

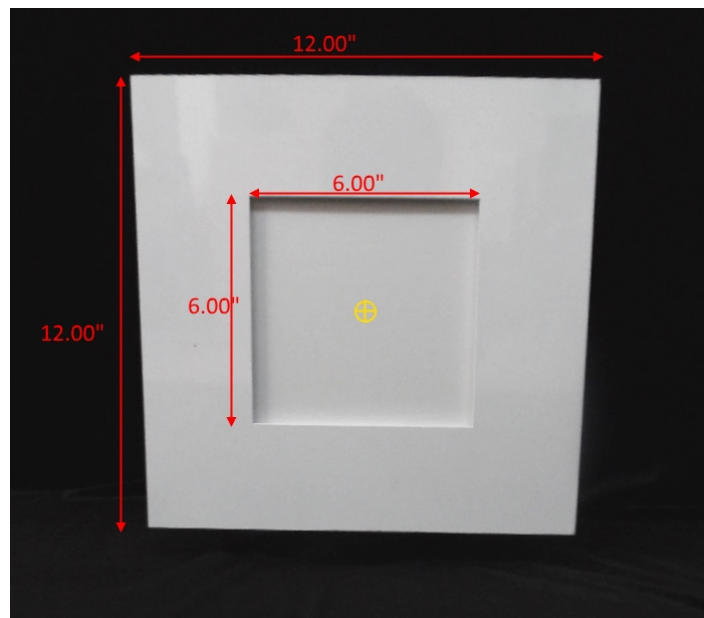


Report of Test

LLIA000901-038A

Catalog Number: W161201/F11/D61/L401

Wall mounted, formed white enamel aluminum housing, formed white enamel steel enclosure with translucent white plastic side and front enclosure.
One Samsung Electronics SI-N8V0814B0WWQC16001546 3000K-SO2 LED board with 24 LEDs.
One Inventronics LUC-012S035DSP LED driver
120.0Vac, 60.00Hz, 0.0829A, 9.92W, 0.997PF, 6.3%THD(i)



Performance Summary

Total Light Output	881 lm
Luminaire Power	9.92 W
Luminous Efficacy	88.8 lm/W

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



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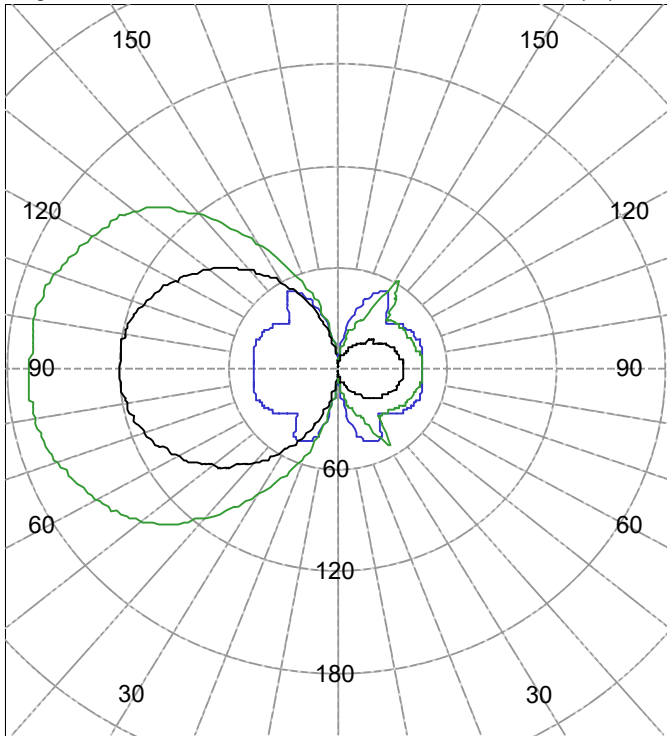
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Legend: C0/C180-Black, C45/C225-Green, C90/C270-Blue (cd)



C180-C270 (Symmetric about C0/C180) C0-C90

AVERAGE LUMINANCE (cd/m²)

Gamma	C0	C45	C90
45.0	279	452	902
55.0	309	456	1083
65.0	334	474	1208
75.0	357	494	1335
85.0	377	523	1480

INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	1	1	1	1	1	
5.0	3	5	8	10	11	1
10.0	6	9	16	22	25	
15.0	8	13	23	33	39	9
20.0	10	16	28	39	45	
25.0	13	19	32	45	48	22
30.0	16	22	47	53	47	
35.0	19	24	46	62	41	37
40.0	21	26	36	74	34	
45.0	24	29	37	74	37	52
50.0	26	31	38	62	41	
55.0	29	33	40	50	44	65
60.0	31	35	42	47	45	
65.0	32	36	43	48	47	76
70.0	34	38	44	49	47	
75.0	35	39	45	50	47	84
80.0	35	40	46	50	47	
85.0	36	40	46	50	46	88
90.0	36	40	46	49	47	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	31	N / A	3.6
0-40	69	N / A	7.8
0-60	186	N / A	21.1
0-90	434	N / A	49.2
40-90	365	N / A	41.4
60-90	248	N / A	28.1
90-180	448	N / A	50.8
0-180	881	N / A	100.0

Total Light Output = 881 lm

Signed:

Authorized Signatory

Date of test

2-Feb-2018

Date of report

7-Feb-2018



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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	1	1	1	1	1
2.5	2	3	4	5	5
5.0	3	5	8	10	11
7.5	4	7	12	16	18
10.0	6	9	16	22	25
12.5	7	11	19	28	32
15.0	8	13	23	33	39
17.5	9	15	25	37	43
20.0	10	16	28	39	45
22.5	12	18	30	43	47
25.0	13	19	32	45	48
27.5	14	21	41	49	48
30.0	16	22	47	53	47
32.5	17	23	53	57	44
35.0	19	24	46	62	41
37.5	20	25	36	70	37
40.0	21	26	36	74	34
42.5	23	27	36	76	35
45.0	24	29	37	74	37
47.5	25	30	37	69	39
50.0	26	31	38	62	41
52.5	28	32	39	56	43
55.0	29	33	40	50	44
57.5	30	34	41	49	45
60.0	31	35	42	47	45
62.5	32	36	42	48	46
65.0	32	36	43	48	47
67.5	33	37	44	49	47
70.0	34	38	44	49	47
72.5	34	38	44	50	47
75.0	35	39	45	50	47
77.5	35	39	45	50	47
80.0	35	40	46	50	47
82.5	36	40	46	50	47
85.0	36	40	46	50	46
87.5	36	40	46	50	46
90.0	36	40	46	49	47



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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	36	40	46	49	47
92.5	36	40	46	49	46
95.0	36	40	46	50	47
97.5	35	40	46	50	47
100.0	35	40	46	50	47
102.5	34	39	45	50	47
105.0	34	39	45	51	47
107.5	33	38	44	51	47
110.0	33	37	44	51	47
112.5	32	37	44	51	47
115.0	31	36	43	52	46
117.5	30	35	43	52	46
120.0	29	34	43	52	45
122.5	28	33	42	61	45
125.0	27	33	42	70	44
127.5	26	32	42	86	42
130.0	25	31	42	94	41
132.5	24	30	41	104	39
135.0	23	28	41	112	38
137.5	21	27	40	110	38
140.0	20	26	44	108	40
142.5	19	25	51	102	44
145.0	17	24	54	91	49
147.5	16	23	63	86	52
150.0	15	21	51	78	53
152.5	13	20	43	65	52
155.0	12	19	32	56	50
157.5	11	17	30	47	46
160.0	9	15	28	39	42
162.5	8	13	24	34	38
165.0	7	12	20	29	33
167.5	6	10	17	23	27
170.0	5	9	13	18	20
172.5	4	7	10	13	15
175.0	3	5	7	8	9
177.5	2	3	3	4	5
180.0	2	2	2	2	2



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One Inventronics LUC-012S035DSP LED driver

120.0Vac, 60.00Hz, 0.0829A, 9.92W, 0.997PF, 6.3%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
0.0	1	1	1	1	1
2.5	5	5	5	4	3
5.0	11	12	11	8	6
7.5	18	19	18	14	10
10.0	25	27	25	20	14
12.5	32	35	33	26	19
15.0	39	44	41	32	24
17.5	43	51	50	39	29
20.0	45	56	58	45	34
22.5	47	61	65	51	39
25.0	48	65	71	57	44
27.5	48	68	78	63	49
30.0	47	71	85	69	54
32.5	44	74	92	75	59
35.0	41	76	100	81	64
37.5	37	77	109	86	69
40.0	34	79	115	92	73
42.5	35	80	123	97	77
45.0	37	81	129	102	81
47.5	39	82	135	107	85
50.0	41	82	141	112	89
52.5	43	81	144	117	93
55.0	44	80	148	121	96
57.5	45	79	150	125	99
60.0	45	78	153	128	102
62.5	46	77	155	131	105
65.0	47	76	158	134	107
67.5	47	75	160	137	110
70.0	47	74	163	139	112
72.5	47	73	165	141	113
75.0	47	72	166	143	116
77.5	47	71	168	144	116
80.0	47	70	168	145	117
82.5	47	69	169	146	118
85.0	46	68	169	147	119
87.5	46	68	169	147	119
90.0	47	68	168	147	119



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120.0Vac, 60.00Hz, 0.0829A, 9.92W, 0.997PF, 6.3%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
90.0	47	68	168	147	119
92.5	46	69	168	146	118
95.0	47	71	168	146	118
97.5	47	73	169	146	118
100.0	47	74	169	146	118
102.5	47	76	168	145	118
105.0	47	77	167	144	116
107.5	47	78	166	142	115
110.0	47	79	164	140	113
112.5	47	80	162	137	111
115.0	46	80	159	135	108
117.5	46	81	158	132	106
120.0	45	82	155	129	103
122.5	45	84	153	125	101
125.0	44	85	151	122	98
127.5	42	86	148	118	95
130.0	41	87	145	113	91
132.5	39	85	140	109	88
135.0	38	84	134	103	84
137.5	38	83	127	98	80
140.0	40	81	119	93	76
142.5	44	79	111	87	71
145.0	49	76	102	82	67
147.5	52	73	92	76	62
150.0	53	68	83	70	57
152.5	52	64	75	63	52
155.0	50	60	67	57	47
157.5	46	55	60	51	42
160.0	42	51	53	45	37
162.5	38	45	45	39	32
165.0	33	39	38	32	27
167.5	27	31	30	26	22
170.0	20	24	23	20	17
172.5	15	17	17	15	12
175.0	9	11	11	9	8
177.5	5	5	5	5	5
180.0	2	2	2	2	2



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Coefficients Of Utilization - Zonal Cavity Method

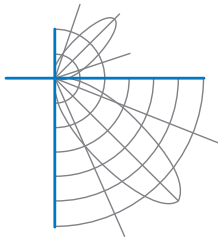
Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	55	55	55	49
1	93	86	80	75	84	79	74	69	65	61	58	53	50	47	41	39	37	31
2	82	72	64	57	75	66	59	53	54	49	44	43	39	35	33	30	27	22
3	74	62	53	45	67	56	48	42	46	40	34	37	32	28	28	24	21	16
4	67	54	44	37	60	49	40	34	40	33	28	32	26	22	24	20	17	13
5	61	47	38	31	55	43	34	28	35	28	23	28	22	18	21	17	14	10
6	56	42	32	26	50	38	30	24	31	24	19	25	19	15	19	15	11	8
7	51	37	28	22	46	34	26	20	28	21	17	22	17	13	17	13	10	7
8	47	34	25	19	43	31	23	17	25	19	14	20	15	11	15	11	8	6
9	44	30	22	16	40	28	20	15	23	17	12	18	13	10	14	10	7	5
10	41	28	20	14	37	25	18	13	21	15	11	17	12	9	13	9	6	4

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.

Circle of Light Plot

Height(ft)	Illuminance at Nadir (fc)	Beam Width (across 50% Nadir Illum)	
		0-180	90-270
6.0	0.0	55.46	48.93
8.0	0.0	73.95	65.24
10.0	0.0	92.44	81.55
12.0	0.0	110.92	97.85
14.0	0.0	129.41	114.16
16.0	0.0	147.90	130.47



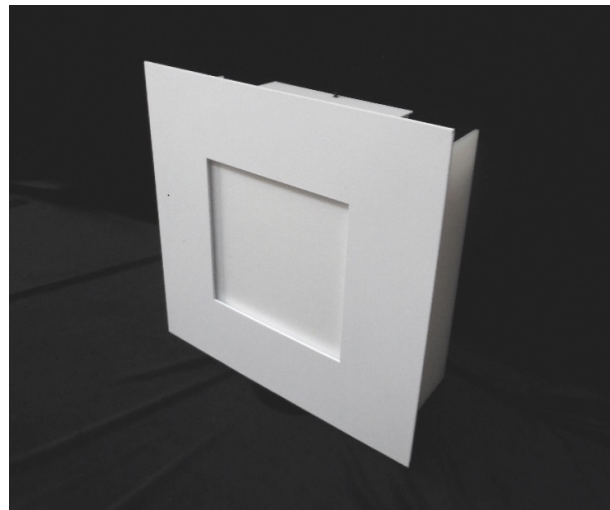
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Test Distance 9.5 m
Test Temperature 25.0 °C

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

LLIA000901-038B

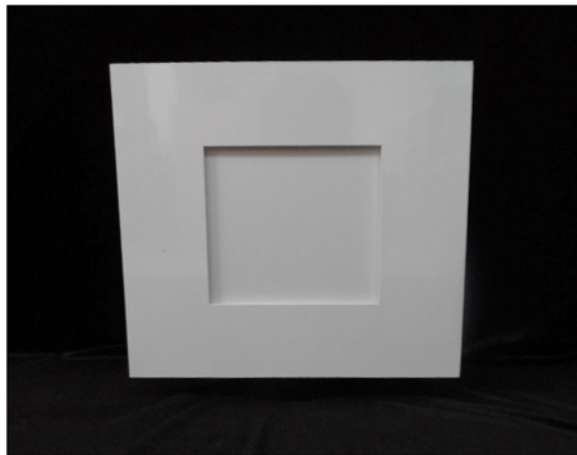
Integrating Sphere Report

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One Inventronics LUC-012S035DSP LED driver



Performance Summary

Voltage	120.0 Vac
Current	0.0830 A
Power	9.93 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	6.3 %

Total Luminous Flux	899.9 lm
Efficacy	90.6 lm/W
Chromaticity (x,y)	(0.4299, 0.4009)
(u',v')	(0.2474, 0.5191)
Duv	-0.0003
CCT	3097 K
CRI (Ra)	83
R9	11
TM-30: Rf	84
TM-30: Rg	96

Prepared For:

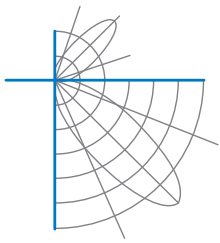
Lumetta, Inc

33 Minnesota Avenue

Warwick, RI 02888, USA

Test date: 01/26/2018

Report date: 02/07/2018



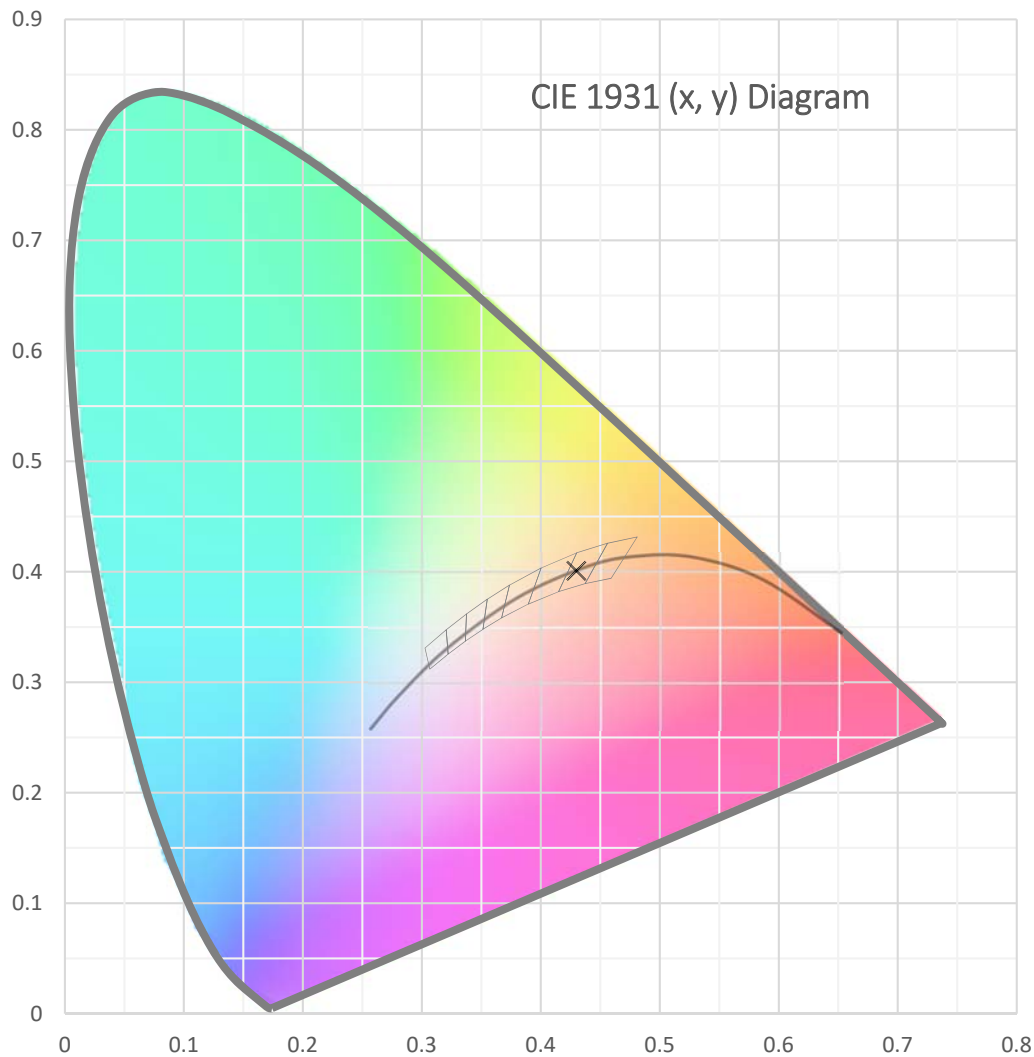
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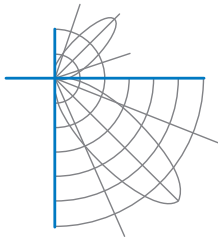
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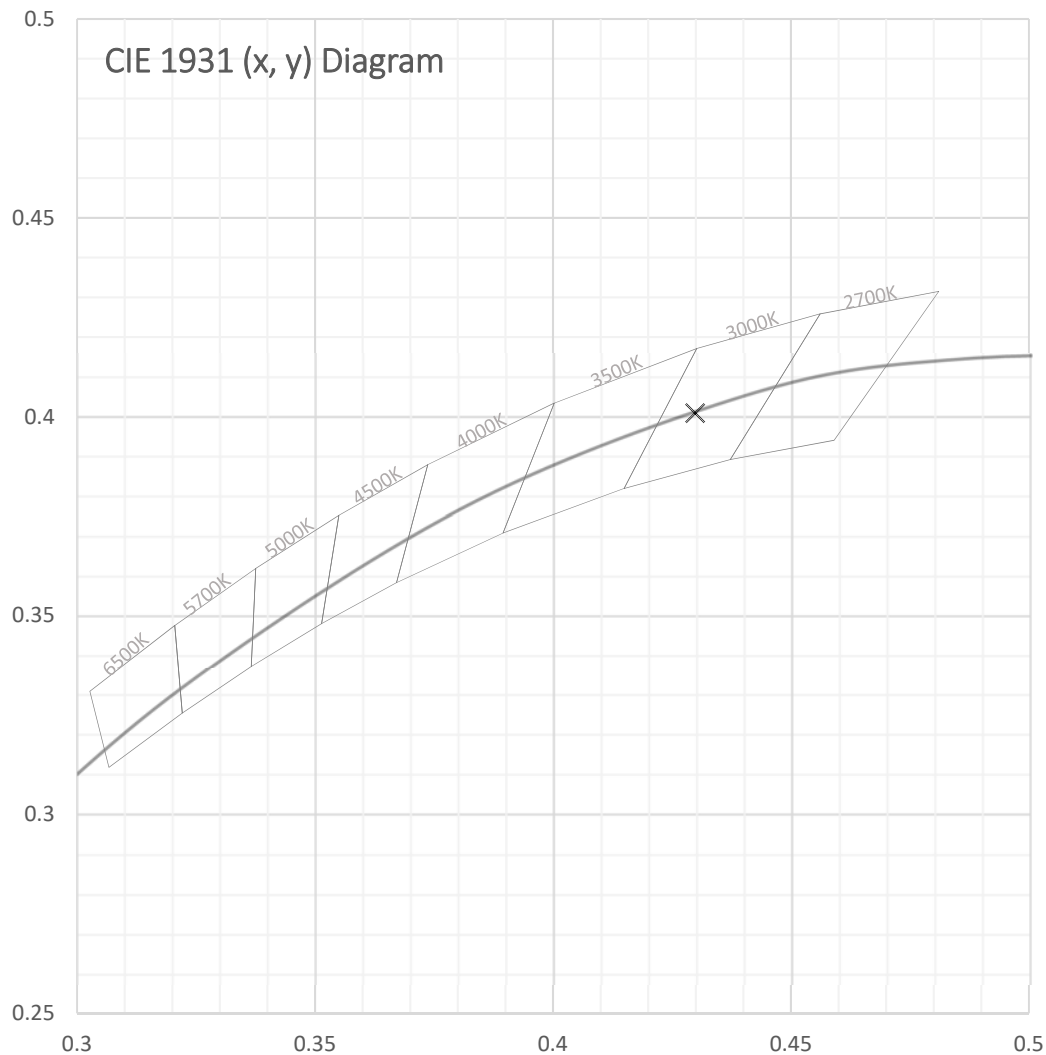
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Spectral Data	Total Radiant Flux	2.777 W
	Total Luminous Flux	899.9 Lm
	Chromaticity CIE 1931 (x, y)	(0.4299, 0.4009)
	Chromaticity CIE 1976 (u', v')	(0.2474, 0.5191)
	Correlated Color Temperature (CCT)	3097 K
	Color Rendering Index (Ra)	83
	R1	82
	R2	92
	R3	96
	R4	81
	R5	82
	R6	90
	R7	83
	R8	61
	R9	11
	R10	81
	R11	80
	R12	73
	R13	84
	R14	98
	TM-30: Rf	84
	TM-30: Rg	96
	Distance from Planckian Locus (Duv)	-0.0003
	Scotopic/Photopic Ratio *	1.399

Electrical Data

Voltage	120.0 Vac
Current	0.0830 A
Power	9.93 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	6.3 %



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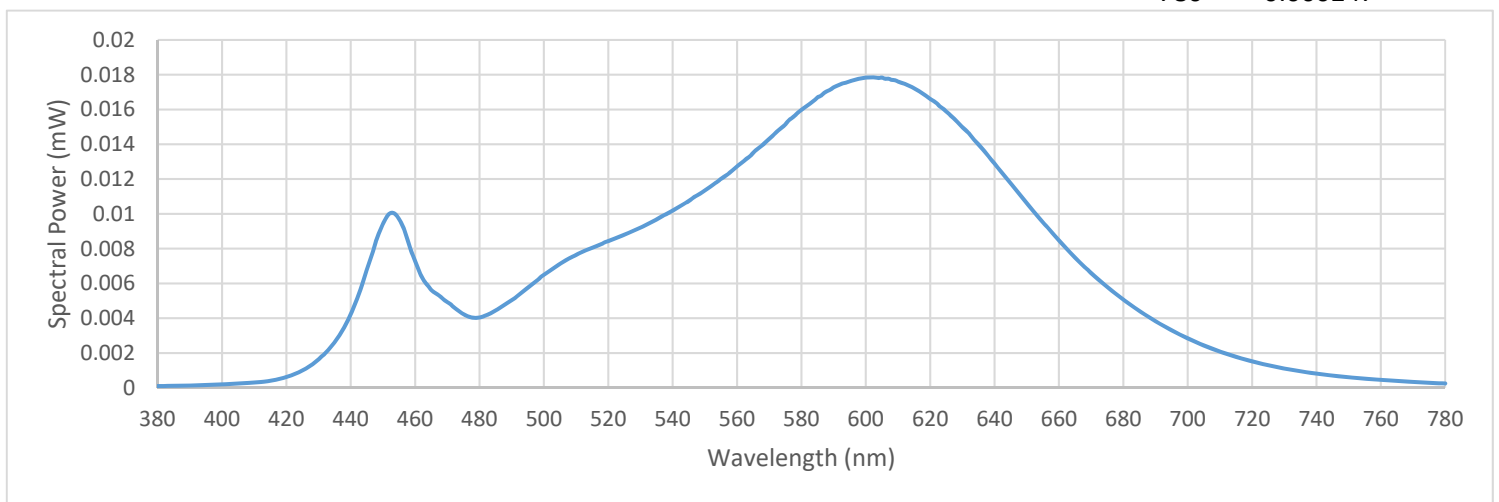
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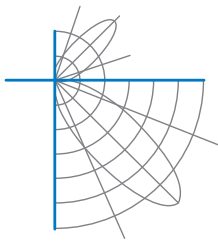
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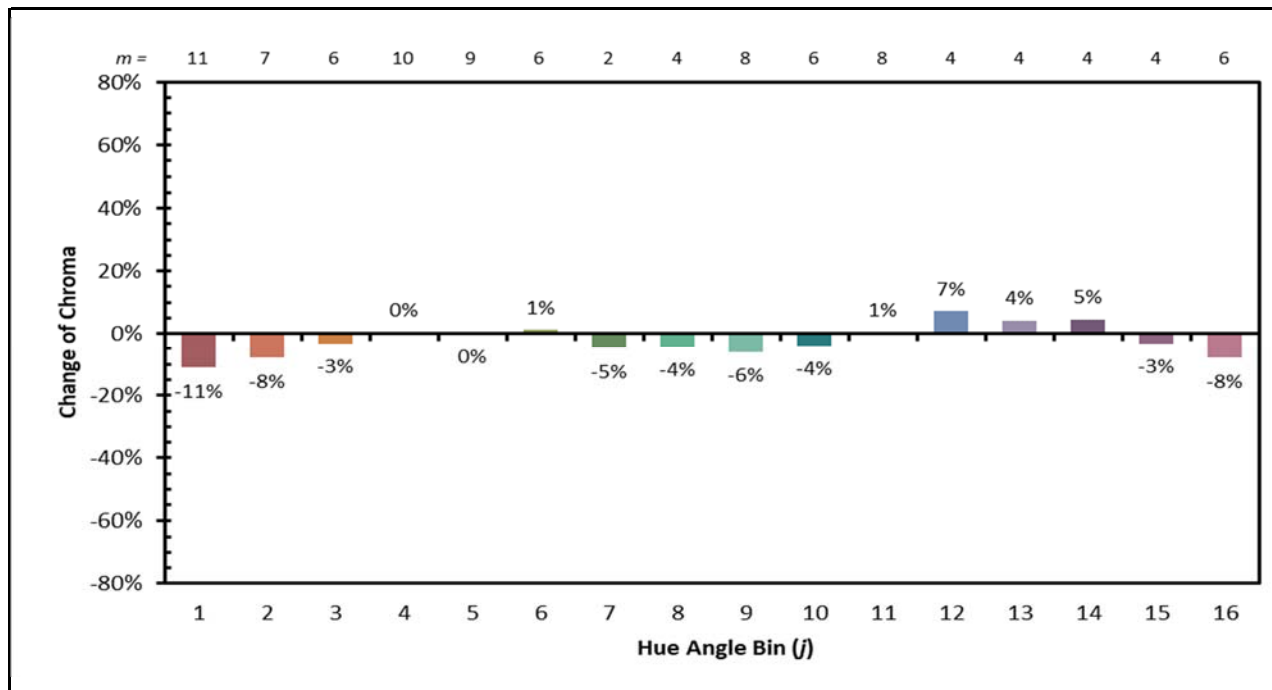
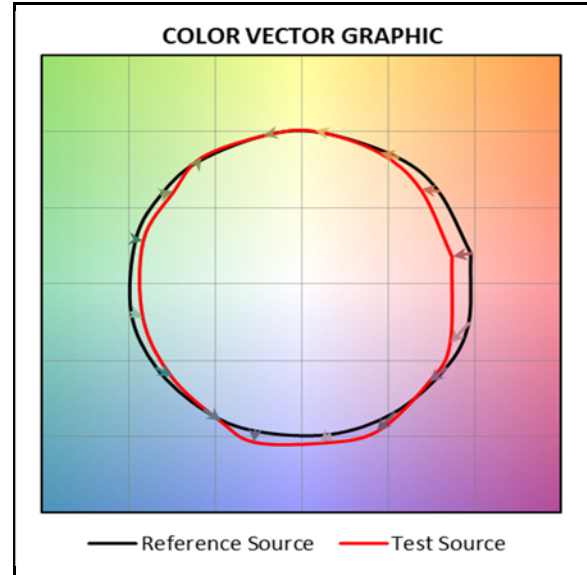
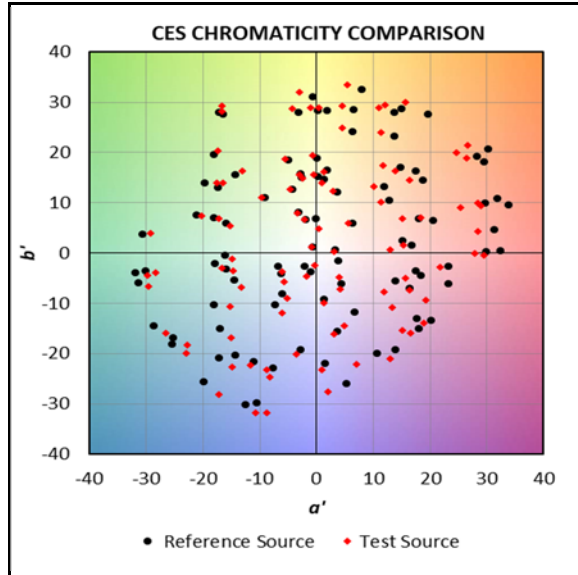
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000098	480	0.004048	580	0.015984	680	0.005073
385	0.000108	485	0.004456	585	0.016698	685	0.004425
390	0.000132	490	0.005051	590	0.017276	690	0.003827
395	0.000161	495	0.005747	595	0.017626	695	0.003298
400	0.000198	500	0.006500	600	0.017825	700	0.002845
405	0.000239	505	0.007127	605	0.017836	705	0.002428
410	0.000300	510	0.007635	610	0.017608	710	0.002075
415	0.000402	515	0.008055	615	0.017224	715	0.001778
420	0.000617	520	0.008433	620	0.016604	720	0.001515
425	0.000991	525	0.008800	625	0.015882	725	0.001292
430	0.001639	530	0.009216	630	0.014971	730	0.001107
435	0.002643	535	0.009678	635	0.013994	735	0.000947
440	0.004217	540	0.010183	640	0.012888	740	0.000815
445	0.006799	545	0.010726	645	0.011762	745	0.000707
450	0.009408	550	0.011346	650	0.010621	750	0.000609
455	0.009703	555	0.012011	655	0.009503	755	0.000526
460	0.007286	560	0.012726	660	0.008496	760	0.000454
465	0.005624	565	0.013506	665	0.007484	765	0.000392
470	0.004927	570	0.014313	670	0.006593	770	0.000335
475	0.004234	575	0.015140	675	0.005800	775	0.000287
						780	0.000247





IES TM-30 Summary





Test Report Number: LLIA000901-038B

Catalog Number: W161201/F11/D61/L401

Wall mounted, formed white enamel aluminum housing, formed white enamel steel enclosure with translucent white plastic side and front enclosure.

One Samsung Electronics SI-N8V0814B0WWQC16001546 3000K-SO2 LED board with 24 LEDs.

One Inventronics LUC-012S035DSP 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: 24.9 °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.
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.

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.

This report is free of erasures and corrections

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