



IES LM-80-08 Test Report

For

Bridgelux Inc.
101 Portola Avenue, Livermore, CA 94551
USA

3V,150mALED Chip
Model: BXEN-27E-11M-3A

Laboratory: Leading Testing Laboratories
NVLAP CODE: 200960-0

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Report No.: HZ16030047h

The test data in this report base on the report HZ15020020o dated Oct. 24, 2016

Test specifications:

Date of Receipt	: Jul. 03, 2015
Date of Test	: Jul. 10, 2015 to Aug. 22, 2016
Test item	: 9000 hours Lumen Maintenance, 9000 hours Chromaticity Shift
Reference Standard	: IES LM-80-2008 Approved Method for Measuring Lumen Maintenance of LED Light Source

Review by:

April Zou

Engineer: April Zou
Oct. 24, 2016

Approved by:



Jim Zhang

Manager: Jim Zhang
Oct. 24, 2016

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Test Summary

Model Number: BXEN-27E-11M-3A

Rated Ts (°C)	Measured Ts (°C)	Drive Current (A)	Number of LED Light Sources Tested	Average Lumen Maintenance (%) at 9000 hours	Average Chromaticity ($\Delta u'v'$) at 9000 hours
55	53	0.15	25	96.8%	0.0018
85	83	0.15	25	94.6%	0.0020

IES LM-80-08 Test Report Requirement:

1. Number of LED Light Sources Tested

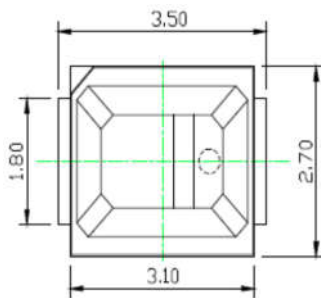
See test summary.

2. Description of LED light sources

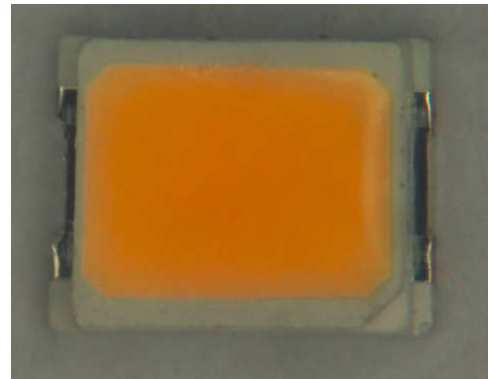
Device under test is LED CHIP with model number: BXEN-27E-11M-3A, Nominal CCT 2700K.

The BXEN-27E-11M-3A part number covers all the BXEN part numbers in the following list.

CRI70	CRI80	CRI90
BXEN-27C-11M-3A	BXEN-27E-11M-3A	BXEN-27G-11M-3A
BXEN-30C-11M-3A	BXEN-30E-11M-3A	BXEN-30G-11M-3A
BXEN-35C-11M-3A	BXEN-35E-11M-3A	BXEN-35G-11M-3A
BXEN-40C-11M-3A	BXEN-40E-11M-3A	BXEN-40G-11M-3A
BXEN-45C-11M-3A	BXEN-45E-11M-3A	BXEN-45G-11M-3A
BXEN-50C-11M-3A	BXEN-50E-11M-3A	BXEN-50G-11M-3A
BXEN-57C-11M-3A	BXEN-57E-11M-3A	BXEN-57G-11M-3A
BXEN-65C-11M-3A	BXEN-65E-11M-3A	BXEN-65G-11M-3A



Tolerance: $\pm 0.25\text{mm}$



3. Description of auxiliary equipment

Test Equipment	Model	Calibration Date	Calibration Due Date
Lifetest thermal chamber	NMT 830	Jul. 16, 2016	Jul. 15, 2017
Lifetest thermal chamber	NMT 830	Jul. 17, 2015	Jul. 16, 2016
Lifetest thermal chamber	NMT 830	Jul. 18, 2014	Jul. 17, 2015
Lifetest data recorder	GRAPHTEC GL820	Jul. 16, 2016	Jul. 15, 2017
Lifetest data recorder	GRAPHTEC GL820	Jul. 17, 2015	Jul. 16, 2016
Lifetest data recorder	GRAPHTEC GL820	Jul. 18, 2014	Jul. 17, 2015
Photometric test current source	Itech IT6154	Jul. 16, 2016	Jul. 15, 2017
Photometric test current source	Itech IT6154	Jul. 17, 2015	Jul. 16, 2016
Photometric test current source	Itech IT6154	Jul. 18, 2014	Jul. 17, 2015
Photometric test system	0.5m Integrate Sphere system	Jul. 16, 2016	Jul. 15, 2017
Photometric test system	0.5m Integrate Sphere system	Jul. 17, 2015	Jul. 16, 2016
Photometric test system	0.5m Integrate Sphere system	Jul. 18, 2014	Jul. 17, 2015
Standard Lamp	10W	Jul. 16, 2016	Jul. 15, 2017
Standard Lamp	10W	Sep. 22, 2015	Sep. 21, 2016
Standard Lamp	10W	Sep. 23, 2014	Sep. 22, 2015

4. Operating cycle

LEDs are driven with a constant direct current (DC).

5. Ambient conditions including airflow, temperature, and relative humidity

Ambient Temperature (Ta): See Tables

Humidity: <65%

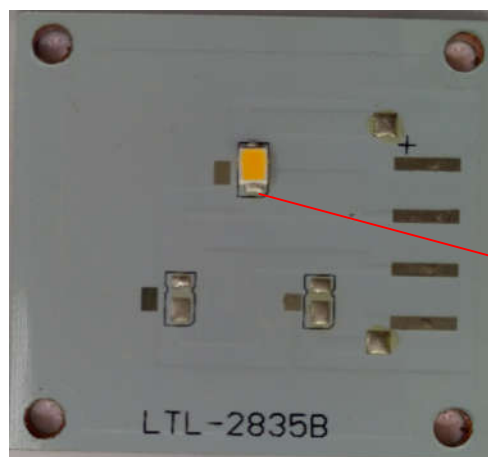
No force air flow

6. Case temperatures (test point temperature)

In all cases, both Ts and Ta meet the IES LM-80-08 limits.



Ts Location on Cathode



LED_{TMP}

7. Drive current of the LED light source during Lumen maintenance test.

See tables.

8. Initial luminous flux and forward voltage at photometric measurement current

See tables.

9. Lumen maintenance for data for each individual light source along with median value, standard deviation, minimum and maximum lumen maintenance value for all of the light sources

See tables.

10. Observation of LED light source failures including the failure conditions and time of failure

No failures observed.

11. LED light source monitoring interval

See tables

12. Photometric measurement uncertainty

Flux measurement: 1.06% ($k=2$)

13. Chromaticity shift reported over the measurement time

See tables.

14. Sampling Method/Sample size

IES LM-80 tests require LED samples to be operated at a minimum of a single current 150mA and two temperatures of 55°C and 85°C.

50 pieces of LED samples are selected randomly from different production date of products. These samples are picked to represent a wide parametric distribution.

Test Result:

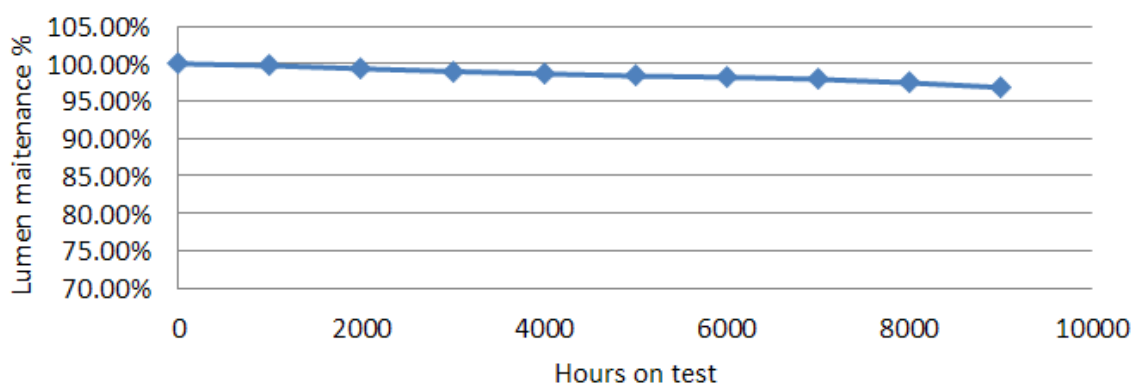
Model Number: BXEN-27E-11M-3A

Case temperature: 55°C

Drive current: 0.15 A

Lumen Maintenance Data:

Sample No.	0h		Lumen Maintenance (%)								
	Vf(V)	Flux(lm)	1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h
1	3.17	48.89	99.7%	98.9%	98.2%	97.9%	97.9%	97.4%	98.0%	97.1%	96.5%
2	3.22	49.12	100.3%	99.4%	99.1%	98.4%	98.0%	97.7%	98.0%	97.4%	96.9%
3	3.14	50.06	100.7%	100.0%	99.5%	98.8%	98.7%	98.5%	97.9%	97.8%	97.3%
4	3.33	47.95	99.9%	99.6%	99.4%	99.0%	98.4%	98.1%	97.9%	97.7%	96.9%
5	3.22	49.04	99.0%	99.0%	98.2%	98.3%	97.8%	97.9%	97.8%	97.4%	96.5%
6	3.21	49.11	99.7%	99.0%	98.9%	98.8%	98.3%	98.1%	97.9%	97.7%	97.2%
7	3.21	48.70	100.0%	99.6%	98.9%	99.0%	98.9%	99.0%	97.8%	97.6%	96.8%
8	3.12	47.13	99.4%	99.1%	98.2%	98.1%	98.0%	98.0%	97.9%	97.4%	96.8%
9	3.18	48.50	99.3%	98.5%	98.1%	98.1%	97.8%	97.8%	98.0%	97.3%	96.8%
10	3.18	49.46	100.3%	100.2%	100.0%	99.7%	99.4%	99.6%	97.8%	97.6%	97.1%
11	3.22	47.04	99.9%	99.6%	99.2%	98.5%	98.4%	98.4%	98.1%	97.8%	97.1%
12	3.27	46.84	99.6%	99.1%	99.0%	98.6%	98.6%	98.7%	97.9%	97.5%	96.7%
13	3.22	48.79	99.6%	99.7%	99.6%	99.4%	99.0%	98.7%	98.1%	97.4%	96.9%
14	3.12	49.28	99.7%	99.1%	98.7%	98.6%	98.0%	97.6%	98.1%	97.5%	97.0%
15	3.23	50.25	99.8%	99.3%	98.6%	98.2%	98.0%	97.6%	97.8%	97.8%	96.9%
16	3.16	48.11	99.6%	99.4%	98.9%	98.2%	97.8%	97.7%	98.1%	97.3%	96.7%
17	3.20	48.76	99.6%	99.2%	98.9%	98.5%	97.9%	97.6%	97.8%	97.0%	96.5%
18	3.13	50.32	99.8%	99.3%	99.2%	99.1%	99.3%	98.9%	97.8%	97.3%	96.7%
19	3.19	50.60	99.4%	99.4%	99.4%	99.1%	98.9%	98.5%	98.0%	97.0%	96.2%
20	3.32	49.78	100.2%	99.0%	99.8%	99.1%	97.9%	98.4%	98.1%	97.0%	96.8%
21	3.13	50.29	99.4%	98.7%	99.7%	98.5%	97.9%	98.2%	97.8%	97.3%	96.3%
22	3.28	50.54	99.8%	99.6%	99.7%	98.6%	97.9%	98.1%	97.9%	97.1%	96.9%
23	3.12	50.44	99.5%	99.6%	98.2%	98.2%	99.1%	98.8%	97.9%	97.1%	97.0%
24	3.17	47.95	99.7%	99.1%	98.3%	98.2%	97.9%	98.1%	98.0%	97.5%	97.1%
25	3.20	49.01	99.7%	99.1%	98.7%	98.6%	98.0%	97.6%	98.1%	97.5%	97.0%
Avg	3.33	50.60	99.7%	99.3%	99.0%	98.6%	98.3%	98.2%	97.9%	97.4%	96.8%
Max	3.12	46.84	100.7%	100.2%	100.0%	99.7%	99.4%	99.6%	98.1%	97.8%	97.3%
Min	3.32	49.78	99.0%	98.5%	98.1%	97.9%	97.8%	97.4%	97.8%	97.0%	96.2%

Lumen Maintenance 55 °C


Model Number: BXEN-27E-11M-3A

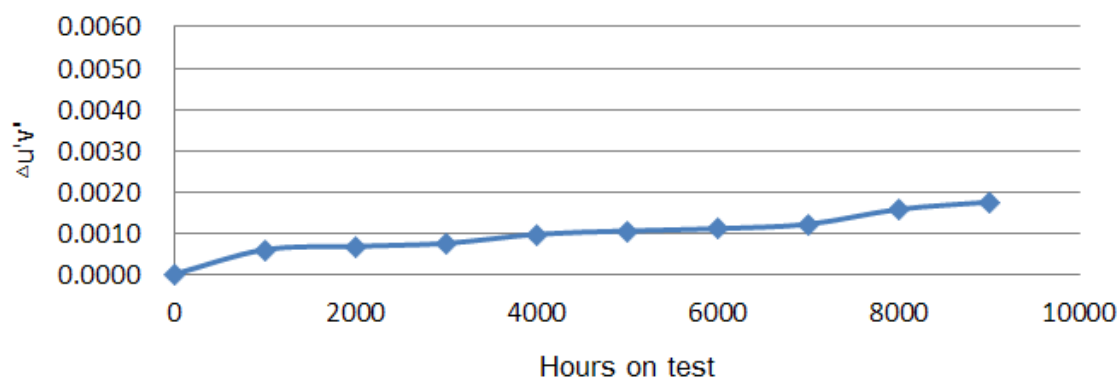
Case temperature: 55°C

Drive current: 0.15A

Chromaticity Shift Data:

Sample No.	0h			Chromaticity Shift								
	u'	v'	CCT K	1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h
1	0.2586	0.5285	2778	0.0007	0.0006	0.0009	0.0012	0.0015	0.0015	0.0013	0.0016	0.002
2	0.2595	0.5277	2762	0.0007	0.0005	0.0006	0.0009	0.001	0.001	0.0012	0.0016	0.0019
3	0.2575	0.5296	2795	0.0005	0.0008	0.0009	0.001	0.0011	0.0011	0.0012	0.0018	0.002
4	0.2607	0.5308	2723	0.0004	0.0005	0.0007	0.0009	0.001	0.0011	0.0015	0.0013	0.0016
5	0.2587	0.5262	2786	0.0007	0.0006	0.0007	0.0008	0.0007	0.0008	0.0011	0.0018	0.0019
6	0.2592	0.5293	2761	0.0006	0.0008	0.0012	0.0015	0.0016	0.0015	0.0013	0.0017	0.0018
7	0.2588	0.5260	2785	0.0007	0.0009	0.0009	0.0012	0.0013	0.0013	0.0011	0.0016	0.002
8	0.2588	0.5292	2770	0.0006	0.0008	0.0009	0.0009	0.0011	0.0012	0.0011	0.0016	0.0018
9	0.2607	0.5331	2714	0.0007	0.0008	0.0008	0.0007	0.0008	0.0008	0.0011	0.0017	0.0021
10	0.2601	0.5308	2736	0.0003	0.0004	0.0005	0.001	0.0011	0.001	0.001	0.0014	0.0015
11	0.2591	0.5272	2772	0.0007	0.0007	0.0007	0.001	0.001	0.0013	0.0012	0.0017	0.0016
12	0.2584	0.5233	2805	0.0006	0.0005	0.0004	0.0007	0.001	0.0012	0.0011	0.0017	0.002
13	0.2576	0.5269	2807	0.0008	0.001	0.0012	0.0015	0.0013	0.0014	0.0012	0.0013	0.0016
14	0.2593	0.5316	2749	0.0007	0.0008	0.0006	0.0011	0.0012	0.0014	0.0014	0.0015	0.0014
15	0.2599	0.5311	2739	0.0008	0.0008	0.0009	0.0011	0.0012	0.0013	0.0011	0.0017	0.0018
16	0.2591	0.5271	2772	0.0003	0.0006	0.0008	0.0011	0.0012	0.0012	0.0011	0.0016	0.0016
17	0.2595	0.5273	2764	0.0006	0.0007	0.0006	0.001	0.0008	0.0008	0.0015	0.0016	0.0016
18	0.2579	0.5270	2800	0.0005	0.0006	0.0006	0.0006	0.0004	0.0008	0.0013	0.0014	0.0014
19	0.2593	0.5319	2748	0.0005	0.0005	0.0006	0.0008	0.0011	0.0008	0.0013	0.0016	0.0019
20	0.2611	0.5291	2722	0.0005	0.0006	0.0005	0.0004	0.0006	0.0006	0.0012	0.0013	0.0015
21	0.2601	0.5249	2761	0.0006	0.0007	0.0011	0.0013	0.0014	0.0013	0.0011	0.0014	0.0015
22	0.2592	0.5266	2773	0.0007	0.0007	0.0009	0.0005	0.0014	0.0013	0.0011	0.0015	0.0015
23	0.2586	0.5316	2764	0.0005	0.0007	0.0005	0.0011	0.0009	0.0014	0.0015	0.0016	0.0021
24	0.2606	0.5287	2734	0.0006	0.001	0.0009	0.0014	0.001	0.0016	0.0015	0.0014	0.0018
25	0.2597	0.5293	2750	0.0005	0.0009	0.001	0.0011	0.0007	0.0013	0.0012	0.0015	0.0019
Avg	0.2593	0.5286	2763	0.0006	0.0007	0.0008	0.0010	0.0011	0.0012	0.0012	0.0016	0.0018
Max	0.2611	0.5331	2807	0.0008	0.0010	0.0012	0.0015	0.0016	0.0015	0.0015	0.0018	0.0021
Min	0.2575	0.5233	2714	0.0003	0.0004	0.0004	0.0004	0.0004	0.0006	0.0010	0.0013	0.0014

Chromaticity Shift at 55 °C



Model Number: BXEN-27E-11M-3A

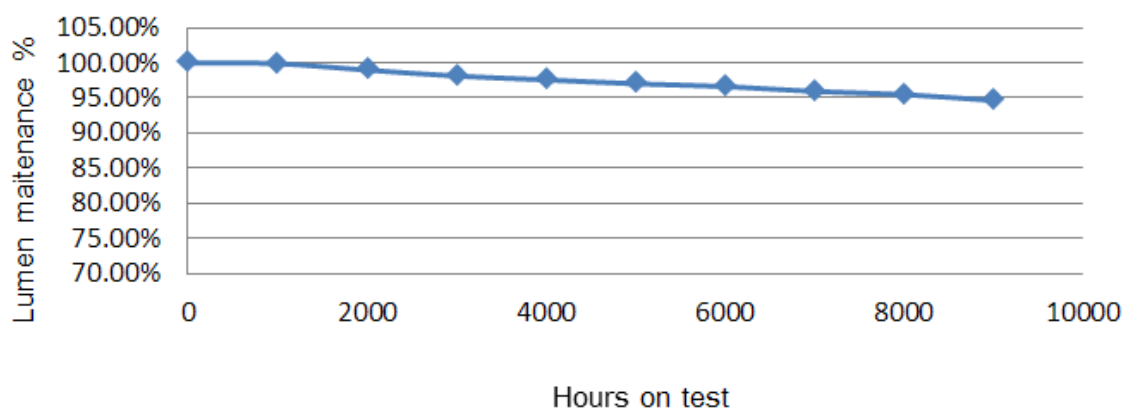
Case temperature: 85°C

Drive current: 0.15 A

Lumen Maintenance Data:

Sample No.	0h		Lumen Maintenance (%)								
	Vf (V)	Flux (lm)	1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h
1	3.15	47.94	99.2%	98.1%	97.3%	97.2%	96.7%	96.0%	96.1%	95.3%	94.1%
2	3.15	43.15	100.6%	99.9%	99.6%	98.5%	97.3%	97.1%	96.0%	95.1%	94.2%
3	3.1	48.44	100.5%	99.3%	99.3%	98.9%	97.7%	97.5%	95.6%	95.8%	95.0%
4	3.18	48.75	100.7%	99.2%	97.6%	97.5%	96.9%	96.2%	96.0%	95.3%	94.7%
5	3.19	47.79	99.2%	98.9%	97.8%	97.1%	96.7%	96.6%	96.3%	95.8%	94.9%
6	3.19	47.79	99.6%	98.9%	97.7%	97.0%	96.3%	96.0%	96.2%	95.7%	94.6%
7	3.16	48.66	99.9%	99.7%	98.6%	97.6%	96.9%	95.9%	95.6%	95.5%	94.4%
8	3.16	49.32	100.2%	99.0%	97.7%	96.7%	96.7%	96.1%	96.0%	95.2%	94.6%
9	3.16	47.52	99.7%	99.0%	98.1%	97.8%	97.3%	96.6%	95.6%	95.3%	94.6%
10	3.21	49.27	99.6%	99.2%	98.5%	97.7%	97.5%	97.4%	96.1%	95.2%	94.4%
11	3.23	48.98	99.6%	98.7%	98.2%	98.2%	98.0%	97.6%	96.1%	95.5%	95.0%
12	3.17	48.3	100.2%	98.7%	98.2%	97.6%	96.8%	96.4%	95.6%	95.7%	94.8%
13	3.37	44.96	99.5%	99.4%	98.6%	98.3%	97.9%	97.0%	96.0%	95.8%	95.2%
14	3.24	48.54	100.1%	99.3%	98.3%	97.1%	96.4%	96.4%	95.6%	95.8%	94.8%
15	3.17	49.53	99.8%	98.2%	96.7%	96.7%	96.3%	96.3%	96.2%	95.3%	94.6%
16	3.18	49.04	100.0%	98.7%	97.9%	97.4%	97.1%	96.7%	96.3%	95.4%	94.6%
17	3.17	47.17	99.5%	98.1%	97.3%	96.9%	96.3%	96.3%	95.6%	95.6%	95.1%
18	3.17	47.74	100.0%	99.0%	98.8%	97.9%	97.5%	97.5%	96.1%	95.7%	94.5%
19	3.14	50.32	100.1%	98.8%	97.8%	97.2%	96.6%	96.4%	95.8%	95.3%	94.3%
20	3.14	47.91	99.8%	99.2%	98.3%	98.3%	97.0%	96.3%	95.9%	95.2%	94.4%
21	3.19	48.39	100.5%	98.4%	97.6%	97.1%	96.7%	96.3%	96.1%	95.8%	94.3%
22	3.37	47.05	100.4%	99.7%	98.6%	98.6%	97.3%	96.6%	95.9%	95.6%	94.8%
23	3.19	49.44	100.1%	99.4%	97.3%	97.2%	97.1%	97.0%	95.8%	95.5%	95.1%
24	3.32	46.18	99.7%	98.6%	99.2%	97.1%	96.9%	96.5%	96.1%	95.3%	94.9%
25	3.25	48.12	99.3%	98.6%	98.2%	98.9%	96.4%	97.1%	95.3%	95.1%	94.3%
Avg	3.20	48.01	99.9%	99.0%	98.1%	97.6%	97.0%	96.6%	95.9%	95.5%	94.6%
Max	3.37	50.32	100.7%	99.9%	99.6%	98.9%	98.0%	97.6%	96.3%	95.8%	95.2%
Min	3.10	43.15	99.2%	98.1%	96.7%	96.7%	96.3%	95.9%	95.6%	95.1%	94.1%

Lumen Maintenance 85 °C



Model Number: BXEN-27E-11M-3A

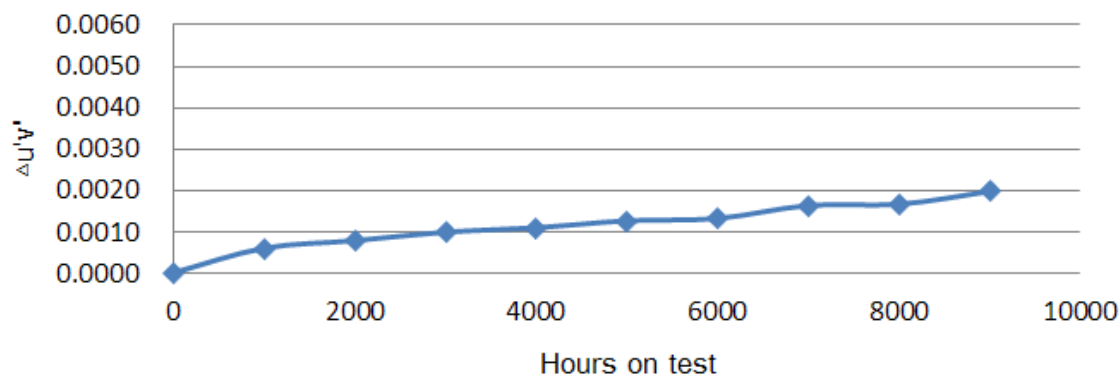
Case temperature: 85°C

Drive current: 0.15A

Chromaticity Shift Data:

Sample No.	0h			Chromaticity Shift								
	u'	v'	CCT K	1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h
1	0.2604	0.5326	2722	0.0003	0.0006	0.001	0.0009	0.0008	0.001	0.0017	0.0017	0.002
2	0.2612	0.5327	2705	0.0013	0.0015	0.0018	0.0021	0.0023	0.0022	0.0015	0.0015	0.0018
3	0.2585	0.5305	2771	0.0006	0.0009	0.0014	0.0018	0.002	0.002	0.0015	0.0017	0.0019
4	0.2593	0.5304	2753	0.0002	0.0005	0.0005	0.0011	0.0013	0.0011	0.0017	0.002	0.0026
5	0.2597	0.5313	2741	0.0011	0.0014	0.0016	0.0011	0.0011	0.0013	0.0017	0.0016	0.0019
6	0.2599	0.5271	2756	0.0009	0.0007	0.0012	0.0009	0.0011	0.0012	0.0013	0.002	0.0023
7	0.2623	0.5309	2690	0.0003	0.0004	0.0005	0.0004	0.0007	0.0005	0.0019	0.0021	0.0022
8	0.2584	0.5265	2790	0.0005	0.0005	0.0003	0.0013	0.0015	0.0015	0.0018	0.0016	0.0022
9	0.2610	0.5287	2725	0.0007	0.0009	0.0013	0.001	0.0016	0.0016	0.0013	0.0014	0.0016
10	0.2588	0.5292	2770	0.0005	0.0006	0.0009	0.0007	0.001	0.0009	0.0018	0.002	0.0026
11	0.2619	0.5311	2697	0.0004	0.0005	0.0007	0.0006	0.0007	0.0009	0.0017	0.0016	0.0019
12	0.2612	0.5278	2726	0.0006	0.0007	0.0009	0.0011	0.0013	0.0014	0.0018	0.0013	0.0016
13	0.2597	0.5255	2767	0.0008	0.0011	0.0009	0.001	0.0013	0.001	0.0015	0.0015	0.0016
14	0.2579	0.5293	2789	0.0008	0.001	0.0014	0.0015	0.0017	0.0022	0.0014	0.0014	0.0017
15	0.2587	0.5299	2769	0.0005	0.0009	0.0007	0.0017	0.002	0.002	0.0018	0.0018	0.0022
16	0.2598	0.5281	2754	0.0004	0.0007	0.0009	0.0007	0.0008	0.001	0.0018	0.0014	0.0018
17	0.2605	0.5298	2731	0.0004	0.0007	0.001	0.0004	0.0003	0.0003	0.0016	0.0021	0.0023
18	0.2592	0.5280	2766	0.0006	0.0005	0.0006	0.0005	0.0008	0.0007	0.0016	0.0016	0.0018
19	0.2595	0.5275	2763	0.0004	0.0006	0.001	0.0014	0.0014	0.0017	0.0016	0.0013	0.0017
20	0.2597	0.5311	2742	0.0006	0.0009	0.0011	0.0016	0.0015	0.0018	0.0016	0.0016	0.0017
21	0.2619	0.5327	2691	0.0009	0.0006	0.0011	0.0017	0.0014	0.0017	0.0017	0.0017	0.0025
22	0.2607	0.5310	2722	0.0006	0.0006	0.0013	0.0012	0.0013	0.0021	0.0017	0.0015	0.0023
23	0.2612	0.5315	2710	0.0004	0.0013	0.0009	0.0012	0.0015	0.0013	0.0014	0.0015	0.0023
24	0.2617	0.5294	2708	0.0009	0.0012	0.0009	0.001	0.0008	0.0012	0.0013	0.002	0.0021
25	0.2619	0.5317	2695	0.0003	0.0011	0.0012	0.001	0.0012	0.0007	0.0015	0.0013	0.0024
Avg	0.2602	0.5298	2738	0.0006	0.0008	0.0010	0.0011	0.0013	0.0013	0.0016	0.0016	0.0020
Max	0.2623	0.5327	2790	0.0013	0.0015	0.0018	0.0021	0.0023	0.0022	0.0019	0.0021	0.0026
Min	0.2579	0.5255	2690	0.0002	0.0004	0.0003	0.0004	0.0003	0.0003	0.0013	0.0013	0.0016

Chromaticity Shift at 85 °C



TM-21 Report:

Table 1: Report at each LM-80 Test Condition					
Description of LED Light Source Tested (manufacturer, model, catalog number)		Bridgelux. Model Number: BXEN-27E-11M-3A Drive current: 0.15 A			
Test Condition 1 - 55°C Case Temp		Test Condition 2 - 85°C Case Temp		Test Condition 3 - °C Case Temp	
Sample size	25	Sample size	25	Sample size	-
Number of failures	0	Number of failures	0	Number of failures	-
DUT drive current used in the test (mA)	150	DUT drive current used in the test (mA)	150	DUT drive current used in the test (mA)	-
Test duration (hours)	9,000	Test duration (hours)	9,000	Test duration (hours)	-
Test duration used for projection (hour to hour)	4,000 - 9,000	Test duration used for projection (hour to hour)	4,000 - 9,000	Test duration used for projection (hour to hour)	-
Tested case temperature (°C)	55	Tested case temperature (°C)	85	Tested case temperature (°C)	-
α	3.65E-06	α	6.00E-06	α	-
B	1.00	B	1.00	B	-
Calculated L70(9k) (hrs)	98000	Calculated L70(9k) (hrs):	60000	Calculated L70(9k) (hrs):	-
Reported L70(9k) (hrs)	>54000	Reported L70(9k) (hrs)	>54000	Reported L70(9k) (hrs)	-

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200960-0

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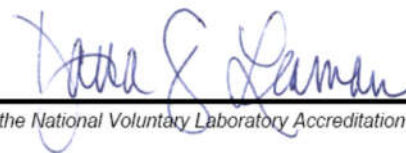
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listed on the Scope of Accreditation, for:*

Energy Efficient Lighting Products

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2015-12-07 through 2016-12-31

Effective Dates



For the National Voluntary Laboratory Accreditation Program

United States Department of Commerce
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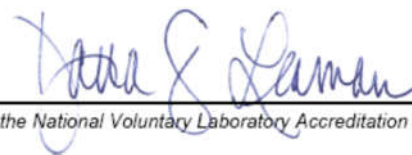
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Effective Dates



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ENERGY EFFICIENT LIGHTING PRODUCTS

NVLAP LAB CODE 200960-

22/S24	ANSI C62.41.2:2002	IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000V and Less) AC Power Circuits
22/S28	IEC 62301:2011	Household Electrical Appliances - Measurement of Standby Power

SSL Life Tests

<u>Code</u>	<u>Designation</u>	<u>Description</u>
22/S08	IES LM-80:2008	Solid State Lighting Luminaires - Lumen Maintenance
22/S08a	IES LM-80:2015	Solid State Lighting Luminaires - Lumen Maintenance
22/S14	EPA Integral LED Lamps v. 1.4 (Appendix E)	ENERGY STAR [®] Elevated Temperature Testing for Integral LED Lamps
22/S18	EPA Lamps v. 1.0	Ambient Temperature Life Testing
22/S19	EPA Lamps v. 1.0	Elevated Temperature Life Testing
22/S25	IES LM-84:2014	Approved Method for Measuring Luminous Flux and Color Maintenance of LED Lamps, Light Engines, and Luminaires

End of the Report

This report is considered invalidated without the Special Seal for Inspection of the LTL. This report shall not be altered, increased or deleted. The results shown in this test report refer only to the sample(s) tested. Without written approval of LTL, this test report shall not be copied except in full and published as advertisement.