



8165 E Kaiser Blvd. Anaheim, CA 92808  
www.lightlaboratory.com

Report No: L011804601



**Report No:** L011804601

**Issue Date:** 1/22/2018

**Prepared For:** Airey-Thompson  
5310 Irwindale ave, Irwindale, CA 91706

**Model Number:** 82LH40K48-2

**Test:** Photometric/Electrical Test

**Standards Used:** Appropriate part or all test guidelines were used for test performed:  
*IESNA LM79: 2008* Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products  
*ANSI NEMA ANSLG C78.377: 2008* Specification of the Chromaticity of Solid State Lighting Products  
*ANSI C82.77:2002:* Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

**Description of Sample:** Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

**Testing Condition:** Fixture is tested with no special conditions.

**Sample Arrival Date:** 1/19/18

**Date of Tests:** 1/22/18 - 1/22/18

**Seasoning of Sample:** No seasoning was performed in accordance with IESNA LM-79.

**Equipment List**

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S4	1/9/19
BK PRECISION	1747	PS-DC04	1/10/19
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/19
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

\*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

**Test Summary**

<b>Manufacturer:</b>	Airey-Thompson
<b>Model Number:</b>	82LH40K48-2
<b>Driver Model Number:</b>	OSRAM OPTOTRONIC OTi 50/120-277/1A4 DIM L
<b>Total Lumens:</b>	5957.56
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.43
<b>Input Power (W):</b>	51.16
<b>Input Power Factor:</b>	1.00
<b>Current ATHD @ 120V(%):</b>	6%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	116
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:35
<b>Total Operating Time (Hours):</b>	1:45



FIG.1 LUMINAIRE

\*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

## Test Methods

### Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

### Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

### Disclaimers:

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

Report Prepared by : Keyur Patel

Test Report Released by:



Jeff Ahn  
Engineering Manager

Test Report Reviewed by:



Steve Kang  
Quality Assurance

*\*Attached are photometric data reports. Total number of pages: 9*



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# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L011804601.IES**

## DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L011804601  
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)  
[ISSUEDATE] 1/22/2018  
[MANUFAC] Airey-Thompson  
[LUMCAT] 82LH40K48-2  
[LUMINAIRE] LED LUMINAIRE, WET LOCATION AMBIENT  
[BALLASTCAT] OSRAM OPTOTRONIC OTi 50/120-277/1A4 DIM L  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[INPUT] 120VAC, 51.16W  
[TEST PROCEDURE] IESNA:LM-79-08

## CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5958
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	116
Total Luminaire Watts	51.16
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.24
Spacing Criterion (90-270)	1.28
Spacing Criterion (Diagonal)	1.38
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	4.08 ft
Luminous Width (90-270)	0.40 ft
Luminous Height	0.17 ft

## LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	10583	8898	8639
55	9357	7707	7285
65	7743	6291	6314
75	6103	5123	5493
85	4353	4088	4362

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**CANDELA TABULATION**

	<u>0</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>	<u>40</u>	<u>45</u>
<b>0</b>	1889	1889	1889	1889	1889	1889	1889	1889	1889	1889
<b>5</b>	1885	1885	1884	1884	1884	1883	1883	1882	1882	1882
<b>10</b>	1862	1862	1862	1861	1860	1859	1858	1857	1856	1855
<b>15</b>	1818	1818	1817	1816	1815	1814	1813	1815	1816	1819
<b>20</b>	1753	1753	1752	1751	1750	1751	1755	1760	1764	1767
<b>25</b>	1674	1673	1671	1670	1671	1677	1683	1687	1690	1691
<b>30</b>	1575	1575	1574	1574	1581	1589	1593	1597	1600	1601
<b>35</b>	1458	1458	1458	1463	1473	1482	1488	1493	1496	1497
<b>40</b>	1327	1326	1327	1336	1348	1358	1367	1373	1379	1386
<b>45</b>	1183	1182	1184	1196	1209	1222	1233	1243	1255	1270
<b>50</b>	1027	1026	1030	1044	1061	1077	1091	1107	1123	1138
<b>55</b>	863	862	870	886	907	926	944	961	975	987
<b>60</b>	698	698	709	729	752	773	790	806	820	832
<b>65</b>	541	543	557	579	602	620	638	655	672	689
<b>70</b>	400	403	418	439	459	479	498	518	540	562
<b>75</b>	277	280	295	314	334	354	377	401	425	449
<b>80</b>	170	174	189	207	229	252	275	300	325	348
<b>85</b>	85	90	107	127	149	171	194	217	239	258
<b>90</b>	35	41	56	73	93	112	132	152	170	187
<b>95</b>	25	25	34	47	63	80	97	115	131	148
<b>100</b>	21	21	22	30	42	57	72	88	104	120
<b>105</b>	18	17	17	18	26	38	51	65	80	93
<b>110</b>	14	14	13	13	13	22	32	44	57	69
<b>115</b>	11	11	10	10	9	9	16	26	36	46
<b>120</b>	8	8	8	7	7	6	6	11	19	27
<b>125</b>	6	6	6	6	5	5	5	4	6	12
<b>130</b>	5	5	5	5	4	4	5	5	5	5
<b>135</b>	0	0	0	0	0	0	0	0	0	0
<b>140</b>	0	0	0	0	0	0	0	0	0	0
<b>145</b>	0	0	0	0	0	0	0	0	0	0
<b>150</b>	0	0	0	0	0	0	0	0	0	0
<b>155</b>	0	0	0	0	0	0	0	0	0	0
<b>160</b>	0	0	0	0	0	0	0	0	0	0
<b>165</b>	0	0	0	0	0	0	0	0	0	0
<b>170</b>	0	0	0	0	0	0	0	0	0	0
<b>175</b>	0	0	0	0	0	0	0	0	0	0
<b>180</b>	0	0	0	0	0	0	0	0	0	0

**Vert. Angles**      **Horizontal Angles**

	<u>50</u>	<u>55</u>	<u>60</u>	<u>65</u>	<u>70</u>	<u>75</u>	<u>80</u>	<u>85</u>	<u>90</u>
<b>0</b>	1889	1889	1889	1889	1889	1889	1889	1889	1889
<b>5</b>	1881	1881	1881	1881	1880	1880	1880	1880	1880
<b>10</b>	1854	1854	1853	1853	1854	1854	1854	1854	1854
<b>15</b>	1821	1823	1824	1825	1824	1824	1824	1823	1823
<b>20</b>	1769	1769	1769	1768	1768	1767	1765	1765	1765
<b>25</b>	1693	1695	1695	1695	1694	1693	1691	1690	1690
<b>30</b>	1603	1603	1605	1606	1608	1609	1610	1610	1610
<b>35</b>	1500	1505	1512	1520	1527	1532	1535	1536	1537
<b>40</b>	1397	1408	1419	1430	1438	1444	1447	1449	1449
<b>45</b>	1284	1296	1306	1313	1317	1321	1321	1321	1321
<b>50</b>	1149	1158	1162	1166	1168	1169	1169	1168	1167
<b>55</b>	996	1003	1007	1011	1015	1018	1019	1019	1019
<b>60</b>	844	854	862	870	877	883	887	888	888

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**CANDELA TABULATION - (Cont.)**

<b>65</b>	705	721	735	747	757	765	770	773	774
<b>70</b>	583	603	619	634	646	656	662	666	667
<b>75</b>	473	494	511	526	537	547	553	557	558
<b>80</b>	369	387	402	415	425	432	438	441	441
<b>85</b>	276	291	304	316	324	331	335	337	338
<b>90</b>	203	218	230	241	248	254	258	260	261
<b>95</b>	163	177	188	197	204	209	212	214	215
<b>100</b>	134	146	156	164	171	175	178	180	180
<b>105</b>	107	118	127	135	141	146	149	151	152
<b>110</b>	81	91	99	107	113	117	121	122	123
<b>115</b>	56	65	73	80	86	90	93	95	95
<b>120</b>	35	43	50	56	61	65	67	69	70
<b>125</b>	18	25	31	36	40	43	46	47	48
<b>130</b>	6	10	15	19	22	25	27	28	29
<b>135</b>	5	5	5	6	7	10	12	13	13
<b>140</b>	0	0	0	0	0	0	0	0	0
<b>145</b>	0	0	0	0	0	0	0	0	0
<b>150</b>	0	0	0	0	0	0	0	0	0
<b>155</b>	0	0	0	0	0	0	0	0	0
<b>160</b>	0	0	0	0	0	0	0	0	0
<b>165</b>	0	0	0	0	0	0	0	0	0
<b>170</b>	0	0	0	0	0	0	0	0	0
<b>175</b>	0	0	0	0	0	0	0	0	0
<b>180</b>	0	0	0	0	0	0	0	0	0

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	691.99	N.A.	11.60
0-30	1468.8	N.A.	24.70
0-40	2406.43	N.A.	40.40
0-60	4241.83	N.A.	71.20
0-80	5377.88	N.A.	90.30
0-90	5643.58	N.A.	94.70
10-90	5464.76	N.A.	91.70
20-40	1714.44	N.A.	28.80
20-50	2686.35	N.A.	45.10
40-70	2509.00	N.A.	42.10
60-80	1136.06	N.A.	19.10
70-80	462.46	N.A.	7.80
80-90	265.70	N.A.	4.50
90-110	242.33	N.A.	4.10
90-120	290.87	N.A.	4.90
90-130	310.10	N.A.	5.20
90-150	313.98	N.A.	5.30
90-180	313.98	N.A.	5.30
110-180	71.65	N.A.	1.20
0-180	5957.56	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	178.82
10-20	513.17
20-30	776.82
30-40	937.62
40-50	971.91
50-60	863.49
60-70	673.60
70-80	462.46
80-90	265.70
90-100	149.85
100-110	92.48
110-120	48.54
120-130	19.23
130-140	3.87
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

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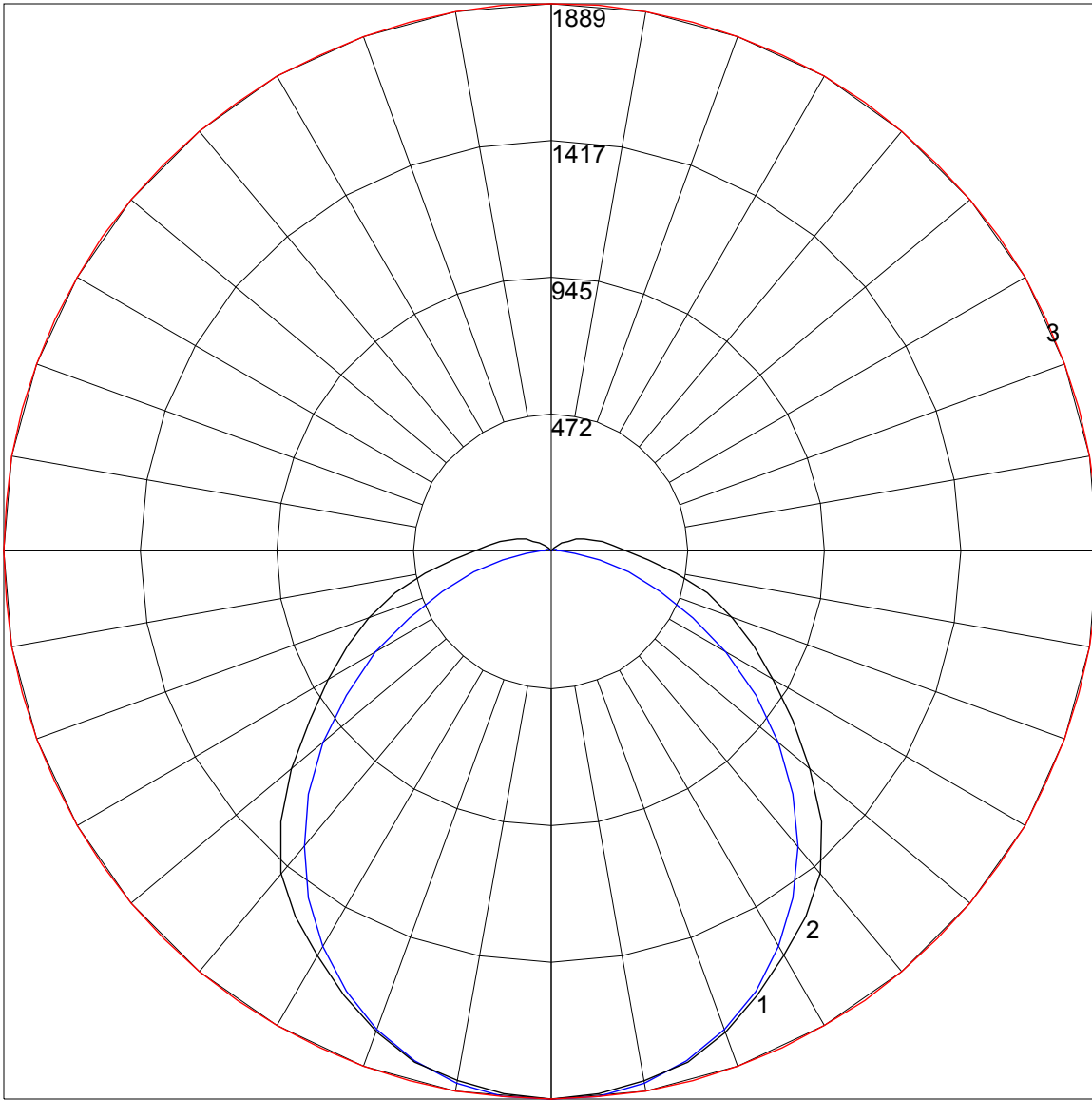
**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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	118	118	118	118	114	114	114	114	108	108	108	102	102	102	97	97	97	95
1	106	101	96	92	103	98	94	90	93	89	86	88	85	83	84	81	79	77
2	96	88	80	74	93	85	79	73	81	75	71	77	72	68	73	69	66	63
3	88	77	68	62	85	75	67	61	71	64	59	67	62	57	64	60	56	53
4	80	68	59	52	77	66	58	51	63	56	50	60	54	49	57	52	48	45
5	74	61	51	45	71	59	51	44	56	49	43	54	47	42	51	46	41	39
6	68	55	45	39	66	53	45	39	51	43	38	49	42	37	47	41	36	34
7	63	49	41	34	61	48	40	34	46	39	33	44	38	33	43	37	32	30
8	59	45	36	31	57	44	36	30	42	35	30	41	34	29	39	33	29	27
9	55	41	33	27	53	40	33	27	39	32	27	37	31	26	36	30	26	24
10	51	38	30	25	50	37	30	25	36	29	24	35	28	24	34	28	24	22



POLAR GRAPH



Maximum Candela = 1889 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Vertical Plane Through Horizontal Angles (90 - 270)  
# 3 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)