TEST REPORT

ACCORDING TO IES LM-80-2015
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-ES-PU3032DW-2C-S1-HR3

Report Type: 9000 Hours Test Report	**Product Type:** LED Package
Test Engineer:	Pote Wang
Report Number:	RSZ160313501-10-9000-M1
Test Date:	2016-03-13 to 2017-03-23
Report Date:	2019-01-12
Revised Note:	The previous report RSZ160313501-10-9000 is replaced by this report on 2019-01-12
Reviewed By:	Daniel Duan / EE Manager
Test Facility:	Test facility was located at No.69, Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China
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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

1.1 Description of LED Light Sources

Sample Size:

50 PCS samples were received on 2016-03-13. The samples were numbered from 1 to 25 and 26 to 50.

Manufacturer:	Hongli Zhihui Group Co.,Ltd. Guangzhou Branch
Part Number:	HL-ES-PU3032DW-2C-S1-HR3
Part Type:	LED Package
Drive Level:	DC 150mA
Nominal CCT:	3000K
Power:	1.224W
Average Current Density per LED die:	301.84mA/mm^2
Average Power Density per LED die:	1.23 W/mm^2
CRI:	80
Die Spacing:	0.15mm

Family products covered by this report:

Testing Model Number	Multiple listed Model Number	Difference
HL-ES-PU3032DW-2C-S1-HR3	HL-ES-3032DW-2C-S1-HR3	The products are same, except the different model numbers.

1.2 Standards Used:

- IESNA LM-80-15: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.
- 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	Test Range	Calibration date	Calibration due date
Integral Sphere	EVERFINE	Diameter 0.3m	1011119	0.3m	2017-03-09	2018-03-08
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	15V/2000mA	2017-03-03	2018-03-02
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	380-780nm	2017-03-09	2018-03-08
Standard Light Source	EVERFINE	D062	1011093	3000K	2016-09-13	2017-09-12

Device	Manufacture	Model No	Serial No	Test Range	Calibration date	Calibration due date
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987CJ7321114	300VA	2017-03-03	2018-03-02
Multilayer aging machine	BACL	B2-270	20013	25°C~130°C	2016-09-01	2017-09-01
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090007	(50V/15A)	2017-03-03	2018-03-02

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 Measurement Uncertainty

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-ES-PU3032DW-2C-S1-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-ES-PU3032DW-2C-S1-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	Reported TM-21 L_{70} Lifetime	Reported TM-21 L_{90} Lifetime
1	25	0	1000	9000	>54000 hours	>41000 hours
2	25	0	1000	9000	>54000 hours	32000 hours

Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000	2000	3000	4000	5000	6000	7000	8000	9000
1	100.23%	99.96%	99.68%	99.39%	99.09%	98.80%	98.51%	98.29%	98.08%
2	100.12%	99.76%	99.40%	99.04%	98.68%	98.32%	97.95%	97.69%	97.36%

Average Color Maintenance

Data Set:	1000	2000	3000	4000	5000	6000	7000	8000	9000
1	0.0004	0.0006	0.0009	0.0011	0.0013	0.0017	0.0019	0.0021	0.0022
2	0.0006	0.0009	0.0011	0.0014	0.0016	0.0019	0.0021	0.0023	0.0027

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	7000hrs	8000hrs	9000hrs
1	123.7	100.32	100.16	99.84	99.60	99.27	99.11	98.79	98.54	98.30
2	121.2	100.17	100.08	99.75	99.50	99.17	98.84	98.51	98.35	98.27
3	124.4	100.16	99.92	99.76	99.44	99.28	98.87	98.63	98.31	98.07
4	119.8	100.17	100.08	99.83	99.42	99.08	98.83	98.66	98.41	98.08
5	118.0	100.25	100.17	99.92	99.49	99.15	98.90	98.56	98.22	98.05
6	120.5	100.33	99.92	99.75	99.59	99.34	98.92	98.59	98.34	98.01
7	117.3	100.26	100.09	99.66	99.40	99.15	98.81	98.47	98.21	98.04
8	122.6	100.33	100.08	99.84	99.43	99.18	98.86	98.69	98.45	98.21
9	121.6	100.16	99.92	99.67	99.42	99.01	98.68	98.36	98.11	97.94
10	119.2	100.34	100.17	99.92	99.66	99.33	99.16	98.83	98.66	98.57
11	124.2	100.24	99.92	99.60	99.28	98.95	98.63	98.47	98.39	98.23
12	122.2	100.16	99.84	99.43	99.10	98.77	98.53	98.20	97.87	97.71
13	123.1	100.24	99.92	99.68	99.27	98.94	98.54	98.13	98.05	97.73
14	120.8	100.33	100.08	99.67	99.34	99.09	98.76	98.43	98.01	97.68
15	117.2	100.09	99.91	99.66	99.32	98.89	98.63	98.46	98.21	97.95
16	118.7	100.25	99.92	99.58	99.33	99.07	98.74	98.48	98.32	98.15
17	127.8	100.31	99.84	99.61	99.37	99.14	98.83	98.44	98.28	98.04
18	123.5	100.24	99.92	99.68	99.35	99.03	98.79	98.46	98.38	98.14
19	121.5	100.33	100.08	99.75	99.51	99.09	98.77	98.44	98.27	97.94
20	118.8	100.25	99.83	99.58	99.33	99.07	98.74	98.40	98.15	98.06
21	122.2	100.16	99.84	99.59	99.26	99.02	98.77	98.53	98.28	98.04
22	122.9	100.24	99.92	99.59	99.35	99.10	98.94	98.62	98.45	98.29
23	120.8	100.25	99.83	99.50	99.34	99.09	98.92	98.59	98.43	98.10
24	121.9	100.16	99.75	99.51	99.26	99.10	98.77	98.61	98.36	98.20
25	124.0	100.08	99.84	99.60	99.35	99.03	98.71	98.47	98.31	98.15
Ave.	121.5	100.23	99.96	99.68	99.39	99.09	98.80	98.51	98.29	98.08
Med.	121.6	100.24	99.92	99.67	99.35	99.09	98.79	98.48	98.31	98.07
st dev	2.5093	0.0772	0.1238	0.1269	0.1235	0.1308	0.1490	0.1568	0.1704	0.1961
Min.	117.2	100.08	99.75	99.43	99.10	98.77	98.53	98.13	97.87	97.68
Max.	127.8	100.34	100.17	99.92	99.66	99.34	99.16	98.83	98.66	98.57

TM-21 Projection:

Test Duration: 9000 hours

Failures Observed: 0

α: 2.674E-06

β: 1.004

Reported L_{70}: >54000 hours

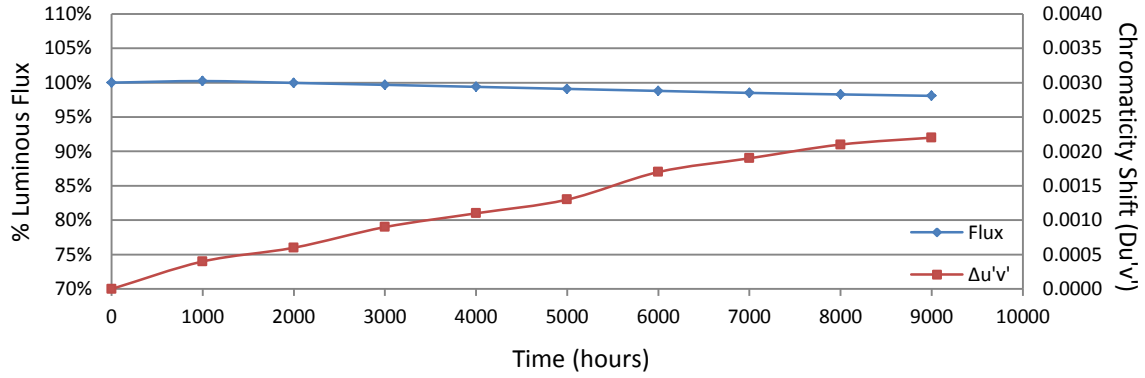
Reported L_{90}: 41000 hours

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

No.	Forward Voltage (V)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	6.276	6.279	6.277	6.285	6.284	6.284	6.283	6.284	6.307	6.306
2	6.179	6.174	6.176	6.177	6.175	6.176	6.177	6.175	6.196	6.195
3	6.212	6.211	6.210	6.213	6.214	6.216	6.212	6.216	6.237	6.235
4	6.139	6.137	6.143	6.140	6.141	6.138	6.138	6.146	6.164	6.158
5	6.201	6.207	6.212	6.206	6.204	6.209	6.210	6.214	6.229	6.230
6	6.130	6.127	6.129	6.133	6.130	6.131	6.137	6.137	6.153	6.150
7	6.204	6.211	6.210	6.206	6.210	6.208	6.213	6.217	6.228	6.230
8	6.195	6.193	6.198	6.198	6.192	6.200	6.193	6.204	6.220	6.215
9	6.136	6.132	6.136	6.135	6.132	6.143	6.143	6.143	6.155	6.154
10	6.139	6.139	6.146	6.144	6.140	6.148	6.148	6.149	6.163	6.162
11	6.242	6.242	6.247	6.242	6.241	6.246	6.244	6.253	6.269	6.264
12	6.210	6.209	6.214	6.211	6.212	6.215	6.211	6.221	6.229	6.229
13	6.180	6.177	6.187	6.182	6.185	6.186	6.186	6.189	6.199	6.200
14	6.198	6.197	6.202	6.196	6.199	6.201	6.198	6.210	6.231	6.218
15	6.193	6.189	6.198	6.191	6.192	6.195	6.191	6.203	6.217	6.214
16	6.206	6.205	6.207	6.206	6.210	6.213	6.206	6.219	6.233	6.224
17	6.127	6.131	6.137	6.129	6.128	6.136	6.134	6.146	6.154	6.149
18	6.156	6.162	6.164	6.159	6.162	6.162	6.162	6.169	6.178	6.177
19	6.103	6.102	6.108	6.105	6.102	6.117	6.108	6.116	6.128	6.121
20	6.136	6.134	6.142	6.139	6.134	6.143	6.144	6.148	6.153	6.154
21	6.126	6.130	6.130	6.131	6.134	6.134	6.139	6.143	6.149	6.148
22	6.131	6.130	6.136	6.130	6.135	6.134	6.130	6.138	6.151	6.148
23	6.202	6.198	6.207	6.203	6.206	6.208	6.207	6.210	6.227	6.223
24	6.145	6.146	6.149	6.149	6.144	6.151	6.147	6.155	6.165	6.172
25	6.220	6.216	6.222	6.220	6.224	6.222	6.218	6.233	6.278	6.243
Ave.	6.175	6.175	6.179	6.177	6.177	6.181	6.179	6.186	6.201	6.197
Med.	6.180	6.177	6.187	6.182	6.185	6.186	6.186	6.189	6.199	6.200
st dev	0.0431	0.0433	0.0426	0.0433	0.0442	0.0425	0.0420	0.0427	0.0469	0.0448
Min.	6.103	6.102	6.108	6.105	6.102	6.117	6.108	6.116	6.128	6.121
Max.	6.276	6.279	6.277	6.285	6.284	6.284	6.283	6.284	6.307	6.306

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	7000hrs	8000hrs	9000hrs
1	0.2508	0.5186	3012	0.0002	0.0004	0.0008	0.0010	0.0013	0.0016	0.0018	0.0016	0.0022
2	0.2488	0.5170	3073	0.0004	0.0006	0.0008	0.0010	0.0013	0.0016	0.0018	0.0018	0.0023
3	0.2511	0.5210	2989	0.0004	0.0007	0.0009	0.0011	0.0014	0.0016	0.0018	0.0022	0.0023
4	0.2490	0.5207	3044	0.0005	0.0007	0.0009	0.0012	0.0015	0.0016	0.0020	0.0022	0.0021
5	0.2484	0.5181	3077	0.0004	0.0007	0.0009	0.0011	0.0014	0.0017	0.0020	0.0021	0.0022
6	0.2491	0.5222	3031	0.0004	0.0007	0.0009	0.0011	0.0013	0.0017	0.0020	0.0021	0.0022
7	0.2487	0.5176	3072	0.0004	0.0006	0.0008	0.0010	0.0013	0.0016	0.0019	0.0021	0.0021
8	0.2496	0.5201	3033	0.0004	0.0006	0.0009	0.0011	0.0013	0.0017	0.0019	0.0021	0.0022
9	0.2496	0.5203	3031	0.0004	0.0006	0.0009	0.0010	0.0013	0.0016	0.0019	0.0021	0.0021
10	0.2493	0.5193	3044	0.0004	0.0006	0.0009	0.0011	0.0013	0.0017	0.0018	0.0021	0.0022
11	0.2503	0.5215	3006	0.0004	0.0007	0.0009	0.0011	0.0013	0.0017	0.0020	0.0021	0.0022
12	0.2493	0.5203	3040	0.0004	0.0006	0.0009	0.0010	0.0013	0.0017	0.0019	0.0021	0.0022
13	0.2485	0.5187	3071	0.0005	0.0006	0.0009	0.0012	0.0015	0.0017	0.0019	0.0022	0.0023
14	0.2481	0.5180	3086	0.0005	0.0006	0.0009	0.0011	0.0013	0.0017	0.0019	0.0021	0.0024
15	0.2478	0.5187	3088	0.0004	0.0006	0.0009	0.0011	0.0013	0.0017	0.0019	0.0021	0.0022
16	0.2475	0.5195	3090	0.0004	0.0006	0.0009	0.0010	0.0013	0.0016	0.0019	0.0021	0.0023
17	0.2507	0.5224	2989	0.0004	0.0005	0.0007	0.0010	0.0013	0.0016	0.0017	0.0020	0.0022
18	0.2493	0.5182	3052	0.0004	0.0006	0.0009	0.0011	0.0013	0.0017	0.0018	0.0021	0.0023
19	0.2491	0.5199	3047	0.0004	0.0005	0.0009	0.0009	0.0013	0.0016	0.0018	0.0022	0.0023
20	0.2465	0.5175	3131	0.0004	0.0006	0.0009	0.0011	0.0013	0.0017	0.0018	0.0021	0.0023
21	0.2497	0.5219	3019	0.0004	0.0006	0.0009	0.0011	0.0013	0.0017	0.0018	0.0021	0.0023
22	0.2501	0.5193	3026	0.0005	0.0006	0.0009	0.0010	0.0013	0.0017	0.0019	0.0021	0.0023
23	0.2488	0.5170	3074	0.0004	0.0006	0.0009	0.0011	0.0013	0.0017	0.0018	0.0022	0.0024
24	0.2483	0.5206	3061	0.0003	0.0006	0.0008	0.0010	0.0013	0.0016	0.0017	0.0020	0.0023
25	0.2487	0.5182	3067	0.0005	0.0006	0.0009	0.0011	0.0014	0.0017	0.0019	0.0020	0.0024
Ave.	0.2491	0.5195	3050	0.0004	0.0006	0.0009	0.0011	0.0013	0.0017	0.0019	0.0021	0.0022
Med.	0.2491	0.5193	3047	0.0004	0.0006	0.0009	0.0011	0.0013	0.0017	0.0019	0.0021	0.0023
st dev	0.0011	0.0016	33.9268	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Min.	0.2465	0.5170	2989	0.0002	0.0004	0.0007	0.0009	0.0013	0.0016	0.0017	0.0016	0.0021
Max.	0.2511	0.5224	3131	0.0005	0.0007	0.0009	0.0012	0.0015	0.0017	0.0020	0.0022	0.0024



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

No.	Φ(lm)	Lumen Maintenance (%)								
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	125.4	100.24	99.76	99.44	99.12	98.72	98.33	98.01	97.85	97.53
27	122.8	100.16	99.84	99.43	98.94	98.70	98.37	98.05	97.72	97.56
28	124.7	100.08	99.76	99.28	98.96	98.64	98.32	97.91	97.75	97.43
29	123.5	100.16	99.68	99.43	99.11	98.87	98.46	98.06	97.73	97.49
30	122.4	99.92	99.59	99.18	98.94	98.53	98.28	97.96	97.71	97.22
31	124.8	99.84	99.60	99.20	98.80	98.48	98.16	97.92	97.68	97.36
32	122.5	100.08	99.59	99.35	99.02	98.61	98.20	97.80	97.47	97.06
33	126.3	100.16	99.76	99.29	99.05	98.57	98.10	97.55	97.15	96.83
34	124.7	100.08	99.92	99.52	99.20	98.80	98.48	98.08	97.83	97.59
35	125.1	100.16	99.76	99.52	99.04	98.72	98.48	98.00	97.68	97.36
36	124.3	100.24	99.92	99.60	99.20	98.87	98.55	98.23	97.91	97.59
37	120.6	100.25	99.83	99.42	99.17	98.76	98.42	98.18	97.84	97.43
38	127.5	100.16	99.69	99.45	99.14	98.75	98.43	98.20	97.88	97.49
39	125.2	100.24	99.84	99.44	99.20	98.80	98.48	98.08	97.84	97.52
40	129.2	100.15	99.77	99.54	99.07	98.61	98.14	97.76	97.52	97.29
41	123.8	100.08	99.84	99.43	99.19	98.87	98.38	97.90	97.74	97.33
42	124.8	100.16	99.76	99.52	99.12	98.80	98.40	98.00	97.76	97.28
43	122.2	99.84	99.59	99.26	99.02	98.61	98.20	97.87	97.55	97.22
44	124.8	99.92	99.68	99.36	98.96	98.64	98.32	98.00	97.84	97.60
45	123.6	100.08	99.76	99.27	98.87	98.54	98.14	97.90	97.65	97.33
46	124.0	100.16	99.84	99.44	98.95	98.55	98.15	97.74	97.50	97.18
47	124.4	100.24	99.68	99.36	99.12	98.63	98.39	97.99	97.67	97.19
48	125.2	100.16	99.76	99.36	98.80	98.56	98.08	97.84	97.76	97.44
49	124.0	100.24	99.92	99.44	98.95	98.71	98.31	97.90	97.66	97.42
50	123.3	100.08	99.84	99.51	99.11	98.70	98.38	97.89	97.57	97.24
Ave.	124.4	100.12	99.76	99.40	99.04	98.68	98.32	97.95	97.69	97.36
Med.	124.4	100.16	99.76	99.43	99.05	98.70	98.33	97.96	97.72	97.36
st dev	1.7375	0.1211	0.1019	0.1086	0.1206	0.1139	0.1370	0.1521	0.1661	0.1834
Min.	120.6	99.84	99.59	99.18	98.80	98.48	98.08	97.55	97.15	96.83
Max.	129.2	100.25	99.92	99.60	99.20	98.87	98.55	98.23	97.91	97.60

TM-21 Projection:

Test Duration: 9000 hours

Failures Observed: 0

α: 3.416E-06

β: 1.004

Reported L_{70}: >54000 hours

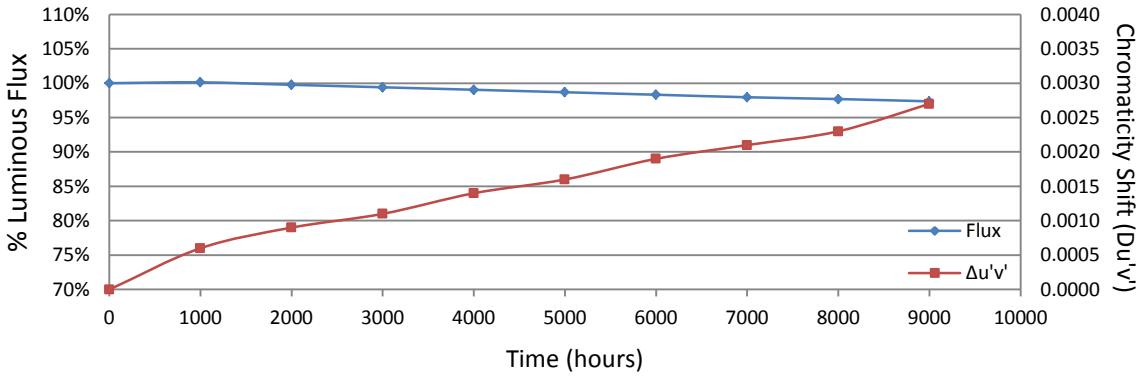
Reported L_{90}: 32000 hours

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	6.190	6.189	6.193	6.196	6.198	6.193	6.194	6.198	6.212	6.212
27	6.139	6.146	6.148	6.146	6.149	6.149	6.148	6.155	6.170	6.164
28	6.176	6.179	6.184	6.186	6.183	6.180	6.185	6.189	6.213	6.199
29	6.135	6.135	6.140	6.142	6.141	6.143	6.140	6.149	6.161	6.156
30	6.171	6.177	6.176	6.177	6.179	6.175	6.178	6.182	6.203	6.194
31	6.187	6.188	6.189	6.192	6.190	6.188	6.195	6.197	6.212	6.207
32	6.198	6.198	6.200	6.199	6.199	6.202	6.205	6.208	6.230	6.299
33	6.107	6.108	6.116	6.113	6.111	6.115	6.114	6.120	6.141	6.138
34	6.155	6.157	6.155	6.156	6.160	6.159	6.159	6.161	6.176	6.175
35	6.171	6.176	6.180	6.179	6.179	6.179	6.183	6.185	6.199	6.198
36	6.197	6.198	6.205	6.205	6.204	6.203	6.203	6.212	6.223	6.224
37	6.189	6.188	6.190	6.194	6.188	6.196	6.198	6.200	6.221	6.212
38	6.179	6.179	6.179	6.180	6.178	6.186	6.185	6.186	6.208	6.205
39	6.111	6.110	6.114	6.113	6.112	6.112	6.115	6.120	6.138	6.136
40	6.143	6.146	6.143	6.144	6.148	6.147	6.146	6.153	6.174	6.165
41	6.122	6.128	6.126	6.130	6.130	6.130	6.126	6.139	6.151	6.147
42	6.122	6.123	6.123	6.130	6.128	6.129	6.130	6.136	6.149	6.149
43	6.142	6.143	6.144	6.146	6.140	6.146	6.144	6.148	6.167	6.164
44	6.181	6.188	6.185	6.190	6.188	6.190	6.184	6.197	6.208	6.212
45	6.111	6.115	6.115	6.118	6.116	6.113	6.118	6.121	6.139	6.137
46	6.139	6.138	6.137	6.141	6.136	6.139	6.137	6.147	6.158	6.161
47	6.154	6.152	6.158	6.156	6.156	6.159	6.156	6.159	6.178	6.178
48	6.109	6.115	6.113	6.109	6.109	6.113	6.112	6.118	6.131	6.136
49	6.119	6.117	6.123	6.120	6.118	6.117	6.119	6.130	6.145	6.147
50	6.182	6.186	6.183	6.180	6.180	6.183	6.180	6.192	6.207	6.204
Ave.	6.153	6.155	6.157	6.158	6.157	6.158	6.158	6.164	6.181	6.181
Med.	6.154	6.152	6.155	6.156	6.156	6.159	6.156	6.159	6.176	6.175
st dev	0.0309	0.0308	0.0308	0.0313	0.0314	0.0312	0.0317	0.0309	0.0316	0.0378
Min.	6.107	6.108	6.113	6.109	6.109	6.112	6.112	6.118	6.131	6.136
Max.	6.198	6.198	6.205	6.205	6.204	6.203	6.205	6.212	6.230	6.299

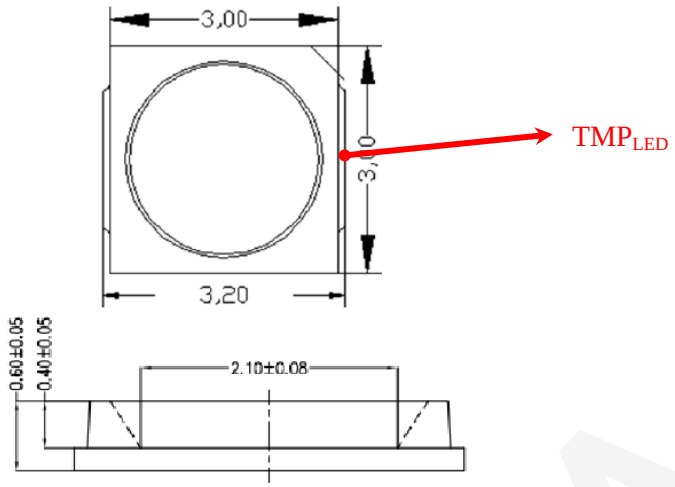
3.6 Data Set 2, 105°C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')								
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	0.2499	0.5213	3018	0.0006	0.0008	0.0011	0.0014	0.0016	0.0019	0.0021	0.0022	0.0026
27	0.2509	0.5207	2997	0.0006	0.0009	0.0010	0.0013	0.0016	0.0019	0.0021	0.0021	0.0026
28	0.2504	0.5198	3014	0.0007	0.0009	0.0011	0.0013	0.0016	0.0019	0.0020	0.0021	0.0027
29	0.2506	0.5225	2993	0.0006	0.0008	0.0010	0.0013	0.0016	0.0018	0.0020	0.0020	0.0025
30	0.2495	0.5180	3048	0.0006	0.0009	0.0011	0.0014	0.0016	0.0020	0.0021	0.0021	0.0027
31	0.2490	0.5197	3049	0.0004	0.0008	0.0010	0.0013	0.0015	0.0018	0.0019	0.0021	0.0026
32	0.2502	0.5173	3037	0.0006	0.0009	0.0011	0.0014	0.0017	0.0020	0.0022	0.0024	0.0027
33	0.2500	0.5179	3036	0.0005	0.0008	0.0010	0.0013	0.0015	0.0019	0.0020	0.0025	0.0027
34	0.2496	0.5179	3048	0.0007	0.0009	0.0011	0.0014	0.0017	0.0020	0.0022	0.0025	0.0027
35	0.2492	0.5161	3071	0.0006	0.0009	0.0010	0.0014	0.0016	0.0020	0.0021	0.0024	0.0027
36	0.2496	0.5192	3037	0.0005	0.0008	0.0010	0.0013	0.0016	0.0018	0.0021	0.0024	0.0027
37	0.2483	0.5163	3091	0.0006	0.0009	0.0011	0.0014	0.0016	0.0019	0.0021	0.0025	0.0028
38	0.2527	0.5230	2940	0.0007	0.0009	0.0011	0.0014	0.0017	0.0019	0.0022	0.0024	0.0027
39	0.2501	0.5200	3021	0.0007	0.0009	0.0010	0.0013	0.0017	0.0019	0.0021	0.0024	0.0027
40	0.2497	0.5182	3044	0.0007	0.0009	0.0010	0.0015	0.0017	0.0020	0.0022	0.0026	0.0028
41	0.2515	0.5219	2973	0.0006	0.0009	0.0010	0.0013	0.0016	0.0019	0.0022	0.0023	0.0027
42	0.2515	0.5209	2979	0.0006	0.0008	0.0010	0.0014	0.0016	0.0019	0.0021	0.0024	0.0026
43	0.2507	0.5229	2987	0.0007	0.0009	0.0010	0.0013	0.0016	0.0019	0.0021	0.0024	0.0028
44	0.2494	0.5197	3039	0.0006	0.0008	0.0010	0.0013	0.0015	0.0018	0.0020	0.0024	0.0027
45	0.2516	0.5226	2969	0.0006	0.0008	0.0010	0.0013	0.0016	0.0018	0.0021	0.0024	0.0026
46	0.2507	0.5225	2991	0.0006	0.0009	0.0010	0.0013	0.0016	0.0019	0.0021	0.0024	0.0026
47	0.2504	0.5186	3024	0.0007	0.0010	0.0011	0.0015	0.0018	0.0021	0.0022	0.0025	0.0029
48	0.2502	0.5229	3000	0.0007	0.0009	0.0011	0.0013	0.0017	0.0019	0.0022	0.0024	0.0028
49	0.2494	0.5217	3027	0.0006	0.0008	0.0010	0.0013	0.0016	0.0018	0.0021	0.0025	0.0028
50	0.2496	0.5178	3047	0.0006	0.0009	0.0012	0.0014	0.0017	0.0019	0.0020	0.0026	0.0028
Ave.	0.2502	0.5200	3019	0.0006	0.0009	0.0011	0.0014	0.0016	0.0019	0.0021	0.0023	0.0027
Med.	0.2501	0.5198	3024	0.0006	0.0009	0.0010	0.0013	0.0016	0.0019	0.0021	0.0024	0.0027
st dev	0.0010	0.0022	34.8329	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001
Min.	0.2483	0.5161	2940	0.0004	0.0008	0.0010	0.0013	0.0015	0.0018	0.0019	0.0020	0.0025
Max.	0.2527	0.5230	3091	0.0007	0.0010	0.0012	0.0015	0.0018	0.0021	0.0022	0.0026	0.0029



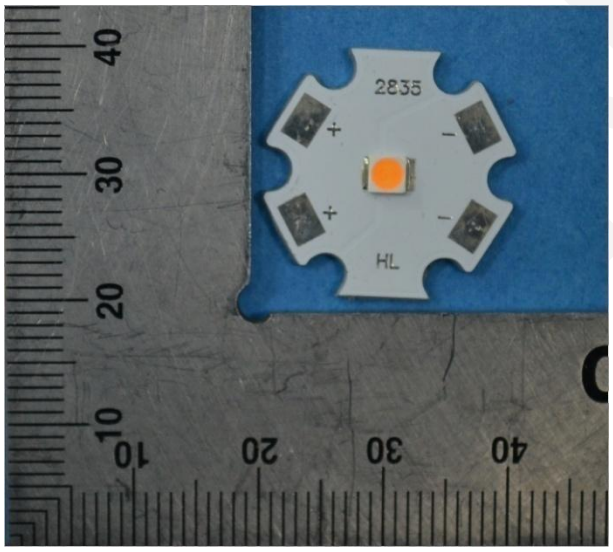
4 - EUT Photo

4.1 Mechanical Dimensions



All dimensions are in millimeter

4.2 EUT Photo



4.3 Report Revision

Report Number	Report Date	Contents
RSZ160313501-10-9000	2017-03-28	Original report.
RSZ160313501-10-9000-M1	2019-01-12	Update the Logo of lab on the Page 1 Update Company name and address on page 1. Add DUT Characteristics on page 3 according to ENERGY STAR requirements

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