



# TEST REPORT

According to ANSI/IES LM-80-15  
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-5730D1W-S1-08-HR5(LY)**

<b>Report Type:</b> 10000 Hours Test Report	<b>Product Type:</b> LED Package
<b>Reviewed By:</b> Pote Wang	
<b>Report Number:</b>	SZ2220402-12256E-10-10000
<b>Test Date:</b>	2022-04-09 to 2023-07-06
<b>Report Date:</b>	2023-07-11
<b>Approved by:</b>	Blake Zhang / EE Engineer
<b>Prepared By:</b>	Bay Area Compliance Laboratories Corp. (Shenzhen) 5/F(B-West) -7/F, the 3rd Phase of Wan Li Industrial Building D, Shihua Road, Futian Free Trade Zone Shenzhen, Guangdong, China. Tel: +86-755-33320018 Fax: +86-755-33320008
<b>Test Facility:</b>	Test facility was located at No.12, Pulong East 1 <sup>st</sup> Road, Tangxia Town, Dongguan, Guangdong, China.

**Note:** 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.(Shenzhen). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, or any agency of the U.S. Government.



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The NVLAP Lab Code is 200707-0

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**1 - General Information**

**1.1 Description of LED Light Sources<sup>#</sup>**

**Sample Size:**

50 PCS test samples were in good condition and received on 2022-04-02. The samples were numbered from 1 to 25 and 26 to 50.

Manufacturer: Hongli Zhihui Group Co.,Ltd. Guangzhou Branch  
 Part Number: HL-A-5730D1W-S1-08-HR5(LY)  
 Part Type: LED Package  
 Drive Level: DC 150mA  
 Nominal CCT: 2700K  
 Power: 0.510W  
 Average Current Density per LED die: 775.002mA/mm<sup>2</sup>  
 Average Power Density per LED die: 2.635W/mm<sup>2</sup>  
 CRI: 90  
 Die Spacing: /

**Sampling Method:**

LED samples for IESNA LM-80 testing consist of units built from a minimum of three manufacturing lots with each manufacturing lot built from different wafer lots built on non-consecutive days.

These manufacturing lots are picked to represent a wide parametric distribution.

**Family products covered by this report:**

According to *ENERGY STAR<sup>®</sup> Requirements for the Use of LM-80 Data*, the following products can be covered by this report base on the information and declaration provided by manufacturer. The information of these models shows that the covered products meet all section 4 requirements of *ENERGY STAR<sup>®</sup> Requirements for the Use of LM-80 Data* (September 28, 2017)

This report covers the following models:

Series Name	Model Name	CRI (typ.)	Total Input Current(mA)	Power (W)	CCT (K)	Number of dies	Driver current per die(mA)	Current Density per Die(mA/mm <sup>2</sup> )	Power Density per PCB(W/mm <sup>2</sup> )	Die Spacing (mm)
Test model	HL-A-5730D1W-S1-08-HR5(LY)	90	150	0.51	2700	1	150	775.002	0.0298	/
Multiple model	HL-A-5730D***W-S1-08*-HR5(LY)-***	90	150	0.51	2700-6500	1	150	775.002	0.0298	/
Multiple model	HL-A-5730H***W-S1-08*-HR5(LY)-***	90	150	0.51	2700-6500	1	150	775.002	0.0298	/

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### 1.8 Sample Set

#### Data Set 1: 55°C, 150mA

Part Number: HL-A-5730D1W-S1-08-HR5(LY)  
Number of Units: 25  
Case Temperature: >53°C  
Ambient Temperature: >50°C  
Life Test Drive Current: 150mA  
Measurement Current: 150mA

#### Data Set 2: 105°C, 150mA

Part Number: HL-A-5730D1W-S1-08-HR5(LY)  
Number of Units: 25  
Case Temperature: >103°C  
Ambient Temperature: >100°C  
Life Test Drive Current: 150mA  
Measurement Current: 150mA



## 2 - Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration			Reported TM-21 L <sub>70</sub> Lifetime
1	25	0	1000hrs	10000hrs	2.097E-06	1.005	>60,000 hours
2	25	0	1000hrs	10000hrs	2.639E-06	1.005	>60,000 hours

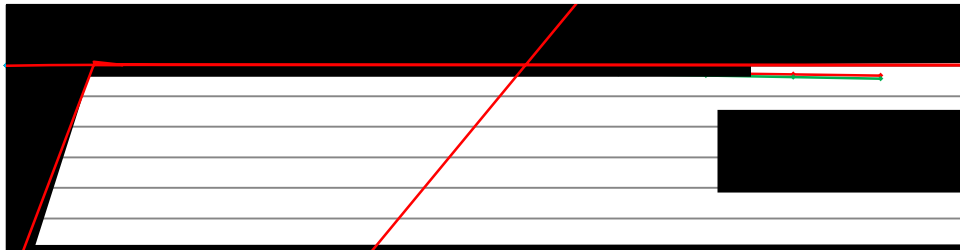
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	100.20%	99.99%	99.79%	99.60%	99.41%	99.21%	99.00%	98.78%	98.58%	98.38%
2	100.14%	99.88%	99.66%	99.43%	99.18%	98.92%	98.66%	98.40%	98.14%	97.88%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	0.0002	0.0003	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012	0.0013
2	0.0002	0.0003	0.0005	0.0006	0.0007	0.0009	0.0010	0.0011	0.0013	0.0014

Average Lumen Maintenance and Chromaticity Shift VS. Time





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### 3 - Test Data

#### 3.1 Data Set 1, 55°C, 150mA (Lumen Maintenance)

No.	Lumen Maintenance (%)										
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	51.25	100.08	99.82	99.77	99.65	99.47	99.30	99.12	98.99	98.85	98.65
2	51.23	100.18	100.02	99.69	99.53	99.36	99.20	99.06	98.83	98.69	98.44
3	51.55	100.10	99.96	99.81	99.63	99.40	99.22	99.03	98.82	98.60	98.35
4	51.53	100.31	100.06	99.98	99.79	99.59	99.42	99.22	99.07	98.80	98.58
5	51.14	100.27	100.10	99.78	99.61	99.47	99.20	99.06	98.94	98.77	98.61
6	51.34	100.12	99.98	99.65	99.45	99.18	98.97	98.75	98.58	98.36	98.19
7	51.47	100.19	100.06	99.79	99.51	99.28	99.11	98.87	98.66	98.52	98.31
8	51.65	100.23	100.06	99.86	99.67	99.38	99.15	98.86	98.66	98.41	98.24
9	52.09	100.21	99.96	99.64	99.50	99.35	99.19	99.04	98.83	98.62	98.43
10	51.48	100.35	100.14	99.88	99.75	99.53	99.32	99.05	98.80	98.56	98.35







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

No.	Ohr(Initial)		CCT(K)										
				1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	0.2604	0.5294	2736	0.0001	0.0002	0.0004	0.0005	0.0008	0.0008	0.0008	0.0011	0.0012	0.0013
2	0.2583	0.5282	2785	0.0001	0.0002	0.0003	0.0004	0.0006	0.0009	0.0011	0.0012	0.0012	0.0015
3	0.2610	0.5308	2718	0.0001	0.0002	0.0004	0.0005	0.0005	0.0008	0.0009	0.0011	0.0011	0.0014
4	0.2608	0.5319	2717	0.0002	0.0003	0.0005	0.0006	0.0009	0.0010	0.0011	0.0013	0.0012	0.0015
5	0.2590	0.5323	2753	0.0001	0.0002	0.0005	0.0006	0.0006	0.0009	0.0009	0.0011	0.0011	0.0013
6	0.2595	0.5313	2746	0.0001	0.0002	0.0004	0.0005	0.0006	0.0009	0.0010	0.0012	0.0013	0.0015
7	0.2565	0.5310	2812	0.0001	0.0002	0.0005	0.0006	0.0008	0.0009	0.0010	0.0012	0.0012	0.0014
8	0.2592	0.5289	2763	0.0001	0.0002	0.0004	0.0005	0.0009	0.0011	0.0012	0.0014	0.0014	0.0016
9	0.2583	0.5295	2779	0.0001	0.0002	0.0005	0.0006	0.0008	0.0009	0.0010	0.0012	0.0013	0.0015
10	0.2605	0.5303	2729	0.0001	0.0002	0.0004	0.0005	0.0006	0.0007	0.0008	0.0008	0.0010	0.0011
11	0.2610	0.5309	2717	0.0001	0.0002	0.0004	0.0005	0.0006	0.0005	0.0006	0.0007	0.0008	0.0008
12	0.2628	0.5342	2667	0.0002	0.0003	0.0004	0.0005	0.0007	0.0006	0.0007	0.0007	0.0008	0.0011
13	0.2575	0.5277	2805	0.0002	0.0004	0.0005	0.0006	0.0006	0.0005	0.0006	0.0008	0.0010	0.0011
14	0.2591	0.5318	2753	0.0002	0.0003	0.0005	0.0007	0.0006	0.0005	0.0006	0.0009	0.0011	0.0011
15	0.2567	0.5296	2813	0.0002	0.0003	0.0005	0.0006	0.0007	0.0007	0.0009	0.0012	0.0012	0.0013
16	0.2599	0.5311	2738	0.0002	0.0003	0.0005	0.0006	0.0009	0.0008	0.0009	0.0013	0.0014	0.0016
17	0.2624	0.5314	2685	0.0003	0.0004	0.0006	0.0007	0.0008	0.0008	0.0009	0.0012	0.0013	0.0013
18	0.2606	0.5305	2728	0.0003	0.0004	0.0006	0.0007	0.0008	0.0007	0.0007	0.0011	0.0013	0.0014
19	0.2589	0.5302	2763	0.0002	0.0003	0.0004	0.0005	0.0009	0.0008	0.0010	0.0013	0.0014	0.0013
20	0.2580	0.5321	2774	0.0001	0.0002	0.0004	0.0005	0.0006	0.0006	0.0006	0.0011	0.0013	0.0013
21	0.2585	0.5293	2776	0.0002	0.0003	0.0004	0.0006	0.0007	0.0008	0.0009	0.0009	0.0012	0.0013
22	0.2586	0.5295	2773	0.0002	0.0004	0.0006	0.0007	0.0009	0.0009	0.0008	0.0011	0.0013	0.0013
23	0.2585	0.5325	2761	0.0002	0.0004	0.0006	0.0007	0.0009	0.0007	0.0009	0.0012	0.0013	0.0014
24	0.2568	0.5313	2804	0.0001	0.0002	0.0004	0.0005	0.0007	0.0006	0.0008	0.0009	0.0012	0.0013



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### 3.4 Data Set 2, 105°C, 150mA (Lumen Maintenance)

No.	Lumen Maintenance (%)										
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
26	51.53	100.21	99.79	99.73	99.38	99.17	98.91	98.64	98.39	98.20	97.92
27	51.56	100.27	100.14	99.69	99.36	99.19	98.86	98.56	98.25	97.94	97.61
28	52.23	100.19	99.92	99.85	99.52	99.18	98.83	98.66	98.41	98.09	97.84
29	51.31	100.27	100.18	99.98	99.59	99.32	99.01	98.79	98.60	98.36	98.05
30	52.69	100.09	99.83	99.70	99.43	99.15	98.90	98.61	98.29	98.03	97.72
31	51.66	100.14	99.86	99.59	99.54	99.26	99.07	98.84	98.51	98.26	98.01
32	51.17	100.27	100.14	99.88	99.67	99.43	99.20	99.00	98.75	98.46	98.10
33	51.04	100.24	99.96	99.75	99.53	99.33	99.14	98.90	98.59	98.32	97.98
34	51.89	100.02	99.85	99.67	99.46	99.27	99.06	98.77	98.48	98.21	97.96
35	52.22	99.96	99.69	99.48	99.25	99.06	98.77	98.51	98.22	98.01	97.78
36	51.75	99.96	99.63	99.46	99.30	99.03	98.78	98.53	98.34	98.11	97.87
37	52.55	100.13	99.87	99.75	99.62	99.41	99.20	98.92	98.65	98.40	98.14
38	51.83	100.15	99.79	99.48	99.11	98.90	98.61	98.38	98.13	97.82	97.65
39	51.28	100.27	100.10	99.79	99.38	99.14	98.89	98.62	98.42	98.19	97.99
40	51.36	100.08	99.96	99.86	99.49	99.22	99.01	98.75	98.44	98.27	97.98
41	51.16	100.23	99.96	99.57	99.37	99.18	98.85	98.63	98.40	98.08	97.87
42	52.11	100.06	99.79	99.29	99.10	98.89	98.62	98.31	98.00	97.70	97.43
43	52.20	100.08	99.69	99.46	99.31	99.08	98.85	98.58	98.35	98.08	97.78
44	51.29	100.23	99.79	99.43	99.36	99.03	98.79	98.52	98.23	97.99	97.70
45	51.87	100.12	99.65	99.54	99.40	99.07	98.75	98.44	98.19	97.90	97.67
46	51.35	100.08	99.84	99.55	99.36	99.05	98.77	98.48	98.23	97.94	97.70
47	52.06	100.08	99.81	99.77	99.58	99.33	99.08	98.83	98.54	98.31	98.06
48	51.57	100.02	99.79	99.55	99.46	99.17	98.97	98.66	98.41	98.10	97.91
49	52.64	100.04	99.89	99.66	99.41	99.11	98.88	98.65	98.40	98.21	97.99
50	52.27	100.19	100.13	99.98	99.83	99.60	99.29	98.95	98.79	98.45	98.22
Avg.	51.78	100.14	99.88	99.66	99.43	99.18	98.92	98.66	98.40	98.14	97.88
Med.	51.75	100.13	99.85	99.67	99.41	99.17	98.89	98.64	98.40	98.11	97.91
st dev	0.49	0.10	0.16	0.18	0.16	0.16	0.18	0.18	0.19	0.20	0.19
Min.	51.04	99.96	99.63	99.29	99.10	98.89	98.61	98.31	98.00	97.70	97.43
Max.	52.69	100.27	100.18	99.98	99.83	99.60	99.29	99.00	98.79	98.46	98.22



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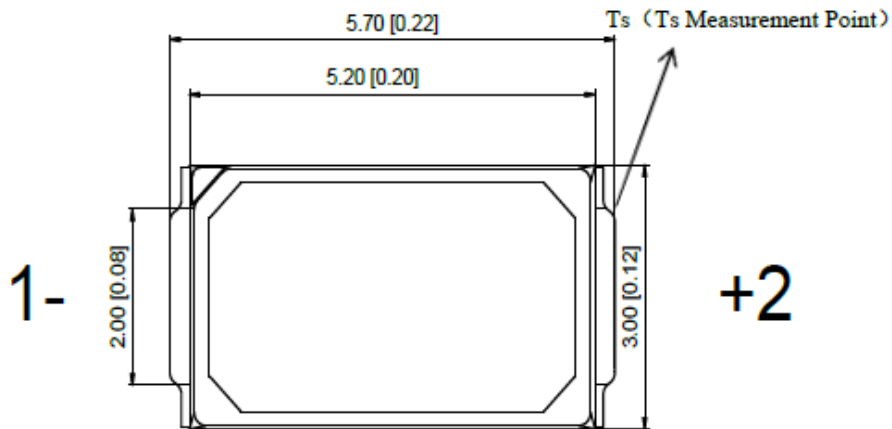
### 3.5 Data Set 2, 105°C, 150mA (Forward Voltage)

No.	Forward Voltage (V)										
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
26	3.192	3.219	3.208	3.210	3.215	3.206	3.206	3.210	3.204	3.214	3.205
27	3.184	3.210	3.202	3.204	3.204	3.202	3.204	3.206	3.205	3.205	3.204
28	3.171	3.196	3.196	3.195	3.199	3.192	3.204	3.203	3.192	3.194	3.193
29	3.170	3.194	3.190	3.188	3.195	3.198	3.206	3.196	3.187	3.213	3.190
30	3.190	3.215	3.210	3.207	3.210	3.206	3.204	3.222	3.205	3.216	3.210
31	3.192	3.213	3.215	3.212	3.212	3.212	3.211	3.223	3.211	3.217	3.212
32	3.186	3.215	3.206	3.205	3.205	3.204	3.208	3.218	3.204	3.232	3.212
33	3.186	3.210	3.205	3.204	3.203	3.203	3.204	3.225	3.202	3.216	3.206
34	3.184	3.211	3.204	3.204	3.203	3.203	3.202	3.232	3.201	3.207	3.204
35	3.189	3.214	3.210	3.208	3.205	3.207	3.202	3.208	3.214	3.211	3.210
36	3.179	3.207	3.202	3.201	3.199	3.198	3.222	3.205	3.203	3.201	3.201
37	3.191	3.200	3.211	3.210	3.208	3.205	3.203	3.240	3.212	3.214	3.208
38	3.178	3.206	3.199	3.201	3.198	3.196	3.218	3.206	3.208	3.202	3.198
39	3.180	3.204	3.202	3.200	3.200	3.219	3.214	3.216	3.205	3.225	3.201
40	3.176	3.204	3.196	3.196	3.195	3.211	3.208	3.203	3.211	3.204	3.197
41	3.201	3.201	3.225	3.223	3.221	3.231	3.229	3.224	3.228	3.226	3.222
42	3.178	3.201	3.201	3.197	3.199	3.201	3.212	3.202	3.213	3.207	3.197
43	3.175	3.196	3.197	3.194	3.198	3.214	3.214	3.208	3.207	3.199	3.195
44	3.183	3.208	3.202	3.200	3.203	3.220	3.226	3.202	3.205	3.204	3.199
45	3.189	3.194	3.206	3.205	3.205	3.201	3.214	3.220	3.223	3.207	3.205
46	3.184	3.205	3.205	3.204	3.203	3.207	3.213	3.207	3.208	3.212	3.203
47	3.184	3.205	3.199	3.201	3.206	3.234	3.206	3.203	3.224	3.203	3.200
48	3.197	3.201	3.212	3.212	3.214	3.202	3.213	3.219	3.217	3.215	3.208
49	3.181	3.197	3.197	3.198	3.199	3.201	3.205	3.208	3.206	3.200	3.196
50	3.181	3.199	3.197	3.197	3.203	3.207	3.201	3.214	3.201	3.197	3.197
Avg.	3.184	3.205	3.204	3.203	3.204	3.207	3.210	3.213	3.208	3.210	3.203
Med.	3.184	3.205	3.202	3.204	3.203	3.205	3.208	3.208	3.206	3.207	3.203
st dev	0.008	0.007	0.007	0.007	0.006	0.010	0.008	0.011	0.009	0.009	0.007
Min.	3.170	3.194	3.190	3.188	3.195	3.192	3.201	3.196	3.187	3.194	3.190
Max.	3.201	3.219	3.225	3.223	3.221	3.234	3.229	3.240	3.228	3.232	3.222



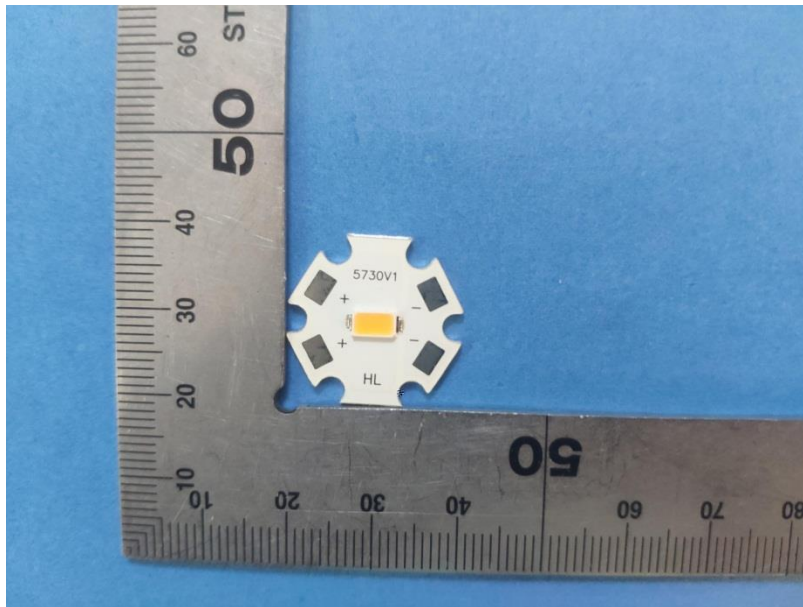
#### 4 - DUT Photo

##### 4.1 Mechanical Dimensions



All dimensions are in millimeter

##### 4.2 DUT Photo





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### Directions

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