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检测
TESTING
CNAS L6478

TEST REPORT

Reference No.	:	WTS16F0859568N
Applicant	:	Shenzhen Destar Opto-Electronics Co.,LTD
Address.	:	6th floor, 3 building HanHaiDa 7th Industry park, GongMing YuLv Village, Guangming New district, ShenZhen, GuangDong
Manufacturer	:	Shenzhen Destar Opto-Electronics Co.,LTD
Address.	:	6th floor, 3 building HanHaiDa 7th Industry park, GongMing YuLv Village, Guangming New district, ShenZhen, GuangDong
Product Name	:	SMD4014
Model No	:	4NB18-BEBH-ZJ4-1
Ratings	:	3VDC, 60mA
Standards	:	IES LM-80-08 Approved Method: Measuring Lumen Maintenance of LED Light Source
Date of Receipt sample	:	2016-02-15
Date of Test	:	2016-02-15 to 2016-11-12
Date of Issue	:	2016-12-08
Test Report Form No	:	WPL-LM8008A-02A
Test Result	:	See the attached sheets

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
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Approved by:

WALTEK SERVICES CO., LTD. WALTEK TEST REPORT

Akin Xu / Manager

1. Description of Test Samples

Classification: LED Package
Part Name: SMD4014
Part Number: 4NB18-BEBH-ZJ4-1
Nominal CCT: 2700K

This report also covers the following Series products:

None

2. Standards Used:

- IESNA LM-80-08: IESNA Approved Method for Measuring Lumen Maintenance of LED Light Sources.
- ENERGY STAR® Program Guidance Regarding LED Package, LED Array and LED Module Lumen Maintenance Performance Data Supporting Qualification of Lighting Products(This test method was not accredited by IAS)

3. Operating Cycle

The testing facility used by Waltek Services (Foshan) Co., Ltd. is located at No. 13-19, 2/F, 2nd Building, Sunlink International Machinery City, Chencun Town, Shunde District, Foshan, Guangdong, China

4. Operating Cycle

Samples are driven with a constant direct current (DC)

5. 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 Attachment. 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°C ± 2°C, RH <65%.

6. Photometry Measurement Uncertainty

The uncertainty of the light output measurements is U=1.8% (K=2), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is U=20K (K=2), at the 95% confidence level. This calibration results traceable to the Guangzhou Institute of Measurement and Testing Technology.

7. Sample Set

Part Number:	4NB18-BEBH-ZJ4-1
Number of Units:	25
Actual Case Temperature(T_S):	T_S =54.5°C
Actual Ambient Temperature(T_A):	T_A =53.9°C
Life Test Drive Current:	I_F = 60mA
Measurement Current:	I_F = 60mA

Part Number:	4NB18-BEBH-ZJ4-1
Number of Units:	25
Actual Case Temperature(T_S):	T_S =83.9°C
Actual Ambient Temperature(T_A):	T_A =83.4°C
Life Test Drive Current:	I_F = 60mA
Measurement Current:	I_F = 60mA

Part Number:	4NB18-BEBH-ZJ4-1
Number of Units:	25
Actual Case Temperature(T_S):	T_S =104.2°C
Actual Ambient Temperature(T_A):	T_A =103.8°C
Life Test Drive Current:	I_F = 60mA
Measurement Current:	I_F = 60mA

8. SUMMARY OF TEST RESULT

Data Set:	Data Set 1, 55°C, 60mA
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h
Average. Lumen Maintenance at 6000 hours:	97.75%
Average Chromaticity Shift at 6000 hours (Δu'v'):	0.0018
Reported TM-21 L 70 Lifetime:	>36000h

Data Set:	Data Set 2, 85°C, 60mA
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h
Average. Lumen Maintenance at 6000 hours:	97.26%
Average Chromaticity Shift at 6000 hours (Δu'v'):	0.0020
Reported TM-21 L 70 Lifetime:	>36000h

Data Set:	Data Set 3, 105°C, 60mA
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h
Average. Lumen Maintenance at 6000 hours:	96.33%
Average Chromaticity Shift at 6000 hours (Δu'v'):	0.0023
Reported TM-21 L 70 Lifetime:	>36000h

Data sheet 1:

Driver current	**60(mA)**	**Target Case temperature**	**55°C**
Measurement current	**60(mA)**	**Actual case temperature**	**54.5°C**

Lumen Maintenance:

S/N	TLF(lm)	V_F(V)	Lumen Maintenance(%)					
	Initial(0hr)		1000h	2000h	3000h	4000h	5000h	6000h
A01	23.8	2.95	100.16	99.91	99.46	99.03	98.43	97.71
A02	23.7	2.98	100.18	99.98	99.66	99.31	98.84	98.17
A03	22.9	2.95	100.11	99.83	99.58	99.20	98.72	97.89
A04	23.8	2.98	100.07	99.83	99.54	99.18	98.77	98.13
A05	23.2	3.06	99.97	99.72	99.47	99.14	98.77	98.15
A06	23.7	2.98	100.05	99.83	99.48	99.16	98.70	98.06
A07	23.8	2.95	100.13	99.77	99.41	98.98	98.40	97.74
A08	22.8	2.95	100.18	99.67	99.26	98.71	98.35	97.53
A09	23.8	2.98	100.05	99.71	99.24	98.56	98.08	97.47
A10	23.9	2.95	100.07	99.59	99.28	98.71	98.22	97.42
A11	23.1	2.95	99.93	99.82	99.43	99.09	98.41	97.87
A12	23.3	2.95	100.02	99.84	99.61	99.29	98.88	98.31
A13	23.1	2.95	99.90	99.75	99.47	99.02	98.51	97.88
A14	23.1	3.06	100.07	99.81	99.56	99.25	98.82	98.04
A15	23.7	2.98	100.09	99.96	99.70	99.31	98.78	98.13
A16	23.8	2.98	100.18	100.05	99.80	99.42	98.91	98.16
A17	22.8	2.95	100.24	99.96	99.53	99.11	98.53	97.83
A18	23.4	2.98	100.19	99.89	99.44	98.88	98.28	97.56
A19	22.8	2.95	100.13	99.85	99.52	99.09	98.46	97.80
A20	23.6	2.95	100.05	99.72	99.29	98.67	98.06	97.14
A21	23.1	3.06	100.25	99.77	99.42	99.05	98.49	97.59
A22	23.7	2.98	100.22	99.73	99.40	98.96	98.43	97.62
A23	23.0	2.98	100.27	99.69	99.35	98.89	98.18	97.35
A24	23.9	2.95	100.41	99.71	99.31	98.80	98.03	97.22
A25	23.6	2.95	100.26	99.77	99.33	98.79	97.97	97.08
Avg	**23.4**	**2.97**	**100.13**	**99.81**	**99.46**	**99.02**	**98.48**	**97.75**
Max	23.9	3.06	100.41	100.05	99.80	99.42	98.91	98.31
Min	22.8	2.95	99.90	99.59	99.24	98.56	97.97	97.08
Med	23.6	2.95	100.13	99.81	99.46	99.05	98.46	97.80
Std. dev	0.4	0.04	0.12	0.11	0.14	0.23	0.29	0.35

Note: TLF= Total Luminous Flux

TM-21 Projection:

Test Duration	6000h
Failures Observed	0
α	4.713E-06
β	1.008
Calculated L_{70}	77000h
Reported L_{70}	>36000h

Chromaticity Shift(Δu'v'):									
S/N	Initial(0hr)		CCT (K)	1000h	2000h	3000h	4000h	5000h	6000h
	CIEu'	CIEv'							
A01	0.2598	0.5368	2718	0.0001	0.0004	0.0008	0.0011	0.0014	0.0019
A02	0.2632	0.5359	2653	0.0001	0.0003	0.0007	0.0011	0.0014	0.0018
A03	0.2552	0.5311	2839	0.0001	0.0004	0.0008	0.0011	0.0015	0.0019
A04	0.2579	0.5337	2768	0.0001	0.0003	0.0007	0.0011	0.0014	0.0018
A05	0.2661	0.5362	2598	0.0000	0.0003	0.0006	0.0010	0.0013	0.0018
A06	0.2622	0.5342	2679	0.0001	0.0004	0.0007	0.0011	0.0014	0.0019
A07	0.2650	0.5389	2609	0.0001	0.0003	0.0006	0.0010	0.0014	0.0018
A08	0.2629	0.5381	2651	0.0001	0.0004	0.0007	0.0011	0.0015	0.0019
A09	0.2579	0.5337	2768	0.0001	0.0003	0.0006	0.0010	0.0013	0.0018
A10	0.2597	0.5368	2719	0.0002	0.0004	0.0007	0.0011	0.0015	0.0019
A11	0.2552	0.5311	2840	0.0002	0.0003	0.0006	0.0010	0.0014	0.0018
A12	0.2650	0.5389	2609	0.0001	0.0003	0.0006	0.0009	0.0012	0.0017
A13	0.2552	0.5311	2840	0.0001	0.0004	0.0006	0.0010	0.0013	0.0018
A14	0.2661	0.5362	2597	0.0002	0.0004	0.0007	0.0010	0.0014	0.0019
A15	0.2623	0.5342	2678	0.0001	0.0003	0.0005	0.0009	0.0013	0.0018
A16	0.2580	0.5337	2767	0.0001	0.0004	0.0006	0.0010	0.0013	0.0018
A17	0.2629	0.5381	2651	0.0001	0.0003	0.0005	0.0009	0.0012	0.0017
A18	0.2632	0.5359	2654	0.0001	0.0003	0.0005	0.0009	0.0013	0.0018
A19	0.2629	0.5381	2651	0.0002	0.0003	0.0006	0.0010	0.0014	0.0019
A20	0.2650	0.5389	2609	0.0002	0.0003	0.0005	0.0010	0.0013	0.0018
A21	0.2662	0.5362	2596	0.0001	0.0003	0.0005	0.0009	0.0013	0.0017
A22	0.2622	0.5342	2679	0.0001	0.0003	0.0005	0.0010	0.0014	0.0018
A23	0.2632	0.5359	2654	0.0001	0.0003	0.0005	0.0009	0.0013	0.0017
A24	0.2598	0.5368	2718	0.0002	0.0004	0.0006	0.0010	0.0014	0.0019
A25	0.2650	0.5389	2609	0.0002	0.0003	0.0005	0.0010	0.0014	0.0018
Avg	**0.2617**	**0.5357**	**2686**	**0.0001**	**0.0003**	**0.0006**	**0.0010**	**0.0014**	**0.0018**
Max	0.2662	0.5389	2840	0.0002	0.0004	0.0008	0.0011	0.0015	0.0019
Min	0.2552	0.5311	2596	0.0000	0.0003	0.0005	0.0009	0.0012	0.0017
Med	0.2629	0.5362	2654	0.0001	0.0003	0.0006	0.0010	0.0014	0.0018
Std. dev	0.0035	0.0025	79	0.0001	0.0000	0.0001	0.0001	0.0001	0.0001

Data sheet 2:

Driver current	**60(mA)**	**Target Case temperature**	**85°C**
Measurement current	**60(mA)**	**Actual case temperature**	**83.9°C**

Lumen Maintenance:

S/N	TLF(lm)	V_F(V)	Lumen Maintenance(%)					
	Initial(0hr)		1000h	2000h	3000h	4000h	5000h	6000h
B01	23.8	2.98	99.88	99.58	99.10	98.62	97.98	97.22
B02	23.4	2.95	99.91	99.65	99.29	98.89	98.38	97.67
B03	23.6	2.96	99.84	99.51	99.21	98.79	98.26	97.40
B04	23.5	2.97	99.79	99.51	99.17	98.77	98.31	97.64
B05	23.3	2.98	99.69	99.40	99.11	98.73	98.32	97.65
B06	22.6	2.96	99.78	99.51	99.12	98.75	98.24	97.57
B07	23.9	2.98	99.85	99.45	99.04	98.57	97.95	97.25
B08	24.3	2.98	99.90	99.35	98.90	98.30	97.90	97.04
B09	22.6	2.97	99.78	99.39	98.88	98.15	97.64	96.99
B10	23.3	2.97	99.79	99.27	98.92	98.31	97.77	96.94
B11	23.1	2.97	99.66	99.50	99.07	98.68	97.96	97.37
B12	23.4	2.98	99.75	99.52	99.24	98.87	98.42	97.81
B13	23.5	2.97	99.62	99.43	99.10	98.61	98.06	97.39
B14	23.8	2.97	99.80	99.49	99.19	98.84	98.37	97.55
B15	24.3	2.98	99.82	99.64	99.33	98.89	98.33	97.63
B16	23.9	2.97	99.90	99.73	99.43	99.00	98.45	97.66
B17	23.8	2.97	99.96	99.64	99.17	98.70	98.08	97.33
B18	23.9	2.97	99.92	99.57	99.08	98.47	97.83	97.07
B19	23.1	2.95	99.85	99.52	99.16	98.67	98.01	97.31
B20	23.5	2.98	99.78	99.40	98.93	98.26	97.61	96.66
B21	24.3	2.98	99.98	99.45	99.05	98.64	98.04	97.10
B22	24.0	2.97	99.95	99.41	99.03	98.55	97.98	97.13
B23	24.3	2.98	100.00	99.37	98.99	98.48	97.73	96.86
B24	23.8	2.98	100.13	99.39	98.95	98.39	97.58	96.73
B25	23.4	2.96	99.98	99.45	98.96	98.38	97.52	96.59
Avg	**23.6**	**2.97**	**99.85**	**99.49**	**99.10**	**98.61**	**98.03**	**97.26**
Max	24.3	2.98	100.13	99.73	99.43	99.00	98.45	97.81
Min	22.6	2.95	99.62	99.27	98.88	98.15	97.52	96.59
Med	23.6	2.97	99.85	99.49	99.10	98.64	98.01	97.31
Std. dev	0.5	0.01	0.12	0.11	0.14	0.22	0.28	0.34

TM-21 Projection:

Test Duration	6000h
Failures Observed	0
α	5.163E-06
β	1.005
Calculated L_{70}	70000h
Reported L_{70}	>36000h

Chromaticity Shift(Δu'v'):									
S/N	Initial(0hr)		CCT (K)	1000h	2000h	3000h	4000h	5000h	6000h
	CIEu'	CIEv'							
B01	0.2625	0.5344	2673	0.0002	0.0004	0.0009	0.0012	0.0015	0.0020
B02	0.2618	0.5375	2676	0.0002	0.0004	0.0008	0.0012	0.0015	0.0020
B03	0.2674	0.5383	2566	0.0002	0.0005	0.0009	0.0012	0.0015	0.0020
B04	0.2652	0.5389	2605	0.0002	0.0004	0.0007	0.0011	0.0015	0.0020
B05	0.2624	0.5344	2675	0.0001	0.0004	0.0007	0.0011	0.0014	0.0019
B06	0.2674	0.5383	2566	0.0002	0.0005	0.0008	0.0012	0.0015	0.0020
B07	0.2610	0.5345	2703	0.0002	0.0004	0.0008	0.0011	0.0015	0.0019
B08	0.2625	0.5345	2673	0.0002	0.0005	0.0009	0.0012	0.0016	0.0021
B09	0.2592	0.5335	2742	0.0001	0.0004	0.0007	0.0011	0.0015	0.0019
B10	0.2616	0.5369	2680	0.0003	0.0005	0.0008	0.0013	0.0017	0.0021
B11	0.2593	0.5335	2741	0.0002	0.0004	0.0008	0.0012	0.0015	0.0020
B12	0.2612	0.5338	2702	0.0003	0.0005	0.0009	0.0013	0.0016	0.0020
B13	0.2652	0.5388	2606	0.0003	0.0005	0.0009	0.0013	0.0016	0.0021
B14	0.2612	0.5338	2702	0.0002	0.0004	0.0008	0.0012	0.0015	0.0020
B15	0.2624	0.5344	2675	0.0002	0.0005	0.0009	0.0013	0.0016	0.0021
B16	0.2611	0.5344	2701	0.0003	0.0005	0.0009	0.0013	0.0017	0.0021
B17	0.2616	0.5369	2681	0.0002	0.0004	0.0008	0.0012	0.0016	0.0021
B18	0.2617	0.5375	2677	0.0002	0.0004	0.0008	0.0012	0.0016	0.0020
B19	0.2675	0.5383	2565	0.0003	0.0005	0.0009	0.0013	0.0017	0.0021
B20	0.2592	0.5335	2743	0.0002	0.0004	0.0008	0.0012	0.0016	0.0020
B21	0.2612	0.5338	2701	0.0002	0.0003	0.0008	0.0011	0.0015	0.0019
B22	0.2651	0.5388	2607	0.0002	0.0004	0.0008	0.0011	0.0015	0.0020
B23	0.2624	0.5345	2675	0.0002	0.0003	0.0007	0.0011	0.0015	0.0019
B24	0.2625	0.5345	2673	0.0003	0.0004	0.0009	0.0012	0.0016	0.0020
B25	0.2617	0.5375	2677	0.0002	0.0004	0.0008	0.0011	0.0015	0.0020
Avg	**0.2626**	**0.5358**	**2667**	**0.0002**	**0.0004**	**0.0008**	**0.0012**	**0.0016**	**0.0020**
Max	0.2675	0.5389	2743	0.0003	0.0005	0.0009	0.0013	0.0017	0.0021
Min	0.2592	0.5335	2565	0.0001	0.0003	0.0007	0.0011	0.0014	0.0019
Med	0.2618	0.5345	2676	0.0002	0.0004	0.0008	0.0012	0.0015	0.0020
Std. dev	0.0024	0.0020	52	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Data sheet 3:

Driver current	**60(mA)**	**Target Case temperature**	**105°C**
Measurement current	**60(mA)**	**Actual case temperature**	**104.2°C**

Lumen Maintenance:

S/N	TLF(lm)	V_F(V)	Lumen Maintenance(%)					
	Initial(0hr)		1000h	2000h	3000h	4000h	5000h	6000h
C01	23.6	2.96	99.35	98.90	98.36	97.84	97.20	96.29
C02	23.6	2.96	99.37	98.97	98.56	98.11	97.60	96.74
C03	23.6	2.98	99.30	98.82	98.48	98.00	97.48	96.47
C04	23.1	3.01	99.26	98.83	98.43	97.99	97.53	96.71
C05	23.1	2.97	99.16	98.71	98.37	97.94	97.54	96.72
C06	23.3	2.98	99.24	98.82	98.38	97.96	97.46	96.64
C07	23.6	2.98	99.32	98.77	98.31	97.79	97.16	96.32
C08	23.6	3.02	99.37	98.67	98.16	97.52	97.12	96.11
C09	23.7	2.97	99.24	98.70	98.14	97.37	96.85	96.06
C10	23.3	2.95	99.26	98.58	98.18	97.52	96.99	96.01
C11	23.6	2.97	99.13	98.82	98.33	97.89	97.17	96.44
C12	23.6	2.97	99.21	98.83	98.50	98.09	97.64	96.88
C13	23.8	2.98	99.09	98.75	98.37	97.82	97.28	96.46
C14	23.3	2.95	99.26	98.81	98.45	98.06	97.59	96.62
C15	23.6	2.98	99.28	98.95	98.59	98.11	97.55	96.70
C16	23.1	2.97	99.37	99.04	98.69	98.21	97.67	96.73
C17	23.6	2.97	99.42	98.96	98.43	97.92	97.30	96.40
C18	23.8	2.96	99.38	98.88	98.34	97.68	97.05	96.14
C19	23.6	2.99	99.32	98.84	98.42	97.89	97.23	96.38
C20	23.1	3.02	99.24	98.72	98.19	97.48	96.83	95.73
C21	23.3	2.95	99.44	98.76	98.32	97.85	97.26	96.17
C22	23.6	2.97	99.41	98.73	98.30	97.76	97.20	96.20
C23	24.1	2.98	99.46	98.69	98.25	97.69	96.95	95.93
C24	24.1	2.95	99.60	98.71	98.21	97.60	96.80	95.80
C25	23.9	2.99	99.44	98.76	98.23	97.59	96.74	95.66
Avg	**23.5**	**2.97**	**99.32**	**98.80**	**98.36**	**97.83**	**97.25**	**96.33**
Max	24.1	3.02	99.60	99.04	98.69	98.21	97.67	96.88
Min	23.1	2.95	99.09	98.58	98.14	97.37	96.74	95.66
Med	23.6	2.97	99.32	98.81	98.36	97.85	97.23	96.38
Std. dev	0.3	0.02	0.11	0.11	0.14	0.22	0.29	0.34

TM-21 Projection:

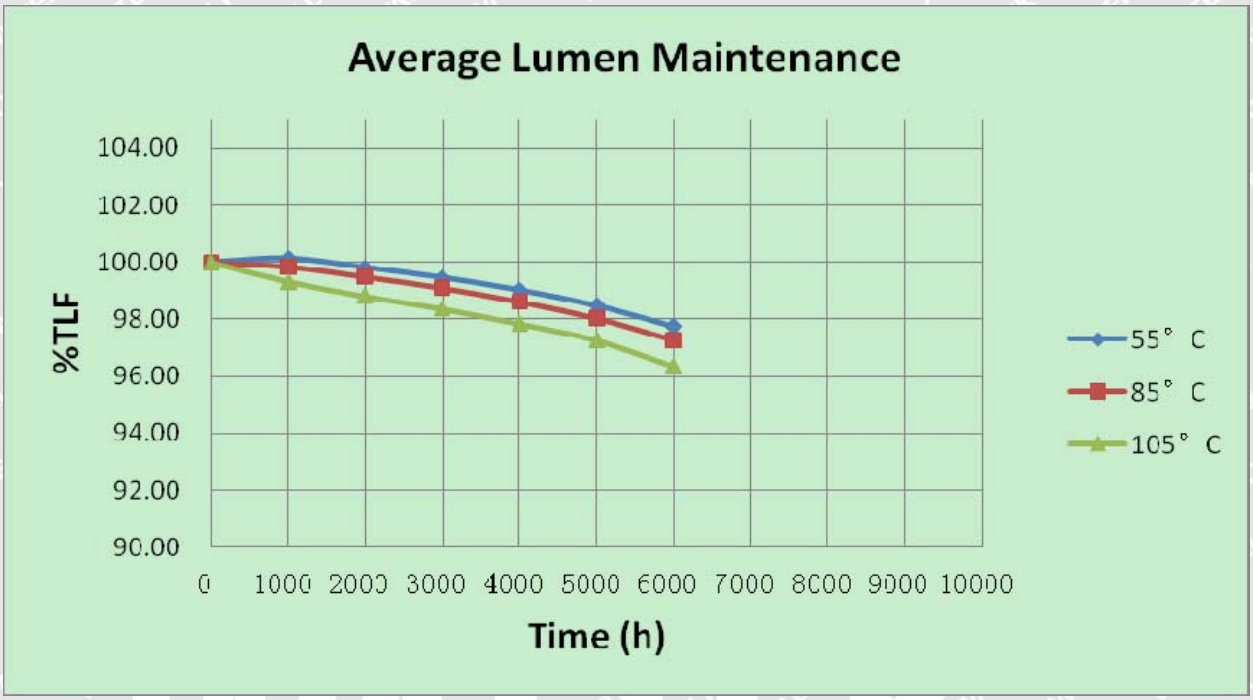
Test Duration	6000h
Failures Observed	0
α	5.876E-06
β	1.000
Calculated L_{70}	61000h
Reported L_{70}	>36000h

Chromaticity Shift(Δu'v'):									
S/N	Initial(0hr)		CCT (K)	1000h	2000h	3000h	4000h	5000h	6000h
	CIEu'	CIEv'							
C01	0.2606	0.5377	2698	0.0003	0.0005	0.0009	0.0014	0.0017	0.0024
C02	0.2603	0.5362	2710	0.0003	0.0005	0.0008	0.0013	0.0016	0.0023
C03	0.2636	0.5354	2648	0.0003	0.0006	0.0009	0.0014	0.0017	0.0023
C04	0.2652	0.5371	2612	0.0002	0.0005	0.0008	0.0013	0.0018	0.0024
C05	0.2672	0.5365	2575	0.0002	0.0004	0.0007	0.0013	0.0017	0.0023
C06	0.2636	0.5357	2647	0.0003	0.0005	0.0009	0.0013	0.0018	0.0024
C07	0.2636	0.5354	2647	0.0002	0.0005	0.0008	0.0012	0.0017	0.0023
C08	0.2652	0.5371	2612	0.0003	0.0006	0.0009	0.0013	0.0017	0.0023
C09	0.2603	0.5362	2710	0.0002	0.0005	0.0009	0.0012	0.0016	0.0023
C10	0.2637	0.5357	2645	0.0004	0.0007	0.0010	0.0013	0.0018	0.0025
C11	0.2637	0.5356	2644	0.0003	0.0006	0.0008	0.0014	0.0017	0.0024
C12	0.2606	0.5377	2698	0.0003	0.0005	0.0010	0.0013	0.0017	0.0023
C13	0.2635	0.5354	2649	0.0003	0.0006	0.0011	0.0014	0.0018	0.0024
C14	0.2642	0.5374	2629	0.0003	0.0005	0.0010	0.0013	0.0017	0.0023
C15	0.2636	0.5354	2649	0.0004	0.0006	0.0011	0.0015	0.0018	0.0024
C16	0.2671	0.5366	2577	0.0003	0.0005	0.0010	0.0014	0.0017	0.0023
C17	0.2638	0.5356	2644	0.0004	0.0006	0.0011	0.0015	0.0019	0.0025
C18	0.2636	0.5357	2646	0.0003	0.0005	0.0010	0.0014	0.0018	0.0022
C19	0.2635	0.5354	2650	0.0003	0.0005	0.0009	0.0014	0.0017	0.0023
C20	0.2653	0.5371	2610	0.0003	0.0005	0.0008	0.0013	0.0016	0.0024
C21	0.2643	0.5374	2628	0.0002	0.0004	0.0008	0.0012	0.0015	0.0022
C22	0.2638	0.5356	2642	0.0003	0.0004	0.0008	0.0012	0.0016	0.0022
C23	0.2606	0.5377	2699	0.0002	0.0004	0.0007	0.0013	0.0016	0.0023
C24	0.2604	0.5362	2709	0.0003	0.0005	0.0009	0.0013	0.0017	0.0022
C25	0.2635	0.5354	2649	0.0003	0.0004	0.0008	0.0013	0.0016	0.0021
Avg	**0.2634**	**0.5363**	**2649**	**0.0003**	**0.0005**	**0.0009**	**0.0013**	**0.0017**	**0.0023**
Max	0.2672	0.5377	2710	0.0004	0.0007	0.0011	0.0015	0.0019	0.0025
Min	0.2603	0.5354	2575	0.0002	0.0004	0.0007	0.0012	0.0015	0.0021
Med	0.2636	0.5362	2647	0.0003	0.0005	0.0009	0.0013	0.0017	0.0023
Std. dev	0.0020	0.0009	38	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Test result:

Data Summary of Lumen and Color Maintenance:

Temp.	TLF(lm)	VF(V)	Luminous Maintenance(%)					
	Initial(0hr)		1000h	2000h	3000h	4000h	5000h	6000h
55°C (Avg)	23.4	2.97	100.13	99.81	99.46	99.02	98.48	97.75
85°C (Avg)	23.6	2.97	99.85	99.49	99.10	98.61	98.03	97.26
105°C (Avg)	23.5	2.97	99.32	98.80	98.36	97.83	97.25	96.33



Average Lumen Maintenance diagram

Temp.	CIEu'	CIEv'	CCT	Chromaticity Shift(Δ u'v')					
	Initial(0hr)			1000h	2000h	3000h	4000h	5000h	6000h
55°C (Avg)	0.2617	0.5357	2686	0.0001	0.0003	0.0006	0.0010	0.0014	0.0018
85°C (Avg)	0.2626	0.5358	2667	0.0002	0.0004	0.0008	0.0012	0.0016	0.0020
105°C (Avg)	0.2593	0.5313	2649	0.0003	0.0005	0.0009	0.0013	0.0017	0.0023

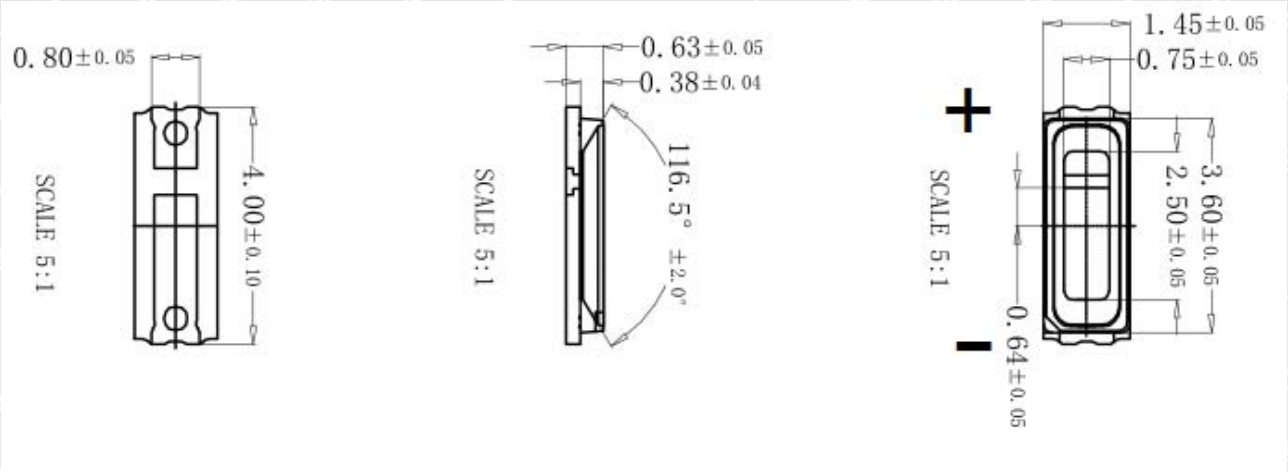
Average Color Maintenance diagram

Attachment 1: Equipment List

Equipment	Model	Calibration due date
The LED accelerated aging and longevity test system	EVERFINE LT-200A	2017-11-09
Temperature & Humidity Datalogger	Testo 608-H1	2017-03-10
High accuracy array spectroradio meter	EVERFINE HAAS-2000-VIS-V1	2017-03-10
Standard light source	EVERFINE D204	2017-03-10
DC power supply	EVERFINE WY12010	2017-03-10
Caliper	MITUTOYO CD-6”CS	2017-03-10

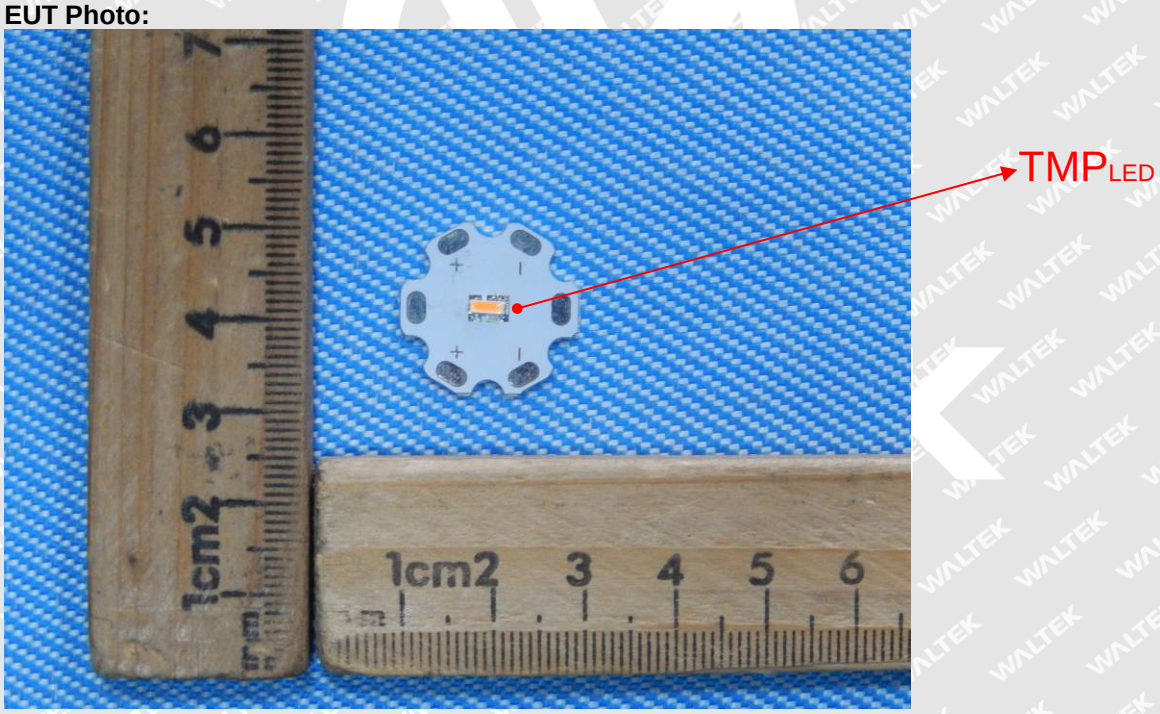
Attachment 2: Photo document

Dimension:



Note:
All dimensions in mm.
Tolerances unless mentioned is ±0.1 mm.

EUT Photo:



====== End of Report ======