Photometric Test Report

Relevant Standards

☑ IES LM-79-2008

Prepared For

MaxLite Inc

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Test Laboratory & Address:

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Catalog Number

BLHE-162DU50

Project Number

4788038901

Report Number

4788038901_12

Test Date

11/9/2016 - 11/10/2016

Issue Date

6/29/2017

Prepared By	Approved By
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1.0 Test List

Test Item	Test	Test Date	Model Number	Tests Conducted By
1	Integrating Sphere Test for the Lower CCT	11/9/2016	BLHE-162DU50	Elvis Wu
2	Goniophotometer Test	11/9/2017	BLHE-162DU50	Elvis Wu

Remark (if any)

1. UL test equipment information is recorded on Meter Use in UL's Aurora database.

2.0 Production Description

Luminaire Description: High-bay Luminaires for Commercial and Industrial Buildings
Model Number: BLHE-162DU50
Rated Voltage: 120~277V
Frequency: 50/60 Hz
LED Package: STWxA2PD-xx

Photos of Luminaire Characteristics

3.0 LM-79 Measurement and Test Results

3.1 Integrating Sphere Test for the lower CCT

Model No.	BLHE-162DU50		Sample ID.	628446-002	
Driver No.	N/A	Opreate time (Min.)	80	Stabilization time (Min.)	70

Test Method

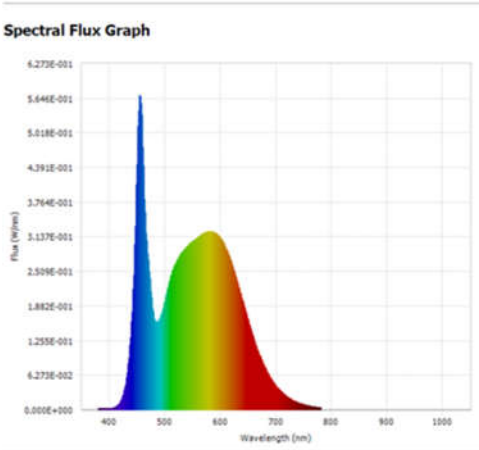
1.The sample was tested according to the IES LM-79-2008.
2.Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C.The reference standard lamp is rated current 2.6A omni-directional Incandescent lamp and was calibrated by china seprei laboratory.
3.The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%.Photometric measurement conditions was using 4π geometry.The self-absorption factor is applied in the final test result.The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

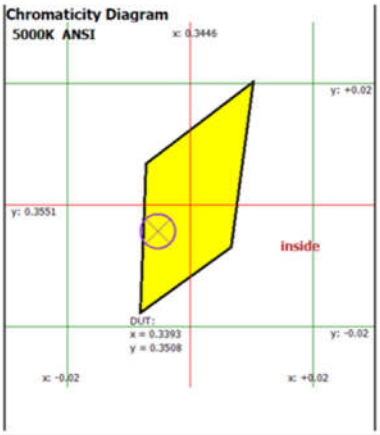
Integrating Sphere Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD
24.9	120.03	60	1.3489	160.98	0.9943	8.60%

Test Results

Orientation	CCT (K)	CRI (Ra)	Duv	Luminous Flux (lm)	Luminous Efficacy (lm/W)	Luminous Efficacy (lm/ft)
Horizontal	5223	85.3	0.002	20851.6	129.53	N/A





Spectral Result

Luminous Flux Φ(v)	20851.6 (lm)	Chrom x	0.3393
Chrom y	0.3508	Chrom u	0.2078
Chrom v	0.3223	Duv	0.002
Chrom u'	0.2078	Chrom v'	0.4834
CCT	5223.0 (K)	Luminous Efficacy η	129.53 (lm/W)
Ra	85.3	R1	84.2
R2	91.5	R3	94.5
R4	83.3	R5	84.0
R6	86.5	R7	87.8
R8	70.5	R9	19.2
R10	78.5	R11	82.4
R12	62.3	R13	86.6
R14	97.4	R15	79.8
Rf	82	Rg	94

3.0 LM-79 Measurement and Test Results

3.2 Goniophotometer Test

Model No.	BLHE-162DU50		Sample ID.	628446-002	
Driver No.	N/A	Opreate time (Min.)	80	Stabilization time (Min.)	70

Test Method

1.The sample was tested according to the IES LM-79-2008.
2.Photometric paramters were measured using a type C goniophotometer and software.
3.The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample.The reference standard lamp is rated current 3.865A omni-directional Incandescent lamp and was calibrated by china seprei laboratory.
4.The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5° vertical intervals and 22.5° horizontal intervals..Photometric distance was more than five times of the largest dimension of the test SSL product.

Goniophotometer Test Conditions

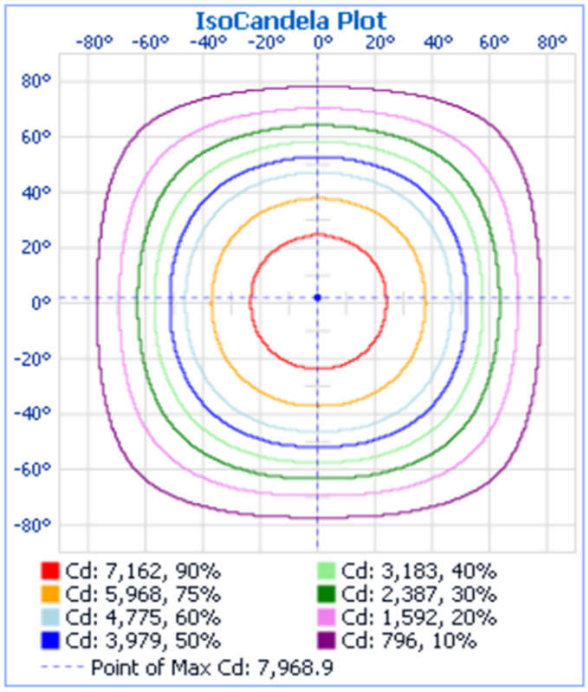
Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
25.0	120.03	60	1.3516	161.18	0.9936

Test Result

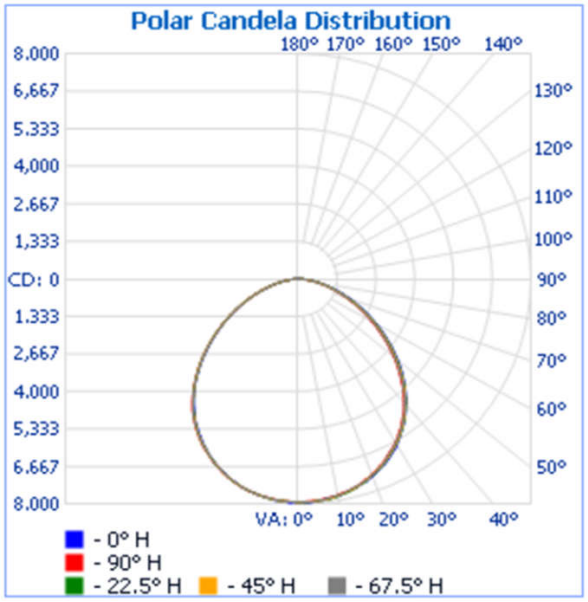
Orientation	Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)
		Horizontal Spread	Vertical Spread	Horizontal Spread	Vertical Spread	
Horizontal	20714.22	154.6	155.6	103.8	104.9	128.5

3.2 Goniophotometer Test (Cont'd)

IsoCandela Plot



Polar Candela Distribution



3.2 Goniophotometer Test (Cont'd)

Zonal Lumen Summary

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	6,174.4	29.8%
0-40	10,065.3	48.6%
0-60	17,120.9	82.7%
60-90	3,540.5	17.1%
70-100	1,378.5	6.7%
90-120	18.6	0.1%
0-90	20,661.3	99.7%
90-180	52.9	0.3%
0-180	20,714.2	100%

Lumens Per Zone

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	189.4	0.9%	90-95	4.6	0%
5-10	562.4	2.7%	95-100	3.0	0%
10-15	917.2	4.4%	100-105	2.8	0%
15-20	1,240.7	6.0%	105-110	2.6	0%
20-25	1,520.3	7.3%	110-115	2.7	0%
25-30	1,744.3	8.4%	115-120	3.0	0%
30-35	1,904.4	9.2%	120-125	3.2	0%
35-40	1,986.4	9.6%	125-130	3.4	0%
40-45	1,979.1	9.6%	130-135	3.7	0%
45-50	1,883.1	9.1%	135-140	3.9	0%
50-55	1,710.3	8.3%	140-145	4.0	0%
55-60	1,483.1	7.2%	145-150	3.8	0%
60-65	1,222.2	5.9%	150-155	3.5	0%
65-70	947.3	4.6%	155-160	3.0	0%
70-75	674.2	3.3%	160-165	2.4	0%
75-80	427.8	2.1%	165-170	1.8	0%
80-85	213.1	1.0%	170-175	1.2	0%
85-90	55.9	0.3%	175-180	0.4	0%

3.2 Goniophotometer Test (Cont'd)

Intensity Data(cd)

	0	22.5	45	67.5	90	113	135	158	180	203	225	248	270	293	315	338	360
0	7942	7942	7942	7942	7942	7942	7942	7942	7942	7942	7942	7942	7942	7942	7942	7942	7942
1	7942	7949	7933	7929	7923	7924	7928	7932	7939	7932	7928	7924	7923	7929	7933	7949	7942
2	7959	7946	7944	7934	7915	7923	7932	7927	7969	7927	7932	7923	7915	7934	7944	7946	7959
3	7956	7935	7929	7949	7915	7927	7929	7916	7930	7916	7929	7927	7915	7949	7929	7935	7956
4	7939	7938	7923	7924	7902	7919	7904	7911	7924	7911	7904	7919	7902	7924	7923	7938	7939
5	7925	7910	7912	7908	7902	7892	7899	7903	7896	7903	7899	7892	7902	7908	7912	7910	7925
6	7897	7913	7904	7915	7877	7884	7889	7890	7910	7890	7889	7884	7877	7915	7904	7913	7897
7	7885	7897	7902	7878	7859	7866	7870	7880	7860	7880	7870	7866	7859	7878	7902	7897	7885
8	7881	7896	7878	7858	7838	7857	7848	7858	7847	7858	7848	7857	7838	7858	7878	7896	7881
9	7855	7865	7866	7829	7826	7813	7819	7829	7822	7829	7819	7813	7826	7829	7866	7865	7855
10	7841	7850	7828	7811	7808	7788	7794	7800	7814	7800	7794	7788	7808	7811	7828	7850	7841
11	7811	7810	7791	7806	7764	7753	7763	7766	7773	7766	7763	7753	7764	7806	7791	7810	7811
12	7768	7797	7775	7758	7741	7742	7746	7744	7742	7744	7746	7742	7741	7758	7775	7797	7768
13	7743	7770	7730	7724	7727	7711	7703	7705	7701	7705	7703	7711	7727	7724	7730	7770	7743
14	7722	7723	7708	7675	7680	7683	7667	7676	7663	7676	7667	7683	7680	7675	7708	7723	7722
15	7694	7682	7667	7642	7649	7643	7621	7631	7629	7631	7621	7643	7649	7642	7667	7682	7694
16	7645	7624	7631	7616	7602	7579	7589	7582	7570	7582	7589	7579	7602	7616	7631	7624	7645
17	7589	7602	7582	7575	7548	7531	7541	7552	7528	7552	7541	7531	7548	7575	7582	7602	7589
18	7571	7557	7522	7526	7492	7483	7486	7488	7489	7488	7486	7483	7492	7526	7522	7557	7571
19	7516	7501	7485	7466	7457	7430	7436	7436	7445	7436	7436	7430	7457	7466	7485	7501	7516
20	7472	7439	7418	7414	7391	7385	7390	7384	7348	7384	7390	7385	7391	7414	7418	7439	7472
25	7178	7139	7117	7106	7071	7068	7062	7039	7034	7039	7062	7068	7071	7106	7117	7139	7178
30	6794	6765	6737	6710	6685	6667	6669	6657	6623	6657	6669	6667	6685	6710	6737	6765	6794
35	6310	6295	6285	6256	6218	6206	6180	6181	6166	6181	6180	6206	6218	6256	6285	6295	6310
40	5771	5743	5730	5701	5656	5640	5622	5603	5595	5603	5622	5640	5656	5701	5730	5743	5771
45	5140	5094	5091	5034	4981	4974	4971	4954	4926	4954	4971	4974	4981	5034	5091	5094	5140
50	4459	4403	4371	4316	4264	4257	4254	4250	4207	4250	4254	4257	4264	4316	4371	4403	4459
55	3734	3677	3638	3574	3524	3511	3520	3526	3478	3526	3520	3511	3524	3574	3638	3677	3734
60	3019	2963	2915	2855	2807	2794	2804	2815	2775	2815	2804	2794	2807	2855	2915	2963	3019
65	2338	2281	2235	2181	2144	2130	2132	2149	2111	2149	2132	2130	2144	2181	2235	2281	2338
70	1710	1650	1606	1567	1540	1522	1520	1534	1495	1534	1520	1522	1540	1567	1606	1650	1710
75	1150	1098	1065	1032	1010	995	987	998	970	998	987	995	1010	1032	1065	1098	1150
80	669	635	611	582	566	554	546	553	537	553	546	554	566	582	611	635	669
85	280	257	242	224	210	202	198	200	187	200	198	202	210	224	242	257	280
90	38	28	26	20	17	16	12	16	14	16	12	16	17	20	26	28	38
95	6	6	6	6	3	4	5	7	8	7	5	4	3	6	6	6	6
100	5	6	4	6	3	5	7	6	4	6	7	5	3	6	4	6	5
105	5	6	5	4	4	5	7	7	4	7	7	5	4	4	5	6	5
110	3	7	5	5	2	5	7	4	5	4	7	5	2	5	5	7	3
115	6	5	7	7	5	6	7	5	6	5	7	6	5	7	7	5	6
120	3	6	5	8	1	6	6	6	8	6	6	6	1	8	5	6	3
125	6	6	6	8	7	11	7	9	6	9	7	11	7	8	6	6	6
130	9	9	8	12	7	9	9	8	8	8	9	9	7	12	8	9	9
135	9	9	11	11	8	11	12	11	8	11	12	11	8	11	11	9	9
140	8	13	12	13	6	12	13	11	14	11	13	12	6	13	12	13	8
145	12	12	13	12	9	11	14	13	16	13	14	11	9	12	13	12	12
150	14	15	14	13	8	14	16	15	14	15	16	14	8	13	14	15	14
155	15	15	15	11	9	11	16	16	16	16	16	11	9	11	15	15	15
160	18	16	16	12	10	13	15	17	15	17	15	13	10	12	16	16	18
165	20	18	15	15	12	16	14	16	19	16	14	16	12	15	15	18	20
170	14	17	18	16	14	14	17	18	16	18	17	14	14	16	18	17	14
175	16	17	16	18	17	16	16	17	17	17	16	16	17	18	16	17	16
180	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18

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