



TL-749



TEST REPORT

For

LED ONE CORPORATION

45885 HOTCHKISS ST FREMONT, CA 94539

Model Number:	LOC-4FTSL-MW(22/28/36/44)MCCT(35/40/50)DF-MS	
Report Type:	Electrical, Photometric and ISTMT tests according to the following standards and show the compliance to DLC Program SSL Technical Requirements V5.0	
Standards:	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	
Project Engineer:	Bay Wang	
Report Number:	RKSB201109002-10	
Sample Size:	One sample was received on 2020-06-01 and used for testing.	
Test Date:	2020-06-02 to 2020-06-12	
Report Date:	2020-11-09	
Reviewed By:	Seven Xia/ EE Engineer	
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan). No.248 Chenghu Road, Kunshan, Jiangsu province, 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:	Lumileds Holding B.V.
LED Source Model:	L128-xx80RA3500xxx
Driver Model:	SDU42CS100V42DN3B
Luminaire length:	4ft
White Tunable:	Yes
Field-Adjustable Light Output:	Yes

Note:

- The applicant *LED ONE CORPORATION* declare that their products are the same to the product in report# RKSB200601007-10 and is authorized by original applicant to use their test data.
- All the data in previous report (RKSB200601007-10) is shared in report.

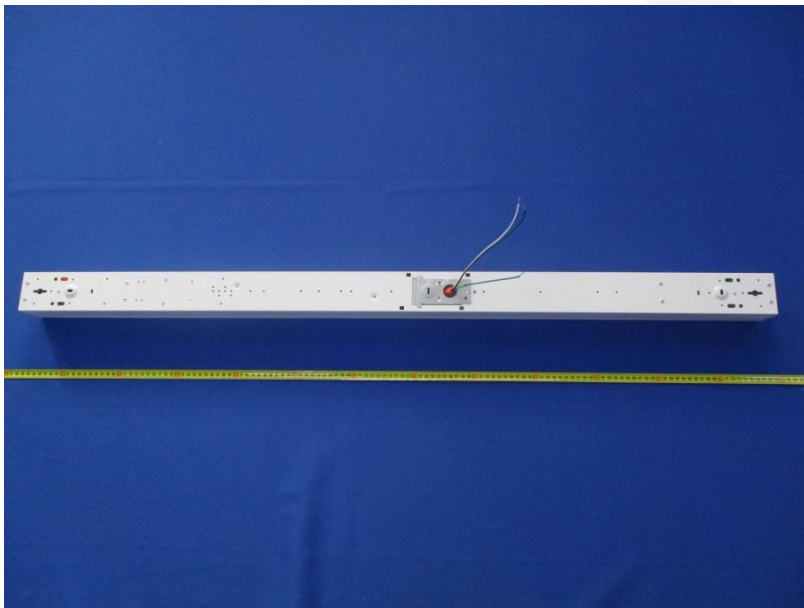
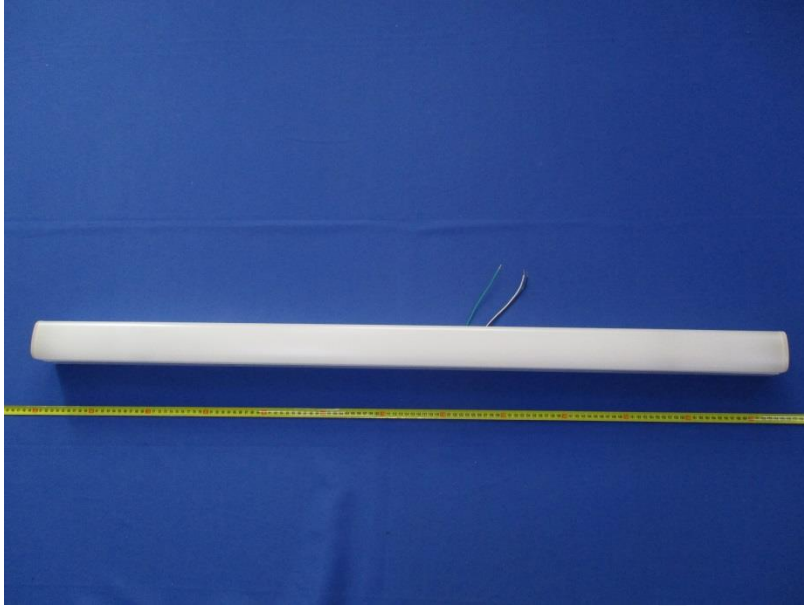
2. Product Rated Values

Test Model	CCT(K)	Light Output (lm)	Power(W)	Luminous Efficacy (lm/W)
LOC-4FTSL- MW(22/28/36/44)MCCT(35/40/50)DF- MS	3500	2970	22	135
		3724	28	133
		4752	36	132
		5724.4	44	130.1
	4000	3190	22	145
		4004	28	143
		5112	36	142
		6204	44	141
	5000	2992	22	136
		3752	28	134
		4788	36	133
		5808	44	132

3. Test List

Test Model	CCT(K)	Power(W)	Test Item			
			Goniophotometer Test	Integrating Sphere Test	THDi and PF Test	In-Situ Temperature Measurement Test
LOC-4FTSL- MW(22/28/36/44)MCCT(35/40/50)DF- MS	3500	44	Yes	Yes	Yes	Yes
	4000	44	NA	Yes	NA	NA
	5000	44	NA	Yes	NA	NA

4. Product Photo



5. Test Result

Control setting: **3500K**

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

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Total Efficacy(lm/W)	129.77	≥130	≥126.1	Pass
CCT(K)	3492	3220~3710	3220~3710	Pass
Duv	-0.000993	-0.0055~0.0065	-0.0055~0.0065	Pass
R _a	84	≥80	≥78	Pass

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

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm)	5738.5	≥1500	≥1350	Pass
Power(W)	44.22	None.	None.	N/A
Total Efficacy(lm/W)	129.82	≥130	≥126.1	Pass
Zonal Lumen Distribution(0-60°)	65.34%	0-60°≥40%	0-60°≥37%	Pass

THDi, PF Test; Orientation: Downward:

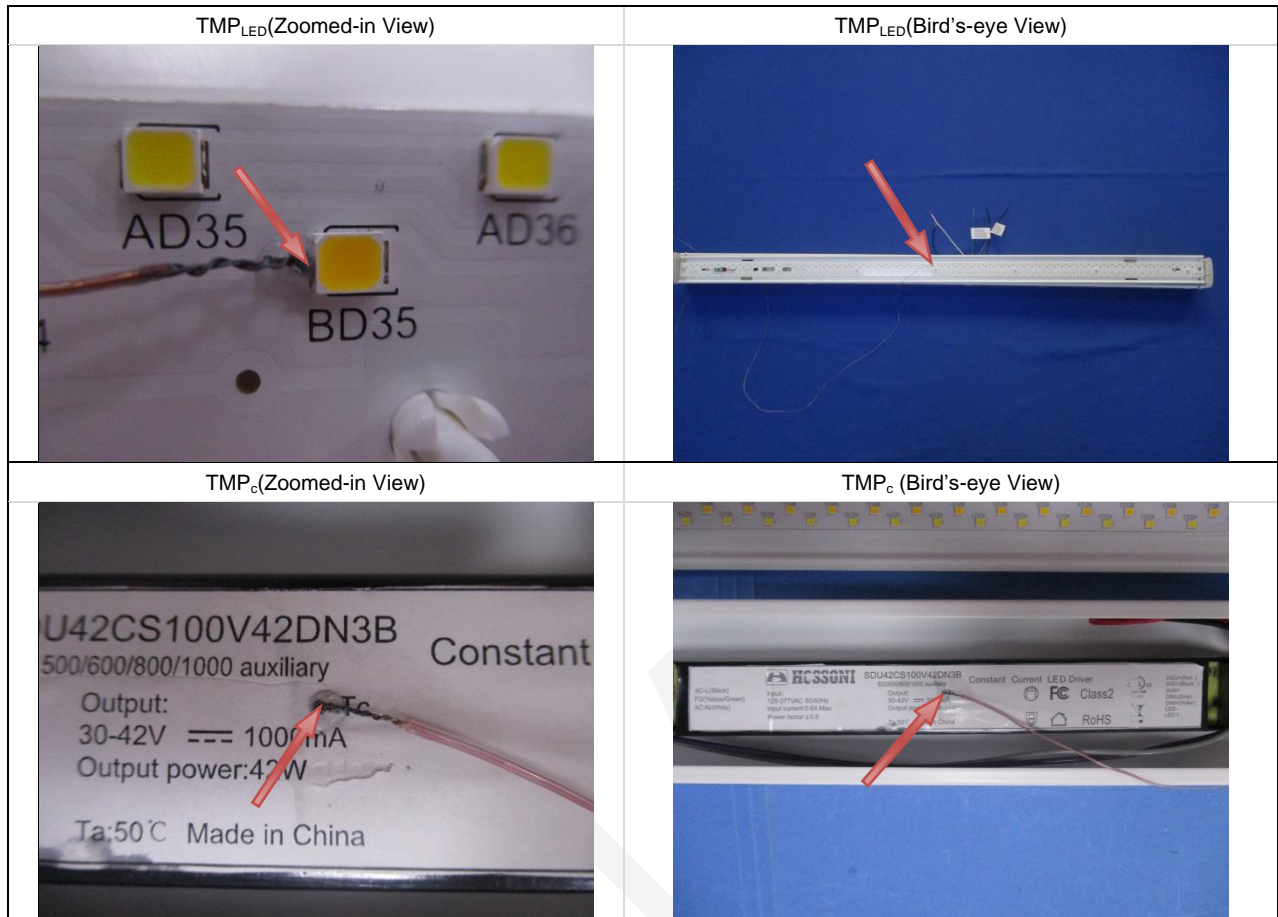
Test Voltage	Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
120	Power Factor	0.9991	≥0.9	≥0.87	Pass
120	THDi	3.96%	≤20%	≤25%	Pass
277	Power Factor	0.9739	≥0.9	≥0.87	Pass
277	THDi	6.82%	≤20%	≤25%	Pass

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

Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
TMP _{LED} (°C)	53.7	≤115	With tolerance of ≤ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
TMP _c (°C)	73.4	≤75	With tolerance of ≤ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance	Pass
Drive Current/Individual LED source(mA)	96.9	≤150	With +5% tolerance	Pass
TM-21 Projected Lumen Maintenance at 50000hours	90.25%	L ₇₀ Life≥50000	L ₇₀ Life≥50000	Pass
L ₇₀ Lumen Maintenance Life (Hours)	>54000			
L ₉₀ Lumen Maintenance Life (Hours)	51000	≥36000	≥36000	Pass

Note:

- The test results were measured directly from the test equipment.
- The DLC requirements were listed according to DLC Technical Requirements V5.0
- 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]

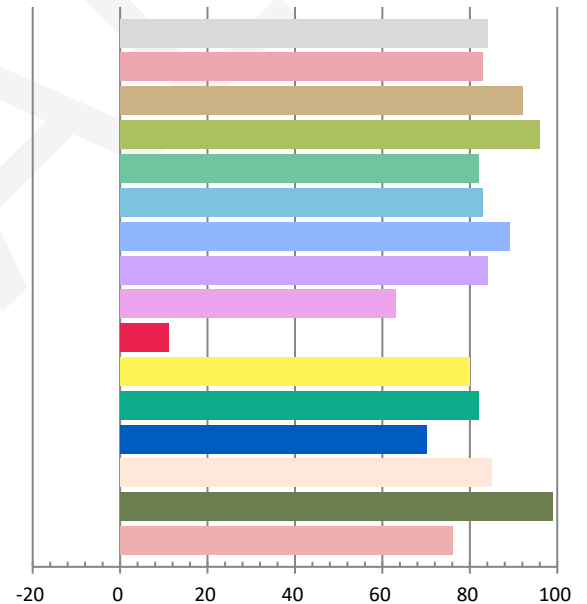
Photometric and Electrical Measurement Result

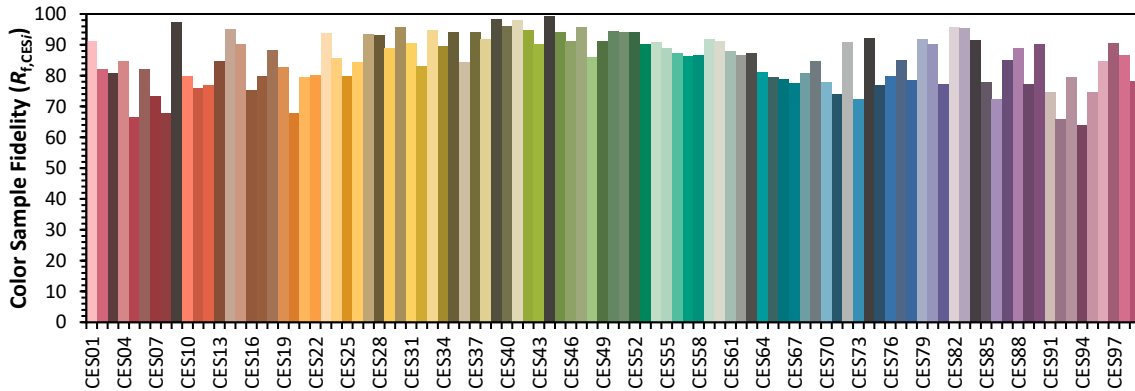
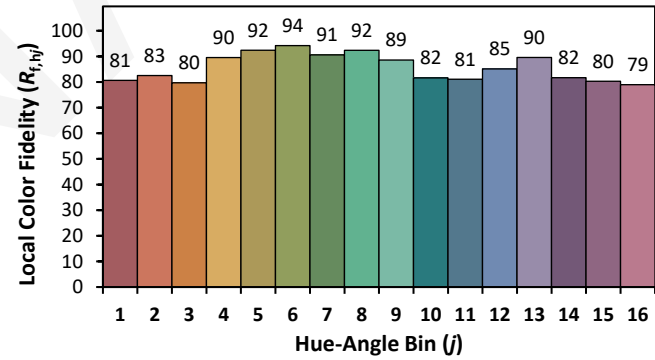
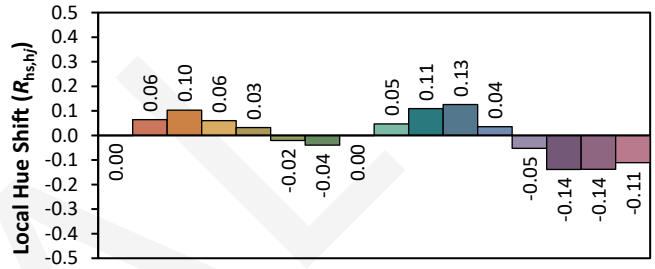
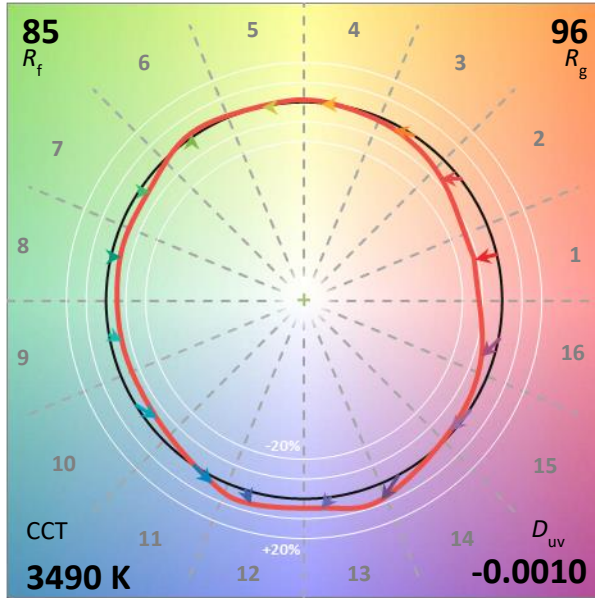
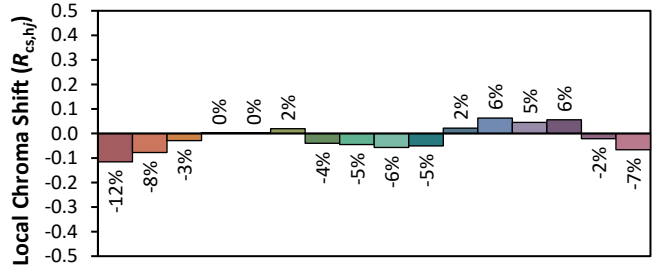
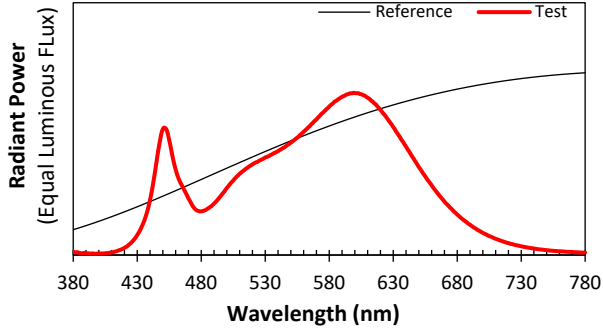
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.3701	44.13	0.9933	5726.9	129.77

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
17.488	3492	-0.000993	0.4047	0.3882	0.2364	0.5101

Color Rendering Index

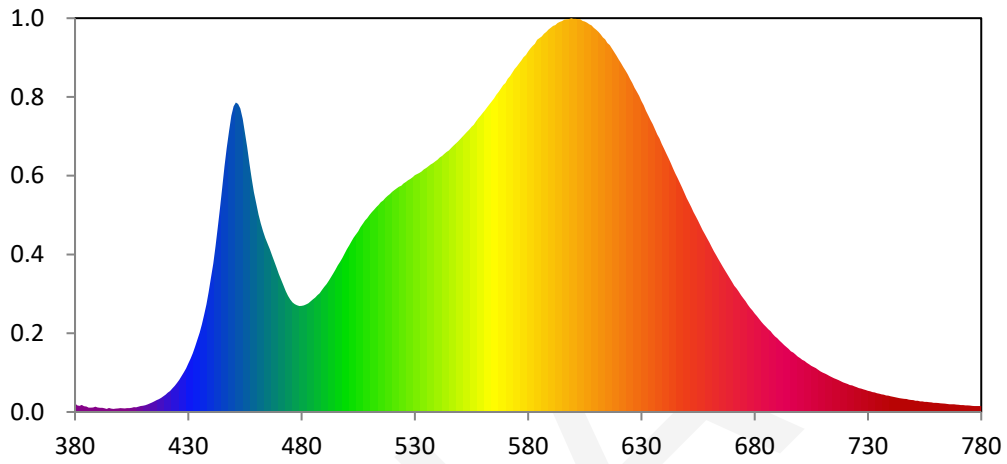
Ra			
84.0			
R1	R2	R3	R4
83	92	96	82
R5	R6	R7	R8
83	89	84	63
R9	R10	R11	R12
11	80	82	70
R13	R14	R15	
85	99	76	



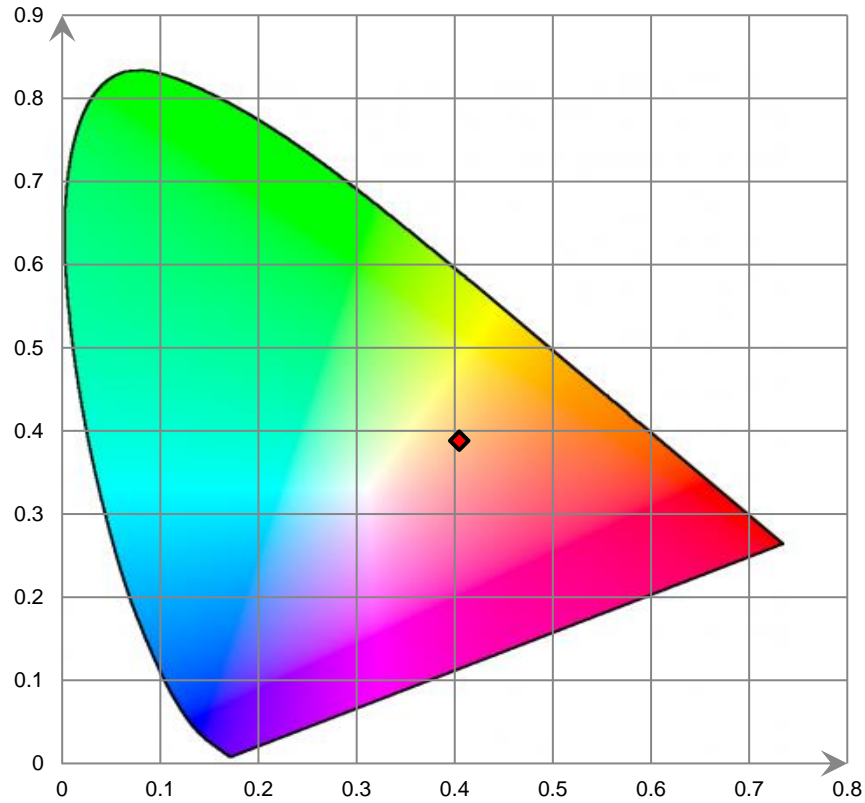


IES R_t	85
IES R_g	96
IES $R_{cs,h1}$	-12%

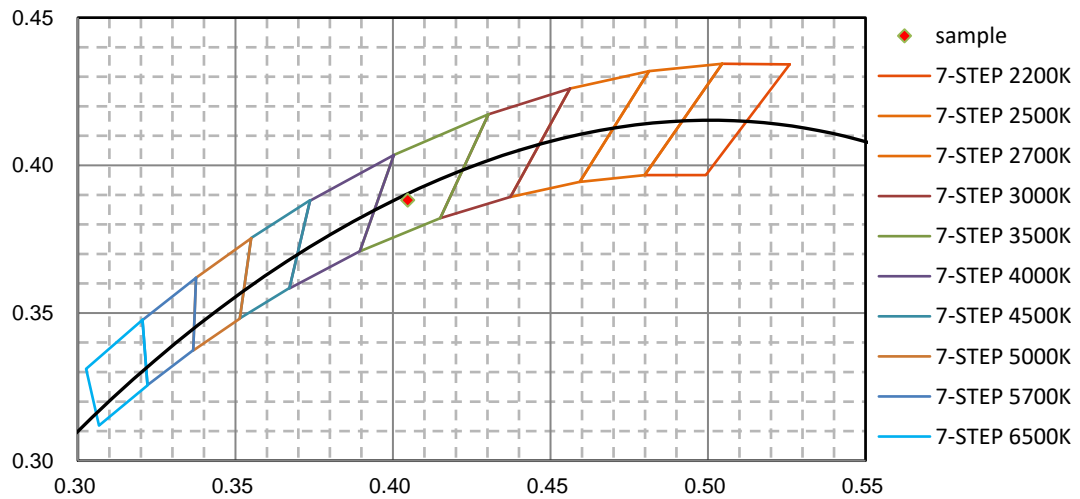
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



[Goniophotometer System]

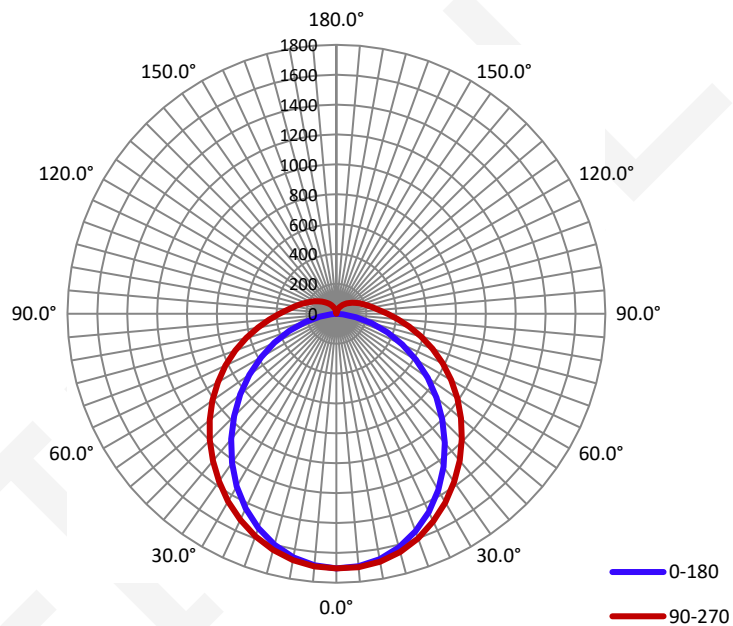
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.0	60	0.369	44.22	0.999

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I _{max} (cd)	S/MH (C0/180)	S/MH (C90/270)
5738.5	129.82	1703.8	1.18	1.27

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I _{max}):	100.4	111.4	125.0	113.1	112.5
Field Angle (10% I _{max}):	155.6	193.1	233.5	199.1	195.3

Luminous Intensity (cd) Distribution Data

C y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	1703.8	1703.8	1703.8	1703.8	1703.8	1703.8	1703.8	1703.8
5.0°	1695.7	1697.1	1699.3	1700.8	1702.0	1700.2	1697.2	1694.7
10.0°	1667.5	1672.0	1676.3	1682.0	1684.5	1680.7	1673.0	1666.9
15.0°	1617.8	1625.8	1634.4	1644.7	1649.8	1643.4	1630.0	1618.4
20.0°	1548.1	1561.8	1576.7	1590.9	1599.0	1591.7	1570.2	1552.4
25.0°	1463.2	1481.9	1501.0	1522.0	1533.2	1521.8	1493.4	1467.9
30.0°	1362.8	1384.7	1413.3	1442.2	1458.8	1444.0	1407.0	1372.4
35.0°	1250.1	1275.6	1314.2	1351.7	1373.2	1355.5	1310.1	1264.0
40.0°	1128.7	1158.6	1208.8	1253.8	1283.2	1262.2	1206.1	1146.8
45.0°	1002.7	1038.0	1096.3	1154.1	1186.8	1161.9	1098.9	1027.2
50.0°	874.5	916.6	983.3	1052.2	1088.8	1059.7	986.3	906.8
55.0°	745.8	794.1	870.1	947.8	989.2	956.3	875.8	783.0
60.0°	616.0	669.5	757.0	842.9	887.4	852.3	766.4	662.1
65.0°	486.6	547.0	647.8	741.3	784.8	750.9	658.9	545.6
70.0°	363.1	430.6	539.1	638.2	684.7	647.5	551.9	434.3
75.0°	244.2	321.0	437.1	538.8	586.4	548.0	450.5	325.6
80.0°	133.5	222.2	345.5	446.7	494.8	454.5	359.5	229.3
85.0°	45.9	137.8	266.3	365.9	412.2	371.7	279.7	148.7
90.0°	2.3	84.9	206.3	298.0	342.1	304.2	218.2	97.8
95.0°	0.0	62.8	168.4	249.9	286.6	254.7	179.2	76.0
100.0°	0.0	53.1	145.0	215.6	246.5	220.5	154.7	64.4
105.0°	0.0	44.7	126.8	190.2	215.8	193.6	135.0	55.1
110.0°	0.0	38.9	111.1	167.9	190.0	170.6	118.3	47.8
115.0°	0.0	34.8	97.6	147.5	167.4	150.1	103.9	41.4
120.0°	0.0	31.1	85.8	130.1	147.0	132.6	91.5	37.0
125.0°	0.0	27.8	75.7	114.1	129.1	116.3	80.3	33.6
130.0°	1.4	25.2	66.2	100.0	112.4	101.7	70.7	29.6
135.0°	1.6	23.1	58.4	86.4	98.0	87.9	61.0	26.3
140.0°	2.1	21.0	51.5	75.2	84.2	75.1	51.5	22.5
145.0°	3.0	20.9	45.7	64.9	72.0	63.1	41.8	18.3
150.0°	3.2	19.9	40.1	54.8	58.9	50.6	30.9	15.0
155.0°	4.3	18.5	34.0	44.8	47.5	38.4	22.3	12.7
160.0°	5.6	16.9	28.2	35.5	36.6	25.7	15.6	10.0
165.0°	6.3	14.3	21.6	25.2	25.5	16.5	10.2	8.3
170.0°	6.2	10.6	14.5	15.7	14.3	10.3	6.6	6.4
175.0°	5.3	7.6	8.2	8.9	7.8	7.5	5.7	6.0
180.0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Luminous Intensity (cd) Distribution Data (cont.)

C y	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0.0°	1703.8	1703.8	1703.8	1703.8	1703.8	1703.8	1703.8	1703.8
5.0°	1689.9	1690.7	1693.0	1694.8	1696.4	1695.5	1694.9	1694.2
10.0°	1655.2	1658.6	1665.0	1669.8	1673.7	1672.3	1668.8	1664.9
15.0°	1599.9	1607.9	1617.9	1628.6	1636.0	1633.6	1623.9	1617.2
20.0°	1526.2	1539.3	1555.5	1573.8	1584.7	1580.9	1564.0	1551.2
25.0°	1436.5	1452.2	1478.8	1505.9	1521.7	1514.0	1489.6	1469.3
30.0°	1333.6	1355.8	1390.5	1427.6	1450.1	1437.9	1403.5	1373.7
35.0°	1218.0	1245.0	1294.1	1342.7	1369.2	1354.9	1309.2	1267.6
40.0°	1095.3	1129.4	1190.3	1251.7	1285.5	1266.2	1210.1	1152.2
45.0°	968.5	1011.4	1081.9	1155.3	1197.4	1173.4	1104.9	1035.4
50.0°	840.0	891.9	973.6	1059.0	1106.6	1078.1	999.5	915.1
55.0°	711.8	769.1	864.5	960.8	1013.4	979.6	893.4	795.5
60.0°	581.7	648.6	756.4	861.0	915.7	881.3	788.0	676.5
65.0°	458.5	530.2	648.7	760.2	818.8	781.2	682.2	561.1
70.0°	334.9	416.1	542.5	659.5	720.9	680.1	576.0	447.0
75.0°	218.1	308.0	442.1	562.5	624.0	579.5	476.2	340.8
80.0°	112.5	210.3	351.7	470.2	531.4	485.2	384.4	243.7
85.0°	34.2	131.6	275.6	391.6	451.3	405.7	304.7	163.1
90.0°	0.7	86.4	222.4	327.6	381.2	342.4	247.4	113.3
95.0°	0.0	68.2	187.0	279.5	326.0	293.4	208.3	91.4
100.0°	0.0	57.0	162.4	244.6	282.8	255.1	180.9	77.7
105.0°	0.0	49.2	141.5	216.1	247.3	224.4	157.8	66.3
110.0°	0.0	42.4	124.1	189.6	216.2	196.8	138.3	57.6
115.0°	0.0	37.4	108.9	166.5	189.6	172.9	121.7	50.8
120.0°	0.0	33.6	95.3	146.1	166.5	151.8	106.6	44.9
125.0°	0.0	29.6	83.5	128.0	145.4	133.2	93.5	40.3
130.0°	0.0	26.5	73.0	111.4	126.7	115.8	82.0	36.0
135.0°	0.0	23.8	63.4	96.4	109.7	100.7	71.9	32.1
140.0°	0.9	19.8	54.5	82.4	94.4	86.7	62.5	28.6
145.0°	1.5	16.7	45.9	69.8	79.8	73.7	53.9	25.1
150.0°	2.4	14.5	36.2	58.0	66.5	61.3	44.7	21.7
155.0°	3.1	12.1	28.7	46.4	53.5	49.0	36.9	18.5
160.0°	4.2	10.0	22.6	34.8	41.2	38.3	29.2	15.5
165.0°	4.3	9.0	16.3	23.4	29.9	28.3	21.8	11.8
170.0°	5.4	7.8	11.3	14.9	19.6	18.7	14.6	9.8
175.0°	5.8	7.4	8.5	9.0	11.3	10.8	9.5	7.5
180.0°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Control setting: 4000K

<u>Integrating Sphere Test; Orientation: Downward; Test Voltage: 120V 60Hz;</u>				
Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm)	6216.1	≥1500	≥1350	Pass
Total Efficacy(lm/W)	145.94	≥130	≥126.1	Pass
CCT(K)	4127	3710~4260	3710~4260	Pass
Duv	-0.00114	-0.005~0.007	-0.005~0.007	Pass
R_a	85.6	≥80	≥78	Pass

Note:

1. The test results were measured directly from the test equipment.
2. The DLC requirements were listed according to DLC Technical Requirements V5.0.
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.

FINAL

Test Data

[Integrating Sphere System]

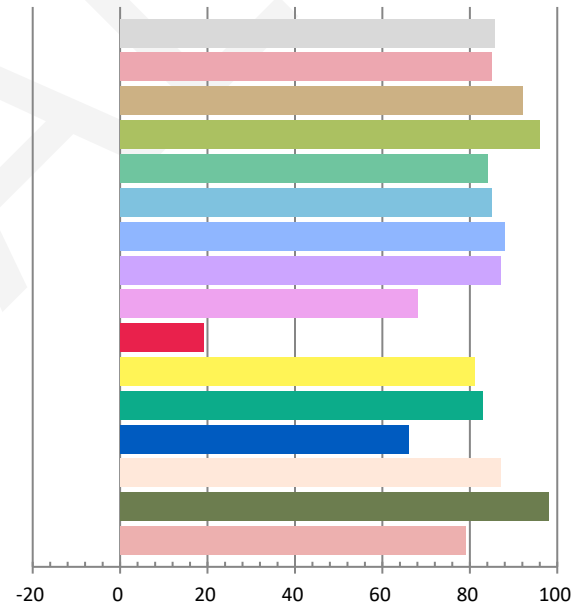
Photometric and Electrical Measurement Result

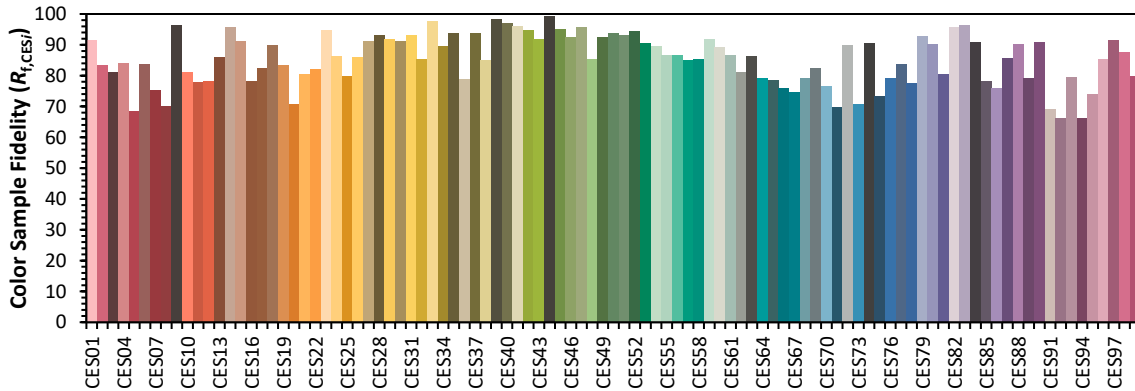
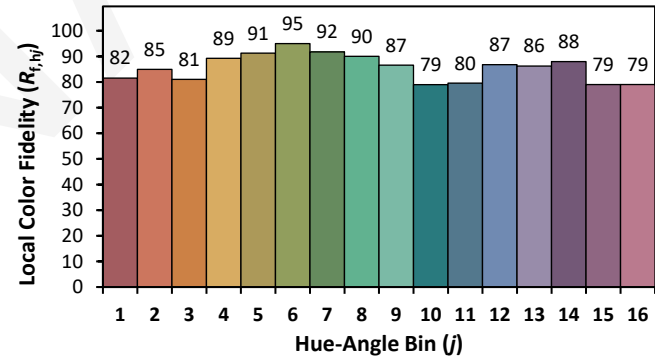
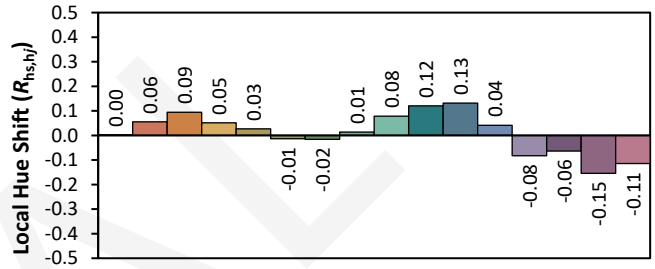
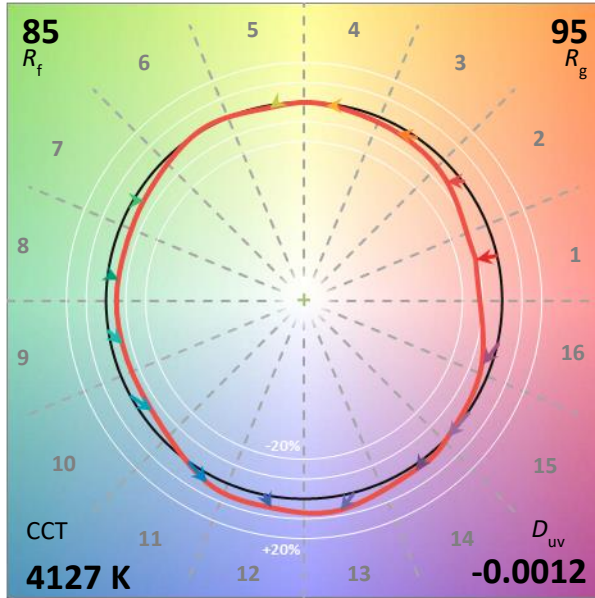
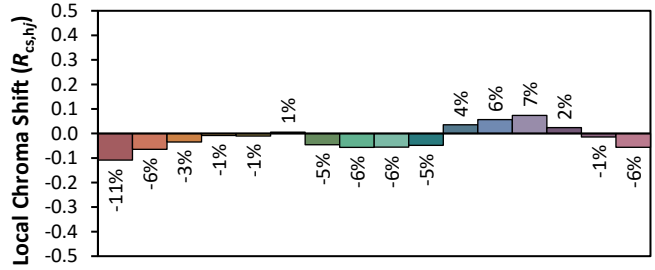
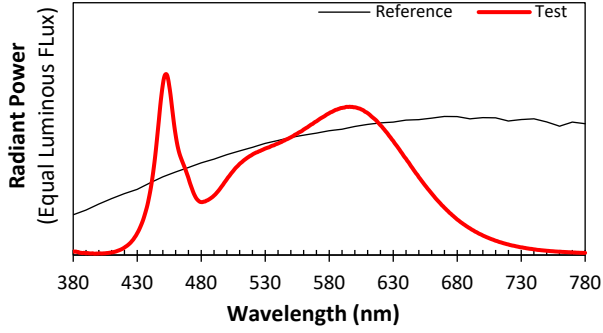
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.3562	42.59	0.9961	6216.1	145.94

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
19.322	4127	-0.00114	0.3743	0.3705	0.2236	0.4979

Color Rendering Index

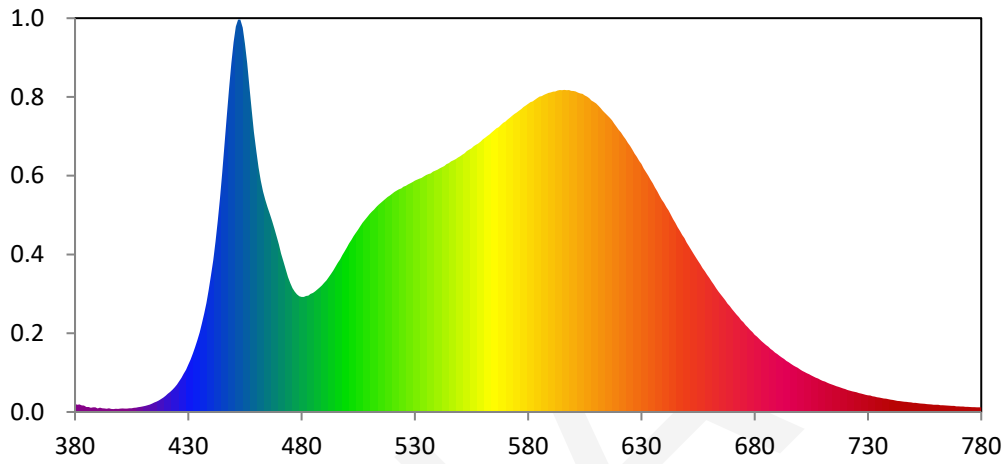
Ra			
85.6			
R1	R2	R3	R4
85	92	96	84
R5	R6	R7	R8
85	88	87	68
R9	R10	R11	R12
19	81	83	66
R13	R14	R15	
87	98	79	



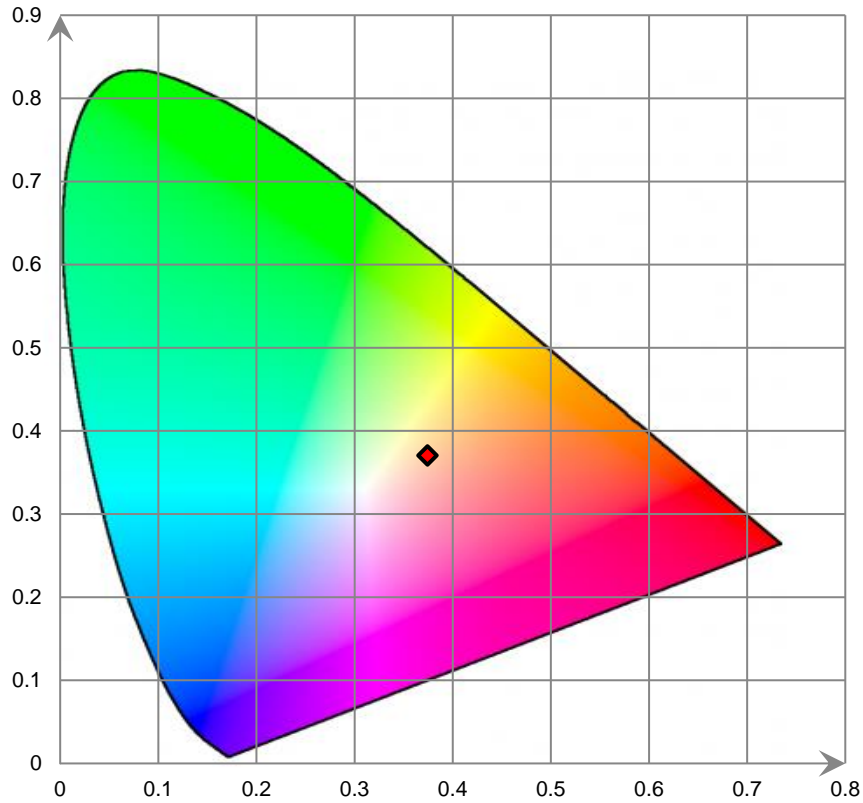


IES R_t	85
IES R_g	95
IES $R_{cs,h1}$	-11%

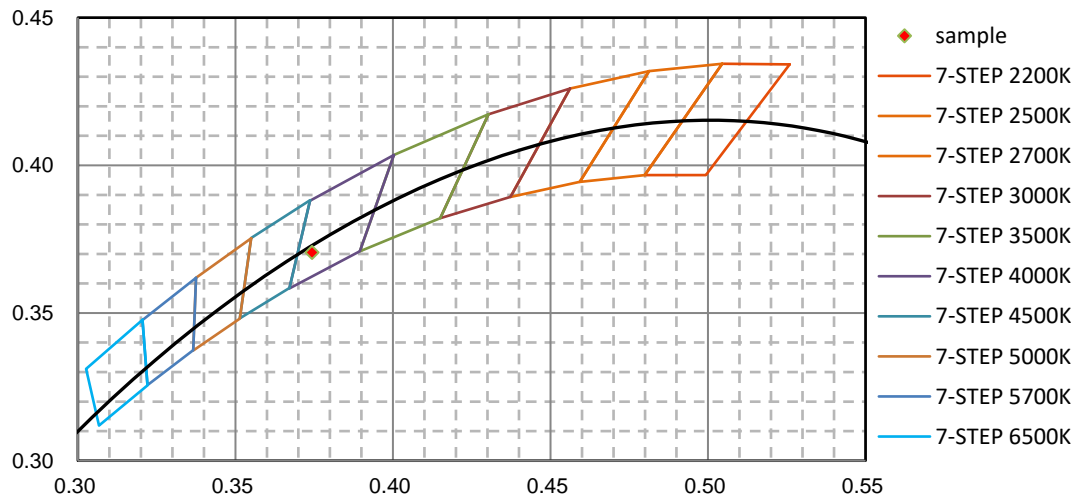
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



Control setting: 5000K

Integrating Sphere Test; Orientation: <u>Downward</u> ; Test Voltage: <u>120V 60Hz</u> ;				
Test Item	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
Light Output(lm)	5808.4	≥1500	≥1350	Pass
Total Efficacy(lm/W)	130.99	≥130	≥126.1	Pass
CCT(K)	5077	4746~5312	4746~5312	Pass
Duv	0.00179	-0.004~0.008	-0.004~0.008	Pass
R_a	84.5	≥80	≥78	Pass

Note:

1. The test results were measured directly from the test equipment.
2. The DLC requirements were listed according to DLC Technical Requirements V5.0.
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.

FINAL

Test Data

[Integrating Sphere System]

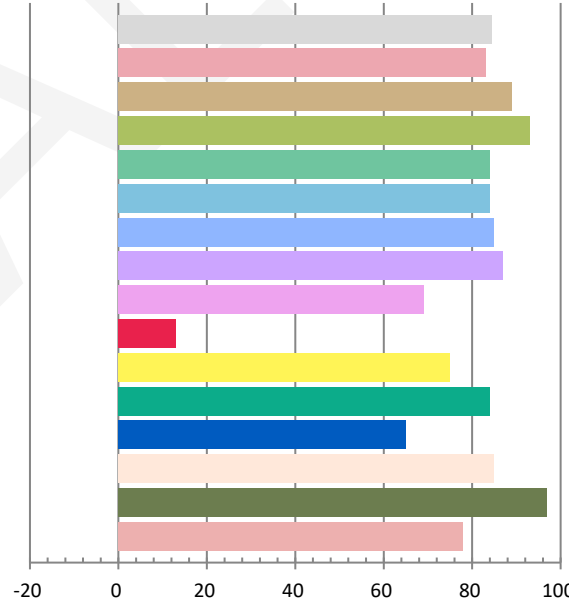
Photometric and Electrical Measurement Result

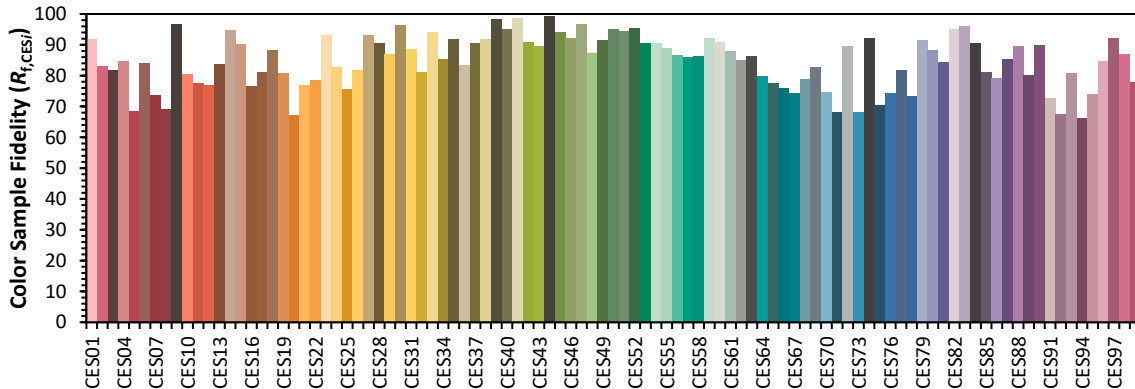
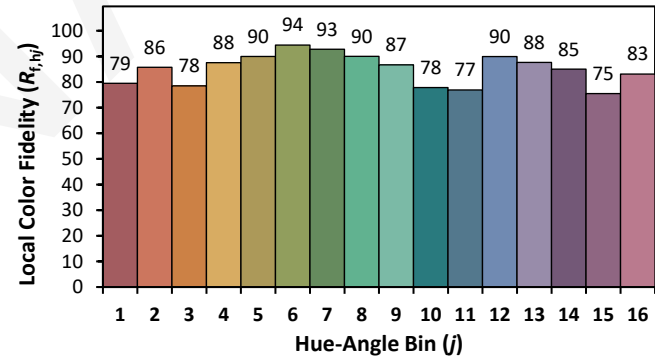
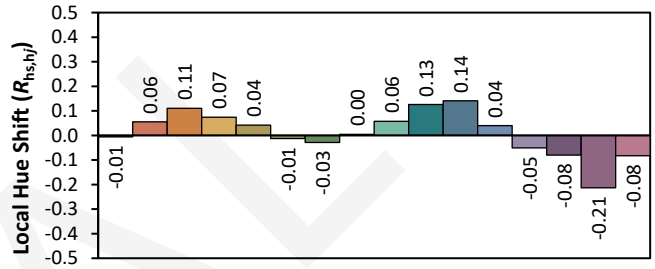
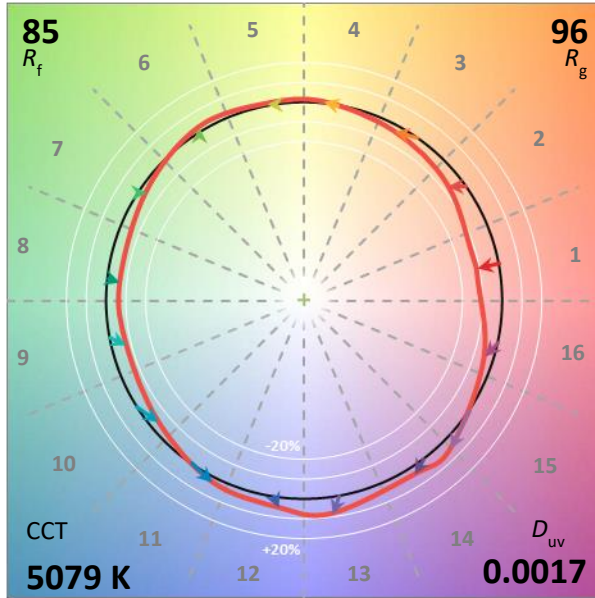
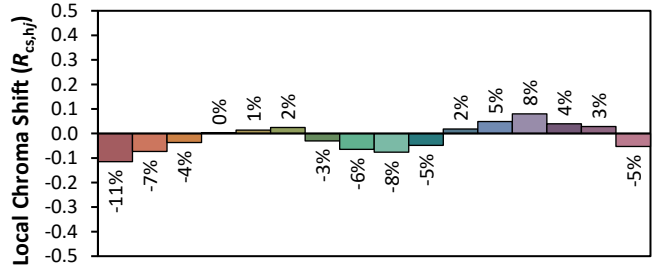
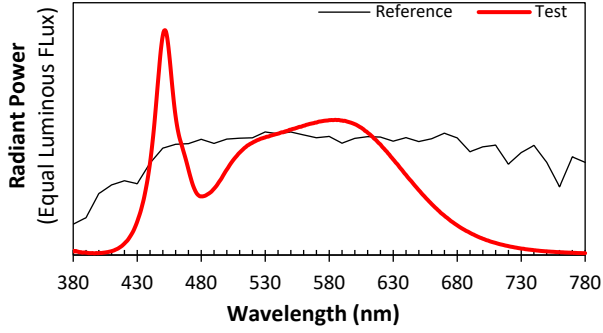
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.3722	44.34	0.9928	5808.4	130.99

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
18.305	5077	0.00179	0.3432	0.3537	0.2094	0.4854

Color Rendering Index

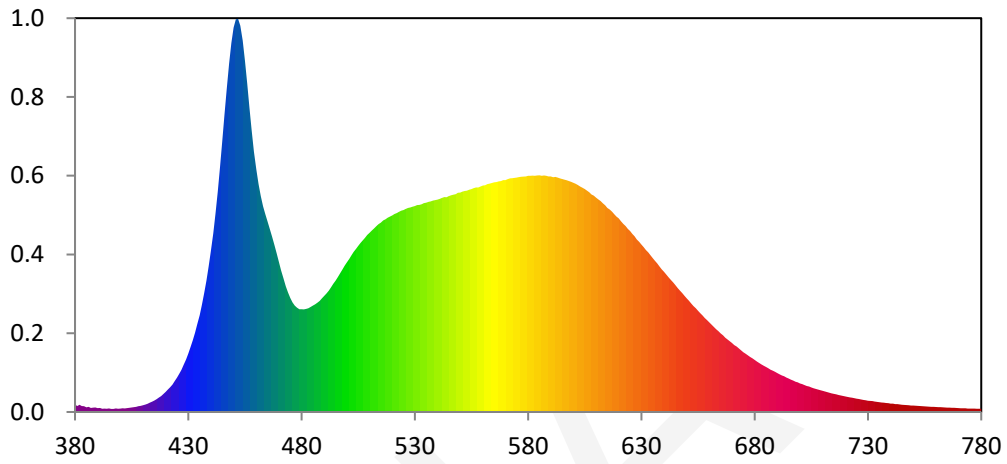
Ra			
84.5			
R1	R2	R3	R4
83	89	93	84
R5	R6	R7	R8
84	85	87	69
R9	R10	R11	R12
13	75	84	65
R13	R14	R15	
85	97	78	



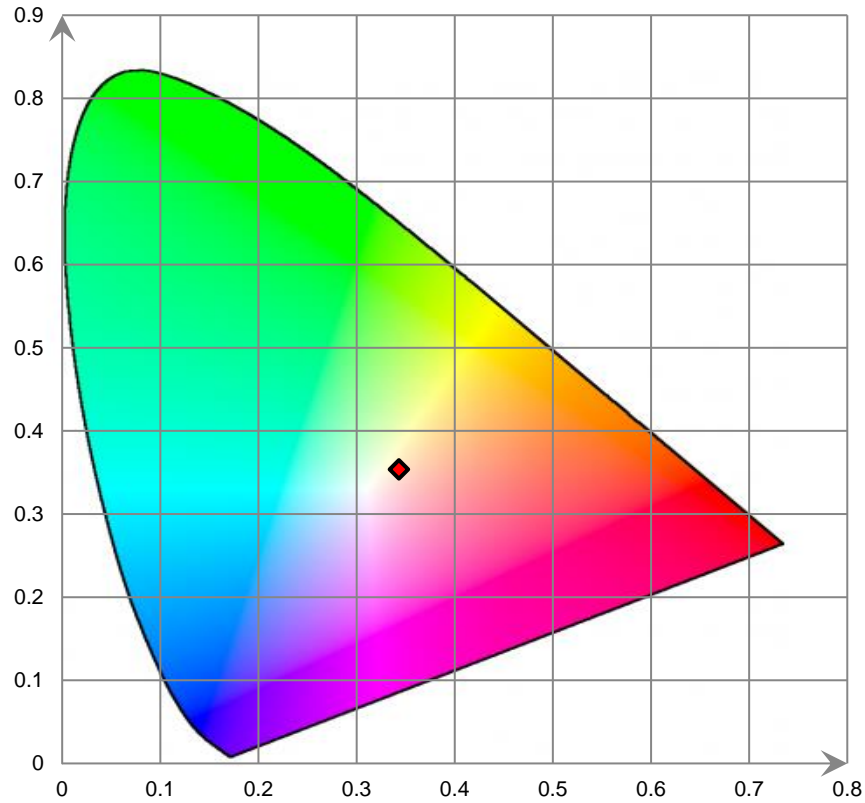


IES R_f	85
IES R_g	96
IES $R_{cs,h1}$	-11%

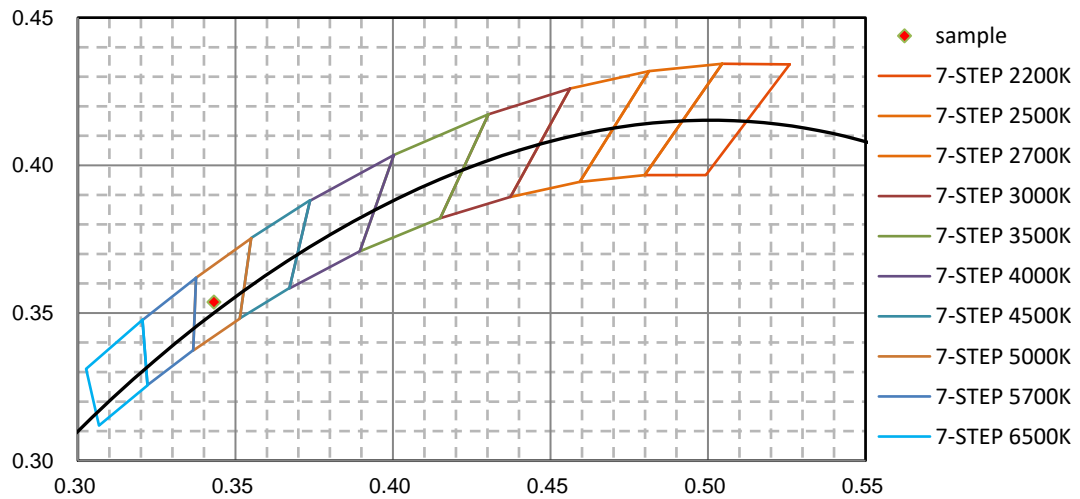
Relative Spectral Power Distribution



CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



6. Description of Test Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
2.0m integrating sphere	EVERFINE	R98	G121960CS1361154D	2019-12-24	2020-12-23
spectroradiometer	EVERFINE	HAAS-2000	M12048CS1361148	2019-12-24	2020-12-23
Digital CC&CV DC Power Supply	EVERFINE	WY305	G115986CN1361134	2019-12-20	2020-12-19
Temperature/humidity/clock	KEJIAN	TA298	EE053	2019-12-02	2020-12-01
Standard Light Source	INVENTFINE	N/A	JWWCR020106	2019-11-19	2020-11-18
Digital Power Meter	YOKOGAWA	WT210	91KB35700	2020-04-02	2021-04-01
Intelligence ac power supply	EVERFINE	DPS1005	G119890CS1361121	2020-04-02	2021-04-01
AC Power Supply	INVENTFINE	CHP-5KVA	900511765	2020-04-02	2021-04-01
DC Power Supply	INVENTFINE	WL3010	JWDMP030001	2019-12-20	2020-12-19
Power Meter	INVENTFINE	WT500	GSDSQ200007	2020-04-02	2021-04-01
Goniophotometer	INVENTFINE	GPM-1900	YWGCF120001	2020-01-22	2021-01-21
Wireless Weather Station	ZHONGXING	KG218	N/A	2019-12-02	2020-12-01
Standard Light Source	INVENTFINE	N/A	JWBYR040008	2020-03-19	2021-03-18
Digital Multimeter	FLUKE	115C	37840512WS	2019-10-08	2020-10-07
Hybrid Recorder	YOKOGAWA	DR230	4TJH0903	2020-04-02	2021-04-01
Power Supply	SC	SC/BP-11003	1608110030553	2019-12-14	2020-12-13

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. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
3. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.
5. This report cannot be reproduced except in full, without prior written approval of the Company.
6. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

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