



## REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G100639410  
Client Ref. No. PH-0147

Date: May 15, 2012

REPORT NO. 100639410CRT-098

TEST OF ONE LED LUMINAIRE

FIXTURE CATALOG NO.

XENM3 PT FT LED 63 450 NW UE  
XINM3 PT FT LED 63 450 NW UE  
XLXM3 PT FT 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 3, 2012

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## SUMMARY:

Model No.:
XENM3 PT FT LED 63 450 NW UE
XINM3 PT FT LED 63 450 NW UE
XLXM3 PT FT 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	6362
Input Voltage (V)	119.9
Total Power (W)	90.8
Luminaire Efficacy	70.0
Power Factor	0.995
Driver Output Current (A)	0.447
THD <sub>A</sub>	8.8%

## Additional Reporting

Test Room Ambient Conditions	24.6 C and 43% RH
Total Luminaire Stabilization Time	47 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 FT LED 63 450 NW UE							
XINM3 PT FT LED 63 450 NW UE							
XLXM3 PT FT 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)
ITK3232	Horizontal	119.9	0.761	90.8	0.995	6362	70.0

#### Characteristics

IES Classification	Type IV
Longitudinal Classification	Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	6362
Downward Total Efficiency	N.A.
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	70
Total Luminaire Watts	91
Ballast Factor	1.00
Upward Waste Light Ratio	0.06
Max. Cd.	3323.478 (30H, 65V)
Max. Cd. (<90 Vert.)	3323.478 (30H, 65V)
Max. Cd. (At 90 Deg. Vert.)	66.989 (1.1%Lum)
Max. Cd. (80 to <90 Deg. Vert.)	669.895 (10.5%Lum)
Cutoff Classification (deprecated)	N.A. (absolute)

#### Lum. Classification System (LCS)

LCS Zone	Lumens	%Lamp	%Lum
FL (0-30)	569.5	N.A.	9.0
FM (30-60)	2151.1	N.A.	33.8
FH (60-80)	1612.0	N.A.	25.3
FVH (80-90)	76.2	N.A.	1.2
BL (0-30)	470.4	N.A.	7.4
BM (30-60)	821.3	N.A.	12.9
BH (60-80)	251.5	N.A.	4.0
BVH (80-90)	40.3	N.A.	0.6
UL (90-100)	65.0	N.A.	1.0
UH (100-180)	304.8	N.A.	4.8
Total	6362.1	N.A.	100.0
BUG Rating	B1-U3-G1		



## RESULTS OF TESTS (cont'd)

### Intensity (Candlepower) Summary

	0	5	15	25	30	35	45	55	65	75	85	90
0.0	1306	1306	1306	1306	1306	1306	1306	1306	1306	1306	1306	1306
2.5	1308	1311	1312	1318	1315	1309	1301	1279	1262	1254	1257	1260
5.0	1211	1213	1207	1189	1221	1220	1223	1234	1288	1299	1288	1274
7.5	1157	1150	1114	1199	1206	1226	1253	1224	1260	1275	1272	1268
10.0	1115	1119	1194	1218	1233	1238	1253	1217	1218	1167	1203	1213
12.5	1180	1153	1197	1253	1264	1207	1227	1148	1175	1150	1234	1214
15.0	1129	1140	1238	1260	1275	1253	1186	1146	1150	1175	1245	1243
17.5	1157	1128	1271	1236	1240	1203	1125	1152	1206	1275	1409	1380
20.0	1135	1200	1285	1287	1204	1150	1112	1193	1314	1419	1529	1528
22.5	1186	1240	1356	1281	1201	1148	1150	1272	1430	1580	1732	1709
25.0	1186	1305	1356	1241	1214	1172	1248	1353	1601	1804	1958	1925
27.5	1240	1367	1430	1262	1230	1241	1281	1447	1735	1997	2210	2152
30.0	1231	1407	1433	1288	1279	1274	1384	1586	1838	2176	2444	2428
32.5	1271	1448	1453	1319	1323	1333	1515	1723	1987	2267	2576	2514
35.0	1268	1494	1484	1356	1323	1430	1668	1898	2004	2291	2655	2630
37.5	1277	1505	1472	1377	1409	1566	1809	1976	2051	2247	2576	2559
40.0	1305	1539	1474	1404	1525	1698	1946	2023	2002	2128	2377	2423
42.5	1365	1597	1531	1464	1604	1793	2034	2004	1933	1999	2223	2284
45.0	1382	1628	1565	1572	1714	1867	2030	1950	1874	1912	2132	2197
47.5	1444	1692	1599	1694	1843	1958	1959	1880	1833	1860	2067	2106
50.0	1583	1871	1777	1819	1923	1989	1921	1821	1801	1830	2024	2045
52.5	1563	1854	1828	2058	2081	1980	1888	1784	1787	1828	2003	2017
55.0	1731	2030	1857	2068	2193	2119	1868	1782	1793	1838	1965	1992
57.5	2057	2441	2260	2295	2189	2101	1956	1807	1775	1824	1857	1889
60.0	2343	2750	2664	2725	2609	2258	2021	1813	1721	1759	1750	1776
62.5	2497	2908	2955	3142	3013	2701	2072	1840	1606	1637	1587	1592
65.0	2250	2607	2853	3291	3323	3150	2441	1777	1477	1462	1451	1441
66.0	1994	2309	2556	3114	3306	3301	2614	1733	1363	1325	1362	1312
67.5	1844	2098	2297	2865	3149	3303	2810	1796	1346	1288	1277	1284
70.0	1353	1514	1687	2315	2602	2841	2870	1999	1253	1061	960	980
72.5	775	870	940	1611	1960	2166	2356	2080	1118	809	804	792
75.0	397	467	521	945	1126	1288	1560	1643	1070	678	668	638
77.5	224	243	272	557	633	665	858	1092	945	505	484	457
80.0	128	135	148	258	291	306	390	610	670	418	319	292
82.5	88	89	92	115	122	133	167	251	352	271	183	170
85.0	71	65	72	75	74	79	91	121	136	146	121	111
87.5	62	65	62	64	62	65	72	67	68	67	67	65
90.0	62	62	64	57	60	60	60	64	62	57	57	54

# RESULTS OF TESTS (cont'd)

	0	5	15	25	30	35	45	55	65	75	85	90
92.5	60	58	62	67	60	67	62	61	60	55	61	61
95.0	62	62	60	64	62	64	64	60	58	60	55	55
97.5	60	57	60	54	60	64	65	57	57	54	60	61
100.0	60	58	62	60	60	62	58	61	54	60	57	57
102.5	54	60	61	61	60	64	57	61	57	52	57	62
105.0	57	64	60	54	58	57	57	54	57	57	57	62
107.5	57	61	60	60	58	58	55	64	58	54	51	60
110.0	60	60	55	58	58	61	60	58	61	57	60	60
112.5	62	57	60	58	58	61	61	61	57	58	57	58
115.0	62	62	60	60	54	58	60	58	60	55	55	58
117.5	54	61	62	60	61	61	57	55	57	62	62	55
120.0	54	58	62	61	61	58	60	58	62	62	57	60
122.5	60	62	60	60	62	60	61	60	57	58	54	58
125.0	62	61	64	55	55	58	57	60	65	57	58	60
127.5	57	65	57	65	61	62	61	60	61	64	65	62
130.0	65	58	60	57	58	61	61	61	61	61	57	61
132.5	57	58	65	64	58	58	60	55	64	64	61	62
135.0	60	61	58	68	60	55	58	60	58	60	65	57
137.5	60	60	57	52	61	62	58	55	58	61	61	61
140.0	60	61	61	57	55	60	55	60	58	57	64	57
142.5	54	61	60	54	62	52	60	62	58	51	54	58
145.0	60	60	57	61	57	54	60	58	52	62	55	62
147.5	60	55	61	54	61	61	54	61	58	50	55	54
150.0	62	54	58	62	57	57	58	58	61	60	54	58
152.5	57	58	58	54	57	57	60	54	54	57	55	54
155.0	62	52	57	58	60	57	52	60	60	50	60	58
157.5	57	64	58	58	61	55	57	57	60	61	57	57
160.0	62	60	61	61	60	57	57	61	54	61	62	58
162.5	57	65	61	61	57	58	61	60	58	58	55	57
165.0	60	64	57	61	60	54	57	58	55	48	60	57
167.5	57	61	61	58	60	52	60	54	55	57	55	58
170.0	62	60	60	58	62	57	57	55	51	60	58	54
172.5	57	60	64	58	60	61	58	61	54	58	54	54
175.0	54	55	62	61	55	55	57	54	61	48	62	55
177.5	65	54	62	54	61	61	57	64	55	55	58	55
180.0	57	57	57	57	57	57	57	57	57	57	57	57

# RESULTS OF TESTS (cont'd)

	95	105	115	125	135	145	155	165	175	180
0.0	1306	1306	1306	1306	1306	1306	1306	1306	1306	1306
2.5	1272	1295	1298	1284	1284	1297	1301	1318	1322	1316
5.0	1258	1230	1260	1281	1251	1254	1230	1245	1285	1279
7.5	1227	1267	1262	1209	1145	1106	1125	1121	1183	1189
10.0	1189	1216	1173	1138	1125	1139	1084	1116	1136	1132
12.5	1201	1193	1165	1150	1123	1119	1067	1071	1053	1118
15.0	1238	1244	1173	1146	1097	1115	1132	1074	1064	1092
17.5	1386	1297	1192	1148	1082	1091	1034	1001	972	1024
20.0	1540	1420	1285	1186	1116	1028	982	908	879	885
22.5	1675	1471	1312	1228	1072	963	848	777	715	718
25.0	1821	1580	1369	1234	1037	838	691	599	550	542
27.5	2040	1743	1465	1250	956	708	526	434	384	377
30.0	2209	1878	1562	1244	867	580	392	301	272	270
32.5	2333	1956	1641	1189	769	475	289	231	220	216
35.0	2387	1997	1606	1102	655	410	254	201	207	204
37.5	2356	1975	1514	957	543	380	267	204	203	201
40.0	2257	1880	1360	786	464	394	305	216	201	204
42.5	2121	1753	1162	574	437	397	325	223	200	204
45.0	2028	1648	975	423	435	355	272	224	200	201
47.5	1945	1532	782	342	403	315	274	228	187	193
50.0	1889	1413	614	315	353	305	260	207	146	148
52.5	1851	1299	481	285	308	274	223	136	98	102
55.0	1810	1207	413	257	289	217	189	115	95	99
57.5	1732	1106	389	231	248	156	152	116	96	105
60.0	1600	969	379	214	182	139	142	112	102	108
62.5	1420	813	367	196	139	149	125	115	108	105
65.0	1267	650	349	167	148	148	121	109	102	99
66.0	1135	563	318	152	143	145	113	106	98	94
67.5	1098	494	289	143	138	139	112	102	95	94
70.0	845	360	204	139	131	125	102	92	85	85
72.5	631	262	135	136	122	113	96	85	81	79
75.0	464	200	129	119	109	94	85	74	77	74
77.5	326	159	121	112	89	84	74	71	70	71
80.0	223	99	118	94	77	70	75	71	70	68
82.5	136	82	96	72	79	67	62	70	65	74
85.0	84	65	70	64	70	65	68	68	72	68
87.5	57	61	62	60	61	67	67	62	64	62
90.0	60	52	55	58	61	57	67	61	67	65

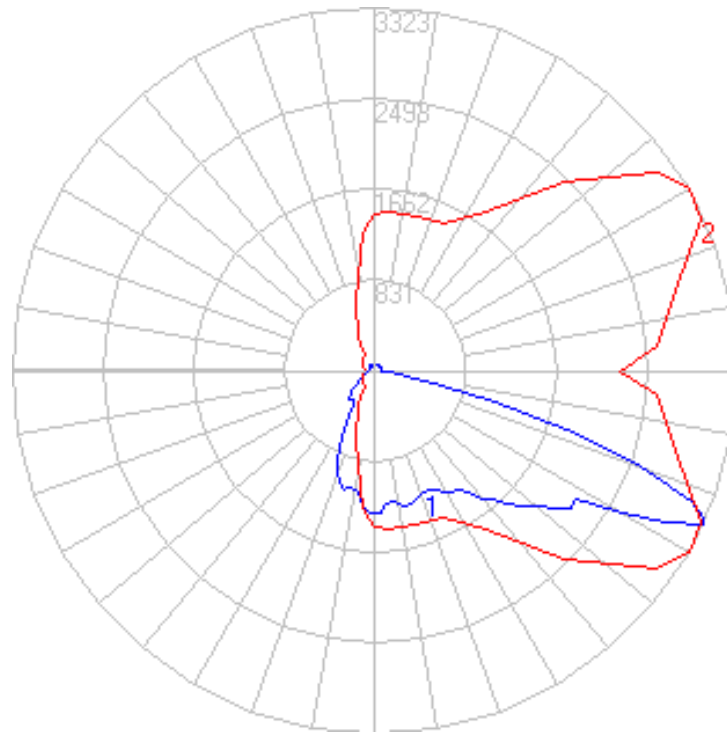


RESULTS OF TESTS (cont'd)

	95	105	115	125	135	145	155	165	175	180
92.5	55	61	57	54	61	61	58	62	64	62
95.0	57	65	60	55	58	58	58	60	58	65
97.5	57	58	61	58	57	61	58	57	61	65
100.0	57	58	58	55	60	62	60	61	58	57
102.5	61	60	57	60	58	60	61	57	61	65
105.0	57	60	57	61	55	61	60	58	57	62
107.5	60	55	58	58	57	57	57	57	60	62
110.0	60	52	60	61	58	58	60	55	58	60
112.5	57	62	58	62	58	57	57	58	64	62
115.0	58	58	58	55	60	60	60	58	58	65
117.5	64	62	55	55	57	57	57	61	60	60
120.0	65	55	61	62	57	61	57	57	61	54
122.5	61	55	61	60	60	61	60	60	58	62
125.0	62	64	62	58	58	61	60	60	60	51
127.5	65	60	57	55	67	61	60	61	57	60
130.0	62	60	58	61	65	61	64	62	61	60
132.5	62	60	58	62	58	57	65	58	62	62
135.0	60	61	54	57	64	60	62	61	62	60
137.5	57	55	61	61	57	58	57	60	57	57
140.0	60	62	61	60	58	57	58	55	57	60
142.5	58	57	60	60	57	54	61	58	51	57
145.0	58	60	52	55	57	64	57	57	58	57
147.5	57	57	61	54	58	57	55	57	55	57
150.0	60	57	61	60	57	61	52	60	52	57
152.5	62	54	57	54	55	57	55	57	57	57
155.0	58	58	52	58	54	57	55	52	58	54
157.5	57	57	61	58	57	55	57	61	60	62
160.0	52	58	58	52	55	55	58	64	58	65
162.5	54	58	61	57	51	58	60	58	60	65
165.0	58	58	58	55	54	52	58	58	57	57
167.5	55	61	57	55	60	55	55	55	57	54
170.0	54	58	54	57	58	58	58	58	55	60
172.5	57	60	54	61	55	52	55	52	57	60
175.0	57	55	60	54	58	58	57	52	54	57
177.5	55	58	60	60	50	54	57	55	54	57
180.0	57	57	57	57	57	57	57	57	57	57

RESULTS OF TESTS (cont'd)

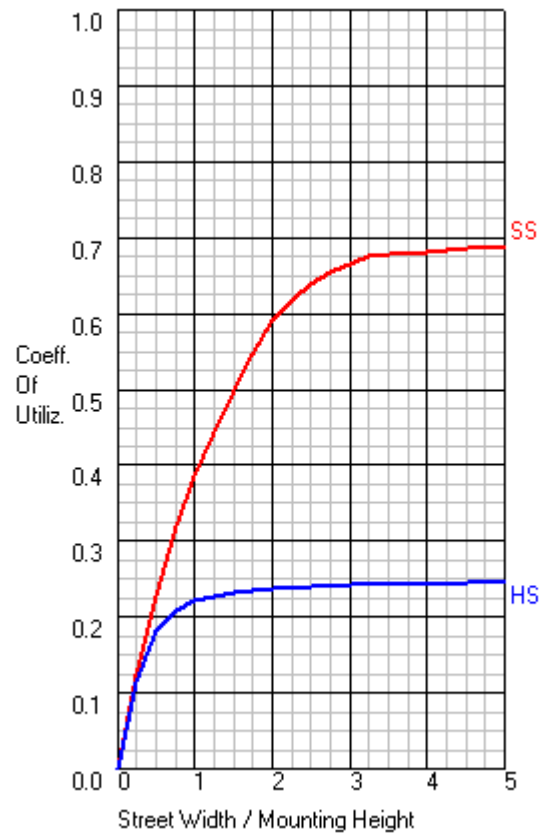
Polar Candela Distribution:





## RESULTS OF TESTS (cont'd)

### CU Graph:

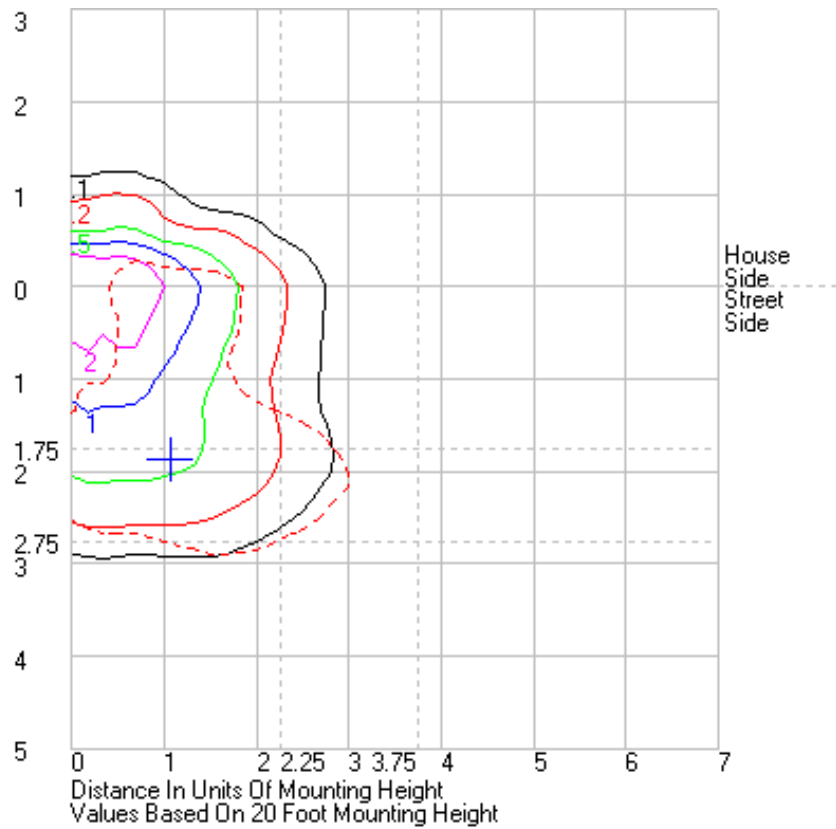


### Flux Distribution

	Lumens	Percent Of Luminaire
Downward Street Side	4408.8	69.3
Downward House Side	1583.4	24.9
Downward Total	5992.2	94.2
Upward Street Side	185.4	2.9
Upward House Side	184.4	2.9
Upward Total	369.8	5.8
Total Flux	6362.0	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

Handwritten signature of David Ellis in black ink.

Senior Project Engineer  
Lighting Division

Attachment: None