



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:	LED
Model:	LA-DZT03W15W1203DH2-R2
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.:	BST1608484190004SR-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 : LED

Trademark : N.A.

Model/type reference : LA-DZT03W15W1203DH2-R2

Rating : 36-40V $\overline{\text{---}}$, 410mA, 15W

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 :

Engineer

Reviewer :

Supervisor

Approved & Authorized Signer :



Test Results Summary:

Summary	I	II	III
Condition	Ts=54.8°C T _A =54.7°C R.H.<65% I=410mA	Ts=84.8°C T _A =84.6°C R.H.<65% I=410mA	Ts=104.9°C T _A =104.7°C R.H.<65% I=410mA
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	97.87%	96.84%	96.02%
Average Chromaticity Shift $\Delta u'v'$ at 6000 hour	0.0012	0.0016	0.0018
Failure	0	0	0
α	5.593E-06	6.451E-06	8.197E-05
β	1.013	1.009	1.010
Calculated L70(6k) (hours)	66000	57000	45000
Reported L70(6k) (hours)	>36000	>36000	>35000

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°C/410mA**

No.	Φ (Im)	V _F (V)	Lumen maintenance (%)					
			0h(Initial)	1000h	2000h	3000h	4000h	5000h
1	1636.9	38.1	100.41	100.46	99.74	98.43	97.97	97.65
2	1632.5	38.2	100.17	100.72	99.65	98.68	98.75	97.75
3	1638.7	38.1	100.08	101.58	100.62	99.56	98.45	98.09
4	1637.1	38.2	100.12	101.31	100.17	99.57	98.92	98.13
5	1635.7	38.2	100.15	100.51	99.69	98.32	98.22	97.58
6	1633.7	38.3	100.32	101.62	100.52	99.56	98.45	98.07
7	1636.4	38.1	99.61	100.85	99.61	99.35	98.45	97.63
8	1637.0	38.2	99.82	101.05	100.21	99.32	98.32	98.01
9	1634.1	38.1	100.50	100.47	99.61	99.35	98.09	97.66
10	1636.4	38.2	100.10	100.32	99.38	98.84	97.88	97.58
11	1631.0	38.1	100.00	100.69	99.43	98.56	98.32	98.17
12	1636.8	38.2	100.08	100.71	99.56	99.19	99.16	97.72
13	1633.7	38.2	100.00	100.37	99.67	98.52	98.46	97.81
14	1635.8	38.3	100.36	99.92	99.72	99.33	98.46	97.81
15	1639.7	38.1	100.15	100.78	99.71	99.56	98.65	98.17
16	1630.3	38.2	100.12	101.69	99.51	99.19	98.76	98.08
17	1632.4	38.1	100.30	101.02	99.19	99.57	98.76	98.06
18	1637.4	38.2	100.16	101.05	99.56	98.86	98.75	98.02
19	1635.8	38.1	101.08	101.55	99.58	98.40	98.11	97.94
20	1639.1	38.2	100.07	99.85	99.65	98.45	97.89	97.47
Average	1635.5	38.2	100.18	100.83	99.74	99.03	98.44	97.87
Median	1636.1	38.2	100.14	100.75	99.65	99.19	98.45	97.88
St, Dev.	2.6	0.1	0.29	0.54	0.36	0.47	0.35	0.23
Max	1639.7	38.3	101.08	101.69	100.62	99.57	99.16	98.17
Min	1630.3	38.1	99.61	99.85	99.19	98.32	97.88	97.47



Operating Condition: 85°C/410mA

No.	Φ (lm)	V_F (V)	Lumen maintenance (%)					
	0h(Initial)		1000h	2000h	3000h	4000h	5000h	6000h
1	1637.3	38.1	99.99	100.03	99.43	98.43	97.94	96.93
2	1635.0	38.2	99.92	99.18	98.02	97.93	97.56	97.12
3	1635.4	38.1	99.86	99.92	99.34	98.25	97.72	96.81
4	1631.2	38.2	100.02	100.17	99.30	98.98	97.77	96.78
5	1635.5	38.2	99.92	99.53	98.63	97.69	97.33	96.79
6	1638.7	38.3	100.09	100.50	99.47	98.51	98.06	97.09
7	1636.2	38.1	100.06	100.42	99.49	98.17	97.99	97.27
8	1639.3	38.2	99.73	99.74	98.66	97.86	97.39	96.36
9	1636.7	38.1	100.02	99.29	98.52	97.78	97.31	96.77
10	1636.4	38.2	99.76	99.66	99.19	98.32	97.47	96.56
11	1631.5	38.1	99.95	99.75	99.25	97.97	98.23	97.14
12	1634.8	38.2	99.78	99.66	99.28	98.18	97.20	96.77
13	1635.7	38.2	99.92	100.15	99.23	97.90	97.72	97.01
14	1635.3	38.3	99.81	99.92	99.69	99.14	98.71	96.61
15	1631.0	38.1	99.84	99.87	99.60	99.04	98.09	96.52
16	1636.3	38.2	99.97	99.69	98.70	98.36	98.31	97.00
17	1638.7	38.1	99.94	99.62	99.05	97.92	97.66	96.79
18	1631.2	38.2	99.82	99.50	98.62	97.92	97.60	96.90
19	1634.5	38.1	99.83	99.66	98.47	98.26	98.19	96.68
20	1638.4	38.2	99.95	100.49	99.11	98.35	97.95	96.95
Average	1635.5	38.2	99.91	99.84	99.05	98.25	97.81	96.84
Median	1635.6	38.2	99.92	99.75	99.21	98.22	97.75	96.80
St, Dev.	2.6	0.1	0.10	0.37	0.45	0.42	0.39	0.23
Max	1639.3	38.3	100.09	100.50	99.69	99.14	98.71	97.27
Min	1631.0	38.1	99.73	99.18	98.02	97.69	97.20	96.36

**Operating Condition: 105°C/410mA**

No.	Φ (lm)	V_F (V)	Lumen maintenance (%)					
	0h(Initial)		1000h	2000h	3000h	4000h	5000h	6000h
1	1657.6	38.1	99.94	99.69	98.87	97.82	96.94	96.09
2	1652.2	38.2	99.87	99.55	98.82	97.87	96.91	96.10
3	1655.5	38.1	99.81	99.43	98.70	97.72	96.89	96.02
4	1651.1	38.2	99.97	99.75	98.97	98.22	97.46	96.68
5	1655.7	38.2	99.87	99.54	98.81	97.77	96.93	96.08
6	1659.5	38.3	100.04	99.88	99.33	98.17	97.30	96.30
7	1656.1	38.1	100.01	99.83	99.22	98.31	97.40	96.61
8	1652.2	38.2	99.68	99.17	98.48	97.23	96.35	95.44
9	1656.0	38.1	99.97	99.75	98.95	98.19	97.34	96.55
10	1655.5	38.2	99.71	99.23	98.53	97.39	96.51	95.72
11	1659.4	38.1	99.90	99.61	98.87	97.90	97.04	96.26
12	1656.3	38.2	99.73	99.27	98.49	97.47	96.63	95.73
13	1654.7	38.2	99.87	99.55	98.81	97.49	96.78	95.81
14	1655.7	38.3	99.76	99.33	98.59	97.53	96.51	95.57
15	1656.5	38.1	99.79	99.38	98.80	97.59	96.65	95.89
16	1656.2	38.2	99.92	99.64	98.98	97.98	97.07	96.24
17	1652.3	38.1	99.89	99.58	98.84	97.92	96.80	95.39
18	1656.2	38.2	99.77	99.35	98.49	97.52	96.70	95.87
19	1658.1	38.1	99.78	99.37	98.68	97.57	96.62	95.70
20	1659.3	38.2	99.90	99.61	98.92	97.97	97.15	96.39
Average	1655.8	38.2	99.86	99.53	98.81	97.78	96.90	96.02
Median	1656.1	38.2	99.87	99.55	98.82	97.80	96.90	96.05
St. Dev.	2.4	0.1	0.10	0.20	0.23	0.30	0.32	0.38
Max	1659.5	38.3	100.04	99.88	99.33	98.31	97.46	96.68
Min	1651.1	38.1	99.68	99.17	98.48	97.23	96.35	95.39



Operating Condition: 55°C/410mA

No.	Ra	CCT(K)	Chromaticity Shift $\Delta u'v'$					
	0h(Initial)	1000h	2000h	3000h	4000h	5000h	6000h	
1	81.1	3048	0.0006	0.0008	0.0008	0.0009	0.0010	0.0011
2	80.8	3056	0.0007	0.0011	0.0013	0.0015	0.0015	0.0017
3	81.0	3013	0.0009	0.0007	0.0008	0.0009	0.0010	0.0011
4	80.7	3002	0.0006	0.0008	0.0009	0.0009	0.0009	0.0011
5	81.0	3018	0.0006	0.0009	0.0012	0.0013	0.0011	0.0014
6	80.8	2943	0.0005	0.0009	0.0009	0.0010	0.0011	0.0011
7	80.6	3050	0.0007	0.0004	0.0005	0.0007	0.0007	0.0008
8	80.5	3034	0.0008	0.0005	0.0007	0.0008	0.0009	0.0009
9	81.1	3042	0.0006	0.0008	0.0009	0.0010	0.0010	0.0011
10	81.0	3072	0.0008	0.0009	0.0009	0.0010	0.0010	0.0012
11	80.6	2952	0.0004	0.0006	0.0008	0.0009	0.0010	0.0010
12	80.7	2985	0.0006	0.0007	0.0008	0.0009	0.0008	0.0011
13	81.2	3035	0.0007	0.0009	0.0013	0.0014	0.0014	0.0016
14	81.4	3083	0.0005	0.0008	0.0009	0.0009	0.0010	0.0011
15	81.3	2963	0.0008	0.0008	0.0009	0.0010	0.0010	0.0011
16	81.1	3060	0.0008	0.0010	0.0011	0.0013	0.0013	0.0014
17	80.9	2981	0.0006	0.0006	0.0008	0.0009	0.0011	0.0013
18	81.0	2989	0.0005	0.0006	0.0007	0.0008	0.0008	0.0011
19	81.2	3002	0.0006	0.0006	0.0009	0.0009	0.0009	0.0011
20	80.7	3042	0.0005	0.0007	0.0009	0.0012	0.0011	0.0013
Average	80.9	3019	0.0006	0.0008	0.0009	0.0010	0.0010	0.0012
Median	81.0	3026	0.0006	0.0008	0.0009	0.0009	0.0010	0.0011
St, Dev.	0.3	40	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002
Max	81.4	3083	0.0009	0.0011	0.0013	0.0015	0.0015	0.0017
Min	80.5	2943	0.0004	0.0004	0.0005	0.0007	0.0007	0.0008



Operating Condition: 85°C/410mA

No.	Ra	CCT(K)	Chromaticity Shift $\Delta u'v'$					
	0h(Initial)	1000h	2000h	3000h	4000h	5000h	6000h	
1	80.9	3049	0.0008	0.0009	0.0010	0.0013	0.0015	0.0016
2	80.8	3052	0.0007	0.0007	0.0011	0.0012	0.0012	0.0013
3	80.8	3014	0.0005	0.0008	0.0012	0.0013	0.0015	0.0016
4	81.1	3001	0.0007	0.0008	0.0014	0.0015	0.0015	0.0017
5	80.7	3015	0.0007	0.0007	0.0008	0.0010	0.0011	0.0015
6	81.1	2943	0.0007	0.0008	0.0013	0.0016	0.0015	0.0017
7	81.2	3042	0.0006	0.0006	0.0010	0.0011	0.0012	0.0014
8	80.6	3034	0.0007	0.0008	0.0011	0.0013	0.0013	0.0016
9	80.8	3041	0.0006	0.0006	0.0011	0.0012	0.0013	0.0014
10	81.1	3062	0.0006	0.0007	0.0011	0.0014	0.0014	0.0016
11	80.8	2950	0.0008	0.0009	0.0013	0.0013	0.0014	0.0017
12	80.8	2986	0.0007	0.0007	0.0011	0.0012	0.0012	0.0014
13	80.7	3032	0.0006	0.0007	0.0011	0.0013	0.0013	0.0016
14	80.9	3072	0.0007	0.0009	0.0010	0.0013	0.0013	0.0015
15	80.8	2960	0.0008	0.0009	0.0011	0.0012	0.0013	0.0015
16	81.0	3057	0.0008	0.0009	0.0012	0.0014	0.0017	0.0019
17	80.6	2980	0.0007	0.0008	0.0012	0.0013	0.0013	0.0014
18	80.8	2982	0.0008	0.0010	0.0013	0.0015	0.0016	0.0017
19	80.7	3001	0.0008	0.0009	0.0011	0.0015	0.0016	0.0019
20	81.2	3041	0.0007	0.0007	0.0010	0.0011	0.0012	0.0014
Average	80.9	3016	0.0007	0.0008	0.0011	0.0013	0.0014	0.0016
Median	80.8	3024	0.0007	0.0008	0.0011	0.0013	0.0013	0.0016
St, Dev.	0.2	39	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002
Max	81.2	3072	0.0008	0.0010	0.0014	0.0016	0.0017	0.0019
Min	80.6	2943	0.0005	0.0006	0.0008	0.0010	0.0011	0.0013

**Operating Condition: 105°C/410mA**

No.	Ra	CCT(K)	Chromaticity Shift $\Delta u'v'$					
	0h(Initial)		1000h	2000h	3000h	4000h	5000h	6000h
1	81.0	3046	0.0009	0.0010	0.0012	0.0015	0.0017	0.0018
2	80.6	3052	0.0008	0.0009	0.0012	0.0013	0.0014	0.0015
3	80.9	3017	0.0006	0.0010	0.0014	0.0015	0.0018	0.0019
4	81.0	2996	0.0008	0.0009	0.0016	0.0017	0.0017	0.0019
5	81.1	3013	0.0008	0.0009	0.0009	0.0012	0.0013	0.0017
6	80.7	2941	0.0008	0.0009	0.0015	0.0018	0.0017	0.0019
7	80.8	3050	0.0008	0.0009	0.0014	0.0015	0.0015	0.0018
8	80.7	3030	0.0008	0.0009	0.0013	0.0015	0.0015	0.0019
9	81.0	3037	0.0007	0.0007	0.0013	0.0013	0.0015	0.0017
10	81.1	3063	0.0007	0.0008	0.0013	0.0016	0.0017	0.0019
11	81.0	2952	0.0009	0.0010	0.0015	0.0015	0.0015	0.0019
12	80.9	2985	0.0009	0.0009	0.0014	0.0015	0.0015	0.0017
13	80.7	3032	0.0007	0.0008	0.0012	0.0015	0.0015	0.0018
14	80.7	3071	0.0008	0.0010	0.0011	0.0015	0.0015	0.0017
15	80.9	2963	0.0009	0.0010	0.0013	0.0014	0.0015	0.0017
16	81.2	3052	0.0008	0.0009	0.0012	0.0014	0.0017	0.0019
17	81.1	2981	0.0009	0.0010	0.0016	0.0017	0.0017	0.0018
18	80.6	2983	0.0009	0.0011	0.0015	0.0017	0.0018	0.0019
19	80.5	3005	0.0007	0.0008	0.0010	0.0013	0.0014	0.0017
20	80.9	3039	0.0009	0.0010	0.0013	0.0014	0.0016	0.0019
Average	80.9	3015	0.0008	0.0009	0.0013	0.0015	0.0016	0.0018
Median	80.9	3024	0.0008	0.0009	0.0013	0.0015	0.0015	0.0018
St, Dev.	0.2	38	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001
Max	81.2	3071	0.0009	0.0011	0.0016	0.0018	0.0018	0.0019
Min	80.5	2941	0.0006	0.0007	0.0009	0.0012	0.0013	0.0015



Photo 1 General Appearance of the EUT

