



Report of Test

LLIA000901-044A

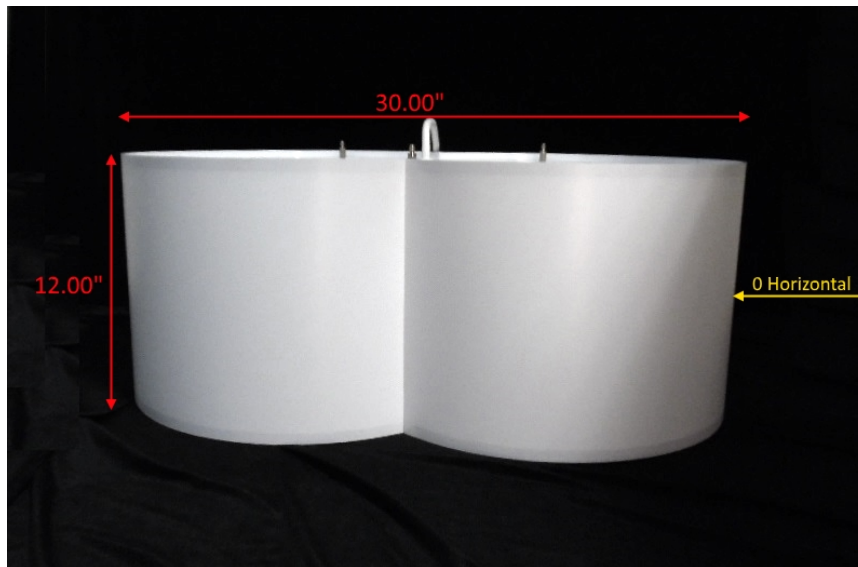
Catalog Number: P5C02_X/F11/D61/L412

Pendant mounted, formed white enamel steel housing, white "lumenate" outer enclosure with translucent white plastic top and bottom enclosures.

Two white LED modules with clear patterned hemispherical lenses.

One ERP ESP050W-1200-42 LED driver

120.0Vac, 60.00Hz, 0.3999A, 47.20W, 0.984PF, 11.8%THD(i)



Performance Summary

Total Light Output	3548 lm
Luminaire Power	47.2 W
Luminous Efficacy	75.2 lm/W

PREPARED FOR : Lumetta, Inc, 33 Minnesota Avenue, Warwick, RI 02888, USA



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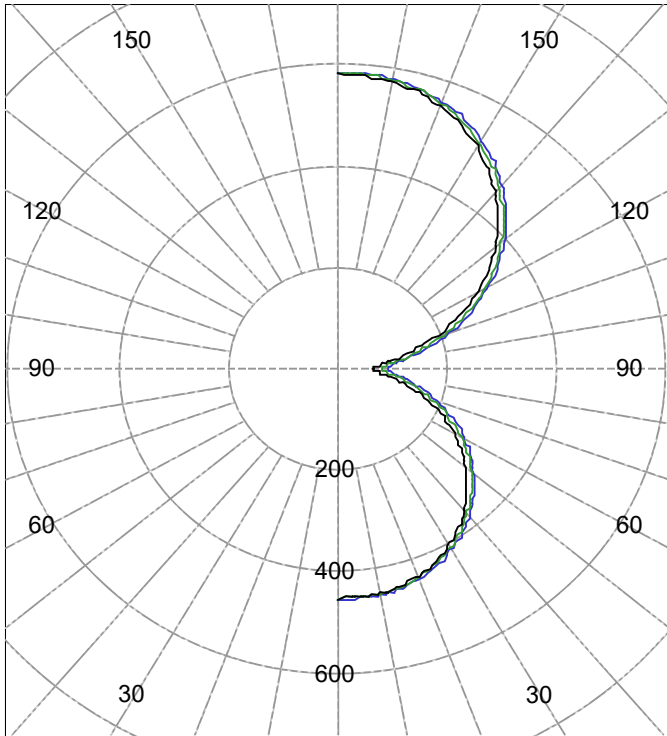
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Legend: C0-Black, C45-Green, C90-Blue (cd)



(Two plane symmetry) C0-C90

INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	452	452	452	452	452	
5.0	450	450	451	452	453	43
10.0	448	448	449	451	452	
15.0	442	442	444	446	447	125
20.0	432	433	435	438	439	
25.0	419	420	423	426	427	195
30.0	402	404	408	411	412	
35.0	382	385	389	393	395	244
40.0	359	363	368	372	374	
45.0	333	338	344	348	350	265
50.0	305	310	317	322	324	
55.0	274	280	287	293	295	256
60.0	241	248	256	262	264	
65.0	206	214	222	229	231	219
70.0	170	179	188	194	197	
75.0	134	143	152	159	161	159
80.0	101	110	119	125	128	
85.0	74	84	93	99	102	102
90.0	64	73	82	89	91	

AVERAGE LUMINANCE (cd / m²)

Gamma	C0	C45	C90
45.0	966	795	853
55.0	872	692	757
65.0	754	577	647
75.0	598	442	513
85.0	440	317	389

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	364	N / A	10.3
0-40	607	N / A	17.1
0-60	1128	N / A	31.8
0-90	1608	N / A	45.3
40-90	1000	N / A	28.2
60-90	480	N / A	13.5
90-180	1940	N / A	54.7
0-180	3548	N / A	100.0

Total Light Output = 3,548 lm

Spacing Criterion:	0-180	1.3
Spacing Criterion:	90-270	1.4

Signed:

Authorized Signatory

Date of test 15-Feb-2018
Date of report 19-Feb-2018



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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	452	452	452	452	452
2.5	451	451	451	452	453
5.0	450	450	451	452	453
7.5	450	450	450	452	453
10.0	448	448	449	451	452
12.5	445	446	447	449	450
15.0	442	442	444	446	447
17.5	437	438	440	442	443
20.0	432	433	435	438	439
22.5	426	427	429	432	433
25.0	419	420	423	426	427
27.5	411	413	416	419	420
30.0	402	404	408	411	412
32.5	393	395	399	402	404
35.0	382	385	389	393	395
37.5	371	374	379	383	385
40.0	359	363	368	372	374
42.5	347	351	356	361	362
45.0	333	338	344	348	350
47.5	319	324	330	336	337
50.0	305	310	317	322	324
52.5	289	295	302	308	310
55.0	274	280	287	293	295
57.5	258	264	272	278	280
60.0	241	248	256	262	264
62.5	224	231	239	246	248
65.0	206	214	222	229	231
67.5	188	196	205	212	214
70.0	170	179	188	194	197
72.5	152	161	170	177	179
75.0	134	143	152	159	161
77.5	117	126	135	142	144
80.0	101	110	119	125	128
82.5	86	95	104	111	113
85.0	74	84	93	99	102
87.5	67	76	85	92	94
90.0	64	73	82	89	91



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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	64	73	82	89	91
92.5	67	76	84	91	92
95.0	75	84	93	99	101
97.5	89	98	107	114	116
100.0	106	115	125	132	134
102.5	126	135	145	153	155
105.0	148	157	167	175	177
107.5	172	180	191	198	200
110.0	195	204	214	221	223
112.5	219	227	238	245	247
115.0	243	251	261	268	269
117.5	267	274	284	290	292
120.0	289	297	306	313	314
122.5	312	319	328	334	336
125.0	336	340	348	355	357
127.5	355	360	369	375	377
130.0	374	380	388	395	397
132.5	393	399	407	414	415
135.0	411	416	425	431	433
137.5	428	434	442	448	450
140.0	445	450	458	465	466
142.5	461	466	474	480	481
145.0	477	481	488	494	496
147.5	492	495	502	507	509
150.0	505	509	515	520	521
152.5	518	521	527	531	532
155.0	529	532	537	541	542
157.5	539	542	547	550	551
160.0	548	550	555	558	559
162.5	556	558	562	565	565
165.0	563	564	568	570	571
167.5	568	569	573	575	575
170.0	573	573	576	578	578
172.5	576	576	579	581	581
175.0	577	578	580	582	581
177.5	578	579	581	582	582
180.0	581	581	581	581	581



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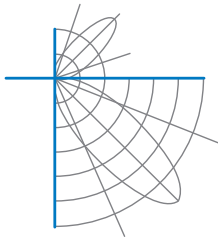
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Coefficients Of Utilization - Zonal Cavity Method																		
Effective Floor Cavity Reflectance 0.20																		
RC	80				70				50			30			10			0
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45
1	96	91	86	82	87	83	79	76	69	66	64	56	54	52	44	43	41	36
2	86	78	72	66	79	72	66	61	60	55	52	48	45	43	38	36	34	29
3	78	68	61	55	71	63	56	51	52	47	43	42	38	35	33	30	28	24
4	72	60	52	46	65	55	48	42	46	40	36	37	33	30	29	26	24	20
5	65	53	45	39	60	49	42	36	41	35	31	33	29	26	26	23	21	17
6	60	48	39	33	55	44	36	31	37	31	27	30	26	22	24	20	18	15
7	56	43	35	29	51	40	32	27	33	27	23	27	23	19	21	18	16	13
8	51	39	31	25	47	36	29	24	30	24	20	25	20	17	20	16	14	11
9	48	35	28	23	44	33	26	21	28	22	18	23	18	15	18	15	13	10
10	45	32	25	20	41	30	23	19	25	20	16	21	17	14	17	14	11	9

For absolute test reports, CUs are expressed as a percentage of total lumen output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

Height(ft)	Illuminance at Nadir (fc)	Beam Width (across 50% Nadir Illum)	
		0-180	90-270
6.0	12.5	7.93	8.13
8.0	7.1	10.57	10.84
10.0	4.5	13.21	13.55
12.0	3.1	15.86	16.26
14.0	2.3	18.50	18.97
16.0	1.8	21.14	21.68



Test Report No. LLIA000901-044A

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Two white LED modules with clear patterned hemispherical lenses.

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120.0Vac, 60.00Hz, 0.3999A, 47.20W, 0.984PF, 11.8%THD(i)





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One ERP ESP050W-1200-42 LED driver

120.0Vac, 60.00Hz, 0.3999A, 47.20W, 0.984PF, 11.8%THD(i)

Test Distance 9.5 m
Test Temperature 25.1 °C

Notes

The laboratory has not participated in the selection of samples to be tested. All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units.

Tested in accordance with the applicable sections of publications: IES LM-79-08 (Sec. 12), IES LM-16-93, IES LM-58-13, CIE 13.3:1995, CIE 15:2004, ANSI C78.377:2015, ANSI C82.77-10:2014.

The luminous intensity values, and other derived quantities, contained in this report are based on the absolute data, as measured.

Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections.

Photometric intensity values are reported using the CIE Gamma coordinate system as defined in CIE publication number 121.

This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with * are not covered.

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the Federal Government.



Report of Test

LLIA000901-044B

Integrating Sphere Report

Catalog Number: P5C02_X/F11/D61/L412

Pendant mounted, formed white enamel steel housing, white "lumenate" outer enclosure with translucent white plastic top and bottom enclosures.

Two white LED modules with clear patterned hemispherical lenses.

One ERP ESP050W-1200-42 LED driver



Performance Summary

Voltage	120.0 Vac
Current	0.3998 A
Power	47.20 W
Frequency	59.97 Hz
Power Factor	0.984
Current THD	11.8 %

Total Luminous Flux	3564.0 lm
Efficacy	75.5 lm/W
Chromaticity (x,y)	(0.4369, 0.3995)
(u',v')	(0.2525, 0.5196)
Duv	-0.0018
CCT	2963 K
CRI (Ra)	93
R9	72
TM-30: Rf	91
TM-30: Rg	102

Prepared For:

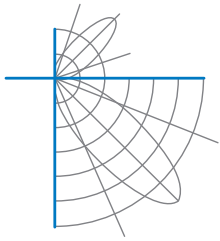
Lumetta, Inc

33 Minnesota Avenue

Warwick, RI 02888, USA

Test date: 02/15/2018

Report date: 02/19/2018



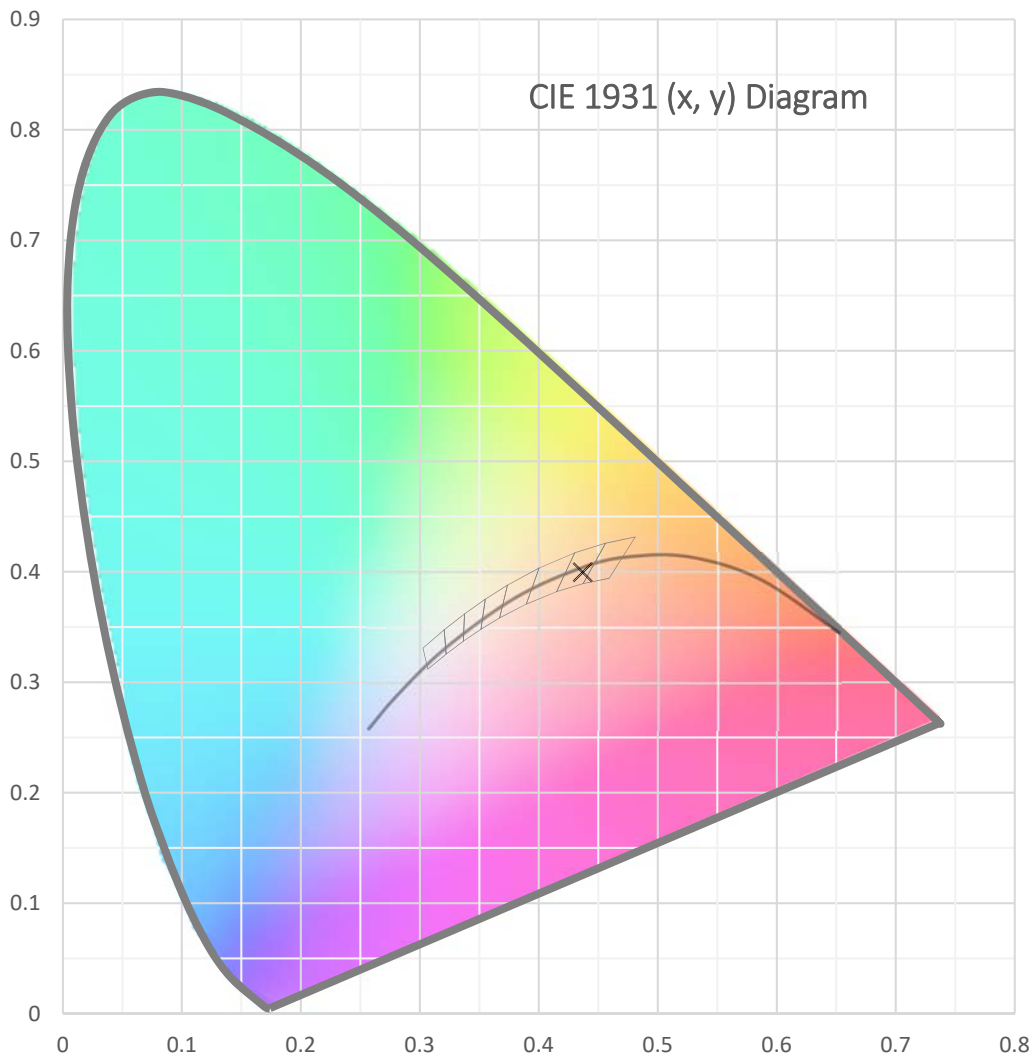
Test Report Number: LLIA000901-044B

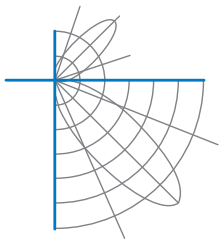
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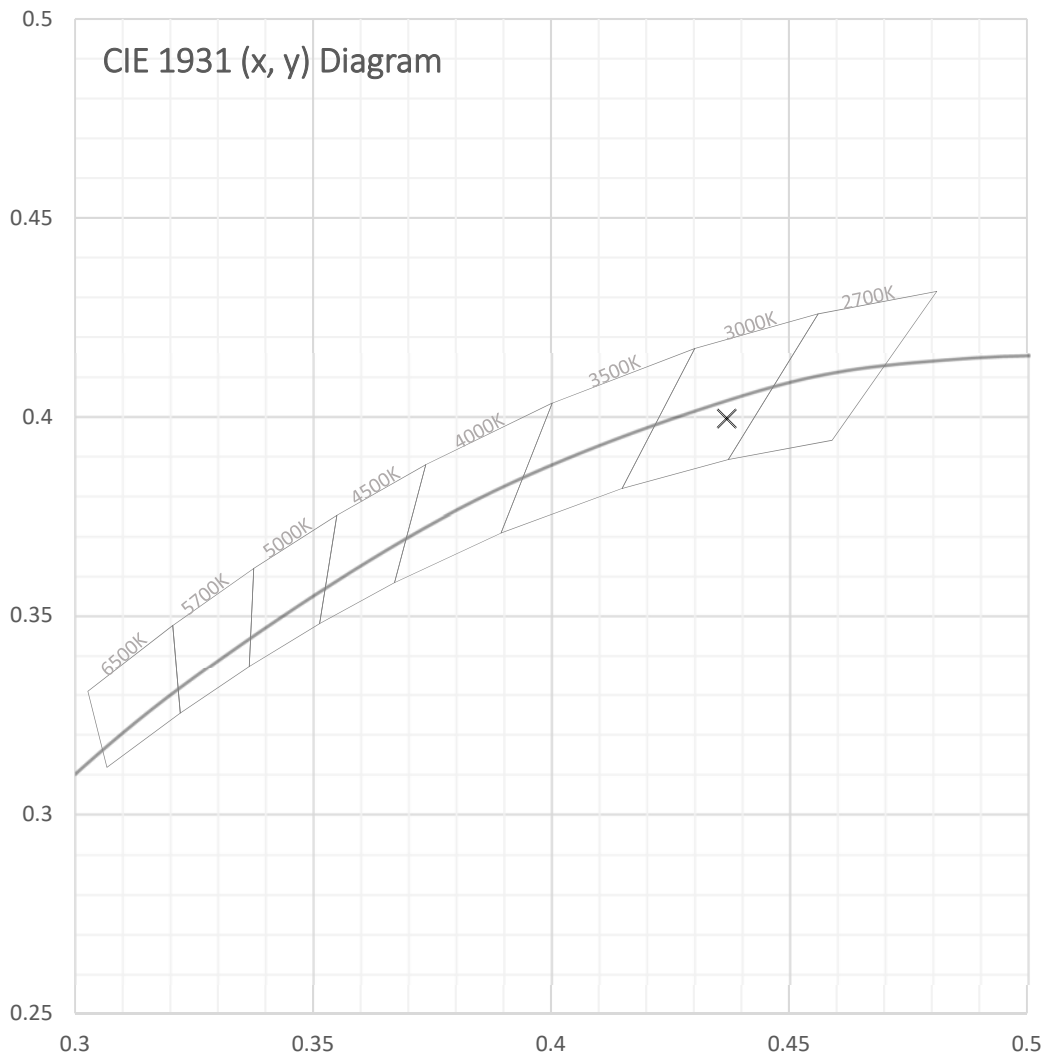
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Spectral Data

Total Radiant Flux	13.48 W
Total Luminous Flux	3564.0 Lm
Chromaticity CIE 1931 (x, y)	(0.4369, 0.3995)
Chromaticity CIE 1976 (u', v')	(0.2525, 0.5196)
Correlated Color Temperature (CCT)	2963 K
Color Rendering Index (Ra)	93
R1	95
R2	95
R3	94
R4	94
R5	93
R6	94
R7	95
R8	88
R9	72
R10	87
R11	93
R12	83
R13	95
R14	95
TM-30: Rf	91
TM-30: Rg	102
Distance from Planckian Locus (Duv)	-0.0018
Scotopic/Photopic Ratio *	1.383

Electrical Data

Voltage	120.0 Vac
Current	0.3998 A
Power	47.20 W
Frequency	59.97 Hz
Power Factor	0.984
Current THD	11.8 %



Test Report Number: LLIA000901-044B

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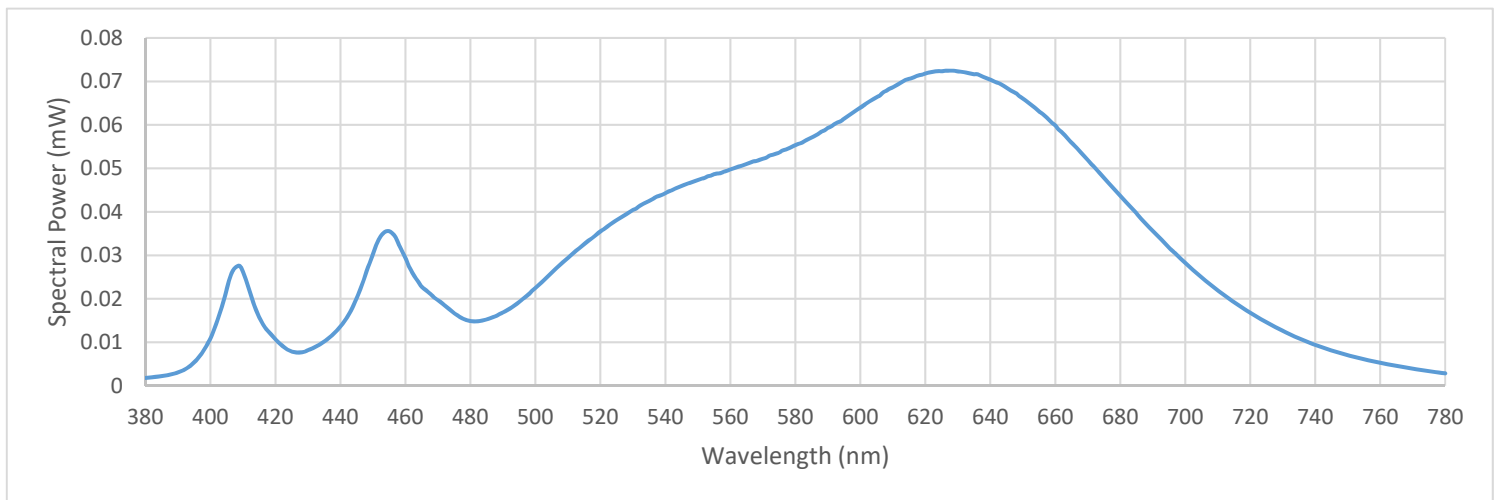
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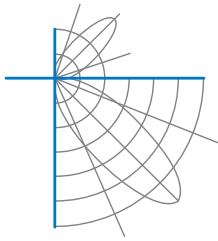
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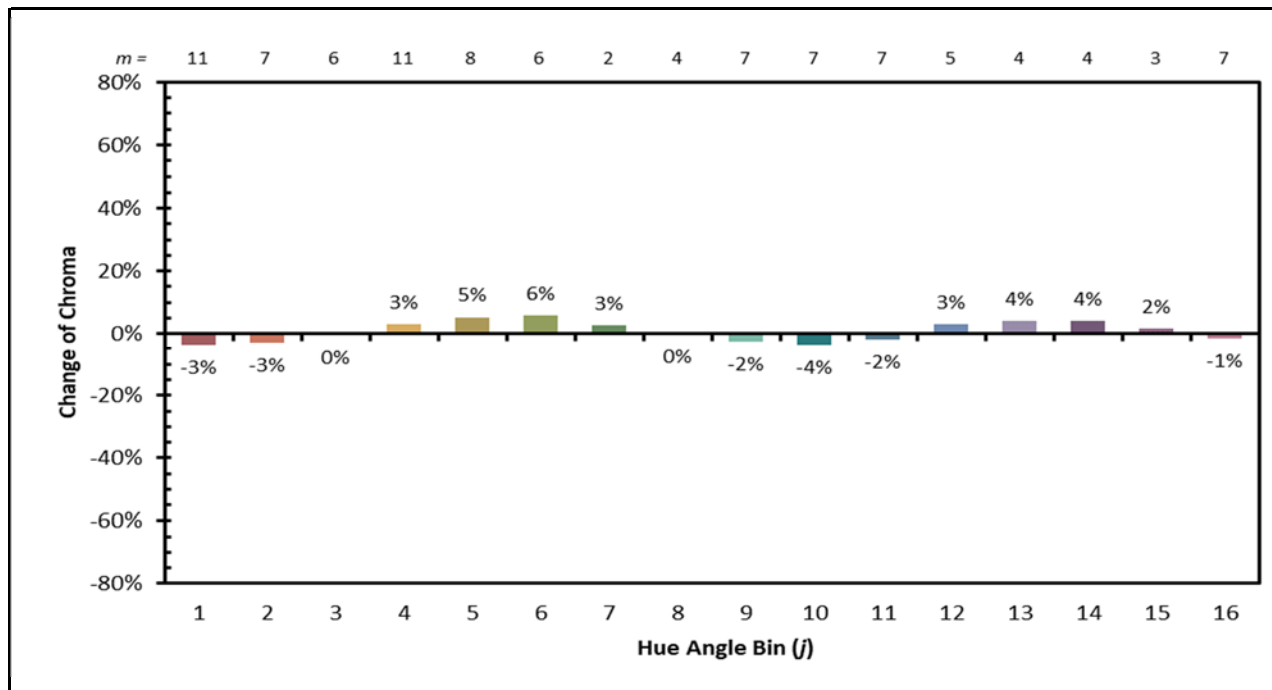
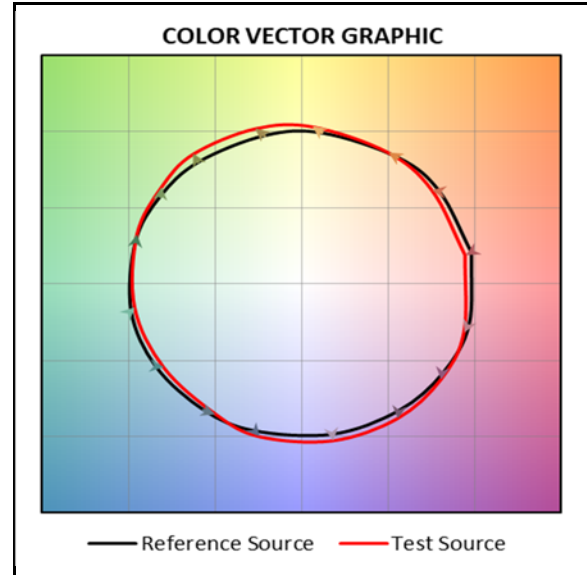
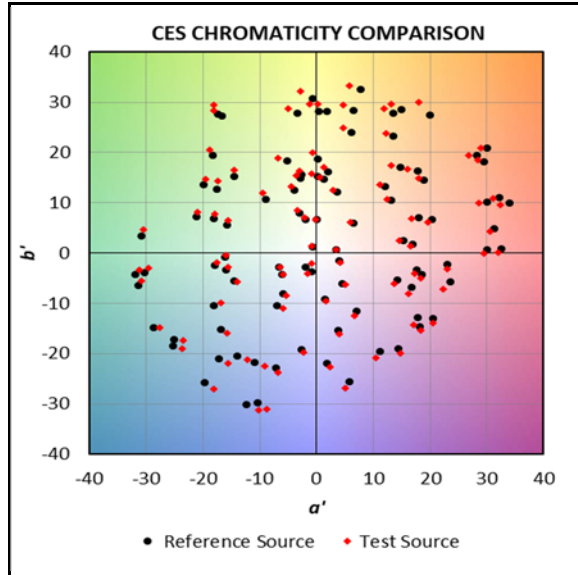
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.001791	480	0.014898	580	0.055337	680	0.043654
385	0.002198	485	0.015285	585	0.057129	685	0.039656
390	0.003059	490	0.016861	590	0.059295	690	0.035631
395	0.005432	495	0.019269	595	0.061441	695	0.031765
400	0.010915	500	0.022503	600	0.063929	700	0.028276
405	0.022198	505	0.025980	605	0.066377	705	0.024922
410	0.026313	510	0.029403	610	0.068616	710	0.021901
415	0.015877	515	0.032572	615	0.070588	715	0.019256
420	0.010632	520	0.035532	620	0.071808	720	0.016779
425	0.007889	525	0.038071	625	0.072330	725	0.014545
430	0.008187	530	0.040429	630	0.072297	730	0.012654
435	0.010217	535	0.042522	635	0.071643	735	0.010909
440	0.013617	540	0.044276	640	0.070420	740	0.009351
445	0.020202	545	0.045929	645	0.068541	745	0.008087
450	0.030274	550	0.047313	650	0.066092	750	0.007081
455	0.035555	555	0.048657	655	0.063097	755	0.006120
460	0.029442	560	0.049764	660	0.059869	760	0.005299
465	0.022780	565	0.051046	665	0.055963	765	0.004545
470	0.019686	570	0.052216	670	0.051914	770	0.003898
475	0.016674	575	0.053612	675	0.047812	775	0.003344
						780	0.002866





IES TM-30 Summary





Test Report Number: LLIA000901-044B

Catalog Number: P5C02_X/F11/D61/L412

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One ERP ESP050W-1200-42 LED driver

Test Equipment Configuration: LightLab International Allentown 2m Integrating Sphere
Measurements acquired using a Labsphere CDS 2600 spectroradiometer
Testing was performed using 4 π geometry

Test Temperature: 25.5 °C

Test Procedure: Tested in accordance with the applicable sections of:
LM-79-08, LM-78-07, LM-58-13, ANSI_ANSLG C78.377-2015,
ANSI C82-77-10:2014, TM-30-15

Significance: The laboratory has not participated in the selection of samples to be tested.
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Notes: The measurements and other derived quantities contained in this report are based on the absolute data as measured.

Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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