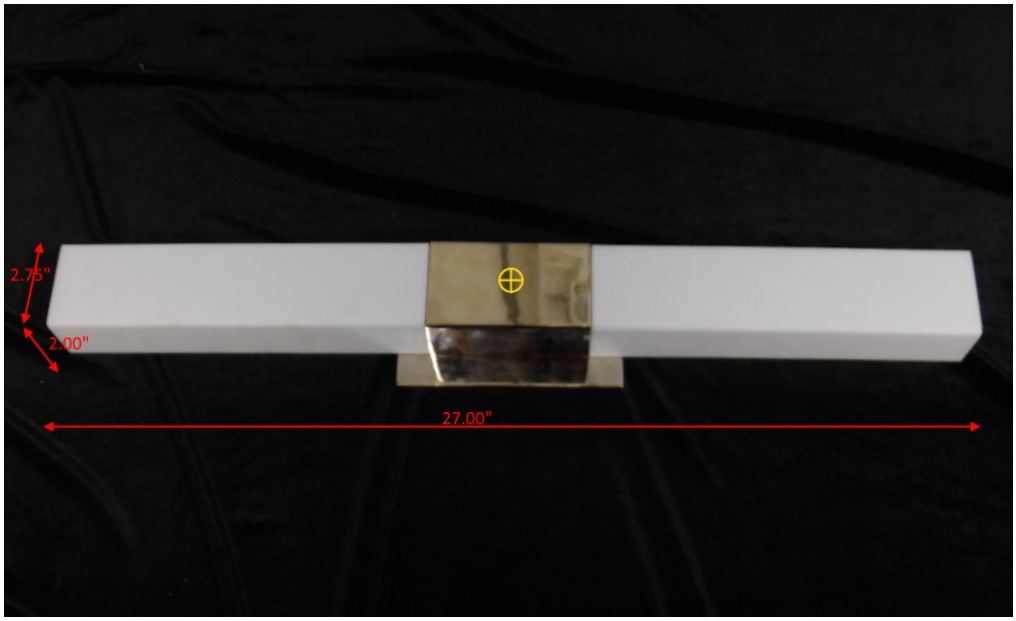
Report of Test

LLIA001067-008A

Catalog Number: 3-569 Vega Vanity
Surface wall mounted, formed steel housing, formed white enamel
steel LED tray, translucent white plastic enclosures.
72 white LEDs, two Harvard Engineering LER7-284x17-930-36S-I LED boards with 36 LEDs each.
One ERP ESS030W-0700-42 dimmable LED driver.
120.0Vac, 60.00Hz, 0.2402A, 28.46W, 0.987PF, 12.7%THD(i)



Performance Summary

Total Light Output	2148	lm
Luminaire Power	28.5	W
Luminous Efficacy	75.4	lm/W

PREPARED FOR : Oxygen Lighting, 201 Railhead Road, Fort Worth, TX 76106, USA

LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

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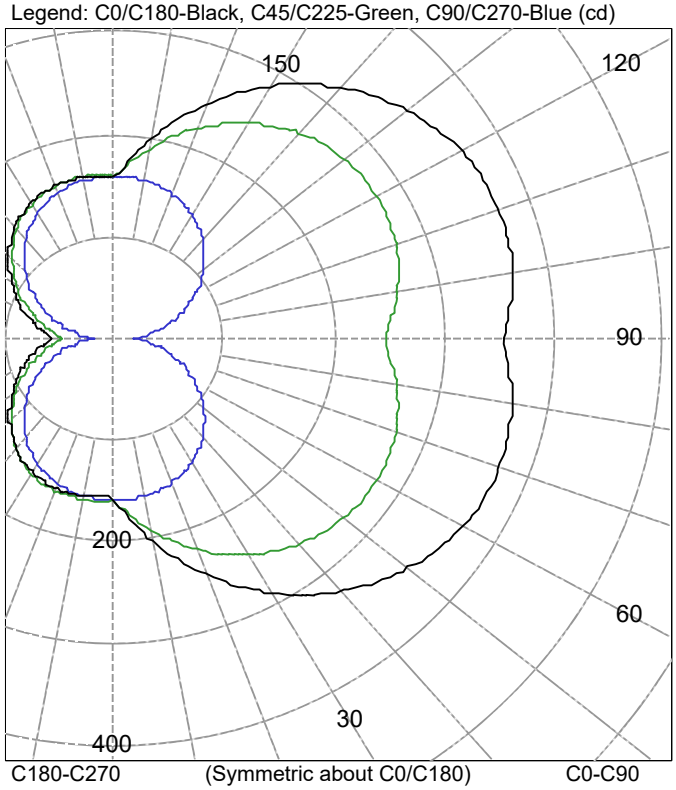
Legend: C0/C180-Black, C45/C225-Green, C90/C270-Blue (cd)



INTENSITY SUMMARY (cd)

	C-Plane					Flux
Gamma	C0	C22.5	C45	C67.5	C90	(lm)
0.0	158	158	158	158	158	
5.0	179	178	175	163	159	16
10.0	203	200	191	170	158	
15.0	226	221	207	177	155	51
20.0	248	241	221	182	152	
25.0	269	260	234	187	147	87
30.0	289	278	245	190	141	
35.0	308	294	255	191	134	120
40.0	324	308	263	192	126	
45.0	338	320	269	191	117	147
50.0	351	330	274	189	107	
55.0	360	338	276	185	96	165
60.0	367	344	276	180	85	
65.0	372	347	275	174	73	171
70.0	373	347	272	166	61	
75.0	371	345	268	159	49	166
80.0	367	340	261	150	38	
85.0	361	333	253	140	27	153
90.0	355	329	246	132	18	

AVERAGE LUMINANCE (cd/m²)

Gamma	C0	C45	C90
45.0	5763	5329	4278
55.0	6063	5522	4177
65.0	6369	5752	4059
75.0	6693	6038	3956
85.0	7082	6415	4060

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	153	N / A	7.1
0-40	273	N / A	12.7
0-60	585	N / A	27.2
0-90	1075	N / A	50.0
40-90	801	N / A	37.3
60-90	490	N / A	22.8
90-180	1073	N / A	50.0
0-180	2148	N / A	100.0

Total Light Output = 2,148 lm

Spacing Criterion: 0-180 2.6
Spacing Criterion: 90-270 1.3

Signed: Michael L. Grather

Authorized Signatory

Date of test 10-Jan-2019
Date of report 10-Jan-2019

USA west coast LightLab International, LLC, 24825 N. 16th Avenue, Suite 125, Phoenix, AZ, 85085 — Ph : +1 623-434-1499, Fx : +1 623-434-1492, www.lightlabint.com
USA east coast LightLab Int'l Allentown LLC, 905 Harrison Street, Suite 135, Allentown, PA 18103 — Ph: +1 484-273-0705, www.lightlabint.com (issuing laboratory)
Australasia & S.E. Asia LightLab International, 50 Redcliffe Gardens Drive, Clontarf, Queensland, 4019, Australia — Ph : +61 7 3283 7862, Fx : +61 7 3283 8751, www.lightlabint.com

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Intensity data (cd)

	C-Plane				
Gamma	**C0**	**C22.5**	**C45**	**C67.5**	**C90**
0.0	158	158	158	158	158
2.5	168	168	167	159	159
5.0	179	178	175	163	159
7.5	191	189	183	167	158
10.0	203	200	191	170	158
12.5	214	210	199	174	157
15.0	226	221	207	177	155
17.5	237	231	214	180	154
20.0	248	241	221	182	152
22.5	259	251	228	185	149
25.0	269	260	234	187	147
27.5	280	269	240	188	144
30.0	289	278	245	190	141
32.5	299	286	251	191	138
35.0	308	294	255	191	134
37.5	316	301	260	192	130
40.0	324	308	263	192	126
42.5	331	314	267	192	121
45.0	338	320	269	191	117
47.5	345	326	272	190	112
50.0	351	330	274	189	107
52.5	356	335	275	187	101
55.0	360	338	276	185	96
57.5	364	341	276	183	91
60.0	367	344	276	180	85
62.5	370	346	276	177	79
65.0	372	347	275	174	73
67.5	372	347	274	170	67
70.0	373	347	272	166	61
72.5	372	346	270	163	55
75.0	371	345	268	159	49
77.5	369	343	264	155	44
80.0	367	340	261	150	38
82.5	364	337	257	145	32
85.0	361	333	253	140	27
87.5	357	329	248	135	22
90.0	355	329	246	132	18

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120.0Vac, 60.00Hz, 0.2402A, 28.46W, 0.987PF, 12.7%THD(i)

Intensity data (cd)

	C-Plane				
Gamma	**C0**	**C22.5**	**C45**	**C67.5**	**C90**
90.0	355	329	246	132	18
92.5	358	330	249	136	21
95.0	362	334	254	141	27
97.5	365	338	258	146	32
100.0	368	341	262	151	38
102.5	370	343	265	155	43
105.0	371	345	268	159	49
107.5	372	346	271	163	55
110.0	372	347	273	166	61
112.5	372	347	275	170	67
115.0	371	347	276	173	73
117.5	369	346	277	176	79
120.0	366	344	277	179	84
122.5	363	341	277	182	90
125.0	359	338	276	184	96
127.5	354	334	275	186	101
130.0	349	330	274	187	106
132.5	343	325	272	188	111
135.0	337	320	269	189	116
137.5	330	314	266	190	121
140.0	322	307	263	190	125
142.5	314	300	259	190	130
145.0	305	293	255	189	134
147.5	296	285	250	189	137
150.0	287	276	244	188	141
152.5	277	268	239	186	144
155.0	267	259	233	185	147
157.5	256	249	226	183	149
160.0	246	239	219	180	152
162.5	235	229	212	178	154
165.0	223	219	205	175	155
167.5	212	209	197	172	157
170.0	200	198	190	168	158
172.5	189	187	182	165	159
175.0	177	177	174	161	159
177.5	166	166	166	157	159
180.0	159	159	159	159	159

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Intensity data (cd)

	C-Plane				
Gamma	**C90**	**C112.5**	**C135**	**C157.5**	**C180**
0.0	158	158	158	158	158
2.5	159	155	160	158	156
5.0	159	155	160	158	157
7.5	158	155	161	159	158
10.0	158	154	161	159	158
12.5	157	154	161	159	158
15.0	155	153	161	159	158
17.5	154	152	160	159	157
20.0	152	151	159	158	157
22.5	149	149	158	157	156
25.0	147	147	156	155	154
27.5	144	145	154	154	153
30.0	141	142	152	152	151
32.5	138	140	150	150	148
35.0	134	137	147	147	146
37.5	130	133	144	144	143
40.0	126	130	140	141	140
42.5	121	126	137	138	137
45.0	117	122	133	134	133
47.5	112	118	128	130	130
50.0	107	114	124	126	126
52.5	101	109	119	122	121
55.0	96	104	114	117	117
57.5	91	99	109	113	112
60.0	85	94	104	108	108
62.5	79	88	98	103	103
65.0	73	83	93	98	99
67.5	67	77	87	94	95
70.0	61	71	82	90	90
72.5	55	65	77	85	86
75.0	49	59	72	81	81
77.5	44	52	67	76	77
80.0	38	47	63	72	73
82.5	32	41	59	67	68
85.0	27	37	54	63	64
87.5	22	33	50	59	60
90.0	18	30	46	55	56

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Intensity data (cd)

	C-Plane				
Gamma	**C90**	**C112.5**	**C135**	**C157.5**	**C180**
90.0	18	30	46	55	56
92.5	21	34	50	58	59
95.0	27	37	54	63	63
97.5	32	42	58	67	68
100.0	38	47	62	71	72
102.5	43	52	67	76	77
105.0	49	59	72	80	81
107.5	55	65	77	85	86
110.0	61	71	82	89	90
112.5	67	77	87	94	95
115.0	73	82	93	98	99
117.5	79	88	98	103	103
120.0	84	94	103	108	108
122.5	90	99	108	113	113
125.0	96	104	113	117	118
127.5	101	109	118	122	122
130.0	106	114	123	126	127
132.5	111	118	127	130	131
135.0	116	122	131	134	135
137.5	121	127	135	138	138
140.0	125	130	139	141	142
142.5	130	134	143	144	145
145.0	134	137	146	147	148
147.5	137	140	149	150	150
150.0	141	143	151	152	153
152.5	144	146	154	154	155
155.0	147	148	156	156	156
157.5	149	150	157	157	158
160.0	152	152	159	158	159
162.5	154	153	160	159	160
165.0	155	154	161	160	160
167.5	157	155	161	160	160
170.0	158	156	161	160	160
172.5	159	156	161	160	160
175.0	159	156	161	159	159
177.5	159	156	161	159	159
180.0	159	159	159	159	159

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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
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	94	88	83	78	86	81	77	73	68	64	61	55	53	50	44	42	40	35
2	84	75	68	61	77	69	62	57	57	52	48	47	43	39	37	34	31	26
3	76	65	56	49	69	60	52	46	49	44	39	40	36	32	31	28	25	21
4	69	57	48	41	63	52	44	38	43	37	32	35	30	26	27	24	21	17
5	63	50	41	34	57	46	38	32	38	32	27	31	26	22	24	20	17	14
6	58	45	36	29	53	41	33	27	34	28	23	28	23	19	22	18	15	12
7	53	40	31	25	49	37	29	23	31	24	20	25	20	16	20	16	13	10
8	49	36	28	22	45	33	26	20	28	22	17	23	18	14	18	14	11	9
9	46	33	25	19	42	30	23	18	25	19	15	21	16	13	16	13	10	8
10	43	30	22	17	39	28	21	16	23	18	14	19	15	11	15	12	9	7

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	4.4	12.14	7.93
8.0	2.5	16.18	10.57
10.0	1.6	20.23	13.21
12.0	1.1	24.28	15.86
14.0	0.8	28.32	18.50
16.0	0.6	32.37	21.14

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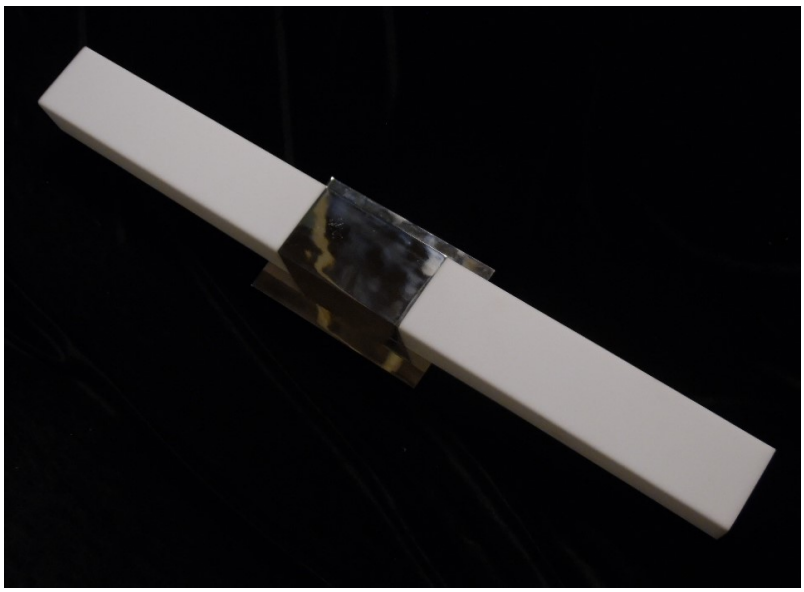

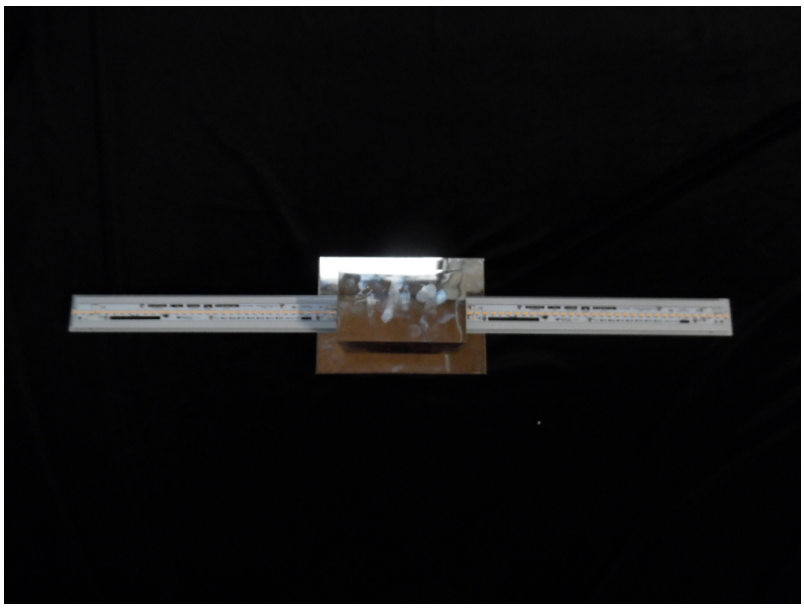

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Test Distance	9.5 m
Test Temperature	24.7 °C

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.

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LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001067-008B

Integrating Sphere Report
Catalog Number: 3-569 Vega Vanity
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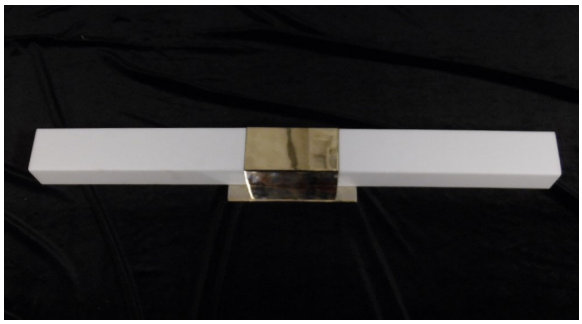

Performance Summary

Voltage	120.0	Vac
Current	0.2402	A
Power	28.46	W
Frequency	59.99	Hz
Power Factor	0.988	
Current THD	12.7	%
Total Luminous Flux	2138.7	lm
Efficacy	75.1	lm/W
Chromaticity (x,y)	(0.4322, 0.4024)	
(u',v')	(0.2483, 0.5200)	
Duv	0.0000	
CCT	3067	K
CRI (Ra)	93	
R9	62	
TM-30: Rf	91	
TM-30: Rg	101	

Prepared For:
Oxygen Lighting
201 Railhead Road
Fort Worth, TX 76106, USA

Test date: 01/04/2019
Report date: 01/09/2019

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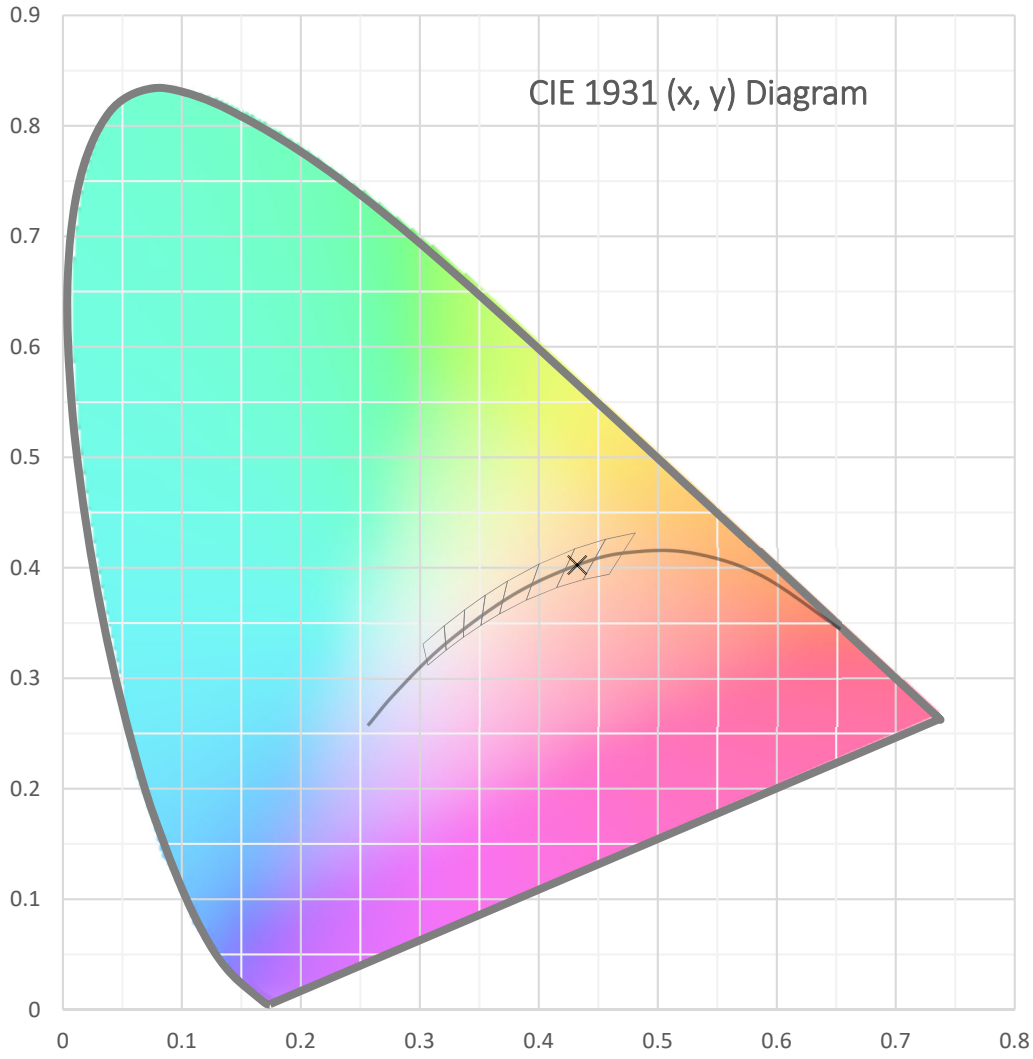

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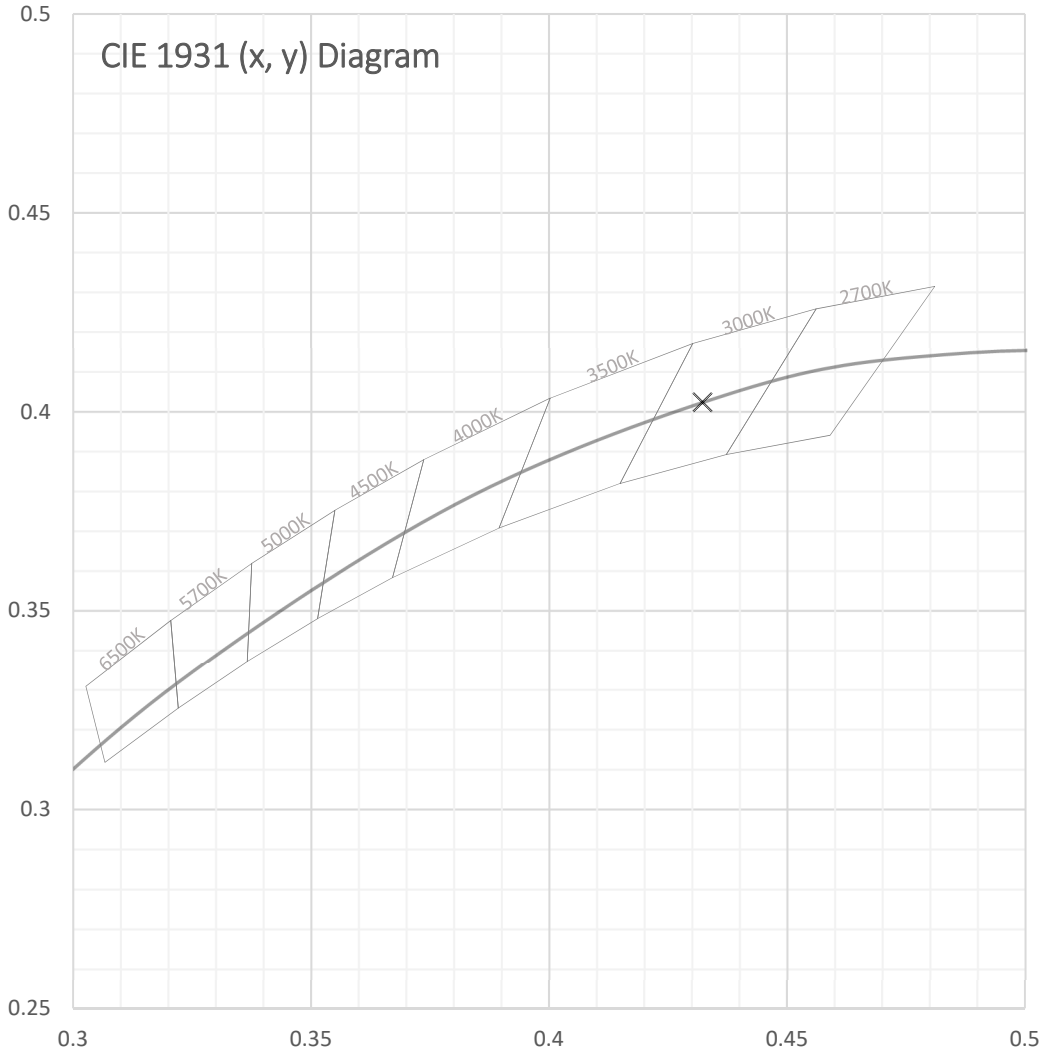

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One ERP ESS030W-0700-42 dimmable LED driver.

Spectral Data	Total Radiant Flux	7.517 W
	Total Luminous Flux	2138.7 Lm
	Chromaticity CIE 1931 (x, y)	(0.4322, 0.4024)
	Chromaticity CIE 1976 (u', v')	(0.2483, 0.5200)
	Correlated Color Temperature (CCT)	3067 K
	Color Rendering Index (Ra)	93
	R1	93
	R2	95
	R3	96
	R4	93
	R5	92
	R6	94
	R7	93
	R8	84
	R9	62
	R10	88
	R11	94
	R12	82
	R13	93
	R14	97
	TM-30: Rf	91
	TM-30: Rg	101
	Distance from Planckian Locus (Duv)	0.0000
	Scotopic/Photopic Ratio *	1.428
Electrical Data		
	Voltage	120.0 Vac
	Current	0.2402 A
	Power	28.46 W
	Frequency	59.99 Hz
	Power Factor	0.988
	Current THD	12.7 %

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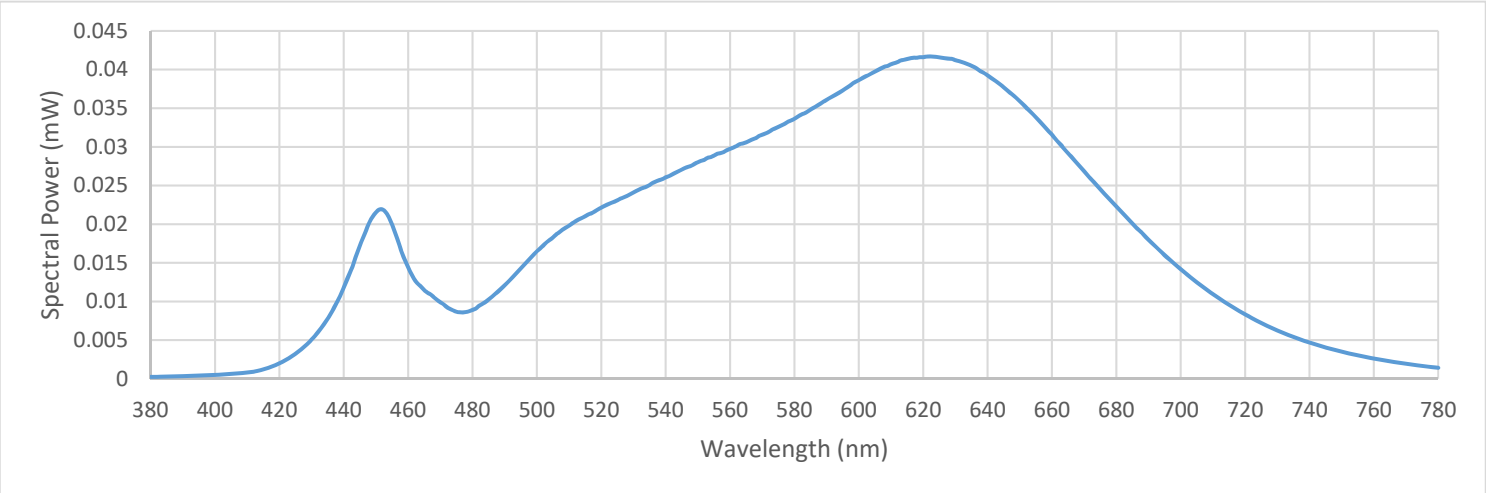
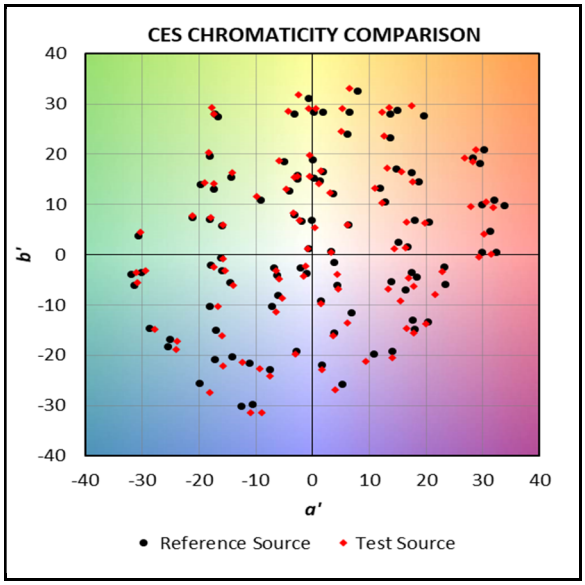
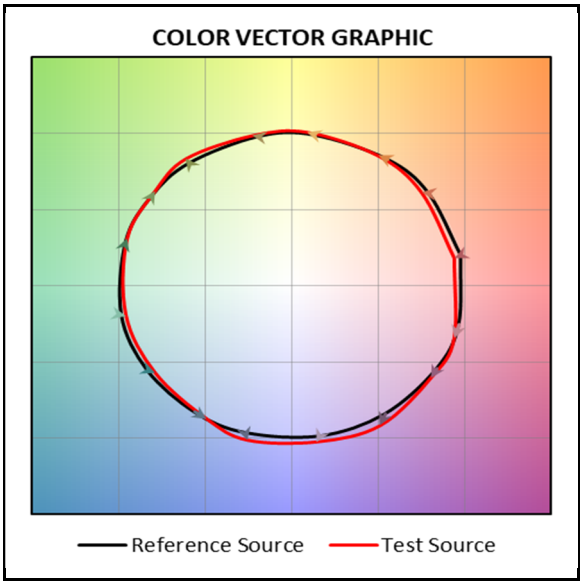
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

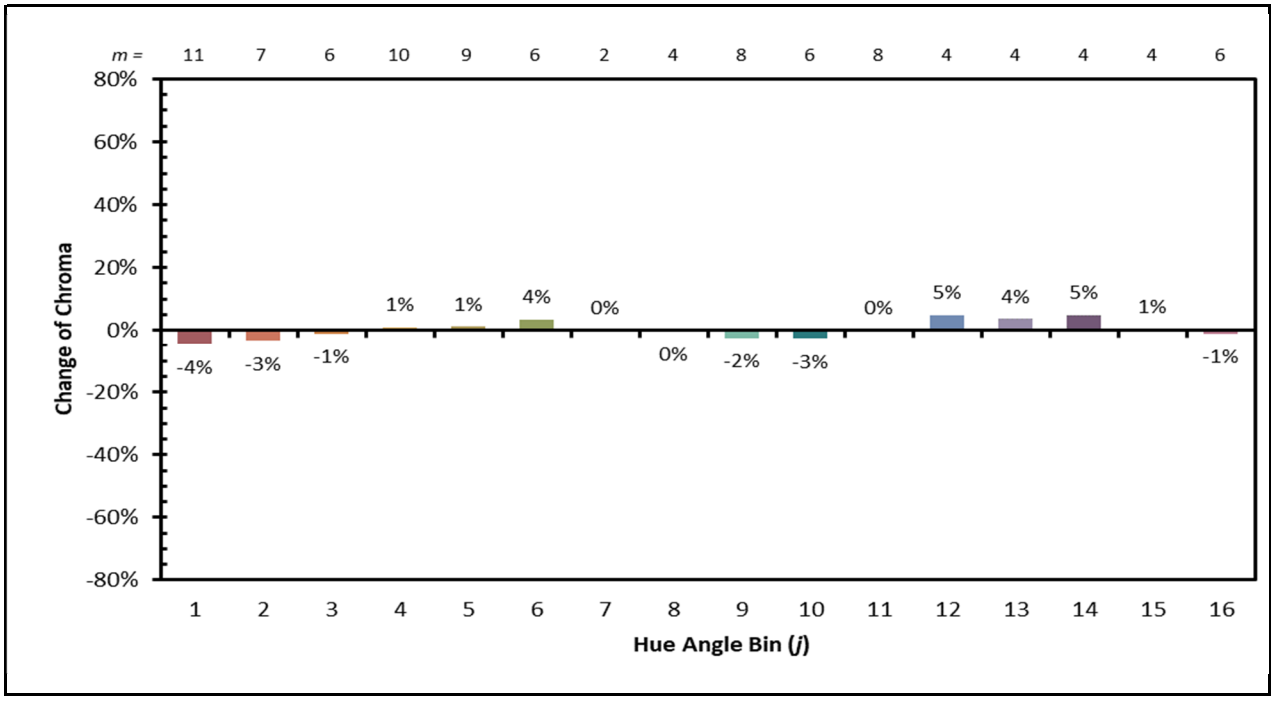
380	0.000257	480	0.008919	580	0.033639	680	0.022256
385	0.000270	485	0.010250	585	0.034832	685	0.020118
390	0.000332	490	0.012119	590	0.036064	690	0.017971
395	0.000418	495	0.014240	595	0.037296	695	0.015959
400	0.000510	500	0.016509	600	0.038610	700	0.014205
405	0.000612	505	0.018288	605	0.039754	705	0.012478
410	0.000794	510	0.019807	610	0.040693	710	0.010944
415	0.001204	515	0.021024	615	0.041372	715	0.009577
420	0.002015	520	0.022137	620	0.041607	720	0.008320
425	0.003241	525	0.023093	625	0.041604	725	0.007224
430	0.005082	530	0.024114	630	0.041217	730	0.006261
435	0.007770	535	0.025064	635	0.040485	735	0.005415
440	0.011766	540	0.026054	640	0.039243	740	0.004675
445	0.017218	545	0.027059	645	0.037713	745	0.004056
450	0.021525	550	0.028013	650	0.035911	750	0.003510
455	0.019920	555	0.028875	655	0.033841	755	0.003034
460	0.014414	560	0.029750	660	0.031581	760	0.002626
465	0.011464	565	0.030597	665	0.029169	765	0.002249
470	0.009889	570	0.031571	670	0.026819	770	0.001931
475	0.008659	575	0.032575	675	0.024546	775	0.001660
						780	0.001419



IES TM-30 Summary







Test Report Number: LLIA001067-008B

Catalog Number: 3-569 Vega Vanity
Surface wall mounted, formed steel housing, formed white enamel
steel LED tray, translucent white plastic enclosures.
72 white LEDs, two Harvard Engineering LER7-284x17-930-36S-I LED boards with 36 LEDs each.
One ERP ESS030W-0700-42 dimmable LED driver.

Test Equipment Configuration:	LightLab International Allentown 2m Integrating Sphere Measurements acquired using a Labsphere CDS 2600 spectroradiometer Testing was performed using 4π geometry
Test Temperature:	25.4 °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.

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