



REPORT
3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G100639410
Client Ref. No. PH-0155

Date: May 15, 2012

REPORT NO. 100639410CRT-107

TEST OF ONE LED LUMINAIRE

FIXTURE CATALOG NO.

XENM3 PT 2 LED 63 450 NW UE
XINM3 PT 2 LED 63 450 NW UE
XLXM3 PT 2 LED 63 450 NW UE

LED DRIVER: 450mA Electronic Driver

RENDERED TO

LSI INDUSTRIES INCORPORATED
10000 ALLIANCE ROAD
CINCINNATI, OH 45242

TEST: Electrical and Photometric tests as required to the IESNA test standard.

AUTHORIZATION: The testing performed was authorized by signed quote number 500380383.

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

IESNA TM-15-11: Luminaire Classification System for Outdoor Luminaires

DESCRIPTION OF SAMPLE: The submitted test sample was representative of a current production Sample and was received in good condition.

DATE OF TEST: May 7, 2012

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SUMMARY:

Model No.:
XENM3 PT 2 LED 63 450 NW UE
XINM3 PT 2 LED 63 450 NW UE
XLXM3 PT 2 LED 63 450 NW UE
Description: 63 LED optic unit containing an integrated specular metal reflector and flat glass lens. Utilizing 450mA Output Driver.

Criteria	Result
Total Lumen Output	5888
Input Voltage (V)	120.0
Total Power (W)	91.0
Luminaire Efficacy	65
Power Factor	0.995
Driver Output Current (A)	0.448
THD _A	8.7%

Additional Reporting

Test Room Ambient Conditions	24.6 C and 42% RH
Total Luminaire Stabilization Time	51 Minutes

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

EQUIPMENT LIST

Equipment Used	Equipment #	Cal. Due Date
Elgar CW1251P-V AC Power Source 0-300V	0943A02235	VBU
Yokogawa WT-230 Power Analyzer	91KA35031	12/31/12
High Speed Moving Mirror Goniophotometer	---	VBU
Temperature/Humidity Sensor/Stopwatch	25223-01	04/30/13

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.

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

Photometric and Electrical Measurements – Distribution Method

XENM3 PT 2 LED 63 450 NW UE XINM3 PT 2 LED 63 450 NW UE XLXM3 PT 2 LED 63 450 NW UE							
Intertek Sample No.	Base Orientation	Input Voltage (VAC)	Input Current (A)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
ITK3239	Horizontal	120.0	0.761	91.0	0.995	5888	65.0

Characteristics

IES Classification	Type II
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5888
Downward Total Efficiency	N.A.
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	65
Total Luminaire Watts	91
Ballast Factor	1.00
Upward Waste Light Ratio	0.01
Max. Cd.	3595.539 (55H, 42.5V)
Max. Cd. (<90 Vert.)	3595.539 (55H, 42.5V)
Max. Cd. (At 90 Deg. Vert.)	9.001 (0.2%Lum)
Max. Cd. (80 to <90 Deg. Vert.)	369.055 (6.3%Lum)
Cutoff Classification (deprecated)	N.A. (absolute)

Lum. Classification System (LCS)

LCS Zone	Lumens	%Lamp	%Lum
FL (0-30)	437.9	N.A.	7.4
FM (30-60)	2310.3	N.A.	39.2
FH (60-80)	905.8	N.A.	15.4
FVH (80-90)	22.0	N.A.	0.4
BL (0-30)	334.9	N.A.	5.7
BM (30-60)	1320.3	N.A.	22.4
BH (60-80)	506.9	N.A.	8.6
BVH (80-90)	15.5	N.A.	0.3
UL (90-100)	6.2	N.A.	0.1
UH (100-180)	28.6	N.A.	0.5
Total	5888.4	N.A.	100.0
BUG Rating	B2-U2-G2		

RESULTS OF TESTS (cont'd)

Intensity (Candlepower) Summary

	0	5	15	25	35	45	55	57	65	75	85	90
0	760	760	760	760	760	760	760	760	760	760	760	760
2.5	735	725	735	753	765	761	751	750	748	747	749	745
5	711	703	705	696	688	697	690	691	736	727	728	716
7.5	724	715	707	730	704	670	653	650	679	695	656	670
10	757	748	775	756	714	702	661	655	678	633	668	681
12.5	870	860	899	835	776	760	684	679	717	680	740	722
15	914	903	945	896	859	832	779	778	719	704	729	736
17.5	959	950	1023	965	942	893	831	818	749	713	783	767
20	1010	1012	1110	1059	1003	958	888	875	878	835	895	905
22.5	1102	1173	1262	1177	1118	1020	1021	1015	978	934	971	977
25	1213	1402	1427	1324	1255	1181	1158	1173	1161	1022	1019	1022
27.5	1311	1599	1626	1523	1360	1278	1320	1312	1285	1105	1069	1097
30	1360	1713	1763	1678	1505	1538	1483	1486	1487	1349	1336	1359
32.5	1302	1691	1813	1772	1614	1784	1786	1786	1837	1807	1783	1732
35	1130	1529	1665	1637	1867	2128	2257	2243	2315	2405	2130	2125
37.5	995	1352	1435	1377	1922	2602	2842	2859	2854	2708	2286	2231
40	926	1254	1318	1209	1812	2960	3412	3411	3101	2762	2281	2191
42.5	855	1174	1234	1167	1774	2953	3596	3594	3222	2739	2224	2129
44	805	1114	1182	1162	1833	2762	3580	3587	3246	2706	2166	2044
45	785	1097	1163	1164	1863	2699	3548	3568	3253	2696	2134	2007
47.5	724	1016	1084	1167	1950	2550	3261	3376	3237	2620	2048	1890
50	660	930	1002	1192	2015	2438	2846	3004	3197	2604	2045	1863
52.5	586	831	934	1220	2007	2285	2564	2676	3226	2659	2128	1933
55	508	723	886	1289	1863	2108	2525	2611	3199	2837	2312	2071
57.5	349	496	735	1311	1636	1930	2581	2682	3107	3005	2454	2174
60	169	230	414	984	1393	1796	2598	2711	2965	2953	2385	2127
62.5	86	100	202	430	977	1742	2514	2608	2824	2731	2193	1962
65	52	67	123	214	516	1618	2321	2387	2654	2526	1949	1731
67.5	36	44	94	156	405	1212	2010	2064	2382	2231	1735	1540
70	29	32	75	117	345	935	1453	1558	1960	1869	1539	1348
72.5	24	27	50	90	244	667	869	935	1444	1407	1134	984
75	21	23	37	79	190	364	581	615	845	1014	876	745
77.5	17	18	28	50	133	212	282	324	489	692	602	548
80	13	14	18	30	57	82	104	117	265	369	310	292
82.5	10	11	14	17	24	30	34	38	86	179	153	126
85	9	9	10	11	15	17	19	20	21	39	51	48
87.5	7	7	8	7	10	11	11	11	10	9	8	7
90	6	7	7	7	8	9	8	8	7	6	6	4

RESULTS OF TESTS (cont'd)

	0	5	15	25	35	45	55	57	65	75	85	90
92.5	6	6	7	6	8	8	8	8	7	6	5	4
95	6	6	6	6	7	7	7	7	6	5	5	4
97.5	6	6	6	5	6	6	5	5	5	5	5	5
100	6	6	6	5	5	5	5	5	4	4	4	4
102.5	6	6	6	5	5	5	4	4	4	4	4	4
105	5	6	6	5	5	5	4	4	4	4	4	4
107.5	6	6	6	5	5	5	4	4	4	3	4	4
110	6	6	6	6	6	5	4	5	3	4	4	4
112.5	6	6	6	6	6	5	5	5	4	4	4	4
115	6	6	6	6	6	6	5	5	4	5	4	5
117.5	6	7	7	6	6	6	5	5	5	5	5	5
120	7	7	7	7	6	6	5	5	5	5	5	5
122.5	7	7	7	7	7	6	6	6	5	5	6	6
125	7	7	7	7	7	6	6	6	6	5	6	6
127.5	8	7	8	8	7	7	6	6	6	6	6	6
130	8	8	8	8	8	7	6	6	6	6	6	6
132.5	8	8	9	8	8	7	6	6	6	6	6	6
135	8	8	8	7	7	6	6	6	5	6	6	6
137.5	7	6	6	6	6	5	5	5	4	5	5	5
140	6	6	6	5	5	4	4	4	3	3	3	4
142.5	6	6	5	5	5	4	4	3	3	3	4	3
145	6	6	6	5	5	4	3	3	3	3	3	3
147.5	6	6	6	5	5	4	3	3	3	3	3	3
150	5	6	6	6	5	4	3	4	3	3	3	3
152.5	6	6	6	5	5	5	4	3	3	3	3	3
155	6	6	6	6	5	4	4	3	3	3	3	3
157.5	6	6	6	6	5	5	4	4	3	3	3	3
160	7	6	6	5	5	4	4	4	3	3	3	3
162.5	6	6	6	6	5	4	4	3	3	3	3	3
165	6	6	6	5	5	4	4	3	3	3	3	3
167.5	7	6	6	6	5	5	4	3	3	3	3	3
170	7	6	6	5	5	5	3	3	3	2	3	3
172.5	6	6	6	6	5	4	3	3	3	2	3	2
175	6	6	6	5	5	4	3	3	3	2	2	2
177.5	6	6	5	5	5	4	3	3	2	2	2	2
180	4	4	4	4	4	4	4	4	4	4	4	4

RESULTS OF TESTS (cont'd)

	95	105	115	125	135	145	155	165	175	180
0	760	760	760	760	760	760	760	760	760	760
2.5	743	747	761	767	763	761	752	749	745	747
5	697	690	680	725	724	744	751	769	771	773
7.5	657	683	670	693	666	651	674	732	778	780
10	672	672	670	653	635	672	678	740	778	790
12.5	693	702	692	704	673	685	668	679	752	769
15	714	747	731	707	683	703	717	719	737	789
17.5	787	789	771	735	707	703	695	690	707	758
20	900	909	833	750	751	727	732	741	737	751
22.5	974	919	857	831	771	749	726	747	744	712
25	1008	935	878	862	812	773	777	780	766	769
27.5	1082	1036	937	875	850	800	792	772	782	777
30	1312	1172	1031	907	852	837	806	809	840	838
32.5	1647	1458	1237	977	894	825	823	848	865	870
35	2050	1765	1459	1159	924	849	871	873	901	919
37.5	2128	1940	1700	1358	1032	878	878	868	927	933
40	2107	1972	1829	1565	1199	947	880	843	873	876
42.5	2025	1944	1887	1684	1394	1043	836	732	704	698
44	1941	1895	1909	1729	1480	1107	752	591	544	536
45	1913	1878	1913	1735	1509	1123	707	536	483	473
47.5	1812	1802	1865	1744	1575	1118	547	334	276	269
50	1788	1736	1809	1698	1524	951	384	192	148	143
52.5	1846	1748	1772	1640	1245	637	257	164	122	117
55	1957	1851	1782	1569	860	360	193	163	112	106
57.5	2003	1981	1868	1413	488	236	166	175	114	109
60	1936	2001	1967	1207	316	200	167	177	119	117
62.5	1783	1887	1938	1002	297	191	178	133	123	126
65	1576	1689	1657	805	285	200	197	141	121	125
67.5	1395	1465	1201	604	253	219	221	166	96	99
70	1236	1260	815	379	203	220	190	184	65	64
72.5	887	926	569	241	159	157	152	191	41	39
75	707	646	354	171	107	106	99	111	31	29
77.5	535	429	203	97	63	108	62	41	21	20
80	287	185	82	57	46	73	47	35	15	13
82.5	117	51	39	37	29	34	23	18	11	11
85	46	16	19	17	14	17	11	10	9	9
87.5	7	7	7	7	7	8	8	7	7	8
90	5	5	5	5	6	6	6	7	7	6

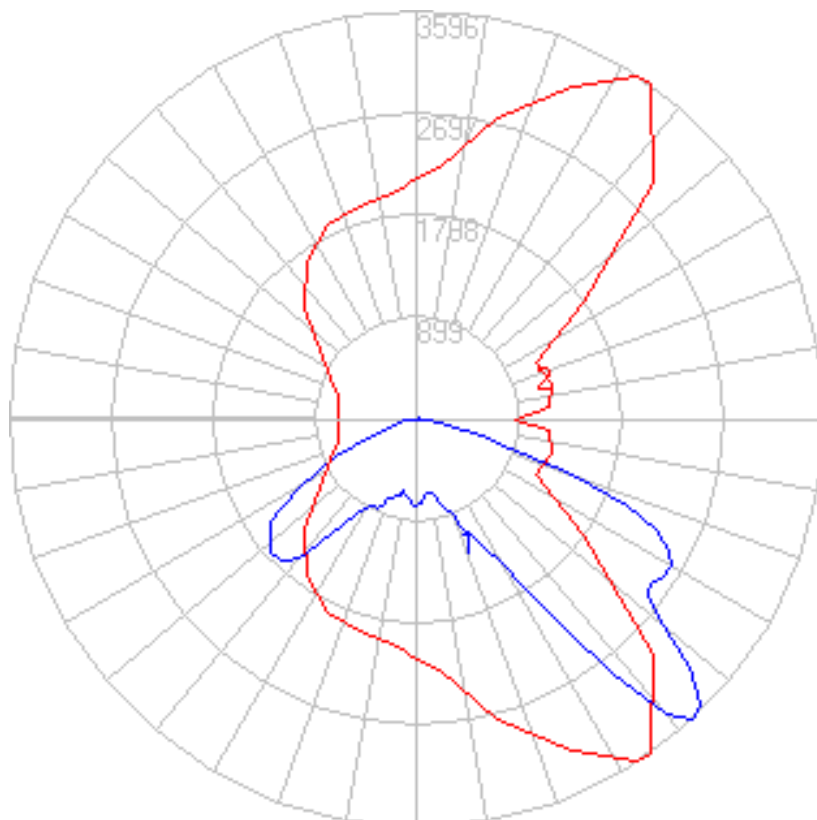


RESULTS OF TESTS (cont'd)

	95	105	115	125	135	145	155	165	175	180
92.5	5	5	5	5	5	6	6	6	6	7
95	4	5	5	5	5	5	6	6	6	6
97.5	4	5	4	5	5	5	6	6	6	5
100	4	5	5	5	5	5	6	5	5	5
102.5	4	5	5	5	5	5	5	5	5	5
105	4	4	5	5	5	6	6	5	5	5
107.5	4	4	5	5	6	6	6	5	5	5
110	4	5	5	6	6	6	6	5	5	5
112.5	4	5	5	6	6	6	6	6	5	5
115	5	5	5	6	6	6	6	6	6	5
117.5	5	6	6	6	7	6	6	6	6	6
120	6	6	6	6	7	7	6	6	6	6
122.5	6	6	6	7	8	7	7	6	6	6
125	6	6	6	7	8	8	7	7	7	7
127.5	7	7	6	7	8	8	8	7	7	7
130	6	7	7	8	8	8	7	7	7	7
132.5	6	7	7	8	8	8	8	8	7	7
135	6	7	6	7	8	8	8	8	8	7
137.5	5	5	6	6	7	7	7	7	7	7
140	4	4	5	5	6	6	6	6	6	6
142.5	4	4	4	5	6	6	6	6	6	6
145	3	4	5	5	6	6	6	6	5	5
147.5	3	4	4	5	6	6	6	6	5	6
150	3	4	4	5	5	6	6	6	6	5
152.5	3	4	4	5	5	6	6	6	6	6
155	3	4	4	5	6	6	6	6	6	6
157.5	3	4	4	5	5	6	6	6	6	6
160	3	4	4	5	6	6	6	6	6	6
162.5	3	4	4	5	5	6	6	6	6	6
165	3	3	4	5	5	5	5	5	6	5
167.5	3	3	4	5	5	5	6	5	5	5
170	3	3	4	4	5	5	5	6	5	6
172.5	3	3	3	4	5	5	5	5	5	5
175	2	2	3	4	4	5	5	5	5	5
177.5	2	3	3	3	4	4	5	5	5	5
180	4	4	4	4	4	4	4	4	4	4

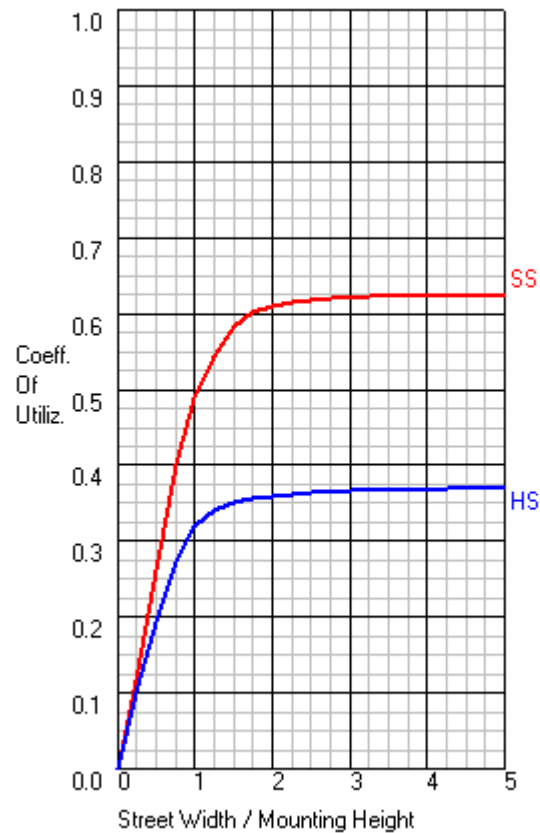
RESULTS OF TESTS (cont'd)

Polar Candela Distribution:



RESULTS OF TESTS (cont'd)

CU Graph:

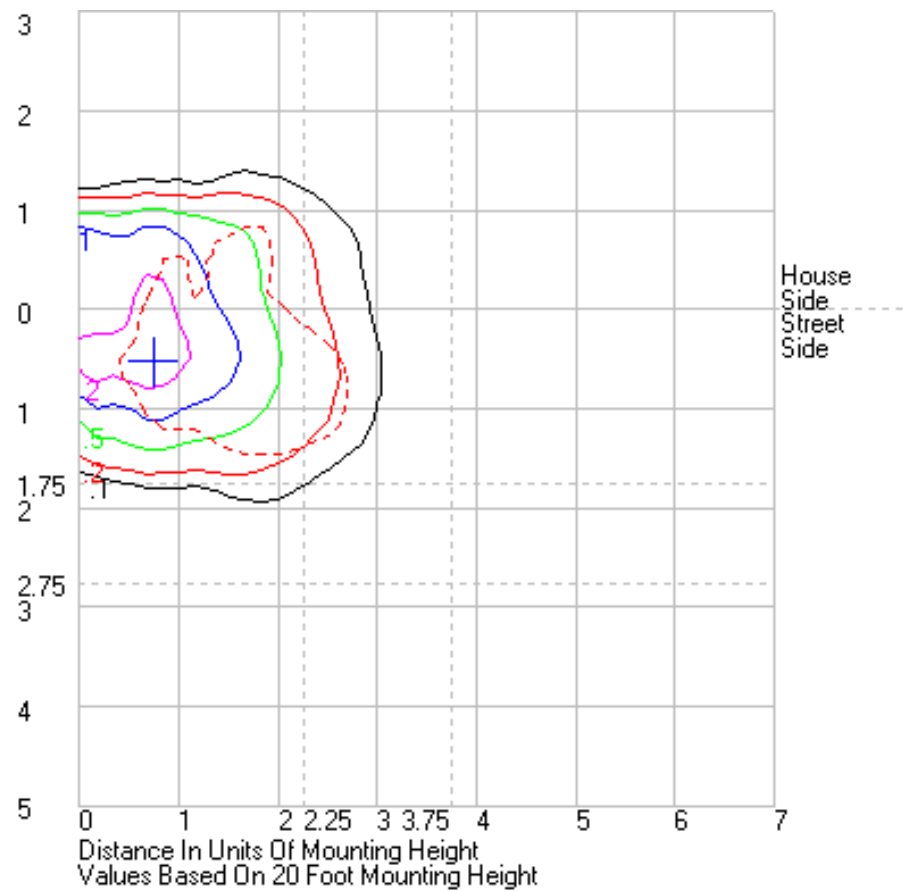


Flux Distribution

	Lumens	Percent Of Luminaire
Downward Street Side	3676.1	62.4
Downward House Side	2177.5	37.0
Downward Total	5853.6	99.4
Upward Street Side	17.0	0.3
Upward House Side	17.8	0.3
Upward Total	34.8	0.6
Total Flux	5888.4	100.0

RESULTS OF TESTS (cont'd)

Isolines:





Tested By:

Kyle McAllister

Handwritten signature of Kyle McAllister in blue ink.

Report Reviewed By:

Jeffrey Davis

Handwritten signature of Jeffrey Davis in black ink.

Senior Associate Engineer
Commercial & Electrical

David Ellis

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Senior Project Engineer
Lighting Division

Attachment: None