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

Report Type: 6000 Hours Test Report	**Product Type:** LED Package
Test Engineer:	Pote Wang
Report Number:	RSZ181020503-10
Test Date:	2018-10-20 to2019-06-28
Report Date:	2019-07-05
Reviewed By:	Bill Xiong / EE Engineer
Test Facility:	Test facility was located at No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China.
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax:+86-0769-86858588
Accreditation:	The IAS Accreditation Number TL-460.

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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:	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^2
Average Power Density per LED die:	2.93 W/mm^2
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:

According to *ENERGY STAR® 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® Requirements for the Use of LM-80 Data* (September 28, 2017)

This report covers the following models:

Test Model Number	Multiple Models	Details
HL-A-4014HW-S1-PCT-HR3	HL-A-4014HW-S1-PCT-HR3(R9)	Only different Model name for different market.
	HL-A-4014HW-S1-PCT-HR3-HL	
	HL-A-4014HW-S1-PCT-HR3(R9)-HL	
	HL-A-4014DW-S1-PCT-HR3	
	HL-A-4014DW-S1-PCT-HR3(R9)	
	HL-A-4014DW-S1-PCT-HR3-HL	
	HL-A-4014DW-S1-PCT-HR3(R9)-HL	
	HL-A-4014HW-S1-PCT-HR3-**	Different Model name for different market. 2. the symbol "**"is the letter, which represent the customer code
	HL-A-4014HW-S1-PCT-HR3(R9)-**	
	HL-A-4014HW-S1-PCT-HR3-HL-**	
	HL-A-4014HW-S1-PCT-HR3(R9)-HL-**	
	HL-A-4014DW-S1-PCT-HR3-**	
	HL-A-4014DW-S1-PCT-HR3(R9)-**	
	HL-A-4014DW-S1-PCT-HR3-HL-**	
	HL-A-4014DW-S1-PCT-HR3(R9)-HL-**	

	SL-*B4014FTA-11EA*	1. Different Model name for different market. 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. 3. The second * is different product solutions (color coordination and application, special solutions, etc.)
	SL-*B4014FTA-11EA*H	
	SL-*B4014FTA-11EA*-*	1. Different Model name for different market. 2. The first * is the letters I, N, W representing CCT. I means less than 3700k; N means 3700-4700k;W for more than 4700k. 3. The second * is different product solutions (color coordination and application, special solutions, etc.). 4. The third * and the fourth * and the fifth are different version numbers.
	SL-*B4014FTA-11EA*H-*	
	SL-*B4014FTA-11EA*/*	
	SL-*B4014FTA-11EA*-**	
	SL-*B4014FTA-11EA*H-**	
	SL-*B4014FTA-11EA*H/*	
	SL-*B4014FTA-11EA*H-***	
	SL-*B4014FTA-11EA*-***	
	SL-**B4014FTA-11EA****-APH***	1. Different Model name for different market. 2. The first and second * of SL-**B2835FTA-11EA****-APH*** is a numbers 27, 30, 40, 50, 65, which stand for CCT. 3. Number From three to six * is a different product solution (Color coordinate and applications and special solution etc…). 4. From seven to nine * is Different version numbers.

1.2 Standards and Reference Documentations

- ANSI/IES LM-80-15: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.
- CIE 127:2007: Measurement of LEDs
- ENERGY STAR® Requirements for the Use of LM-80 Data (This standard was not accredited by IAS)

1.3 Testing Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
0.3m integrating sphere	EVERFINE	Diameter 0.3m	1011119	2019-03-18	2020-03-17
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	2019-03-26	2020-03-25
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	2019-03-18	2020-03-17
Standard Light Source	EVERFINE	D062	G100278CJ7351206	2018-12-24	2019-12-24
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987CJ7321114	2019-03-26	2020-03-25
Multilayer aging machine	BACL	B2-270	20023	2019-03-13	2020-03-12
DC Power Supply	BACL	B12001-12	90023	2018-12-17	2019-12-17

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 coldest DUTs' case (TMP_{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 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 ±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'. 2π 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	α	β	Reported TM-21 L_{70} Lifetime
1	25	0	1000hrs	6000hrs	2.369E-06	1.003	>36000 hours
2	25	0	1000hrs	6000hrs	2.834E-06	1.005	>36000 hours

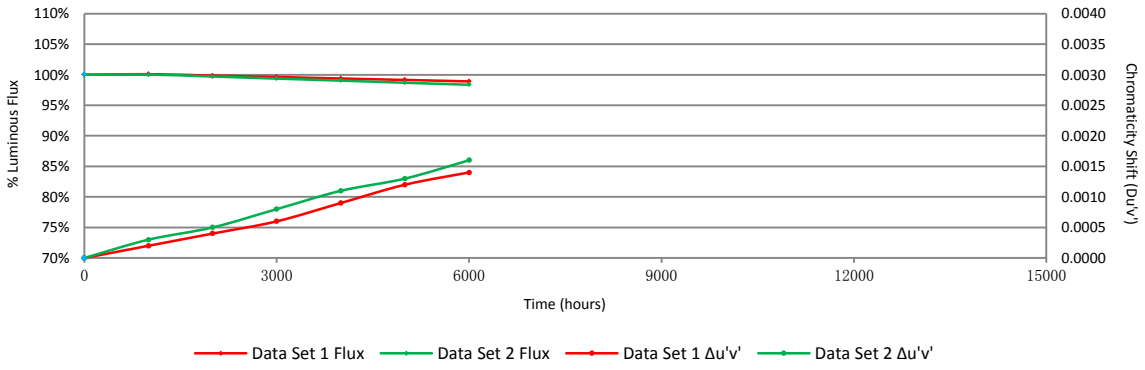
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	100.09%	99.85%	99.63%	99.38%	99.15%	98.91%
2	100.03%	99.71%	99.37%	99.04%	98.69%	98.36%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.0002	0.0004	0.0006	0.0009	0.0012	0.0014
2	0.0003	0.0005	0.0008	0.0011	0.0013	0.0016

Average Lumen Maintenance and Chromaticity Shift VS. Time



3 - Test Data

3.1 Data Set 1, 85°C, 150mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	59.71	100.17	99.97	99.63	99.50	99.26	98.96
2	59.60	100.13	99.78	99.53	99.28	98.91	98.72
3	60.12	99.98	99.82	99.53	99.28	98.95	98.79
4	58.09	100.05	99.64	99.36	99.00	98.81	98.50
5	58.78	100.29	100.09	99.86	99.61	99.34	99.12
6	58.57	100.05	99.69	99.52	99.25	98.98	98.67
7	59.67	99.90	99.66	99.53	99.48	99.31	99.11
8	60.30	100.03	99.82	99.52	99.22	98.99	98.64
9	59.25	99.93	99.66	99.36	99.14	98.82	98.78
10	60.05	99.90	99.67	99.50	99.20	99.00	98.67
11	59.16	100.27	100.02	99.68	99.48	99.29	99.05
12	59.26	100.20	99.98	99.85	99.71	99.44	99.07
13	57.68	100.17	100.09	99.77	99.48	99.41	99.25
14	60.65	100.16	99.84	99.62	99.39	99.16	99.11
15	60.34	100.08	99.83	99.64	99.25	99.01	98.89
16	60.69	100.15	99.80	99.44	99.21	98.93	98.68
17	57.62	100.19	99.93	99.74	99.34	99.27	98.85
18	58.72	100.14	99.91	99.83	99.71	99.39	99.25
19	57.24	100.24	100.03	99.77	99.49	99.34	99.11
20	59.73	100.13	99.82	99.63	99.46	99.13	98.74
21	58.84	100.20	99.95	99.73	99.46	99.39	98.93
22	60.58	99.95	99.65	99.50	99.21	99.13	98.94
23	58.64	99.98	99.74	99.61	99.40	99.27	99.11
24	57.89	100.03	99.95	99.84	99.57	99.31	99.02
25	58.00	99.98	99.86	99.66	99.41	99.05	98.67
Avg.	59.17	100.09	99.85	99.63	99.38	99.15	98.91
Med.	59.25	100.13	99.83	99.63	99.40	99.16	98.93
st dev	1.03	0.12	0.14	0.15	0.18	0.20	0.21
Min.	57.24	99.90	99.64	99.36	99.00	98.81	98.50
Max.	60.69	100.29	100.09	99.86	99.71	99.44	99.25

3.2 Data Set 1, 85°C, 150mA (Forward Voltage)

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3.267	3.223	3.222	3.223	3.224	3.222	3.225
2	3.221	3.179	3.176	3.178	3.179	3.176	3.180
3	3.243	3.208	3.207	3.209	3.210	3.207	3.210
4	3.283	3.246	3.247	3.247	3.245	3.246	3.247
5	3.265	3.234	3.233	3.233	3.232	3.233	3.233
6	3.275	3.251	3.251	3.252	3.251	3.251	3.249
7	3.319	3.296	3.295	3.295	3.295	3.296	3.294
8	3.312	3.291	3.288	3.291	3.292	3.288	3.290
9	3.264	3.238	3.237	3.238	3.239	3.238	3.238
10	3.232	3.201	3.200	3.201	3.204	3.203	3.201
11	3.205	3.186	3.184	3.185	3.185	3.183	3.185
12	3.236	3.212	3.206	3.212	3.209	3.212	3.208
13	3.281	3.252	3.256	3.256	3.255	3.254	3.251
14	3.227	3.191	3.192	3.191	3.189	3.191	3.191
15	3.314	3.287	3.287	3.287	3.287	3.287	3.287
16	3.310	3.289	3.287	3.289	3.290	3.285	3.285
17	3.224	3.198	3.198	3.201	3.200	3.197	3.199
18	3.277	3.254	3.254	3.254	3.255	3.255	3.252
19	3.209	3.174	3.175	3.176	3.175	3.176	3.175
20	3.231	3.202	3.200	3.202	3.200	3.201	3.198
21	3.245	3.212	3.211	3.209	3.209	3.210	3.208
22	3.237	3.212	3.211	3.210	3.212	3.210	3.209
23	3.259	3.232	3.230	3.233	3.234	3.231	3.228
24	3.224	3.191	3.189	3.191	3.191	3.191	3.192
25	3.296	3.269	3.271	3.272	3.270	3.270	3.268
Avg.	3.258	3.229	3.228	3.229	3.229	3.229	3.228
Med.	3.259	3.223	3.222	3.223	3.224	3.222	3.225
st dev	0.034	0.037	0.037	0.037	0.037	0.037	0.037
Min.	3.205	3.174	3.175	3.176	3.175	3.176	3.175
Max.	3.319	3.296	3.295	3.295	3.295	3.296	3.294

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

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')					
	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
7	0.2550	0.5275	2861	0.0002	0.0004	0.0006	0.0009	0.0012	0.0012
8	0.2574	0.5327	2783	0.0002	0.0006	0.0008	0.0009	0.0010	0.0011
9	0.2566	0.5311	2809	0.0002	0.0004	0.0008	0.0009	0.0011	0.0013
10	0.2544	0.5288	2868	0.0001	0.0004	0.0006	0.0009	0.0011	0.0013
11	0.2572	0.5300	2801	0.0002	0.0004	0.0008	0.0011	0.0015	0.0016
12	0.2582	0.5312	2774	0.0002	0.0004	0.0008	0.0012	0.0015	0.0018
13	0.2577	0.5303	2788	0.0003	0.0006	0.0008	0.0011	0.0015	0.0019
14	0.2541	0.5305	2866	0.0002	0.0004	0.0006	0.0009	0.0012	0.0014
15	0.2559	0.5320	2820	0.0002	0.0005	0.0008	0.0011	0.0014	0.0015
16	0.2551	0.5319	2837	0.0002	0.0005	0.0007	0.0009	0.0012	0.0014
17	0.2549	0.5310	2845	0.0001	0.0003	0.0006	0.0008	0.0010	0.0012
18	0.2578	0.5331	2774	0.0002	0.0005	0.0007	0.0008	0.0011	0.0014
19	0.2572	0.5316	2793	0.0001	0.0004	0.0006	0.0009	0.0011	0.0012
20	0.2571	0.5321	2793	0.0001	0.0003	0.0004	0.0006	0.0009	0.0013
21	0.2553	0.5317	2834	0.0002	0.0004	0.0006	0.0007	0.0012	0.0014
22	0.2596	0.5331	2737	0.0002	0.0004	0.0006	0.0008	0.0009	0.0011
23	0.2576	0.5314	2786	0.0002	0.0004	0.0005	0.0007	0.0009	0.0011
24	0.2562	0.5290	2828	0.0002	0.0004	0.0006	0.0007	0.0009	0.0011
25	0.2601	0.5308	2736	0.0003	0.0004	0.0007	0.0009	0.0011	0.0013
Avg.	0.2566	0.5312	2808	0.0002	0.0004	0.0006	0.0009	0.0012	0.0014
Med.	0.2566	0.5314	2809	0.0002	0.0004	0.0006	0.0009	0.0011	0.0013
st dev	0.0018	0.0015	41	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002
Min.	0.2541	0.5275	2723	0.0001	0.0003	0.0004	0.0006	0.0009	0.0011
Max.	0.2607	0.5335	2868	0.0003	0.0006	0.0008	0.0012	0.0015	0.0019

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

No.	Φ(lm)	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	0.20	0.22	0.23	0.27
Min.	56.31	99.85	99.39	99.08	98.67	98.24	97.87
Max.	60.79	100.26	100.12	99.84	99.49	99.24	98.87

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

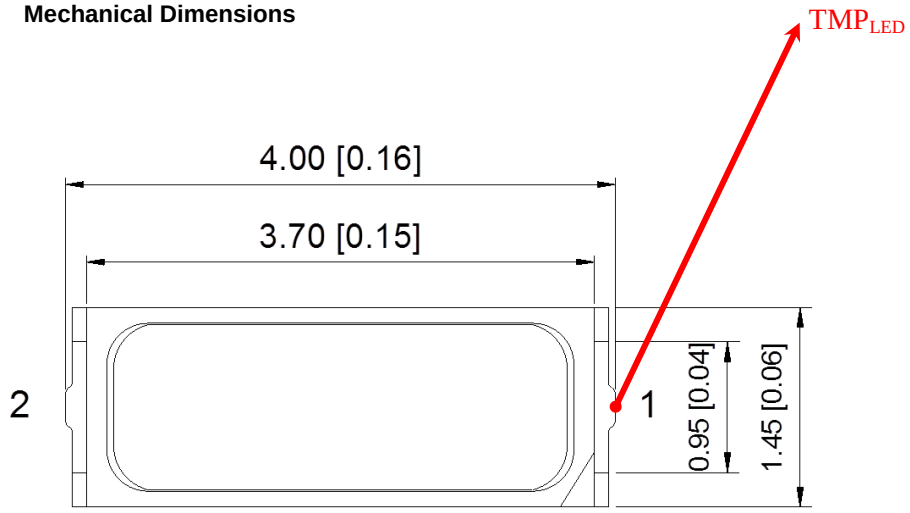
No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	3.302	3.277	3.278	3.279	3.281	3.277	3.277
27	3.281	3.258	3.258	3.260	3.258	3.257	3.254
28	3.310	3.285	3.288	3.287	3.293	3.288	3.287
29	3.217	3.187	3.187	3.188	3.193	3.187	3.186
30	3.246	3.218	3.223	3.223	3.228	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

3.6 Data Set 2, 105°C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	0.2575	0.5320	2785	0.0001	0.0004	0.0005	0.0009	0.0011	0.0012
27	0.2565	0.5310	2811	0.0003	0.0005	0.0009	0.0010	0.0011	0.0012
28	0.2548	0.5311	2848	0.0001	0.0005	0.0012	0.0015	0.0018	0.0021
29	0.2549	0.5303	2848	0.0001	0.0004	0.0007	0.0013	0.0018	0.0020
30	0.2588	0.5338	2750	0.0004	0.0005	0.0009	0.0011	0.0014	0.0022
31	0.2561	0.5305	2823	0.0002	0.0006	0.0008	0.0011	0.0014	0.0017
32	0.2549	0.5297	2852	0.0002	0.0005	0.0008	0.0011	0.0014	0.0017
33	0.2604	0.5321	2723	0.0004	0.0005	0.0006	0.0008	0.0011	0.0014
34	0.2600	0.5349	2720	0.0006	0.0008	0.0009	0.0011	0.0013	0.0016
35	0.2569	0.5315	2801	0.0006	0.0008	0.0010	0.0011	0.0014	0.0017
36	0.2606	0.5301	2728	0.0004	0.0007	0.0008	0.0010	0.0012	0.0015
37	0.2582	0.5332	2765	0.0004	0.0006	0.0009	0.0011	0.0012	0.0014
38	0.2565	0.5317	2807	0.0004	0.0008	0.0011	0.0012	0.0013	0.0014
39	0.2581	0.5317	2773	0.0002	0.0006	0.0009	0.0013	0.0015	0.0017
40	0.2566	0.5327	2801	0.0002	0.0005	0.0008	0.0011	0.0016	0.0017
41	0.2564	0.5306	2815	0.0001	0.0003	0.0008	0.0011	0.0015	0.0017
42	0.2572	0.5330	2788	0.0003	0.0005	0.0007	0.0010	0.0016	0.0019
43	0.2595	0.5312	2746	0.0004	0.0008	0.0009	0.0012	0.0015	0.0018
44	0.2570	0.5311	2799	0.0001	0.0003	0.0004	0.0006	0.0011	0.0014
45	0.2591	0.5307	2756	0.0002	0.0001	0.0005	0.0006	0.0010	0.0014
46	0.2576	0.5306	2788	0.0001	0.0002	0.0003	0.0005	0.0011	0.0015
47	0.2569	0.5312	2801	0.0004	0.0006	0.0006	0.0008	0.0009	0.0013
48	0.2573	0.5313	2794	0.0004	0.0006	0.0009	0.0012	0.0014	0.0015
49	0.2585	0.5319	2765	0.0004	0.0008	0.0009	0.0013	0.0014	0.0015
50	0.2569	0.5311	2803	0.0003	0.0008	0.0011	0.0013	0.0016	0.0018
Avg.	0.2575	0.5316	2788	0.0003	0.0005	0.0008	0.0011	0.0013	0.0016
Med.	0.2572	0.5312	2794	0.0003	0.0005	0.0008	0.0011	0.0014	0.0016
st dev	0.0016	0.0012	37	0.0001	0.0002	0.0002	0.0002	0.0002	0.0003
Min.	0.2548	0.5297	2720	0.0001	0.0001	0.0003	0.0005	0.0009	0.0012
Max.	0.2606	0.5349	2852	0.0006	0.0008	0.0012	0.0015	0.0018	0.0022

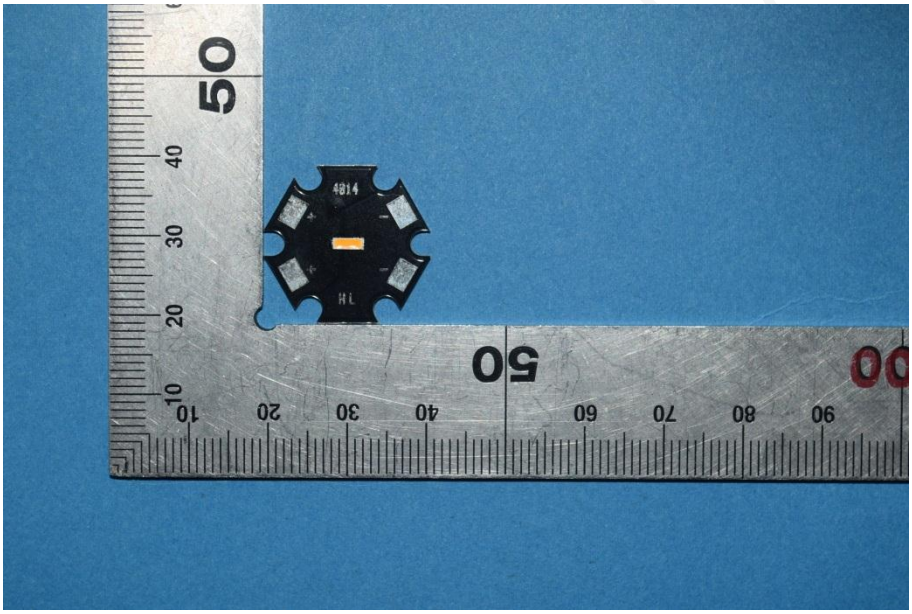
4 - DUT Photo

4.1 Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



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