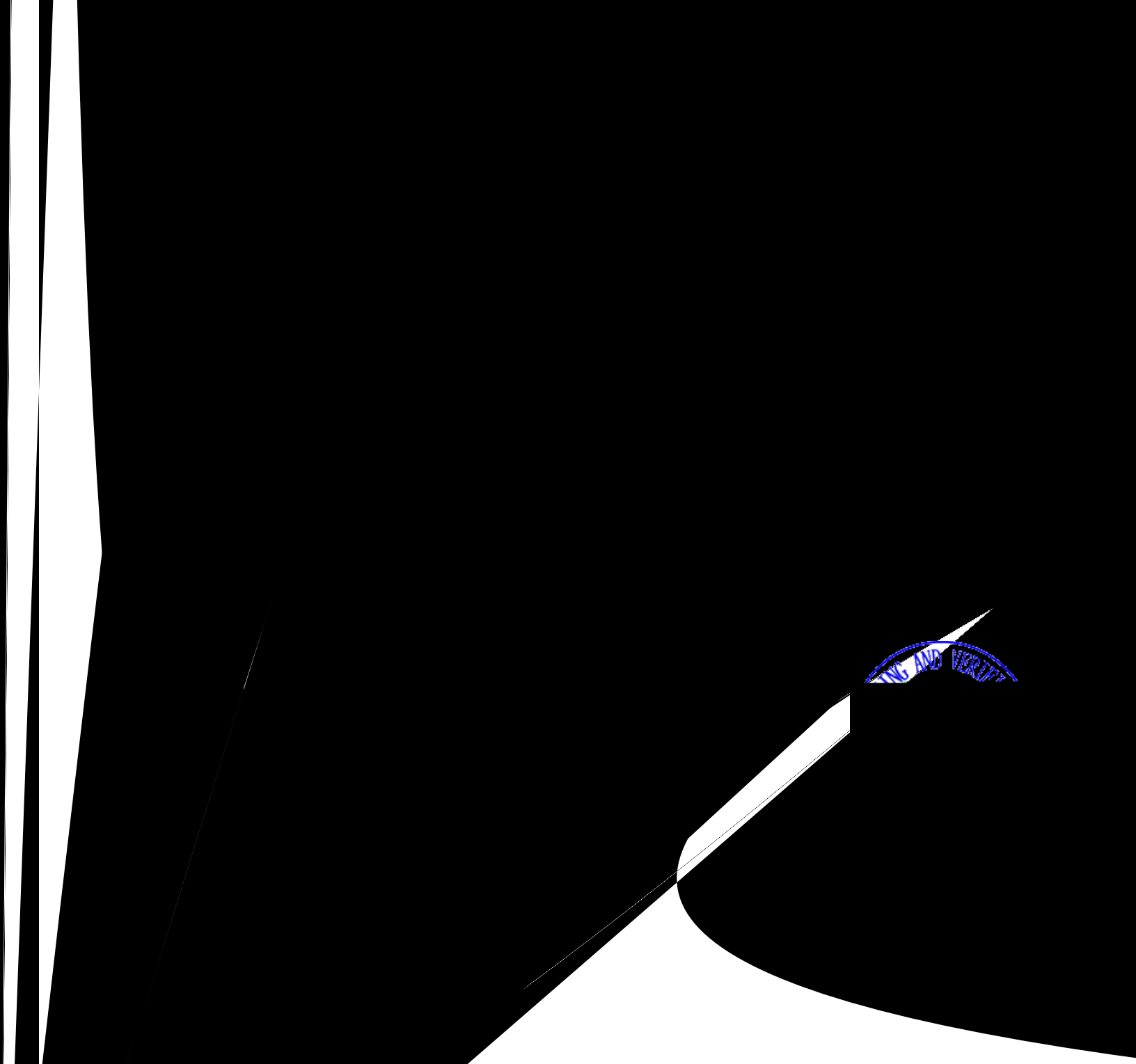


Note: The test data was only valid for the test sample(s). This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).
This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

36 TJE200153.98 534.80 464.57 334.22 372.5C1BT/F3 10.56 Tf1 0 0 1 149.18 47768 2218.77 0 0.0347 Tc[80153.98 534.80 4

1 - General Information

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:

1.4 Drive Level

Samples are driven with a constant direct current (DC) during maintenance test, photometric and electrical measurement. The current value was regulated to within ±3% of the specified value of the manufacturer during maintenance test, and was within ±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 $_{LED}$) location, while the other is mounted at a distance of 5 mm above the TMP location.

During life testing, TMP_{LED} 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
.

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

The relative humidity within chamber was kept less than 65% during test.

For photometry measurement, the ambient temperature during test was set to 25°C ± 2°C, RH <65%.

1.6 Photometric Measurement Method and Uncertainty

Integrating sphere and spectroradiometer is used to measure luminous flux and chromaticity coordinate u v . 2 measurement was used and sample was drived by DC power supply. The forward current was regulated to within ±0.5% of the nominal value. The test system was calibrated by halogen reference lamp. The ambient temperature during test was set to 25°C ± 2°C, RH <65%. The temperature measurement point was located in the sphere and the temperature was detected by a temperature probe.

The uncertainty of the light output measurements is U=1.59% (K=2), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is U=21K (K=2), at the 95% confidence level.

The uncertainty of the temperature is U=0.8671°C (K=2), at the 95% confidence level.

1.7 Statement of Traceability

Bay Area Compliance Laboratories Corp. (Dongguan) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

1.8 Sample Set

Data Set 1: 85°C, 150mA

Part Number:	HL-A-4014HW-S1-PCT-HR3
Number of Units:	25
Case Temperature:	>83°C
Ambient Temperature:	>80°C
Life Test Drive Current:	150mA
Measurement Current:	150mA

Data Set 2: 105°C, 150mA

Part Number:	HL-A-4014HW-S1-PCT-HR3
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	

Bay Area Compliance Laboratories Corp. (Dongguan)
No.69, Pulongcun, Puxinhu Industrial Area Tangxia ,
Dongguan, Guangdong, China.
The IAS Accreditation Number TL-460

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

No.			CCT(K)						
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.2571	0.5320	2793	0.0002	0.0003	0.0006	0.0010	0.0014	0.0018
2	0.2558	0.5335	2814	0.0002	0.0004	0.0007	0.0008	0.0012	0.0013
3	0.2549	0.5326	2839	0.0003	0.0005	0.0007	0.0011	0.0013	0.0015
4	0.2607	0.5307	2723	0.0002	0.0004	0.0006	0.0008	0.0011	0.0015
5	0.2551	0.5289	2851	0.0002	0.0004	0.0005	0.0008	0.0010	0.0012
6	0.2542	0.5321	2855	0.0001	0.0004	0.0006	0.0009	0.0011	0.0012

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

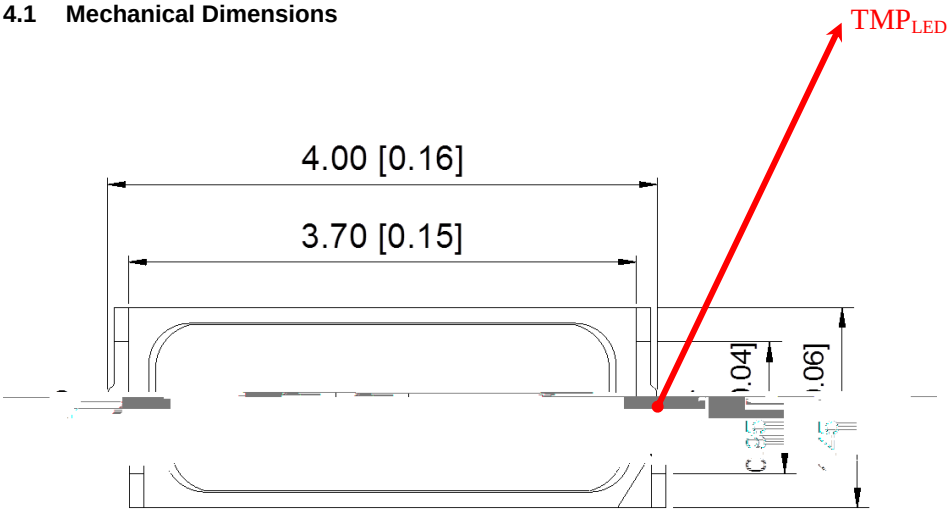
No.		Lumen Maintenance (%)					
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	59.13	100.10	99.97	99.66	99.27	98.93	98.85
27	60.79	99.88	99.54	99.28	99.00	98.65	98.35
28	60.45	99.97	99.52	99.21	98.92	98.59	98.31
29	60.08	100.07	99.90	99.55	99.15	98.69	98.34
30	57.52	100.14	99.90	99.53	99.36	98.99	98.73
31	59.54	100.02	99.68	99.50	99.19	98.77	98.40
32	59.32	99.95	99.71	99.43	99.16	98.87	98.60
33	58.11	99.88	99.54	99.16	98.85	98.47	97.99
34	59.27	99.97	99.70	99.44	99.26	98.67	98.19
35	58.35	99.85	99.50	99.21	98.94	98.70	98.34
36	56.31	100.09	99.88	99.43	99.08	98.60	98.21
37	58.73	99.88	99.54	99.22	98.83	98.40	98.04
38	59.56	100.02	99.50	99.08	98.79	98.51	98.17
39	59.03	99.90	99.66	99.25	98.76	98.63	98.31
40	60.14	100.18	99.92	99.63	99.25	98.70	98.27
41	58.26	100.24	100.00	99.54	99.31	99.02	98.75
42	59.74	100.10	99.75	99.55	99.11	98.74	98.49
43	58.06	100.03	99.60	99.28	98.91	98.71	98.28
44	56.85	100.26	100.12	99.84	99.49	99.24	98.87
45	57.84	99.98	99.69	99.29	98.96	98.60	98.34
46	58.64	99.88	99.39	99.08	98.70	98.24	97.90
47	59.61	100.02	99.55	99.08	98.67	98.31	97.87
48	60.15	99.97	99.68	99.20	98.90	98.70	98.45
49	60.53	100.21	99.83	99.42	99.12	98.93	98.63
50	59.50	100.13	99.61	99.38	98.97	98.55	98.20
Avg.	59.02	100.03	99.71	99.37	99.04	98.69	98.36
Med.	59.27	100.02	99.68	99.38	99.00	98.69	98.34
st dev	1.15	0.12	0.19				

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

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	3.302	3.277	3.278	3.279	3.281	3.277	3.277
27	3.281	3.258	3.258	3.260	3.258	3.257	3.254
28	3.310	3.285	3.288	3.287	3.293	3.288	3.287
29	3.217	3.187	3.187	3.188	3.193	3.187	3.186
30	3.246	3.218	3.223	3.223	3.228	3.221	3.220
31	3.229	3.199	3.202	3.203	3.208	3.203	3.200
32	3.239	3.213	3.213	3.214	3.214	3.212	3.212
33	3.285	3.265	3.263	3.266	3.267	3.262	3.262
34	3.251	3.217	3.217	3.220	3.219	3.217	3.219
35	3.296	3.268	3.271	3.275	3.270	3.269	3.269
36	3.211	3.178	3.177	3.180	3.179	3.178	3.179
37	3.262	3.235	3.234	3.238	3.236	3.237	3.237
38	3.224	3.195	3.195	3.199	3.197	3.197	3.199
39	3.222	3.196	3.196	3.192	3.195	3.192	3.195
40	3.232	3.208	3.210	3.209	3.210	3.208	3.208
41	3.212	3.180	3.181	3.182	3.181	3.181	3.180
42	3.252	3.215	3.215	3.216	3.220	3.219	3.216
43	3.236	3.197	3.199	3.200	3.197	3.199	3.200
44	3.252	3.221	3.218	3.223	3.224	3.222	3.221
45	3.234	3.197	3.200	3.200	3.200	3.199	3.200
46	3.281	3.251	3.252	3.254	3.254	3.258	3.250
47	3.293	3.271	3.272	3.272	3.269	3.274	3.266
48	3.265	3.233	3.235	3.238	3.235	3.236	3.235
49	3.255	3.220	3.222	3.223	3.224	3.225	3.222
50	3.244	3.211	3.209	3.209	3.209	3.210	3.207
Avg.	3.253	3.224	3.225	3.226	3.226	3.225	3.224
Med.	3.251	3.217	3.217	3.220	3.220	3.219	3.219
st dev	0.029	0.032	0.032	0.032	0.032	0.032	0.031
Min.	3.211	3.178	3.177	3.180	3.179	3.178	3.179
Max.	3.310	3.285	3.288	3.287	3.293	3.288	3.287

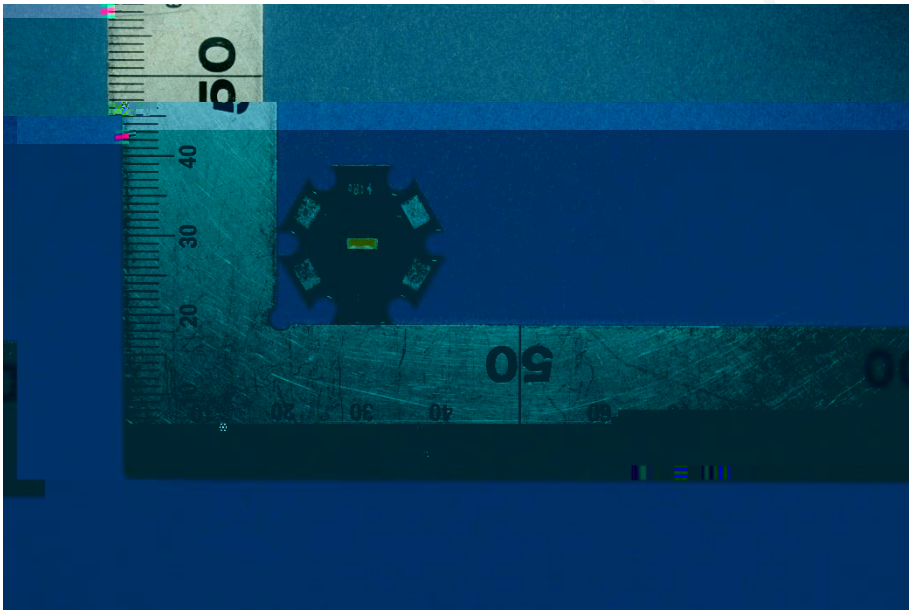
4 - DUT Photo

4.1 Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



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