



TEST REPORT of IESNA LM-80-15

Approved Method: Measuring Luminous Flux and Color Maintenance of SMD-5050s, Arrays and Modules

Client..... : SHENZHEN CRESCENT OPTOELECTRONIC CO.,LTD

Address..... : Building 12,Shiguan Industrial park, Goming Town, Gongming New Area,Shenzhen,China

Brand Name..... : 

Testing laboratory..... : Shenzhen Southern LCS Compliance Testing Laboratory Ltd.

Address..... : B Area, 2F, Building B, Zhongyu Green High-tech Industrial Park, Wenge Road, Heshuikou, Gongming Street, Guangming New District, Shenzhen, Guangdong, China

Product description : SMD-5050

Model..... : S01-E50Q

Rating..... : IF:160mA, VF:18-36V

Date of Test..... : September 14,2018 – April 20, 2020

Date of Issue..... : September 30,2020

Test by:

Zero Huang

Zero Huang/ Project Engineer

Check by:

Ian Luo

Ian Luo/ Director

Approved by:



Jesse Liu/ Manager



Test Summary

Life test condition			Summary of result				
Test condition	Current (mA)	Case temperature (°C)	Test duration (h)	Average lumen maintenance (%)	Maximum chromaticity shift ($\Delta u'v'$)	Average Power Density (W/mm ²)	Average Current Density (mA/mm ²)
1	160	55	14000	94.88%	0.0043	0.152	6.4
2	160	85	14000	94.45%	0.0046		
3	160	105	14000	93.84%	0.0048		

1. Number of LED Light Sources tested

- 25 Packages tested at actual case temperature 54.3°C
- 25 Packages tested at actual case temperature 84.1°C
- 25 Packages tested at actual case temperature 104.6°C

2. Description of LED Light Sources

- Part Number: .S01-E50Q
- Part Type: SMD-5050
- IF =160mA, CCT(Nominal) = 2700K-25000K

3. Description of auxiliary equipment

- 1) EVERFINE LT-200A Accelerated Aging-Life Test System for LEDs
- 2) Instrument Integrating sphere 0.5m
- 3) SENSING SPR-3000 Photometric, Colorimetric& Electric System for Light Sources

4. Operating time

SMD-5050s are driven with a constant direct current.

- Number of units : 25 at 55°C, 85°C and 105°C
- Drive current :160mA
- Typical voltage :18V-36V

5. Ambient conditions including airflow, temperature and relative humidity

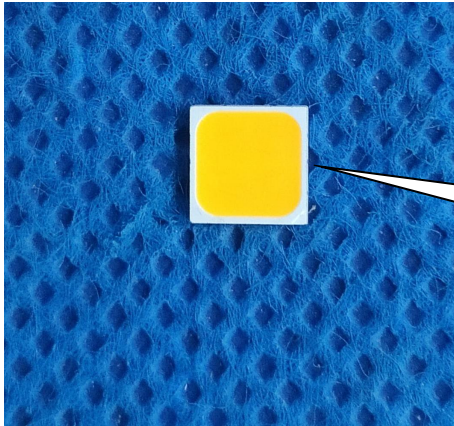
The minimal airflow is maintained in chamber.

The ambient temperature around the SMD-5050s inside chamber is controlled by air flowing and the thermocouple readings are monitored.

- Case temperature : Contorlled to -2°C
- Surrounding air temperature : Contorlled to -5°C
- Relative humidity : < 65%RH



6. Case temperature (Test point temperature)



Ts Measurement

7. Drive current of the LED Light Sources during lifetime test

See Sub-clause 9.1, 9.2 and 9.3

8. Initial luminous flux and forward voltage

See the table

9. Lumen maintenance data for each individual LED Light Sources

See the table

Quantity	Model	Serial Number
25	S01-E50Q	A01-A25 (55°C)
25	S01-E50Q	B01-B25 (85°C)
25	S01-E50Q	C01-C25 (105°C)



Report No.: LCS180508046BS002

9.1 Test condition 1: 55 °C, Drive Current : 160mA

Item	V _r (V)	Flux(lm)	Ra	T=55°C Luminous Maintenance (%)													
				No.	0 h	1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h	10000h	11000h	12000h
A01	23.71	652.1	67.8	100.30	100.01	99.75	99.39	99.05	98.77	98.28	98.00	97.60	97.09	96.55	96.14	95.52	94.98
A02	23.75	652.1	67.7	100.25	99.96	99.70	99.41	98.98	98.65	98.14	97.95	97.55	97.01	96.38	95.94	95.30	94.87
A03	23.70	651.9	68.3	100.18	99.91	99.69	99.35	99.09	98.69	98.29	97.96	97.69	97.06	96.45	95.92	95.40	94.96
A04	23.69	651.7	68.1	100.21	99.99	99.64	99.31	99.01	98.65	98.25	97.86	97.54	96.99	96.48	96.03	95.58	95.07
A05	23.75	652.0	68.4	100.07	99.96	99.62	99.39	99.07	98.57	98.55	97.94	97.59	97.05	96.52	96.08	95.43	94.87
A06	23.74	650.7	67.5	100.15	99.94	99.72	99.34	98.99	98.65	98.27	97.97	97.60	97.15	96.61	96.26	95.75	95.27
A07	23.68	651.9	68.6	100.25	100.02	99.76	99.42	99.04	98.71	98.39	97.90	97.68	97.03	96.48	95.93	95.37	94.83
A08	23.72	651.9	68.3	100.14	99.98	99.70	99.41	98.97	98.62	98.54	97.88	97.63	97.12	96.55	96.14	95.59	95.18
A09	23.74	651.7	67.6	100.41	100.22	99.88	99.45	98.96	98.59	98.47	97.94	97.59	97.03	96.40	95.94	95.31	94.87
A10	23.71	650.5	67.8	100.15	100.06	99.82	99.33	98.97	98.72	98.39	97.90	97.46	96.91	96.29	95.84	95.20	94.67
A11	23.70	651.9	68.3	100.24	100.01	99.76	99.39	98.91	98.63	98.25	97.95	97.44	96.81	96.26	95.73	95.20	94.75
A12	23.72	651.9	68.1	100.25	100.08	99.81	99.36	98.96	98.68	98.29	97.86	97.62	96.97	96.35	95.80	95.26	94.72
A13	23.74	652.0	67.9	100.13	100.06	99.79	99.41	98.88	98.59	98.17	97.88	97.47	96.92	96.36	95.91	95.30	94.78
A14	23.76	651.9	68.2	100.08	99.94	99.71	99.35	98.94	98.55	98.31	97.97	97.53	96.90	96.32	95.79	95.13	94.59
A15	23.73	652.1	67.6	100.20	100.06	99.82	99.39	98.87	98.69	98.14	97.86	97.46	96.82	96.19	95.65	95.07	94.65
A16	23.71	651.9	68.4	100.25	99.95	99.70	99.35	98.94	98.70	98.25	97.88	97.46	96.93	96.39	95.96	95.32	94.97
A17	23.74	652.0	68.5	100.33	100.06	99.79	99.41	98.86	98.66	98.15	97.93	97.63	97.09	96.67	96.23	95.72	95.17
A18	23.77	652.0	67.4	100.15	99.97	99.72	99.36	98.91	98.65	98.17	97.96	97.58	96.97	96.44	95.93	95.39	94.98
A19	23.73	651.8	68.3	100.28	100.00	99.75	99.38	98.97	98.72	98.28	97.90	97.56	96.90	96.35	95.79	95.16	94.70
A20	23.76	651.7	68.1	100.33	100.06	99.82	99.41	98.88	98.70	98.18	97.96	97.49	96.91	96.38	95.90	95.35	94.90
A21	23.71	651.8	67.6	100.07	99.99	99.78	99.35	98.93	98.56	98.18	97.88	97.51	96.87	96.22	95.68	95.04	94.51
A22	23.71	651.4	67.7	100.15	99.97	99.69	99.39	98.86	98.61	98.24	97.89	97.47	96.84	96.17	95.64	95.01	94.48
A23	23.74	651.5	68.6	100.23	100.04	99.81	99.37	98.92	98.72	98.40	97.93	97.62	97.10	96.56	96.14	95.62	95.07
A24	23.76	652.2	67.5	100.27	100.03	99.77	99.41	98.88	98.58	98.15	97.90	97.53	97.02	96.49	96.08	95.57	95.12
A25	23.74	651.6	68.4	100.33	100.04	99.76	99.41	98.83	98.67	98.39	97.91	97.56	97.03	96.48	96.05	95.51	94.98
Ave.	23.73	651.8	68.0	100.22	100.01	99.75	99.38	98.95	98.65	98.29	97.91	97.55	96.98	96.41	95.94	95.36	94.88
Med.	23.73	651.9	68.1	100.23	100.01	99.76	99.39	98.94	98.65	98.27	97.91	97.56	96.99	96.40	95.93	95.35	94.87
St dev	0.0239	0.3953	0.3803	0.0889	0.0638	0.0616	0.0334	0.0694	0.0582	0.1205	0.0401	0.0714	0.0965	0.1297	0.1744	0.2066	0.2108
Max.	23.77	652.2	68.6	100.41	100.22	99.88	99.45	99.09	98.77	98.55	98.00	97.69	97.15	96.67	96.26	95.75	95.27
Min.	23.68	650.5	67.4	100.07	99.91	99.62	99.31	98.83	98.55	98.14	97.86	97.44	96.81	96.17	95.64	95.01	94.48



9.1.1 Test condition 1: 55 °C, Drive Current : 160mA

No.	T=55°C Chromaticity Shift ($\Delta u'v'$)																
	0 h			1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h	10000h	11000h	12000h	13000h	14000h
	u'	v'	CCT(K)														
A01	0.2501	0.5260	2996	0.0002	0.0005	0.0008	0.0010	0.0014	0.0017	0.0020	0.0025	0.0028	0.0031	0.0033	0.0036	0.0039	0.0043
A02	0.2500	0.5258	2998	0.0005	0.0007	0.0009	0.0010	0.0014	0.0018	0.0021	0.0027	0.0030	0.0032	0.0034	0.0038	0.0040	0.0041
A03	0.2497	0.5263	2987	0.0003	0.0007	0.0011	0.0011	0.0015	0.0018	0.0022	0.0028	0.0034	0.0036	0.0038	0.0040	0.0041	0.0043
A04	0.2495	0.5262	2997	0.0004	0.0006	0.0009	0.0011	0.0014	0.0017	0.0021	0.0025	0.0028	0.0029	0.0032	0.0033	0.0037	0.0040
A05	0.2501	0.5258	2981	0.0003	0.0006	0.0009	0.0012	0.0011	0.0014	0.0019	0.0025	0.0030	0.0033	0.0037	0.0040	0.0043	0.0046
A06	0.2500	0.5258	2992	0.0003	0.0006	0.0011	0.0012	0.0014	0.0017	0.0022	0.0026	0.0027	0.0029	0.0032	0.0034	0.0038	0.0042
A07	0.2502	0.5260	2994	0.0005	0.0007	0.0009	0.0011	0.0015	0.0018	0.0020	0.0025	0.0029	0.0031	0.0035	0.0036	0.0040	0.0043
A08	0.2499	0.5258	2988	0.0002	0.0005	0.0007	0.0012	0.0017	0.0020	0.0024	0.0030	0.0031	0.0032	0.0035	0.0039	0.0041	0.0045
A09	0.2496	0.5263	2989	0.0003	0.0004	0.0006	0.0011	0.0015	0.0018	0.0020	0.0024	0.0028	0.0031	0.0033	0.0036	0.0039	0.0042
A10	0.2495	0.5262	2983	0.0005	0.0008	0.0009	0.0011	0.0014	0.0018	0.0019	0.0025	0.0028	0.0032	0.0036	0.0040	0.0041	0.0043
A11	0.2495	0.5264	2996	0.0001	0.0004	0.0007	0.0009	0.0013	0.0016	0.0023	0.0028	0.0032	0.0036	0.0039	0.0043	0.0045	0.0049
A12	0.2497	0.5263	2992	0.0003	0.0007	0.0009	0.0010	0.0014	0.0018	0.0022	0.0026	0.0028	0.0030	0.0033	0.0035	0.0037	0.0040
A13	0.2495	0.5259	2994	0.0003	0.0005	0.0007	0.0013	0.0017	0.0020	0.0023	0.0024	0.0026	0.0029	0.0031	0.0034	0.0037	0.0040
A14	0.2500	0.5265	2982	0.0003	0.0006	0.0009	0.0013	0.0015	0.0018	0.0020	0.0025	0.0029	0.0031	0.0033	0.0034	0.0038	0.0040
A15	0.2499	0.5262	2993	0.0002	0.0004	0.0007	0.0011	0.0014	0.0017	0.0022	0.0026	0.0030	0.0032	0.0033	0.0035	0.0037	0.0039
A16	0.2496	0.5260	2991	0.0002	0.0005	0.0008	0.0012	0.0016	0.0018	0.0022	0.0029	0.0033	0.0035	0.0037	0.0039	0.0040	0.0041
A17	0.2502	0.5265	2989	0.0004	0.0007	0.0010	0.0013	0.0016	0.0019	0.0024	0.0028	0.0031	0.0035	0.0038	0.0042	0.0044	0.0046
A18	0.2500	0.5262	2986	0.0004	0.0007	0.0010	0.0014	0.0018	0.0023	0.0024	0.0028	0.0030	0.0033	0.0035	0.0038	0.0042	0.0044
A19	0.2497	0.5259	2993	0.0001	0.0004	0.0006	0.0009	0.0012	0.0016	0.0019	0.0026	0.0031	0.0035	0.0039	0.0043	0.0046	0.0048
A20	0.2495	0.5263	2996	0.0003	0.0005	0.0009	0.0012	0.0015	0.0019	0.0022	0.0028	0.0033	0.0035	0.0036	0.0038	0.0042	0.0044
A21	0.2500	0.5264	2983	0.0002	0.0004	0.0008	0.0013	0.0014	0.0018	0.0020	0.0024	0.0029	0.0031	0.0033	0.0035	0.0037	0.0040
A22	0.2499	0.5260	2985	0.0004	0.0007	0.0009	0.0011	0.0014	0.0017	0.0023	0.0026	0.0030	0.0033	0.0036	0.0039	0.0041	0.0045
A23	0.2501	0.5258	2995	0.0002	0.0005	0.0009	0.0014	0.0017	0.0018	0.0022	0.0029	0.0035	0.0036	0.0039	0.0040	0.0043	0.0046
A24	0.2499	0.5264	2986	0.0003	0.0005	0.0006	0.0009	0.0015	0.0018	0.0024	0.0025	0.0030	0.0034	0.0038	0.0042	0.0043	0.0045
A25	0.2497	0.5263	2991	0.0003	0.0006	0.0008	0.0010	0.0016	0.0019	0.0025	0.0027	0.0033	0.0034	0.0037	0.0039	0.0043	0.0046
Ave.	0.2498	0.5261	2990	0.0003	0.0006	0.0008	0.0011	0.0015	0.0018	0.0022	0.0026	0.0030	0.0033	0.0035	0.0038	0.0041	0.0043
Med.	0.2499	0.5262	2991	0.0003	0.0006	0.0009	0.0011	0.0015	0.0018	0.0022	0.0026	0.0030	0.0032	0.0035	0.0038	0.0041	0.0043
St dev	0.0002	0.0002	5.0787	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003
Max.	0.2502	0.5265	2998	0.0005	0.0008	0.0011	0.0014	0.0018	0.0023	0.0025	0.0030	0.0035	0.0036	0.0039	0.0043	0.0046	0.0049
Min.	0.2495	0.5258	2981	0.0001	0.0004	0.0006	0.0009	0.0011	0.0014	0.0019	0.0024	0.0026	0.0029	0.0031	0.0033	0.0037	0.0039



9.2 Test condition 2: 85 °C, Drive Current :160mA

Item	V _f (V)	Flux(lm)	Ra	T=85°C Luminous Maintenance (%)													
				No.	0 h			1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h	10000h
B01	23.72	651.5	67.7	100.05	99.80	99.42	99.08	98.71	98.22	97.68	97.46	97.00	96.49	96.05	95.64	95.12	94.58
B02	23.78	651.6	67.9	100.23	99.86	99.44	99.02	98.69	98.29	97.73	97.51	96.97	96.43	95.90	95.46	94.92	94.49
B03	23.71	651.4	67.9	100.15	99.84	99.42	99.04	98.68	98.23	97.72	97.48	96.97	96.34	95.83	95.30	94.88	94.44
B04	23.67	651.3	68.5	100.04	99.77	99.41	99.03	98.71	98.29	97.69	97.45	96.91	96.36	95.95	95.50	95.15	94.64
B05	23.76	651.6	68.9	100.00	99.79	99.43	98.97	98.67	98.12	97.76	97.49	96.88	96.34	95.91	95.47	94.92	94.36
B06	23.78	650.1	66.9	100.15	99.85	99.42	98.98	98.68	98.27	97.71	97.53	96.92	96.47	96.03	95.68	95.27	94.79
B07	23.68	651.3	68.9	100.12	99.87	99.41	99.02	98.67	98.23	97.67	97.42	96.89	96.24	95.79	95.24	94.78	94.24
B08	23.75	651.5	68.4	100.05	99.79	99.46	99.04	98.68	98.21	97.73	97.45	96.88	96.37	95.90	95.49	95.04	94.63
B09	23.72	651.3	67.2	100.04	99.80	99.40	99.00	98.69	98.10	97.64	97.49	96.96	96.40	95.87	95.41	94.88	94.44
B10	23.69	649.9	67.5	100.09	99.90	99.42	99.08	98.74	98.25	97.68	97.44	96.91	96.36	95.84	95.39	94.85	94.32
B11	23.71	651.3	68.9	100.05	99.79	99.36	99.01	98.67	98.19	97.73	97.45	96.83	96.20	95.75	95.22	94.79	94.34
B12	23.75	651.5	67.6	100.07	99.85	99.44	99.02	98.68	98.22	97.76	97.49	96.82	96.17	95.65	95.10	94.66	94.12
B13	23.75	651.5	68.3	99.97	99.78	99.41	98.97	98.69	98.13	97.72	97.54	96.95	96.40	95.94	95.49	94.98	94.46
B14	23.74	651.5	68.6	100.03	99.83	99.43	98.98	98.70	98.11	97.75	97.42	96.96	96.33	95.85	95.32	94.76	94.22
B15	23.75	651.5	67.3	100.04	99.87	99.42	98.96	98.61	98.12	97.77	97.44	96.90	96.26	95.73	95.19	94.71	94.29
B16	23.68	651.3	68.7	100.02	99.88	99.47	99.02	98.70	98.20	97.76	97.45	96.95	96.42	95.98	95.55	95.01	94.66
B17	23.70	651.6	68.6	100.05	99.86	99.46	99.01	98.66	98.23	97.71	97.48	96.91	96.37	96.05	95.61	95.20	94.65
B18	23.79	651.4	67.8	100.06	99.79	99.41	99.05	98.67	98.25	97.64	97.46	96.93	96.32	95.89	95.38	94.94	94.53
B19	23.74	651.4	67.8	100.09	99.80	99.39	99.07	98.65	98.16	97.68	97.49	96.95	96.29	95.84	95.28	94.75	94.29
B20	23.71	651.1	68.7	100.11	99.76	99.43	98.97	98.61	98.24	97.73	97.54	96.89	96.31	95.88	95.40	94.95	94.50
B21	23.70	651.3	67.9	100.07	99.81	99.42	99.06	98.59	98.12	97.74	97.42	96.91	96.27	95.72	95.18	94.64	94.11
B22	23.72	651.0	67.3	100.08	99.76	99.41	99.01	98.67	98.23	97.67	97.48	96.93	96.30	95.73	95.20	94.67	94.14
B23	23.72	650.9	68.4	100.06	99.74	99.39	99.02	98.60	98.29	97.72	97.46	96.97	96.45	96.01	95.59	95.17	94.62
B24	23.73	651.8	67.8	100.12	99.83	99.37	99.05	98.68	98.11	97.71	97.45	96.90	96.39	95.96	95.55	95.14	94.69
B25	23.73	651.0	68.5	100.07	99.91	99.50	99.04	98.74	99.20	98.88	97.68	96.97	96.44	95.99	95.56	95.12	94.59
Ave.	23.73	651.3	68.1	100.07	99.82	99.42	99.02	98.67	98.24	97.76	97.48	96.92	96.35	95.88	95.41	94.93	94.45
Med.	23.72	651.4	67.9	100.06	99.81	99.42	99.02	98.68	98.22	97.72	97.46	96.92	96.36	95.89	95.41	94.92	94.46
St dev	0.0321	0.4398	0.5902	0.0538	0.0463	0.0303	0.0350	0.0383	0.2091	0.2361	0.0542	0.0440	0.0821	0.1101	0.1622	0.1849	0.1944
Max.	23.79	651.8	68.9	100.23	99.91	99.50	99.08	98.74	99.20	98.88	97.68	97.00	96.49	96.05	95.68	95.27	94.79
Min.	23.67	649.9	66.9	99.97	99.74	99.36	98.96	98.59	98.10	97.64	97.42	96.82	96.17	95.65	95.10	94.64	94.11



Report No.: LCS180508046BS002

9.2.1 Test condition 2: 85 °C, Drive Current :160mA

No.	T=85°C Chromaticity Shift ($\Delta u'v'$)																
	0 h			1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h	10000h	11000h	12000h	13000h	14000h
	u'	v'	CCT(K)														
B01	0.2503	0.5257	3008	0.0004	0.0008	0.0011	0.0014	0.0016	0.0021	0.0026	0.0029	0.0031	0.0034	0.0036	0.0039	0.0042	0.0046
B02	0.2495	0.5257	3008	0.0004	0.0006	0.0008	0.0011	0.0015	0.0019	0.0025	0.0030	0.0033	0.0035	0.0037	0.0041	0.0043	0.0044
B03	0.2498	0.5260	3002	0.0003	0.0005	0.0007	0.0011	0.0015	0.0019	0.0026	0.0030	0.0032	0.0034	0.0036	0.0038	0.0039	0.0041
B04	0.2493	0.5264	3008	0.0004	0.0008	0.0010	0.0014	0.0019	0.0022	0.0024	0.0028	0.0030	0.0031	0.0034	0.0035	0.0039	0.0042
B05	0.2498	0.5258	2997	0.0003	0.0006	0.0009	0.0015	0.0018	0.0024	0.0025	0.0029	0.0032	0.0035	0.0039	0.0042	0.0045	0.0048
B06	0.2497	0.5261	3005	0.0005	0.0009	0.0010	0.0014	0.0020	0.0024	0.0026	0.0031	0.0033	0.0035	0.0038	0.0040	0.0044	0.0048
B07	0.2504	0.5262	3009	0.0003	0.0007	0.0010	0.0012	0.0017	0.0021	0.0024	0.0030	0.0031	0.0033	0.0037	0.0038	0.0042	0.0045
B08	0.2500	0.5256	3000	0.0005	0.0009	0.0011	0.0013	0.0019	0.0021	0.0026	0.0029	0.0032	0.0033	0.0036	0.0040	0.0042	0.0046
B09	0.2493	0.5262	3007	0.0004	0.0008	0.0010	0.0014	0.0020	0.0024	0.0028	0.0033	0.0035	0.0038	0.0040	0.0043	0.0046	0.0049
B10	0.2494	0.5264	3004	0.0003	0.0007	0.0009	0.0015	0.0019	0.0022	0.0028	0.0034	0.0035	0.0039	0.0043	0.0047	0.0048	0.0050
B11	0.2498	0.5266	3007	0.0004	0.0006	0.0007	0.0010	0.0016	0.0021	0.0025	0.0029	0.0031	0.0035	0.0038	0.0042	0.0044	0.0048
B12	0.2497	0.5265	3003	0.0003	0.0007	0.0010	0.0014	0.0018	0.0021	0.0026	0.0030	0.0033	0.0035	0.0038	0.0040	0.0042	0.0045
B13	0.2493	0.5262	3010	0.0004	0.0006	0.0009	0.0015	0.0017	0.0022	0.0028	0.0032	0.0033	0.0036	0.0038	0.0041	0.0044	0.0047
B14	0.2504	0.5262	2996	0.0003	0.0007	0.0010	0.0014	0.0019	0.0024	0.0027	0.0031	0.0033	0.0035	0.0037	0.0038	0.0042	0.0044
B15	0.2496	0.5264	3003	0.0005	0.0008	0.0011	0.0016	0.0019	0.0023	0.0026	0.0032	0.0034	0.0036	0.0037	0.0039	0.0041	0.0043
B16	0.2498	0.5259	3006	0.0004	0.0006	0.0009	0.0015	0.0018	0.0023	0.0027	0.0030	0.0031	0.0033	0.0035	0.0037	0.0038	0.0039
B17	0.2500	0.5262	3002	0.0005	0.0008	0.0011	0.0012	0.0019	0.0022	0.0026	0.0030	0.0034	0.0038	0.0041	0.0045	0.0047	0.0049
B18	0.2503	0.5262	3002	0.0003	0.0006	0.0010	0.0014	0.0019	0.0022	0.0028	0.0032	0.0033	0.0036	0.0038	0.0041	0.0045	0.0047
B19	0.2499	0.5258	3011	0.0004	0.0006	0.0008	0.0013	0.0017	0.0023	0.0026	0.0031	0.0034	0.0038	0.0042	0.0046	0.0049	0.0051
B20	0.2498	0.5259	3016	0.0003	0.0007	0.0009	0.0012	0.0016	0.0021	0.0028	0.0033	0.0035	0.0037	0.0038	0.0040	0.0044	0.0046
B21	0.2504	0.5265	2997	0.0004	0.0008	0.0010	0.0013	0.0020	0.0025	0.0029	0.0030	0.0033	0.0035	0.0037	0.0039	0.0041	0.0044
B22	0.2497	0.5259	2997	0.0005	0.0009	0.0011	0.0014	0.0018	0.0023	0.0027	0.0030	0.0033	0.0036	0.0039	0.0042	0.0044	0.0048
B23	0.2501	0.5259	3009	0.0003	0.0005	0.0010	0.0015	0.0018	0.0023	0.0026	0.0030	0.0033	0.0034	0.0037	0.0038	0.0041	0.0044
B24	0.2501	0.5267	3002	0.0005	0.0007	0.0010	0.0013	0.0020	0.0024	0.0028	0.0031	0.0032	0.0036	0.0040	0.0044	0.0045	0.0047
B25	0.2496	0.5261	3001	0.0003	0.0008	0.0009	0.0014	0.0017	0.0023	0.0027	0.0030	0.0032	0.0033	0.0036	0.0038	0.0042	0.0045
Ave.	0.2498	0.5261	3004	0.0004	0.0007	0.0010	0.0013	0.0018	0.0022	0.0026	0.0031	0.0033	0.0035	0.0038	0.0041	0.0043	0.0046
Med.	0.2498	0.5262	3004	0.0004	0.0007	0.0010	0.0014	0.0018	0.0022	0.0026	0.0030	0.0033	0.0035	0.0038	0.0040	0.0043	0.0046
St dev	0.0003	0.0003	5.0000	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001	0.0001	0.0002	0.0002	0.0003	0.0003	0.0003
Max.	0.2504	0.5267	3016	0.0005	0.0009	0.0011	0.0016	0.0020	0.0025	0.0029	0.0034	0.0035	0.0039	0.0043	0.0047	0.0049	0.0051
Min.	0.2493	0.5256	2996	0.0003	0.0005	0.0007	0.0010	0.0015	0.0019	0.0024	0.0028	0.0030	0.0031	0.0034	0.0035	0.0038	0.0039



Report No.: LCS180508046BS002

9.3 Test condition 3: 105 °C, Drive Current :160mA

Item	V _F (V)	Flux(lm)	Ra	T=105°C Luminous Maintenance (%)													
				No.	0 h	1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h	10000h	11000h	12000h
C01	23.74	650.9	67.5	99.93	99.64	99.26	98.87	98.27	97.94	97.42	96.84	96.65	96.22	95.68	95.17	94.65	94.11
C02	23.79	651.0	67.6	99.97	99.73	99.27	98.92	98.26	97.99	97.42	96.86	96.48	96.02	95.39	94.85	94.31	93.88
C03	23.73	650.8	68.2	100.01	99.72	99.20	98.90	98.21	97.92	97.41	96.78	96.37	95.82	95.21	94.58	94.16	93.72
C04	23.69	650.9	68.6	99.92	99.60	99.21	98.91	98.21	97.97	97.44	96.85	96.51	96.04	95.53	94.98	94.63	94.12
C05	23.77	651.1	69.3	99.94	99.67	99.23	98.87	98.22	97.95	97.32	96.80	96.53	96.07	95.54	95.00	94.45	93.89
C06	23.77	649.6	66.4	99.91	99.61	99.27	98.89	98.18	98.01	97.36	96.82	96.45	96.08	95.54	95.09	94.68	94.20
C07	23.71	650.7	69.5	100.01	99.69	99.26	98.88	98.17	97.99	97.33	96.86	96.48	95.91	95.36	94.71	94.25	93.71
C08	23.76	650.9	68.7	99.96	99.70	99.30	98.87	98.16	97.99	97.34	96.83	96.37	95.94	95.37	94.86	94.41	94.00
C09	23.73	650.7	67.7	100.00	99.73	99.28	98.92	99.14	97.97	97.39	96.84	96.44	95.96	95.33	94.77	94.24	93.80
C10	23.71	649.4	66.9	100.01	99.69	99.30	98.88	98.18	97.93	97.37	96.81	96.28	95.81	95.19	94.64	94.10	93.57
C11	23.72	650.7	69.2	99.92	99.62	99.32	98.91	99.14	97.89	97.35	96.78	96.43	95.88	95.33	94.70	94.27	93.82
C12	23.77	651.1	67.7	99.99	99.67	99.31	98.90	98.19	97.92	97.43	96.76	96.52	95.95	95.33	94.68	94.24	93.70
C13	23.76	651.1	67.9	99.91	99.74	99.25	98.89	98.15	97.94	97.46	96.80	96.38	95.91	95.35	94.80	94.29	93.77
C14	23.75	650.9	68.3	99.89	99.68	99.33	98.87	98.22	97.92	97.35	96.81	96.28	95.73	95.15	94.52	93.96	93.42
C15	23.74	651.0	67.9	100.01	99.65	99.29	98.86	99.11	97.90	97.34	96.79	96.45	95.89	95.26	94.62	94.14	93.72
C16	23.70	650.8	68.2	100.06	99.74	99.31	98.91	98.20	97.97	97.37	96.87	96.37	95.92	95.38	94.85	94.31	93.96
C17	23.73	651.2	69.0	99.98	99.76	99.23	98.93	98.25	97.94	97.42	96.83	96.47	96.01	95.59	95.05	94.64	94.09
C18	23.80	650.8	68.4	99.93	99.60	99.32	98.86	98.21	97.95	97.37	96.81	96.48	95.95	95.42	94.81	94.37	93.96
C19	23.76	650.9	68.1	99.90	99.58	99.24	98.87	98.22	97.98	97.34	96.85	96.54	95.96	95.41	94.75	94.22	93.76
C20	23.72	650.7	68.3	99.91	99.61	99.26	98.86	98.17	97.90	97.40	96.87	96.50	96.00	95.47	94.89	94.44	93.99
C21	23.72	650.6	67.7	99.97	99.73	99.31	98.84	98.20	97.92	97.37	96.83	96.45	95.89	95.24	94.60	94.06	93.53
C22	23.73	650.6	67.6	100.01	99.62	99.24	98.91	98.22	97.93	97.40	96.88	96.29	95.74	95.07	94.44	93.91	93.38
C23	23.74	650.3	68.5	99.98	99.67	99.26	98.89	98.24	97.97	97.45	96.87	96.33	95.89	95.35	94.83	94.41	93.86
C24	23.75	651.4	67.7	99.93	99.70	99.30	98.87	98.25	97.91	97.34	96.80	96.38	95.95	95.42	94.91	94.50	94.05
C25	23.75	650.6	68.6	99.98	99.74	99.25	98.81	99.24	97.99	97.35	96.82	96.35	95.90	95.35	94.82	94.38	93.85
Ave.	23.74	650.7	68.1	99.96	99.68	99.27	98.88	98.36	97.95	97.39	96.82	96.44	95.94	95.37	94.80	94.32	93.84
Med.	23.74	650.8	68.2	99.97	99.68	99.27	98.88	98.22	97.94	97.37	96.83	96.45	95.94	95.36	94.81	94.31	93.85
St dev	0.0272	0.4278	0.7217	0.0451	0.0539	0.0361	0.0277	0.3569	0.0337	0.0408	0.0325	0.0903	0.1063	0.1409	0.1798	0.2068	0.2145
Max.	23.80	651.4	69.5	100.06	99.76	99.33	98.93	99.24	98.01	97.46	96.88	96.65	96.22	95.68	95.17	94.68	94.20
Min.	23.69	649.4	66.4	99.89	99.58	99.20	98.81	98.15	97.89	97.32	96.76	96.28	95.73	95.07	94.44	93.91	93.38

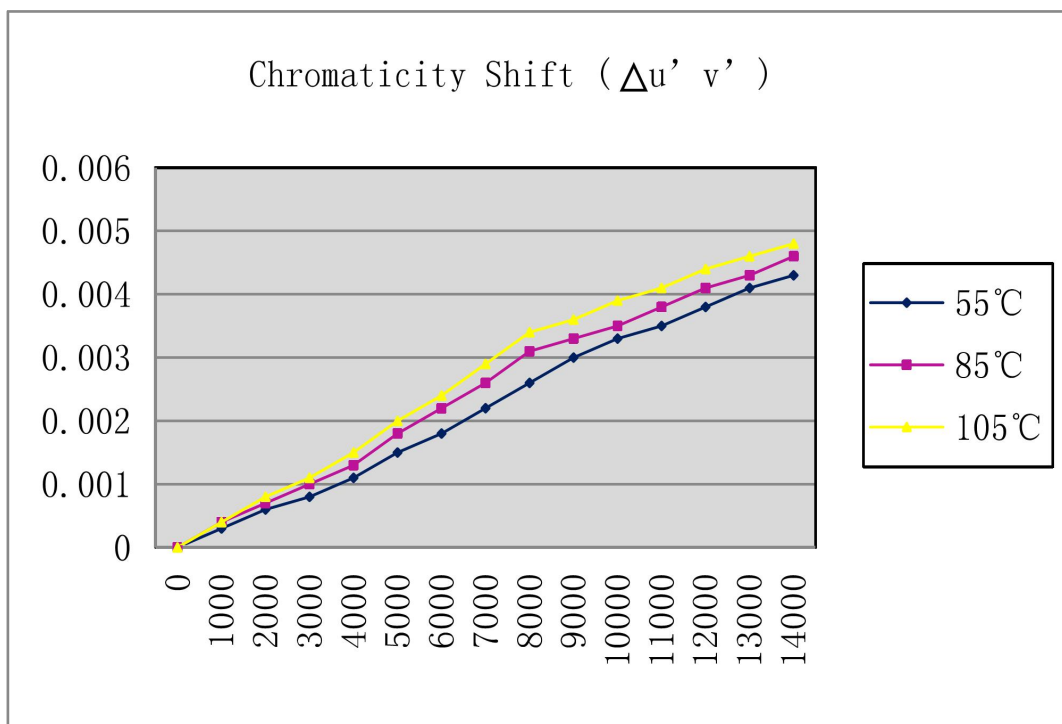
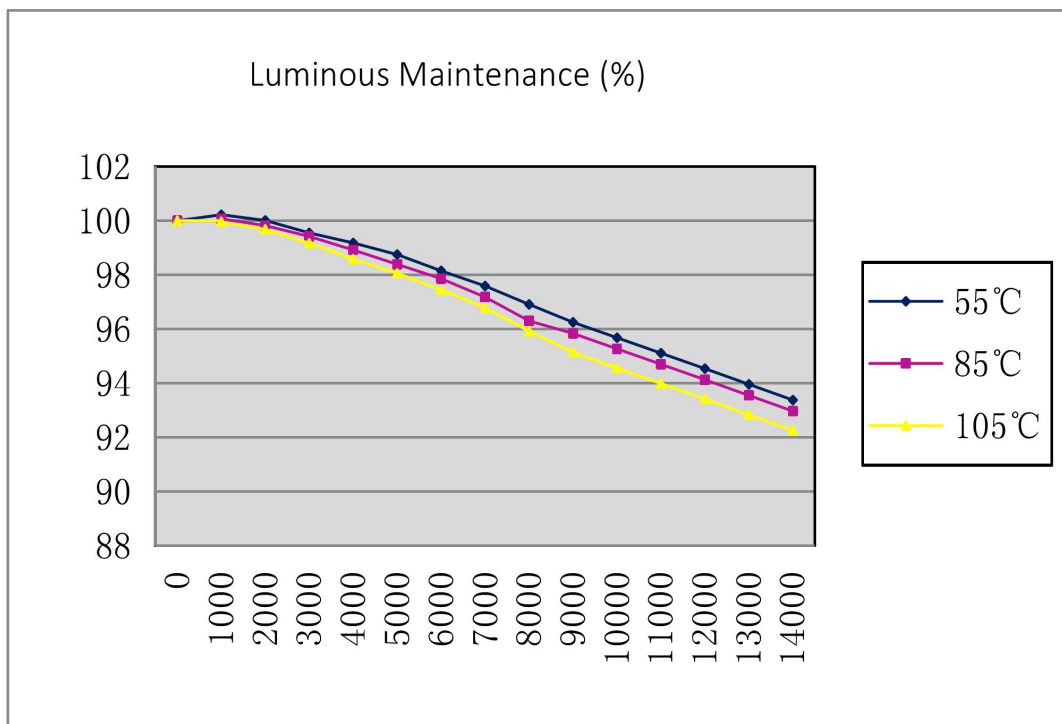


9.3.1 Test condition 3: 105 °C, Drive Current :160mA

No.	T=105°C Chromaticity Shift (Δu^*v^*)																
	0 h			1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h	10000h	11000h	12000h	13000h	14000h
	u^*	v^*	CCT(K)														
C01	0.2501	0.5258	3019	0.0003	0.0008	0.0011	0.0015	0.0021	0.0023	0.0028	0.0030	0.0034	0.0037	0.0039	0.0042	0.0045	0.0048
C02	0.2496	0.5255	3018	0.0004	0.0007	0.0012	0.0014	0.0019	0.0022	0.0029	0.0033	0.0035	0.0037	0.0039	0.0043	0.0045	0.0045
C03	0.2500	0.5259	3015	0.0005	0.0008	0.0013	0.0015	0.0019	0.0023	0.0028	0.0034	0.0036	0.0038	0.0040	0.0042	0.0043	0.0044
C04	0.2496	0.5260	3018	0.0004	0.0009	0.0013	0.0016	0.0021	0.0025	0.0032	0.0036	0.0038	0.0039	0.0042	0.0043	0.0047	0.0049
C05	0.2498	0.5260	3008	0.0003	0.0008	0.0010	0.0015	0.0019	0.0022	0.0027	0.0031	0.0035	0.0038	0.0042	0.0045	0.0048	0.0050
C06	0.2494	0.5260	3019	0.0005	0.0006	0.0010	0.0015	0.0018	0.0023	0.0028	0.0033	0.0034	0.0036	0.0039	0.0041	0.0045	0.0048
C07	0.2506	0.5259	3022	0.0004	0.0008	0.0012	0.0017	0.0021	0.0024	0.0030	0.0034	0.0035	0.0037	0.0041	0.0042	0.0046	0.0048
C08	0.2502	0.5257	3011	0.0005	0.0007	0.0011	0.0014	0.0019	0.0023	0.0028	0.0033	0.0036	0.0037	0.0040	0.0044	0.0046	0.0049
C09	0.2491	0.5262	3016	0.0003	0.0008	0.0010	0.0015	0.0022	0.0025	0.0029	0.0033	0.0035	0.0038	0.0040	0.0043	0.0046	0.0048
C10	0.2495	0.5267	3016	0.0004	0.0009	0.0013	0.0016	0.0023	0.0026	0.0030	0.0035	0.0037	0.0041	0.0045	0.0049	0.0050	0.0051
C11	0.2496	0.5265	3017	0.0005	0.0008	0.0011	0.0015	0.0019	0.0023	0.0029	0.0034	0.0036	0.0040	0.0043	0.0047	0.0049	0.0052
C12	0.2499	0.5267	3014	0.0004	0.0007	0.0010	0.0017	0.0022	0.0022	0.0028	0.0032	0.0035	0.0037	0.0040	0.0042	0.0044	0.0046
C13	0.2490	0.5263	3020	0.0005	0.0006	0.0009	0.0014	0.0019	0.0023	0.0030	0.0034	0.0036	0.0039	0.0041	0.0044	0.0047	0.0049
C14	0.2507	0.5261	3012	0.0003	0.0008	0.0010	0.0015	0.0019	0.0024	0.0028	0.0033	0.0035	0.0037	0.0039	0.0040	0.0044	0.0045
C15	0.2498	0.5264	3018	0.0006	0.0007	0.0009	0.0016	0.0021	0.0023	0.0028	0.0034	0.0037	0.0039	0.0040	0.0042	0.0044	0.0045
C16	0.2499	0.5257	3020	0.0002	0.0009	0.0013	0.0015	0.0022	0.0024	0.0032	0.0036	0.0037	0.0039	0.0041	0.0043	0.0044	0.0044
C17	0.2502	0.5265	3014	0.0004	0.0008	0.0012	0.0015	0.0019	0.0023	0.0030	0.0032	0.0036	0.0040	0.0043	0.0047	0.0049	0.0050
C18	0.2505	0.5264	3013	0.0005	0.0007	0.0011	0.0015	0.0020	0.0025	0.0032	0.0035	0.0038	0.0041	0.0043	0.0046	0.0050	0.0051
C19	0.2497	0.5261	3021	0.0003	0.0008	0.0014	0.0017	0.0022	0.0024	0.0028	0.0033	0.0037	0.0041	0.0045	0.0049	0.0052	0.0053
C20	0.2500	0.5256	3029	0.0004	0.0006	0.0009	0.0015	0.0019	0.0023	0.0029	0.0034	0.0036	0.0038	0.0039	0.0041	0.0045	0.0046
C21	0.2501	0.5264	3008	0.0003	0.0008	0.0013	0.0016	0.0021	0.0024	0.0030	0.0035	0.0037	0.0039	0.0041	0.0043	0.0045	0.0047
C22	0.2497	0.5258	3012	0.0005	0.0009	0.0012	0.0015	0.0020	0.0023	0.0031	0.0036	0.0038	0.0041	0.0044	0.0047	0.0049	0.0052
C23	0.2500	0.5257	3025	0.0005	0.0008	0.0010	0.0016	0.0021	0.0025	0.0032	0.0035	0.0037	0.0038	0.0041	0.0042	0.0045	0.0047
C24	0.2500	0.5269	3016	0.0004	0.0007	0.0011	0.0015	0.0020	0.0024	0.0030	0.0034	0.0036	0.0040	0.0044	0.0048	0.0049	0.0050
C25	0.2498	0.5260	3011	0.0003	0.0008	0.0012	0.0017	0.0022	0.0023	0.0028	0.0032	0.0035	0.0036	0.0039	0.0041	0.0045	0.0047
Ave.	0.2499	0.5261	3016	0.0004	0.0008	0.0011	0.0015	0.0020	0.0024	0.0029	0.0034	0.0036	0.0039	0.0041	0.0044	0.0046	0.0048
Med.	0.2499	0.5260	3016	0.0004	0.0008	0.0011	0.0015	0.0020	0.0023	0.0029	0.0034	0.0036	0.0038	0.0041	0.0043	0.0046	0.0048
St dev	0.0004	0.0004	4.9843	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	0.0002	0.0002	0.0003	0.0002	0.0003
Max.	0.2507	0.5269	3029	0.0006	0.0009	0.0014	0.0017	0.0023	0.0026	0.0032	0.0036	0.0038	0.0041	0.0045	0.0049	0.0052	0.0053
Min.	0.2490	0.5255	3008	0.0002	0.0006	0.0009	0.0014	0.0018	0.0022	0.0027	0.0030	0.0034	0.0036	0.0039	0.0040	0.0043	0.0044



9.4 Chart





10. Observation of failures

No optical, Electrical or mechanical failure of any SMD-5050 was seen during the lifetime testing.

11. Photometric measurement uncertainty

2%

12. TM-21-11 report: Projecting long term lumen maintenance of LED Light Sources

Test Condition 1 - 55° C Case Temp		Test Condition 2 - 85° C Case Temp		Test Condition 3 - 105° C Case Temp	
Sample size	25	Sample size	25	Sample size	25
Number of failures	0	Number of failures	0	Number of failures	0
DUT drive current used in the test (mA)	160	DUT drive current used in the test (mA)	160	DUT drive current used in the test (mA)	160
Test duration (hours)	14,000	Test duration (hours)	14,000	Test duration (hours)	14,000
Test duration used for projection (hour to hour)	7,000 - 14,000	Test duration used for projection (hour to hour)	7,000 - 14,000	Test duration used for projection (hour to hour)	7,000 - 14,000
Tested case temperature (° C)	55	Tested case temperature (° C)	85	Tested case temperature (° C)	105
α	5.178E-06	α	5.067E-06	α	5.335E-06
B	1.021	B	1.014	B	1.011
Calculated L70(14k) (hours)	73,000	Calculated L70(14k) (hours)	73,000	Calculated L70(14k) (hours)	69,000
Reported L70(14k) (hours)	73,000	Reported L70(14k) (hours)	73,000	Reported L70(14k) (hours)	69,000

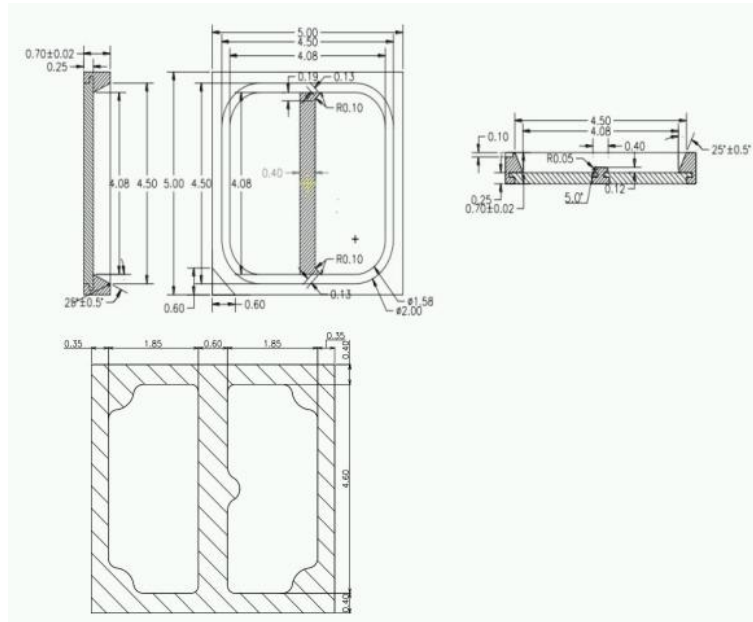


13. ENERGY STAR® LM-80 Cover Sheet

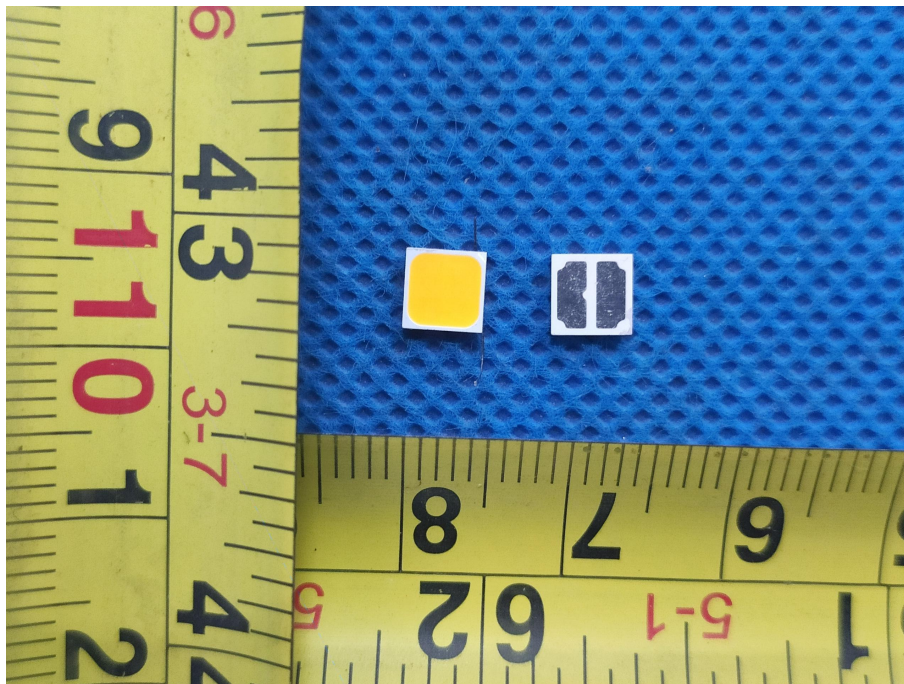
Administrative Information	
Tested subcomponent series:	-
Tested subcomponent model number:	S01-E50Q
Report issue date:	September 30,2020
Report revision date (if applicable):	-
Testing start date:	September 14,2018
Testing completion date:	April 20, 2020
DUT sampling method:	LED samples for IESNA LM-80 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. Each Sample is soldered to all of the reliability stress boards for a given set of IESNA LM-80 tests.
DUT Identification	
DUT manufacturer's name:	SHENZHEN CRESCENT OPTOELECTRONIC CO.,LTD
DUT identification, e.g., model number:	S01-E50Q
Description of DUT, including if the DUT is an SMD-5050 or module:	SMD-5050
DUT Characteristics	
Total input power (W):	3.8
Average current density per LED die (mA/mm ²):	6.4
Average power density per LED die (W/mm ²):	0.152
Representative CRI (Ra) of the tested sample set:	65
Minimum die edge to die edge spacing:	-



14. Mechanical Dimensions



15. Photo of samples:





Report No.: LCS180508046BS002

Revision History

Revision	Issue Date	Revision Content	Revised By
V1.1	May 28, 2020	Typical voltage	Zero Huang
V1.2	September 30,2020	voltage	Zero Huang

Remark: This report replaces the report No.LCS180508046BS, and the original report is invalid.

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