REPORT

LSI INDUSTRIES, INC. 10000 ALLIANCE ROAD CINCINNATI, OH 45242

Project No.: G101225483 Date: March 27, 2014
Client Ref. No.: PH-0472

REPORT NO. 101225483CHI-160

TEST OF ONE LED LUMINAIRE

FIXTURE CATALOG NO.

XGBM 5 LED HO NW

LED DRIVER: 530mA 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 500477014.

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
ANSI C82.77-2002: Harmonic Emission Limits (Power Factor and THD-A)

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

DATE OF TEST: March 24, 2014

SUMMARY:

Model No.:
XGBM 5 LED HO NW
Description: 176 LED luminaire with square die-formed aluminum housing and sealed optical grade flat glass lens, specular reflector, and two LED drivers delivering 530mA per LED.

Criteria	Result
Total Lumen Output	20549
Input Voltage (V)	120.0
Total Power (W)	288.0
Luminaire Efficacy	71
Power Factor	0.996
Driver Output Current (A)	0.534
THD_A	8.9%

Additional Reporting

Test Room Ambient Conditions	24.3°C and 16.0% RH
Total Luminaire Stabilization Time	84 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	12/31/2014
High Speed Moving Mirror Goniophotometer	NA	VBU
General DTH04 Temperature/Humidity	25223-01	4/30/2014

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

Model No.:
XGBM 5 LED HO NW

Photometric and Electrical Measurements – Distribution Method

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)
ITK5325	Horizontal	120.0	2.410	288.0	0.996	20549	71

Characteristics

IES Classification	Type VS
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	20549
Downward Total Efficiency	N.A.
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	71
Total Luminaire Watts	288
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Max. Cd.	6641 (25H, 60V)
Max. Cd. (<90 Vert.)	6641 (25H, 60V)
Max. Cd. (At 90 Deg. Vert.)	0 (0.0%Lum)
Max. Cd. (80 to <90 Deg. Vert.)	1260 (6.1%Lum)
Cutoff Classification (deprecated)	N.A. (absolute)

Lum. Classification System (LCS)

LCS Zone	Lumens	%Lamp	%Lum
FL (0-30)	979.8	N.A.	4.8
FM (30-60)	5416.0	N.A.	26.4
FH (60-80)	3718.5	N.A.	18.1
FVH(80-90)	160.3	N.A.	0.8
BL (0-30)	979.8	N.A.	4.8
BM (30-60)	5416.0	N.A.	26.4
BH (60-80)	3718.5	N.A.	18.1
BVH(80-90)	160.3	N.A.	0.8
UL (90-100)	0.0	N.A.	0.0
UH (100-180)	0.0	N.A.	0.0
Total	20549.2	N.A.	100.0

BUG Rating B4-U0-G2

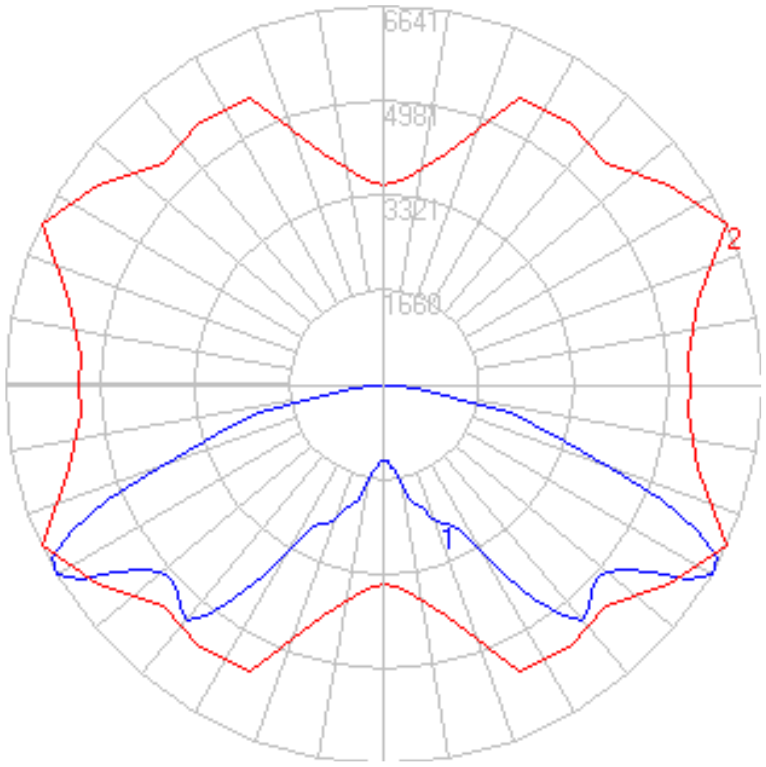
RESULTS OF TESTS (cont'd)

Intensity (Candlepower) Summary

	0	5	15	25	35	45	55	65	75	85	90
0	1341	1341	1341	1341	1341	1341	1341	1341	1341	1341	1341
2.5	1358	1349	1347	1339	1344	1336	1341	1339	1336	1339	1344
5	1455	1449	1469	1478	1475	1471	1472	1434	1389	1362	1362
7.5	1421	1427	1478	1513	1551	1564	1572	1491	1427	1354	1348
10	1725	1727	1718	1729	1695	1609	1597	1590	1502	1415	1400
12.5	2026	2040	2052	2078	1972	1910	1789	1672	1574	1447	1416
15	2075	2079	2108	2155	2332	2457	2176	1814	1625	1477	1447
17.5	2215	2209	2227	2305	2575	2737	2541	2031	1701	1526	1497
20	2274	2262	2275	2486	2806	2885	2761	2244	1756	1590	1551
22.5	2360	2336	2343	2643	2974	2972	2792	2521	1868	1686	1652
25	2534	2515	2438	2705	3031	3003	2864	2727	2178	1974	1946
27.5	2939	2905	2771	2877	2926	3095	2954	2902	2483	2327	2315
30	3530	3488	3376	3378	3037	3037	3076	3196	2906	2728	2716
32.5	4169	4126	4055	4008	3442	3150	3328	3568	3388	3151	3115
35	4766	4731	4772	4596	4015	3523	3545	3948	3809	3480	3415
37.5	5037	5047	5160	5116	4722	4147	3881	4185	4030	3624	3548
40	5011	5049	5182	5389	5345	4919	4293	4234	4100	3616	3545
42.5	4797	4808	4964	5297	5817	5707	4729	4189	4008	3521	3443
45	4570	4564	4751	5123	6012	6330	5169	4190	3869	3343	3285
47.5	4393	4379	4633	5063	6039	6544	5570	4212	3759	3204	3181
50	4432	4382	4609	5110	6035	6449	5872	4304	3741	3188	3170
52.5	4686	4615	4738	5341	6008	6170	5995	4608	3762	3310	3277
55	5082	5011	5069	5762	5927	5812	5953	5076	3879	3492	3428
57.5	5294	5257	5458	6324	5965	5510	5828	5480	4031	3578	3496
60	5367	5363	5721	6641	6120	5488	5644	5564	4183	3604	3519
62.5	5057	5150	5759	6574	6171	5729	5360	5426	4294	3513	3402
65	4396	4540	5439	6081	6098	5925	5208	5005	4285	3312	3170
67.5	3568	3759	4858	5251	5820	5790	5112	4385	4049	2860	2712
70	2629	2796	3927	4240	5120	5272	4829	3594	3426	2141	1972
72.5	1880	2010	2932	3314	4053	4346	3978	2912	2713	1572	1424
75	1479	1575	2381	2721	2947	3021	3022	2499	2096	1270	1132
77.5	1008	1171	1904	2234	2095	1805	2075	2075	1629	987	801
80	349	519	1084	1254	1172	1260	1174	1240	1079	518	332
82.5	155	292	611	535	461	469	519	509	598	271	125
85	72	163	267	221	118	95	95	185	219	133	59
87.5	28	53	65	41	34	33	32	31	40	48	29
90	0	0	0	0	0	0	0	0	0	0	0

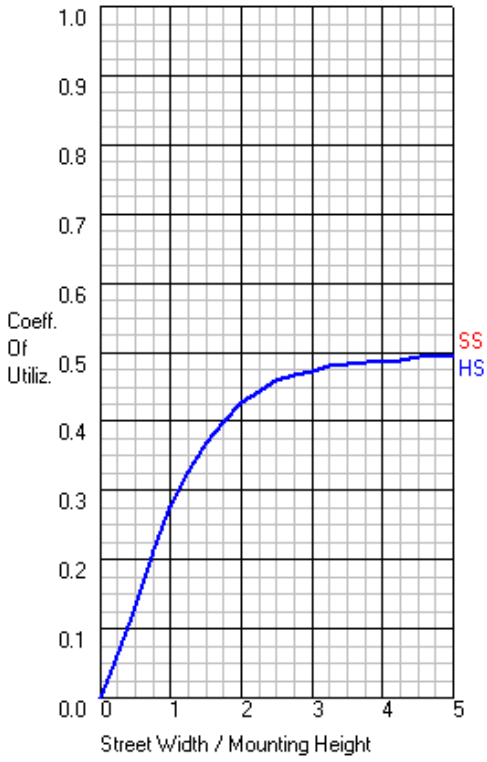
RESULTS OF TESTS (cont'd)

Polar Candela Distribution:



RESULTS OF TESTS (cont'd)

CU Graph:



Flux Distribution

	Lumens	Percent Of Luminaire
Downward Street Side	10274.6	50.0
Downward House Side	10274.6	50.0
Downward Total	20549.2	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	20549.2	100.0

RESULTS OF TESTS (cont'd)

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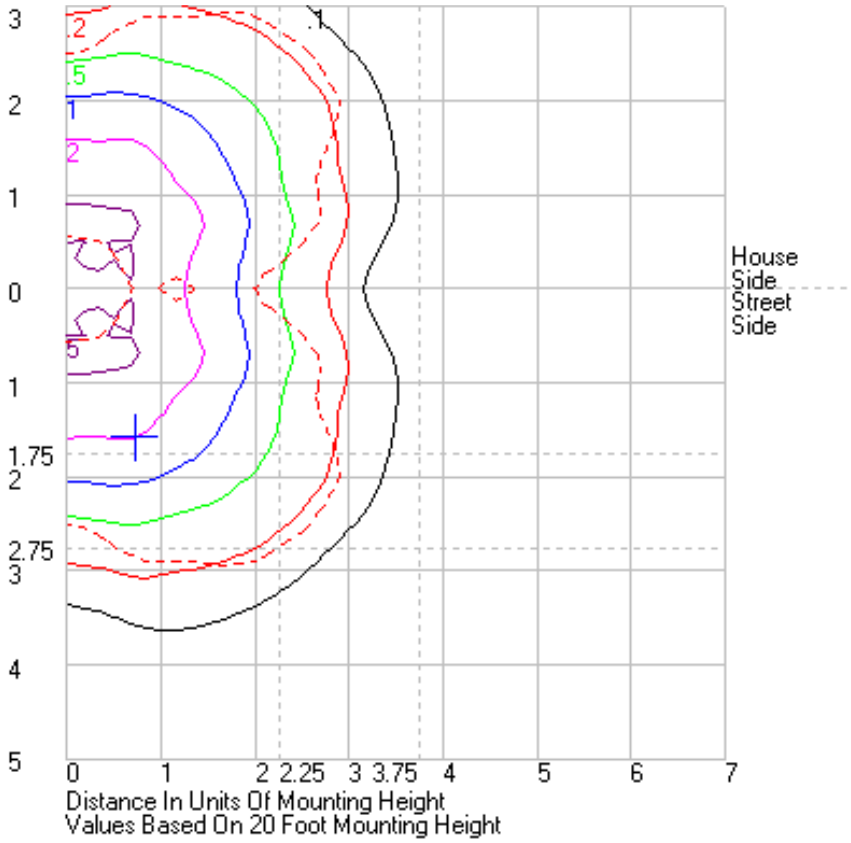

PHOTOGRAPH(S)

Report Reviewed By:

Beverly Blake

LSI INDUSTRIES, INC.

Report Reviewed By:

Joe Schledorn

Project Engineer
Lighting Division

Attachment: None