LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001067-001A

Catalog Number: 3-533 Alcor Vanity
Surface wall mounted, formed steel housing, formed white enamel
steel LED tray, translucent white plastic upper and lower enclosures.
72 white LEDs, one Harvard Engineering LER7-568x17-930-72S-I LED board
One ERP ESS015W-0350-42 dimmable LED driver.
120.0Vac, 60.00Hz, 0.1149A, 13.57W, 0.984PF, 14.7%THD(i)

Performance Summary

Total Light Output	521	lm
Luminaire Power	13.6	W
Luminous Efficacy	38.3	lm/W

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

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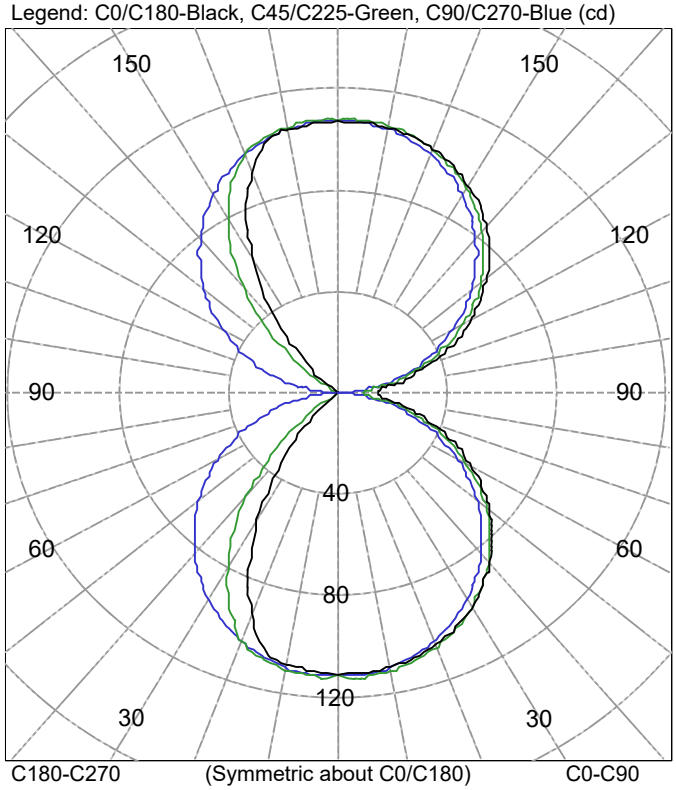
Legend: C0/C180-Black, C45/C225-Green, C90/C270-Blue (cd)



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

AVERAGE LUMINANCE (cd/m²)

Gamma	C0	C45	C90
45.0	2853	3222	5047
55.0	2328	2672	4755
65.0	1792	2055	4379
75.0	1226	1385	3824
85.0	731	635	2420

INTENSITY SUMMARY (cd)

	C-Plane					Flux
Gamma	C0	C22.5	C45	C67.5	C90	(lm)
0.0	111	111	111	111	111	
5.0	111	111	112	109	111	11
10.0	110	110	111	108	110	
15.0	108	108	109	106	107	30
20.0	105	105	106	102	104	
25.0	102	102	102	98	99	44
30.0	97	97	97	94	94	
35.0	92	92	92	88	88	49
40.0	86	86	85	82	81	
45.0	80	79	78	75	74	45
50.0	72	72	71	68	66	
55.0	64	64	62	60	58	36
60.0	56	55	54	52	49	
65.0	47	46	44	43	41	26
70.0	38	38	36	34	32	
75.0	30	29	27	25	23	16
80.0	21	20	18	16	15	
85.0	16	14	10	8	7	7
90.0	15	13	9	4	0	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	84	N / A	16.2
0-40	133	N / A	25.5
0-60	214	N / A	41.0
0-90	263	N / A	50.4
40-90	130	N / A	24.9
60-90	49	N / A	9.4
90-180	259	N / A	49.6
0-180	521	N / A	100.0

Total Light Output = 521 lm

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

Signed: Michael L. Grather

Authorized Signatory

Date of test 14-Jan-2019
Date of report 14-Jan-2019

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Intensity data (cd)

	C-Plane				
Gamma	**C0**	**C22.5**	**C45**	**C67.5**	**C90**
0.0	111	111	111	111	111
2.5	111	111	112	109	112
5.0	111	111	112	109	111
7.5	110	111	112	109	111
10.0	110	110	111	108	110
12.5	109	109	110	107	109
15.0	108	108	109	106	107
17.5	107	107	108	104	106
20.0	105	105	106	102	104
22.5	104	104	104	100	102
25.0	102	102	102	98	99
27.5	100	100	100	96	97
30.0	97	97	97	94	94
32.5	95	95	95	91	91
35.0	92	92	92	88	88
37.5	89	89	89	85	85
40.0	86	86	85	82	81
42.5	83	83	82	79	78
45.0	80	79	78	75	74
47.5	76	76	75	72	70
50.0	72	72	71	68	66
52.5	68	68	67	64	62
55.0	64	64	62	60	58
57.5	60	59	58	56	54
60.0	56	55	54	52	49
62.5	51	51	49	47	45
65.0	47	46	44	43	41
67.5	43	42	40	39	36
70.0	38	38	36	34	32
72.5	34	33	31	30	28
75.0	30	29	27	25	23
77.5	25	25	22	21	19
80.0	21	20	18	16	15
82.5	17	16	14	12	11
85.0	16	14	10	8	7
87.5	15	14	9	4	3
90.0	15	13	9	4	0

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120.0Vac, 60.00Hz, 0.1149A, 13.57W, 0.984PF, 14.7%THD(i)

Intensity data (cd)

	C-Plane				
Gamma	**C0**	**C22.5**	**C45**	**C67.5**	**C90**
90.0	15	13	9	4	0
92.5	15	13	9	4	3
95.0	15	14	11	8	6
97.5	18	17	15	12	11
100.0	22	21	19	16	15
102.5	26	25	23	20	19
105.0	30	29	27	25	23
107.5	34	33	31	29	27
110.0	38	37	35	33	31
112.5	43	42	39	38	35
115.0	47	46	44	42	39
117.5	51	50	48	46	44
120.0	55	54	52	50	48
122.5	59	58	56	54	52
125.0	63	62	60	58	56
127.5	67	66	64	61	60
130.0	71	70	68	65	64
132.5	75	74	72	69	67
135.0	78	77	75	72	71
137.5	81	80	79	75	75
140.0	84	83	82	79	78
142.5	87	86	85	82	82
145.0	90	89	88	85	85
147.5	93	92	91	87	88
150.0	95	94	93	90	90
152.5	97	96	96	92	93
155.0	99	98	98	95	95
157.5	101	100	100	97	98
160.0	102	102	102	98	100
162.5	103	103	103	100	101
165.0	104	104	105	101	103
167.5	105	105	106	103	104
170.0	106	106	107	104	105
172.5	106	107	107	104	106
175.0	107	107	108	105	107
177.5	107	107	108	105	107
180.0	107	107	107	107	107

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120.0Vac, 60.00Hz, 0.1149A, 13.57W, 0.984PF, 14.7%THD(i)

Intensity data (cd)

	C-Plane				
Gamma	**C90**	**C112.5**	**C135**	**C157.5**	**C180**
0.0	111	111	111	111	111
2.5	112	109	112	111	110
5.0	111	109	112	110	110
7.5	111	108	111	110	109
10.0	110	107	110	109	108
12.5	109	106	109	108	107
15.0	107	105	108	106	104
17.5	106	103	106	101	99
20.0	104	102	103	95	92
22.5	102	100	99	89	85
25.0	99	98	93	81	76
27.5	97	95	87	73	67
30.0	94	93	81	64	58
32.5	91	89	73	55	49
35.0	88	85	66	47	41
37.5	85	81	58	38	32
40.0	81	76	50	30	24
42.5	78	70	42	23	17
45.0	74	64	34	16	10
47.5	70	58	27	9	4
50.0	66	52	20	3	0
52.5	62	45	13	0	0
55.0	58	39	7	0	0
57.5	54	32	2	0	0
60.0	49	26	0	0	0
62.5	45	19	0	0	0
65.0	41	14	0	0	0
67.5	36	8	0	0	0
70.0	32	4	0	0	0
72.5	28	1	0	0	0
75.0	23	1	0	0	0
77.5	19	0	0	0	0
80.0	15	0	0	0	0
82.5	11	0	0	0	0
85.0	7	0	0	0	0
87.5	3	0	0	0	0
90.0	0	0	0	0	0

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Intensity data (cd)

	C-Plane				
Gamma	**C90**	**C112.5**	**C135**	**C157.5**	**C180**
90.0	0	0	0	0	0
92.5	3	0	0	0	0
95.0	6	0	0	0	0
97.5	11	0	0	0	0
100.0	15	0	0	0	0
102.5	19	0	0	0	0
105.0	23	0	0	0	0
107.5	27	1	0	0	0
110.0	31	5	0	0	0
112.5	35	10	0	0	0
115.0	39	16	0	0	0
117.5	44	22	0	0	0
120.0	48	28	0	0	0
122.5	52	34	4	0	0
125.0	56	41	10	0	0
127.5	60	47	16	0	0
130.0	64	53	23	5	0
132.5	67	59	30	12	6
135.0	71	64	38	19	14
137.5	75	69	45	27	21
140.0	78	74	53	35	29
142.5	82	78	60	43	38
145.0	85	83	67	51	46
147.5	88	86	74	60	55
150.0	90	89	80	67	63
152.5	93	92	86	75	71
155.0	95	94	91	82	79
157.5	98	96	96	88	86
160.0	100	98	100	94	92
162.5	101	100	102	99	97
165.0	103	101	104	103	102
167.5	104	102	105	104	104
170.0	105	103	106	105	105
172.5	106	104	107	106	106
175.0	107	105	107	106	106
177.5	107	105	108	107	106
180.0	107	107	107	107	107

Test Number: LLIA001067-001A

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One ERP ESS015W-0350-42 dimmable LED driver.

120.0Vac, 60.00Hz, 0.1149A, 13.57W, 0.984PF, 14.7%THD(i)

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	84	84	84	69	69	69	56	56	56	50
1	98	94	90	86	90	87	83	80	73	71	69	61	59	58	50	49	48	42
2	89	82	76	71	82	76	71	66	64	61	57	54	51	49	44	42	41	36
3	82	72	65	59	75	67	61	56	57	52	48	48	44	41	39	37	35	31
4	75	64	56	50	69	60	53	47	51	46	41	43	39	36	35	33	30	27
5	69	57	49	43	63	53	46	41	46	40	36	39	34	31	32	29	27	23
6	63	52	44	38	58	48	41	36	41	36	32	35	31	27	29	26	24	21
7	59	47	39	33	54	43	36	31	38	32	28	32	28	24	27	24	21	18
8	55	42	35	29	50	40	33	28	34	29	25	29	25	22	25	21	19	17
9	51	39	31	26	47	36	30	25	32	26	22	27	23	20	23	20	17	15
10	48	36	28	24	44	33	27	23	29	24	20	25	21	18	21	18	16	14

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	3.1	6.75	7.56
8.0	1.7	9.01	10.08
10.0	1.1	11.26	12.60
12.0	0.8	13.51	15.12
14.0	0.6	15.76	17.65
16.0	0.4	18.01	20.17

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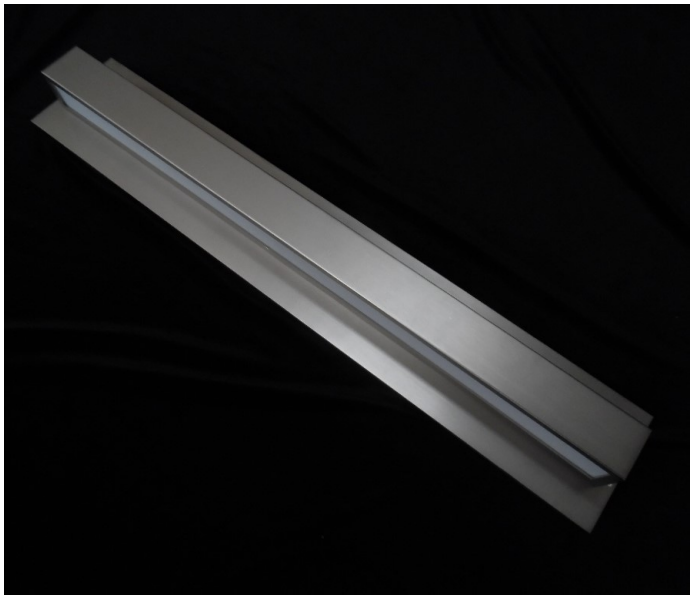

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120.0Vac, 60.00Hz, 0.1149A, 13.57W, 0.984PF, 14.7%THD(i)

Test Distance	9.5 m
Test Temperature	24.6 °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

LLIA001067-001B

Integrating Sphere Report
Catalog Number: 3-533 Alcor Vanity
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72 white LEDs, one Harvard Engineering LER7-568x17-930-72S-I LED board
One ERP ESS015W-0350-42 dimmable LED driver.

Performance Summary

Voltage	120.0	Vac
Current	0.1152	A
Power	13.61	W
Frequency	59.99	Hz
Power Factor	0.985	
Current THD	14.9	%
Total Luminous Flux	503.0	lm
Efficacy	37.0	lm/W
Chromaticity (x,y)	(0.4448, 0.4077)	
(u',v')	(0.2541, 0.5240)	
Duv	0.0004	
CCT	2900	K
CRI (Ra)	92	
R9	61	
TM-30: Rf	91	
TM-30: Rg	100	

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

Test date: 01/04/2018
Report date: 01/14/2019

Test Report Number: LLIA001067-001B

Catalog Number: 3-533 Alcor Vanity

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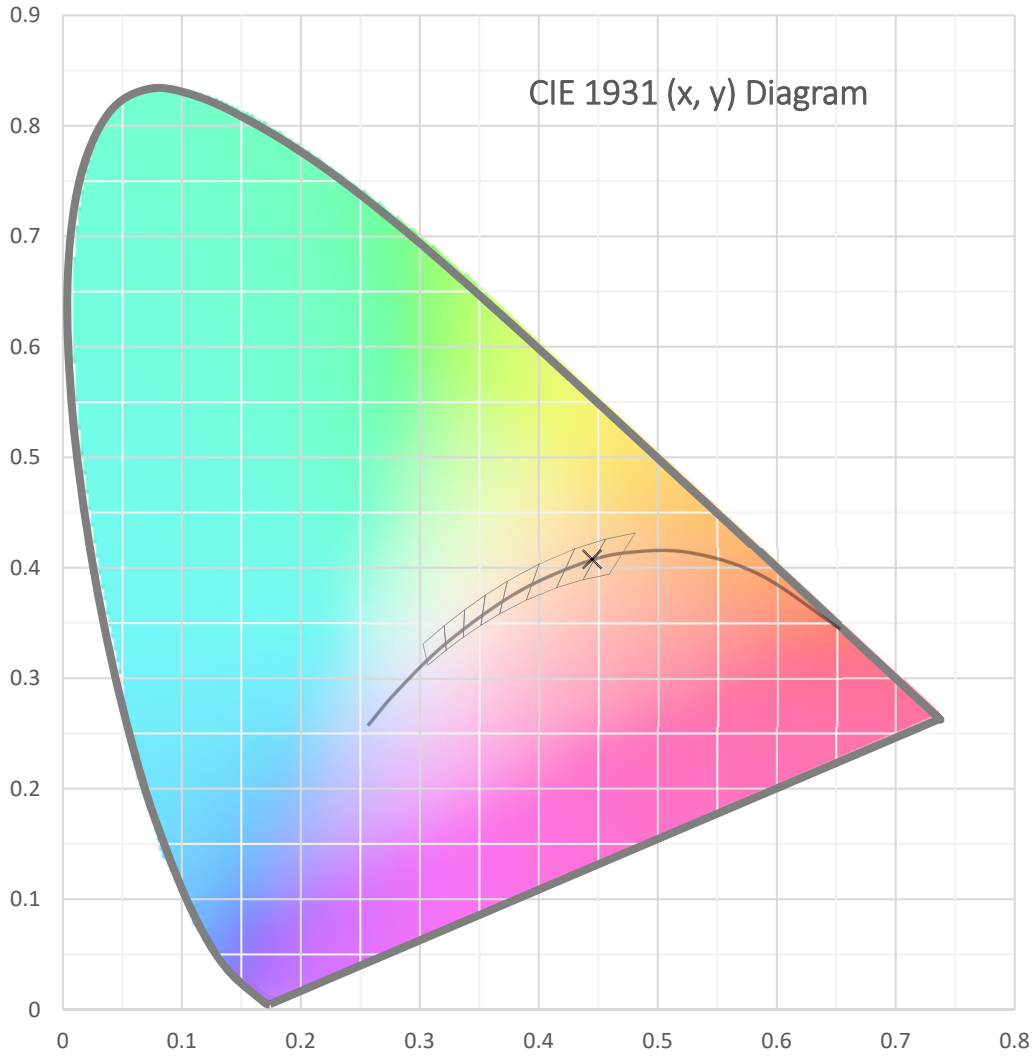

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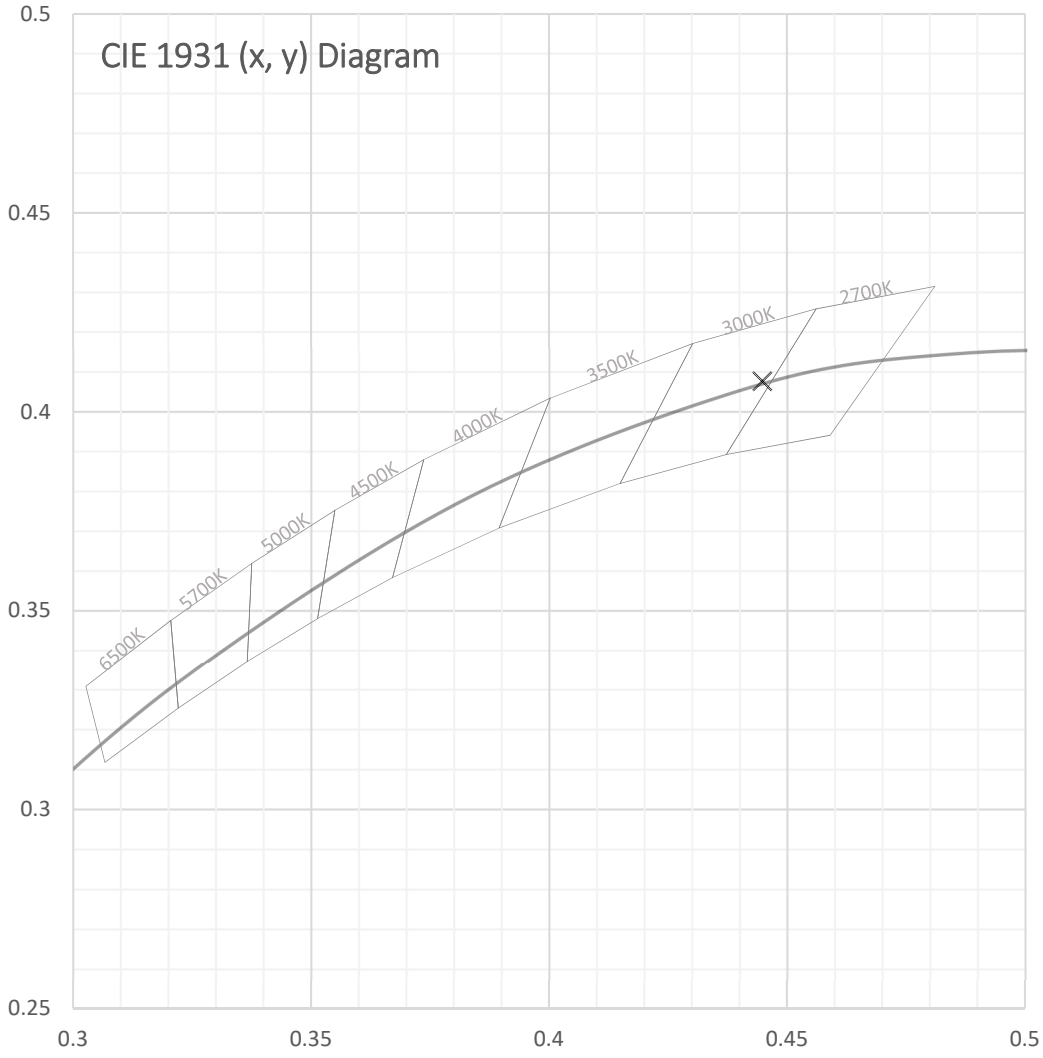

Test Report Number: LLIA001067-001B

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72 white LEDs, one Harvard Engineering LER7-568x17-930-72S-I LED board

One ERP ESS015W-0350-42 dimmable LED driver.

Spectral Data	Total Radiant Flux	1.778	W
	Total Luminous Flux	503.0	Lm
	Chromaticity CIE 1931 (x, y)	(0.4448, 0.4077)	
	Chromaticity CIE 1976 (u', v')	(0.2541, 0.5240)	
	Correlated Color Temperature (CCT)	2900	K
	Color Rendering Index (Ra)	92	
	R1	92	
	R2	95	
	R3	96	
	R4	93	
	R5	92	
	R6	93	
	R7	93	
	R8	83	
	R9	61	
	R10	87	
	R11	93	
	R12	81	
	R13	93	
	R14	97	
	TM-30: Rf	91	
	TM-30: Rg	100	
	Distance from Planckian Locus (Duv)	0.0004	
	Scotopic/Photopic Ratio *	1.346	
Electrical Data			
	Voltage	120.0	Vac
	Current	0.1152	A
	Power	13.61	W
	Frequency	59.99	Hz
	Power Factor	0.985	
	Current THD	14.9	%

Test Report Number: LLIA001067-001B

Catalog Number: 3-533 Alcor Vanity

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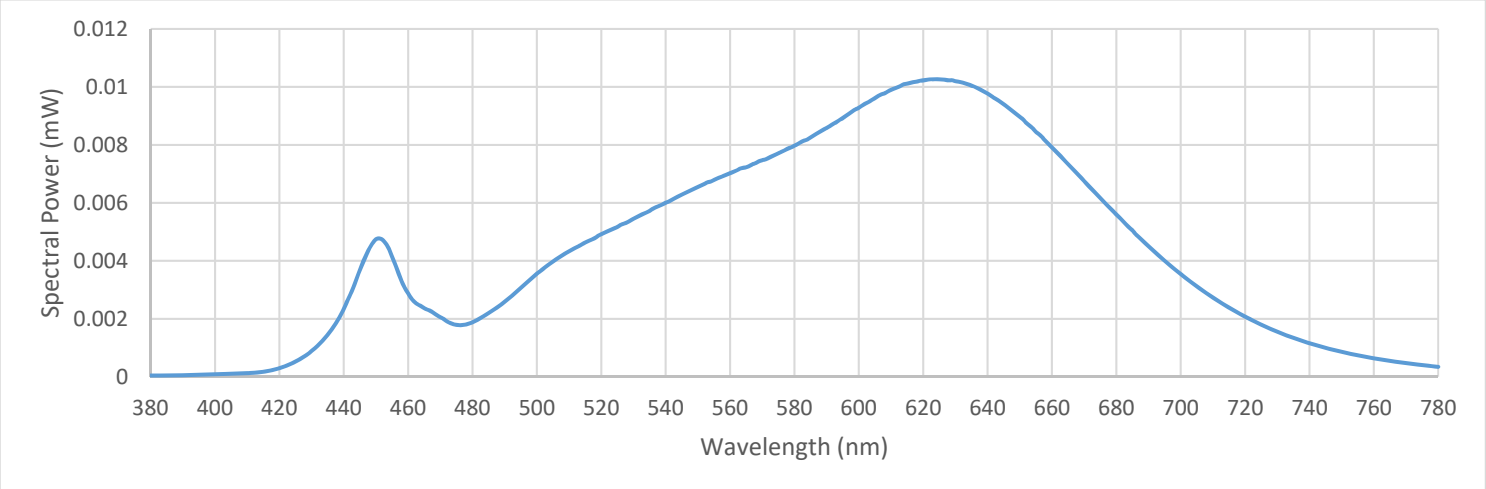
72 white LEDs, one Harvard Engineering LER7-568x17-930-72S-I LED board

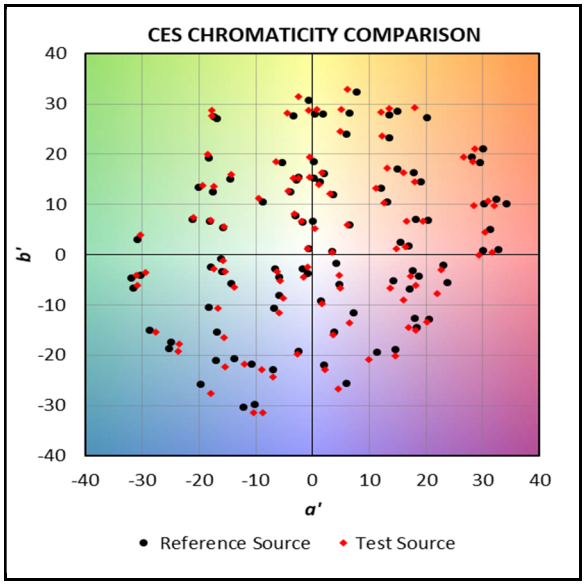
One ERP ESS015W-0350-42 dimmable LED driver.

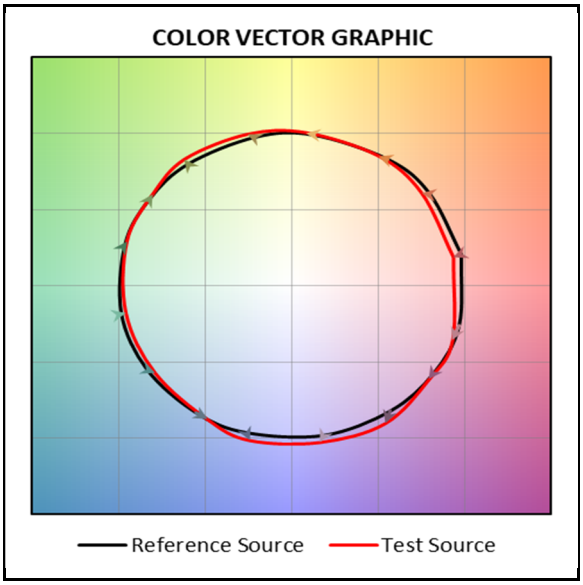
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

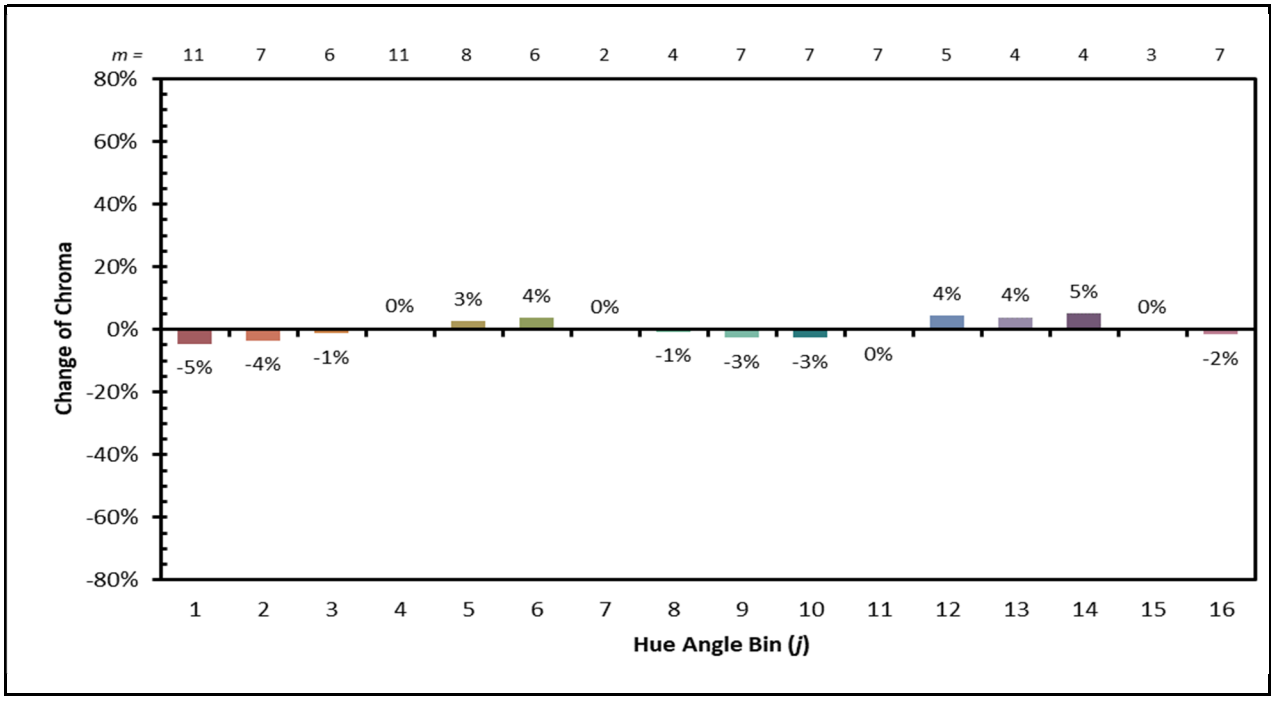
380	0.000042	480	0.001879	580	0.007971	680	0.005595
385	0.000044	485	0.002197	585	0.008258	685	0.005052
390	0.000055	490	0.002591	590	0.008582	690	0.004506
395	0.000069	495	0.003060	595	0.008919	695	0.003994
400	0.000086	500	0.003561	600	0.009277	700	0.003549
405	0.000104	505	0.003974	605	0.009611	705	0.003117
410	0.000127	510	0.004325	610	0.009899	710	0.002731
415	0.000173	515	0.004632	615	0.010113	715	0.002388
420	0.000297	520	0.004917	620	0.010222	720	0.002073
425	0.000525	525	0.005169	625	0.010258	725	0.001797
430	0.000891	530	0.005451	630	0.010196	730	0.001555
435	0.001446	535	0.005720	635	0.010041	735	0.001340
440	0.002335	540	0.006005	640	0.009767	740	0.001155
445	0.003684	545	0.006289	645	0.009398	745	0.000999
450	0.004744	550	0.006546	650	0.008970	750	0.000860
455	0.004145	555	0.006785	655	0.008451	755	0.000740
460	0.002873	560	0.007028	660	0.007924	760	0.000639
465	0.002366	565	0.007225	665	0.007334	765	0.000548
470	0.002055	570	0.007472	670	0.006752	770	0.000468
475	0.001784	575	0.007704	675	0.006174	775	0.000402
						780	0.000344



IES TM-30 Summary







Test Report Number: LLIA001067-001B

Catalog Number: 3-533 Alcor Vanity
Surface wall mounted, formed steel housing, formed white enamel
steel LED tray, translucent white plastic upper and lower enclosures.
72 white LEDs, one Harvard Engineering LER7-568x17-930-72S-I LED board
One ERP ESS015W-0350-42 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:	25.2 °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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