IESNA LM-80-2008

MEASURING LUMEN MAINTENANCE OF LED LIGHT SOURCES

MEASUREMENT AND TEST REPORT

For

Shenzhen Smalite Semiconductor Co.,Ltd

8-9/F,6th Block,Zhongyuntai Hi-Tech Industrial Park,No.1 Road,Tangtou Village,Shiyan Office,Baoan District,Shenzhen,China

Model: SL-IB2835FTA-31KAG

Report Type: 10000 Hours Test Report	**Product Type:** LED Package
Test Engineer:	Daniel Duan
Report Number:	R2DG140930050-10-10000
Test Date:	2014-10-04 to 2015-11-24
Report Date:	2016-04-16
Reviewed By:	Jeanne Han /EE Manager
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

TABLE OF CONTENTS

1 - GENERAL INFORMATION

1.1 Description of LED Light Sources

Part Number: SL-IB2835FTA-31KAG
Part Name: 2835
Part Type: LED Package
Nominal CCT: 3000K

Manufacturer Declaration

The manufacturer declared that the model tested SL-IBPD28-KH is the same to products with model SL-IB2835FTA-31KAG.

P/N Before Updated	P/N After Updated
SL-IBPD28-KH	SL-IB2835FTA-31KAG

1.2 Standards Used:

- IESNA LM-80-08: IES 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)

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	0.3m	2016-03-10	2017-03-09
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	15V/2000mA	2016-03-04	2017-03-03
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	380-780nm	2016-03-10	2017-03-09
Standard Light Source	EVERFINE	D062	1011093	3000K	2015-09-17	2016-09-16
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987C J7321114	300VA	2016-03-04	2017-03-03
Multilayer aging machine	BACL	B2-270	20013	25℃~110℃	2015-09-14	2016-09-13

Device	Manufacture	Model No	Serial No	Test Range	Calibration date	Calibration due date
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11060002	(50/15A)	2015-07-08	2016-07-07
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090008	(50/15A)	2015-07-08	2016-07-07

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℃ ± 2℃, 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=21K (K=2), at the 95% confidence level. This calibration results traceable to the NATIONAL INSTITUTE OF METROLOGY (NIM).

1.8 Sample Set

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.

Sample Size:
Total 50Pcs;
Each Ts test condition 25Pcs
The samples tested at Ts 85℃ and Ts 105℃ were received at 2014-09-30 and tested during 2014-10-04 to 2015-11-24. The samples were numbered from 1 to 25 and 26 to 50

Data Set 1: 85°C,100mA	
Part Number:	SL-IB2835FTA-31KAG
Number of Units:	25
Actual Case Temperature(T_S):	T_S =84.2℃
Actual Ambient Temperature(T_A):	T_A =82.4℃
Life Test Drive Current:	I_F =100mA
Measurement Current:	I_F =100mA

Data Set 2: 105°C, 100mA	
Part Number:	SL-IB2835FTA-31KAG
Number of Units:	25
Actual Case Temperature(T_S):	T_S =104.3℃
Actual Ambient Temperature(T_A):	T_A =103.2℃
Life Test Drive Current:	I_F = 100mA
Measurement Current:	I_F = 100mA

2 - SUMMARY OF TEST RESULT

Data Set:	**Data Set 1, 85°C, 100mA**
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h,7000h,8000, 9000h,10000h
Average. Lumen Maintenance at 10000 hours:	96.16%
Average Chromaticity Shift at 10000 hours(Δu'v'):	0.0032
Reported TM-21 L_{70} Lifetime:	>60,000 hours

Data Set:	**Data Set 2, 105°C, 100mA**
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h,7000h,8000, 9000h,10000h
Average. Lumen Maintenance at 10000 hours:	94.52%
Average Chromaticity Shift at 10000 hours(Δu'v'):	0.0029
Reported TM-21 L_{70} Lifetime:	58,000 hours

3 - Test Data

3.1 Data Set 1, 85°C, 100 mA (Lumen Maintenance)

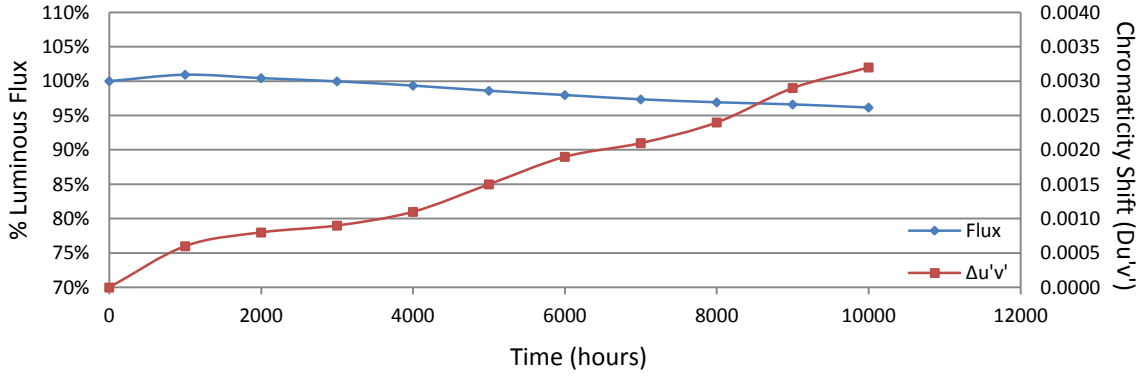
No.	V_F(V)	Φ(lm)	Lumen Maintenance (%)									
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	9.154	118.7	100.67	100.51	100.42	99.83	99.16	98.57	97.81	97.56	97.30	97.05
2	9.176	116.9	101.45	101.03	100.77	100.26	99.57	98.97	98.46	98.20	97.95	97.43
3	9.147	117.1	101.02	100.94	100.77	100.26	99.40	98.98	98.21	97.95	97.69	97.10
4	9.144	117.4	101.28	100.77	100.26	99.49	98.72	98.04	97.53	97.19	96.85	96.51
5	9.138	117.3	100.85	100.43	100.00	99.49	98.81	98.29	97.70	97.10	96.85	96.33
6	9.094	116.5	101.29	100.77	100.34	99.74	99.14	98.63	98.28	97.94	97.60	97.00
7	9.137	119.3	100.25	99.92	99.50	98.91	98.41	97.74	96.90	96.65	96.14	96.06
8	9.193	117.7	101.10	100.68	100.34	100.08	99.49	98.64	98.05	97.88	97.45	97.11
9	9.170	117.4	101.28	100.85	100.43	99.83	99.15	98.55	98.21	97.96	97.70	97.27
10	9.156	118.7	100.84	100.25	99.49	98.99	98.32	97.64	96.88	96.29	95.96	95.45
11	9.153	117.9	101.70	101.10	100.51	99.75	98.98	98.22	97.54	96.86	96.69	96.27
12	9.130	118.2	101.10	100.76	100.17	99.58	98.73	97.97	97.38	96.70	96.28	95.69
13	9.136	118.1	101.19	100.85	100.34	99.92	99.15	98.48	97.54	97.21	96.95	96.53
14	9.173	118.8	100.51	100.00	99.58	98.99	98.23	97.64	96.97	96.80	96.38	95.88
15	9.171	120.2	100.50	100.25	99.75	99.00	98.17	97.50	96.76	96.51	96.34	96.01
16	9.172	117.5	101.11	100.26	99.83	99.15	98.47	97.96	97.28	96.68	96.43	96.09
17	9.131	118.7	100.84	100.51	100.08	99.07	98.32	97.73	97.22	96.97	96.38	95.96
18	9.172	117.1	101.20	100.85	100.43	99.66	98.89	98.21	97.52	97.01	96.84	96.24
19	9.147	119.1	100.92	100.50	100.34	99.50	98.66	98.07	97.06	96.56	96.14	95.89
20	9.108	119.2	100.67	99.92	99.75	99.08	98.49	97.65	97.06	96.31	95.97	95.47
21	9.148	118.3	101.27	100.51	99.83	98.56	97.46	96.79	96.45	96.03	95.69	95.01
22	9.150	117.4	100.85	100.00	99.40	98.89	98.38	97.96	97.19	96.76	96.34	96.00
23	9.206	117.5	100.94	100.00	99.23	98.81	97.96	97.28	96.60	95.91	95.74	95.15
24	9.079	118.6	100.25	99.58	98.74	98.40	97.22	96.88	96.29	95.78	95.62	95.03
25	9.137	119.3	100.50	99.66	98.91	98.49	97.65	97.07	96.81	96.23	96.06	95.39
Ave.	9.149	118.1	100.94	100.44	99.97	99.35	98.60	97.98	97.35	96.92	96.61	96.16
Med.	9.148	118.1	100.94	100.51	100.08	99.49	98.66	97.97	97.28	96.80	96.38	96.06
st dev	0.0285	0.9	0.3654	0.4336	0.5446	0.5406	0.6127	0.5992	0.5936	0.6834	0.6820	0.7110
Min.	9.079	116.5	100.25	99.58	98.74	98.40	97.22	96.79	96.29	95.78	95.62	95.01
Max.	9.206	120.2	101.70	101.10	100.77	100.26	99.57	98.98	98.46	98.20	97.95	97.43

TM-21 Projection:

Test Duration: 10000 hours
Failures Observed: 0
α: 4.913E-06
β: 1.009
Calculated L_{70}: 74,000hours
Reported L_{70}: >60,000hours

3.2 Data Set 1, 85°C, 100 mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')									
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	0.2524	0.5217	2953	0.0006	0.0008	0.0008	0.0010	0.0013	0.0021	0.0025	0.0026	0.0031	0.0031
2	0.2524	0.5205	2960	0.0007	0.0007	0.0007	0.0008	0.0011	0.0016	0.0020	0.0023	0.0026	0.0027
3	0.2520	0.5187	2982	0.0006	0.0008	0.0010	0.0012	0.0016	0.0020	0.0023	0.0027	0.0031	0.0034
4	0.2536	0.5204	2932	0.0006	0.0008	0.0009	0.0011	0.0014	0.0019	0.0022	0.0026	0.0031	0.0034
5	0.2535	0.5218	2928	0.0006	0.0008	0.0009	0.0012	0.0017	0.0018	0.0021	0.0026	0.0031	0.0034
6	0.2530	0.5203	2946	0.0007	0.0009	0.0009	0.0011	0.0014	0.0020	0.0023	0.0026	0.0031	0.0035
7	0.2521	0.5199	2973	0.0006	0.0008	0.0009	0.0012	0.0015	0.0017	0.0022	0.0025	0.0030	0.0032
8	0.2532	0.5219	2933	0.0007	0.0009	0.0009	0.0012	0.0014	0.0016	0.0021	0.0024	0.0030	0.0031
9	0.2526	0.5214	2950	0.0006	0.0008	0.0009	0.0011	0.0014	0.0017	0.0019	0.0023	0.0028	0.0031
10	0.2524	0.5204	2962	0.0006	0.0008	0.0010	0.0011	0.0014	0.0017	0.0019	0.0023	0.0028	0.0032
11	0.2525	0.5212	2953	0.0006	0.0009	0.0010	0.0012	0.0017	0.0019	0.0021	0.0024	0.0030	0.0033
12	0.2530	0.5190	2955	0.0006	0.0009	0.0010	0.0012	0.0016	0.0018	0.0021	0.0024	0.0030	0.0032
13	0.2529	0.5209	2947	0.0006	0.0009	0.0009	0.0012	0.0016	0.0018	0.0021	0.0024	0.0029	0.0032
14	0.2538	0.5219	2919	0.0006	0.0009	0.0012	0.0013	0.0016	0.0018	0.0021	0.0024	0.0030	0.0033
15	0.2526	0.5215	2949	0.0005	0.0007	0.0009	0.0011	0.0016	0.0018	0.0020	0.0023	0.0029	0.0032
16	0.2528	0.5187	2961	0.0005	0.0007	0.0007	0.0008	0.0013	0.0017	0.0020	0.0022	0.0028	0.0032
17	0.2532	0.5219	2934	0.0005	0.0008	0.0010	0.0012	0.0017	0.0018	0.0021	0.0023	0.0028	0.0032
18	0.2537	0.5216	2923	0.0005	0.0008	0.0009	0.0011	0.0016	0.0019	0.0021	0.0023	0.0028	0.0031
19	0.2524	0.5203	2963	0.0005	0.0008	0.0009	0.0011	0.0015	0.0019	0.0020	0.0023	0.0028	0.0032
20	0.2524	0.5205	2961	0.0007	0.0011	0.0011	0.0011	0.0015	0.0019	0.0021	0.0022	0.0027	0.0031
21	0.2531	0.5215	2937	0.0005	0.0007	0.0009	0.0011	0.0015	0.0019	0.0021	0.0023	0.0027	0.0031
22	0.2534	0.5220	2927	0.0006	0.0007	0.0008	0.0010	0.0015	0.0020	0.0022	0.0023	0.0030	0.0032
23	0.2534	0.5214	2932	0.0005	0.0007	0.0009	0.0012	0.0016	0.0020	0.0023	0.0024	0.0031	0.0034
24	0.2525	0.5199	2962	0.0006	0.0011	0.0011	0.0014	0.0017	0.0021	0.0022	0.0023	0.0030	0.0032
25	0.2526	0.5210	2952	0.0004	0.0006	0.0009	0.0012	0.0017	0.0020	0.0022	0.0023	0.0028	0.0032
Ave.	0.2529	0.5208	2948	0.0006	0.0008	0.0009	0.0011	0.0015	0.0019	0.0021	0.0024	0.0029	0.0032
Med.	0.2528	0.5210	2950	0.0006	0.0008	0.0009	0.0011	0.0015	0.0019	0.0021	0.0023	0.0030	0.0032
st dev	0.0005	0.0010	16.2847	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0002	0.0001	0.0002
Min.	0.2520	0.5187	2919	0.0004	0.0006	0.0007	0.0008	0.0011	0.0016	0.0019	0.0022	0.0026	0.0027
Max.	0.2538	0.5220	2982	0.0007	0.0011	0.0012	0.0014	0.0017	0.0021	0.0025	0.0027	0.0031	0.0035



3.3 Data Set 2, 105°C, 100 mA (Lumen Maintenance)

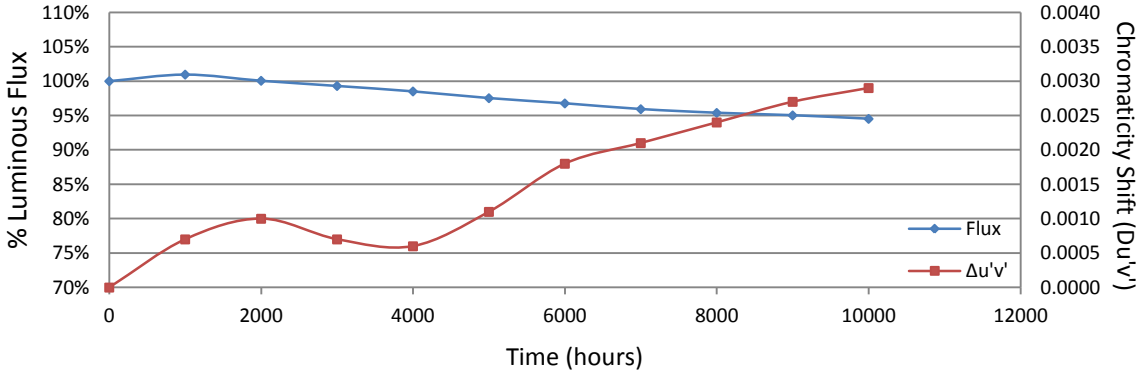
No.	V_F(V)	Φ(lm)	Lumen Maintenance (%)									
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
26	9.172	117.3	100.85	99.91	99.15	98.29	97.44	96.59	95.57	94.80	94.54	94.29
27	9.174	117.2	100.85	99.91	99.32	98.98	98.21	97.61	95.56	94.88	94.37	93.77
28	9.130	117.0	100.34	99.83	99.32	98.55	97.62	96.85	96.09	95.92	95.49	94.90
29	9.157	117.5	100.60	100.00	99.32	98.81	97.79	96.85	96.17	95.32	94.89	94.47
30	9.194	117.2	100.77	99.91	99.23	98.81	97.95	97.18	96.33	96.16	95.90	95.56
31	9.138	117.7	101.19	100.17	99.07	98.13	97.28	96.35	95.33	94.73	94.14	93.71
32	9.196	117.3	100.94	99.74	98.64	97.70	96.76	96.08	95.57	94.97	94.54	94.12
33	9.112	119.0	100.92	99.83	98.91	97.82	96.72	95.88	95.04	94.54	94.12	93.78
34	9.173	118.1	101.52	100.68	99.58	98.81	97.97	97.29	96.53	95.85	95.34	94.83
35	9.155	119.9	100.50	99.83	99.17	97.83	96.83	96.08	95.33	94.75	94.33	93.83
36	9.095	119.2	100.92	100.25	99.50	98.91	98.15	97.57	96.81	96.39	95.97	95.39
37	9.118	119.1	100.67	99.92	99.33	98.66	97.65	96.81	96.73	96.22	95.72	95.21
38	9.127	119.7	100.58	99.67	99.08	98.50	97.66	96.74	95.99	95.57	95.15	94.65
39	9.172	117.7	101.70	100.85	99.92	99.07	97.96	97.11	96.52	96.18	95.75	95.07
40	9.165	117.6	101.36	100.26	99.23	98.38	97.28	96.68	95.92	95.83	95.58	94.90
41	9.150	117.9	101.78	100.93	99.92	98.98	97.79	97.03	96.18	95.50	95.17	94.66
42	9.104	117.7	100.08	99.15	98.73	98.05	97.20	96.69	96.01	95.33	95.16	94.65
43	9.131	118.9	100.93	99.16	98.82	97.98	96.80	96.13	95.29	94.70	94.37	93.78
44	9.163	118.6	101.35	100.51	99.83	98.65	97.22	96.63	95.70	95.19	94.77	94.10
45	9.177	118.2	101.02	100.08	98.98	97.97	97.12	96.36	95.52	94.75	94.59	93.91
46	9.166	118.2	100.51	99.83	99.15	97.80	97.04	96.19	95.18	94.59	94.25	93.74
47	9.155	118.7	101.52	100.51	99.92	99.24	97.47	96.71	95.53	94.95	94.44	93.93
48	9.121	117.9	100.76	100.08	99.32	98.73	97.88	97.20	96.27	95.76	95.42	94.83
49	9.142	119.1	100.42	99.41	98.66	98.24	97.48	96.47	95.89	95.38	95.21	94.63
50	9.158	117.4	101.87	101.11	100.43	99.91	98.98	98.21	97.27	96.59	96.42	96.25
Ave.	9.150	118.2	100.96	100.06	99.30	98.51	97.53	96.77	95.93	95.39	95.03	94.52
Med.	9.155	117.9	100.92	99.92	99.23	98.55	97.48	96.71	95.92	95.33	95.15	94.63
st dev	0.0271	0.8	0.4730	0.4983	0.4399	0.5381	0.5328	0.5491	0.5635	0.6243	0.6504	0.6671
Min.	9.095	117.0	100.08	99.15	98.64	97.70	96.72	95.88	95.04	94.54	94.12	93.71
Max.	9.196	119.9	101.87	101.11	100.43	99.91	98.98	98.21	97.27	96.59	96.42	96.25

TM-21 Projection:

Test Duration: 10000 hours
Failures Observed: 0
α: 6.195E-06
β: 1.004
Calculated L_{70}: 58,000 hours
Reported L_{70}: 58,000 hours

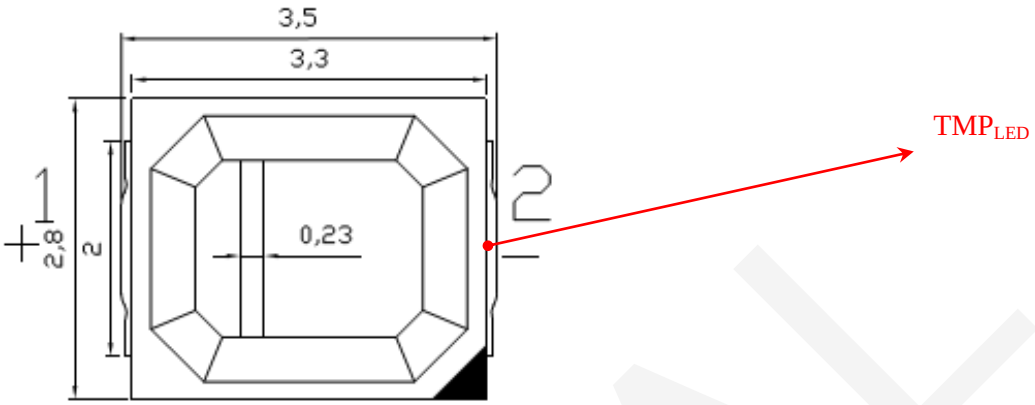
3.4 Data Set 2, 105°C, 100 mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')									
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
26	0.2532	0.5202	2942	0.0006	0.0009	0.0006	0.0008	0.0014	0.0019	0.0020	0.0023	0.0028	0.0031
27	0.2534	0.5216	2931	0.0006	0.0008	0.0004	0.0006	0.0012	0.0020	0.0022	0.0025	0.0029	0.0032
28	0.2540	0.5208	2921	0.0008	0.0009	0.0006	0.0007	0.0013	0.0021	0.0024	0.0026	0.0029	0.0032
29	0.2533	0.5225	2927	0.0006	0.0008	0.0004	0.0006	0.0010	0.0018	0.0021	0.0023	0.0026	0.0030
30	0.2529	0.5202	2949	0.0006	0.0009	0.0006	0.0006	0.0014	0.0020	0.0022	0.0026	0.0028	0.0031
31	0.2536	0.5215	2925	0.0006	0.0010	0.0007	0.0006	0.0010	0.0017	0.0020	0.0023	0.0025	0.0028
32	0.2536	0.5211	2928	0.0006	0.0008	0.0006	0.0008	0.0015	0.0022	0.0026	0.0028	0.0031	0.0034
33	0.2526	0.5211	2952	0.0007	0.0011	0.0006	0.0006	0.0011	0.0018	0.0022	0.0024	0.0026	0.0029
34	0.2527	0.5224	2942	0.0007	0.0011	0.0007	0.0006	0.0010	0.0016	0.0019	0.0021	0.0024	0.0026
35	0.2521	0.5212	2965	0.0008	0.0011	0.0008	0.0006	0.0011	0.0018	0.0020	0.0022	0.0026	0.0027
36	0.2527	0.5223	2943	0.0010	0.0015	0.0010	0.0009	0.0011	0.0017	0.0019	0.0021	0.0024	0.0027
37	0.2527	0.5204	2954	0.0008	0.0011	0.0006	0.0007	0.0011	0.0019	0.0022	0.0023	0.0027	0.0028
38	0.2529	0.5216	2943	0.0007	0.0009	0.0006	0.0007	0.0013	0.0020	0.0024	0.0026	0.0029	0.0032
39	0.2532	0.5215	2935	0.0007	0.0011	0.0007	0.0006	0.0010	0.0017	0.0019	0.0022	0.0025	0.0027
40	0.2530	0.5200	2948	0.0007	0.0010	0.0006	0.0005	0.0010	0.0017	0.0020	0.0022	0.0025	0.0029
41	0.2516	0.5198	2985	0.0008	0.0011	0.0008	0.0006	0.0010	0.0017	0.0021	0.0024	0.0025	0.0027
42	0.2526	0.5199	2959	0.0011	0.0014	0.0012	0.0009	0.0011	0.0016	0.0018	0.0022	0.0023	0.0025
43	0.2526	0.5221	2946	0.0007	0.0011	0.0007	0.0006	0.0012	0.0019	0.0023	0.0026	0.0028	0.0030
44	0.2522	0.5208	2964	0.0007	0.0010	0.0006	0.0005	0.0010	0.0017	0.0021	0.0025	0.0026	0.0028
45	0.2520	0.5198	2975	0.0006	0.0009	0.0008	0.0005	0.0010	0.0018	0.0022	0.0025	0.0027	0.0027
46	0.2540	0.5204	2924	0.0007	0.0011	0.0010	0.0008	0.0014	0.0019	0.0024	0.0027	0.0030	0.0031
47	0.2515	0.5204	2983	0.0007	0.0010	0.0008	0.0005	0.0010	0.0017	0.0022	0.0026	0.0028	0.0029
48	0.2534	0.5194	2942	0.0006	0.0008	0.0006	0.0005	0.0012	0.0018	0.0022	0.0028	0.0028	0.0031
49	0.2529	0.5199	2951	0.0008	0.0012	0.0009	0.0006	0.0012	0.0018	0.0021	0.0025	0.0027	0.0029
50	0.2529	0.5218	2941	0.0006	0.0011	0.0009	0.0005	0.0009	0.0017	0.0020	0.0025	0.0026	0.0028
Ave.	0.2529	0.5209	2947	0.0007	0.0010	0.0007	0.0006	0.0011	0.0018	0.0021	0.0024	0.0027	0.0029
Med.	0.2529	0.5208	2943	0.0007	0.0010	0.0007	0.0006	0.0011	0.0018	0.0021	0.0025	0.0027	0.0029
st dev	0.0007	0.0009	17.5238	0.0001	0.0002	0.0002	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002
Min.	0.2515	0.5194	2921	0.0006	0.0008	0.0004	0.0005	0.0009	0.0016	0.0018	0.0021	0.0023	0.0025
Max.	0.2540	0.5225	2985	0.0011	0.0015	0.0012	0.0009	0.0015	0.0022	0.0026	0.0028	0.0031	0.0034



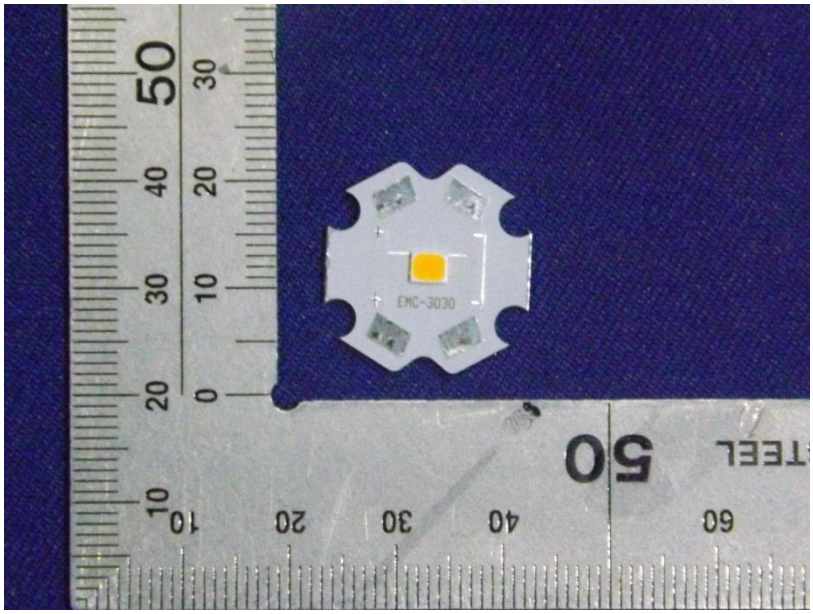
Appendix A – EUT PHOTO

A.1 Mechanical Dimensions (Ta = 25°C)



All dimensions are in millimeter

A.2 EUT Photo



Attachment B – Family Declaration Letter

深圳市斯迈得半导体有限公司
Shenzhen Smalite Semiconductor Co., Ltd

Product Name Change Declaration

For the requirement of product market development, our company upgraded our product name system especially, we have sent several products to your side for testing before updated, due to the updated product name system, now we need to update the name of their LM-80 reports, specific as follows:

No.	P/N Before Updated	P/N AfterUpdated	Description
1	SL-IBPD28-KH	SL-IB2835FTA-31KAG	Changing product's name only, without change any material
2	SL-IBEC30-EL	SL-IB3030YEA-21EAI	Changing product's name only, without change any material
3	SL-IB2016FEA-21CAB	SL-IB2016NEA-21CAG	Changing product's name only, without change any material
4	SL-IBPB28-EL	SL-IB2835FTA-12EAH	Changing product's name only, without change any material

Descriptions in P/N before updated and P/N after updated is consistent. Materials used and technology is unchanged before and after product name changed, hereby stated.

Also attached part of page of file of our Company Product Naming Rules of both new and old versions (B/2 version is the old naming rules, B/3 is the new one).

Your comprehension for the inconvenience brought to you will be highly appreciated.

Shenzhen Smalite Semiconductor Co., Ltd

2016 年 4 月 5 日

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