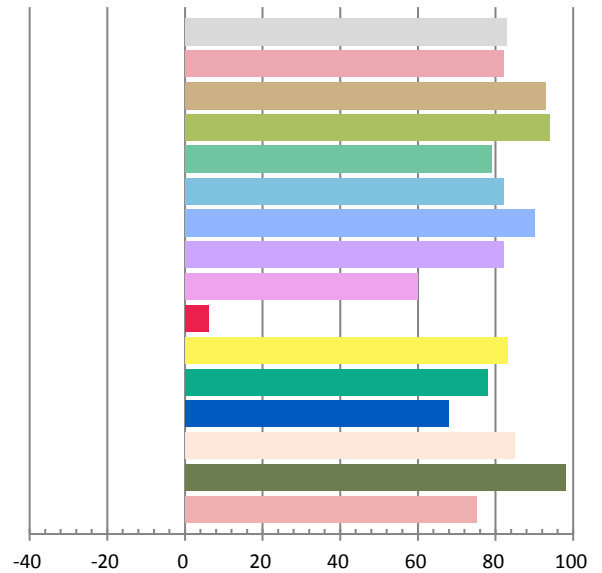
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.2095	24.89	0.9903	3302.6	132.67

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
9.976	3481	-0.000151	0.4062	0.3908	0.2363	0.5115

**Color Rendering Index**

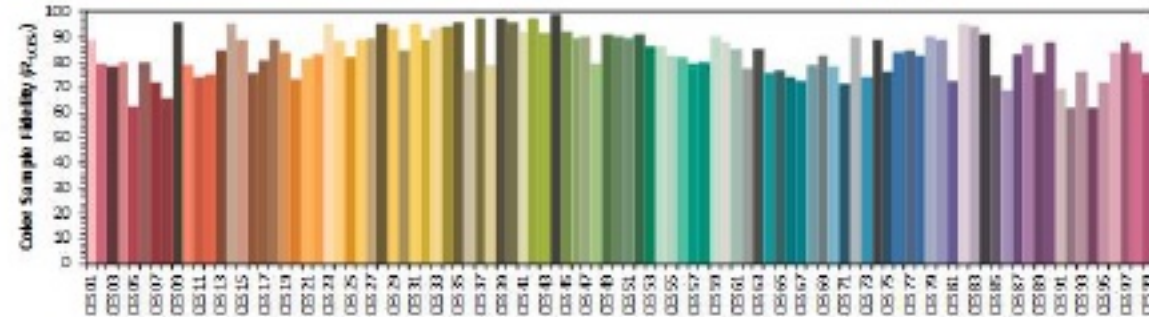
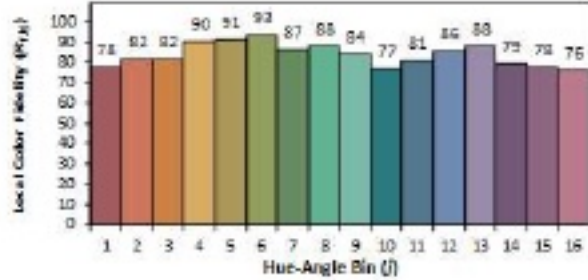
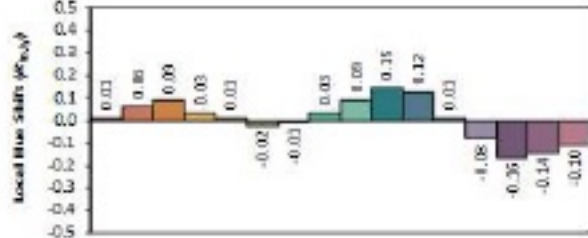
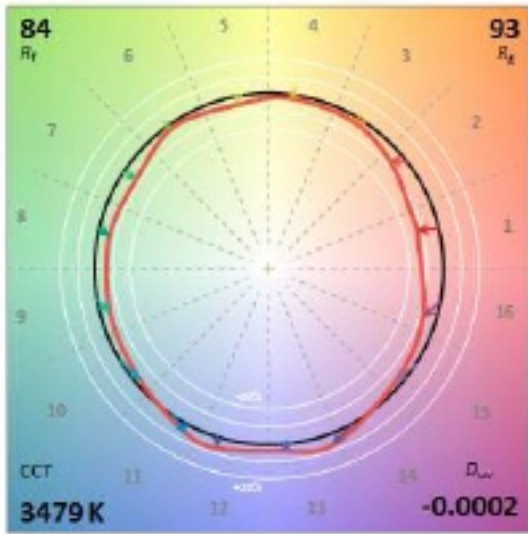
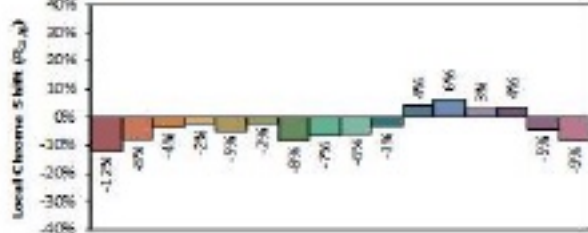
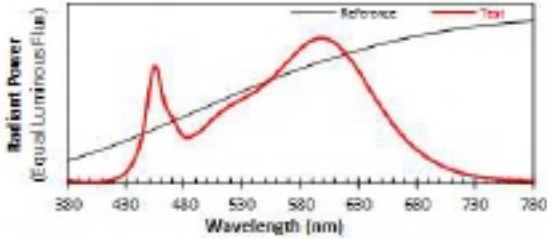
<b>Ra</b>			
<b>82.9</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
82	93	94	79
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
82	90	82	60
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
6	83	78	68
<b>R13</b>	<b>R14</b>	<b>R15</b>	
85	98	75	



### ANSI/IES TM-30-18 Color Rendition Report

Source: **Power SPD**  
 Date: **2022/12/21**

Manufacturer: **P.Q.L, Inc.**  
 Model: **S5761-35W-35K**



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

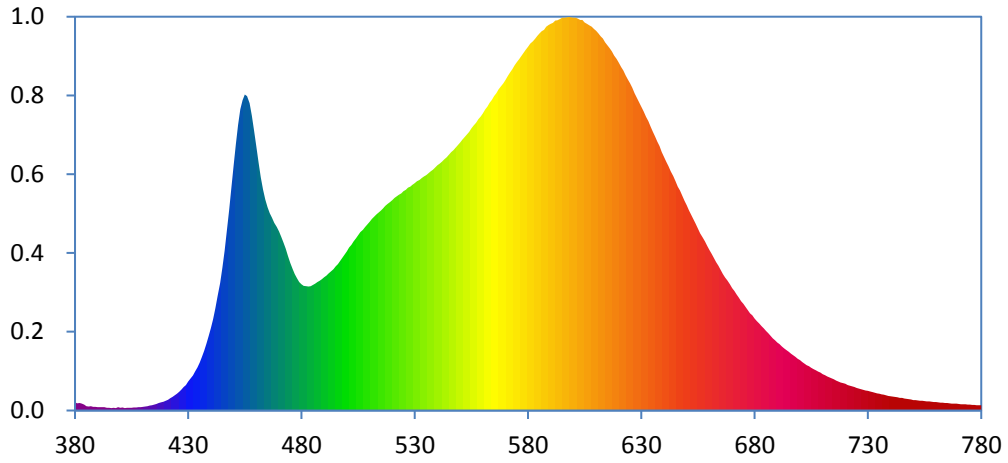
$x$  **0.4062**  
 $y$  **0.3907**  
 $u'$  **0.2363**  
 $v'$  **0.5114**

CIE 13.3-1995 (CRI)  
 $R_a$  **83**  
 $R_g$  **8**

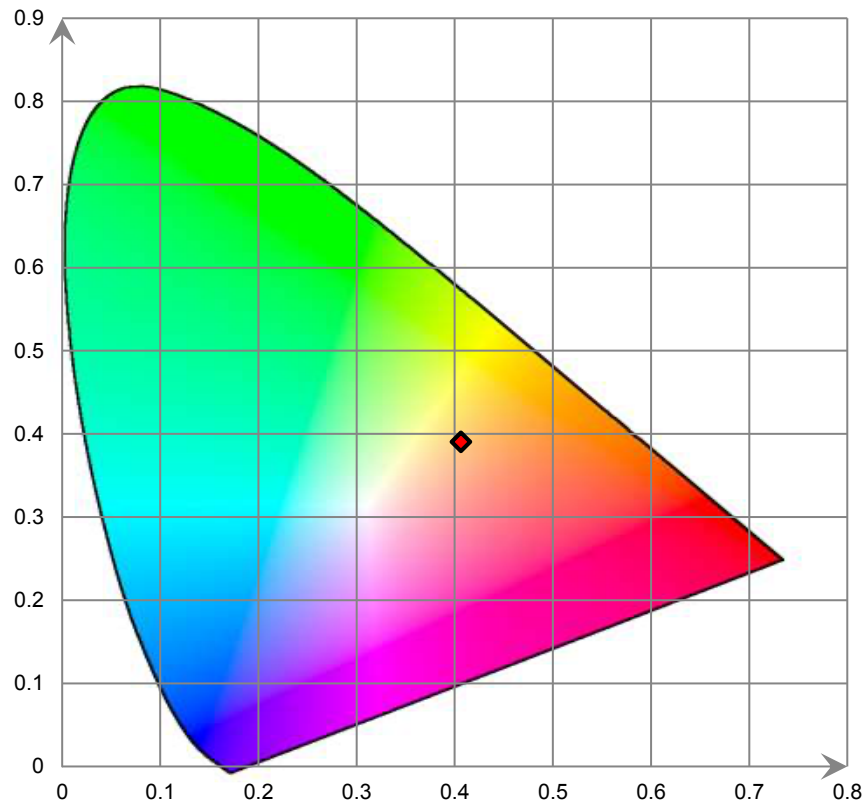
Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.



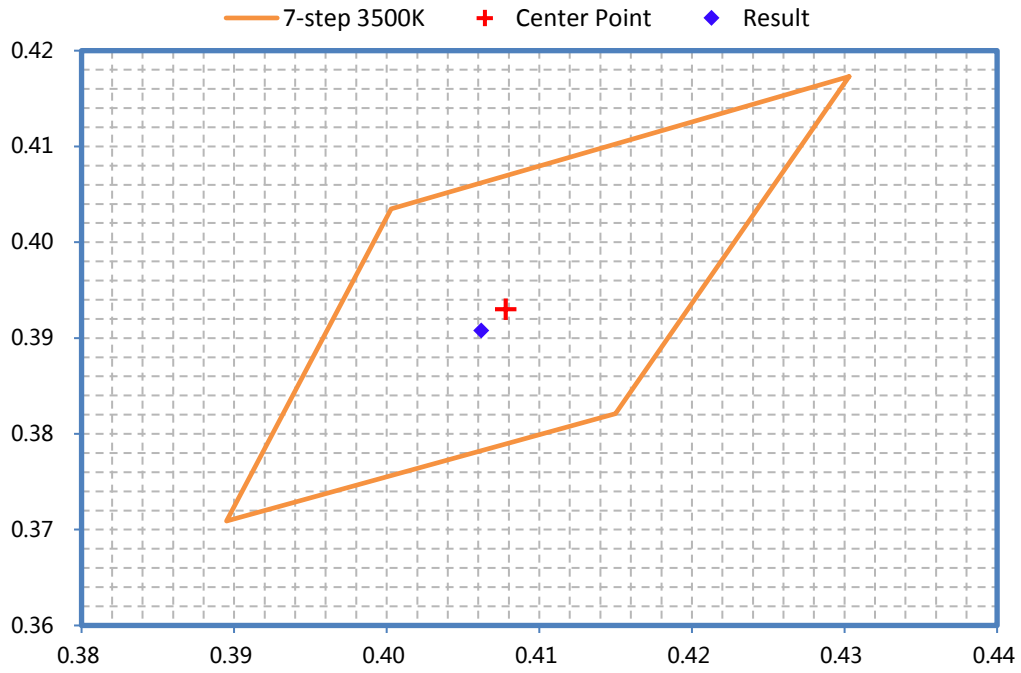
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



ANSI C78.377-2017 Chromaticity Quadrangles



**[Goniophotometer System]**

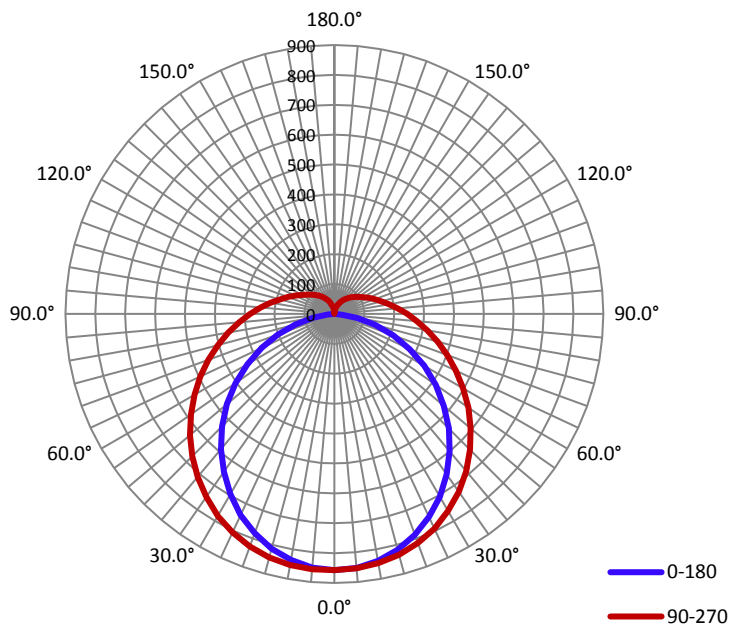
**Electrical Measurement**

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.0	60	0.208	24.86	0.995

**Photometric Measurement**

Luminous Flux (lm)	Efficacy (lm/W)	I <sub>max</sub> (cd)	S/MH (C0/180)	S/MH (C90/270)
3305.2	133	859.1	1.22	1.34

**Luminous Intensity Distribution**



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I <sub>max</sub> ):	106.9	122.1	139.3	121.9	122.6
Field Angle (10% I <sub>max</sub> ):	158.3	221.6	268.6	222.6	217.8

**Luminous Intensity (cd) Distribution Data**

$\begin{matrix} C \\ \backslash \\ Y \end{matrix}$	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	857.1	857.1	857.1	857.1	857.1	857.1	857.1	857.1
5.0°	852.9	852.6	850.0	853.9	853.6	854.0	853.3	850.2
10.0°	838.8	840.6	840.5	846.4	847.0	846.6	841.2	838.2
15.0°	816.9	817.6	824.4	830.7	834.2	831.1	825.2	816.0
20.0°	786.5	788.9	799.7	810.6	815.3	810.0	800.2	787.0
25.0°	748.9	753.4	770.5	783.1	791.9	782.2	767.5	752.2
30.0°	705.6	710.9	732.0	750.8	760.9	749.2	732.2	707.6
35.0°	654.8	665.1	687.8	712.2	726.0	712.1	689.3	661.5
40.0°	599.8	612.7	641.3	667.4	686.5	669.9	641.6	608.4
45.0°	541.2	554.6	591.3	620.8	641.5	621.5	590.9	553.0
50.0°	478.4	495.6	536.5	571.4	594.9	570.9	536.0	495.0
55.0°	414.1	434.2	481.3	517.5	546.9	520.0	479.6	432.9
60.0°	346.9	370.6	425.1	464.1	496.7	467.2	422.4	368.5
65.0°	277.8	306.7	367.2	413.7	449.0	416.9	366.0	305.8
70.0°	209.2	242.4	312.0	365.1	402.6	367.4	310.8	242.7
75.0°	141.0	183.1	259.2	319.1	357.5	321.5	259.0	182.3
80.0°	78.5	131.6	214.0	278.0	316.1	280.4	213.1	130.8
85.0°	27.1	90.6	175.5	240.7	276.9	242.4	175.7	90.3
90.0°	0.0	63.1	145.2	208.6	243.5	209.8	145.5	62.7
95.0°	0.0	46.9	122.3	182.2	212.4	181.8	121.5	46.6
100.0°	0.0	38.8	104.0	157.7	185.9	157.8	103.8	38.9
105.0°	0.0	34.6	91.0	138.2	162.7	138.6	90.5	34.5
110.0°	0.0	32.7	81.9	122.1	143.8	122.5	81.0	31.6
115.0°	0.0	30.9	73.7	109.1	127.1	108.9	73.3	30.0
120.0°	0.0	28.6	66.6	97.0	112.5	97.8	66.0	27.7
125.0°	0.0	27.2	61.3	87.5	99.7	87.7	60.0	25.8
130.0°	0.0	25.5	55.4	79.2	88.8	78.8	54.6	24.2
135.0°	1.0	23.6	49.5	70.5	79.2	70.8	48.6	22.5
140.0°	1.8	22.1	45.1	62.2	69.6	62.1	43.2	20.5
145.0°	2.6	21.4	40.7	54.6	60.5	53.7	37.7	18.8
150.0°	3.7	20.3	36.2	47.2	50.9	44.5	31.4	16.3
155.0°	5.0	19.5	31.9	39.8	42.3	36.4	24.9	13.8
160.0°	6.4	17.7	26.9	32.1	33.6	28.4	18.9	9.8
165.0°	6.8	15.2	21.0	24.6	25.0	20.1	10.7	7.4
170.0°	6.5	11.3	15.4	17.5	17.5	9.9	7.6	6.4
175.0°	5.5	7.4	10.1	10.4	7.9	6.6	4.8	4.7
180.0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**Luminous Intensity (cd) Distribution Data (cont.)**

$\begin{matrix} C \\ \backslash \\ Y \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0.0°	857.1	857.1	857.1	857.1	857.1	857.1	857.1	857.1
5.0°	851.5	851.4	854.1	856.4	857.4	856.9	855.2	851.2
10.0°	836.2	839.1	845.1	850.5	853.1	850.4	845.2	838.1
15.0°	812.7	818.1	828.6	838.5	843.5	839.2	830.2	817.6
20.0°	780.6	790.3	807.0	820.8	827.8	820.8	808.2	790.1
25.0°	742.6	754.8	776.8	796.9	806.4	797.5	779.5	755.4
30.0°	696.0	714.3	741.8	768.4	780.7	767.8	745.7	715.7
35.0°	645.1	668.1	702.8	733.0	747.7	732.4	705.1	669.0
40.0°	590.4	617.4	658.6	693.1	712.1	693.8	662.5	618.7
45.0°	531.8	563.8	610.3	650.9	672.9	649.6	613.2	564.1
50.0°	469.9	504.7	560.8	603.6	630.8	604.0	562.2	507.4
55.0°	404.4	445.1	508.1	556.1	585.1	556.3	509.7	447.5
60.0°	336.7	383.9	455.5	506.0	540.5	507.2	456.7	385.8
65.0°	268.9	322.8	401.2	456.0	494.6	458.0	402.3	323.5
70.0°	201.5	260.5	346.7	408.0	448.6	410.0	347.7	262.4
75.0°	134.1	201.9	294.8	362.3	403.5	364.1	295.9	204.1
80.0°	72.0	148.8	247.1	318.0	360.6	321.9	248.9	149.9
85.0°	22.8	104.6	205.1	278.6	319.7	282.3	208.7	107.7
90.0°	0.0	73.9	171.8	243.2	281.8	246.2	173.9	76.5
95.0°	0.0	54.9	143.8	211.4	247.6	214.2	145.7	57.9
100.0°	0.0	45.2	121.4	184.2	216.5	186.4	125.0	47.4
105.0°	0.0	39.9	106.0	160.3	189.0	163.1	109.4	42.1
110.0°	0.0	37.4	93.6	140.0	165.7	142.8	96.6	38.7
115.0°	0.0	34.6	83.4	123.8	145.0	126.6	86.1	36.5
120.0°	0.0	32.0	75.7	110.2	127.4	112.3	78.6	33.9
125.0°	0.0	30.0	69.4	99.0	113.0	101.1	71.6	32.5
130.0°	0.0	28.0	62.4	89.1	101.1	91.2	65.2	29.6
135.0°	1.1	25.9	56.6	80.2	90.5	81.8	58.5	28.1
140.0°	1.6	23.5	50.2	70.2	79.6	72.1	52.1	25.9
145.0°	1.8	21.3	44.2	61.1	69.4	63.0	45.7	23.4
150.0°	2.1	18.6	38.2	52.2	59.3	53.6	39.7	20.3
155.0°	2.9	15.7	32.8	42.9	49.6	44.2	34.0	18.6
160.0°	3.2	12.7	25.9	34.8	39.8	36.0	27.3	16.6
165.0°	3.7	9.3	16.9	25.3	29.7	26.8	21.3	14.9
170.0°	4.1	6.8	12.1	17.6	20.5	19.1	16.9	10.7
175.0°	3.5	5.6	7.0	7.9	12.8	12.0	9.7	7.3
180.0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**Test Model: 55761-35K**

**Control setting: 20W**

THDi, PF Test; Orientation: Downward;					
Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
120	Power Factor	0.9897	≥0.9	≥0.87	Pass
120	THDi	11.42%	≤20%	≤25%	Pass
277	Power Factor	0.9605	≥0.9	≥0.87	Pass
277	THDi	16.04%	≤20%	≤25%	Pass

Note:

1. The test results were measured directly from the test equipment.
2. The DLC requirements were listed according to DLC Technical Requirements V5.1.
3. The conclusion is for reference only. Test report that indicate product performance meets DLC Technical Requirements do not represent official DLC product qualification. All decisions regarding product qualification are made by the DLC.

**Test Data**

**[Integrating Sphere System]**

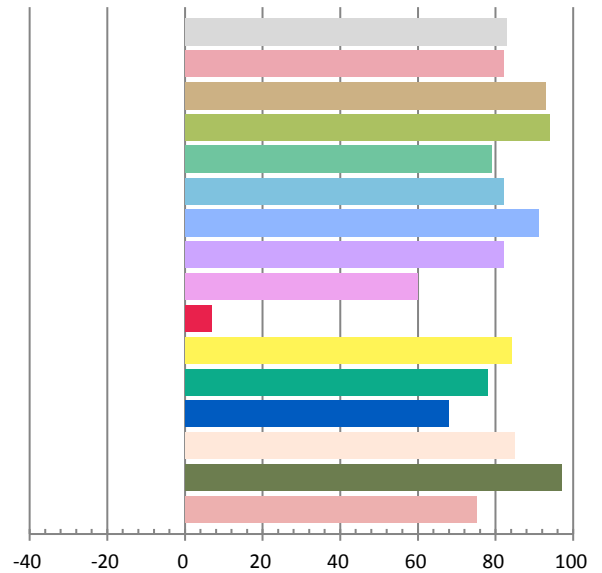
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.1648	19.57	0.9897	2727.7	139.38

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
8.240	3472	-0.000261	0.4066	0.3908	0.2365	0.5115

**Color Rendering Index**

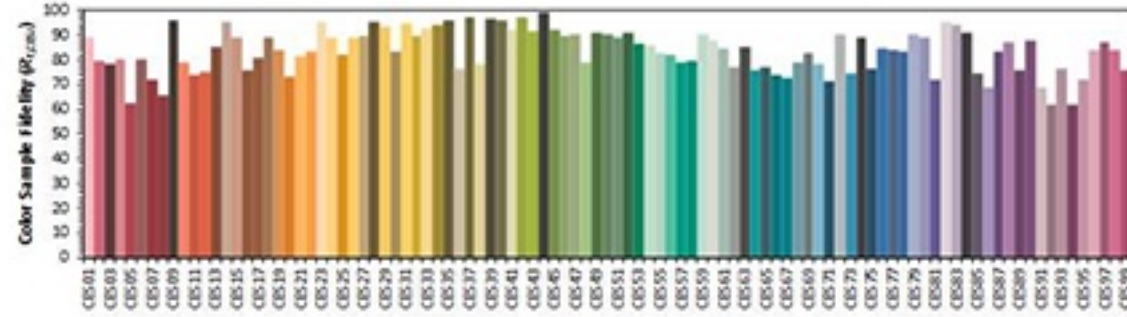
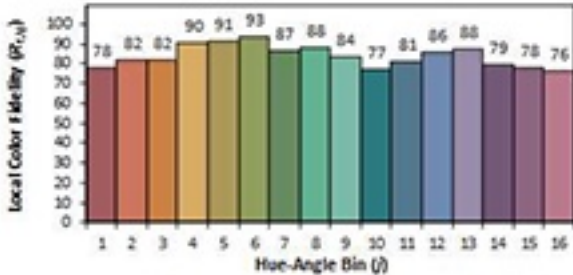
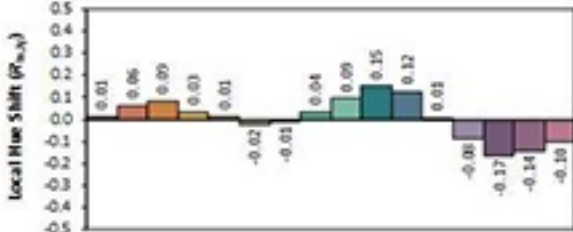
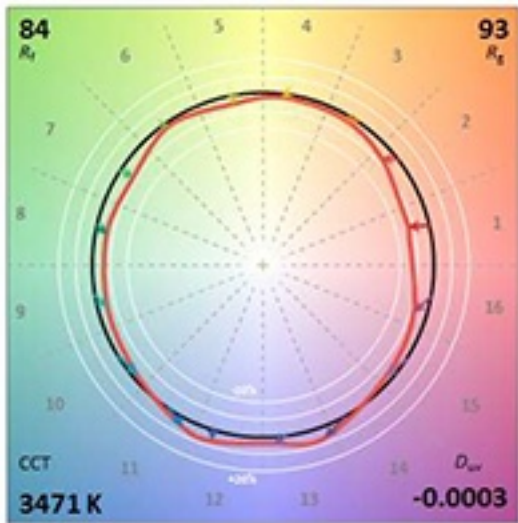
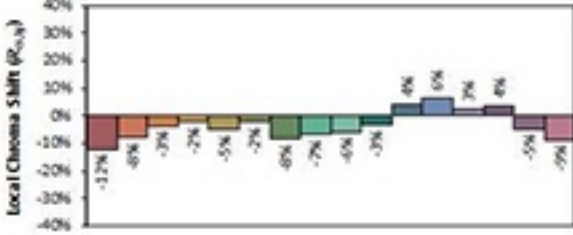
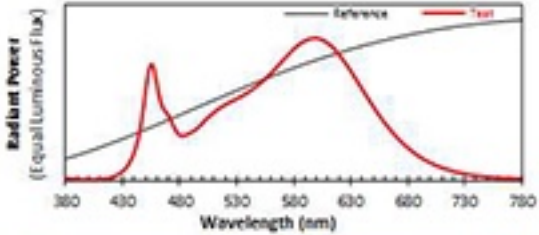
<b>Ra</b>			
<b>82.9</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
82	93	94	79
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
82	91	82	60
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
7	84	78	68
<b>R13</b>	<b>R14</b>	<b>R15</b>	
85	97	75	



### ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD  
 Date: 2022/12/21

Manufacturer: P.Q.L, Inc  
 Model: SST61-30W-35K



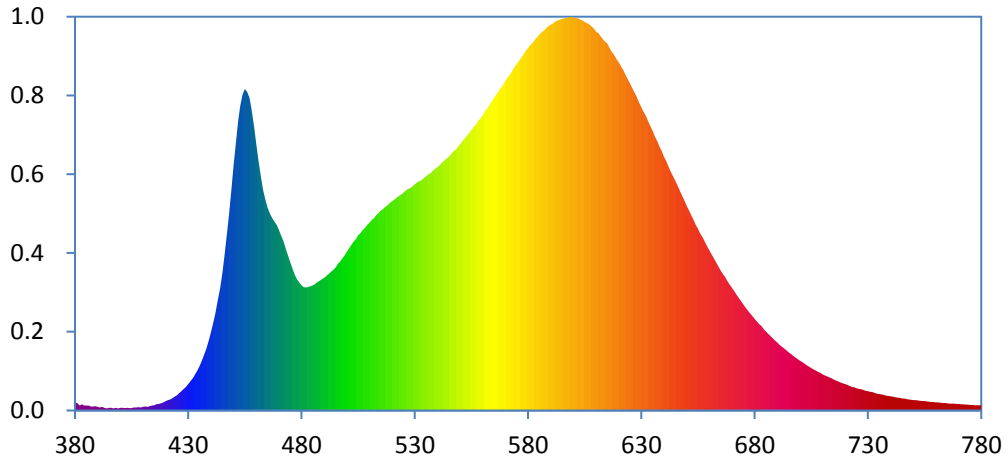
Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

$x$	0.4066	CIE 13.3-1995 (CRI)
$y$	0.3907	
$u'$	0.2366	
$v'$	0.5114	
$R_a$	83	
$R_g$	7	

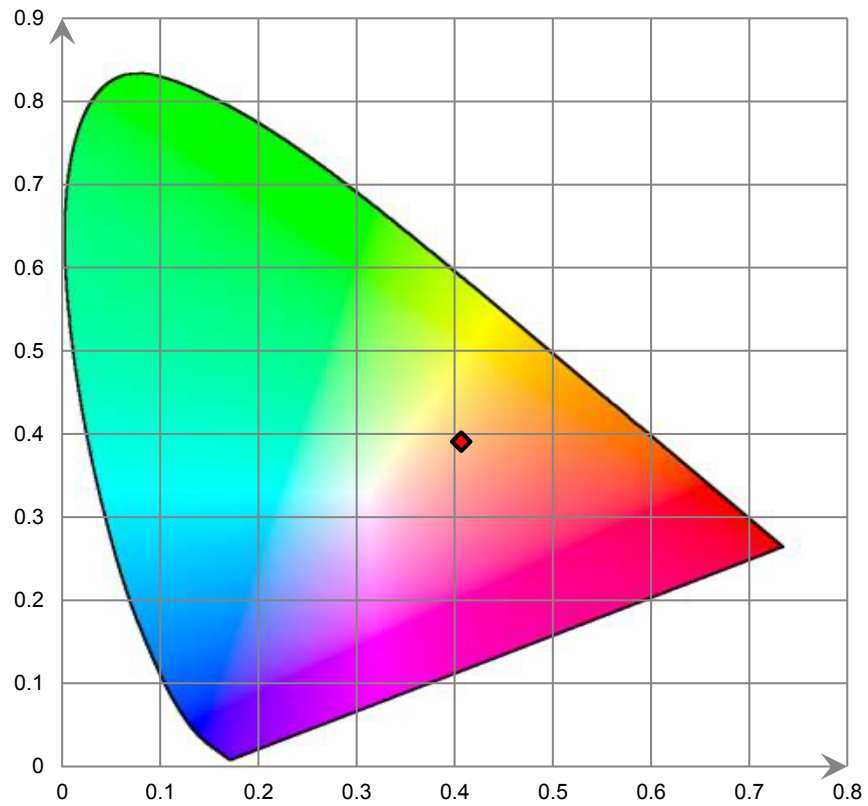
Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.



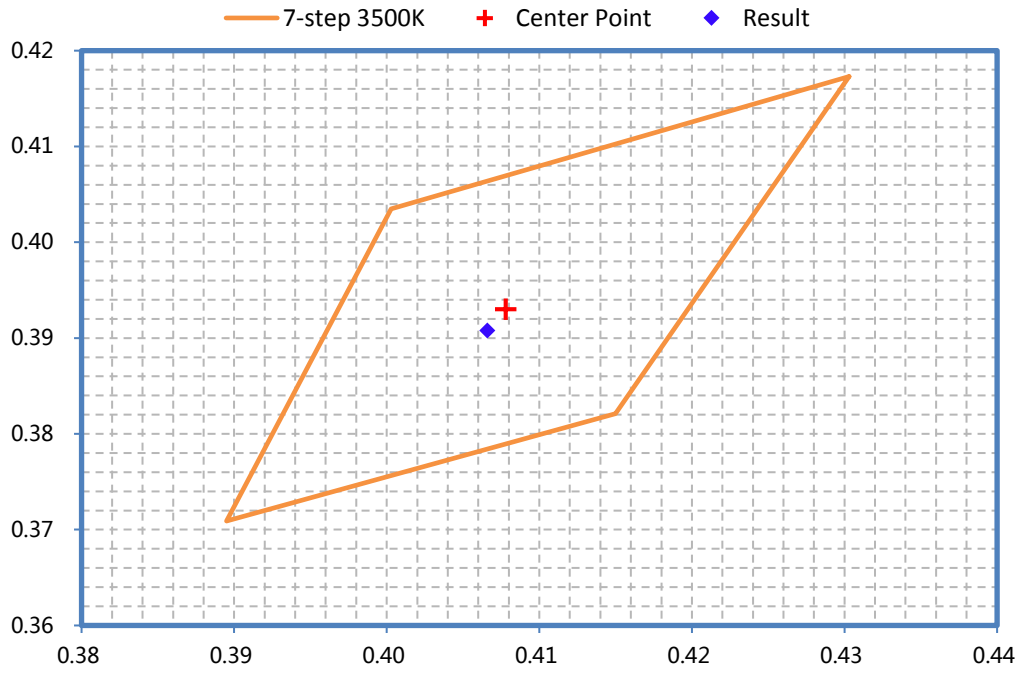
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



ANSI C78.377-2017 Chromaticity Quadrangles



**Test Model: 55761-35K**

**Control setting: 15W**

THDi, PF Test; Orientation: Downward;					
Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
120	Power Factor	0.9829	≥0.9	≥0.87	Pass
120	THDi	15.16%	≤20%	≤25%	Pass
277	Power Factor	0.9383	≥0.9	≥0.87	Pass
277	THDi	18.64%	≤20%	≤25%	Pass

Note:

1. The test results were measured directly from the test equipment.
2. The DLC requirements were listed according to DLC Technical Requirements V5.1.
3. The conclusion is for reference only. Test report that indicate product performance meets DLC Technical Requirements do not represent official DLC product qualification. All decisions regarding product qualification are made by the DLC.

**Test Data**

**[Integrating Sphere System]**

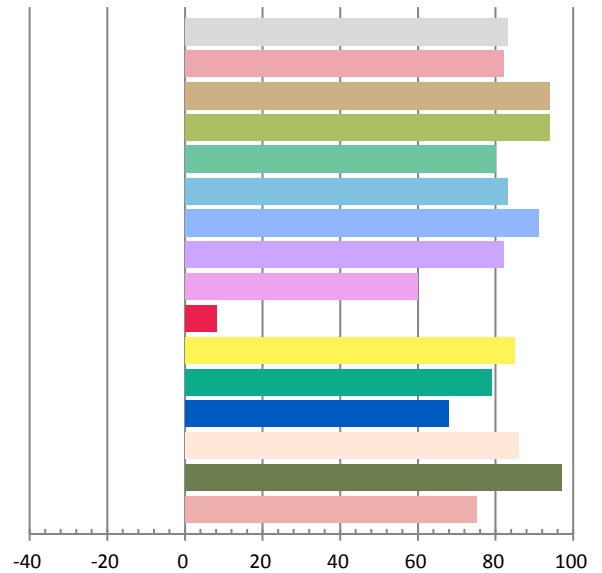
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.1212	14.29	0.9829	2079.5	145.48

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
6.292	3467	-0.000475	0.4067	0.3903	0.2368	0.5113

**Color Rendering Index**

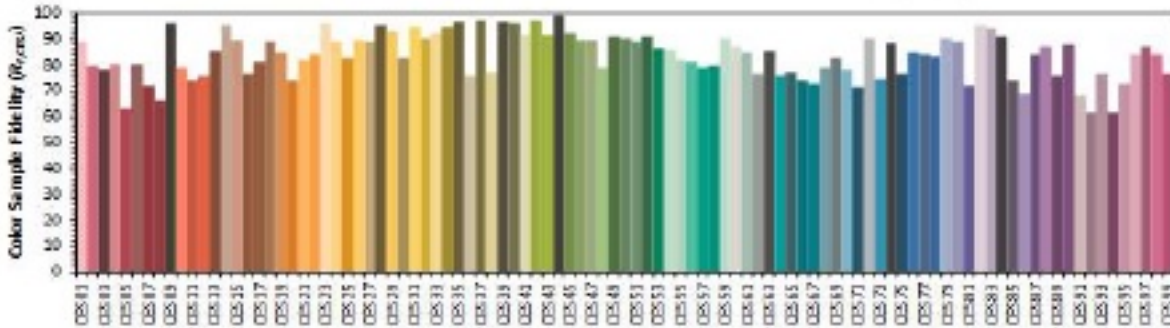
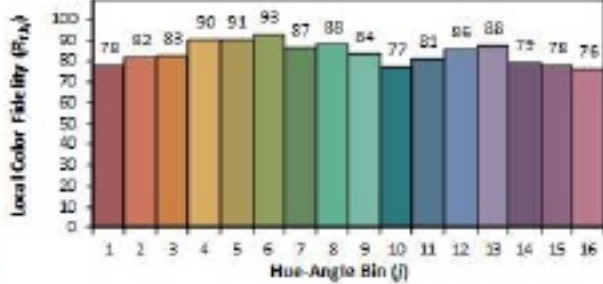
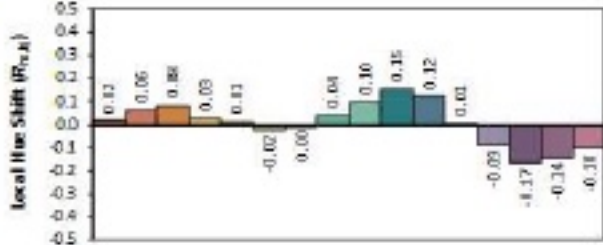
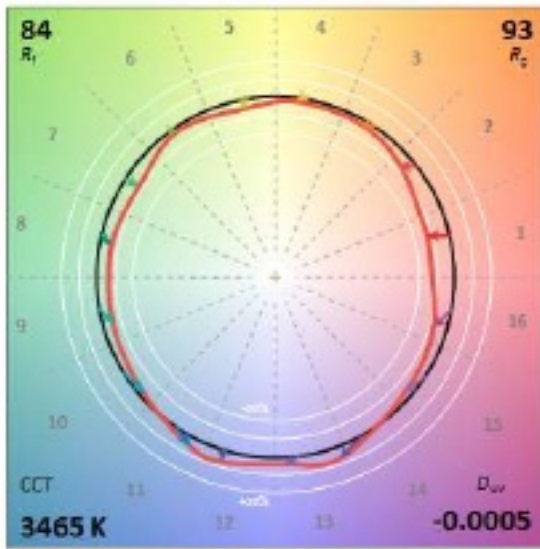
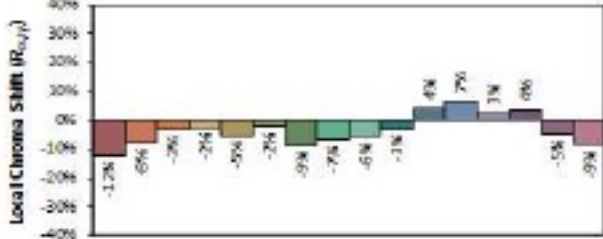
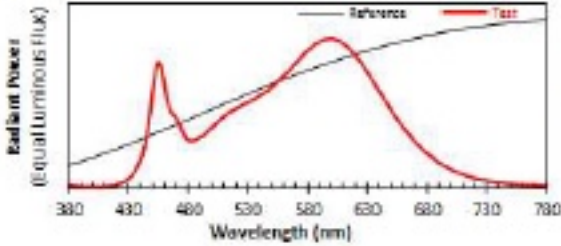
<b>Ra</b>			
<b>83.2</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
82	94	94	80
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
83	91	82	60
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
8	85	79	68
<b>R13</b>	<b>R14</b>	<b>R15</b>	
86	97	75	



### ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD  
 Date: 2022/12/21

Manufacturer: P.Q.L, Inc  
 Model: SST61-45W-25K



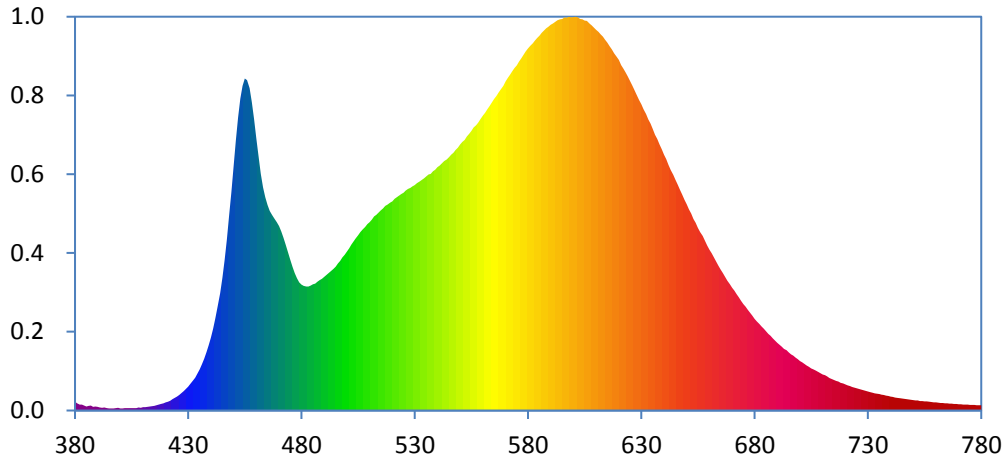
Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4067  
 y 0.3902  
 u' 0.2368  
 v' 0.5113

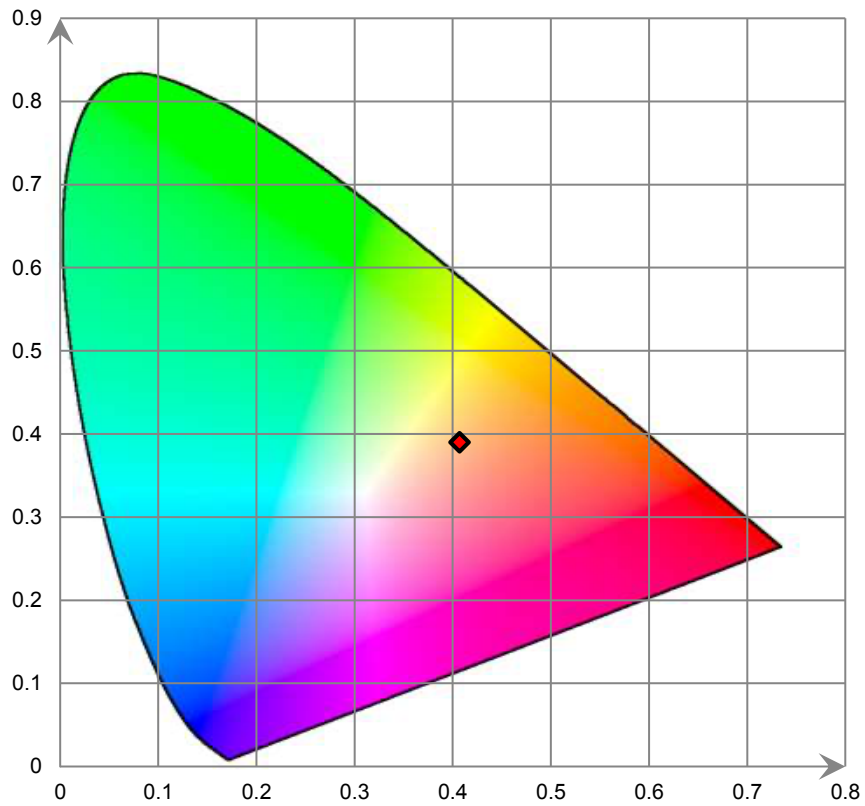
CIE 13.3-1995 (CRI)	
R <sub>a</sub>	83
R <sub>g</sub>	8

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

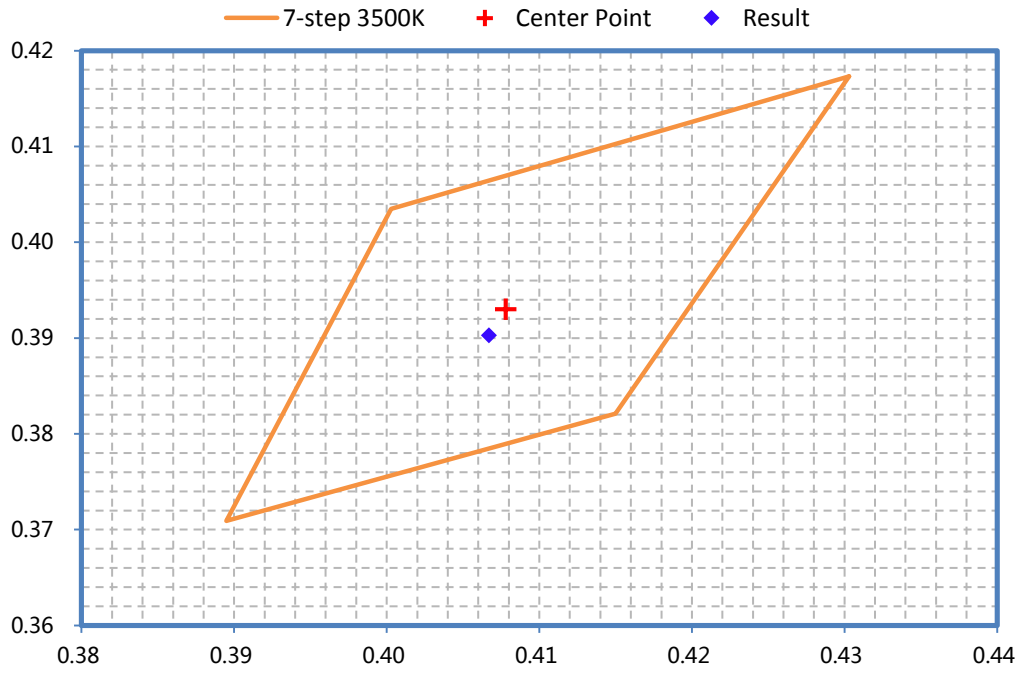
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



ANSI C78.377-2017 Chromaticity Quadrangles



**Test Model: 55761-40K**  
**Control setting: 25W**

Integrating Sphere Test; Orientation: Downward; Test Voltage: 120V 60Hz:

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances only)	Conclusion
Light Output(lm)	3526.5	≥750	≥675	Pass
Power(W)	23.92	None.	None.	N/A
Total Efficacy(lm/W)	147.41	≥115	≥111.55	Pass
CCT(K)	4116	None <sup>i</sup>	None.	N/A
Duv	-0.000448	None <sup>i</sup>	None.	N/A
IES R <sub>f</sub>	84	70	69	Pass
IES R <sub>g</sub>	93	89	88	
IES Rcs,h1	-12%	-12%~23%	-13%~24%	
R <sub>a</sub>	84.6	≥80	≥79	
R <sub>9</sub>	14	≥0	≥-1	

Note:

- i. White-tunable products are not required to meet the chromaticity requirements in DLC V5.1.

THDi, PF Test; Orientation: Downward:

Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
120	Power Factor	0.9904	≥0.9	≥0.87	Pass
120	THDi	8.80%	≤20%	≤25%	Pass
277	Power Factor	0.9702	≥0.9	≥0.87	Pass
277	THDi	13.83%	≤20%	≤25%	Pass

Note:

- The test results were measured directly from the test equipment.
- The DLC requirements were listed according to DLC Technical Requirements V5.1.
- The conclusion is for reference only. Test report that indicate product performance meets DLC Technical Requirements do not represent official DLC product qualification. All decisions regarding product qualification are made by the DLC.



**Test Data**

**[Integrating Sphere System]**

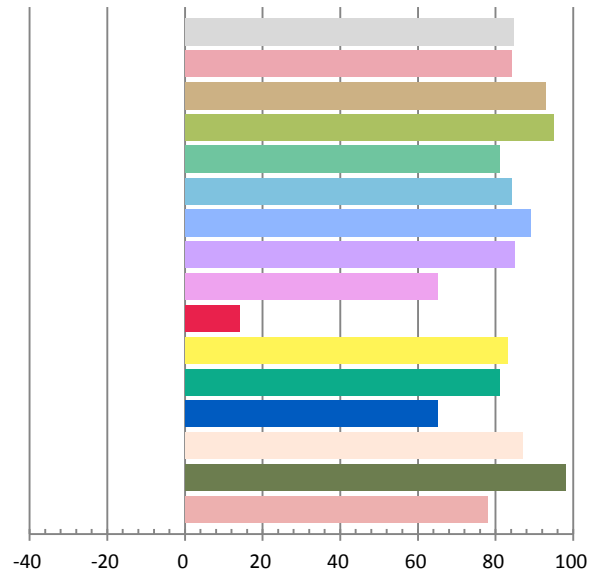
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.2013	23.92	0.9904	3526.5	147.41

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
10.854	4116	-0.000448	0.3752	0.3725	0.2234	0.4989

**Color Rendering Index**

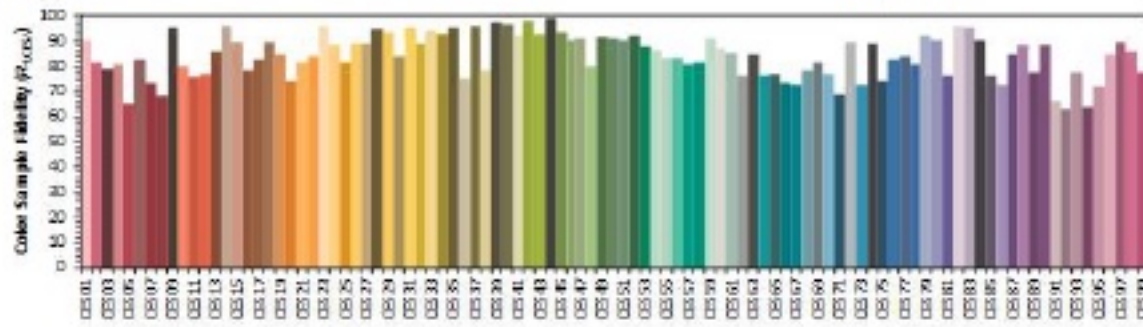
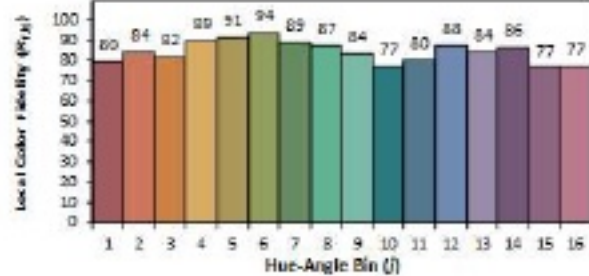
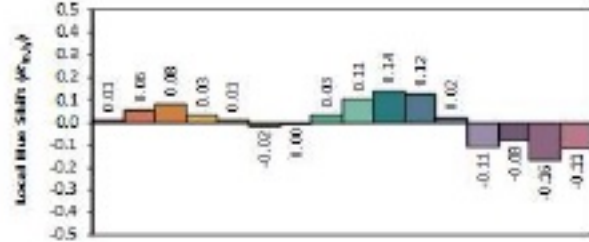
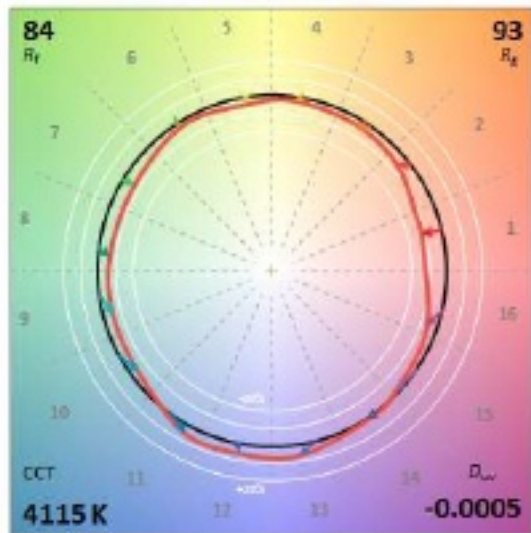
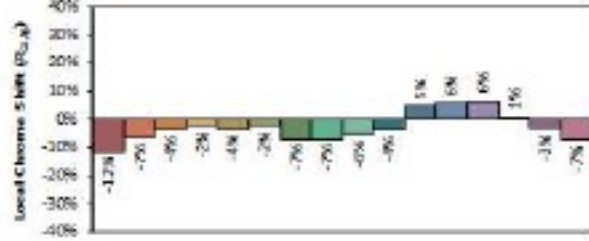
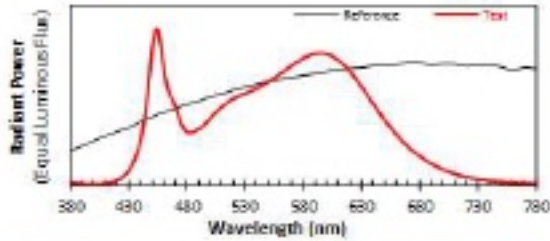
<b>Ra</b>			
<b>84.6</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
84	93	95	81
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
84	89	85	65
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
14	83	81	65
<b>R13</b>	<b>R14</b>	<b>R15</b>	
87	98	78	



### ANSI/IES TM-30-18 Color Rendition Report

Source: Deer SPD  
 Date: 2022/12/21

Manufacturer: P.Q.L, Inc  
 Model: SST61-30W-40K

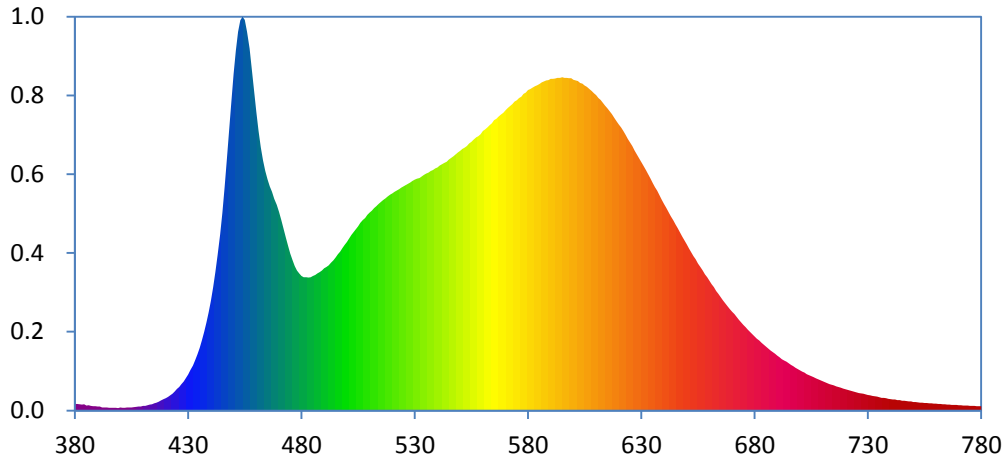


Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

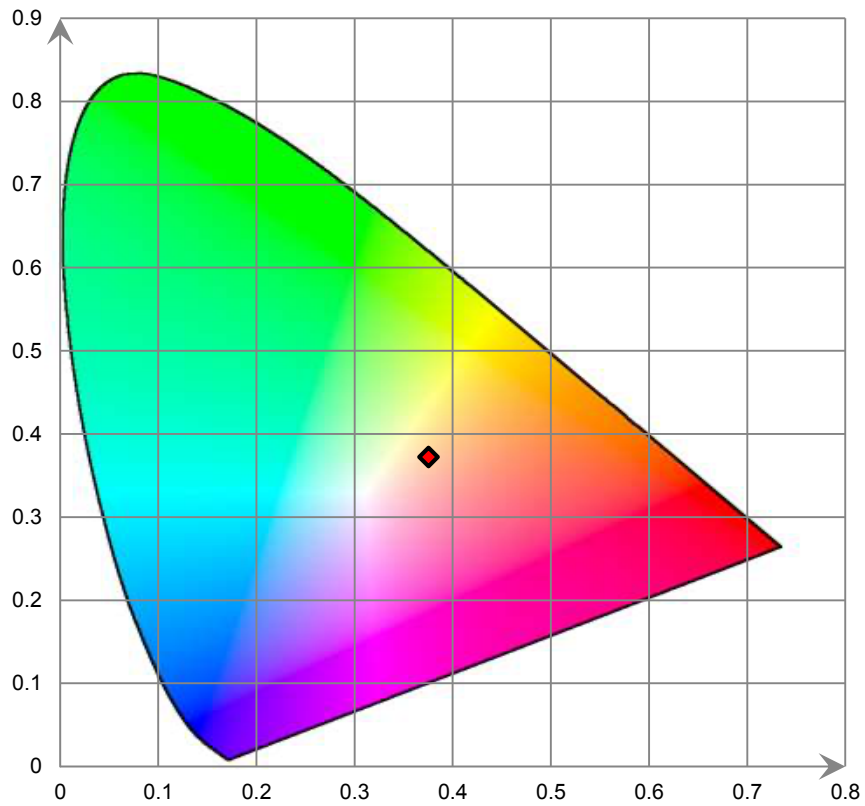
$x$	<b>0.3752</b>	CIE 13.3-1995 (CRI) $R_a$ 84 $R_g$ 13
$y$	<b>0.3724</b>	
$u'$	<b>0.2334</b>	
$v'$	<b>0.4988</b>	

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

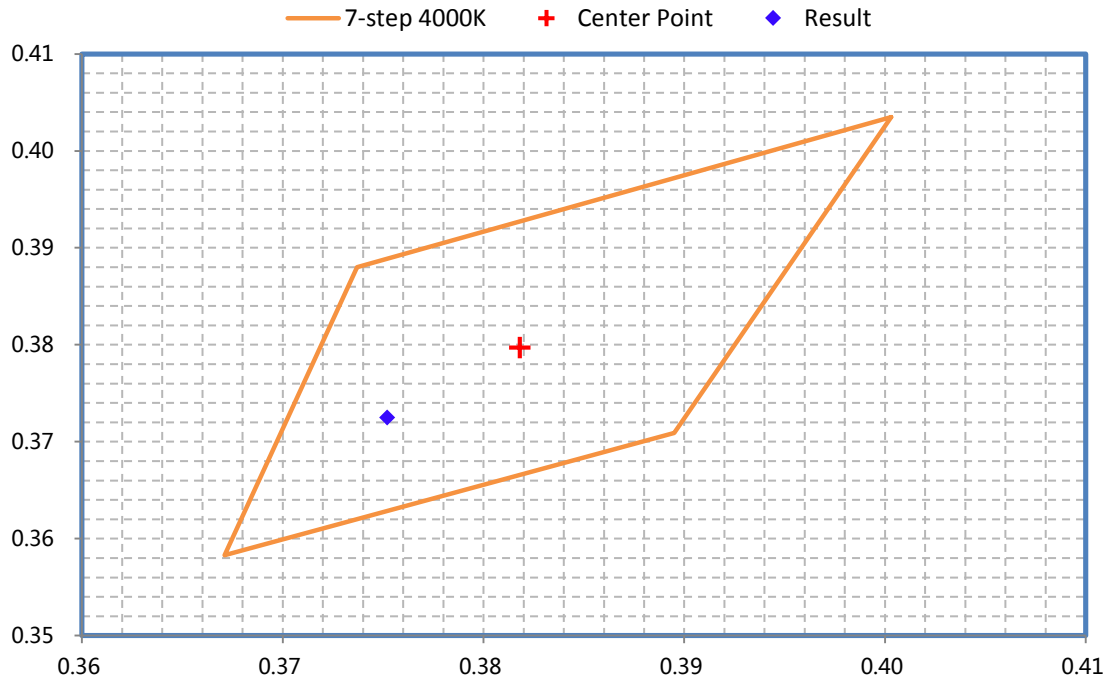
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



ANSI C78.377-2017 Chromaticity Quadrangles



**Test Model: 55761-50K**  
**Control setting: 25W**

Integrating Sphere Test; Orientation: Downward; Test Voltage: 120V 60Hz;

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances only)	Conclusion
Light Output(lm)	3393.5	≥750	≥675	Pass
Power(W)	24.81	None.	None.	N/A
Total Efficacy(lm/W)	136.78	≥115	≥111.55	Pass
CCT(K)	4905	None <sup>i</sup>	None.	N/A
Duv	0.00222	None <sup>i</sup>	None.	N/A
IES R <sub>f</sub>	84	70	69	Pass
IES R <sub>g</sub>	95	89	88	
IES Rcs,h1	-12%	-12%~23%	-13%~24%	
R <sub>a</sub>	83.8	≥80	≥79	
R <sub>9</sub>	9	≥0	≥-1	

Note:

- i. White-tunable products are not required to meet the chromaticity requirements in DLC V5.1.

Goniophotometer Test; Orientation: Downward; Test Voltage: 120V 60Hz;

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances only)	Conclusion
Light Output(lm)	3394.9	≥750	≥675	Pass
Power(W)	24.78	None.	None.	N/A
Total Efficacy(lm/W)	137.05	≥115	≥111.55	Pass
Zonal Lumen Distribution(0-60°)	60.51%	0-60°≥40%	0-60°≥37%	Pass

Goniophotometer THDi、PF Test; Orientation: Downward;

Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
120	Power Factor	0.9951	≥0.9	≥0.87	Pass
120	THDi	9.18%	≤20%	≤25%	Pass
277	Power Factor	0.9758	≥0.9	≥0.87	Pass
277	THDi	13.38%	≤20%	≤25%	Pass

Integrating Sphere THDi、PF Test; Orientation: Downward;

Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
120	Power Factor	0.9903	≥0.9	≥0.87	Pass
120	THDi	9.15%	≤20%	≤25%	Pass
277	Power Factor	0.9712	≥0.9	≥0.87	Pass
277	THDi	14.14%	≤20%	≤25%	Pass

Note:

- The test results were measured directly from the test equipment.
- The DLC requirements were listed according to DLC Technical Requirements V5.1.
- The conclusion is for reference only. Test report that indicate product performance meets DLC Technical Requirements do not represent official DLC product qualification. All decisions regarding product qualification are made by the DLC.

**Test Data**

**[Integrating Sphere System]**

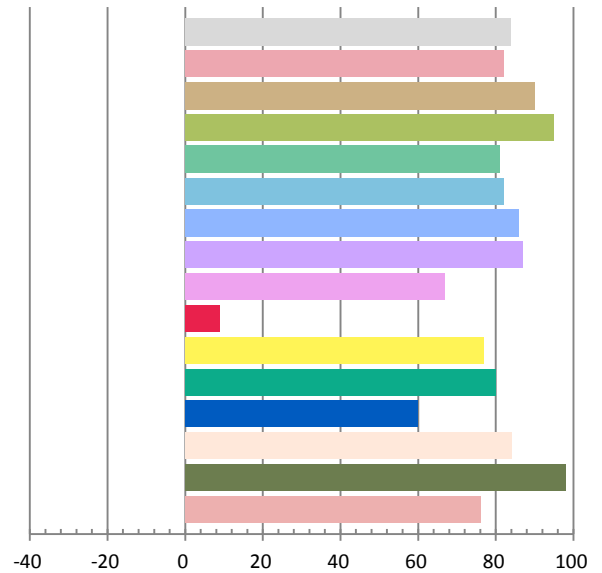
Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.2087	24.81	0.9903	3393.5	136.78

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
10.545	4905	0.00222	0.3483	0.3587	0.2109	0.4885

**Color Rendering Index**

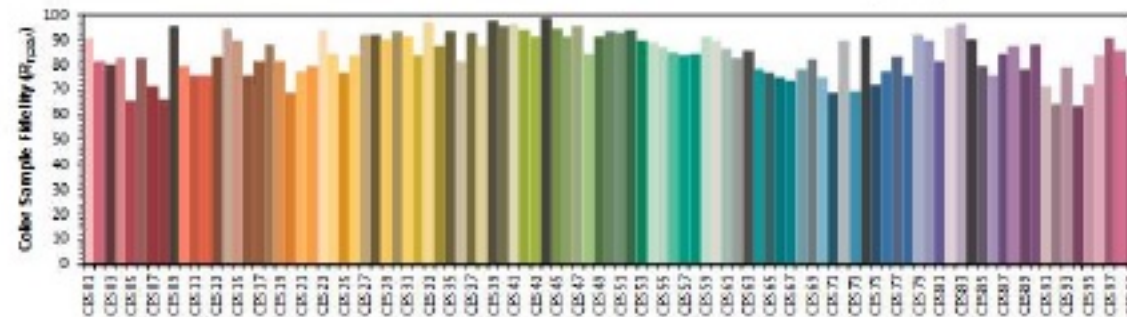
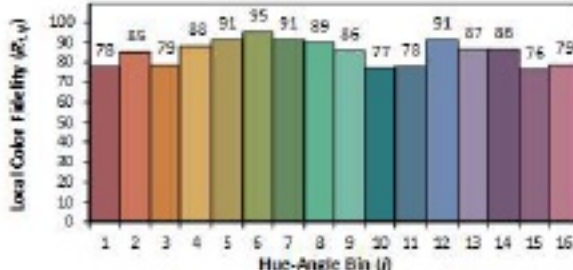
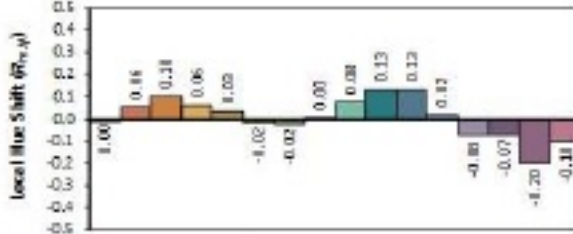
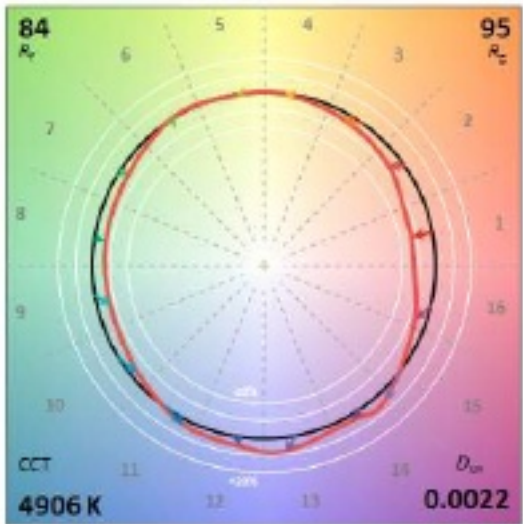
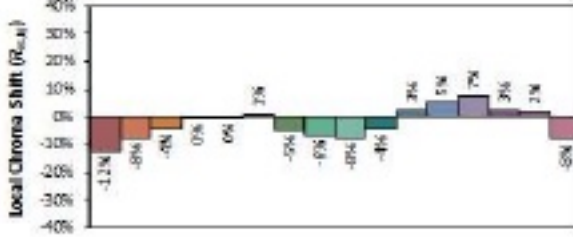
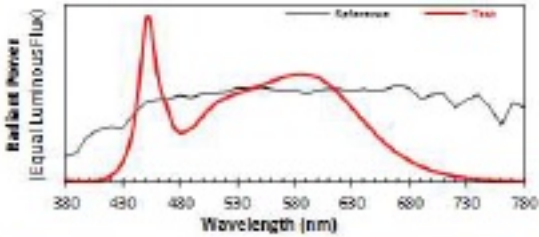
<b>Ra</b>			
<b>83.8</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
82	90	95	81
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
82	86	87	67
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
9	77	80	60
<b>R13</b>	<b>R14</b>	<b>R15</b>	
84	98	76	



### ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD  
Date: 2022/12/21

Manufacturer: P.Q.L, Inc.  
Model: SST61-25W-50K

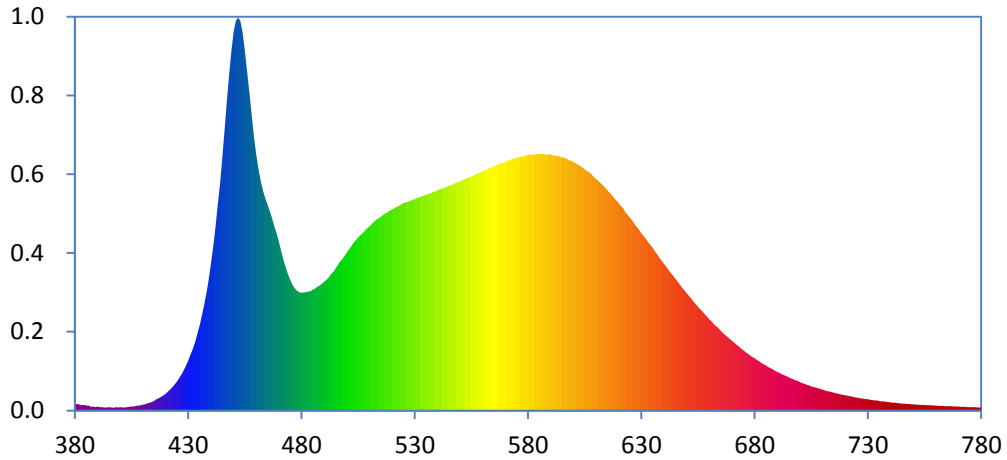


Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

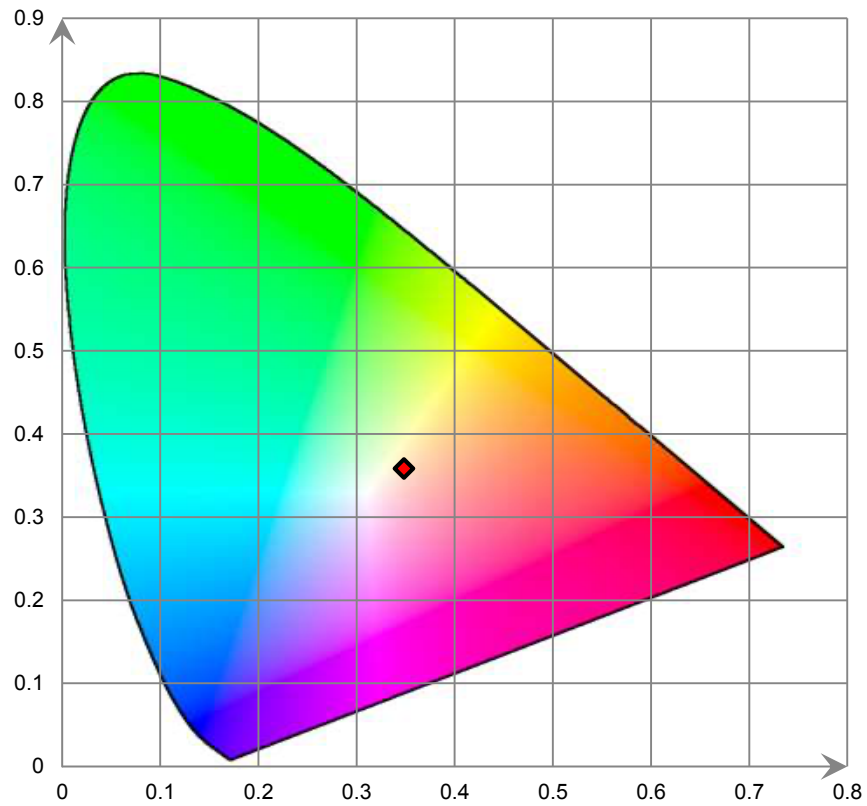
$x$	0.3483	CIE 13.3-1995 (CRI)
$y$	0.3585	
$u'$	0.2109	
$v'$	0.4885	
$R_a$	84	
$R_s$	7	

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Relative Spectral Power Distribution

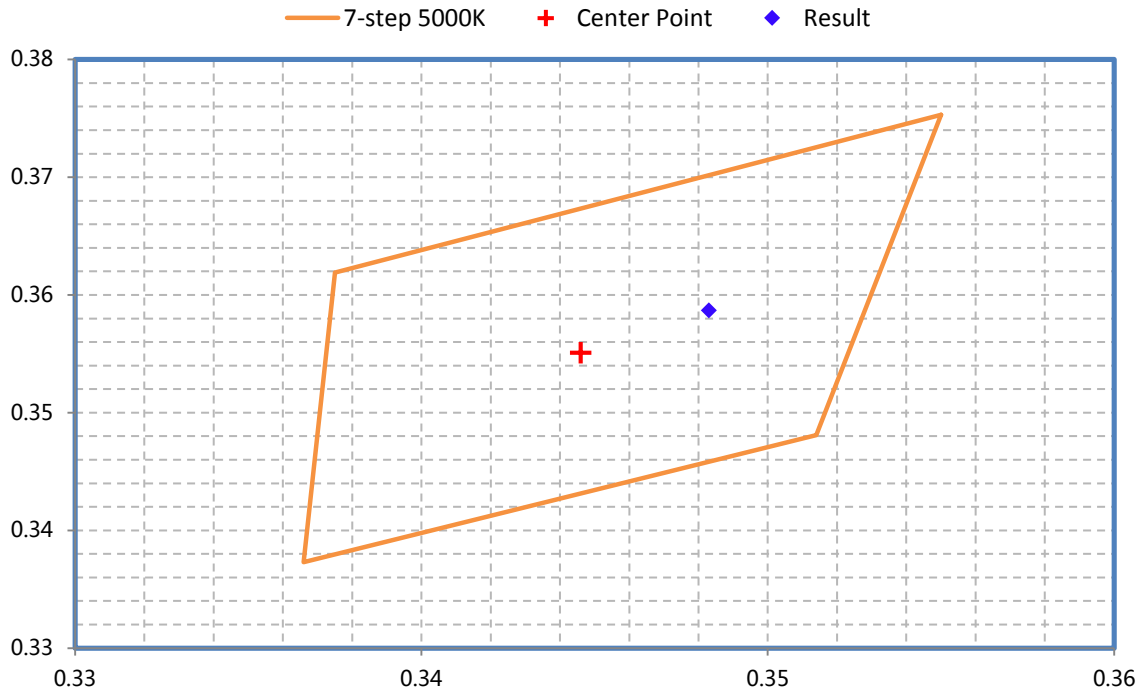


CIE 1931 x y Chromaticity Diagram





ANSI C78.377-2017 Chromaticity Quadrangles



**[Goniophotometer System]**

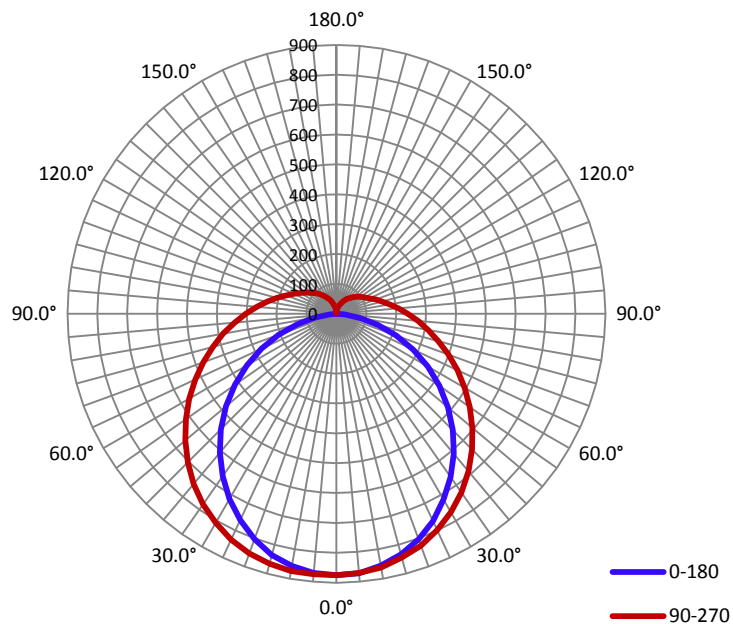
**Electrical Measurement**

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.0	60	0.207	24.78	0.995

**Photometric Measurement**

Luminous Flux (lm)	Efficacy (lm/W)	I <sub>max</sub> (cd)	S/MH (C0/180)	S/MH (C90/270)
3394.9	137.05	877.4	1.22	1.34

**Luminous Intensity Distribution**



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I <sub>max</sub> ):	107.2	122.6	139.8	122.5	123.0
Field Angle (10% I <sub>max</sub> ):	158.1	222.3	268.9	224.4	218.4

**Luminous Intensity (cd) Distribution Data**

$\begin{matrix} C \\ \backslash \\ Y \end{matrix}$	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	874.8	874.8	874.8	874.8	874.8	874.8	874.8	874.8
5.0°	871.1	871.4	871.5	872.5	870.7	872.0	870.8	870.4
10.0°	855.9	858.4	858.7	862.0	862.5	860.2	860.3	858.8
15.0°	833.5	835.5	842.5	844.3	845.0	843.8	841.1	837.6
20.0°	802.7	804.4	813.8	822.9	826.1	821.3	814.3	806.9
25.0°	765.3	766.4	779.9	792.9	798.8	791.8	782.4	769.8
30.0°	717.4	723.8	740.6	758.8	766.1	757.8	742.8	726.3
35.0°	666.5	675.3	696.8	717.3	729.3	717.4	699.3	677.1
40.0°	610.9	621.6	645.9	672.2	687.0	672.6	649.3	624.1
45.0°	551.4	562.9	594.2	622.4	642.1	624.0	596.5	564.1
50.0°	487.4	500.3	540.1	570.9	594.0	571.8	541.7	503.4
55.0°	420.3	437.4	482.1	518.3	545.0	519.5	484.2	440.2
60.0°	353.2	372.3	424.4	465.0	495.6	467.5	424.8	375.6
65.0°	283.4	307.5	367.6	412.0	447.3	415.5	368.2	310.6
70.0°	212.5	242.6	311.3	363.3	398.7	365.2	312.2	244.5
75.0°	143.5	183.3	258.7	317.5	353.6	319.8	260.1	184.8
80.0°	79.7	130.5	212.2	275.5	311.5	277.3	212.9	132.0
85.0°	27.3	89.2	173.1	237.9	273.6	240.8	174.9	90.2
90.0°	0.0	61.5	142.5	205.6	238.9	207.5	144.4	62.2
95.0°	0.0	45.6	119.7	177.7	207.9	178.6	120.4	46.0
100.0°	0.0	37.8	101.9	154.9	181.2	154.9	102.6	38.4
105.0°	0.0	33.6	88.8	135.1	158.8	135.4	89.6	33.7
110.0°	0.0	31.5	79.2	119.5	140.1	119.7	79.9	31.4
115.0°	0.0	29.8	71.5	106.1	123.0	105.8	71.9	29.2
120.0°	0.0	27.8	65.7	95.0	109.4	95.3	66.0	27.7
125.0°	0.0	26.1	60.1	86.1	98.3	86.8	60.4	25.8
130.0°	0.0	24.1	54.9	78.2	88.2	78.7	55.0	23.9
135.0°	0.7	23.0	49.5	70.1	78.5	70.6	48.9	22.4
140.0°	1.4	21.4	44.3	62.4	69.1	62.1	43.0	20.1
145.0°	2.3	20.7	40.0	54.5	60.2	53.2	37.2	18.3
150.0°	4.0	19.9	35.7	46.9	50.6	44.5	31.3	16.8
155.0°	5.1	18.8	31.2	40.0	41.9	36.4	25.0	13.8
160.0°	5.8	17.8	27.3	32.7	33.6	27.9	18.9	8.9
165.0°	6.6	15.1	21.6	25.0	25.2	20.8	8.8	7.0
170.0°	5.5	11.8	15.4	17.6	17.2	8.9	6.8	5.4
175.0°	5.3	7.0	9.6	10.3	7.3	6.2	5.1	4.6
180.0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**Luminous Intensity (cd) Distribution Data (cont.)**

$\begin{matrix} C \\ \backslash \\ Y \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0.0°	874.8	874.8	874.8	874.8	874.8	874.8	874.8	874.8
5.0°	871.0	871.8	874.8	876.0	875.3	873.8	871.6	869.6
10.0°	856.7	862.0	869.0	872.6	873.9	869.9	866.1	860.2
15.0°	835.3	841.4	854.8	863.8	866.0	860.6	851.5	838.7
20.0°	802.2	813.2	832.7	846.6	853.0	843.6	829.8	809.5
25.0°	761.4	779.7	804.4	825.5	834.4	821.5	801.4	774.9
30.0°	715.7	738.2	770.0	796.5	807.0	793.0	767.2	734.4
35.0°	663.5	691.7	731.8	763.0	778.1	759.4	728.4	688.5
40.0°	607.1	640.2	687.1	724.3	742.8	720.6	684.2	636.3
45.0°	547.3	583.8	639.1	681.2	703.4	676.9	636.1	582.0
50.0°	481.9	525.3	587.6	635.2	660.0	630.9	586.4	525.0
55.0°	414.8	464.2	534.6	585.3	614.8	582.5	532.0	462.5
60.0°	346.3	401.0	479.9	534.8	568.5	532.7	475.4	400.6
65.0°	276.4	337.1	424.7	483.6	521.7	482.9	421.4	337.2
70.0°	206.1	273.4	368.3	434.4	474.1	433.3	365.5	274.5
75.0°	135.9	212.5	313.7	386.5	428.0	386.6	313.0	214.5
80.0°	72.8	158.0	264.4	341.3	384.5	343.3	263.5	159.4
85.0°	22.1	112.2	220.7	299.3	341.8	302.4	223.3	115.4
90.0°	0.0	79.8	185.0	262.9	303.2	264.8	187.2	83.2
95.0°	0.0	59.4	155.7	229.9	266.6	230.9	158.6	64.1
100.0°	0.0	48.5	132.6	200.3	234.6	202.6	136.2	52.6
105.0°	0.0	42.6	115.7	174.9	205.2	177.4	119.4	45.8
110.0°	0.0	39.1	102.0	153.2	179.7	155.6	105.5	41.6
115.0°	0.0	36.4	91.2	135.1	158.0	137.8	94.1	39.0
120.0°	0.0	33.9	81.7	120.4	139.3	122.9	84.5	37.3
125.0°	0.0	31.7	74.0	107.2	123.3	109.3	76.2	34.8
130.0°	0.0	29.1	66.9	95.6	108.4	97.8	69.5	32.0
135.0°	0.0	26.6	60.0	85.3	96.6	86.7	62.2	30.4
140.0°	1.1	24.7	52.9	74.7	85.0	76.5	55.5	27.8
145.0°	1.6	22.4	46.7	64.5	73.5	66.5	48.6	25.1
150.0°	1.6	20.5	39.7	55.2	62.4	56.8	42.0	23.0
155.0°	2.7	16.7	33.9	46.0	51.6	47.0	35.8	20.6
160.0°	2.8	13.3	27.3	36.7	41.7	38.5	29.6	17.5
165.0°	3.0	10.0	18.6	28.8	31.7	29.4	23.9	15.3
170.0°	3.5	8.2	12.3	19.2	22.0	20.8	17.2	11.5
175.0°	3.7	5.9	7.9	9.0	13.5	13.1	10.9	6.8
180.0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

## 6. Description of Test Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
2.0m integrating sphere	EVERFINE	R98	G121960CS1361154D	2022-06-21	2023-06-20
spectroradiometer	EVERFINE	HAAS-2000	M12048CS1361148	2022-06-21	2023-06-20
Digital CC&CV DC Power Supply	EVERFINE	WY305	G115986CN1361134	2022-06-21	2023-06-20
Thermal Meter	ANYMETRE	TH-20E	N/A	2022-11-11	2023-11-10
Standard Light Source	Osram	24V/50W	JWWCR020106	2021-09-15	2023-09-14
Digital Power Meter	YOKOGAWA	WT210	91KB35700	2022-11-03	2023-11-02
Intelligence ac power supply	EVERFINE	DPS1005	G119890CS1361121	2022-06-21	2023-06-20
AC Power Supply	INVENTFINE	CHP-5KVA	900511765	2022-06-21	2023-06-20
DC Power Supply	INVENTFINE	WL3010	JWDMP030001	2022-06-21	2023-06-20
Power Meter	INVENTFINE	WT500	GSDSQ200007	2022-11-03	2023-11-02
Goniophotometer	INVENTFINE	GPM-1900	YWGCF120001	2022-11-14	2023-11-13
Wireless Weather Station	ZHONGXING	KG218	N/A	2022-06-21	2023-06-20
Standard Light Source	INVENTFINE	N/A	JWBYR040008	2021-12-23	2023-12-22
Digital Multimeter	FLUKE	115C	37840512WS	2022-06-22	2023-06-21
Hybrid Recorder	YOKOGAWA	DR230	47JH0903	2022-06-22	2023-06-21
Power Supply	SC	SC/BP-11003	1608110030553	2022-06-21	2023-06-20

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Kunshan) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

## 7. Test Method

Product was tested with no seasoning. All stabilization and measurements were made in compliance with IES LM-79-08. The ambient temperature of the sample was maintained at 25°C±1°C during measurement. And relative humidity is less than 65%. The product was operated in its intended orientation in application during all testing.

### Integrating Sphere System

The system includes AC power source, digital power meter, DC power supply, Spectroradiometer, and integrating sphere. The integrating sphere system is calibrated by standard spectrum light source before measurement. 4π geometry was used during measurement.

### Goniophotometer System

Type C goniophotometer was used for measuring luminous intensity distribution. The vertical angle (γ) test intervals were set no more than 1 degree while data for 5 degree intervals is reported. The horizontal angle (C plane) test intervals were set no more than 22.5 degree.

### ISTMT Test

The LED which has the highest temperature was measured at the location of LED case which is specified by LED source manufacturer and detailed by LM-80 report. The drive current of LED package/module/ array was calculated as the total output current of the driver measured by multimeter, divided by the number of branches in parallel of LEDs.

## Directions

1. The information marked "superscript #" is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. This report may contain data that are not covered by the accreditation scope and shall be marked with an asterisk "★".
3. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
5. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.
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\*\*\*\*\*END OF REPORT\*\*\*\*\*