



Certificate Number: AT-1955

## LM-79 TEST REPORT

LSI Industries, 10000 Alliance Rd., Cincinnati, Ohio 45242

Report No.: LSI-PH0007  
Log Ref. No.: PH-0651

Date: June 29, 2015

### TEST OF ONE LED LUMINAIRE

FIXTURE CATALOG NO.

XLCW FT LED HO NW \*\*

LED DRIVER: 2100mA Electronic Driver  
Delivers 140mA PER LED

### ISSUED TO

LSI INDUSTRIES INCORPORATED  
10000 ALLIANCE ROAD  
CINCINNATI, OH 45242

TEST: Photometric characterization and electrical measurements per the described standards.

ISSUED BY: LSI Industries, 10000 Alliance Rd., Cincinnati, Ohio 45242

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-79-08: Electrical and Photometric Measurements of Solid-State Lighting Products  
ANSI C82.77-2002: Harmonic Emission Limits (Power Factor and THD-A)

DESCRIPTION OF SAMPLE: The submitted test sample was representative of a current production sample and was received in new and undamaged condition, unless otherwise noted.

DATE OF TEST: June 26, 2015

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## SUMMARY:

Model No.:  
XLCW FT LED HO NW \*\*

Description: 105 LED wall scone with fabricated aluminum housing, flat glass lens, Housing finished with LSI's DuraGrip polyester powder coat finishing process. LED driver delivers 140mA per LED.

<u>Criteria</u>	<u>Result</u>
Total Lumen Output	4621
Input Voltage (V)	120.1
Input Current (A)	0.458
Total Power (W)	54.4
Luminaire Efficacy	85
Power Factor	98.9%
Driver Output Current (A)	2.117
THD <sub>A</sub>	6.2%

### Additional Reporting

Test Room Ambient Conditions	24.1C and 39.0% RH
Total Luminaire Stabilization Time	57 Minutes

Measurement uncertainty budgets have been determined for applicable test methods and are available upon request.

## EQUIPMENT LIST

<u>Equipment Used</u>	<u>Equipment #</u>	<u>Cal. Due Date</u>
California Instruments 1501i Power Supply	1423A05344	VBU
Yokogawa WT-230 Power Analyzer	91KA35031	12/31/2015
High Speed Moving Mirror Goniophotometer	NA	VBU
General DTH04 Temperature/Humidity	29203-02	9/30/2015

### Photometric and Electrical measurements – Distribution Method

A Type C High Speed Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for the test sample. The calibration of this measurement system is traceable to the National Institute of Standards and Technology SI Units.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize per LM-79-08 requirements. Electrical measurements including voltage, current, and power were measured using the Yokogawa Power Analyzer.

Some graphics were created using Lighting Analysts Photometric Toolbox Professional Edition software.



## RESULTS OF TESTS

Model No.:  
XLCW FT LED HO NW \*\*

### Photometric and Electrical Measurements – Distribution Method

LSI Test No.	Base Orientation	Input Voltage (VAC)	Input Current (A)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
LED-6991	Base up	120.1	0.458	54.4	.989	4621	85

### Characteristics

IES Classification	Type III
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4621
Downward Total Efficiency	N.A.
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	85
Total Luminaire Watts	54.4
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Max. Cd.	2827 (2.5H, 32.5V)
Max. Cd. (<90 Vert.)	2827 (2.5H, 32.5V)
Max. Cd. (At 90 Deg. Vert.)	0 (0.0%Lum)
Max. Cd. (80 to <90 Deg. Vert.)	186 (4.0%Lum)
Cutoff Classification (deprecated)	N.A. (absolute)

### Lum. Classification System (LCS)

LCS Zone	Lumens	%Lamp	%Lum
FL (0-30)	824.0	N.A.	17.8
FM (30-60)	2243.5	N.A.	48.5
FH (60-80)	786.4	N.A.	17.0
FVH(80-90)	17.4	N.A.	0.4
BL (0-30)	273.4	N.A.	5.9
BM (30-60)	383.5	N.A.	8.3
BH (60-80)	85.6	N.A.	1.9
BVH(80-90)	7.2	N.A.	0.2
UL (90-100)	0.0	N.A.	0.0
UH (100-180)	0.0	N.A.	0.0
Total	4621.0	N.A.	100.0

### **BUG Rating B1-U0-G1**



## RESULTS OF TESTS (cont'd)

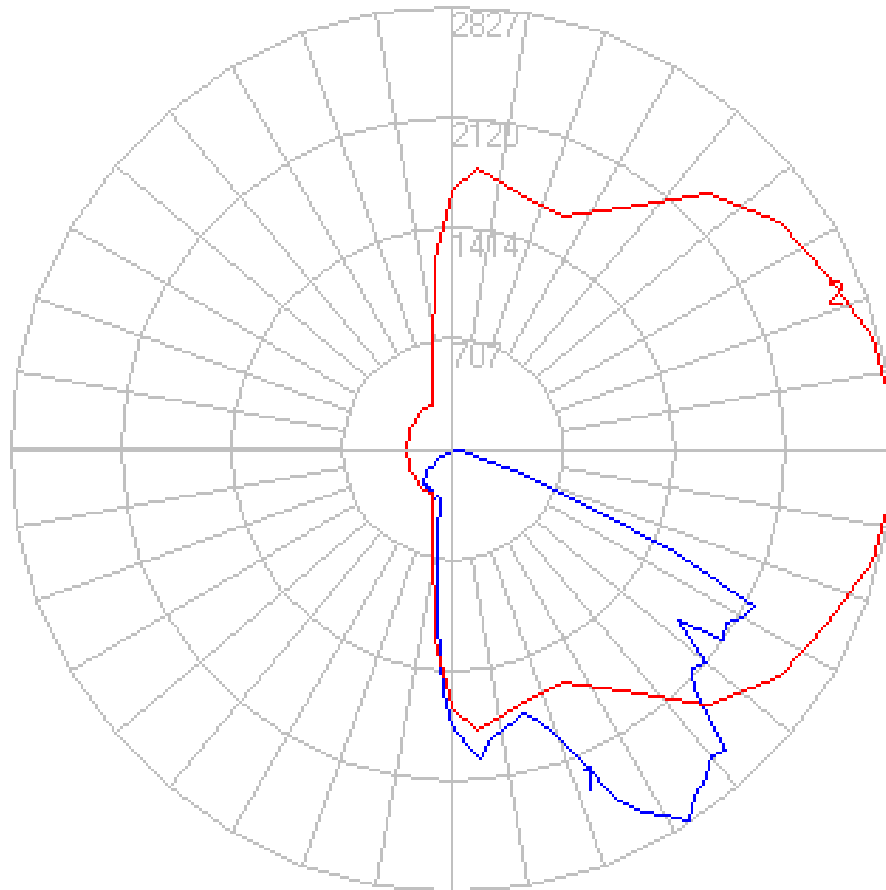
### Intensity (Candlepower) Summary

	0	5	15	25	35	45	55	65	75	85	90
0	1764	1764	1764	1764	1764	1764	1764	1764	1764	1764	1764
2.5	1884	1882	1875	1877	1881	1881	1883	1887	1874	1861	1849
5	1981	1980	1984	1987	1999	2004	2003	1987	1959	1917	1871
7.5	1868	1868	1872	1879	1903	1940	1987	2030	2023	1964	1886
10	1826	1826	1828	1834	1853	1878	1904	1961	2031	1999	1903
12.5	1787	1787	1787	1797	1811	1840	1864	1906	1975	2022	1915
15	1741	1741	1739	1739	1762	1800	1825	1867	1914	2012	1921
17.5	1809	1809	1806	1793	1776	1754	1791	1829	1871	1976	1925
20	1962	1958	1954	1925	1862	1796	1752	1792	1836	1928	1922
22.5	2161	2154	2164	2113	2021	1887	1779	1747	1797	1874	1914
25	2501	2490	2505	2406	2222	2038	1846	1731	1759	1830	1902
27.5	2622	2619	2621	2605	2527	2233	1968	1755	1708	1777	1879
30	2700	2695	2690	2645	2594	2491	2107	1808	1674	1734	1850
32.5	2826	2827	2825	2779	2649	2542	2319	1892	1646	1684	1806
35	2707	2710	2715	2735	2742	2579	2437	2000	1649	1636	1762
37.5	2648	2650	2659	2659	2639	2643	2427	2141	1668	1572	1707
40	2566	2565	2570	2572	2556	2542	2458	2221	1695	1507	1651
42.5	2596	2598	2604	2550	2472	2442	2423	2213	1745	1449	1592
45	2191	2189	2190	2273	2450	2343	2317	2196	1809	1396	1530
47.5	2066	2064	2063	2063	2094	2281	2201	2148	1824	1341	1459
50	2128	2124	2118	2043	1948	2001	2113	2041	1809	1306	1371
52.5	1812	1808	1808	1873	1967	1827	1971	1904	1758	1268	1275
55	2095	2114	2089	1927	1709	1801	1699	1774	1669	1229	1165
57.5	2076	2074	2094	2130	1907	1612	1578	1619	1553	1195	1040
60	2151	2141	2127	2029	1935	1705	1459	1404	1397	1116	916
62.5	2166	2173	2179	2210	1935	1739	1373	1233	1236	1020	779
65	1571	1578	1584	1709	1920	1734	1401	1073	1048	938	645
67.5	901	909	914	1014	1242	1583	1334	997	865	789	528
70	405	410	411	480	650	937	1258	943	689	657	417
72.5	194	197	187	215	281	423	739	888	602	519	325
75	47	47	47	49	90	167	295	612	492	364	250
77.5	42	43	43	42	41	42	102	228	401	242	170
80	39	39	39	38	37	36	34	66	186	166	97
82.5	38	38	38	37	35	32	29	26	41	85	40
85	36	36	36	35	33	31	27	23	18	24	15
87.5	33	33	33	32	31	29	25	21	15	10	7
90	0	0	0	0	0	0	0	0	0	0	0

	95	105	115	125	1 35	145	1 55	165	175	180
0	1764	1764	1764	1764	1764	1764	1764	1764	1764	1764
2.5	1823	1786	1735	1694	1665	1624	1592	1575	1570	1545
5	1791	1671	1533	1409	1317	1232	1165	1125	1106	1084
7.5	1753	1543	1320	1146	1014	914	842	796	758	758
10	1714	1408	1135	932	780	671	586	539	506	505
12.5	1668	1283	972	758	586	485	421	387	371	370
15	1617	1160	834	597	449	374	346	327	319	319
17.5	1566	1047	700	473	367	326	311	310	311	311
20	1503	942	582	388	326	310	317	329	335	336
22.5	1449	845	482	341	307	321	339	346	350	350
25	1391	759	411	312	311	338	346	331	323	324
27.5	1331	668	362	302	327	340	316	304	304	304
30	1274	598	330	306	333	310	302	305	305	306
32.5	1213	525	314	318	314	297	300	296	297	297
35	1148	475	307	323	292	293	292	295	295	294
37.5	1084	432	314	311	285	284	288	287	288	288
40	1012	396	324	290	279	281	279	283	284	284
42.5	934	367	334	281	273	272	277	281	284	284
45	850	343	330	274	267	267	274	272	234	234
47.5	779	316	309	270	257	263	233	231	234	234
50	714	310	289	264	252	239	223	226	217	217
52.5	653	309	273	252	248	215	209	154	148	149
55	575	307	266	245	215	202	145	134	118	119
57.5	500	288	257	238	205	142	115	31	0	0
60	446	267	241	221	168	115	7	0	0	0
62.5	378	239	229	198	129	22	5	0	0	0
65	312	217	214	158	64	18	5	0	0	0
67.5	249	196	197	119	38	17	4	0	0	0
70	194	175	168	65	35	16	3	0	0	0
72.5	152	148	123	55	33	14	3	0	0	0
75	106	129	77	53	30	12	3	0	0	0
77.5	71	93	64	47	25	10	2	0	0	0
80	48	55	59	38	22	9	2	0	0	0
82.5	27	39	45	30	18	8	2	0	0	0
85	15	28	34	24	14	6	1	0	0	0
87.5	8	18	22	14	7	2	1	0	0	0
90	0	0	0	0	0	0	0	0	0	0

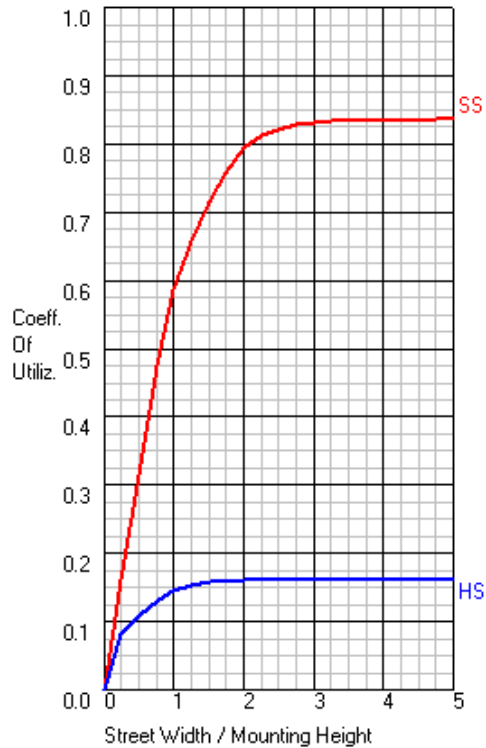
RESULTS OF TESTS (cont'd)

Polar Candela Distribution:



RESULTS OF TESTS (cont'd)

CU Graph:

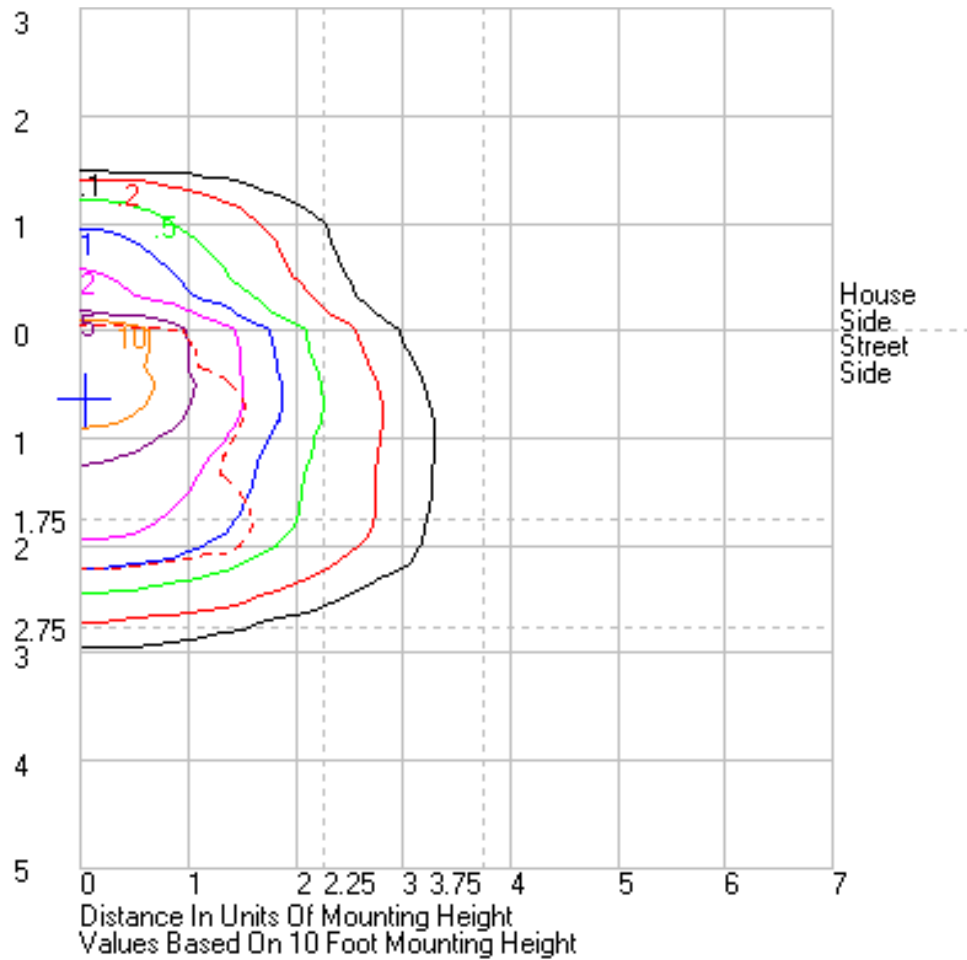


**Flux Distribution**

	Lumens	Percent Of Luminaire
Downward Street Side	3871.3	83.8
Downward House Side	749.7	16.2
Downward Total	4621.0	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	4621.0	100.0

RESULTS OF TESTS (cont'd)

**Isolines:**





PHOTOGRAPH(S)



Report Reviewed By:

Beverly Blake

A handwritten signature in black ink that reads "Beverly Blake".

Engineering Lab Coordinator

LSI INDUSTRIES, INC.

Tested By:

Mathew Orloski

A handwritten signature in black ink that reads "Mathew Orloski".

Lab Technician

LSI INDUSTRIES, INC

Attachment: None