REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G100639410
Client Ref. No. PH-0149

Date: May 15, 2012

REPORT NO. 100639410CRT-101

TEST OF ONE LED LUMINAIRE

FIXTURE CATALOG NO.

XENM3 SA4 5 LED 63 450 NW UE
XENM3 SA5 5 LED 63 450 NW UE
XINM3 SA4 5 LED 63 450 NW UE
XINM3 SA5 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

SUMMARY:

Model No.:
XENM3 SA4 5 LED 63 450 NW UE
XENM3 SA5 5 LED 63 450 NW UE
XINM3 SA4 5 LED 63 450 NW UE
XINM3 SA5 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	5332
Input Voltage (V)	120.0
Total Power (W)	90.7
Luminaire Efficacy	59
Power Factor	0.995
Driver Output Current (A)	0.448
THD_A	8.6%

Additional Reporting

Test Room Ambient Conditions	24.0 C and 40.0% RH
Total Luminaire Stabilization Time	46 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 SA4 5 LED 63 450 NW UE
XENM3 SA5 5 LED 63 450 NW UE
XINM3 SA4 5 LED 63 450 NW UE
XINM3 SA5 5 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)
ITK3234	Horizontal	120.0	0.760	90.7	0.995	5332	59.0

Characteristics

IES Classification		Type VS
Longitudinal Classification		Very Short
Lumens Per Lamp		N.A. (absolute)
Total Lamp Lumens		N.A. (absolute)
Luminaire Lumens		5332
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		0.00
Max. Cd.		1590.302 (45H, 50V)
Max. Cd. (<90 Vert.)		1590.302 (45H, 50V)
Max. Cd. (At 90 Deg. Vert.)		0 (0.0%Lum)
Max. Cd. (80 to <90 Deg. Vert.)	488.093 (9.2%Lum)	
Cutoff Classification (deprecated)	N.A. (absolute)	

Lum. Classification System (LCS)

LCS Zone	Lumens	%Lamp	%Lum
FL (0-30)	291.1	N.A.	5.5
FM (30-60)	1364.3	N.A.	25.6
FH (60-80)	948.4	N.A.	17.8
FVH (80-90)	62.0	N.A.	1.2
BL (0-30)	291.1	N.A.	5.5
BM (30-60)	1364.3	N.A.	25.6
BH (60-80)	948.4	N.A.	17.8
BVH (80-90)	62.0	N.A.	1.2
UL (90-100)	0.0	N.A.	0.0
UH (100-180)	0.0	N.A.	0.0
Total	5331.6	N.A.	100.0
BUG Rating	**B2-U0-G1**		

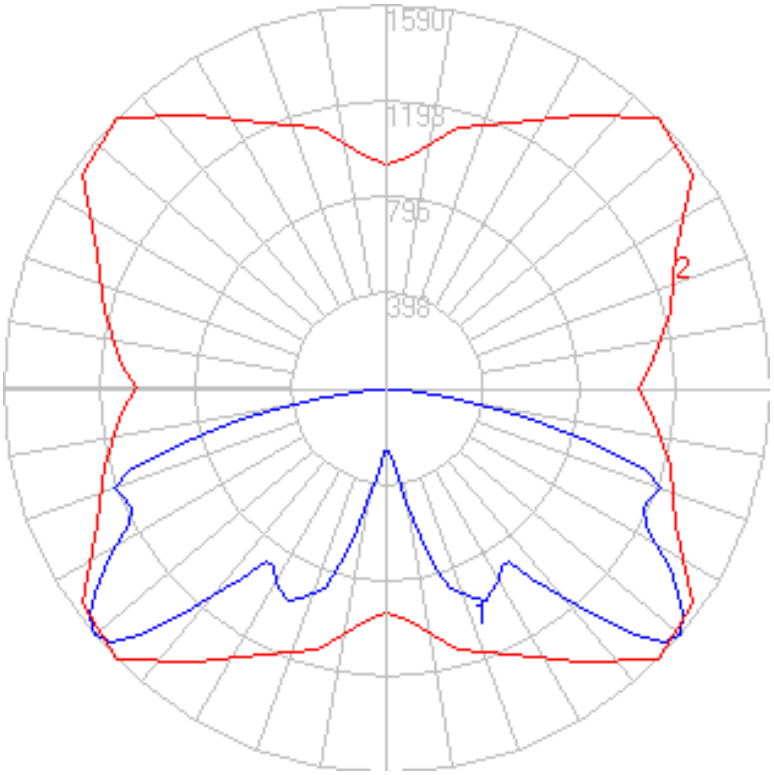
RESULTS OF TESTS (cont'd)

Intensity (Candlepower) Summary

	0	5	15	25	35	45	55	65	75	85	90
0.0	256	256	256	256	256	256	256	256	256	256	256
2.5	262	261	260	261	260	259	257	257	257	256	256
5.0	321	321	323	320	318	310	301	291	284	281	280
7.5	389	390	391	391	387	377	366	346	324	311	310
10.0	465	467	476	499	497	477	451	420	374	343	340
12.5	571	570	605	646	657	632	560	485	418	366	359
15.0	628	629	701	778	801	747	664	552	448	370	357
17.5	650	658	749	838	860	863	772	608	480	379	360
20.0	674	684	775	849	883	908	865	737	556	424	397
22.5	681	696	835	874	900	943	957	831	606	447	411
25.0	632	669	819	883	913	967	965	843	634	474	440
27.5	658	680	819	872	916	945	931	867	719	554	523
30.0	730	737	818	886	898	923	932	940	861	678	646
32.5	813	824	890	913	875	878	989	1051	981	803	773
35.0	921	929	990	978	893	879	1075	1133	1165	1024	978
37.5	1017	1044	1116	1078	976	987	1111	1297	1325	1112	1075
40.0	1097	1147	1209	1191	1102	1124	1222	1404	1351	1116	1078
42.5	1129	1197	1270	1295	1265	1277	1329	1401	1287	1074	1030
45.0	1094	1169	1292	1345	1384	1445	1393	1310	1226	1053	1008
47.5	1069	1144	1257	1334	1483	1562	1395	1250	1193	1020	979
50.0	1045	1102	1217	1325	1542	1590	1388	1211	1123	963	927
52.5	1016	1057	1170	1310	1562	1552	1389	1179	1079	933	892
55.0	984	1029	1125	1314	1521	1476	1372	1204	1065	929	871
57.5	971	1021	1104	1318	1437	1389	1354	1252	1088	932	873
60.0	1030	1072	1134	1348	1364	1293	1296	1311	1147	954	899
62.5	1080	1116	1199	1399	1293	1212	1242	1350	1187	1001	952
65.0	1010	1048	1178	1388	1270	1170	1197	1348	1230	1037	988
67.5	797	838	1034	1263	1243	1184	1152	1289	1212	1020	989
70.0	630	659	868	1014	1132	1209	1115	1169	1114	899	866
72.5	515	546	722	794	928	1128	1063	931	908	708	670
75.0	424	449	574	636	750	888	898	754	790	627	605
77.5	292	314	412	511	596	645	690	637	596	493	474
80.0	139	163	237	354	421	474	488	470	394	316	287
82.5	69	89	135	196	227	258	251	206	166	94	76
85.0	43	53	86	108	89	68	63	77	69	38	30
87.5	18	18	29	29	17	19	23	15	29	19	21
90.0	0	0	0	0	0	0	0	0	0	0	0

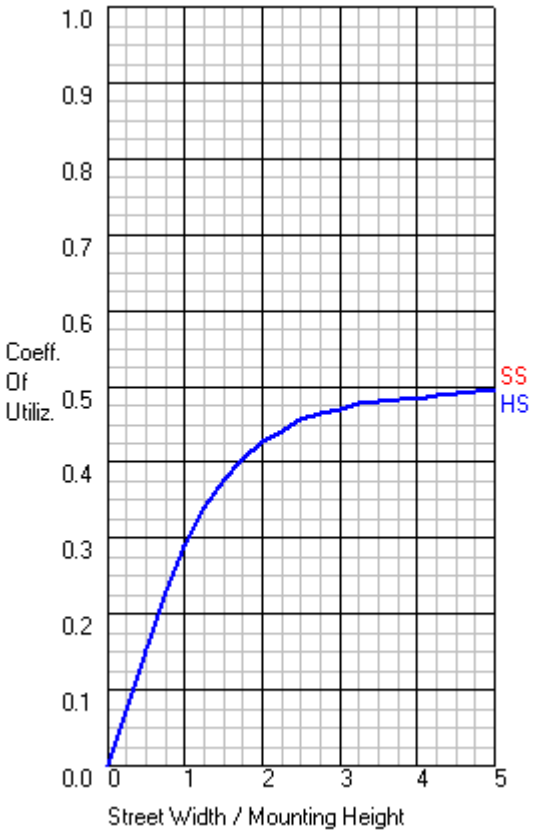
RESULTS OF TESTS (cont'd)

Polar Candela Distribution:



RESULTS OF TESTS (cont'd)

CU Graph:



Flux Distribution

	Lumens	Percent Of Luminaire
Downward Street Side	2665.8	50.0
Downward House Side	2665.8	50.0
Downward Total	5331.6	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	5331.6	100.0

RESULTS OF TESTS (cont'd)

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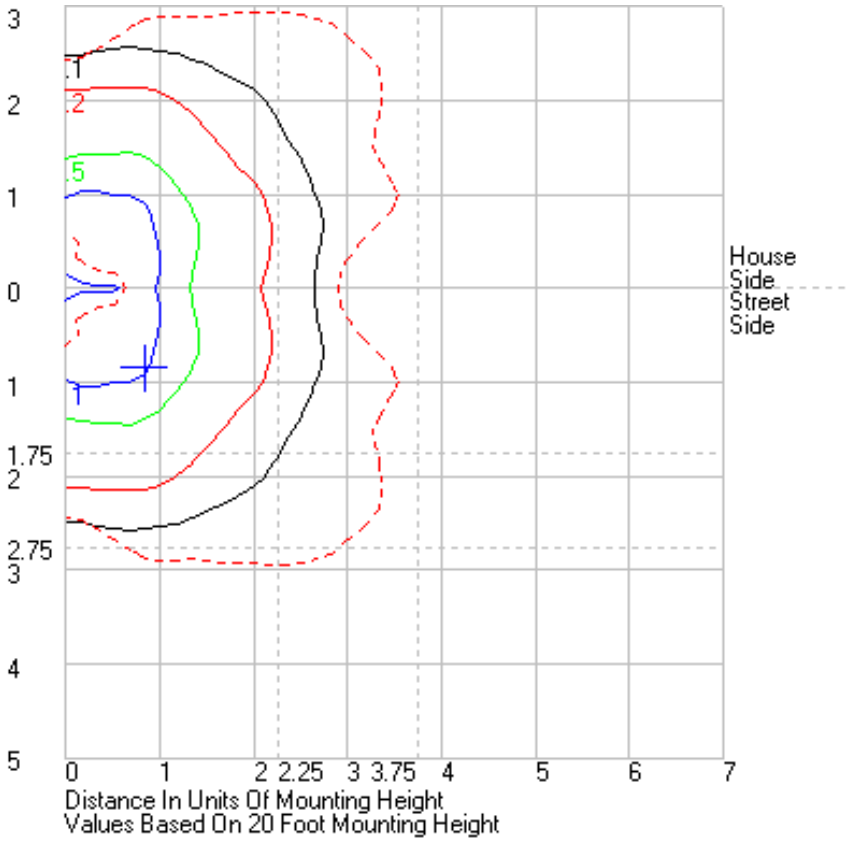

PHOTOGRAPH(S)

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Attachment: None