



REPORT
3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G100639410
Client Ref. No. PH-0072

Date: March 31, 2012

REPORT NO. 100639410CRT-040

TEST OF ONE LED LUMINAIRE

FIXTURE CATALOG NO.

XBVRD ID LED 24 400 CW UE
XBVRF ID LED 24 400 CW UE

LED DRIVER: 400mA 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 500358206.

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: February 1, 2012

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SUMMARY:

Model No.: XBVRx ID LED 24 400 CW UE
Description: 24 LED Circular Optic Unit with Clear Round Glass Lens using 400mA Output Driver.

Criteria	Result
Total Lumen Output	1338
Input Voltage (V)	120.0
Total Power (W)	38
Luminaire Efficacy	35
Power Factor	0.992
Driver Output Current (A)	0.395
THD _A	8.6%

Additional Reporting

Test Room Ambient Conditions	25.6 C / 25.1% RH
Total Luminaire Stabilization Time	49 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	04/30/12

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

XBVRx ID LED 24 400 CW 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)
ITK2041	Horizontal	120.0	0.316	38	0.992	1338	35

Characteristics

IES Classification	Type VS
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1338
Downward Total Efficiency	N.A.
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	35
Total Luminaire Watts	38
Ballast Factor	1.00
Upward Waste Light Ratio	0.02
Max. Cd.	617 (90H, 40V)
Max. Cd. (<90 Vert.)	617 (90H, 40V)
Max. Cd. (At 90 Deg. Vert.)	36 (2.7%Lum)
Max. Cd. (80 to <90 Deg. Vert.)	86 (6.4%Lum)
Cutoff Classification (deprecated)	N.A. (absolute)

Lum. Classification System (LCS)

LCS Zone	Lumens	%Lamp	%Lum
FL (0-30)	25.1	N.A.	1.9
FM (30-60)	445.9	N.A.	33.3
FH (60-80)	159.4	N.A.	11.9
FVH (80-90)	28.2	N.A.	2.1
BL (0-30)	25.1	N.A.	1.9
BM (30-60)	445.9	N.A.	33.3
BH (60-80)	159.4	N.A.	11.9
BVH (80-90)	28.2	N.A.	2.1
UL (90-100)	18.7	N.A.	1.4
UH (100-180)	2.3	N.A.	0.2
Total	1338.2	N.A.	100.0

BUG Rating B1-U2-G1



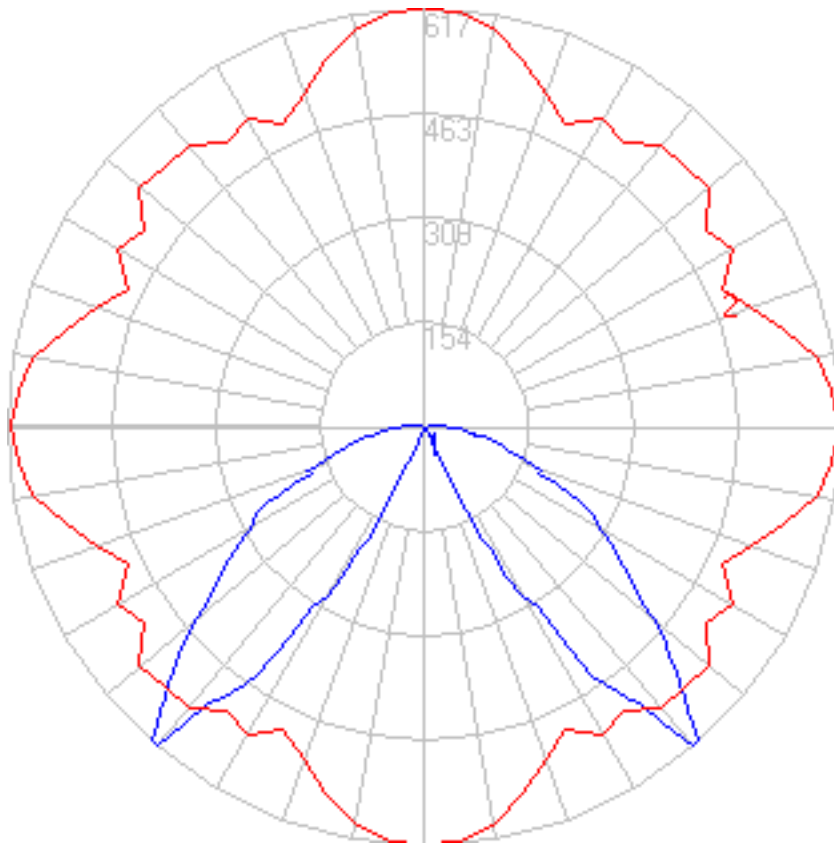
RESULTS OF TESTS (cont'd)

Intensity (Candlepower) Summary

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2
15	2	2	2	2	1	2	2	2	1	1	2	2	1	1	2	2	2	2	2
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
25	92	90	91	86	82	80	82	66	65	59	60	76	77	80	84	85	83	85	87
30	278	276	259	250	237	225	239	222	231	223	227	227	242	235	237	242	265	281	289
35	478	467	451	411	396	373	408	387	408	405	401	397	407	374	396	413	450	467	466
40	613	605	590	549	516	485	526	507	552	546	545	512	525	494	522	563	596	616	617
45	534	529	500	456	431	404	451	440	481	465	482	446	449	406	429	459	501	526	536
50	443	440	408	371	350	333	368	370	404	385	397	367	362	332	350	379	412	436	441
55	362	347	324	293	278	269	300	298	324	307	324	302	301	275	280	305	331	357	362
60	305	290	272	243	230	222	248	245	268	250	271	255	255	231	233	250	276	293	300
65	248	236	229	207	192	180	195	197	217	204	219	204	198	183	190	204	222	231	237
70	170	165	159	145	135	131	136	137	152	150	153	141	136	131	135	150	163	170	173
75	117	118	118	115	107	101	100	100	109	112	107	102	101	102	104	110	116	119	120
80	86	84	78	78	71	69	65	68	68	77	72	70	65	71	73	80	82	85	86
85	59	56	52	53	48	45	43	41	42	45	44	42	43	47	49	53	54	55	57
90	36	36	36	35	34	31	28	27	27	27	27	27	29	32	33	34	35	36	35
95	17	17	17	17	17	16	14	13	13	13	13	13	14	15	16	17	17	17	17
100	11	11	11	10	10	10	9	9	8	8	8	9	10	10	10	10	11	11	11
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

RESULTS OF TESTS (cont'd)

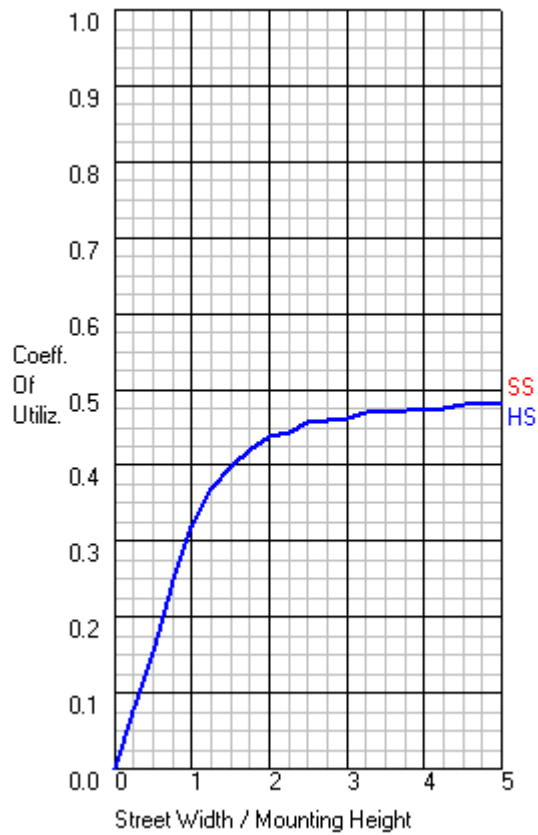
Polar Candela Distribution:





RESULTS OF TESTS (cont'd)

CU Graph:

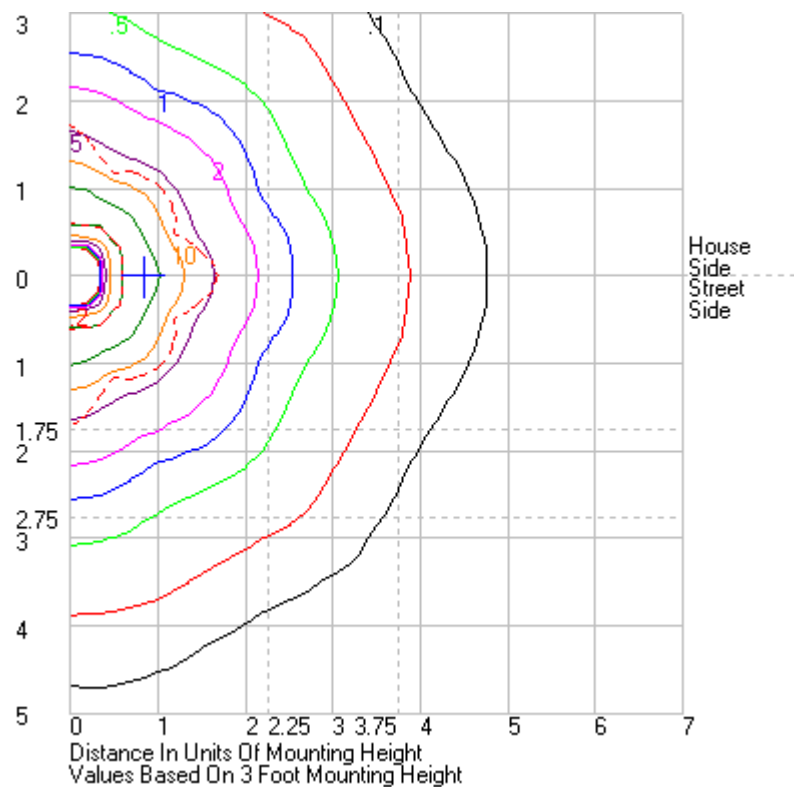


Flux Distribution

	Lumens	Percent Of Luminaire
Downward Street Side	658.5	49.2
Downward House Side	658.5	49.2
Downward Total	1317.0	98.4
Upward Street Side	10.5	0.8
Upward House Side	10.5	0.8
Upward Total	21.0	1.6
Total Flux	1338.0	100.0

RESULTS OF TESTS (cont'd)

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Commercial & Electrical

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Senior Associate Engineer
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Attachment: None