



IES LM-80-2008

MEASURING LUMEN MAINTENANCE OF LED LIGHT SOURCES

MEASUREMENT AND TEST REPORT

For

Shenzhen Mason Technologies Co.,Ltd

B Bid,Ya Sheng Industrial Park.Gangchang Road.ZhenMei,guangMing Street.GuangMing New District ,ShenZhen China

Model: MS-A5730LWAR-XXXX

Report Type: 6000 Hours Test Report		Product Type: LED Package	
Test Engineer:	Jack Zhou	<i>Jack Zhou</i>	
Report Number:	RSZ120524503-10		
Test Date:	2012-05-09 to 2013-01-14		
Report Date:	2013-02-25		
Reviewed By:	Jeanne Han /Safety Manager	<i>Jeanne Han</i>	
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). Pu Long Cun 69, Puxinghu Industrial Area, Tangxia Town, Dongguan, Guangdong, P.R.China. Tel: +86-0769-86858888 Fax:+86-0769-86858588		

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

Devices tested

Part Number: MS-A5730LWAR-SF93
 Part Name: /
 Part Type: LED Package
 Nominal CCT: 3500K

Family Declaration:

Manufacturer declare that the MS-A5730LWAR serial models have different nominal CCTs and can be covered by this report under *ENERGY STAR® Program Guidance Regarding LED Package, LED Array and LED Module Lumen Maintenance Performance Data Supporting Qualification of Lighting Products*. The nominal CCT will be represented by suffix.

1.2 Standards Used:

- IESNA LM-80-08: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.

1.3 Test Facility

The testing facility used by Bay Area Compliance Laboratories Corp. (Dongguan). is located at Pu Long Cun 69, Puxinghu Industrial Area, Tangxia Town, Dongguan, Guangdong, P.R.China.

1.4 Description of Auxiliary Equipment

Device	Manufacture	Model No	Serial No	Test Range	Calibration date	Calibration due date
Integral Sphere	EVERFINE	Diameter 0.3M	1011119	380-780nm, length:0.3M ,0- 1999LUMEN	2013-02-19	2014-02-18
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	15V/2000mA	2013-02-15	2014-02-14
Standard Light Source	EVERFINE	D062	1011064	N/A	2013-02-23	2014-02-22
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	380-780nm	2013-02-15	2014-02-14

1.5 Operating Cycle

Samples are driven with a constant direct current (DC)

1.6 Ambient Conditions

For lumen maintenance test, samples were operated in thermal chambers with minimal ambient airflow. For long term reliability test, the case temperature was controlled by mounting several thermocouples on a sample reliability stress board at the designated thermal measurement point, as shown in APPENDIX. The ambient temperature T_A was measured by several thermocouples at a distance of 5 mm above the reliability test board. The relative humidity within chamber was less than 65%.

For photometry measurement, temperature was set to $25\text{ }^\circ\text{C} \pm 2\text{ }^\circ\text{C}$, RH <65%.

1.7 Photometry 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 $U=21\text{K}$ ($K=2$), at the 95% confidence level. This calibration results traceable to the NATIONAL INSTITUTE OF METROLOGY (NIM).

1.8 Sample Set

Data Set 1: 55 °C, 120mA

Part Number:	MS-A5730LWAR-SF93
Number of Units:	25
Actual Case Temperature(T_S):	$T_S = 54.5\text{ }^\circ\text{C}$
Actual Ambient Temperature(T_A):	$T_A = 51.2\text{ }^\circ\text{C}$
Life Test Drive Current:	$I_F = 120\text{mA}$
Measurement Current:	$I_F = 120\text{mA}$

Data Set 2: 85 °C, 120mA

Part Number:	MS-A5730LWAR-SF93
Number of Units:	25
Actual Case Temperature(T_S):	$T_S = 84.2\text{ }^\circ\text{C}$
Actual Ambient Temperature(T_A):	$T_A = 81.2\text{ }^\circ\text{C}$
Life Test Drive Current:	$I_F = 120\text{mA}$
Measurement Current:	$I_F = 120\text{mA}$

Data Set 3: 100 °C, 120mA

Part Number:	MS-A5730LWAR-SF93
Number of Units:	25
Actual Case Temperature(T_S):	$T_S = 99.1\text{ }^\circ\text{C}$
Actual Ambient Temperature(T_A):	$T_A = 97.5\text{ }^\circ\text{C}$
Life Test Drive Current:	$I_F = 120\text{mA}$
Measurement Current:	$I_F = 120\text{mA}$

2 - SUMMARY OF TEST RESULT

Data Set:	Data Set 1, 55 °C, 120mA
Number of Units:	25
Failures Observed:	0
Average. Lumen Maintenance at 6000 hours:	95.79%
Average Chromaticity Shift at 6000 hours ($\Delta u'v'$):	0.0012
Reported TM-21 L ₇₀ Lifetime:	>36,000 hours

Data Set:	Data Set 2, 85 °C, 120mA
Number of Units:	25
Failures Observed:	0
Average. Lumen Maintenance at 6000 hours:	95.00%
Average Chromaticity Shift at 6000 hours($\Delta u'v'$):	0.0011
Reported TM-21 L ₇₀ Lifetime	>36,000 hours

Data Set:	Data Set 2, 100 °C, 120mA
Number of Units:	25
Failures Observed:	0
Average. Lumen Maintenance at 6000 hours:	94.04%
Average Chromaticity Shift at 6000 hours($\Delta u'v'$):	0.0013
Reported TM-21 L ₇₀ Lifetime	30,000 hours

3 - Test Data

3.1 Data Set 1, 55 °C, 120mA (Lumen Maintenance)

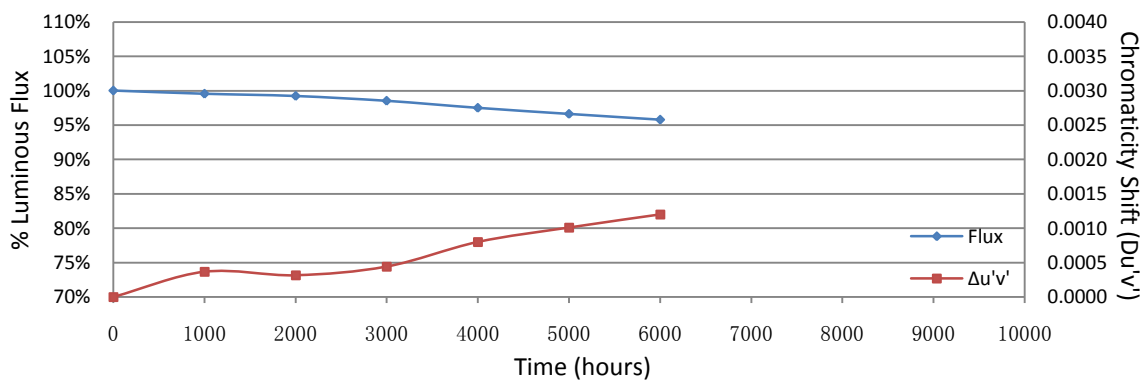
No.	V _F (V)	Φ(lm)	Lumen Maintenance (%)					
			Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs
1	3.257	44.82	99.49	99.22	98.57	97.63	96.63	95.94
2	3.298	44.28	99.48	99.23	98.42	97.38	96.50	95.64
3	3.268	44.33	99.66	99.30	98.47	97.59	96.59	95.78
4	3.230	44.75	99.49	99.17	98.44	97.50	96.54	95.73
5	3.207	45.06	99.40	99.16	98.45	97.47	96.63	95.89
6	3.209	44.53	99.82	99.44	98.72	97.73	96.90	96.03
7	3.208	44.47	99.44	99.12	98.47	97.41	96.56	95.84
8	3.243	44.80	99.33	99.11	98.33	97.32	96.47	95.56
9	3.216	44.45	99.82	99.37	98.56	97.62	96.74	95.88
10	3.240	44.36	99.68	99.35	98.62	97.57	96.84	96.06
11	3.219	44.30	99.30	99.14	98.60	97.58	96.75	95.91
12	3.243	44.85	99.31	99.13	98.53	97.44	96.57	95.59
13	3.351	44.45	99.75	99.30	98.61	97.62	96.72	95.93
14	3.241	44.59	99.35	99.13	98.34	97.35	96.48	95.56
15	3.203	44.60	99.78	99.30	98.59	97.58	96.73	95.96
16	3.209	44.38	99.59	99.30	98.54	97.45	96.58	95.79
17	3.208	44.53	99.80	99.33	98.56	97.60	96.74	95.96
18	3.209	44.22	99.73	99.41	98.67	97.54	96.70	95.79
19	3.212	44.32	99.75	99.32	98.58	97.50	96.64	95.67
20	3.231	44.80	99.55	99.15	98.55	97.50	96.50	95.56
21	3.333	44.47	99.39	99.12	98.45	97.35	96.40	95.66
22	3.217	44.92	99.49	99.18	98.44	97.46	96.55	95.73
23	3.206	44.68	99.75	99.33	98.48	97.36	96.42	95.70
24	3.210	44.50	99.71	99.30	98.61	97.51	96.67	95.84
25	3.210	44.67	99.42	99.13	98.34	97.40	96.55	95.63
Ave.	3.235	44.57	99.57	99.24	98.52	97.50	96.62	95.79
Med.	3.217	44.53	99.55	99.23	98.54	97.50	96.59	95.79
st dev	0.0396	0.2237	0.0018	0.0010	0.0010	0.0011	0.0013	0.0015
Min.	3.203	44.22	99.30	99.11	98.33	97.32	96.40	95.56
Max.	3.351	45.06	99.82	99.44	98.72	97.73	96.90	96.06

TM-21 Projection:

Test Duration: 6000 hours
Failures Observed: 0
 α : 8.120E-06
 β : 1.007
Calculated L₇₀: 45,000 hours
Reported L₇₀: >36,000 hours

3.2 Data Set 1, 55 °C, 120mA (Chromaticity Shift)

No.	u'	v'	Chromaticity Shift ($\Delta u'v'$)					
	Ohr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.2348	0.5176	0.0007	0.0006	0.0009	0.0010	0.0013	0.0014
2	0.2343	0.5179	0.0006	0.0006	0.0004	0.0010	0.0011	0.0013
3	0.2340	0.5181	0.0007	0.0004	0.0001	0.0009	0.0010	0.0013
4	0.2340	0.5185	0.0011	0.0003	0.0006	0.0006	0.0011	0.0013
5	0.2336	0.5177	0.0001	0.0004	0.0004	0.0005	0.0008	0.0011
6	0.2342	0.5184	0.0004	0.0006	0.0005	0.0009	0.0011	0.0013
7	0.2346	0.5172	0.0005	0.0005	0.0007	0.0010	0.0011	0.0012
8	0.2340	0.5177	0.0007	0.0001	0.0002	0.0006	0.0009	0.0009
9	0.2335	0.5168	0.0006	0.0007	0.0007	0.0010	0.0011	0.0014
10	0.2345	0.5161	0.0003	0.0004	0.0002	0.0008	0.0011	0.0013
11	0.2345	0.5162	0.0001	0.0002	0.0005	0.0009	0.0011	0.0013
12	0.2337	0.5189	0.0002	0.0002	0.0005	0.0007	0.0010	0.0010
13	0.2337	0.5175	0.0001	0.0003	0.0001	0.0003	0.0006	0.0007
14	0.2340	0.5169	0.0000	0.0003	0.0002	0.0004	0.0007	0.0009
15	0.2342	0.5183	0.0000	0.0002	0.0005	0.0006	0.0009	0.0012
16	0.2342	0.5179	0.0001	0.0002	0.0005	0.0006	0.0009	0.0010
17	0.2340	0.5166	0.0001	0.0004	0.0004	0.0010	0.0011	0.0013
18	0.2339	0.5173	0.0000	0.0001	0.0002	0.0009	0.0010	0.0013
19	0.2342	0.5157	0.0001	0.0003	0.0006	0.0011	0.0013	0.0014
20	0.2342	0.5193	0.0005	0.0003	0.0005	0.0008	0.0010	0.0014
21	0.2343	0.5168	0.0001	0.0000	0.0008	0.0008	0.0009	0.0012
22	0.2342	0.5180	0.0001	0.0000	0.0007	0.0008	0.0009	0.0010
23	0.2331	0.5179	0.0003	0.0001	0.0003	0.0005	0.0008	0.0010
24	0.2336	0.5159	0.0008	0.0003	0.0003	0.0012	0.0015	0.0016
25	0.2334	0.5174	0.0007	0.0003	0.0001	0.0009	0.0011	0.0012
Ave.	0.2340	0.5175	0.0004	0.0003	0.0004	0.0008	0.0010	0.0012
Med.	0.2340	0.5176	0.0003	0.0003	0.0005	0.0008	0.0010	0.0013
st dev	0.0004	0.0009	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002
Min.	0.2348	0.5193	0.0000	0.0000	0.0001	0.0003	0.0006	0.0007
Max.	0.2331	0.5157	0.0011	0.0007	0.0009	0.0012	0.0015	0.0016



3.3 Data Set 2, 85 °C, 120mA (Lumen Maintenance)

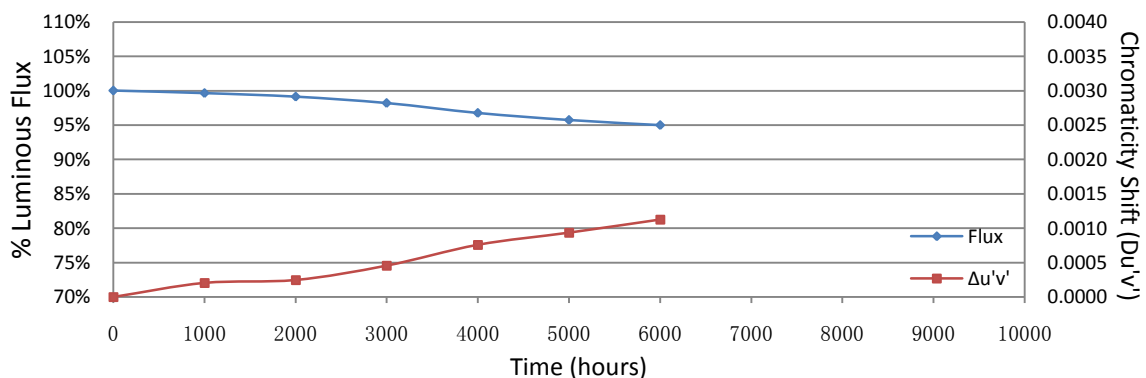
No.	V _F (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3.218	44.62	99.55	98.92	98.05	96.68	95.83	94.94
2	3.220	44.49	99.60	98.94	98.00	96.52	95.50	94.85
3	3.205	44.53	99.57	99.10	98.11	96.65	95.46	94.79
4	3.215	44.95	99.78	99.22	98.38	96.95	95.91	95.24
5	3.262	44.66	99.84	99.35	98.34	96.84	96.01	95.16
6	3.210	44.61	99.64	99.15	98.27	96.70	95.81	95.20
7	3.215	44.99	99.58	98.93	98.13	96.75	95.71	95.00
8	3.223	44.76	99.87	99.29	98.19	96.67	95.69	95.06
9	3.293	44.58	99.87	99.26	98.25	96.79	95.76	95.15
10	3.220	44.58	99.87	99.33	98.23	96.86	95.76	95.07
11	3.198	45.24	99.58	98.94	98.10	96.66	95.51	94.76
12	3.211	44.77	99.64	99.13	98.21	96.72	95.80	95.04
13	3.209	44.50	99.69	99.15	98.09	96.67	95.66	94.94
14	3.214	44.62	99.53	99.17	98.36	96.82	95.72	94.91
15	3.198	44.18	99.64	99.19	98.26	96.92	95.97	95.20
16	3.220	44.34	99.82	99.26	98.33	96.73	95.58	94.77
17	3.235	44.49	99.64	99.12	98.13	96.79	95.64	94.83
18	3.281	45.05	99.53	99.02	98.05	96.51	95.45	94.78
19	3.235	44.89	99.53	99.00	98.17	96.84	95.79	95.10
20	3.210	45.02	99.44	98.93	98.11	96.78	95.74	94.91
21	3.217	44.81	99.44	99.02	98.15	96.72	95.83	95.25
22	3.245	44.89	99.84	99.26	98.13	96.86	95.81	95.26
23	3.202	44.46	99.62	99.12	98.25	96.67	95.75	94.96
24	3.293	45.05	99.51	99.02	98.05	96.56	95.52	94.78
25	3.212	44.72	99.60	99.13	98.28	96.89	95.84	95.01
Ave.	3.226	44.71	99.65	99.12	98.19	96.74	95.72	95.00
Med.	3.217	44.66	99.62	99.13	98.17	96.73	95.75	95.00
st dev	0.0276	0.2534	0.0014	0.0013	0.0011	0.0012	0.0015	0.0017
Min.	3.198	44.18	99.44	98.92	98.00	96.51	95.45	94.76
Max.	3.293	45.24	99.87	99.35	98.38	96.95	96.01	95.26

TM-21 Projection:

Test Duration: 6000 hours
Failures Observed: 0
 α : 1.024E-05
 β : 1.009
Calculated L₇₀: 36,000 hours
Reported L₇₀: >36,000 hours

3.4 Data Set 2, 85 °C, 120mA (Chromaticity Shift)

No.	u'	v'	Chromaticity Shift ($\Delta u'v'$)					
	Ohr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.2348	0.5179	0.0002	0.0004	0.0005	0.0007	0.0009	0.0010
2	0.2341	0.5170	0.0002	0.0004	0.0007	0.0005	0.0007	0.0008
3	0.2346	0.5155	0.0004	0.0001	0.0005	0.0006	0.0007	0.0009
4	0.2345	0.5190	0.0001	0.0002	0.0003	0.0009	0.0009	0.0010
5	0.2341	0.5164	0.0002	0.0003	0.0006	0.0010	0.0010	0.0012
6	0.2341	0.5198	0.0001	0.0001	0.0002	0.0008	0.0009	0.0012
7	0.2341	0.5181	0.0002	0.0004	0.0006	0.0006	0.0009	0.0011
8	0.2338	0.5176	0.0001	0.0001	0.0004	0.0008	0.0008	0.0010
9	0.2339	0.5183	0.0001	0.0001	0.0006	0.0008	0.0009	0.0009
10	0.2343	0.5167	0.0001	0.0001	0.0003	0.0007	0.0009	0.0011
11	0.2332	0.5167	0.0001	0.0003	0.0007	0.0009	0.0011	0.0014
12	0.2339	0.5175	0.0004	0.0002	0.0002	0.0008	0.0009	0.0012
13	0.2338	0.5175	0.0001	0.0001	0.0004	0.0005	0.0008	0.0010
14	0.2343	0.5185	0.0003	0.0002	0.0001	0.0009	0.0013	0.0015
15	0.2349	0.5156	0.0002	0.0001	0.0004	0.0009	0.0012	0.0014
16	0.2336	0.5167	0.0001	0.0001	0.0008	0.0008	0.0012	0.0014
17	0.2341	0.5190	0.0002	0.0003	0.0007	0.0009	0.0010	0.0011
18	0.2333	0.5171	0.0003	0.0004	0.0004	0.0007	0.0008	0.0009
19	0.2336	0.5181	0.0003	0.0004	0.0001	0.0006	0.0010	0.0011
20	0.2338	0.5176	0.0002	0.0004	0.0005	0.0011	0.0012	0.0012
21	0.2350	0.5166	0.0002	0.0001	0.0006	0.0010	0.0012	0.0014
22	0.2337	0.5191	0.0001	0.0002	0.0008	0.0010	0.0012	0.0015
23	0.2340	0.5166	0.0002	0.0003	0.0004	0.0004	0.0004	0.0007
24	0.2337	0.5195	0.0002	0.0006	0.0000	0.0005	0.0009	0.0009
25	0.2336	0.5164	0.0002	0.0003	0.0005	0.0006	0.0008	0.0011
Ave.	0.2340	0.5176	0.0002	0.0002	0.0005	0.0008	0.0009	0.0011
Med.	0.2340	0.5175	0.0002	0.0002	0.0005	0.0008	0.0009	0.0011
st dev	0.0005	0.0012	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002
Min.	0.2350	0.5198	0.0001	0.0001	0.0000	0.0004	0.0004	0.0007
Max.	0.2332	0.5155	0.0004	0.0006	0.0008	0.0011	0.0013	0.0015



3.5 Data Set 3, 100 °C, 120mA (Lumen Maintenance)

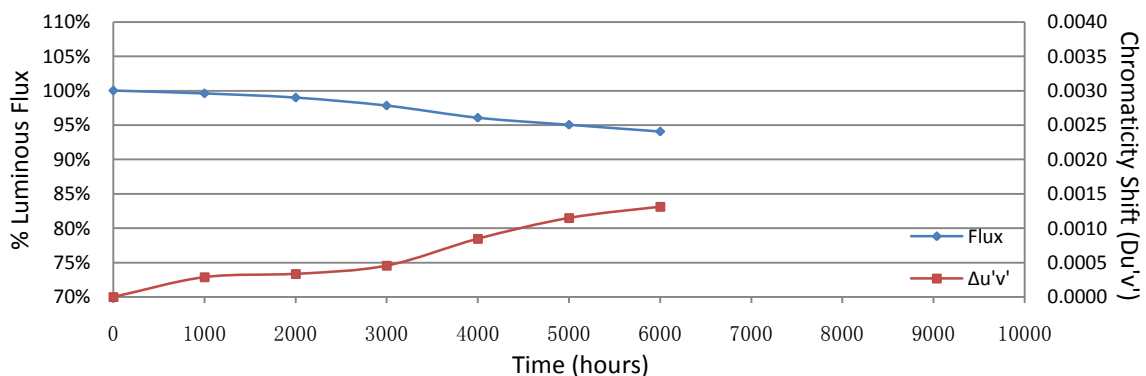
No.	V _F (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3.321	44.64	99.80	99.15	98.01	96.17	95.07	94.09
2	3.228	44.25	99.68	98.94	97.94	96.09	95.19	94.12
3	3.235	44.76	99.62	99.02	97.70	95.82	94.71	93.86
4	3.234	44.27	99.71	98.92	97.92	96.09	95.08	94.22
5	3.247	44.83	99.51	98.93	97.86	96.03	94.94	93.78
6	3.215	44.66	99.53	99.08	98.03	96.22	95.25	94.31
7	3.246	44.37	99.55	98.94	97.79	96.01	95.09	94.19
8	3.210	44.44	99.59	99.01	97.75	96.11	94.98	94.01
9	3.243	44.90	99.58	99.06	97.88	96.15	94.99	93.85
10	3.213	44.41	99.57	98.94	97.88	96.28	95.23	94.35
11	3.225	44.66	99.37	98.88	97.83	96.06	94.92	93.91
12	3.314	44.60	99.55	98.97	97.78	96.19	95.13	94.22
13	3.218	45.21	99.60	99.00	97.97	96.22	95.05	93.81
14	3.231	44.83	99.64	98.95	97.79	96.05	95.16	94.16
15	3.209	44.74	99.49	98.95	97.90	96.20	95.28	94.23
16	3.206	44.81	99.62	99.06	97.79	95.89	94.78	93.75
17	3.215	44.80	99.64	99.00	97.88	96.16	94.82	93.86
18	3.223	44.40	99.50	99.05	97.82	95.90	94.91	94.05
19	3.214	44.73	99.49	98.95	97.90	96.20	95.31	94.25
20	3.225	44.69	99.57	99.06	97.70	95.95	95.17	94.16
21	3.217	44.97	99.62	99.11	97.78	95.89	94.82	93.80
22	3.240	44.65	99.53	99.01	97.81	96.04	95.01	94.13
23	3.211	44.68	99.51	98.86	97.78	96.13	95.08	93.91
24	3.211	45.17	99.58	99.03	97.72	95.95	94.73	93.80
25	3.295	44.91	99.64	99.04	97.86	96.19	95.23	94.26
Ave.	3.234	44.70	99.58	99.00	97.84	96.08	95.04	94.04
Med.	3.225	44.69	99.58	99.00	97.83	96.09	95.07	94.09
st dev	0.0314	0.2464	0.0009	0.0007	0.0009	0.0012	0.0018	0.0019
Min.	3.206	44.25	99.37	98.86	97.70	95.82	94.71	93.75
Max.	3.321	45.21	99.80	99.15	98.03	96.28	95.31	94.35

TM-21 Projection:

Test Duration: 6000 hours
Failures Observed: 0
 α : 1.219E-05
 β : 1.011
Calculated L₇₀: 30,000 hours
Reported L₇₀: 30.000 hours

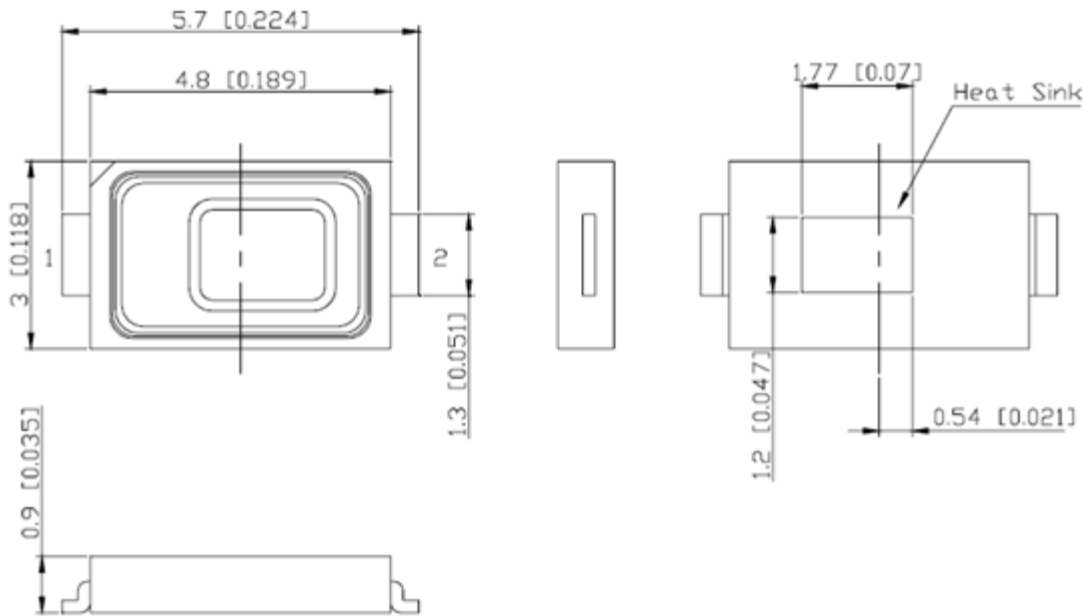
3.6 Data Set 3, 100 °C, 120mA (Chromaticity Shift)

No.	u'	v'	Chromaticity Shift ($\Delta u'v'$)					
	Ohr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.2347	0.5171	0.0002	0.0003	0.0007	0.0008	0.0012	0.0015
2	0.2342	0.5171	0.0004	0.0004	0.0010	0.0010	0.0013	0.0014
3	0.2347	0.5165	0.0002	0.0003	0.0012	0.0007	0.0014	0.0015
4	0.2340	0.5174	0.0005	0.0003	0.0004	0.0009	0.0014	0.0016
5	0.2339	0.5172	0.0003	0.0004	0.0006	0.0007	0.0013	0.0014
6	0.2339	0.5170	0.0002	0.0002	0.0003	0.0006	0.0011	0.0012
7	0.2341	0.5161	0.0002	0.0004	0.0005	0.0008	0.0009	0.0011
8	0.2336	0.5172	0.0002	0.0007	0.0004	0.0006	0.0007	0.0011
9	0.2334	0.5173	0.0004	0.0004	0.0001	0.0006	0.0010	0.0011
10	0.2334	0.5177	0.0001	0.0005	0.0006	0.0008	0.0013	0.0015
11	0.2344	0.5165	0.0003	0.0004	0.0004	0.0007	0.0012	0.0014
12	0.2340	0.5161	0.0003	0.0004	0.0004	0.0007	0.0008	0.0009
13	0.2341	0.5180	0.0004	0.0001	0.0005	0.0011	0.0012	0.0015
14	0.2350	0.5176	0.0004	0.0006	0.0007	0.0009	0.0012	0.0014
15	0.2335	0.5182	0.0002	0.0003	0.0004	0.0009	0.0010	0.0012
16	0.2339	0.5166	0.0002	0.0000	0.0002	0.0009	0.0013	0.0013
17	0.2344	0.5185	0.0003	0.0002	0.0001	0.0008	0.0011	0.0011
18	0.2339	0.5170	0.0002	0.0005	0.0001	0.0010	0.0013	0.0014
19	0.2340	0.5178	0.0002	0.0004	0.0005	0.0010	0.0011	0.0015
20	0.2333	0.5171	0.0004	0.0002	0.0004	0.0008	0.0009	0.0009
21	0.2339	0.5182	0.0003	0.0002	0.0001	0.0009	0.0011	0.0013
22	0.2343	0.5174	0.0004	0.0002	0.0004	0.0006	0.0009	0.0011
23	0.2345	0.5162	0.0003	0.0002	0.0005	0.0011	0.0014	0.0016
24	0.2337	0.5184	0.0002	0.0003	0.0002	0.0009	0.0013	0.0014
25	0.2329	0.5164	0.0003	0.0004	0.0007	0.0011	0.0013	0.0015
Ave.	0.2340	0.5172	0.0003	0.0003	0.0005	0.0008	0.0012	0.0013
Med.	0.2340	0.5172	0.0003	0.0003	0.0004	0.0008	0.0012	0.0014
st dev	0.0005	0.0007	0.0001	0.0002	0.0003	0.0002	0.0002	0.0002
Min.	0.2350	0.5185	0.0001	0.0000	0.0001	0.0006	0.0007	0.0009
Max.	0.2329	0.5161	0.0005	0.0007	0.0012	0.0011	0.0014	0.0016



Appendix A – EUT PHOTO

A.1 Mechanical Dimensions (Ta = 25 °C)



A.2 EUT Photo



TMP_{LED}

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