

# 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-4014HW-S1-PCT-HR3**

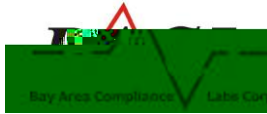


**Product Type:**

LED Package

FULL





## 1 - General Information

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### 1.1 Description of LED Light Sources

#### Sample Size:

50 PCS samples were received on 2018-10-20. The samples were numbered from 1 to 25 and 26 to 50.

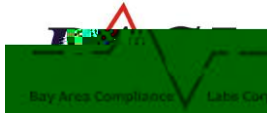
#Manufacturer:	Hongli Zhihui Group Co.,Ltd. Guangzhou Branch
#Part Number:	HL-A-4014HW-S1-PCT-HR3
#Part Type:	LED Package
#Drive Level:	DC 150mA
#Nominal CCT:	2700K
#Power:	0.51W
#Average Current Density per LED die:	861.11 mA/mm <sup>2</sup>
#Average Power Density per LED die:	2.93 W/mm <sup>2</sup>
#CRI:	80
#Die Spacing:	N/A

#### 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:



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Test Model Number	Multiple Models	Details
	SL-*B4014FTA-11EA*	1. Different Model name for different market.
	SL-*B4014FTA-11EA*H	2. The first * is the letters I, N, W representing CCT. I mean less than 3700K; N means 3700-4700K; W for more than 4700K.
	SL-*B4014FTA-11EA**	3. The second * is different product solutions (color coordination and application, special solutions, etc.)

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#### 1.4 Drive Level

As per the manufacturer's specifications, the DC current was maintained at 0.62 A (10% of the rated current) during photometric and electrical measurement. The current value was regulated to within  $\pm 3\%$  of the specified value of the manufacturer during maintenance test, and was within  $\pm 0.5\%$  during photometric and electrical measurement test.

#### 1.5 Ambient Conditions for Maintenance Test

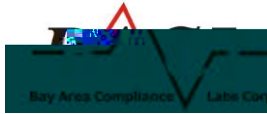
For lumen maintenance test, samples within one data set, were installed on cooling boards in thermal chambers with minimal ambient airflow. The case temperature and ambient temperature was monitored by thermocouples which one was soldered to the coldest DUTs' case (TMP<sub>LED</sub>) location, while the other is mounted at a distance of 5 mm above the TMP location.

During life testing, TMP<sub>LED</sub> of the coldest LEDs were maintained at a temperature that was greater than or equal to 2°C below the corresponding nominal case temperature. Surrounding air was maintained at a temperature that was greater than or equal to 5°C below the corresponding nominal case temperature. Thermocouples were shielded from direct DUT optical radiation and comply with ASTM E230 Table 1 "Special Limits".

Samples were connected to DC power supply in series circuits with a constant current. The forward current was regulated to within  $\pm 3\%$  of the specified value of the manufacturer.

The relative humidity with BT13 and BT13 (52gr-5(eater)tEThv)m5.64 solderede humik-3(thptM[s]-3(ol)-3(dered )23( )3(e humi)-13(3(onnec)-4(6.4





## 2 - Summary of Test Result

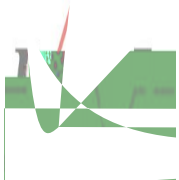
Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	$\alpha$	$\beta$	Reported TM-21 L <sub>70</sub> Lifetime
1	25	0	1000hrs	9000hrs	2.494E-06	1.004	>54000hrs
2	25	0	1000hrs	9000hrs	3.390E-06	1.004	>54000hrs

Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	100.09%	99.85%	99.63%	99.38%	99.15%	98.91%	98.66%	98.41%	98.15%
2	100.03%	99.71%	99.37%	99.04%		98.36%	98.03%	97.70%	97.37%

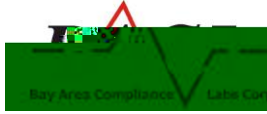
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**3.3 Data Set 1, 85°C, 150mA (Chromaticity Shift)**

No.	u'	v'	CCT(K)	Chromaticity Shift ( u'v')								
				0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs
1	0.2571	0.5320	2793	0.0002	0.0003	0.0006	0.0010	0.0014	0.0018	0.0021	0.0024	0.0029
2	0.2558	0.5335	2814	0.0002	0.0004	0.0007	0.0008	0.0012	0.0013	0.0017	0.0019	0.0023
3	0.2549	0.5326	2839	0.0003	0.0005	0.0007	0.0011	0.0013	0.0015	0.0018	0.0020	0.0023
4	0.2607	0.5307	2723	0.0002	0.0004	0.0006	0.0008	0.0011	0.0015	0.0018	0.0021	0.0024
5	0.2551	0.5289	2851	0.0002	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0017	0.0020
6	0.2542	0.5321	2855	0.0001	0.0004	0.0006	0.0009	0.0011	0.0012	0.0016	0.0017	0.0019
7	0.2550	0.5275	2861	0.0002	0.0004	0.0006	0.0009	0.0012	0.0012	0.0016	0.0018	0.0019
8	0.2574	0.5327	2783	0.0002	0.0006	0.0008	0.0009	0.0010	0.0011	0.0013	0.0014	0.0018
9	0.2566	0.5311	2809	0.0002	0.0004	0.0008	0.0009	0.0011	0.0013	0.0013	0.0014	0.0016
10	0.2544	0.5288	2868	0.0001	0.0004	0.0006	0.0009	0.0011	0.0013	0.0014	0.0016	0.0017
11	0.2572	0.5300	2801	0.0002	0.0004	0.0008	0.0011	0.0015	0.0016	0.0017	0.0018	0.0019
12	0.2582	0.5312	2774	0.0002	0.0004	0.0008	0.0012	0.0015	0.0018	0.0019	0.0020	0.0022
13	0.2577	0.5303	2788	0.0003	0.0006	0.0008	0.0011	0.0015	0.0019	0.0022	0.0023	0.0024
14	0.2541	0.5305	2866	0.0002	0.0004	0.0006	0.0009	0.0012	0.0014	0.0019	0.0024	0.0028
15	0.2559	0.5320	2820									

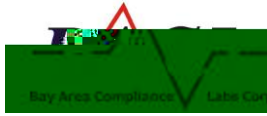
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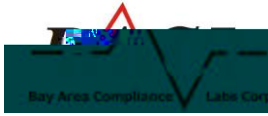
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**3.5 Data Set 2, 105°C, 150mA (Forward Voltage)**

No.	Forward Voltage (V)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	3.302	3.277	3.278	3.279	3.281	3.277	3.277	3.281	3.286	3.282
27	3.281	3.258	3.258	3.260	3.258	3.257	3.254	3.260	3.266	3.260
28	3.310	3.285	3.288	3.287	3.293	3.288	3.287	3.285	3.295	3.293
29	3.217	3.187	3.187	3.188	3.193	3.187	3.186	3.186	3.193	3.190
30	3.246	3.218	3.223	3.223	3.228	3.221	3.220	3.221	3.227	3.231
31	3.229	3.199	3.202	3.203	3.208	3.203				

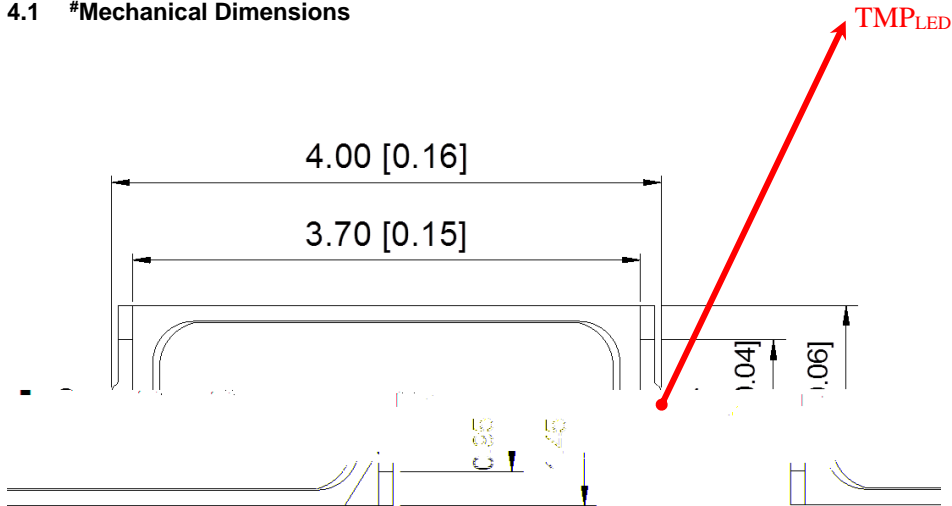
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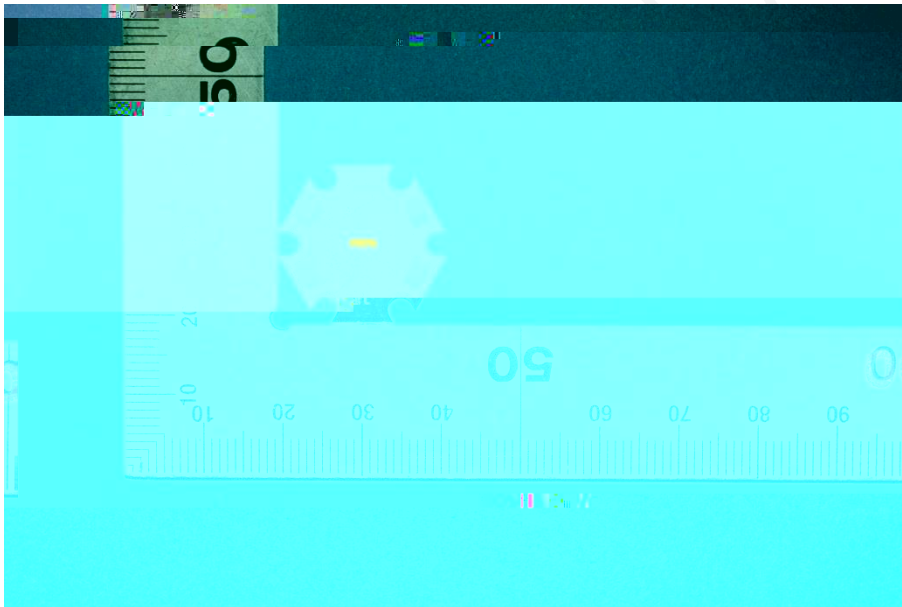
#### 4 - DUT Photo

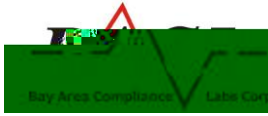
##### 4.1 #Mechanical Dimensions



All dimensions are in millimeter

##### 4.2 DUT Photo





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### Directions

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\*\*\*\*\*END OF REPORT\*\*\*\*\*

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