TEST REPORT

Of IESNA LM-80-15

Kunde: *Client:*	Shenzhen Renda Optoelectronic Technology Co., Ltd
Adresse: *Address:*	No. 8 Guanghui Road, Longteng Community, Shiyan Street, Bao'an District, Shenzhen
Hersteller: *Manufacturer:*	Shenzhen Renda Optoelectronic Technology Co., Ltd
Adresse: *Address:*	No. 8 Guanghui Road, Longteng Community, Shiyan Street, Bao'an District, Shenzhen
Name der Marke: *Brand Name:*	N/A
Beschreibungdes Produkts: *Product Description:*	Beads/Light Sources/Light Emitting Diodes
Modelle: *Models:*	LED-PW1A1W3-1C1BT1
Bewertung: *Rating:*	DC3.4-3.6V, 700mA, 2.5W
Verfahren: *Method:*	Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules
Prüfergebnis*: *Test result*:*	Please see the following test data

Datum der Prüfung: *Date of Test:*	**Datum der Emission:** *Date of Issue:*	**Klassifizierung:** *Classification:*	**Gegenstand der Prüfung:** *Test item:*
2023-04-06~2023-12-22	2023-12-26	Commission Test	LM-80 Test

Prüflabor (Testlabor) / Testing Laboratory:
Shenzhen Southern LCS Compliance Testing Laboratory Ltd.
Add: 101-201, No.39 Buliding, Xialang Industrial Zone, Heshuikou Community, Matian Street Guangming New District, Shenzhen,Guangdong Prov. 518000 China.

Compiled von/Compiled by:	**Check von/**Check by:	**Genehmigt von/**Approved by:
Zero Huang/ Project Engineer	Ian Luo/ Director	Jesse Liu/ Manager

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
Remark: The duplication of this report or parts of it and its use for advertising purposes is only allowed with permission of the testing laboratory.This report contains the result of examination of the product sample submitted by the appliance. A general statement concerning the quality of the products from the series manufacturer cannot be derived therefore.

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Test Summary

Life test condition			Summary of result				
Test condition	Current (mA)	Case temperature (℃)	Test duration (h)	Average lumen maintenance (%)	Maximum chromaticity shift (△u'v')	Average Power Density (W/mm^2)	Average Current Density (mA/mm^2)
1	700	55	6000	97.92%	0.0019	/	/
2	700	85	6000	97.60%	0.0021		
3	700	105	6000	96.94%	0.0024		

1. Number of LED Light Sources tested

-25 Packages tested at actual case temperature 54.8℃

-25 Packages tested at actual case temperature 84.9℃

-25 Packages tested at actual case temperature 104.6℃

2. Description of LED Light Sources

- Part Number: LED-PW1A1W3-1C1BT1

- Part Type: Beads/Light Sources/Light Emitting Diodes

- IF =700mA, CCT(Nominal) =5500K-6000K

3. Description of auxiliary equipment

1) EVERFINE LT-200A Accelerated Aging-Life Test System for LEDs

2) Instrument Integrating sphere 0.5m

3) EVERFINE HAAS2000 Photometric, Colorimetric& Electric System for Light Sources

4. Operating time

LED packages are driven with a constant direct current.

- Number of units : 25 at 55℃, 85℃ and 105℃

- Drive current : 700mA

- Typical voltage : 3.4-3.6V

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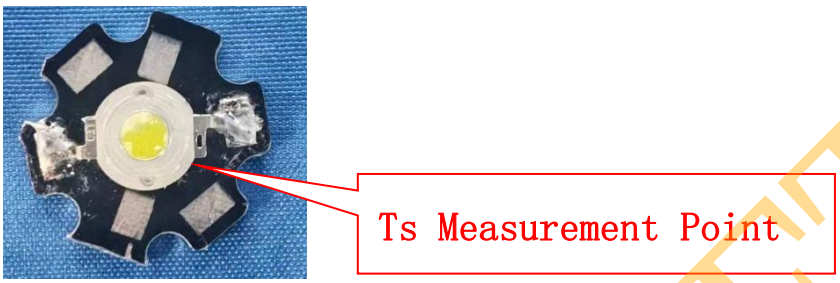
5. Ambient conditions including airflow, temperature and relative humidity

The minimal airflow is maintained in chamber.

The ambient temperature around the LED packages inside chamber is controlled by air flowing and the thermocouple readings are monitored.

- Case temperature : Contorlled to -2℃
- Surrounding air temperature : Contorlled to -5℃
- Relative humidity : ＜ 65%RH

6. Case temperature (Test point temperature)



7. Drive current of the LED Light Sources during lifetime test

See Sub-clause 9.1, 9.2 and 9.3

8. Initial luminous flux and forward voltage

See the table

9. Lumen maintenance data for each individual LED Light Sources

See the table

Quantity	Model	Serial Number
25	LED-PW1A1W3-1C1BT1	A01-A25 (55℃)
25	LED-PW1A1W3-1C1BT1	B01-B25 (85℃)
25	LED-PW1A1W3-1C1BT1	C01-C25 (105℃)

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9.1 Test condition 1: 55 ℃, Drive Current : 700mA

Item	V_F(V)	Flux(lm)	Ra	T=55℃Luminous Maintenance (%)					
No.	0 h			1000h	2000h	3000h	4000h	5000h	6000h
A01	3.54	288.46	65.4	100.10	99.72	99.45	98.86	98.54	97.92
A02	3.59	288.45	65.6	100.05	99.74	99.38	98.74	98.40	97.78
A03	3.53	288.34	65.9	100.04	99.68	99.49	98.78	98.55	97.93
A04	3.49	288.13	65.7	99.99	99.64	99.41	98.74	98.51	97.89
A05	3.57	288.39	66.0	99.97	99.72	99.47	98.66	98.81	98.19
A06	3.57	288.11	65.4	100.07	99.67	99.39	98.74	98.53	97.91
A07	3.51	288.25	66.2	100.11	99.75	99.44	98.80	98.65	98.03
A08	3.56	288.33	65.9	100.05	99.74	99.37	98.71	98.80	98.18
A09	3.53	288.13	65.4	100.23	99.78	99.36	98.68	98.73	98.11
A10	3.51	288.93	65.4	100.17	99.66	99.37	98.81	98.65	98.03
A11	3.52	288.29	65.9	100.11	99.72	99.31	98.72	98.51	97.89
A12	3.57	288.34	65.7	100.16	99.69	99.36	98.77	98.55	97.93
A13	3.56	288.44	65.5	100.14	99.74	99.28	98.68	98.43	97.81
A14	3.55	288.33	65.8	100.06	99.68	99.34	98.64	98.57	97.95
A15	3.54	288.53	65.6	100.17	99.72	99.27	98.78	98.40	97.78
A16	3.50	288.33	66.0	100.05	99.68	99.34	98.79	98.51	97.89
A17	3.53	288.41	66.1	100.14	99.74	99.26	98.75	98.41	97.79
A18	3.60	288.37	65.7	100.07	99.69	99.31	98.74	98.43	97.81
A19	3.56	288.22	65.9	100.10	99.71	99.37	98.81	98.54	97.92
A20	3.52	288.10	65.7	100.17	99.74	99.28	98.79	98.44	97.82
A21	3.52	288.23	65.5	100.13	99.68	99.33	98.65	98.44	97.82
A22	3.53	287.83	65.4	100.04	99.72	99.26	98.70	98.50	97.88
A23	3.54	287.93	66.2	100.16	99.70	99.32	98.81	98.66	98.04
A24	3.55	288.63	65.4	100.12	99.74	99.28	98.67	98.41	97.79
A25	3.55	288.01	65.6	100.11	99.74	99.23	98.76	98.65	98.03
Avg.	3.54	288.30	65.7	100.10	99.71	99.35	98.74	98.54	97.92
Med.	3.54	288.33	65.7	100.11	99.72	99.34	98.74	98.53	97.91
ST dev.	0.0272	0.2280	0.2625	0.0615	0.0334	0.0694	0.0583	0.1207	0.1207
Max.	3.60	288.93	66.2	100.23	99.78	99.49	98.86	98.81	98.19
Min.	3.49	287.83	65.4	99.97	99.64	99.23	98.64	98.40	97.78

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9.1.1 Test condition 1: 55 ℃，Drive Current : 700mA

No.	T=55℃Chromaticity Shift (Δu'v')								
	0 h			1000h	2000h	3000h	4000h	5000h	6000h
	u'	v'	CCT(K)						
A01	0.2020	0.4910	5250	0.0002	0.0007	0.0009	0.0012	0.0014	0.0017
A02	0.2015	0.4909	5249	0.0004	0.0008	0.0009	0.0012	0.0015	0.0018
A03	0.2019	0.4913	5246	0.0004	0.0010	0.0010	0.0013	0.0015	0.0019
A04	0.2015	0.4914	5249	0.0003	0.0008	0.0010	0.0012	0.0014	0.0018
A05	0.2017	0.4914	5239	0.0003	0.0008	0.0011	0.0009	0.0011	0.0016
A06	0.2013	0.4914	5250	0.0003	0.0010	0.0011	0.0012	0.0014	0.0019
A07	0.2025	0.4913	5253	0.0004	0.0008	0.0010	0.0013	0.0015	0.0017
A08	0.2021	0.4911	5242	0.0002	0.0006	0.0011	0.0015	0.0017	0.0021
A09	0.2010	0.4916	5247	0.0001	0.0005	0.0010	0.0013	0.0015	0.0017
A10	0.2014	0.4921	5247	0.0005	0.0008	0.0010	0.0012	0.0015	0.0016
A11	0.2015	0.4919	5248	0.0001	0.0006	0.0008	0.0011	0.0013	0.0020
A12	0.2018	0.4921	5245	0.0004	0.0008	0.0009	0.0012	0.0015	0.0019
A13	0.2009	0.4917	5251	0.0002	0.0006	0.0012	0.0015	0.0017	0.0020
A14	0.2026	0.4915	5243	0.0003	0.0008	0.0012	0.0013	0.0015	0.0017
A15	0.2017	0.4918	5249	0.0001	0.0006	0.0010	0.0012	0.0014	0.0019
A16	0.2018	0.4911	5251	0.0002	0.0007	0.0011	0.0014	0.0015	0.0019
A17	0.2021	0.4919	5245	0.0004	0.0009	0.0012	0.0014	0.0016	0.0021
A18	0.2024	0.4918	5244	0.0004	0.0009	0.0013	0.0016	0.0020	0.0021
A19	0.2016	0.4915	5252	0.0001	0.0005	0.0008	0.0010	0.0013	0.0016
A20	0.2019	0.4910	5260	0.0002	0.0008	0.0011	0.0013	0.0016	0.0019
A21	0.2020	0.4918	5239	0.0001	0.0007	0.0012	0.0012	0.0015	0.0017
A22	0.2016	0.4912	5243	0.0004	0.0008	0.0010	0.0012	0.0014	0.0020
A23	0.2019	0.4911	5256	0.0002	0.0008	0.0013	0.0015	0.0015	0.0019
A24	0.2019	0.4923	5247	0.0002	0.0005	0.0008	0.0013	0.0015	0.0021
A25	0.2017	0.4914	5242	0.0003	0.0007	0.0009	0.0014	0.0016	0.0022
Avg.	0.2018	0.4915	5247	0.0003	0.0007	0.0010	0.0013	0.0015	0.0019
Med.	0.2018	0.4914	5247	0.0003	0.0008	0.0010	0.0013	0.0015	0.0019
ST dev.	0.0004	0.0004	4.9843	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002
Max.	0.2026	0.4923	5260	0.0005	0.0010	0.0013	0.0016	0.0020	0.0022
Min.	0.2009	0.4909	5239	0.0001	0.0005	0.0008	0.0009	0.0011	0.0016

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9.2 Test condition 2: 85 ℃, Drive Current : 700mA

Item	V_F(V)	Flux(lm)	Ra	T=85℃Luminous Maintenance (%)					
No.	0 h			1000h	2000h	3000h	4000h	5000h	6000h
B01	3.52	287.86	65.4	99.92	99.54	98.89	98.37	97.89	97.54
B02	3.58	288.00	65.6	99.94	99.48	98.87	98.44	97.94	97.59
B03	3.51	287.79	65.6	99.92	99.50	98.86	98.38	97.93	97.58
B04	3.47	287.70	66.2	99.91	99.49	98.89	98.44	97.90	97.55
B05	3.56	287.98	65.8	99.93	99.43	98.85	98.27	97.97	97.62
B06	3.58	288.47	65.6	99.92	99.44	98.86	98.42	97.92	97.57
B07	3.48	287.73	65.6	99.91	99.48	98.85	98.38	97.88	97.53
B08	3.55	287.90	65.7	99.96	99.50	98.86	98.36	97.94	97.59
B09	3.52	287.72	65.9	99.90	99.46	98.87	98.25	97.85	97.50
B10	3.49	288.29	65.5	99.92	99.54	98.92	98.40	97.89	97.54
B11	3.51	287.69	66.0	99.86	99.47	98.85	98.34	97.94	97.59
B12	3.55	287.89	65.4	99.94	99.48	98.86	98.37	97.97	97.62
B13	3.55	287.92	66.0	99.91	99.43	98.87	98.28	97.93	97.58
B14	3.54	287.90	65.4	99.93	99.44	98.88	98.26	97.96	97.61
B15	3.55	287.89	65.6	99.92	99.42	98.79	98.27	97.98	97.63
B16	3.48	287.73	65.6	99.97	99.48	98.88	98.35	97.97	97.62
B17	3.50	287.96	65.8	99.96	99.47	98.84	98.38	97.92	97.89
B18	3.59	287.82	65.5	99.91	99.51	98.85	98.40	97.85	97.50
B19	3.54	287.81	65.5	99.89	99.53	98.83	98.31	97.89	97.54
B20	3.51	287.46	66.0	99.93	99.43	98.79	98.39	97.94	97.74
B21	3.50	287.68	65.6	99.92	99.52	98.77	98.27	97.95	97.71
B22	3.52	287.42	65.5	99.91	99.47	98.85	98.38	97.88	97.53
B23	3.52	287.29	66.1	99.89	99.48	98.78	98.44	97.93	97.58
B24	3.53	288.22	65.5	99.87	99.51	98.86	98.26	97.92	97.57
B25	3.53	287.37	65.6	99.99	99.50	98.92	98.35	98.19	97.74
Avg.	3.53	287.82	65.7	99.92	99.48	98.85	98.35	97.93	97.60
Med.	3.52	287.82	65.6	99.92	99.48	98.86	98.37	97.93	97.58
ST dev.	0.0321	0.2713	0.2309	0.0292	0.0350	0.0383	0.0620	0.0646	0.0875
Max.	3.59	288.47	66.2	99.99	99.54	98.92	98.44	98.19	97.89
Min.	3.47	287.29	65.4	99.86	99.42	98.77	98.25	97.85	97.50

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9.2.1 Test condition 2: 85 ℃，Drive Current : 700mA

No.	T=85℃Chromaticity Shift (Δu'v')								
	0 h			1000h	2000h	3000h	4000h	5000h	6000h
	u'	v'	CCT(K)						
B01	0.2023	0.4915	5248	0.0005	0.0010	0.0013	0.0013	0.0016	0.0021
B02	0.2015	0.4915	5248	0.0003	0.0007	0.0010	0.0012	0.0014	0.0020
B03	0.2018	0.4918	5242	0.0002	0.0006	0.0010	0.0012	0.0014	0.0021
B04	0.2013	0.4922	5248	0.0005	0.0009	0.0013	0.0016	0.0017	0.0019
B05	0.2018	0.4916	5237	0.0003	0.0008	0.0014	0.0015	0.0019	0.0020
B06	0.2017	0.4919	5245	0.0006	0.0009	0.0013	0.0017	0.0019	0.0021
B07	0.2024	0.4920	5249	0.0004	0.0009	0.0011	0.0014	0.0016	0.0019
B08	0.2020	0.4914	5240	0.0006	0.0010	0.0012	0.0016	0.0016	0.0021
B09	0.2013	0.4920	5247	0.0005	0.0009	0.0013	0.0017	0.0019	0.0023
B10	0.2014	0.4922	5244	0.0004	0.0008	0.0014	0.0016	0.0017	0.0023
B11	0.2018	0.4924	5247	0.0003	0.0006	0.0009	0.0013	0.0016	0.0020
B12	0.2017	0.4923	5243	0.0004	0.0009	0.0013	0.0015	0.0016	0.0021
B13	0.2013	0.4920	5250	0.0003	0.0008	0.0014	0.0014	0.0017	0.0023
B14	0.2024	0.4920	5236	0.0004	0.0009	0.0013	0.0016	0.0019	0.0022
B15	0.2016	0.4922	5243	0.0005	0.0010	0.0015	0.0016	0.0018	0.0021
B16	0.2018	0.4917	5246	0.0003	0.0008	0.0014	0.0015	0.0018	0.0022
B17	0.2020	0.4920	5242	0.0005	0.0010	0.0011	0.0016	0.0017	0.0021
B18	0.2023	0.4920	5242	0.0003	0.0009	0.0013	0.0016	0.0017	0.0023
B19	0.2019	0.4916	5251	0.0003	0.0007	0.0012	0.0014	0.0018	0.0021
B20	0.2018	0.4917	5256	0.0004	0.0008	0.0011	0.0013	0.0016	0.0023
B21	0.2024	0.4923	5237	0.0005	0.0009	0.0012	0.0017	0.0020	0.0024
B22	0.2017	0.4917	5237	0.0006	0.0010	0.0013	0.0015	0.0018	0.0022
B23	0.2021	0.4917	5249	0.0002	0.0009	0.0014	0.0015	0.0018	0.0021
B24	0.2021	0.4925	5242	0.0004	0.0009	0.0012	0.0017	0.0019	0.0023
B25	0.2016	0.4919	5241	0.0005	0.0008	0.0013	0.0014	0.0018	0.0022
Avg.	0.2018	0.4919	5244	0.0004	0.0009	0.0012	0.0015	0.0017	0.0021
Med.	0.2018	0.4920	5244	0.0004	0.0009	0.0013	0.0015	0.0017	0.0021
ST dev.	0.0003	0.0003	5.0000	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001
Max.	0.2024	0.4925	5256	0.0006	0.0010	0.0015	0.0017	0.0020	0.0024
Min.	0.2013	0.4914	5236	0.0002	0.0006	0.0009	0.0012	0.0014	0.0019

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9.3 Test condition 3: 105 ℃，Drive Current : 700mA

Item	V_F(V)	Flux(lm)	Ra	T=105℃Luminous Maintenance (%)					
No.	0 h			1000h	2000h	3000h	4000h	5000h	6000h
C01	3.51	287.34	65.6	99.70	99.26	98.55	97.92	97.48	96.98
C02	3.55	287.36	65.3	99.71	99.31	98.54	97.97	97.48	96.98
C03	3.50	287.19	65.9	99.64	99.29	98.49	97.90	97.47	96.97
C04	3.49	287.25	65.5	99.65	99.30	98.49	97.95	97.50	97.00
C05	3.55	287.46	65.7	99.67	99.26	98.50	97.93	97.38	96.88
C06	3.54	288.04	65.9	99.71	99.28	98.46	97.99	97.42	96.92
C07	3.48	287.09	65.6	99.70	99.27	98.45	97.97	97.39	96.89
C08	3.52	287.30	66.2	99.74	99.26	98.44	97.97	97.40	96.90
C09	3.54	287.12	65.4	99.72	99.31	98.63	97.95	97.45	96.95
C10	3.51	288.84	65.4	99.74	99.27	98.46	97.91	97.43	96.93
C11	3.50	287.14	65.4	99.76	99.30	98.74	97.87	97.41	96.91
C12	3.52	287.46	65.4	99.75	99.29	98.47	97.90	97.49	96.99
C13	3.54	287.51	65.6	99.69	99.28	98.43	97.92	97.52	97.02
C14	3.56	287.26	66.0	99.77	99.26	98.50	97.90	97.41	96.91
C15	3.53	287.44	65.6	99.73	99.25	98.59	97.88	97.40	96.90
C16	3.51	287.18	65.9	99.75	99.30	98.48	97.95	97.43	96.93
C17	3.54	287.55	65.7	99.67	99.32	98.53	97.92	97.48	96.98
C18	3.57	287.18	66.1	99.76	99.25	98.49	97.93	97.43	96.93
C19	3.53	287.26	65.8	99.68	99.26	98.50	97.96	97.40	96.90
C20	3.56	287.05	66.0	99.70	99.25	98.45	97.88	97.46	96.96
C21	3.51	287.04	65.4	99.75	99.23	98.48	97.90	97.43	96.93
C22	3.51	287.01	65.3	99.68	99.30	98.50	97.91	97.46	96.96
C23	3.54	287.65	65.5	99.70	99.28	98.52	97.95	97.51	97.01
C24	3.56	287.79	65.4	99.74	99.26	98.53	97.89	97.40	96.90
C25	3.54	287.72	65.4	99.69	99.20	98.52	97.97	97.41	96.91
Avg.	3.53	287.41	65.6	99.71	99.27	98.51	97.93	97.44	96.94
Med.	3.53	287.30	65.6	99.71	99.27	98.50	97.92	97.43	96.93
ST dev.	0.0239	0.3929	0.2661	0.0361	0.0277	0.0664	0.0337	0.0408	0.0408
Max.	3.57	288.84	66.2	99.77	99.32	98.74	97.99	97.52	97.02
Min.	3.48	287.01	65.3	99.64	99.20	98.43	97.87	97.38	96.88

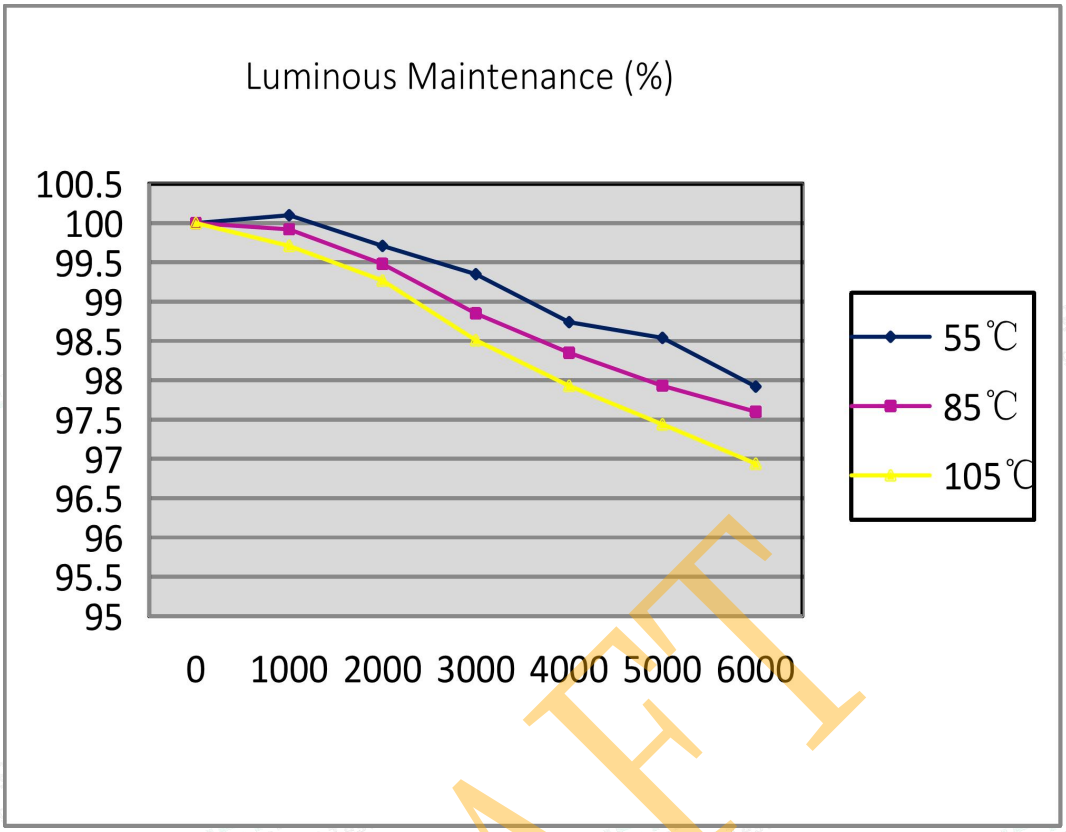
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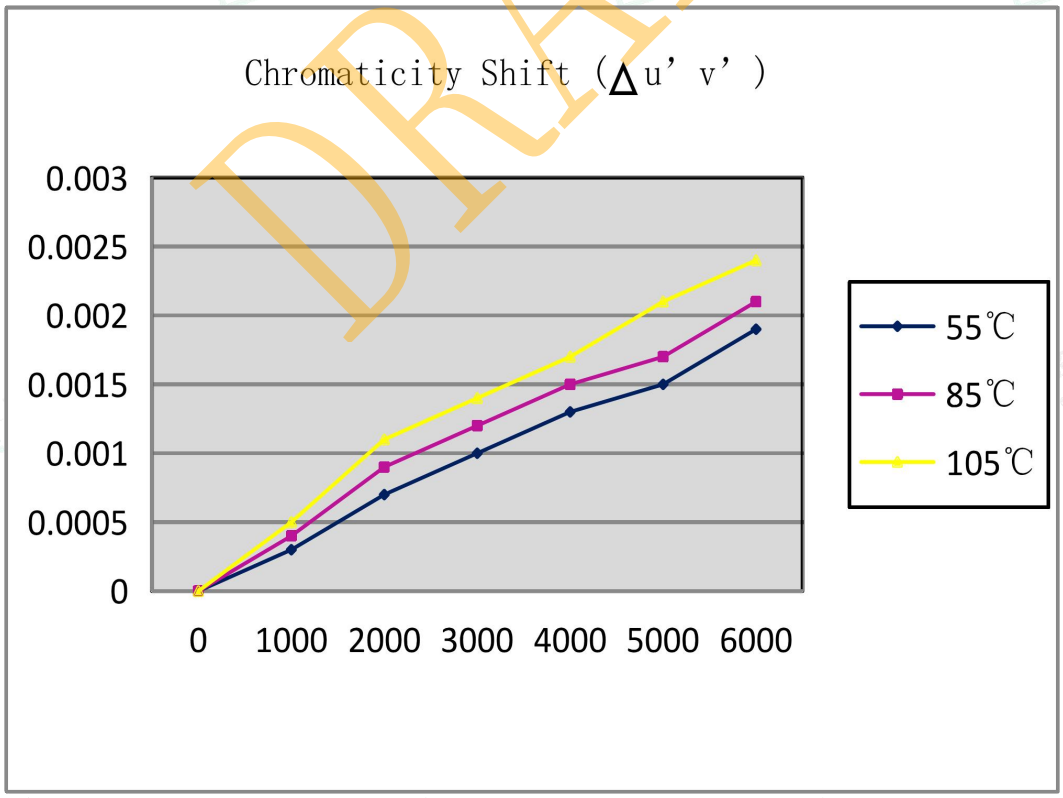
9.3.1 Test condition 3: 105 ℃，Drive Current : 700mA

No.	T=105℃Chromaticity Shift (Δu'v')								
	0 h			1000h	2000h	3000h	4000h	5000h	6000h
	u'	v'	CCT(K)						
C01	0.2022	0.4912	5257	0.0005	0.0011	0.0014	0.0018	0.0020	0.0023
C02	0.2020	0.4908	5250	0.0004	0.0012	0.0013	0.0016	0.0019	0.0024
C03	0.2014	0.4918	5239	0.0005	0.0013	0.0014	0.0016	0.0020	0.0023
C04	0.2010	0.4916	5249	0.0006	0.0013	0.0015	0.0018	0.0022	0.0027
C05	0.2022	0.4908	5233	0.0005	0.0010	0.0014	0.0016	0.0019	0.0022
C06	0.2020	0.4908	5244	0.0003	0.0010	0.0014	0.0015	0.0020	0.0023
C07	0.2024	0.4912	5246	0.0005	0.0012	0.0016	0.0018	0.0021	0.0025
C08	0.2018	0.4908	5240	0.0004	0.0011	0.0013	0.0016	0.0020	0.0023
C09	0.2012	0.4918	5241	0.0005	0.0010	0.0014	0.0019	0.0022	0.0024
C10	0.2010	0.4916	5235	0.0006	0.0013	0.0015	0.0020	0.0023	0.0025
C11	0.2010	0.4920	5248	0.0005	0.0011	0.0014	0.0016	0.0020	0.0024
C12	0.2014	0.4918	5244	0.0004	0.0010	0.0016	0.0019	0.0019	0.0023
C13	0.2010	0.4910	5246	0.0003	0.0009	0.0013	0.0016	0.0020	0.0025
C14	0.2020	0.4922	5234	0.0005	0.0010	0.0014	0.0016	0.0021	0.0023
C15	0.2018	0.4916	5245	0.0004	0.0009	0.0015	0.0018	0.0020	0.0023
C16	0.2012	0.4912	5243	0.0006	0.0013	0.0014	0.0019	0.0021	0.0027
C17	0.2024	0.4922	5241	0.0005	0.0012	0.0014	0.0016	0.0020	0.0025
C18	0.2020	0.4916	5238	0.0004	0.0011	0.0014	0.0017	0.0022	0.0027
C19	0.2014	0.4910	5245	0.0005	0.0014	0.0016	0.0019	0.0021	0.0023
C20	0.2010	0.4918	5248	0.0003	0.0009	0.0014	0.0016	0.0020	0.0024
C21	0.2020	0.4920	5235	0.0005	0.0013	0.0015	0.0018	0.0021	0.0025
C22	0.2018	0.4912	5237	0.0006	0.0012	0.0014	0.0017	0.0020	0.0026
C23	0.2022	0.4908	5247	0.0005	0.0010	0.0015	0.0018	0.0022	0.0027
C24	0.2018	0.4920	5238	0.0004	0.0011	0.0014	0.0017	0.0021	0.0025
C25	0.2014	0.4918	5243	0.0005	0.0012	0.0016	0.0019	0.0020	0.0023
Avg.	0.2017	0.4915	5243	0.0005	0.0011	0.0014	0.0017	0.0021	0.0024
Med.	0.2018	0.4916	5243	0.0005	0.0011	0.0014	0.0017	0.0020	0.0024
ST dev.	0.0005	0.0005	5.7726	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
Max.	0.2024	0.4922	5257	0.0006	0.0014	0.0016	0.0020	0.0023	0.0027
Min.	0.2010	0.4908	5233	0.0003	0.0009	0.0013	0.0015	0.0019	0.0022

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9.4 Chart





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10. Observation of failures

No optical, Electrical or mechanical failure of any LED Package was seen during the lifetime testing.

11. Photometric measurement uncertainty

2%

12. TM-21-18 report: Projecting long term lumen maintenance of LED Light Sources

Test Condition 1 - 55ºC Case Temp	
Sample size	25
Number of failures	0
DUT drive current used in the test (mA)	700
Test duration (hours)	6,000
Test duration used for projection (hour to hour)	1,000 - 6,000
Tested case temperature (ºC)	55
α	4.275E-06
B	1.006
Reported L70(6k)	>36000

Test Condition 2 - 85ºC Case Temp	
Sample size	25
Number of failures	0
DUT drive current used in the test (mA)	700
Test duration (hours)	6,000
Test duration used for projection (hour to hour)	1,000 - 6,000
Tested case temperature (ºC)	85
α	4.847E-06
B	1.004
Reported L70(6k)	>36000

Test Condition 3 - 105ºC Case Temp	
Sample size	25
Number of failures	0
DUT drive current used in the test (mA)	700
Test duration (hours)	6,000
Test duration used for projection (hour to hour)	1,000 - 6,000
Tested case temperature (ºC)	105
α	5.788E-06
B	1.003
Reported L70(6k)	>36000

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13. 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 based on the information and declaration provided by the 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 (Sept 28, 2017):

This report covers the following models:

Model Name	CRI	CCT	Series	Parallel	Power density per PCB (W/mm^2)	Average current density per LED die (mA/mm^2)	Power (W)	Distance between of dies	Current (mA)
LED-PW1A1W3-1C1BT1	65	5500K-6000K	1	1	/	/	2.5	/	700
LED-TC3A3W3-1C1BM1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP1A1W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP2A1W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP3PA1W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP4A05W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP5PA05W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP6PA05W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP7PA05W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700

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LED-CH1CA06W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-TC1TA3W3-1C1BM1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP1PA1W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP2A1W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP3A1W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP4A05W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP5A05W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP6A05W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP705W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-CH1A06W3-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-PW1A1W5-1C1BT1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-CO1A9W5-10C10BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-CO1A3W5-1C1BM1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP1A1W5-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700

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LED-SP2A1W5-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP3A1W5-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP4A05W5-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP5A05W5-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP6A05W5-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP7A05W5-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-CH1A06W5-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-PW1A1W7-1C1BT1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-CO1A9W7-10C10BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-TC1A3W7-1C1BM1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP1A1W7-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP2A1W7-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP3A1W7-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700
LED-SP4A05W7-1C1BP1	65	≥5500K-6000K	1	1	/	/	2.5	/	700

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LED-SP5A05 W7-1C1BP1	65	⩾5500K-6000K	1	1	/	/	2.5	/	700
LED-SP6A05 W7-1C1BP1	65	⩾5500K-6000K	1	1	/	/	2.5	/	700
LED-SP7A05 W7-1C1BP1	65	⩾5500K-6000K	1	1	/	/	2.5	/	700
LED-SH1A06 W7-1C1BP1	65	⩾5500K-6000K	1	1	/	/	2.5	/	700
Remark:The applicant statement:All models are just different CCT,others are same.									

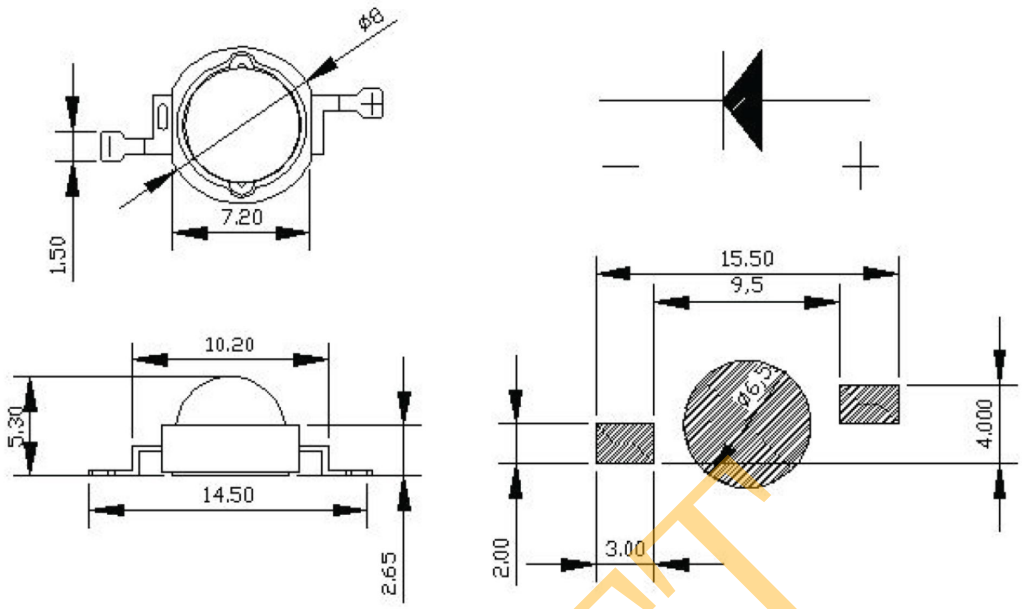
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14. ENERGY STAR® LM-80 Cover Sheet

Administrative Information	
Tested subcomponent series:	-
Tested subcomponent model number:	LED-PW1A1W3-1C1BT1
Report issue date:	December 26, 2023
Report revision date (if applicable):	-
Testing start date:	April 06, 2023
Testing completion date:	December 22, 2023
DUT sampling method:	LED samples for IESNA LM-80 testing consist of units built from a minimum of three manufacturing lots with each manufacturing lot built from different wafer lots built on non-consecutive days. These manufacturing lots are picked to represent a wide parametric distribution. Each Sample is soldered to all of the reliability stress boards for a given set of IESNA LM-80 tests.
DUT Identification	
DUT manufacturer's name:	Shenzhen Renda Optoelectronic Technology Co., Ltd
DUT identification, e.g., model number:	LED-PW1A1W3-1C1BT1
Description of DUT, including if the DUT is an LED package or module:	Beads/Light Sources/Light Emitting Diodes
DUT Characteristics	
Total input power (W):	2.5
Average current density per LED die (mA/mm2):	/
Average power density per LED die (W/mm2):	/
Representative CRI (Ra) of the tested sample set:	65
Minimum die edge to die edge spacing:	-

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15.Mechanical Dimensions



16. Photo of samples:



**********END OF THIS REPORT**********