Shenzhen Liang'an Photoelectricity Technology Co.,Ltd.

TEST REPORT

Prepared For:	Shenzhen Liang’an Photoelectricity Technology Co.,Ltd. No.1 Building,the 3rd Industrial Zone,Shiyan Town,Bao’an District, Shenzhen,China
Product Name:	LA-D2835N825E-36C2
Model:	2835
Prepared By:	Shenzhen BST Technology Co., Ltd. Building No.23-24, Zhiheng industrial park, Guankouer Road, Nantou, Nanshan District, Shenzhen, Guangdong, China.
Test Date:	Nov. 21, 2015 – Aug. 23, 2016
Date of Report:	Aug. 25, 2016
Report No.:	BST1608484190002SR-2

TEST REPORT

LUMEN MAINTENANCE TESTING ACCORDING TO THE IESNA LM-80-08 TEST STANDARD

Testing laboratory ……	:	Shenzhen BST Technology Co., Ltd.
Address ……	:	Building No.23-24, Zhiheng industrial park, Guankouer Road, Nantou, Nanshan District, Shenzhen, Guangdong, China.
Testing location ……	:	Shenzhen BST Technology Co., Ltd.
Applicant ……	:	Shenzhen Liang’an Photoelectricity Technology Co.,Ltd.
Address ……	:	No.1 Building,the 3rd Industrial Zone,Shiyan Town,Bao’an District, Shenzhen,China
Test Procedure……	:	The IESNA LM-80-2008: Measuring Lumen Maintenance of LED Light Sources.
Non-standard test method ……	:	N.A.
Type of test object ……	:	LA-D2835N825E-36C2
Trademark ……	:	N.A.
Model/type reference ……	:	2835
Rating ……	:	36-39V ⎓, 30mA, 1W
Manufacturer ……	:	Shenzhen Liang’an Photoelectricity Technology Co.,Ltd.
Address ……	:	No.1 Building,the 3rd Industrial Zone,Shiyan Town,Bao’an District, Shenzhen,China

Name and address of the testing laboratory:	**Shenzhen BST Technology Co., Ltd.** **Building No.23-24, Zhiheng industrial park,** **Guankouer Road, Nantou, Nanshan District,** **Shenzhen, Guangdong, China**

Prepared by : Jacky Zhang

Engineer

Reviewer :

Supervisor

Approved & Authorized Signer :

Test Results Summary:

Summary	I	II	III
Condition	Ts=54.8℃ T_A=54.7℃ R.H.<65% I=30mA	Ts=84.8℃ T_A=84.6℃ R.H.<65% I=30mA	Ts=104.9℃ T_A=104.7℃ R.H.<65% I=30mA
Duration(hour)	6000	6000	6000
Interval(hour)	0,1000,2000,3000,4000, 5000, 6000	0,1000,2000,3000,4000, 5000, 6000	0,1000,2000,3000,4000, 5000, 6000
Sample Size	20	20	20
Average Lumen Maintenance at 6000 hour	96.06%	95.17%	94.80%
Average Chromaticity Shift △u'v' at 6000 hour	0.0023	0.0035	0.0040
Failure	0	0	0
α	7.848E-06	9.452E-06	1.032E-05
β	1.008	1.011	1.013
Calculated L70(6k) (hours)	46000	39000	36000
Reported L70(6k) (hours)	>36000	>36000	>36000

Equipments Used for Testing:

Equipment	Model	Equipment No.
DC Power Supply	IT6122	BSTNX001
Power meter	WT210	BSTNX001
Spectroradiometer	SPEC300	BN067
0.3m Integrating Sphere	0.3m	BSTNX002

Test Data:
Operating Condition: 55℃/30mA

No.	Φ(lm)	V_F(V)	Lumen maintenance (%)					
	0h(Initial)		1000h	2000h	3000h	4000h	5000h	6000h
1	115.6	36.5	99.89	99.66	98.65	97.66	97.18	96.02
2	115.9	36.4	99.69	99.18	98.25	97.55	97.07	95.79
3	114.9	36.5	100.08	99.38	99.31	97.92	97.59	95.86
4	117.2	36.5	99.98	99.12	98.85	97.44	97.29	96.08
5	114.7	36.4	99.78	99.18	98.73	97.91	96.66	95.74
6	113.9	36.5	99.67	99.21	98.37	98.08	96.99	96.18
7	114.8	36.5	99.95	99.32	98.37	97.82	96.99	96.12
8	114.7	36.4	99.96	99.36	98.81	98.11	97.28	96.45
9	115.7	36.5	99.89	99.19	98.45	97.55	97.21	96.39
10	116.1	36.5	99.92	99.74	98.26	97.92	97.15	96.58
11	117.1	36.4	99.87	99.18	98.85	97.44	97.08	96.11
12	114.8	36.5	100.06	99.28	98.73	97.91	96.66	95.88
13	115.9	36.5	99.89	99.28	98.37	98.04	96.99	95.78
14	113.8	36.4	99.96	99.31	98.11	97.82	96.99	95.85
15	114.7	36.5	99.76	99.37	98.28	98.11	97.33	96.55
16	115.2	36.5	99.92	99.21	98.57	97.12	96.28	95.65
17	116.2	36.4	99.67	99.24	98.68	97.55	96.37	95.78
18	114.1	36.5	99.95	99.42	98.62	97.39	96.25	95.62
19	113.5	36.5	99.87	99.33	98.36	97.62	97.12	96.28
20	116.1	36.4	99.93	99.28	98.28	97.53	97.13	96.41
Average	115.2	36.5	99.88	99.31	98.55	97.72	96.98	96.06
Median	115.1	36.5	99.91	99.28	98.51	97.74	97.08	96.05
St, Dev.	1.0	0.0	0.12	0.16	0.29	0.28	0.36	0.31
Max	117.2	36.5	100.08	99.74	99.31	98.11	97.59	96.58
Min	113.5	36.4	99.67	99.12	98.11	97.12	96.25	95.62

Operating Condition: 85℃/30mA

No.	Φ(lm)	V_F(V)	Lumen maintenance (%)					
	0h(Initial)		1000h	2000h	3000h	4000h	5000h	6000h
1	114.8	36.5	99.88	99.12	98.23	97.28	96.85	95.23
2	113.8	36.4	99.69	99.18	98.26	97.33	97.07	95.85
3	113.7	36.5	100.18	99.23	98.63	97.52	97.12	95.21
4	113.1	36.5	99.98	99.12	98.85	97.44	96.33	95.08
5	112.9	36.4	99.82	99.18	98.62	97.39	96.66	95.29
6	114.1	36.5	99.87	99.21	98.37	97.62	96.28	95.23
7	114.3	36.5	99.95	99.18	98.37	97.18	96.29	95.18
8	113.9	36.4	99.96	99.25	98.62	97.39	96.39	95.18
9	114.1	36.5	99.89	99.19	98.45	97.55	97.21	95.08
10	113.7	36.5	99.98	99.33	98.54	97.52	97.15	95.12
11	112.8	36.4	99.89	99.18	98.39	97.44	97.08	95.38
12	113.5	36.5	99.88	99.28	98.73	97.34	97.12	95.69
13	114.3	36.5	99.85	99.25	98.56	97.85	96.85	94.62
14	114.2	36.4	99.96	99.31	98.26	97.82	96.78	95.18
15	113.8	36.5	99.92	99.32	98.28	97.65	96.85	95.17
16	112.9	36.5	99.92	99.21	98.33	97.12	96.28	95.23
17	113.8	36.4	99.85	99.24	98.34	97.33	96.37	94.22
18	114.3	36.5	99.95	99.26	98.35	97.39	96.25	95.17
19	114.5	36.5	99.87	99.33	98.36	97.54	96.28	95.12
20	113.9	36.4	99.93	99.28	98.28	97.53	96.54	95.08
Average	113.8	36.5	99.91	99.23	98.44	97.46	96.69	95.17
Median	113.9	36.5	99.91	99.24	98.37	97.44	96.72	95.18
St, Dev.	0.6	0.0	0.09	0.06	0.18	0.19	0.36	0.33
Max	114.8	36.5	100.18	99.33	98.85	97.85	97.21	95.85
Min	112.8	36.4	99.69	99.12	98.23	97.12	96.25	94.22

Operating Condition: 105℃/30mA

No.	Φ(lm)	V_F(V)	Lumen maintenance (%)					
	0h(Initial)		1000h	2000h	3000h	4000h	5000h	6000h
1	112.8	36.5	99.89	99.08	98.56	97.33	95.88	94.52
2	112.5	36.4	99.77	99.18	98.64	97.28	96.29	94.59
3	113.1	36.5	99.69	99.34	98.33	97.51	96.34	94.18
4	112.9	36.5	99.88	98.96	98.25	97.34	96.33	94.38
5	113.2	36.4	99.85	99.52	97.98	97.28	95.85	94.28
6	112.1	36.5	99.87	99.21	98.12	97.66	95.58	93.85
7	111.8	36.5	99.92	99.25	98.33	97.55	95.39	94.15
8	112.7	36.4	99.96	99.25	98.08	97.74	95.28	94.18
9	113.2	36.5	99.91	99.36	98.26	97.58	96.28	95.52
10	112.8	36.5	99.92	99.33	98.39	97.52	96.33	94.08
11	113.1	36.4	99.89	99.34	98.18	97.33	96.85	95.57
12	111.9	36.5	100.08	99.37	98.54	97.28	96.84	95.51
13	111.7	36.5	99.85	99.18	98.66	97.66	96.85	95.18
14	112.8	36.4	99.96	99.09	98.71	97.69	96.71	95.12
15	113.4	36.5	99.77	99.09	98.75	97.81	96.85	95.25
16	112.4	36.5	100.05	99.21	98.84	97.89	96.74	95.28
17	111.8	36.4	99.92	99.18	98.29	97.66	96.52	95.18
18	112.7	36.5	99.95	99.21	98.39	97.54	96.18	95.28
19	113.7	36.5	99.88	99.18	97.88	97.15	96.28	94.76
20	114.1	36.4	99.93	99.28	98.42	97.34	96.45	95.18
Average	112.7	36.5	99.90	99.23	98.38	97.51	96.29	94.80
Median	112.8	36.5	99.90	99.21	98.36	97.53	96.33	94.94
St, Dev.	0.7	0.0	0.09	0.13	0.26	0.21	0.48	0.56
Max	114.1	36.5	100.08	99.52	98.84	97.89	96.85	95.57
Min	111.7	36.4	99.69	98.96	97.88	97.15	95.28	93.85

Operating Condition: 55℃/30mA

No.	Ra	CCT(K)	Chromaticity Shift △u'v'					
	0h(Initial)		1000h	2000h	3000h	4000h	5000h	6000h
1	81.1	3023	0.0012	0.0013	0.0015	0.0017	0.0020	0.0023
2	80.7	3055	0.0011	0.0013	0.0015	0.0018	0.0021	0.0023
3	81.0	3031	0.0011	0.0014	0.0016	0.0018	0.0019	0.0023
4	80.5	3008	0.0009	0.0012	0.0015	0.0017	0.0019	0.0023
5	81.0	3075	0.0012	0.0014	0.0016	0.0018	0.0019	0.0023
6	80.8	3025	0.0012	0.0013	0.0014	0.0015	0.0017	0.0024
7	80.7	3070	0.0009	0.0013	0.0015	0.0017	0.0019	0.0023
8	80.5	3074	0.0011	0.0014	0.0015	0.0016	0.0018	0.0023
9	81.1	3053	0.0011	0.0013	0.0015	0.0017	0.0018	0.0025
10	81.0	3072	0.0011	0.0013	0.0014	0.0015	0.0017	0.0023
11	80.3	3157	0.0012	0.0013	0.0015	0.0017	0.0018	0.0023
12	80.6	3085	0.0011	0.0012	0.0014	0.0015	0.0017	0.0023
13	81.2	3042	0.0009	0.0011	0.0013	0.0014	0.0017	0.0024
14	81.1	3057	0.0011	0.0012	0.0013	0.0015	0.0016	0.0022
15	81.3	3042	0.0011	0.0013	0.0015	0.0015	0.0018	0.0022
16	81.2	3060	0.0011	0.0013	0.0015	0.0016	0.0017	0.0023
17	80.5	2982	0.0011	0.0013	0.0016	0.0017	0.0018	0.0022
18	81.0	2985	0.0009	0.0011	0.0013	0.0015	0.0017	0.0022
19	81.2	3005	0.0011	0.0013	0.0014	0.0015	0.0017	0.0023
20	80.7	3041	0.0009	0.0011	0.0014	0.0015	0.0017	0.0025
Average	80.9	3047	0.0011	0.0013	0.0015	0.0016	0.0018	0.0023
Median	81.0	3048	0.0011	0.0013	0.0015	0.0016	0.0018	0.0023
St, Dev.	0.3	39	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Max	81.3	3157	0.0012	0.0014	0.0016	0.0018	0.0021	0.0025
Min	80.3	2982	0.0009	0.0011	0.0013	0.0014	0.0016	0.0022

Operating Condition: 85℃/30mA

No.	Ra	CCT(K)	Chromaticity Shift △u'v'					
	0h(Initial)		1000h	2000h	3000h	4000h	5000h	6000h
1	80.7	3031	**0.0013**	0.0016	0.0022	0.0026	0.0029	0.0033
2	80.6	3075	0.0015	0.0017	0.0023	0.0026	0.0029	0.0034
3	80.8	3070	0.0015	0.0019	0.0022	0.0025	0.0028	0.0036
4	81.1	3045	0.0015	0.0021	0.0023	0.0026	0.0029	0.0035
5	80.6	3042	0.0014	0.0018	0.0021	0.0025	0.0029	0.0036
6	81.1	3073	0.0015	0.0018	0.0023	0.0025	0.0028	0.0035
7	81.2	3064	0.0015	0.0018	0.0023	0.0026	0.0029	0.0036
8	80.7	3052	0.0015	0.0019	0.0024	0.0027	0.0031	0.0036
9	80.8	3051	0.0014	0.0017	0.0022	0.0025	0.0031	0.0036
10	81.1	3043	0.0015	0.0021	0.0025	0.0028	0.0032	0.0037
11	80.6	3077	0.0014	0.0019	0.0024	0.0026	0.0028	0.0036
12	80.8	3042	0.0016	0.0021	0.0023	0.0025	0.0027	0.0037
13	80.7	3058	0.0016	0.0022	0.0024	0.0026	0.0029	0.0034
14	80.8	3052	0.0015	0.0018	0.0023	0.0028	0.0031	0.0035
15	80.8	3046	0.0016	0.0019	0.0024	0.0026	0.0028	0.0033
16	81.0	2992	0.0014	0.0018	0.0023	0.0025	0.0027	0.0036
17	80.5	3012	0.0015	0.0019	0.0023	0.0028	0.0031	0.0035
18	80.8	3121	0.0014	0.0021	0.0024	0.0027	0.0029	0.0035
19	80.5	2991	0.0016	0.0021	0.0024	0.0026	0.0031	0.0036
20	81.5	3009	0.0016	0.0019	0.0024	0.0028	0.0032	0.0035
Average	80.8	3045	0.0016	0.0021	0.0025	0.0027	0.0031	0.0035
Median	80.8	3043	0.0015	0.0019	0.0023	0.0026	0.0030	0.0036
St, Dev.	0.3	38	0.0015	0.0019	0.0023	0.0026	0.0029	0.0001
Max	81.5	3121	0.0001	0.0002	0.0001	0.0001	0.0002	0.0037
Min	80.5	2991	0.0016	0.0022	0.0025	0.0028	0.0032	0.0033

Operating Condition: 105℃/30mA

No.	Ra	CCT(K)	Chromaticity Shift △u'v'					
	0h(Initial)		1000h	2000h	3000h	4000h	5000h	6000h
1	81.8	3032	0.0016	0.0019	0.0023	0.0028	0.0033	0.0038
2	80.7	3065	0.0017	0.0021	0.0024	0.0031	0.0036	0.0039
3	80.9	3061	0.0016	0.0021	0.0023	0.0028	0.0033	0.0041
4	81.0	3065	0.0017	0.0021	0.0025	0.0031	0.0033	0.0041
5	81.1	3070	0.0017	0.0021	0.0025	0.0028	0.0033	0.0041
6	80.9	3041	0.0018	0.0022	0.0024	0.0028	0.0035	0.0041
7	80.8	3065	0.0017	0.0021	0.0025	0.0029	0.0034	0.0039
8	80.7	3057	0.0016	0.0021	0.0025	0.0029	0.0034	0.0041
9	81.0	3044	0.0018	0.0021	0.0024	0.0029	0.0035	0.0042
10	81.2	3062	0.0016	0.0019	0.0025	0.0028	0.0033	0.0041
11	81.0	3061	0.0017	0.0021	0.0023	0.0029	0.0034	0.0039
12	80.9	3057	0.0016	0.0019	0.0023	0.0028	0.0035	0.0039
13	80.8	3085	0.0016	0.0019	0.0024	0.0029	0.0034	0.0041
14	80.7	3055	0.0017	0.0021	0.0025	0.0029	0.0035	0.0038
15	80.9	3034	0.0016	0.0019	0.0024	0.0029	0.0035	0.0041
16	81.1	2991	0.0016	0.0019	0.0025	0.0032	0.0036	0.0039
17	81.0	3038	0.0017	0.0019	0.0024	0.0031	0.0035	0.0038
18	80.8	3043	0.0018	0.0021	0.0023	0.0031	0.0035	0.0039
19	80.5	2995	0.0017	0.0022	0.0025	0.0029	0.0034	0.0039
20	80.8	3010	0.0018	0.0019	0.0024	0.0028	0.0036	0.0038
Average	80.9	3047	0.0017	0.0020	0.0024	0.0029	0.0034	0.0040
Median	80.9	3056	0.0017	0.0021	0.0024	0.0029	0.0035	0.0039
St, Dev.	0.3	25	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Max	81.8	3085	0.0018	0.0022	0.0025	0.0032	0.0036	0.0042
Min	80.5	2991	0.0016	0.0019	0.0023	0.0028	0.0033	0.0038

Photo 1 General Appearance of the EUT