Test Report

Client Name	:	SHENZHEN XUANCAI ELECTRONIC CO.,LTD
Address	:	F Building MAOYUAN Industrial Park, XIAWEI Industrial Zone, GUANLAN Street, LONGHUA New DISE SHENZHEN, GUANGDONG, China
Product Name	:	1313 30W COB
Date	:	2019-08-22

Shenzhen Anbotek Pengcheng Compliance Laboratory Limited

Report No.:	PCANL190802005-01
Product Description:	1313 30W COB
Model No.:	XC1411-M1205-A3080-F31
Test Initiation Date:	2018-07-14
Test Completion Date:	2019-08-16
Test Standard:	IES LM-80-15
Test Laboratory:	Shenzhen Anbotek Pengcheng Compliance Laboratory Limited
Testing location:	Zone B, 1/F., Building 2, Hengchangrong High Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.

Tested by **Reviewed by**

Lenin Ye / Lenin Ye Flora Zhang/ Flora Zhang

Anbotek (PC) Compliance Laboratory Limited * Approved *

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Shenzhen Anbotek Pengcheng Compliance Laboratory Limited. This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

TABLE OF CONTENTS

1 General Information

1.1 Product Description for Device under Test (DUT)

Part Number:	XC1411-M1205-A3080-F31
Part type:	COB Package
Nominal CCT:	3000K
Nominal CRI:	80
Nominal Input Power(W):	30W
Mean Initial Forward Voltage(V):	36V
Nominal LED Die Area(mm^2):	0.392 mm^2
Average Current per LED Die(mA):	150 mA
Average current density per LED Die(mA/mm^2):	382.653 mA/mm^2
Average power per LED Die(W):	0.5 W
Average power density per LED Die(W/mm^2):	1.276 W/mm^2
Minimum Spacing from Die Edge to Die Edge(mm):	0.255 mm

Family products covered by this report:

According to ENERGY STAR® Requirements for the Use of LM-80 Data, the following products can be covered by this report base on the information and declaration provided by manufacturer. The information of these models shows that the covered products meet all section 4 requirements of ENERGY STAR® Requirements for the Use of LM-80 Data (September 28, 2017)

This report covers the following models:

1313 30W COB, 1313 24W COB，1313 18W COB，1313 15W COB，1313 12W COB，1313 10W COB，1313 7W COB，1313 5W COB，1313 3W COB，1616 24W COB，1616 18W COB，1616 15W COB，1616 12W COB，1616 10W COB，1616 7W COB

CCT: 3000K, 3500K，4000K，5000K，6000K，6500K，15000K，25000K


1313


1616

1.2 Standards Used

IESNA LM-80-15: IES Approved Method for Measuring Luminous Flux and Color Maintenance of LED, Arrays and Modules.

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 NVLAP)

1.3 Test Facility Description

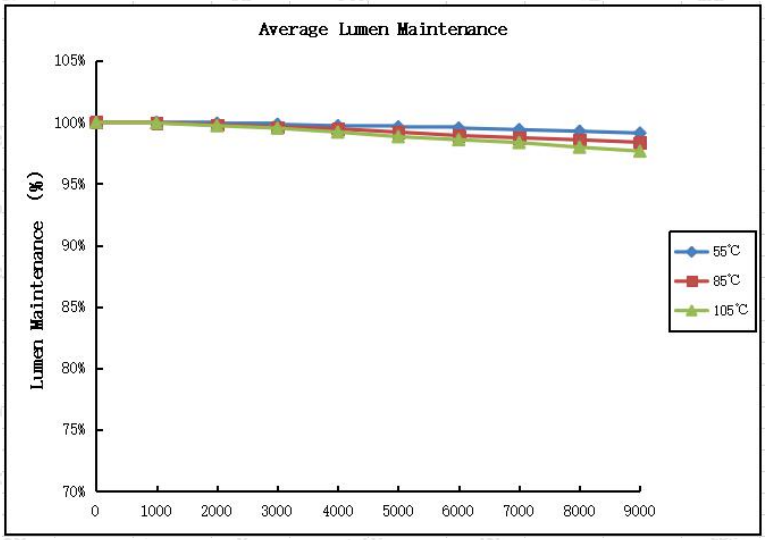
The test facility used by Shenzhen Anbotek Pengcheng Compliance Laboratory Limited is located at Zone B, 1/F., Building 2, Hengchangrong High-Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.

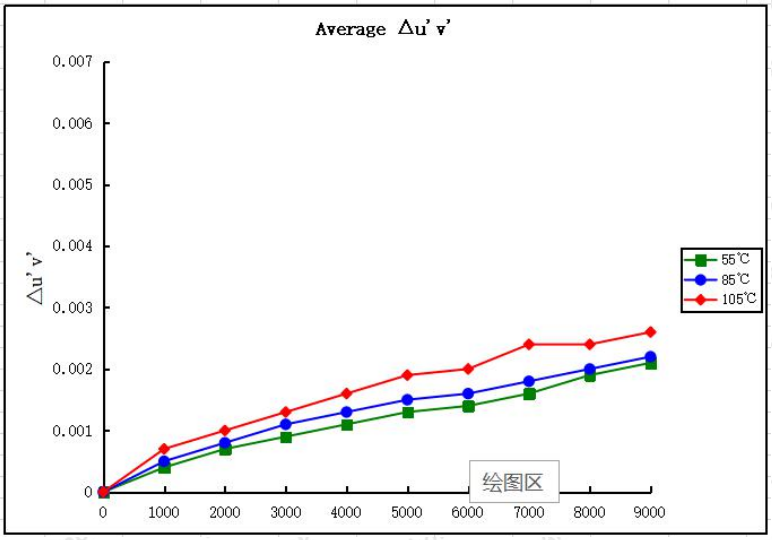
1.4 Test Equipment List

Device	Manufacture	Model No.	Serial No.	Calibration Date	Calibration Due Date
Digital Power Meter	YOKOGAWA	WT210	SE-074	2019-06-06	2020-06-05
LM-80 Aging Test System	KEYI	KY-3X-LH60	SE-564	2019-06-06	2020-06-05
DC Power Supply	EVERFINE	WY605	SE-605	2019-06-06	2020-06-05
Standard Lamp	EVERFINE	D062	SE-606	2019-06-06	2020-06-05
Spectrum Analyzer	EVERFINE	HAAS-2000	SE-607	2019-06-06	2020-06-05
Integrating Sphere (0.5m)	EVERFINE	AIS-2	SE-608	Before use	Before use

2 Summary of Test Result

Data Set	1	2	3
Nominal case temperatures	55°C	85°C	105°C
Drive Current	750 mA	750 mA	750 mA
Condition	Ts=54.8°C Ta=54.5°C R.H.＜65% IF=750 mA	Ts=84.7°C Ta=84.4°C R.H.＜65% IF=750 mA	Ts=104.9°C Ta=104.6°C R.H.＜65% IF=750 mA
sample size	25	25	25
Duration (in Hours)	9000	9000	9000
Intervals (in Hours)	1000	1000	1000
Failures Observed	0	0	0
Average Lumen Maintenance at 9000h	99.12%	98.37%	97.65%
Average Chromaticity Shift at 9000h	0.0021	0.0022	0.0026
α	1.192E-06	2.196E-06	3.076E-06
β	1.002	1.003	1.004
Reported L_{70}(9000h) TM-21 Lifetime	>54000	>54000	>54000
Reported L_{80}(9000h) TM-21 Lifetime	>54000	>54000	>54000
Reported L_{90}(9000h) TM-21 Lifetime	>54000	49000	36000





3 Test Method

3.1 Photometric and Electrical Measurement

Total light output (luminous flux) for the 25°C±1°C ambient temperature conditions is measured using a integrating sphere. Each LED is operated at rated drive current (DC Mode).

The total uncertainty of the light output measurements is estimated, at the 95% confidence level, not to exceed±1.6% over the wavelength range 380-800nm.

3.2 Season the LED from 0 hours to 9000 hours

Three LM-80 aging measurement system Temperature Chambers are using for Seasoning, and the temperature is set to 55°C, 85°C, 105°C (manufacture defined), the airflow is minimum to keep the uniformity to temperature. LED are operated steady state (no cycling) for a period of 9000 hours, checked the lumen flux and Chromaticity Shift every 1000 hours. The samples are inspected at regular intervals (24 hours) throughout the 9000 hours. The time and date of failure of each lamp is recorded. The actual elapsed time for each light LED is in hour.

4 Test Data

4.1 Data Set 1: 55°C, 750 mA (Lumen Maintenance)

Description of Light Sources Tested:	XC1411-M1205-A3080-F31
Case Temperature:	54.8°C
Ambient Temperature:	54.5°C
Drive Current:	750 mA
Measure Current:	750 mA
Failures Observed:	None

Lumen Maintenance (%)

Sample No.	VF(V)	Φ(lm)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
L1	35.76	3587.8	100.01%	99.89%	99.82%	99.75%	99.64%	99.49%	99.35%	99.30%	99.05%
L2	35.67	3592.5	100.00%	99.92%	99.82%	99.74%	99.60%	99.54%	99.40%	99.26%	99.17%
L3	35.81	5589.7	99.99%	99.90%	99.84%	99.73%	99.63%	99.54%	99.42%	99.24%	99.18%
L4	35.79	3576.5	99.98%	99.95%	99.84%	99.70%	99.63%	99.52%	99.38%	99.30%	99.11%
L5	35.85	3588.4	100.01%	99.94%	99.83%	99.67%	99.60%	99.53%	99.43%	99.30%	99.10%
L6	35.75	3584.9	100.00%	99.94%	99.83%	99.72%	99.63%	99.54%	99.40%	99.25%	99.14%
L7	35.92	3590.2	100.01%	99.91%	99.84%	99.69%	99.62%	99.55%	99.34%	99.28%	99.17%
L8	35.83	3576.8	100.00%	99.90%	99.81%	99.72%	99.63%	99.57%	99.45%	99.31%	99.05%
L9	35.78	3566.7	100.00%	99.91%	99.86%	99.72%	99.64%	99.51%	99.36%	99.28%	99.19%
L10	35.89	3584.5	100.00%	99.94%	99.82%	99.69%	99.61%	99.57%	99.37%	99.28%	99.15%
L11	35.81	3588.3	100.01%	99.91%	99.80%	99.74%	99.61%	99.57%	99.37%	99.30%	99.11%
L12	35.67	3559.6	100.00%	99.93%	99.79%	99.69%	99.62%	99.48%	99.43%	99.28%	99.12%
L13	35.83	3581.7	99.98%	99.90%	99.83%	99.73%	99.61%	99.55%	99.43%	99.22%	99.13%
L14	35.59	3548.5	100.01%	99.91%	99.86%	99.73%	99.64%	99.47%	99.36%	99.26%	99.17%
L15	35.87	3583.9	99.98%	99.94%	99.82%	99.72%	99.60%	99.49%	99.42%	99.30%	99.05%
L16	35.94	3589.3	100.00%	99.92%	99.86%	99.75%	99.60%	99.53%	99.44%	99.23%	99.06%
L17	35.83	3572.4	100.01%	99.92%	99.84%	99.69%	99.60%	99.53%	99.41%	99.27%	99.12%
L18	35.89	3585.6	99.99%	99.94%	99.84%	99.68%	99.60%	99.53%	99.42%	99.31%	99.04%
L19	35.75	3556.8	100.01%	99.90%	99.86%	99.69%	99.61%	99.51%	99.35%	99.27%	99.10%
L20	35.88	3584.7	99.99%	99.89%	99.81%	99.71%	99.63%	99.48%	99.35%	99.28%	99.04%
L21	35.91	3572.4	100.01%	99.89%	99.82%	99.75%	99.63%	99.54%	99.39%	99.27%	99.14%
L22	35.79	3588.6	99.99%	99.90%	99.82%	99.74%	99.62%	99.54%	99.41%	99.24%	99.17%
L23	35.81	3579.4	99.98%	99.90%	99.84%	99.71%	99.63%	99.53%	99.40%	99.25%	99.16%
L24	35.65	3583.8	99.99%	99.94%	99.84%	99.69%	99.61%	99.53%	99.41%	99.30%	99.10%
L25	35.86	3591.8	100.01%	99.94%	99.83%	99.70%	99.62%	99.53%	99.42%	99.25%	99.11%
AV	**35.81**	**3660.19**	**100.00%**	**99.92%**	**99.83%**	**99.71%**	**99.62%**	**99.53%**	**99.40%**	**99.27%**	**99.12%**
Median	35.81	3584.50	100.00%	99.91%	99.83%	99.72%	99.62%	99.53%	99.40%	99.28%	99.12%
MIN	35.59	3548.50	99.98%	99.89%	99.79%	99.67%	99.60%	99.47%	99.34%	99.22%	99.04%
MAX	35.94	5589.70	100.01%	99.95%	99.86%	99.75%	99.64%	99.57%	99.45%	99.31%	99.19%
STDEV	0.09	402.14	0.0001	0.0002	0.0002	0.0002	0.0001	0.0003	0.0003	0.0003	0.0005
N	25	25	25	25	25	25	25	25	25	25	25

4.2 Data Set 1: 55°C, 750 mA (Chromaticity Shift)

Description of Light Sources Tested:	XC1411-M1205-A3080-F31
Case Temperature:	54.8°C
Ambient Temperature:	54.5°C
Drive Current:	750 mA
Measure Current:	750 mA
Failures Observed:	None

Chromaticity Shift (△ u'v')

Sample No.	u'	v'	CCT(K)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs
L1	0.2445	0.5162	3104	0.0004	0.0007	0.0010	0.0012	0.0014	0.0013	0.0016	0.0020	0.0018
L2	0.2427	0.5156	3098	0.0004	0.0007	0.0010	0.0009	0.0012	0.0015	0.0017	0.0019	0.0022
L3	0.2428	0.5158	3115	0.0004	0.0007	0.0007	0.0009	0.0014	0.0013	0.0015	0.0017	0.0022
L4	0.2423	0.5155	3083	0.0003	0.0008	0.0009	0.0011	0.0012	0.0012	0.0016	0.0020	0.0020
L5	0.2429	0.5157	3075	0.0004	0.0006	0.0010	0.0009	0.0013	0.0015	0.0017	0.0020	0.0019
L6	0.2427	0.5156	3048	0.0004	0.0007	0.0008	0.0012	0.0014	0.0014	0.0017	0.0020	0.0021
L7	0.2428	0.5158	3117	0.0005	0.0006	0.0009	0.0013	0.0014	0.0013	0.0018	0.0020	0.0023
L8	0.2426	0.5157	3072	0.0004	0.0006	0.0008	0.0013	0.0014	0.0013	0.0016	0.0017	0.0019
L9	0.2429	0.5156	3065	0.0004	0.0007	0.0009	0.0011	0.0012	0.0014	0.0017	0.0019	0.0019
L10	0.2425	0.5156	3088	0.0003	0.0007	0.0010	0.0011	0.0015	0.0013	0.0018	0.0018	0.0019
L11	0.2426	0.5158	3102	0.0005	0.0005	0.0010	0.0010	0.0011	0.0015	0.0015	0.0020	0.0020
L12	0.2428	0.5155	3067	0.0004	0.0007	0.0007	0.0010	0.0011	0.0014	0.0016	0.0021	0.0024
L13	0.2429	0.5157	3053	0.0004	0.0008	0.0009	0.0012	0.0014	0.0016	0.0016	0.0019	0.0023
L14	0.2423	0.5156	3092	0.0004	0.0007	0.0009	0.0010	0.0015	0.0012	0.0016	0.0018	0.0018
L15	0.2427	0.5159	3084	0.0005	0.0007	0.0008	0.0011	0.0012	0.0012	0.0016	0.0021	0.0022
L16	0.2425	0.5158	3075	0.0004	0.0006	0.0009	0.0011	0.0014	0.0013	0.0016	0.0019	0.0021
L17	0.2428	0.5155	3113	0.0004	0.0007	0.0008	0.0010	0.0013	0.0015	0.0017	0.0019	0.0019
L18	0.2423	0.5158	3039	0.0005	0.0006	0.0008	0.0010	0.0012	0.0016	0.0016	0.0018	0.0023
L19	0.2429	0.5155	3108	0.0005	0.0007	0.0007	0.0009	0.0013	0.0015	0.0016	0.0017	0.0022
L20	0.2427	0.5157	3056	0.0004	0.0007	0.0009	0.0012	0.0013	0.0012	0.0017	0.0020	0.0023
L21	0.2428	0.5156	3075	0.0003	0.0007	0.0008	0.0011	0.0012	0.0012	0.0015	0.0019	0.0018
L22	0.2426	0.5155	3088	0.0004	0.0007	0.0010	0.0010	0.0012	0.0013	0.0016	0.0020	0.0019
L23	0.2429	0.5157	3105	0.0004	0.0007	0.0008	0.0009	0.0013	0.0015	0.0015	0.0017	0.0022
L24	0.2426	0.5156	3081	0.0004	0.0007	0.0008	0.0009	0.0012	0.0013	0.0015	0.0020	0.0021
L25	0.2428	0.5159	3109	0.0003	0.0007	0.0009	0.0010	0.0013	0.0013	0.0016	0.0020	0.0020
AV	**0.2428**	**0.5157**	**3084**	**0.0004**	**0.0007**	**0.0009**	**0.0011**	**0.0013**	**0.0014**	**0.0016**	**0.0019**	**0.0021**
Median	0.2427	0.5157	3084	0.0004	0.0007	0.0009	0.0010	0.0013	0.0013	0.0016	0.0019	0.0021
MIN	0.2423	0.5155	3039	0.0003	0.0005	0.0007	0.0009	0.0011	0.0012	0.0015	0.0017	0.0018
MAX	0.2445	0.5162	3117	0.0005	0.0008	0.0010	0.0013	0.0015	0.0016	0.0018	0.0021	0.0024
STDEV	0.0004	0.0002	22.04	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
N	25	25	25	25	25	25	25	25	25	25	25	25

4.3 Data Set 2: 85°C, 750 mA (Lumen Maintenance)

Description of Light Sources Tested:	XC1411-M1205-A3080-F31
Case Temperature:	84.7°C
Ambient Temperature:	84.4°C
Drive Current:	750 mA
Measure Current:	750 mA
Failures Observed:	None

Lumen Maintenance (%)

Sample No.	VF(V)	Φ(lm)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
L26	35.47	3559.7	99.95%	99.81%	99.61%	99.47%	99.14%	98.89%	98.76%	98.55%	98.27%
L27	35.85	3582.9	99.99%	99.78%	99.60%	99.50%	99.24%	98.94%	98.76%	98.59%	98.46%
L28	35.72	5577.6	99.97%	99.81%	99.59%	99.48%	99.24%	98.96%	98.78%	98.63%	98.40%
L29	35.56	3556.4	100.00%	99.78%	99.66%	99.45%	99.14%	98.88%	98.78%	98.54%	98.39%
L30	35.73	3586.8	99.99%	99.80%	99.62%	99.48%	99.15%	98.94%	98.69%	98.58%	98.41%
L31	35.68	3573.5	99.95%	99.81%	99.68%	99.50%	99.33%	98.93%	98.75%	98.53%	98.41%
L32	35.91	3580.4	99.97%	99.79%	99.57%	99.44%	99.10%	98.95%	98.73%	98.63%	98.34%
L33	35.86	3562.8	99.97%	99.80%	99.63%	99.45%	99.16%	98.88%	98.69%	98.53%	98.27%
L34	35.78	3576.7	99.96%	99.82%	99.62%	99.43%	99.28%	98.88%	98.72%	98.56%	98.37%
L35	35.85	3584.9	100.01%	99.78%	99.66%	99.46%	99.14%	98.89%	98.77%	98.59%	98.37%
L36	35.62	3558.5	99.98%	99.75%	99.64%	99.51%	99.23%	98.90%	98.70%	98.57%	98.43%
L37	35.57	3579.9	100.00%	99.77%	99.58%	99.48%	99.12%	98.89%	98.76%	98.55%	98.27%
L38	35.43	3561.7	99.94%	99.83%	99.66%	99.47%	99.09%	98.91%	98.71%	98.61%	98.45%
L39	35.79	3545.6	99.96%	99.75%	99.59%	99.46%	99.24%	98.90%	98.78%	98.55%	98.42%
L40	35.57	3593.5	99.99%	99.76%	99.58%	99.49%	99.35%	98.88%	98.75%	98.57%	98.36%
L41	35.84	3582.3	100.01%	99.79%	99.59%	99.47%	99.19%	98.92%	98.75%	98.58%	98.29%
L42	35.63	3567.8	99.95%	99.83%	99.64%	99.51%	99.34%	98.94%	98.72%	98.63%	98.30%
L43	35.89	3582.4	100.00%	99.79%	99.66%	99.50%	99.34%	98.96%	98.70%	98.59%	98.29%
L44	35.45	3559.7	99.94%	99.76%	99.62%	99.44%	99.12%	98.95%	98.76%	98.59%	98.31%
L45	35.68	3576.8	99.94%	99.79%	99.59%	99.46%	99.13%	98.87%	98.70%	98.52%	98.27%
L46	35.93	3552.4	99.96%	99.80%	99.61%	99.49%	99.15%	98.89%	98.76%	98.58%	98.45%
L47	35.75	3585.2	99.98%	99.81%	99.60%	99.49%	99.24%	98.95%	98.76%	98.60%	98.41%
L48	35.88	3558.8	99.97%	99.80%	99.60%	99.47%	99.22%	98.95%	98.78%	98.57%	98.40%
L49	35.49	3585.6	100.00%	99.79%	99.65%	99.46%	99.15%	98.92%	98.70%	98.57%	98.40%
L50	35.81	3573.1	99.96%	99.80%	99.66%	99.49%	99.27%	98.94%	98.74%	98.53%	98.41%
AV	**35.71**	**3652.20**	**99.97%**	**99.79%**	**99.62%**	**99.47%**	**99.20%**	**98.92%**	**98.74%**	**98.57%**	**98.37%**
Median	35.73	3576.70	99.97%	99.79%	99.62%	99.47%	99.19%	98.92%	98.75%	98.57%	98.39%
MIN	35.43	3545.60	99.94%	99.75%	99.57%	99.43%	99.09%	98.87%	98.69%	98.52%	98.27%
MAX	35.93	5577.60	100.01%	99.83%	99.68%	99.51%	99.35%	98.96%	98.78%	98.63%	98.46%
STDEV	0.16	401.33	0.0002	0.0002	0.0003	0.0002	0.0008	0.0003	0.0003	0.0003	0.0006
N	25	25	25	25	25	25	25	25	25	25	25

4.4 Data Set 2: 85°C, 750 mA (Chromaticity Shift)

Description of Light Sources Tested:	XC1411-M1205-A3080-F31
Case Temperature:	84.7°C
Ambient Temperature:	84.4°C
Drive Current:	750 mA
Measure Current:	750 mA
Failures Observed:	None

Chromaticity Shift (△ u'v')

Sample No.	u'	v'	CCT(K)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs
L26	0.2427	0.5157	3039	0.0005	0.0007	0.0010	0.0014	0.0016	0.0016	0.0018	0.0021	0.0020
L27	0.2428	0.5156	3108	0.0004	0.0009	0.0012	0.0013	0.0014	0.0015	0.0017	0.0020	0.0026
L28	0.2426	0.5155	3056	0.0006	0.0009	0.0010	0.0013	0.0015	0.0016	0.0017	0.0018	0.0024
L29	0.2429	0.5157	3067	0.0004	0.0007	0.0011	0.0013	0.0016	0.0015	0.0018	0.0020	0.0023
L30	0.2426	0.5156	3053	0.0005	0.0009	0.0012	0.0013	0.0014	0.0016	0.0020	0.0018	0.0021
L31	0.2423	0.5156	3092	0.0005	0.0008	0.0012	0.0013	0.0015	0.0016	0.0019	0.0019	0.0020
L32	0.2427	0.5159	3067	0.0004	0.0007	0.0012	0.0013	0.0015	0.0015	0.0018	0.0024	0.0021
L33	0.2425	0.5158	3053	0.0004	0.0007	0.0011	0.0013	0.0016	0.0015	0.0019	0.0018	0.0021
L34	0.2428	0.5155	3092	0.0005	0.0010	0.0012	0.0013	0.0015	0.0015	0.0018	0.0017	0.0020
L35	0.2423	0.5158	3075	0.0005	0.0008	0.0011	0.0012	0.0015	0.0016	0.0019	0.0022	0.0021
L36	0.2429	0.5155	3048	0.0004	0.0010	0.0010	0.0013	0.0015	0.0016	0.0017	0.0020	0.0024
L37	0.2427	0.5157	3075	0.0005	0.0006	0.0010	0.0012	0.0015	0.0016	0.0019	0.0021	0.0020
L38	0.2428	0.5156	3048	0.0005	0.0008	0.0012	0.0013	0.0015	0.0015	0.0019	0.0021	0.0024
L39	0.2423	0.5156	3117	0.0005	0.0007	0.0009	0.0014	0.0015	0.0017	0.0020	0.0023	0.0025
L40	0.2445	0.5162	3072	0.0005	0.0008	0.0012	0.0013	0.0015	0.0016	0.0017	0.0021	0.0023
L41	0.2427	0.5156	3065	0.0004	0.0007	0.0010	0.0013	0.0014	0.0015	0.0019	0.0020	0.0026
L42	0.2428	0.5158	3088	0.0006	0.0007	0.0011	0.0014	0.0016	0.0016	0.0020	0.0023	0.0022
L43	0.2423	0.5155	3039	0.0005	0.0007	0.0011	0.0013	0.0015	0.0017	0.0018	0.0018	0.0021
L44	0.2429	0.5157	3075	0.0004	0.0007	0.0013	0.0012	0.0016	0.0017	0.0017	0.0021	0.0021
L45	0.2426	0.5157	3048	0.0005	0.0008	0.0009	0.0013	0.0016	0.0016	0.0017	0.0022	0.0025
L46	0.2429	0.5156	3117	0.0005	0.0007	0.0010	0.0013	0.0015	0.0015	0.0017	0.0020	0.0019
L47	0.2425	0.5156	3072	0.0005	0.0008	0.0012	0.0013	0.0015	0.0015	0.0018	0.0021	0.0022
L48	0.2426	0.5158	3065	0.0005	0.0009	0.0012	0.0013	0.0015	0.0016	0.0017	0.0019	0.0025
L49	0.2429	0.5155	3088	0.0005	0.0007	0.0011	0.0013	0.0016	0.0015	0.0017	0.0019	0.0023
L50	0.2427	0.5157	3048	0.0005	0.0007	0.0011	0.0013	0.0015	0.0015	0.0018	0.0019	0.0021
AV	**0.2427**	**0.5157**	**3071**	**0.0005**	**0.0008**	**0.0011**	**0.0013**	**0.0015**	**0.0016**	**0.0018**	**0.0020**	**0.0022**
Median	0.2427	0.5156	3067	0.0005	0.0007	0.0011	0.0013	0.0015	0.0016	0.0018	0.0020	0.0022
MIN	0.2423	0.5155	3039	0.0004	0.0006	0.0009	0.0012	0.0014	0.0015	0.0017	0.0017	0.0019
MAX	0.2445	0.5162	3117	0.0006	0.0010	0.0013	0.0014	0.0016	0.0017	0.0020	0.0024	0.0026
STDEV	0.0004	0.0002	22.59	0.0000	0.0001	0.0001	0.0000	0.0000	0.0001	0.0001	0.0002	0.0002
N	25	25	25	25	25	25	25	25	25	25	25	25

4.5 Data Set 3: 105°C, 750 mA (Lumen Maintenance)

Description of Light Sources Tested:	XC1411-M1205-A3080-F31
Case Temperature:	104.9°C
Ambient Temperature:	104.6°C
Drive Current:	750 mA
Measure Current:	750 mA
Failures Observed:	None

Lumen Maintenance (%)

Sample No.	VF(V)	Φ(lm)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
L51	35.55	3566.2	99.94%	99.65%	99.49%	99.11%	98.81%	98.66%	98.27%	98.14%	97.73%
L52	35.79	3577.4	99.98%	99.79%	99.53%	99.16%	98.78%	98.55%	98.28%	97.88%	97.58%
L53	35.82	5595.6	99.93%	99.77%	99.53%	99.36%	98.80%	98.54%	98.42%	97.84%	97.74%
L54	35.47	3548.7	99.94%	99.79%	99.53%	99.10%	98.84%	98.54%	98.39%	98.04%	97.51%
L55	35.58	3553.3	99.99%	99.72%	99.53%	99.33%	98.88%	98.60%	98.27%	97.89%	97.72%
L56	35.73	3586.5	99.92%	99.79%	99.53%	99.13%	98.95%	98.61%	98.41%	98.02%	97.50%
L57	35.65	3571.4	99.92%	99.63%	99.57%	99.11%	98.89%	98.60%	98.46%	97.82%	97.56%
L58	35.51	3564.7	99.94%	99.64%	99.58%	99.10%	98.90%	98.54%	98.42%	97.93%	97.73%
L59	35.76	3588.1	99.95%	99.77%	99.50%	99.25%	98.78%	98.60%	98.37%	98.01%	97.75%
L60	35.63	3572.5	99.92%	99.79%	99.47%	99.38%	98.79%	98.64%	98.36%	97.86%	97.72%
L61	35.72	3546.7	99.95%	99.69%	99.49%	99.08%	98.90%	98.58%	98.28%	98.18%	97.69%
L62	35.53	3582.6	99.99%	99.67%	99.58%	99.08%	98.78%	98.61%	98.26%	97.85%	97.70%
L63	35.88	3541.4	99.91%	99.63%	99.50%	99.28%	98.85%	98.61%	98.29%	97.85%	97.59%
L64	35.47	3595.3	99.90%	99.75%	99.47%	99.29%	98.91%	98.54%	98.42%	98.16%	97.66%
L65	35.84	3584.2	99.94%	99.72%	99.50%	99.33%	98.82%	98.56%	98.40%	98.07%	97.71%
L66	35.68	3553.3	99.97%	99.78%	99.47%	99.10%	98.82%	98.61%	98.45%	97.96%	97.75%
L67	35.93	3571.4	99.91%	99.64%	99.53%	99.22%	98.81%	98.58%	98.29%	98.15%	97.65%
L68	35.75	3564.7	99.93%	99.66%	99.54%	99.16%	98.80%	98.58%	98.35%	98.07%	97.66%
L69	35.88	3588.1	99.96%	99.65%	99.49%	99.32%	98.79%	98.53%	98.30%	97.86%	97.62%
L70	35.58	3566.2	99.92%	99.64%	99.49%	99.10%	98.79%	98.53%	98.26%	97.92%	97.61%
L71	35.73	3577.4	99.97%	99.69%	99.52%	99.15%	98.80%	98.56%	98.28%	98.03%	97.63%
L72	35.65	5595.6	99.96%	99.79%	99.53%	99.21%	98.79%	98.54%	98.35%	97.87%	97.63%
L73	35.51	3548.7	99.93%	99.78%	99.53%	99.32%	98.81%	98.54%	98.42%	97.91%	97.62%
L74	35.63	3572.5	99.96%	99.75%	99.53%	99.10%	98.87%	98.54%	98.35%	97.89%	97.58%
L75	35.72	3546.7	99.95%	99.75%	99.53%	99.16%	98.89%	98.61%	98.30%	97.96%	97.52%
AV	**35.68**	**3730.37**	**99.94%**	**99.72%**	**99.52%**	**99.20%**	**98.83%**	**98.58%**	**98.35%**	**97.97%**	**97.65%**
Median	35.68	3571.40	99.94%	99.72%	99.53%	99.16%	98.81%	98.58%	98.35%	97.93%	97.65%
MIN	35.47	3541.40	99.90%	99.63%	99.47%	99.08%	98.78%	98.53%	98.26%	97.82%	97.50%
MAX	35.93	5595.60	99.99%	99.79%	99.58%	99.38%	98.95%	98.66%	98.46%	98.18%	97.75%
STDEV	0.13	561.57	0.0003	0.0006	0.0003	0.0011	0.0005	0.0004	0.0007	0.0012	0.0008
N	25	25	25	25	25	25	25	25	25	25	25

4.6 Data Set 3: 105°C, 750 mA (Chromaticity Shift)

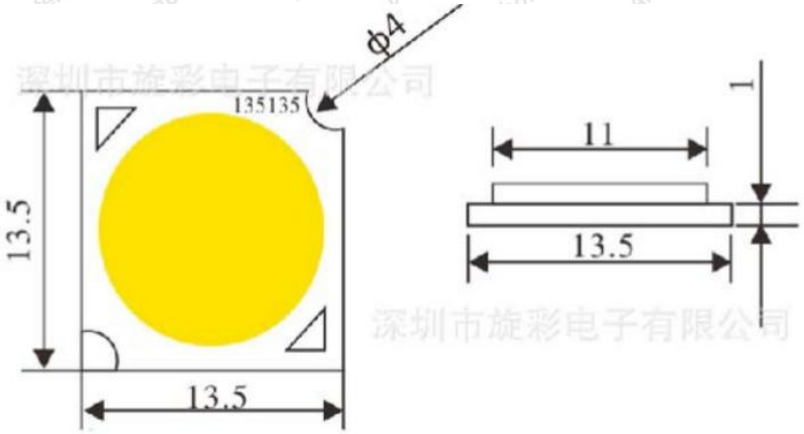
Description of Light Sources Tested:	XC1411-M1205-A3080-F31
Case Temperature:	104.9°C
Ambient Temperature:	104.6°C
Drive Current:	750 mA
Measure Current:	750 mA
Failures Observed:	None

Chromaticity Shift (△ u'v')

Sample No.	u'	v'	CCT(K)	1000 hrs	2000 hrs	3000 hrs	4000 hrs	5000 hrs	6000 hrs	7000 hrs	8000 hrs	9000 hrs
L51	0.2423	0.5158	3075	0.0007	0.0009	0.0013	0.0015	0.0021	0.0020	0.0025	0.0024	0.0022
L52	0.2429	0.5155	3048	0.0006	0.0010	0.0012	0.0016	0.0021	0.0022	0.0023	0.0028	0.0029
L53	0.2427	0.5157	3117	0.0007	0.0011	0.0013	0.0016	0.0020	0.0017	0.0025	0.0020	0.0027
L54	0.2428	0.5156	3072	0.0006	0.0009	0.0013	0.0016	0.0018	0.0020	0.0025	0.0027	0.0027
L55	0.2423	0.5156	3065	0.0006	0.0010	0.0012	0.0015	0.0017	0.0019	0.0019	0.0025	0.0024
L56	0.2428	0.5158	3039	0.0007	0.0010	0.0013	0.0017	0.0021	0.0018	0.0027	0.0026	0.0029
L57	0.2423	0.5155	3075	0.0006	0.0009	0.0013	0.0015	0.0017	0.0019	0.0026	0.0021	0.0028
L58	0.2429	0.5157	3048	0.0006	0.0009	0.0013	0.0016	0.0017	0.0020	0.0023	0.0021	0.0023
L59	0.2426	0.5157	3117	0.0008	0.0010	0.0014	0.0016	0.0016	0.0021	0.0024	0.0023	0.0024
L60	0.2426	0.5158	3072	0.0007	0.0011	0.0012	0.0017	0.0014	0.0016	0.0026	0.0024	0.0022
L61	0.2429	0.5155	3065	0.0006	0.0010	0.0014	0.0014	0.0015	0.0021	0.0025	0.0027	0.0026
L62	0.2427	0.5157	3067	0.0007	0.0009	0.0013	0.0014	0.0021	0.0021	0.0024	0.0026	0.0030
L63	0.2428	0.5156	3053	0.0007	0.0010	0.0012	0.0015	0.0018	0.0022	0.0024	0.0028	0.0029
L64	0.2426	0.5156	3092	0.0007	0.0010	0.0013	0.0017	0.0017	0.0021	0.0025	0.0022	0.0024
L65	0.2423	0.5156	3067	0.0007	0.0010	0.0013	0.0015	0.0020	0.0017	0.0021	0.0024	0.0024
L66	0.2427	0.5159	3053	0.0008	0.0010	0.0013	0.0015	0.0020	0.0021	0.0026	0.0027	0.0030
L67	0.2425	0.5158	3039	0.0007	0.0010	0.0014	0.0016	0.0020	0.0018	0.0022	0.0021	0.0027
L68	0.2428	0.5155	3108	0.0006	0.0011	0.0013	0.0017	0.0019	0.0019	0.0025	0.0022	0.0029
L69	0.2423	0.5158	3056	0.0007	0.0010	0.0013	0.0015	0.0018	0.0017	0.0027	0.0021	0.0029
L70	0.2427	0.5157	3067	0.0007	0.0011	0.0013	0.0015	0.0021	0.0024	0.0022	0.0028	0.0027
L71	0.2428	0.5156	3053	0.0006	0.0009	0.0012	0.0014	0.0021	0.0017	0.0020	0.0022	0.0022
L72	0.2426	0.5155	3092	0.0006	0.0009	0.0012	0.0016	0.0021	0.0022	0.0024	0.0025	0.0027
L73	0.2429	0.5157	3067	0.0006	0.0010	0.0013	0.0016	0.0020	0.0022	0.0024	0.0027	0.0027
L74	0.2426	0.5156	3117	0.0006	0.0010	0.0013	0.0016	0.0020	0.0017	0.0025	0.0024	0.0027
L75	0.2428	0.5156	3072	0.0006	0.0010	0.0013	0.0016	0.0018	0.0019	0.0020	0.0026	0.0025
AV	**0.2426**	**0.5157**	**3072**	**0.0007**	**0.0010**	**0.0013**	**0.0016**	**0.0019**	**0.0020**	**0.0024**	**0.0024**	**0.0026**
Median	0.2427	0.5156	3067	0.0007	0.0010	0.0013	0.0016	0.0020	0.0020	0.0024	0.0024	0.0027
MIN	0.2423	0.5155	3039	0.0006	0.0009	0.0012	0.0014	0.0014	0.0016	0.0019	0.0020	0.0022
MAX	0.2429	0.5159	3117	0.0008	0.0011	0.0014	0.0017	0.0021	0.0024	0.0027	0.0028	0.0030
STDEV	0.0002	0.0001	23.32	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0003	0.0003
N	25	25	25	25	25	25	25	25	25	25	25	25

5 EUT Photo

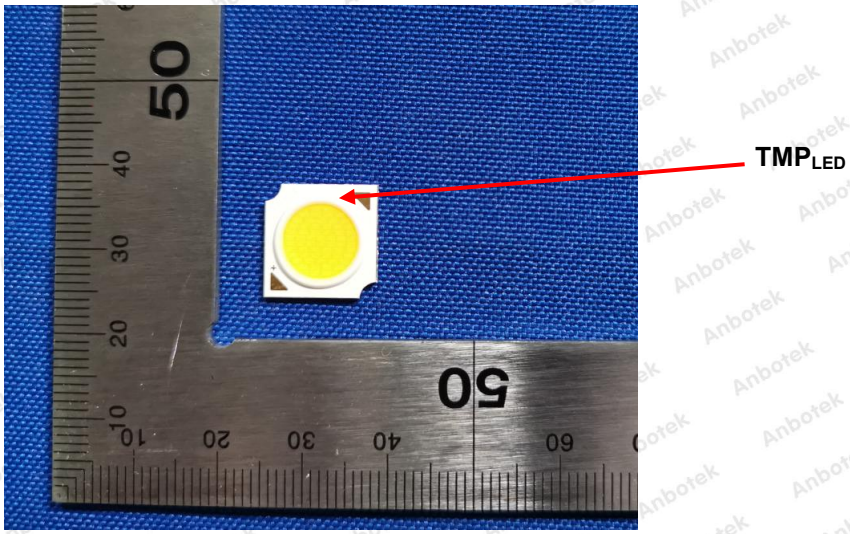
5.1 EUT Mechanical Dimensions



Unit:mm

Tolerances unless otherwise specified:+/-0.2

5.2 EUT PHOTO



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