



EDISON OPTO Laboratory Test Report

IES LM-80-08

MEASURING LUMEN MAINTENANCE OF LED LIGHT SOURCE

Report Number	Q170601
Test Sample	2T03X827A8003001
Rating	DC 150mA 0.5W
Normal CCT	2,700 K
Test Date	July 4, 2017 to November 5,2018
Test Address	9F, NO.800, Chung-Cheng Rd., Chung-Ho Dist., New Taipei City 235, Taiwan
Test Standard	IES LM-80-08 Approved Method : Measuring Lumen Maintenance of Led Lighting Sources
Temp. Measure point	See page 3
Description of test equipment	See page 3
Test Engineer	Tedd Lee <i>Tedd Lee</i>
Review By	Kenny Yen <i>Kenny yen</i>

Notes:

1. The test center executes the test operations with prudent manners. All the test results are detail stated in the report. All test service meet under the regulations of ISO/IEC 17025.
2. The report is only responsible to the assigned test. It shall not be any of the bases of Compliance judgments.
3. There are 12 pages in the test report (include the cover page). It is invalid when being used separately.
4. The test report is forbidden to reproduce in separate pages. The complete report copy is unrestricted.
5. The recorded contents in this report shall not be used as advertising, publications or merchandising purposes without written permissions by the test center.
6. Lumen maintenance(lm) uncertainty=1.40%(K=1.97) at 95% confidence level
7. Chromaticity(x,y) uncertainty=0.000006 (K=2) at 95% confidence level

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According to section 3 item 7 and section 4 item 5 of ENERGY STAR® Program Guidance Regarding LED Package, LED Array and LED Module Lumen Maintenance Performance Data Supporting Qualification of Lighting Products, the test report also applies to the following products:

Part Number	Normal CCT	Watt	W/mm ²
2T03X8xxAxx03xxx	2700K/3000K/3500K 4000K 5000K/5700K/6500K	0.5	0.05
2T03X5xxAxx03xxx	2700K/3000K/3500K 4000K 5000K/5700K/6500K	0.5	0.05
2T03X8xxAxx03xxx	2700K/3000K/3500K 4000K 5000K/5700K/6500K	0.2	0.02

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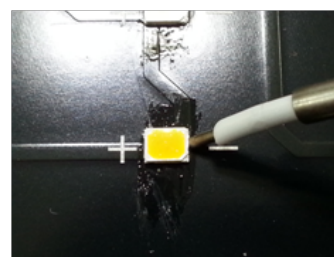
1. Test Summary

Case temperature (Ts)	83°C ≤ Ts	103°C ≤ Ts
Ambient conditions (T _A)	80°C ≤ T _A R.H. < 65 % Minimized airflow	100°C ≤ T _A R.H. < 65 % Minimized airflow
Sample Size	24	24
Drive current of the LED	150mA	150mA
Initial flux (lm) / V _F (V)	73.7 / 3.01	73.6 / 3.03
Lumen maintenance at 10,000 hrs	97.4% Page 5	96.6% Page 8
LED failure	0	0
Monitoring interval (hrs)	0, 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 9000, 10000	
Chromaticity shift	Page 7	Page 10

2. Case and ambient temperature

The case temperature T_s is the temperature on the substrate; the ambient temperature T_A is the temperature of the air at a distance of 50 mm above substrate.

Ts Measurement Point

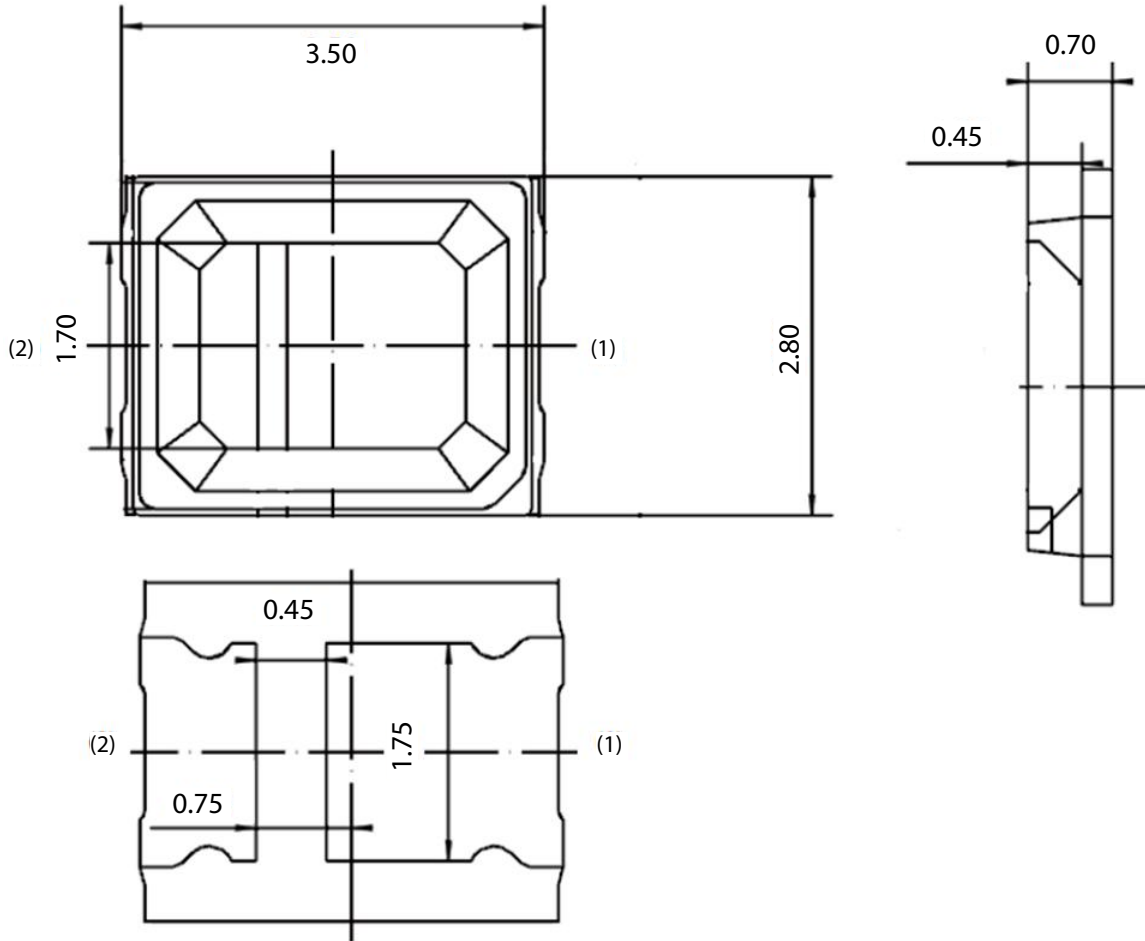


3. Description of test equipment

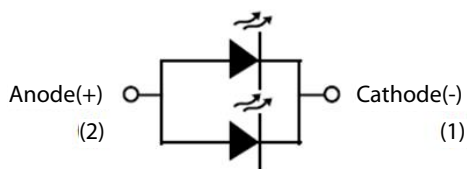
Equipment	Model No. / Serial No.	Cal. Laboratory	Report No.	Effective Date
Integrating sphere	ISP250 45392012	Standard Light Source L7386A(ETC)	18-09-BAC-058- 01L	06.09.2019
DC power source	KEITHLEY 2425 1347276	SGS TAF-0143	ECR1813169	28.06.2019
Temperature controlled test	VEKTREX/ SpikeSafe 200 1080030009	Tai Yi TAF-1625	T3803270801	19.04.2019
	VEKTREX/ ITCS 428		T3803270701	
	VEKTREX/ ITCS 429		T3803270703	
	VEKTREX/ ITCS 430		T3803270705	
	VEKTREX/ ITCS 454		T3803270707	

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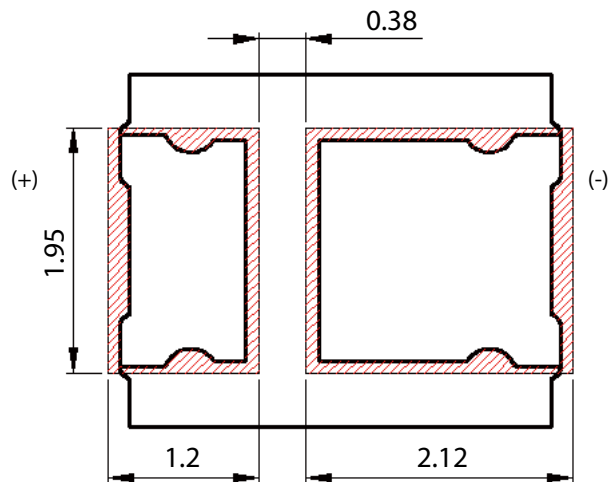
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Circuit



Solder Pad



- Notes:
1. All dimensions are measured in mm.
 2. Tolerance : ± 0.20 mm

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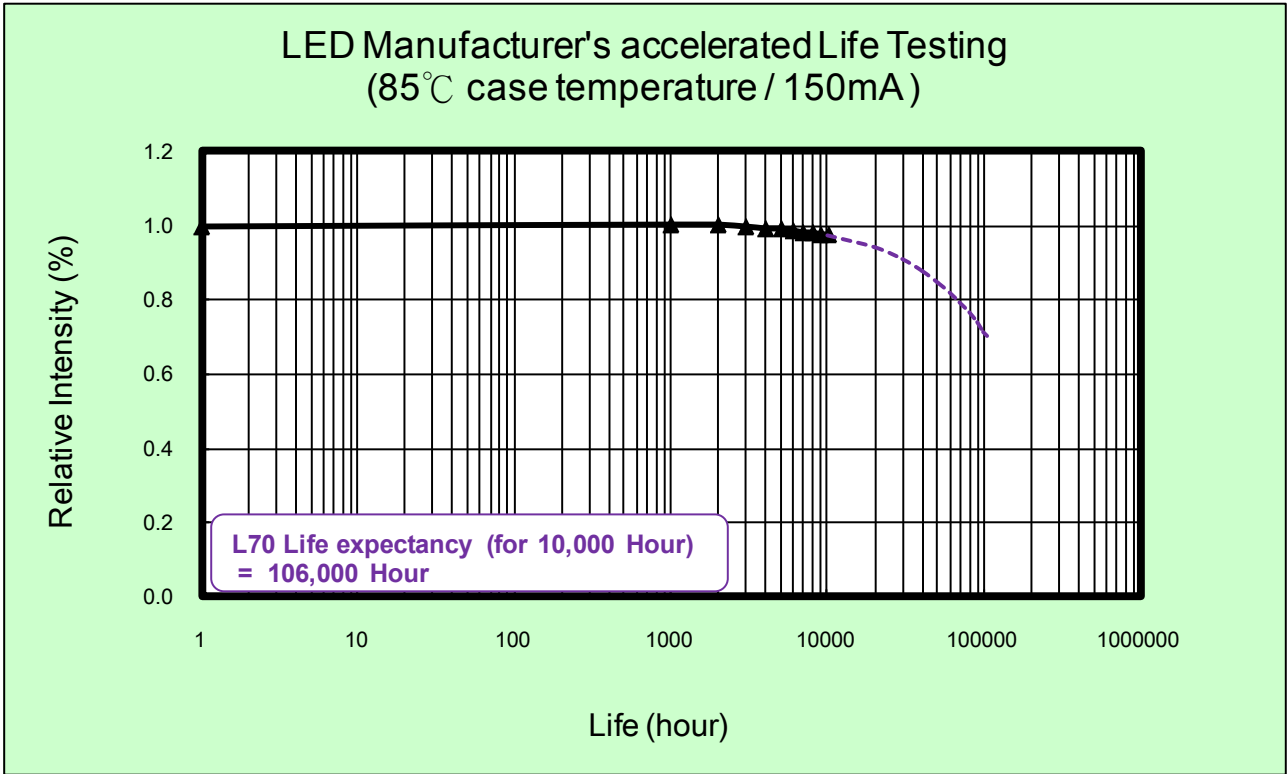
4. Test Results

4.1 Lumen and Color Maintenance data (85 °C)

■ Lumen Maintenance data (85 °C)

No.	Im(Initial)	0h	1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h	10000h
1	74.1	1	1.001	1.001	0.998	0.998	0.993	0.989	0.985	0.981	0.978	0.973
2	73.5	1	1.005	1.003	0.997	0.995	0.991	0.984	0.982	0.980	0.979	0.975
3	74.1	1	1.001	1.001	0.996	0.995	0.991	0.987	0.984	0.980	0.978	0.973
4	73.5	1	1.000	0.999	0.996	0.995	0.992	0.988	0.984	0.981	0.979	0.976
5	73.9	1	0.998	0.998	0.993	0.992	0.989	0.987	0.981	0.979	0.976	0.971
6	74.5	1	1.002	1.002	0.999	0.998	0.994	0.991	0.987	0.984	0.981	0.978
7	73.6	1	1.002	1.002	0.996	0.996	0.992	0.988	0.985	0.980	0.979	0.976
8	73.7	1	1.001	1.002	0.997	0.997	0.993	0.988	0.984	0.979	0.978	0.974
9	73.6	1	0.999	0.998	0.994	0.994	0.991	0.989	0.983	0.980	0.977	0.975
10	73.8	1	0.995	0.994	0.990	0.991	0.988	0.988	0.981	0.977	0.973	0.972
11	73.2	1	1.000	0.999	0.994	0.993	0.991	0.986	0.983	0.980	0.973	0.971
12	73.1	1	0.998	0.997	0.992	0.990	0.987	0.984	0.981	0.977	0.976	0.973
13	74.0	1	1.001	0.999	0.994	0.992	0.987	0.984	0.980	0.977	0.974	0.970
14	73.9	1	1.000	0.999	0.995	0.995	0.993	0.990	0.985	0.984	0.978	0.976
15	73.2	1	1.001	0.999	0.995	0.992	0.988	0.985	0.982	0.977	0.976	0.971
16	73.5	1	0.997	0.997	0.992	0.992	0.989	0.987	0.980	0.976	0.974	0.971
17	73.6	1	1.002	1.000	0.997	0.995	0.992	0.988	0.985	0.980	0.979	0.976
18	73.8	1	1.004	1.003	1.000	0.999	0.997	0.993	0.989	0.983	0.979	0.975
19	74.3	1	1.000	0.999	0.993	0.992	0.989	0.985	0.982	0.978	0.976	0.975
20	73.7	1	0.999	0.998	0.995	0.994	0.991	0.989	0.984	0.981	0.977	0.974
21	74.0	1	1.004	1.003	0.996	0.995	0.993	0.989	0.986	0.982	0.979	0.977
22	73.6	1	1.002	1.003	1.000	0.998	0.995	0.992	0.990	0.986	0.983	0.980
23	73.0	1	1.000	1.000	0.995	0.993	0.990	0.985	0.983	0.979	0.977	0.975
24	73.4	1	1.003	1.004	0.999	0.998	0.993	0.989	0.988	0.983	0.981	0.979
AVG	73.7	1	1.001	1.000	0.996	0.995	0.991	0.988	0.984	0.980	0.977	0.974
MIN	73.0	1	0.995	0.994	0.990	0.990	0.987	0.984	0.980	0.976	0.973	0.970
MAX	74.5	1	1.005	1.004	1.000	0.999	0.997	0.993	0.990	0.986	0.983	0.980

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Test Condition 1 - 85°C Case Temp	
Sample size	24
Number of failures	0
DUT drive current used in the test (mA)	150
Test duration (hours)	10,000
Test duration used for projection (hour to hour)	5,000 - 10,000
Tested case temperature (°C)	85
α	3.443E-06
B	1.008
Calculated L70(10k) (hours)	106,000
Reported L70(10k) (hours)	>60000



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■ Color Maintenance data (85 °C)

$\Delta u'v'$

No.	CCT Initial	0h	1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h	10000h
1	2703	0	0.0007	0.0007	0.0009	0.0010	0.0012	0.0013	0.0013	0.0015	0.0016	0.0017
2	2727	0	0.0008	0.0009	0.0010	0.0009	0.0012	0.0013	0.0013	0.0015	0.0017	0.0018
3	2704	0	0.0007	0.0008	0.0010	0.0010	0.0012	0.0013	0.0014	0.0016	0.0017	0.0018
4	2693	0	0.0007	0.0008	0.0010	0.0010	0.0012	0.0013	0.0013	0.0016	0.0017	0.0018
5	2707	0	0.0007	0.0008	0.0010	0.0010	0.0013	0.0014	0.0014	0.0016	0.0017	0.0018
6	2725	0	0.0008	0.0008	0.0010	0.0010	0.0012	0.0013	0.0014	0.0016	0.0016	0.0018
7	2708	0	0.0007	0.0009	0.0010	0.0010	0.0012	0.0012	0.0013	0.0015	0.0016	0.0017
8	2679	0	0.0007	0.0008	0.0010	0.0010	0.0013	0.0013	0.0013	0.0015	0.0016	0.0017
9	2666	0	0.0007	0.0008	0.0010	0.0010	0.0012	0.0012	0.0013	0.0015	0.0016	0.0018
10	2682	0	0.0008	0.0009	0.0011	0.0010	0.0013	0.0014	0.0015	0.0016	0.0017	0.0019
11	2677	0	0.0008	0.0008	0.0010	0.0010	0.0012	0.0013	0.0014	0.0016	0.0016	0.0018
12	2721	0	0.0008	0.0008	0.0010	0.0010	0.0012	0.0014	0.0014	0.0016	0.0017	0.0018
13	2725	0	0.0009	0.0009	0.0011	0.0011	0.0012	0.0014	0.0014	0.0017	0.0018	0.0020
14	2686	0	0.0008	0.0008	0.0010	0.0010	0.0013	0.0014	0.0015	0.0017	0.0017	0.0018
15	2720	0	0.0008	0.0009	0.0011	0.0010	0.0013	0.0014	0.0015	0.0016	0.0018	0.0019
16	2690	0	0.0008	0.0009	0.0010	0.0010	0.0012	0.0014	0.0014	0.0016	0.0017	0.0018
17	2670	0	0.0008	0.0008	0.0010	0.0010	0.0011	0.0013	0.0014	0.0016	0.0017	0.0017
18	2733	0	0.0008	0.0008	0.0011	0.0010	0.0013	0.0014	0.0015	0.0016	0.0017	0.0018
19	2726	0	0.0008	0.0008	0.0010	0.0010	0.0012	0.0014	0.0015	0.0016	0.0018	0.0018
20	2727	0	0.0008	0.0009	0.0011	0.0010	0.0013	0.0014	0.0014	0.0016	0.0018	0.0019
21	2722	0	0.0007	0.0008	0.0010	0.0010	0.0013	0.0014	0.0015	0.0016	0.0017	0.0019
22	2687	0	0.0007	0.0008	0.0010	0.0010	0.0012	0.0013	0.0014	0.0016	0.0017	0.0018
23	2703	0	0.0008	0.0007	0.0010	0.0009	0.0012	0.0013	0.0013	0.0015	0.0016	0.0017
24	2645	0	0.0007	0.0008	0.0009	0.0009	0.0011	0.0012	0.0013	0.0014	0.0015	0.0017
AVG	2701	0	0.0008	0.0008	0.0010	0.0010	0.0012	0.0013	0.0014	0.0016	0.0017	0.0018
MIN	2645	0	0.0007	0.0007	0.0009	0.0009	0.0011	0.0012	0.0013	0.0014	0.0015	0.0017
MAX	2733	0	0.0009	0.0009	0.0011	0.0011	0.0013	0.0014	0.0015	0.0017	0.0018	0.0020



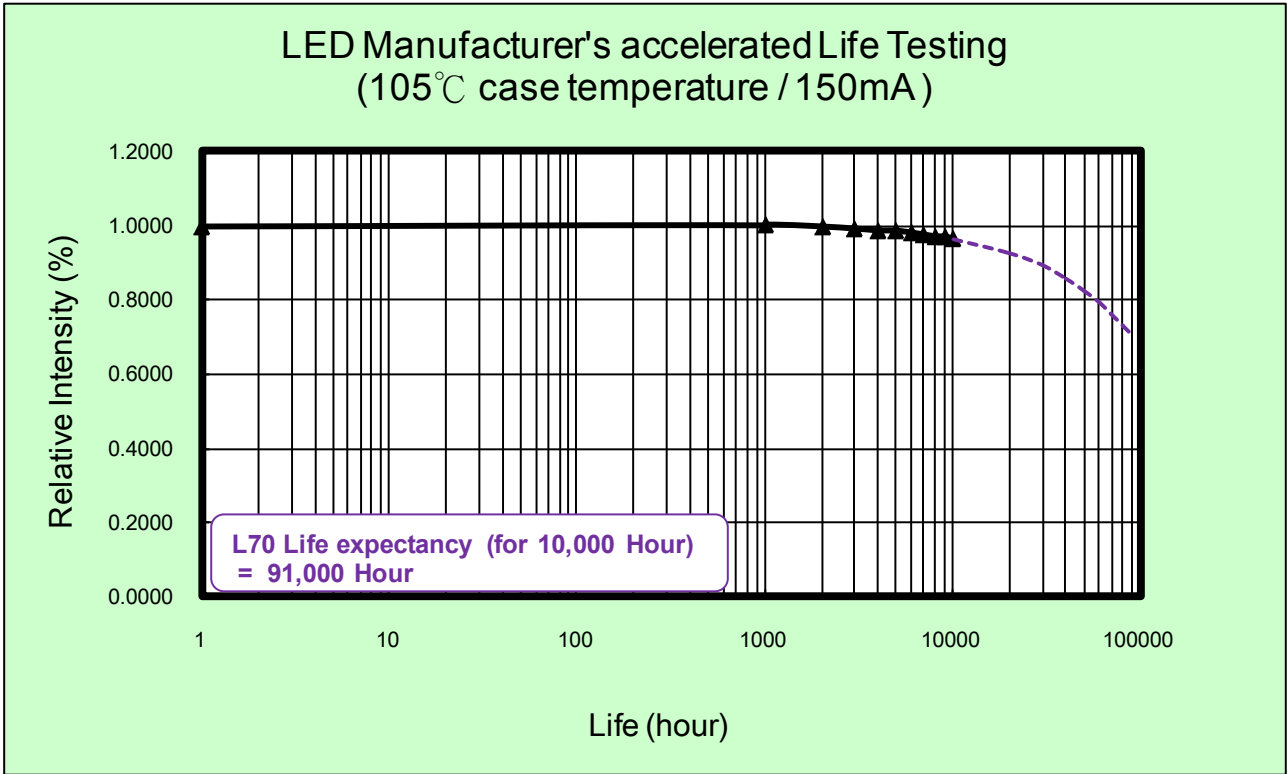
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4.2 Lumen and Color Maintenance data (105 °C)

■ Lumen Maintenance data (105 °C)

No.	Im(Initial)	0h	1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h	10000h
1	73.3	1	1.005	0.994	0.991	0.986	0.983	0.981	0.976	0.973	0.969	0.966
2	73.2	1	1.005	0.996	0.993	0.989	0.986	0.983	0.979	0.975	0.970	0.968
3	73.7	1	1.007	1.006	1.005	1.004	1.000	0.993	0.989	0.982	0.976	0.967
4	73.2	1	1.000	0.993	0.991	0.987	0.984	0.981	0.976	0.972	0.967	0.966
5	73.6	1	1.002	0.993	0.988	0.986	0.981	0.981	0.976	0.972	0.968	0.964
6	73.7	1	0.998	0.992	0.988	0.985	0.983	0.980	0.974	0.971	0.968	0.964
7	73.3	1	0.999	0.995	0.992	0.989	0.986	0.983	0.978	0.976	0.973	0.972
8	73.5	1	1.003	0.994	0.991	0.989	0.985	0.983	0.977	0.973	0.970	0.968
9	73.5	1	0.997	0.991	0.987	0.984	0.980	0.981	0.976	0.972	0.970	0.966
10	74.0	1	1.001	0.991	0.988	0.987	0.982	0.982	0.975	0.972	0.970	0.967
11	73.3	1	0.994	0.987	0.985	0.983	0.981	0.978	0.973	0.969	0.967	0.966
12	74.0	1	0.999	0.990	0.986	0.983	0.980	0.978	0.973	0.970	0.968	0.966
13	73.5	1	0.999	0.991	0.988	0.985	0.982	0.981	0.974	0.971	0.967	0.964
14	73.3	1	0.996	0.990	0.986	0.985	0.980	0.979	0.974	0.970	0.967	0.962
15	72.9	1	1.000	0.997	0.996	0.995	0.993	0.991	0.985	0.981	0.978	0.977
16	73.6	1	1.002	0.990	0.989	0.987	0.983	0.982	0.974	0.965	0.962	0.957
17	74.2	1	1.007	1.004	1.004	0.998	0.994	0.990	0.986	0.979	0.974	0.967
18	73.3	1	1.003	0.995	0.990	0.989	0.984	0.984	0.978	0.974	0.971	0.967
19	73.5	1	1.001	0.992	0.988	0.987	0.983	0.980	0.975	0.972	0.969	0.967
20	73.2	1	0.995	0.989	0.985	0.983	0.979	0.979	0.973	0.970	0.966	0.962
21	74.2	1	0.998	0.990	0.987	0.984	0.982	0.979	0.972	0.969	0.968	0.964
22	73.8	1	1.002	0.993	0.989	0.987	0.984	0.981	0.975	0.971	0.969	0.964
23	73.7	1	1.004	0.996	0.993	0.989	0.987	0.984	0.977	0.974	0.970	0.967
24	74.3	1	1.004	0.995	0.991	0.989	0.983	0.982	0.975	0.972	0.968	0.964
AVG	73.6	1	1.001	0.994	0.990	0.988	0.984	0.982	0.977	0.973	0.969	0.966
MIN	72.9	1	0.994	0.987	0.985	0.983	0.979	0.978	0.972	0.965	0.962	0.957
MAX	74.3	1	1.007	1.006	1.005	1.004	1.000	0.993	0.989	0.982	0.978	0.977

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Test Condition 1 - 105°C Case Temp	
Sample size	24
Number of failures	0
DUT drive current used in the test (mA)	150
Test duration (hours)	10,000
Test duration used for projection (hour to hour)	5,000 - 10,000
Tested case temperature (°C)	105
α	3.963E-06
B	1.005
Calculated L70(10k) (hours)	91,000
Reported L70(10k) (hours)	>60000

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■ Color Maintenance data (105 °C)

$\Delta u'v'$

No.	CCT Initial	0h	1000h	2000h	3000h	4000h	5000h	6000h	7000h	8000h	9000h	10000h
1	2712	0	0.0010	0.0014	0.0017	0.0018	0.0019	0.0021	0.0022	0.0024	0.0026	0.0028
2	2654	0	0.0010	0.0014	0.0016	0.0018	0.0020	0.0021	0.0022	0.0025	0.0026	0.0029
3	2673	0	0.0009	0.0013	0.0015	0.0017	0.0017	0.0018	0.0019	0.0022	0.0024	0.0027
4	2681	0	0.0010	0.0014	0.0016	0.0018	0.0020	0.0021	0.0022	0.0025	0.0027	0.0030
5	2689	0	0.0010	0.0014	0.0017	0.0019	0.0019	0.0021	0.0023	0.0025	0.0027	0.0028
6	2703	0	0.0011	0.0015	0.0017	0.0019	0.0020	0.0021	0.0022	0.0025	0.0026	0.0028
7	2692	0	0.0009	0.0013	0.0016	0.0018	0.0019	0.0021	0.0022	0.0024	0.0025	0.0027
8	2682	0	0.0010	0.0014	0.0016	0.0018	0.0019	0.0020	0.0021	0.0024	0.0026	0.0029
9	2723	0	0.0010	0.0014	0.0017	0.0018	0.0019	0.0021	0.0022	0.0024	0.0025	0.0028
10	2689	0	0.0011	0.0014	0.0017	0.0018	0.0020	0.0022	0.0023	0.0026	0.0028	0.0030
11	2729	0	0.0011	0.0015	0.0018	0.0019	0.0021	0.0022	0.0023	0.0026	0.0027	0.0028
12	2677	0	0.0011	0.0015	0.0017	0.0019	0.0020	0.0023	0.0023	0.0025	0.0028	0.0031
13	2719	0	0.0011	0.0015	0.0018	0.0018	0.0020	0.0022	0.0023	0.0026	0.0028	0.0029
14	2695	0	0.0011	0.0015	0.0017	0.0018	0.0020	0.0021	0.0022	0.0026	0.0028	0.0030
15	2688	0	0.0010	0.0013	0.0016	0.0017	0.0019	0.0020	0.0021	0.0023	0.0024	0.0026
16	2675	0	0.0011	0.0014	0.0016	0.0018	0.0019	0.0022	0.0023	0.0027	0.0029	0.0030
17	2703	0	0.0010	0.0014	0.0017	0.0018	0.0018	0.0019	0.0021	0.0023	0.0025	0.0026
18	2696	0	0.0011	0.0014	0.0016	0.0018	0.0019	0.0021	0.0022	0.0025	0.0027	0.0029
19	2735	0	0.0011	0.0015	0.0017	0.0019	0.0020	0.0022	0.0023	0.0026	0.0027	0.0029
20	2690	0	0.0011	0.0015	0.0017	0.0019	0.0020	0.0021	0.0023	0.0025	0.0027	0.0028
21	2698	0	0.0010	0.0015	0.0017	0.0018	0.0019	0.0021	0.0022	0.0026	0.0027	0.0030
22	2665	0	0.0011	0.0015	0.0017	0.0018	0.0019	0.0022	0.0022	0.0025	0.0027	0.0029
23	2751	0	0.0011	0.0015	0.0017	0.0019	0.0020	0.0021	0.0023	0.0025	0.0027	0.0029
24	2699	0	0.0010	0.0014	0.0016	0.0018	0.0020	0.0022	0.0023	0.0026	0.0028	0.0030
AVG	2697	0	0.0011	0.0014	0.0017	0.0018	0.0019	0.0021	0.0022	0.0025	0.0027	0.0029
MIN	2654	0	0.0009	0.0013	0.0015	0.0017	0.0017	0.0018	0.0019	0.0022	0.0024	0.0026
MAX	2751	0	0.0011	0.0015	0.0018	0.0019	0.0021	0.0023	0.0023	0.0027	0.0029	0.0031

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5. TAF Recognized Laboratory



實驗室/檢驗機構服務網 Laboratory & Inspection Body Accreditation

[回首頁] [認可實驗室名錄] [認可檢驗機構名錄] [認證服務] [能力試驗] [合作(權責/學會)] [與我們聯絡] [FAQ]

認可實驗室名錄 前言 名單展開 查詢 暫時終止 延展認證 土木終止

查詢

認證內容關鍵字:

校正(測試)件名稱: 校正(測試)方法:

校正(測試)範圍:

實驗室認證編號: 2459 認證項目編號:

機構名稱:

實驗室名稱:

實驗室地址:

實驗室電話區碼: 請選取

實驗室服務方式: 請選取

技術類別: (×可複選)

音響 生物 化學 電性 游離輻射 營建 機械 非破壞 光學 溫度 鑑識科學(乙)

領域: 請選取

特定服務計畫: 請選取

報告簽署人: 實驗室主管:

找到1筆符合的資料，請點選編號查看認可詳細資料。

認證編號	機構名稱	實驗室名稱	聯絡人姓名	聯絡人電話	實驗室地址	實驗室狀態
2459	艾笛森光電股份有限公司	光電實驗室	顏敏純	(02)8227-6996 #5406	235 新北市中和區中正路800號9樓	認可

Website :

http://service.taftw.org.tw/tafweb/CNLA/lab-directory_1.aspx

Search methods :

實驗室認證編號 → 2459

EDISON OPTO Laboratory Test Report

6. EPA Recognized Certification Laboratory Information



The screenshot shows the Energy Star website interface. At the top, there are navigation links for 'ENERGY EFFICIENT products', 'ENERGY SAVINGS at home', 'ENERGY EFFICIENT new homes', and 'ENERGY STRATEGIES FOR buildings & plants'. A search bar and social media icons are also present. Below the navigation, the breadcrumb trail reads: 'Home > Partner Resources > Third-Party Certification > EPA Recognized Certification Bodies (CBs) and Laboratories List Results'. The main content area is titled 'EPA Recognized Certification Bodies (CBs) and Laboratories List Results'. It includes a 'NOTES' section with six points regarding accreditation, testing requirements, and specific product categories like lighting. Below the notes, there is a search filter section showing '1 of 1' results and a table of results. The table has columns for Org. ID, Organization Name, Type of Recognized Body, If Lab is it 1st Party?, Programs, Organization Address, City, State, and Country. One result is listed for Edison Opto Corporation - OPTO Testing Laboratory, which is an Accredited Laboratory (Y) for Luminaires, located at 4F, NO.800, Chung-Cheng Rd., Chung-Ho Dist., New Taipei City, TW.

Website :

http://www.energystar.gov/index.cfm?fuseaction=recognized_bodies_list.show_RCB_search_results

Search methods :

New Search→Company Name→Edison Opto

About Edison Opto

Edison Opto is a leading manufacturer of high power LED and a solution provider experienced in LDMS. LDMS is an integrated program derived from the four essential technologies in LED lighting applications- Thermal Management, Electrical Scheme, Mechanical Refinement, Optical Optimization, to provide customer with various LED components and modules. More Information about the company and our products can be found at www.edison-opto.com

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www.edison-opto.com

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LED.Detective@edison-opto.com.tw

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