REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G100639410 Date: May 15 2012
Client Ref. No. PH-0158

REPORT NO. 100639410CRT-110

TEST OF ONE LED LUMINAIRE

FIXTURE CATALOG NO.

XENM3 PT 3 LED 63 450 NW UE
XINM3 PT 3 LED 63 450 NW UE
XLXM3 PT 3 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

SUMMARY:

Model No.:
XENM3 PT 3 LED 63 450 NW UE
XINM3 PT 3 LED 63 450 NW UE
XLXM3 PT 3 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	5362
Input Voltage (V)	120.0
Total Power (W)	90.7
Luminaire Efficacy	59.0
Power Factor	0.995
Driver Output Current (A)	0.448
THD_A	8.6%

Additional Reporting

Test Room Ambient Conditions	24.4 C and 44% RH
Total Luminaire Stabilization Time	50 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 3 LED 63 450 NW UE
XINM3 PT 3 LED 63 450 NW UE
XLXM3 PT 3 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)
ITK3242	Horizontal	120.0	0.760	90.7	0.995	5362	59.0

Characteristics

IES Classification	Type II
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5362
Downward Total Efficiency	N.A.
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	59
Total Luminaire Watts	91
Ballast Factor	1.00
Upward Waste Light Ratio	0.01
Max. Cd.	3322.369 (0H, 41V)
Max. Cd. (<90 Vert.)	3322.369 (0H, 41V)
Max. Cd. (At 90 Deg. Vert.)	9.998 (0.2%Lum)
Max. Cd. (80 to <90 Deg. Vert.)	626.881 (11.7%Lum)
Cutoff Classification (deprecated)	N.A. (absolute)

Lum. Classification System (LCS)

LCS Zone		Lumens	%Lamp	%Lum
FL	(0-30)	613.1	N.A.	11.4
FM	(30-60)	1939.9	N.A.	36.2
FH	(60-80)	957.0	N.A.	17.8
FVH	(80-90)	51.2	N.A.	1.0
BL	(0-30)	572.2	N.A.	10.7
BM	(30-60)	808.4	N.A.	15.1
BH	(60-80)	353.9	N.A.	6.6
BVH	(80-90)	28.7	N.A.	0.5
UL	(90-100)	6.8	N.A.	0.1
UH	(100-180)	30.9	N.A.	0.6
Total		5362.1	N.A.	100.0
BUG Rating		**B2-U2-G1**		

RESULTS OF TESTS (cont'd)

Intensity (Candlepower) Summary

	0	5	15	25	35	45	55	65	75	85	90
0	1337	1337	1337	1337	1337	1337	1337	1337	1337	1337	1337
2.5	1353	1356	1353	1361	1354	1346	1332	1313	1296	1305	1307
5	1185	1187	1201	1182	1240	1239	1241	1253	1296	1308	1308
7.5	1265	1263	1201	1294	1253	1244	1207	1231	1276	1310	1280
10	1289	1290	1358	1364	1283	1270	1226	1232	1280	1296	1307
12.5	1547	1517	1553	1460	1364	1333	1336	1315	1334	1394	1398
15	1579	1616	1705	1554	1518	1519	1459	1322	1300	1330	1332
17.5	1645	1699	1706	1601	1634	1626	1464	1331	1274	1296	1304
20	1624	1719	1712	1643	1670	1575	1472	1347	1238	1192	1219
22.5	1720	1827	1762	1717	1644	1564	1444	1273	1144	1121	1124
25	1765	1837	1805	1771	1629	1459	1304	1241	1221	1127	1138
27.5	1850	1895	1867	1750	1579	1331	1277	1263	1226	1150	1113
30	2143	2105	2026	1821	1500	1247	1244	1267	1265	1224	1197
32.5	2548	2381	2273	1943	1460	1240	1213	1343	1367	1296	1242
35	2926	2676	2530	2063	1503	1237	1257	1383	1450	1377	1347
37.5	3159	2872	2734	2203	1592	1293	1299	1464	1510	1393	1337
40	3270	2965	2874	2260	1656	1375	1370	1450	1474	1357	1290
41	3322	2961	2860	2168	1669	1495	1391	1416	1454	1339	1266
42.5	3248	2936	2830	2184	1675	1493	1401	1384	1441	1321	1245
45	3141	2840	2660	2036	1683	1583	1414	1347	1417	1308	1228
47.5	3002	2718	2436	1832	1673	1653	1459	1359	1447	1335	1250
50	2821	2555	2202	1652	1639	1679	1531	1450	1481	1390	1278
52.5	2451	2226	1897	1485	1576	1661	1606	1507	1499	1469	1346
55	1976	1789	1527	1299	1475	1599	1639	1559	1578	1547	1451
57.5	1552	1416	1185	1069	1291	1515	1675	1667	1696	1631	1555
60	1341	1189	961	840	1066	1417	1749	1750	1724	1624	1547
62.5	1246	1071	852	709	907	1376	1777	1754	1663	1504	1466
65	1111	935	744	671	875	1376	1709	1731	1583	1378	1381
67.5	986	806	646	647	946	1351	1595	1680	1511	1287	1307
70	799	652	557	636	980	1286	1459	1533	1299	1092	1115
72.5	469	393	390	538	914	1155	1210	1227	1123	945	946
75	89	90	143	328	689	874	934	1041	891	681	661
77.5	62	61	106	225	373	554	729	834	730	543	500
80	47	44	68	148	229	282	442	627	557	398	332
82.5	100	77	61	68	92	118	185	239	227	162	120
85	115	91	66	74	55	35	46	70	98	88	64
87.5	15	16	17	18	14	14	12	12	13	11	10
90	6	6	7	7	7	8	8	7	7	6	6

RESULTS OF TESTS (cont'd)

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

RESULTS OF TESTS (cont'd)

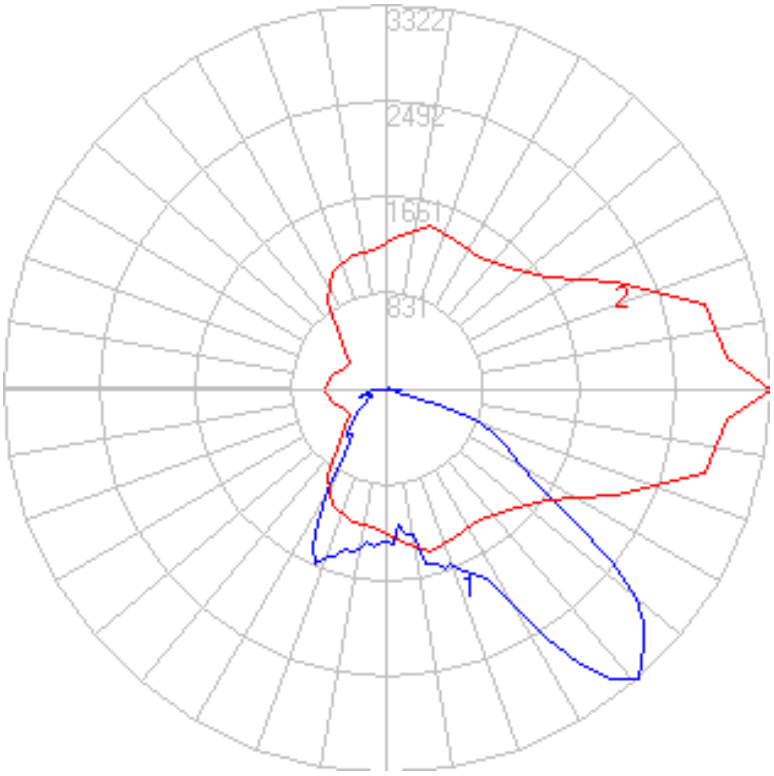
	95	105	115	125	135	145	155	165	175	180
0	1337	1337	1337	1337	1337	1337	1337	1337	1337	1337
2.5	1311	1322	1328	1313	1303	1316	1317	1326	1334	1330
5	1314	1251	1284	1319	1324	1344	1326	1327	1379	1377
7.5	1281	1305	1355	1345	1324	1294	1334	1269	1329	1338
10	1310	1325	1361	1292	1338	1346	1372	1359	1375	1419
12.5	1411	1397	1420	1409	1394	1416	1385	1448	1388	1442
15	1385	1423	1469	1430	1465	1470	1505	1474	1516	1449
17.5	1347	1394	1438	1466	1487	1495	1527	1531	1496	1525
20	1268	1320	1330	1450	1517	1561	1507	1539	1602	1537
22.5	1149	1168	1206	1318	1490	1566	1617	1612	1589	1636
25	1150	1126	1134	1204	1403	1540	1563	1544	1535	1501
27.5	1124	1118	1066	1159	1260	1454	1439	1353	1288	1305
30	1201	1150	1088	1082	1195	1267	1181	1087	1037	1028
32.5	1220	1209	1092	1098	1041	997	902	795	741	741
35	1314	1252	1168	1076	907	751	645	576	548	552
37.5	1301	1264	1173	1024	763	556	469	487	505	508
40	1242	1227	1152	947	620	425	412	488	527	538
41	1213	1208	1120	909	549	401	409	485	519	531
42.5	1201	1196	1088	822	492	370	405	471	493	506
45	1191	1174	1006	704	411	358	376	406	417	428
47.5	1197	1146	922	594	378	343	329	351	370	377
50	1213	1131	829	510	370	320	294	311	332	333
52.5	1263	1122	777	455	365	293	264	285	313	310
55	1339	1162	777	451	344	279	247	258	281	276
57.5	1394	1193	803	475	319	266	212	200	208	199
60	1403	1196	800	468	297	231	178	160	163	169
62.5	1351	1144	750	427	263	191	158	148	160	162
65	1270	1054	652	360	236	165	148	139	143	144
67.5	1174	900	491	271	206	153	135	134	144	149
70	988	701	366	231	181	146	143	153	151	155
72.5	797	536	261	190	158	150	141	150	159	167
75	575	371	185	147	145	146	165	200	235	257
77.5	403	231	127	114	123	202	237	183	154	165
80	243	122	82	82	128	151	121	104	114	116
82.5	83	55	55	52	63	77	91	111	134	121
85	43	23	23	24	30	41	61	80	81	79
87.5	10	10	10	11	13	15	21	28	29	31
90	6	6	6	6	7	7	7	9	10	9

RESULTS OF TESTS (cont'd)

	95	105	115	125	135	145	155	165	175	180
92.5	6	6	6	6	6	6	7	8	8	9
95	6	6	5	6	6	6	7	8	8	8
97.5	6	5	5	6	6	6	6	7	7	7
100	5	5	6	5	5	5	6	6	6	6
102.5	5	5	5	6	6	5	5	6	6	6
105	5	5	5	5	5	5	5	6	5	6
107.5	5	5	5	5	5	5	5	5	6	5
110	6	6	6	5	5	5	5	6	6	6
112.5	6	6	6	6	5	5	5	6	6	6
115	6	6	6	6	6	6	6	6	6	6
117.5	6	7	7	6	6	6	6	7	6	6
120	7	7	7	7	6	6	7	7	7	7
122.5	7	8	7	7	7	7	7	7	7	7
125	8	8	8	7	8	8	8	8	7	8
127.5	8	8	8	8	8	8	8	8	8	7
130	9	8	8	8	8	8	8	8	8	8
132.5	9	9	8	8	8	9	9	9	9	9
135	9	9	8	8	9	9	9	9	9	9
137.5	7	7	7	7	8	8	8	8	8	8
140	5	5	5	5	5	6	6	5	6	6
142.5	4	5	5	5	5	5	5	5	5	5
145	5	5	5	5	5	5	5	5	5	5
147.5	5	5	5	5	5	5	5	5	5	5
150	5	5	5	5	5	5	5	5	5	5
152.5	5	5	5	5	5	5	5	5	6	5
155	5	5	5	5	5	5	6	5	5	5
157.5	5	5	5	5	5	6	6	5	5	5
160	5	5	6	6	6	6	5	5	5	5
162.5	5	5	6	5	5	5	5	5	5	5
165	5	5	5	5	5	5	5	5	5	5
167.5	5	5	5	5	5	5	5	5	5	5
170	5	5	5	5	5	5	5	5	5	5
172.5	5	5	5	5	5	5	5	5	5	5
175	5	5	5	5	5	5	5	5	4	4
177.5	5	5	5	4	5	4	4	4	4	4
180	4	4	4	4	4	4	4	4	4	4

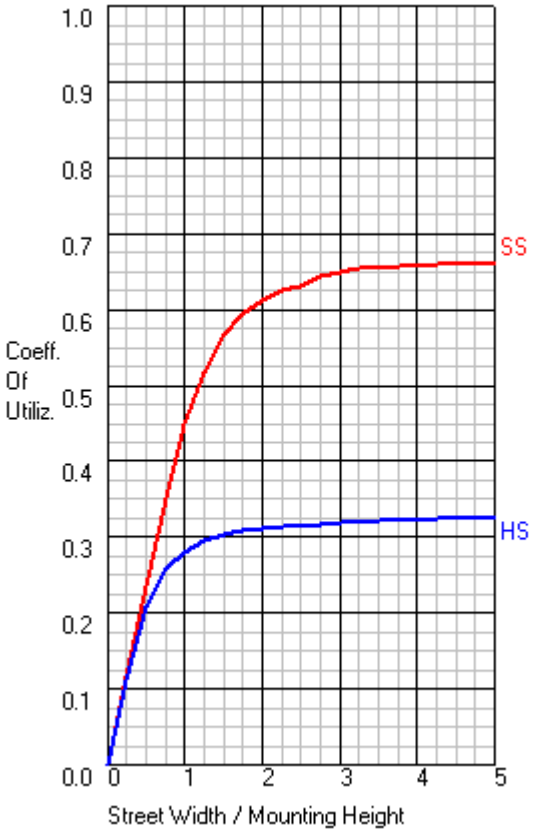
RESULTS OF TESTS (cont'd)

Polar Candela Distribution:



RESULTS OF TESTS (cont'd)

CU Graph:

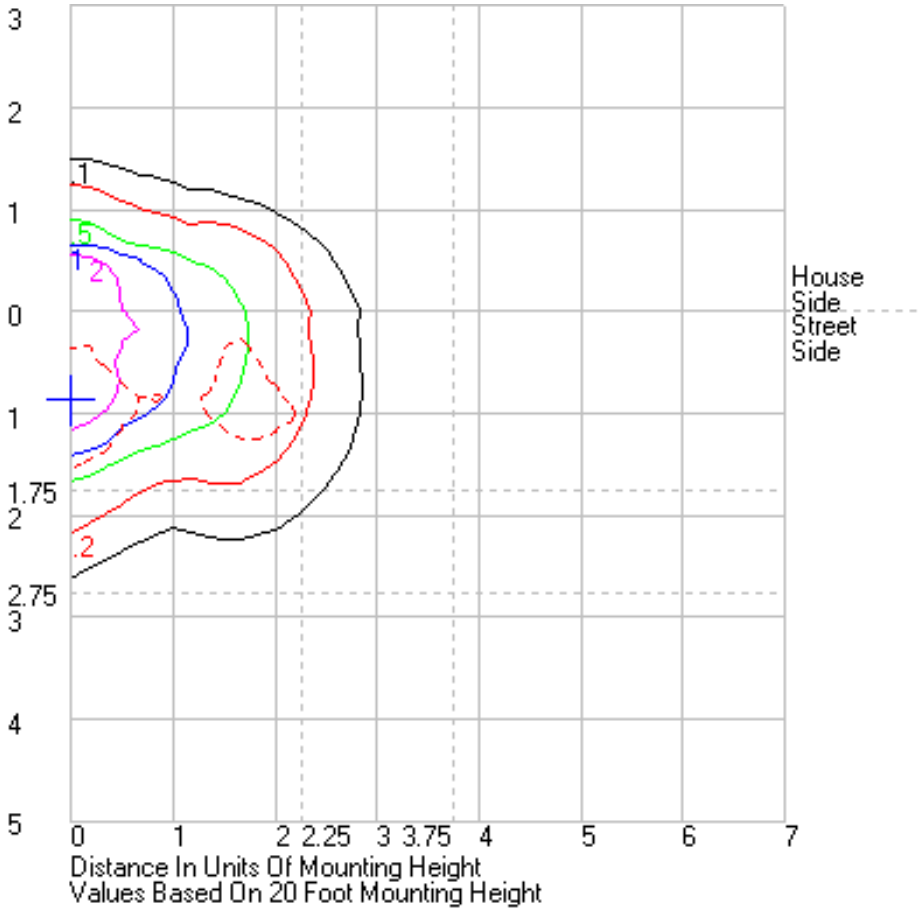


Flux Distribution

	Lumens	Percent Of Luminaire
Downward Street Side	3561.2	66.4
Downward House Side	1763.2	32.9
Downward Total	5324.4	99.3
Upward Street Side	18.3	0.3
Upward House Side	19.4	0.4
Upward Total	37.7	0.7
Total Flux	5362.1	100.0

RESULTS OF TESTS (cont'd)

Isolines:



PHOTOGRAPH(S)

Tested By:

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Attachment: None