



# IESNA LM-80-2008

## MEASURING LUMEN MAINTENANCE OF LED LIGHTSOURCES

### MEASUREMENT AND TEST REPORT For

**Hongli Zhihui Group Co.,Ltd. Guangzhou Branch**  
Room 316, Building 2, No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China

**Model: HL-A-5730DW-S1-08-HR3**

<b>Report Type:</b> 9000HoursTest Report	<b>Product Type:</b> LED Package
<b>Test Engineer:</b> Daniel Duan	<i>Daniel Duan</i>
<b>Report Number:</b> RSZ14090850510-9000-M1	
<b>Test Date:</b> 2014-09-30 to 2015-10-16	
<b>Report Date:</b> 2019-01-12	
<b>Revised Note:</b>	The previous report RSZ14090850510-9000 is replaced by this report on 2019-01-12
<b>Reviewed By:</b> Jeanne Har	EE Manager <i>Jeanne Har</i>
<b>Prepared By:</b>	Bay Area Compliance Laboratories Corp. (Dongguan). No.69, Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-0769-86858888 Fax: +86-0769-86858588

**Note:** The test data was only valid for the test sample(s). This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).  
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## 1 - GENERAL INFORMATION

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### 1.1 Description of LED Light Sources

#### Devices tested

Part Number:	HL-A-5730DW-S1-08-HR3
Part Type:	LED Package
Nominal CCT:	2700K
Power:	0.51W
Average Current Density per LED die:	639.31mA/mm <sup>2</sup>
Average Power Density per LED die:	2.18W/mm <sup>2</sup>
CRI:	80
Die Spacing	N/A

### 1.2 Standards Used:

IESNA LM-80-08: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.

ENERGY STAR® Requirements for the Use of BIM Data (This standard was not accredited by IAS)

### 1.3 Test Facility

The testing facility used by Bay Area Compliance Laboratories Corp. (Dongguan). is located at Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China

### 1.4 Description of Auxiliary Equipment

Device	Manufacture	Model No	Serial No	Test Range	Calibration date	Calibration due date
Integral Sphere	EVERFINE	Diameter 0.3m	1011119	380-780nm, Diameter:0.3m,0 1999Lumen	2015-03-25	2016-03-25

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## 2 - SUMMARY OF TEST RESULT

<b>Data Set:</b>	<b>Data Set 1, 55°C, 150mA</b>
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h,7000h,8000h,9000h
Average. Lumen Maintenance <del>9000</del> hours:	96.91%
Average Chromaticity Shift <del>9000</del> hours ( $\Delta u'v'$ ):	0.0021
Reported TM21 L <sub>70</sub> Lifetime:	>54000 hours

<b>Data Set:</b>	<b>Data Set 2, 85°C, 150mA</b>
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h,7000h,8000h,9000h
Average. Lumen Maintenance <del>9000</del> hours:	94.92%
Average Chromaticity Shift <del>9000</del> hours ( $\Delta u'v'$ ):	0.0021
Reported TM21 L <sub>70</sub> Lifetime:	52000 hours

<b>Data Set:</b>	<b>Data Set 3, 105°C, 150mA</b>
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h,7000h,8000h,9000h
Average. Lumen Maintenance <del>9000</del> hours:	93.25%
Average Chromaticity Shift <del>9000</del> hours ( $\Delta u'v'$ ):	0.0022
Reported TM21 L <sub>70</sub> Lifetime:	40000 hours

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**3.2 Data Set 1, 55°C, 150mA (Chromaticity Shift)**

No.	u'	v'	CCT(K)	Chromaticity Shift ( $\Delta u'v'$ )								
				0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs
1	0.2618	0.5260	2719	0.0004	0.0004	0.0008	0.0011	0.0013	0.0016	0.0018	0.0021	0.0022
2	0.2617	0.5278	2714	0.0005	0.0003	0.0006	0.0008	0.0013	0.0016	0.0018	0.0020	0.0021
3	0.2602	0.5266	2752	0.0004	0.0002	0.0005	0.0008	0.0012	0.0015	0.0016	0.0019	0.0020
4	0.2596	0.5261	2766	0.0005	0.0002	0.0004	0.0006	0.0011	0.0013	0.0015	0.0019	0.0021
5	0.2604	0.5261	2749	0.0004	0.0004	0.0005	0.0006	0.0011	0.0013	0.0016	0.0019	0.0021
6	0.2609	0.5266	2736	0.0003	0.0004	0.0005	0.0006	0.0008	0.0011	0.0014	0.0018	0.0018
7	0.2616	0.5266	2722	0.0005	0.0006	0.0007	0.0008	0.0009	0.0012	0.0016	0.0019	0.0021
8	0.2616	0.5262	2724	0.0005	0.0006	0.0008	0.0009	0.0011	0.0015	0.0017	0.0021	0.0022
9	0.2628	0.5271	2695	0.0004	0.0005	0.0006	0.0008	0.0011	0.0014	0.0016	0.0018	0.0021
10	0.2618	0.5267	2718	0.0006	0.0007	0.0008	0.0011	0.0012	0.0016	0.0017	0.0019	0.0023
11	0.2611	0.5275	2728	0.0003	0.0004	0.0005	0.0007	0.0009	0.0011	0.0015	0.0017	0.0021
12	0.2602	0.5263	2753	0.0005	0.0006	0.0007	0.0008	0.0011	0.0013	0.0016	0.0015	0.0018
13	0.2623	0.5279	2703	0.0006	0.0019	0.0021	0.0023	0.0025	0.0028	0.0030	0.0031	0.0034
14	0.2616	0.5258	2725	0.0004	0.0005	0.0006	0.0008	0.0010	0.0013	0.0016	0.0017	0.0021
15	0.2613	0.5268	2728	0.0006	0.0006	0.0008	0.0009	0.0011	0.0014	0.0016	0.0018	0.0021
16	0.2636	0.5277	2676	0.0004	0.0005	0.0006	0.0009	0.0011	0.0013	0.0016	0.0018	0.0021
17	0.2624	0.5259	2707	0.0005	0.0006	0.0008	0.0009	0.0011	0.0013	0.0017	0.0018	0.0022
18	0.2623	0.5282	2702	0.0006	0.0006	0.0007	0.0009	0.0011	0.0013	0.0016	0.0018	0.0021
19	0.2618	0.5273	2716	0.0004	0.0006	0.0007	0.0009	0.0012	0.0014	0.0016	0.0018	0.0022
20	0.2630	0.5282	2686	0.0005	0.0006	0.0007	0.0009	0.0011	0.0013	0.0015	0.0018	0.0021
21	0.2644	0.5284	2658	0.0004	0.0007	0.0008	0.0009	0.0011	0.0014	0.0016	0.0018	0.0021
22	0.2606	0.5270	2741	0.0004	0.0005	0.0007	0.0008	0.0011	0.0012	0.0015	0.0017	0.0021
23	0.2605	0.5261	2748	0.0007	0.0007	0.0009	0.0010	0.0012	0.0014	0.0017	0.0019	0.0021
24	0.2605	0.5262	2748	0.0006	0.0007	0.0008	0.0010	0.0011	0.0014	0.0016	0.0018	0.0019
25	0.2635	0.5274	2679	0.0004	0.0005	0.0007	0.0009	0.0011	0.0013	0.0015	0.0018	0.0019
Ave.	0.2617	0.5269	2720	0.0005	0.0006	0.0007	0.0009	0.0012	0.0014	0.0017	0.0019	0.0021
Med.	0.2616	0.5267	2722	0.0005	0.0006	0.0007	0.0009	0.0011	0.0013	0.0016	0.0018	0.0021
st dev	0.0012	0.0008	27.0702	0.0001	0.0003							



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**3.5 Data Set 3, 105°C, 150mA (Lumen Maintenance)**

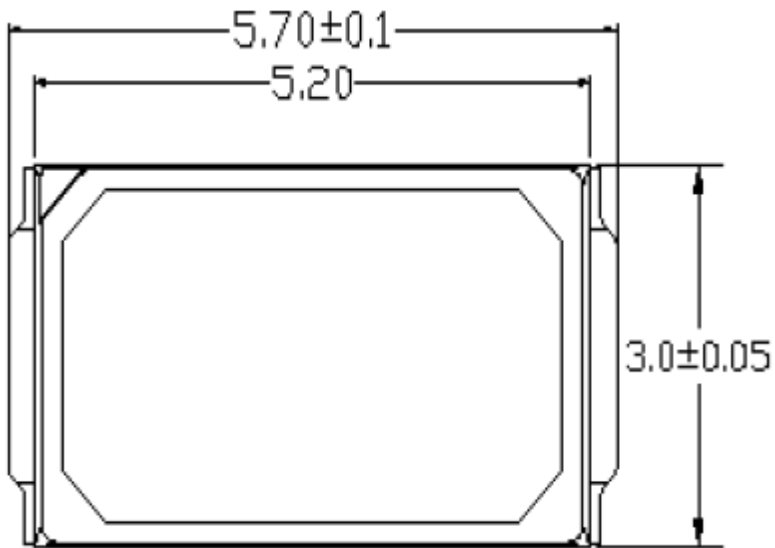
No.	V <sub>F</sub> (V)	Φ(lm)	Lumen Maintenance (%)								
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
51	3.343	63.48	99.76	99.07	98.36	97.48	96.85	96.03	95.07	94.16	93.45
52	3.257	64.62	99.69	98.98	98.33	97.59	96.66	95.85	95.03	94.09	93.33
53	3.270	65.44	99.66	98.85	98.35	97.62	96.53	95.77	94.90	94.01	93.31
54	3.273	65.54	99.48	98.73	98.08	97.27	96.63	95.62	94.80	93.87	92.92
55	3.615	61.95	99.77	99.37	98.82	98.05	97.32	96.59	95.53	94.61	93.70
56	3.313	65.09	99.48	98.76	98.03	97.20	96.62	95.93	94.93	94.07	93.01
57	3.211	65.28	99.53	98.74	98.18	97.29	96.55	95.79	95.01	94.04	93.08
58	3.254	65.30	99.65	98.82	98.24	97.75	96.66	95.97	94.90	94.21	93.22
59	3.246	65.56	99.42	98.63	98.05	97.24	96.51	95.79	94.77	93.97	93.04
60	3.443	63.57	99.72	99.13	98.66	97.73	97.04	96.40	95.33	94.60	93.61
61	3.412	63.52	99.75	98.84	98.02	97.84	97.09	96.22	95.37	94.44	93.73
62	3.204	64.50	99.60	98.88	98.03	97.40	96.67	95.77	94.99	94.16	93.29
63	3.542	64.29	100.06	99.49	98.58	97.88	97.22	96.28	95.54	94.52	93.84
64	3.206	64.73	99.68	98.84	98.05	97.44	96.65				

**3.6 Data Set 3, 105°C, 150mA (Chromaticity Shift)**

No.	u'	v'	CCT(K)	Chromaticity Shift ( $\Delta u'v'$ )								
				0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs
51	0.2623	0.5266	2708	0.0006	0.0007	0.0011	0.0013	0.0016	0.0017	0.0019	0.0021	0.0023
52	0.2630	0.5284	2686	0.0005	0.0006	0.0011	0.0013	0.0015	0.0016	0.0018	0.0021	0.0022
53	0.2622	0.5270	2709	0.0005	0.0007	0.0011	0.0013	0.0016	0.0018	0.0018	0.0021	0.0023
54	0.2614	0.5276	2721	0.0006	0.0007	0.0010	0.0013	0.0016	0.0018	0.0018	0.0021	0.0022
55	0.2612	0.5268	2729	0.0004	0.0006	0.0008	0.0012	0.0015	0.0017	0.0018	0.0020	0.0022
56	0.2604	0.5270	2745	0.0005	0.0006	0.0008	0.0012	0.0016	0.0017	0.0018	0.0021	0.0021
57	0.2618	0.5270	2715	0.0005	0.0006	0.0008	0.0013	0.0015	0.0017	0.0018	0.0021	0.0023
58	0.2633	0.5274	2684	0.0005	0.0007	0.0009	0.0013	0.0016	0.0017	0.0018	0.0021	0.0022
59	0.2626	0.5279	2696	0.0004	0.0006	0.0009	0.0013	0.0016	0.0018	0.0018	0.0020	0.0021
60	0.2614	0.5269	2724	0.0004	0.0006	0.0008	0.0012	0.0015	0.0016	0.0018	0.0020	0.0021
61	0.2612	0.5272	2727	0.0004	0.0006	0.0009	0.0014	0.0016	0.0017	0.0018	0.0021	0.0021
62	0.2634	0.5272	2682	0.0005	0.0007	0.0008	0.0011	0.0015	0.0017	0.0018	0.0020	0.0021
63	0.2607	0.5274	2737	0.0006	0.0007	0.0010	0.0012	0.0016	0.0018	0.0019	0.0021	0.0023
64	0.2628	0.5279	2692	0.0005	0.0006	0.0009	0.0012	0.0016	0.0017	0.0018	0.0021	0.0022
65	0.2627	0.5281	2692	0.0005	0.0007	0.0009	0.0013	0.0018	0.0019	0.0020	0.0022	0.0023
66	0.2629	0.5276	2690	0.0004	0.0005	0.0008	0.0011	0.0014	0.0016	0.0017	0.0019	0.0021
67	0.2623	0.5264	2708	0.0004	0.0006	0.0009	0.0011	0.0015	0.0017	0.0018	0.0021	0.0021
68	0.2638	0.5280	2670	0.0004	0.0007	0.0008	0.0012	0.0015	0.0017	0.0019	0.0019	0.0021
69	0.2624	0.5260	2708	0.0006	0.0006	0.0009	0.0013	0.0016	0.0019	0.0020	0.0021	0.0023
70	0.2615	0.5275	2721	0.0005	0.0006	0.0008	0.0011	0.0014	0.0017	0.0018	0.0019	0.0021
71	0.2632	0.5279	2685	0.0005	0.0007	0.0010	0.0011	0.0015	0.0018	0.0019	0.0021	0.0022
72	0.2612	0.5275	2727	0.0005	0.0007	0.0008	0.0011	0.0014	0.0018	0.0018	0.0020	0.0022
73	0.2606	0.5269	2741	0.0004	0.0006	0.0008	0.0010	0.0013	0.0016	0.0017	0.0019	0.0020
74	0.2626	0.5266	2701	0.0001	0.0004	0.0009	0.0011	0.0014	0.0017	0.0018	0.0020	0.0022
75	0.2624	0.5263	2706	0.0005	0.0006	0.0010	0.0013	0.0016	0.0018	0.0021	0.0021	0.0023
Ave.	0.2621	0.5272	2708	0.0005	0.0006	0.0009	0.0012	0.0015	0.0017	0.0019	0.0020	0.0022
Med.	0.2623	0.5272	2708	0.0005	0.0006	0.0009	0.0012	0.0015	0.0017	0.0018	0.0021	0.0022
st dev	0.0009	0.0006	20.2560	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001			

## Attachment A EUT PHOTO

### A.1 Mechanical Dimensions (Ta = 25°C)



All dimensions are in millimeter

### A.2 EUT Photo

