



REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G100639410
Client Ref. No. PH-0150

Date: May 15, 2012

REPORT NO. 100639410CRT-102

TEST OF ONE LED LUMINAIRE

FIXTURE CATALOG NO.

XENM3 PT 5 LED 63 450 NW UE
XINM3 PT 5 LED 63 450 NW UE
XLXM3 PT 5 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 5 LED 63 450 NW UE
XINM3 PT 5 LED 63 450 NW UE
XLXM3 PT 5 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	4946
Input Voltage (V)	120.0
Total Power (W)	90.7
Luminaire Efficacy	54
Power Factor	0.995
Driver Output Current (A)	0.448
THD _A	8.6%

Additional Reporting

Test Room Ambient Conditions	24.6 C and 40% RH
Total Luminaire Stabilization Time	48 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	VBV
Yokogawa WT-230 Power Analyzer	91KA35031	12/31/12
High Speed Moving Mirror Goniophotometer	---	VBV
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

Intertek Sample No.	Base Orientation	XENM3 PT 5 LED 63 450 NW UE					
		XINM3 PT 5 LED 63 450 NW UE					
		XLXM3 PT 5 LED 63 450 NW UE					
		Input Voltage (VAC)	Input Current (A)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
ITK3235	Horizontal	120.0	0.760	90.7	0.995	4946	54

Characteristics

IES Classification	Type VS
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4946
Downward Total Efficiency	N.A.
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	54
Total Luminaire Watts	91
Ballast Factor	1.00
Upward Waste Light Ratio	0.01
Max. Cd.	1648.313 (45H, 47.5V)
Max. Cd. (<90 Vert.)	1648.313 (45H, 47.5V)
Max. Cd. (At 90 Deg. Vert.)	22.004 (0.4%Lum)
Max. Cd. (80 to <90 Deg. Vert.)	467.089 (9.4%Lum)
Cutoff Classification (deprecated)	N.A. (absolute)

Lum. Classification System (LCS)

LCS Zone	Lumens	%Lamp	%Lum
FL (0-30)	208.3	N.A.	4.2
FM (30-60)	1348.7	N.A.	27.3
FH (60-80)	912.6	N.A.	18.4
FVH (80-90)	52.5	N.A.	1.1
BL (0-30)	188.2	N.A.	3.8
BM (30-60)	1196.8	N.A.	24.2
BH (60-80)	898.7	N.A.	18.2
BVH (80-90)	68.8	N.A.	1.4
UL (90-100)	12.2	N.A.	0.2
UH (100-180)	59.5	N.A.	1.2
Total	4946.3	N.A.	100.0
BUG Rating	B2-U3-G1		

RESULTS OF TESTS (cont'd)

Intensity (Candlepower) Summary

	0	5	15	25	35	45	55	65	75	85	90
0	162	162	162	162	162	162	162	162	162	162	162
2.5	173	174	172	172	170	169	168	167	165	163	162
5	193	192	192	189	200	200	190	186	178	174	171
7.5	216	218	222	227	230	231	228	213	193	185	181
10	270	276	285	292	289	273	267	257	216	192	188
12.5	331	333	345	378	388	391	362	305	254	210	201
15	389	395	429	436	461	458	432	366	285	234	218
17.5	407	426	493	528	560	536	480	414	327	261	239
20	424	448	526	573	604	606	578	519	420	320	291
22.5	436	470	565	610	637	671	666	627	484	347	306
25	484	519	621	644	657	722	735	651	508	380	332
27.5	533	564	642	699	715	725	744	682	588	442	396
30	669	682	691	731	744	763	793	793	771	590	542
32.5	788	817	857	831	772	776	871	970	891	723	664
35	913	977	1007	944	888	833	1010	1110	1149	1011	937
37.5	971	1069	1130	1082	1039	1000	1101	1316	1335	1105	1041
40	996	1121	1179	1172	1185	1208	1270	1427	1373	1117	1056
42.5	970	1109	1181	1247	1300	1387	1424	1435	1283	1075	1006
45	945	1076	1166	1224	1394	1564	1521	1328	1230	1058	983
47.5	935	1070	1134	1205	1459	1648	1496	1281	1198	1029	957
50	933	1046	1098	1202	1510	1625	1474	1271	1133	966	901
52.5	917	1022	1073	1199	1542	1515	1471	1255	1093	936	869
55	907	1008	1064	1232	1526	1435	1420	1299	1097	921	851
57.5	888	1002	1043	1288	1444	1363	1355	1354	1136	930	852
60	915	1026	1046	1327	1363	1286	1296	1396	1213	958	883
62.5	931	1037	1044	1332	1290	1229	1257	1415	1252	1010	939
65	830	933	968	1275	1237	1193	1219	1363	1281	1049	977
67.5	673	748	865	1113	1175	1201	1174	1297	1256	1034	980
70	549	610	788	937	1065	1187	1142	1166	1157	917	868
72.5	429	483	641	761	898	1073	1068	906	912	710	666
75	318	355	455	575	721	867	851	765	802	621	597
77.5	183	204	283	407	526	606	690	623	588	494	468
80	78	102	158	250	333	418	466	450	382	315	286
82.5	48	70	111	144	167	187	192	186	156	97	77
85	46	39	60	78	56	54	41	64	69	34	28
87.5	7	15	28	17	18	14	19	25	29	22	21
90	20	11	12	16	14	10	8	15	22	22	13

RESULTS OF TESTS (cont'd)

	0	5	15	25	35	45	55	65	75	85	90
92.5	18	13	16	0	8	6	18	18	20	19	13
95	0	14	11	9	3	11	5	4	4	8	4
97.5	9	13	8	10	23	12	14	3	13	6	6
100	10	7	12	10	11	7	18	15	21	9	12
102.5	3	20	21	14	14	20	4	10	10	18	0
105	20	22	12	11	11	9	22	17	6	8	11
107.5	6	11	13	12	16	7	17	13	6	10	6
110	1	17	2	18	3	6	4	13	14	17	12
112.5	5	11	9	16	15	20	3	20	5	17	11
115	7	4	24	17	18	14	14	19	19	11	9
117.5	9	4	17	12	11	2	10	18	2	6	10
120	4	5	8	13	13	2	21	11	18	13	9
122.5	21	8	16	15	12	7	18	13	13	6	7
125	8	4	16	17	14	21	12	18	14	11	16
127.5	12	5	23	20	17	6	11	13	6	4	8
130	21	18	6	17	11	15	22	4	19	14	14
132.5	7	17	7	16	20	15	13	13	6	11	5
135	7	17	18	9	14	17	18	11	11	14	11
137.5	17	16	6	6	14	8	13	13	15	12	8
140	4	7	13	8	6	9	21	10	9	7	15
142.5	13	9	9	21	0	13	9	8	17	17	13
145	19	15	13	8	11	10	9	8	5	10	10
147.5	9	13	9	1	10	0	12	14	7	0	18
150	14	13	15	10	8	8	18	18	19	15	17
152.5	1	5	9	7	18	1	13	12	20	8	5
155	21	13	11	13	21	15	11	8	14	15	4
157.5	0	14	6	8	12	12	9	11	11	0	6
160	17	11	12	10	13	0	10	12	14	7	8
162.5	15	12	17	8	6	6	16	2	5	7	7
165	2	19	6	8	2	8	2	4	9	12	16
167.5	20	8	20	8	9	4	9	1	13	15	18
170	10	7	15	9	2	5	8	12	9	9	12
172.5	0	10	5	15	6	11	12	8	8	14	12
175	0	16	15	9	8	2	10	10	4	2	10
177.5	7	14	13	14	1	6	5	13	11	10	7
180	8	8	8	8	8	8	8	8	8	8	8

RESULTS OF TESTS (cont'd)

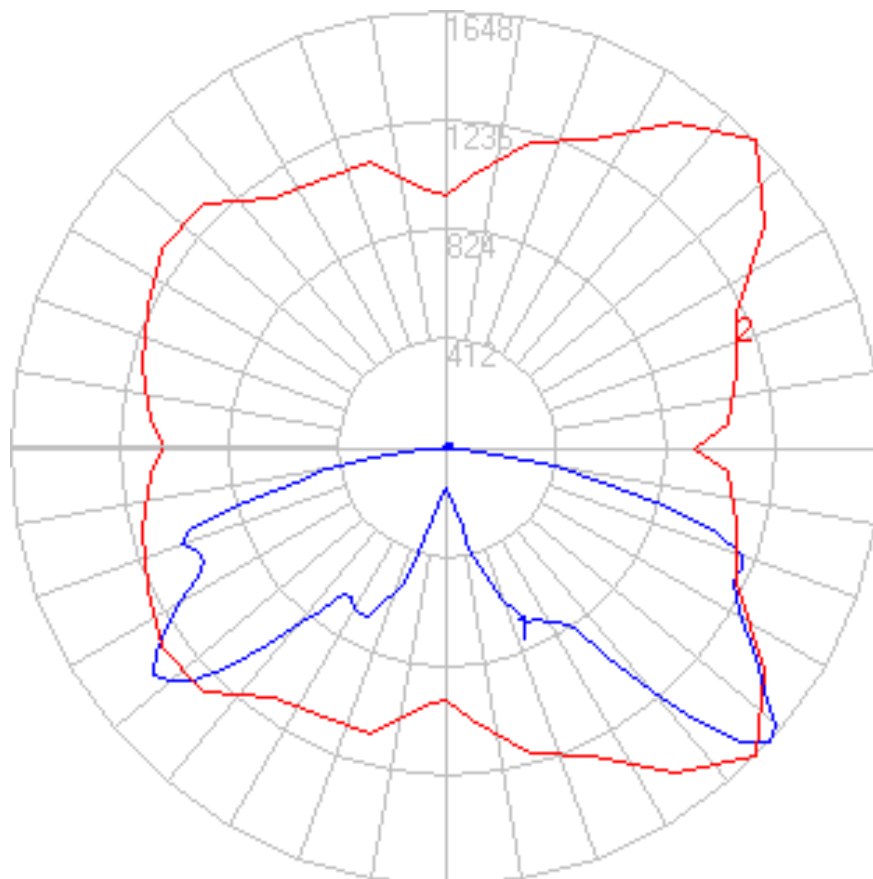
	95	105	115	125	135	145	155	165	175	180
0	162	162	162	162	162	162	162	162	162	162
2.5	161	161	159	157	156	157	158	157	158	159
5	168	167	166	173	176	177	178	179	177	177
7.5	177	177	183	188	187	193	199	205	208	210
10	184	192	204	207	215	222	234	236	245	242
12.5	198	214	225	251	276	301	335	356	362	370
15	217	240	262	323	413	461	442	422	381	387
17.5	243	266	305	462	530	531	479	447	392	392
20	293	319	435	569	586	563	525	476	417	419
22.5	318	359	579	665	638	620	602	544	448	435
25	341	408	637	712	702	651	620	525	400	375
27.5	403	493	675	725	707	659	607	553	400	375
30	551	656	749	718	703	653	632	534	432	423
32.5	670	790	859	799	667	640	624	559	545	548
35	943	1017	953	893	678	626	674	694	703	705
37.5	1056	1203	1134	932	779	695	798	884	910	894
40	1077	1252	1273	1016	861	842	964	1044	1068	1031
42.5	1031	1206	1260	1095	1002	1062	1115	1156	1183	1133
45	1008	1140	1185	1144	1164	1205	1238	1218	1169	1105
47.5	982	1114	1118	1153	1301	1314	1254	1189	1125	1066
50	924	1041	1048	1162	1371	1386	1233	1158	1079	1026
52.5	899	994	1006	1174	1402	1401	1196	1092	1028	984
55	894	969	1025	1202	1344	1350	1149	1027	983	948
57.5	898	985	1067	1209	1248	1265	1116	1014	975	939
60	917	1030	1141	1181	1157	1192	1147	1074	1052	1020
62.5	974	1079	1213	1123	1064	1143	1253	1190	1128	1101
65	1011	1134	1245	1075	1015	1154	1298	1219	1105	1080
67.5	996	1123	1206	1028	1019	1160	1221	1055	872	839
70	887	1045	1091	984	1067	1068	952	826	666	643
72.5	692	851	884	962	1022	851	739	705	579	558
75	617	745	695	848	791	707	629	632	525	504
77.5	491	577	602	622	592	598	536	508	417	396
80	311	393	448	456	467	462	401	297	222	196
82.5	94	169	209	278	285	261	222	149	104	91
85	46	69	91	75	86	109	127	107	63	62
87.5	17	21	20	15	26	22	44	42	43	19
90	16	9	8	18	11	11	14	17	9	16

RESULTS OF TESTS (cont'd)

	95	105	115	125	135	145	155	165	175	180
92.5	10	13	7	10	17	8	5	20	19	19
95	12	14	11	14	12	8	11	12	8	10
97.5	12	5	0	11	8	8	10	7	17	19
100	8	12	18	9	8	9	20	19	11	14
102.5	21	12	3	9	7	7	15	24	13	4
105	11	7	5	13	11	7	13	13	13	11
107.5	16	9	18	24	8	15	11	12	16	8
110	19	4	8	5	13	5	20	10	16	13
112.5	12	7	15	19	3	12	13	13	12	0
115	12	10	16	11	8	11	15	17	16	13
117.5	5	12	7	1	18	19	4	19	10	0
120	4	15	5	8	15	12	16	12	3	6
122.5	15	6	11	6	3	6	10	3	15	16
125	13	11	20	17	11	13	16	15	11	6
127.5	9	19	11	1	17	19	13	10	9	3
130	19	18	15	18	8	5	6	22	12	6
132.5	18	7	16	15	11	17	4	4	18	15
135	14	13	12	2	11	12	13	14	12	13
137.5	10	8	15	7	12	9	12	6	19	9
140	9	10	14	10	6	8	4	6	13	10
142.5	11	7	17	8	10	7	6	9	16	0
145	1	21	11	20	12	5	3	6	4	15
147.5	16	10	14	20	7	20	19	15	9	14
150	10	21	7	1	6	10	8	11	13	11
152.5	1	9	11	9	9	5	8	19	19	11
155	8	9	11	4	1	14	4	7	8	0
157.5	19	6	7	18	6	13	0	8	1	7
160	18	3	12	19	5	11	9	11	11	8
162.5	5	13	15	18	13	17	9	8	9	10
165	10	4	11	9	6	13	13	15	11	19
167.5	2	5	2	13	4	12	7	4	16	11
170	3	7	7	5	12	19	18	11	2	18
172.5	14	12	18	5	16	20	12	2	18	1
175	12	18	4	9	11	7	4	16	7	6
177.5	20	7	11	6	9	15	21	9	15	18
180	8	8	8	8	8	8	8	8	8	8

RESULTS OF TESTS (cont'd)

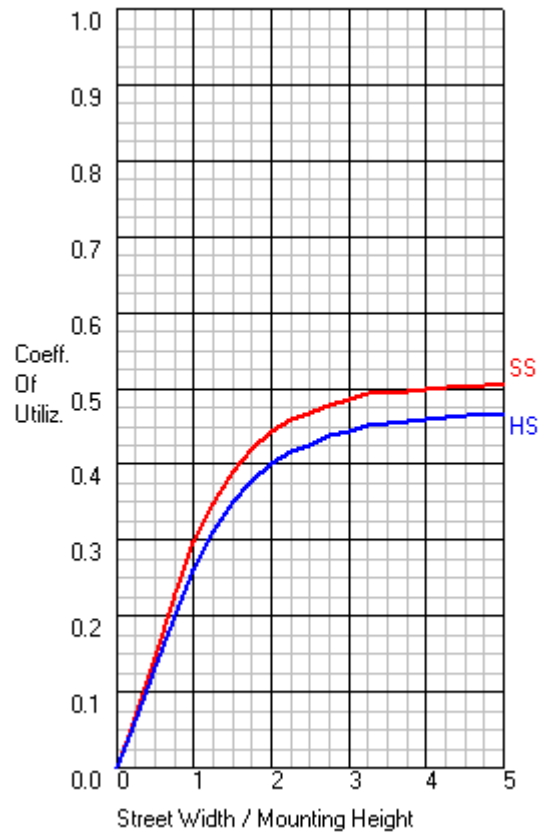
Polar Candela Distribution:





RESULTS OF TESTS (cont'd)

CU Graph:

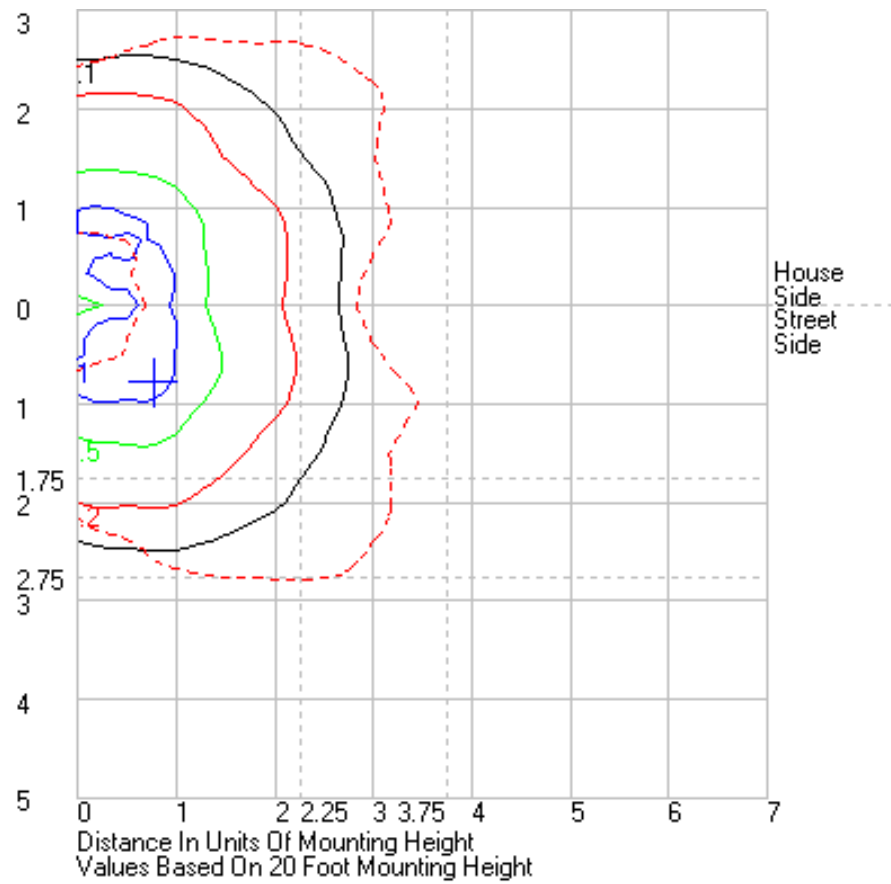


Flux Distribution

	Lumens	Percent Of Luminaire
Downward Street Side	2522.0	51.0
Downward House Side	2352.6	47.6
Downward Total	4874.6	98.5
Upward Street Side	36.8	0.7
Upward House Side	34.9	0.7
Upward Total	71.7	1.4
Total Flux	4946.3	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