Lumileds

IESNA LM-80 Test Report

1. Description of LED light sources tested

LUXEON 5050 with nominal CCT of 2700K (L150-2780502400000).

2a. Package Pictures

Figure 1. Picture of the LUXEON 5050.

2b. Average current extrapolations of LED light sources tested at max. current tested

200mA/mm^2

2c. Average power extrapolations of LED light sources tested at max. current tested

4.64W/mm^2

2d. Average CRI Ra of LED light sources tested at max. current tested

81.73

2e. Minumum die to die spacing of LED light sources tested

0.4mm

3a. Projected L_{70} extrapolations per IESNA TM-21-11

	If = 60mA	If = 100mA
Ts = 105°C	138,115	123,871
Ts = 85°C	155,766	147,006
Ts = 70°C	185,872	-

3b. Reported L_{70} extrapolations per IESNA TM-21-11

	If = 60mA	If = 100mA
Ts = 105°C	> 54,000	> 54,000
Ts = 85°C	> 54,000	> 54,000
Ts = 70°C	> 54,000	-

4. Applicable LUXEON® Series part number(s)

This Test Report applies to the following LUXEON part numbers*:

Product Family	Part Number	Color
LUXEON 5050	L150-26705024SCP00	white
LUXEON 5050	L150-33705024SCP00	white
LUXEON 5050	L150-40705024SCP00	white
LUXEON 5050	L150-44705024SCP00	white
LUXEON 5050	L150-3070502400000	white
LUXEON 5050	L150-4070502400000	white
LUXEON 5050	L150-5070502400000	white
LUXEON 5050	L150-5770502400000	white
LUXEON 5050	L150-2780502400000	white
LUXEON 5050	L150-3080502400000	white
LUXEON 5050	L150-4080502400000	white
LUXEON 5050	L150-5080502400000	white
LUXEON 5050	L150-2790502400000	white
LUXEON 5050	L150-3090502400000	white
LUXEON 5050	L150-4090502400000	white
LUXEON 5050	L150-27700500600000	white
LUXEON 5050	L150-3070500600000	white
LUXEON 5050	L150-4070500600000	white
LUXEON 5050	L150-5070500600000	white
LUXEON 5050	L150-5770500600000	white
LUXEON 5050	L150-6570500600000	white
LUXEON 5050	L150-2780500600000	white
LUXEON 5050	L150-3080500600000	white
LUXEON 5050	L150-3580500600000	white
LUXEON 5050	L150-4080500600000	white
LUXEON 5050	L150-5080500600000	white
LUXEON 5050	L150-6580500600000	white
LUXEON 5050	L150-2790500600000	white
LUXEON 5050	L150-3090500600000	white
LUXEON 5050	L150-3590500600000	white
LUXEON 5050	L150-4090500600000	white
LUXEON 3535L HE PLUS	L135-2770SA35000P1	white

LUXEON 3535L HE PLUS	L135-3070SA35000P1	white
LUXEON 3535L HE PLUS	L135-3570SA35000P1	white
LUXEON 3535L HE PLUS	L135-4070SA35000P1	white
LUXEON 3535L HE PLUS	L135-5070SA35000P1	white
LUXEON 3535L HE PLUS	L135-5770SA35000P1	white
LUXEON 3535L HE PLUS	L135-3570SA35000P1	white
LUXEON 3535L HE PLUS	L135-2780SA35000P1	white
LUXEON 3535L HE PLUS	L135-3080SA35000P1	white
LUXEON 3535L HE PLUS	L135-3580SA35000P1	white
LUXEON 3535L HE PLUS	L135-4080SA35000P1	white
LUXEON 3535L HE PLUS	L135-5080SA35000P1	white
LUXEON 3535L HE PLUS	L135-5780SA35000P1	white
LUXEON 3535L HE PLUS	L135-6580SA35000P1	white
LUXEON 3535L HE PLUS	L135-2790SA35000P1	white
LUXEON 3535L HE PLUS	L135-3090SA35000P1	white
LUXEON 3535L HE PLUS	L135-3590SA35000P1	white
LUXEON 3535L HE PLUS	L135-4090SA35000P1	white
LUXEON 3535L HE PLUS	L135-5090SA35000P1	white
LUXEON 3535L HE PLUS	L135-5790SA35000P1	white
LUXEON 3535L HE PLUS	L135-6590SA35000P1	white
LUXEON 3535L HE PLUS	L135-2780CA35000P1	white
LUXEON 3535L HE PLUS	L135-3080CA35000P1	white
LUXEON 3535L HE PLUS	L135-3580CA35000P1	white
LUXEON 3535L HE PLUS	L135-4080CA35000P1	white
LUXEON 3535L HE PLUS	L135-5080CA35000P1	white
LUXEON 3535L HE PLUS	L135-5780CA35000P1	white
LUXEON 3535L HE PLUS	L135-6580CA35000P1	white

Please note LUXEON 5050 6V parts have an equivalent drive current I_f' that can be determined as follows: $I_f' = I_f*4$ and voltage $V_f' = V_f/4$. Also note that LUXEON 3535L HE PLUS drive current I_f'' can be determined as follows: $I_f'' = I_f*2$ and voltage $V_f'' = V_f/8$.

5. Number of LED light sources tested

20 units.

6. Dates Tests Started

2016/12/12.

7. Date Report First Issued

2017/10/23.

8. Mechanical Drawing

For detailed mechanical drawings, please see the LUXEON 5050 datasheet.

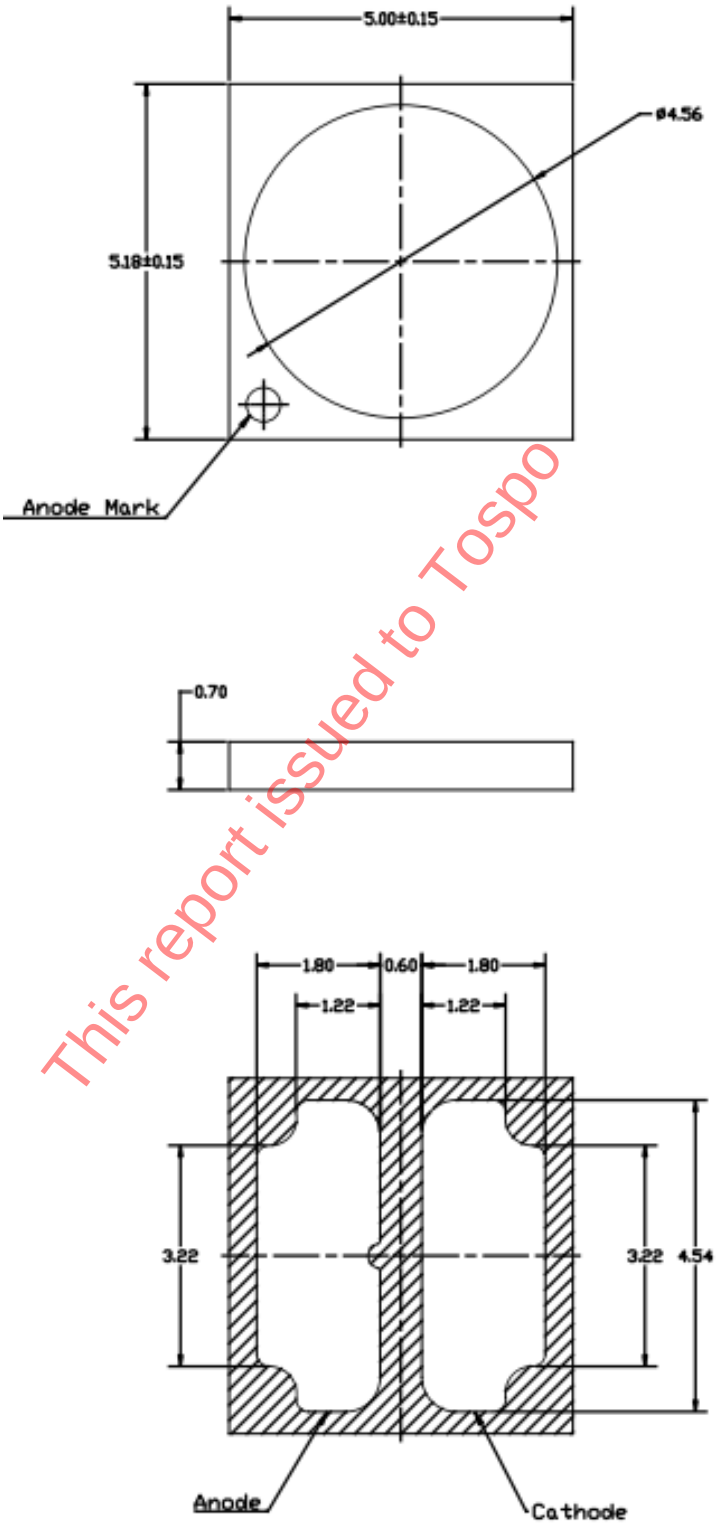


Figure 2. Mechanical drawings for the LUXEON 5050 (all dimensions in millimeters).

9. T_s Measurement Point

The circular pad in the bottom side of LUXEON 5050 corresponds to the recommended temperature measurement point T_s, see Figure 3.

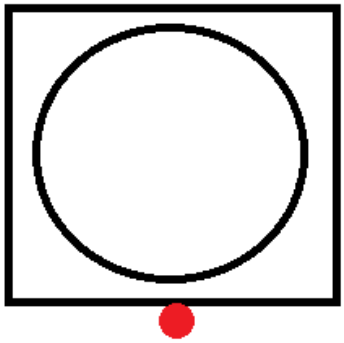


Figure 3. The recommended T_s point is located in the bottom of LUXEON 5050.

For further information on measuring the in-situ T_s, please see LUXEON 5050 Application Brief.

10. Description of auxiliary equipment

Reliability stress boards are mounted in a thermal chamber which provides liquid N2 cooling and has a controlled air temperature.

11. Operating Cycle

LUXEON 5050 LEDs are driven with a constant direct current (DC).

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

Case temperature (Ts): controlled to within -2°C

Surrounding air temperature: controlled to within -5°C of Ts

Humidity: < 65 RH, No forced air flow.

13. Case and ambient temperatures

See Section 3.

14. Drive current of the LED light source during lumen maintenance test

See tables.

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

See tables.

16. 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.

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

No failures observed.

18. LED light source monitoring interval

Units were tested at 0 and every 1000 hours thereafter.

19. Photometric measurement uncertainty

Long-term measurement uncertainty is based on reproducibility tests done over a period of one year, calculated to k = 2 coverage (i.e. 95% coverage)

Uncertainty of light output is U=1.59%. Uncertainy of correlated color temperature is U=21K.

20. Chromaticity shift reported over the measurement time

See tables.

21. Sampling Method/Sample size

Tested samples are selected to be representative of the overall LED population. LED sample size is indicated in Section 5 of this report.

22. ISO 17025-2005 Accreditation

SINGAPORE LABORATORY ACCREDITATION SCHEME

SINGAPORE ACCREDITATION COUNCIL

Number : **LA-2016-0634-E**

Date of Issue : **14 December 2016**

Date of Expiry : **13 December 2020**

Certificate of Accreditation

This certifies that

Lumileds Malaysia Sdn. Bhd.
Reliability Test Laboratory
No. 3, Lintang Bayan Lepas 8,
Phase 4, Bayan Lepas Industrial Park
11900, Penang, Malaysia

is accredited by the Singapore Accreditation Council to

ISO / IEC 17025 : 2005

for specific scope within the field of

Electrical Testing

as detailed in the attached schedule.

Chairman

This Certificate is awarded subject to the organisation's compliance with the stated criteria and terms and conditions laid down by the Singapore Accreditation Council.

This Certificate may not be reproduced except with the written permission of the Chairman.

Notes

Data is for reference only and is not an endorsement to exceed the datasheet operating conditions.

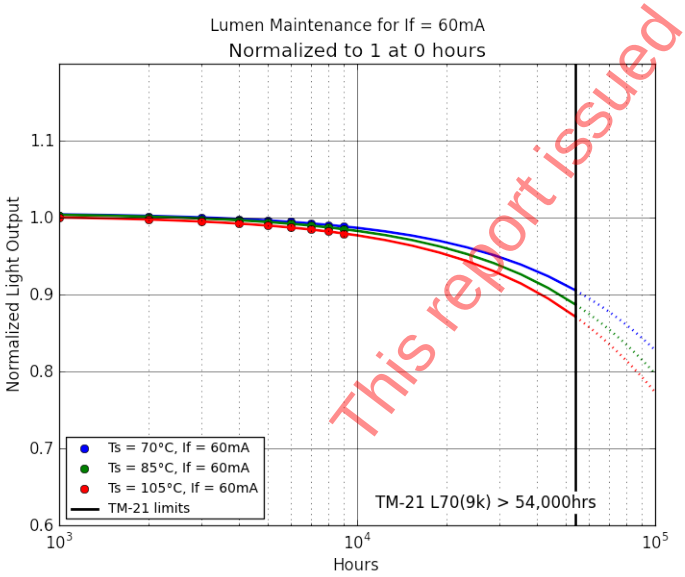
The TM-21 extrapolations are based on the IESNA TM-21-11 technical memorandum. The TM-21 lumen maintenance model is based on the flux data normalized to 1 at 0 hours and the use of an exponential model for flux (time):

Flux(time) = B exp[-alpha*time], where normally B ≅ 1, and alpha > 0.

An L70 extrapolation less than 0 means that the model predicts an increasing flux output with time, i.e. alpha < 0 (see graphs). Generally, this means that additional test time is needed to determine the long-term lumen maintenance behavior.

Normalized Flux Statistics for I_f = 60mA

		0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	alpha	B	L70
	median =	1.0000	0.9994	0.9968	0.9943	0.9922	0.9893	0.9872	0.9845	0.9819	0.9790			
Ts=Tair=105°C	average =	1.0000	0.9996	0.9969	0.9945	0.9920	0.9897	0.9873	0.9847	0.9822	0.9791	2.6015e-06	1.0026	138,115
	st dev =	0.0000	0.0013	0.0011	0.0015	0.0014	0.0015	0.0016	0.0015	0.0017	0.0019	TM-21 L70(9k) > 54,000hrs		
	min =	1.0000	0.9977	0.9954	0.9920	0.9897	0.9876	0.9843	0.9816	0.9786	0.9753			
	max =	1.0000	1.0027	0.9996	0.9977	0.9954	0.9931	0.9912	0.9878	0.9855	0.9825			
	median =	1.0000	1.0019	1.0004	0.9981	0.9962	0.9943	0.9924	0.9901	0.9875	0.9848			
Ts=Tair=85°C	average =	1.0000	1.0021	1.0001	0.9981	0.9963	0.9943	0.9922	0.9897	0.9874	0.9848	2.3274e-06	1.0059	155,766
	st dev =	0.0000	0.0005	0.0010	0.0012	0.0012	0.0010	0.0012	0.0014	0.0015	0.0019	TM-21 L70(9k) > 54,000hrs		
	min =	1.0000	1.0012	0.9985	0.9959	0.9940	0.9923	0.9902	0.9870	0.9845	0.9814			
	max =	1.0000	1.0030	1.0015	1.0007	0.9989	0.9965	0.9939	0.9923	0.9901	0.9869			
	median =	1.0000	1.0031	1.0015	0.9992	0.9985	0.9964	0.9943	0.9921	0.9904	0.9883			
Ts=Tair=70°C	average =	1.0000	1.0031	1.0014	0.9995	0.9981	0.9966	0.9945	0.9926	0.9906	0.9885	1.9520e-06	1.0062	185,872
	st dev =	0.0000	0.0004	0.0007	0.0008	0.0011	0.0011	0.0012	0.0015	0.0016	0.0019	TM-21 L70(9k) > 54,000hrs		
	min =	1.0000	1.0023	1.0004	0.9985	0.9958	0.9938	0.9931	0.9903	0.9881	0.9857			
	max =	1.0000	1.0038	1.0030	1.0011	0.9996	0.9981	0.9973	0.9957	0.9943	0.9924			

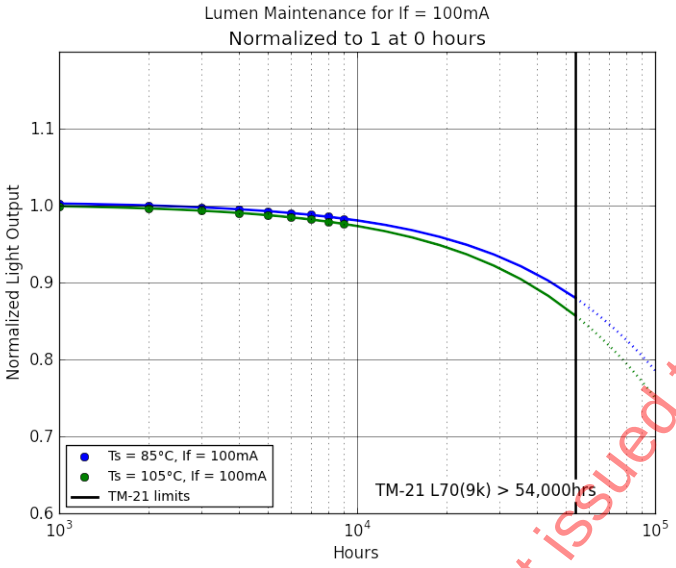


Delta u'v' for I_f = 60mA

		0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
	median =	0.0000	0.0003	0.0008	0.0011	0.0014	0.0016	0.0019	0.0022	0.0026	0.0029
Ts=Tair=105°C	average =	0.0000	0.0004	0.0008	0.0011	0.0014	0.0016	0.0019	0.0022	0.0026	0.0029
	st dev =	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001
	min =	0.0000	0.0002	0.0007	0.0010	0.0013	0.0015	0.0018	0.0021	0.0022	0.0027
	max =	0.0000	0.0005	0.0010	0.0013	0.0015	0.0017	0.0021	0.0023	0.0029	0.0033
	median =	0.0000	0.0003	0.0007	0.0009	0.0011	0.0014	0.0017	0.0021	0.0024	0.0026
Ts=Tair=85°C	average =	0.0000	0.0003	0.0007	0.0009	0.0011	0.0014	0.0017	0.0020	0.0024	0.0026
	st dev =	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002
	min =	0.0000	0.0001	0.0006	0.0008	0.0010	0.0013	0.0015	0.0018	0.0020	0.0023
	max =	0.0000	0.0005	0.0009	0.0010	0.0013	0.0015	0.0018	0.0022	0.0027	0.0030
	median =	0.0000	0.0002	0.0005	0.0007	0.0009	0.0011	0.0014	0.0018	0.0020	0.0023
Ts=Tair=70°C	average =	0.0000	0.0003	0.0005	0.0007	0.0009	0.0011	0.0014	0.0018	0.0021	0.0023
	st dev =	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002
	min =	0.0000	0.0002	0.0003	0.0005	0.0007	0.0010	0.0013	0.0016	0.0018	0.0019
	max =	0.0000	0.0004	0.0006	0.0008	0.0011	0.0013	0.0017	0.0020	0.0026	0.0027

Normalized Flux Statistics for I_f = 100mA

		0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	alpha	B	L70
	median =	1.0000	0.9988	0.9958	0.9932	0.9900	0.9877	0.9849	0.9818	0.9790	0.9755			
Ts=Tair=105°C	average =	1.0000	0.9986	0.9960	0.9933	0.9902	0.9876	0.9851	0.9823	0.9792	0.9758	2.8959e-06	1.0020	123,871
	st dev =	0.0000	0.0008	0.0009	0.0011	0.0015	0.0015	0.0016	0.0018	0.0020	0.0024	TM-21 L70(9k) > 54,000hrs		
	min =	1.0000	0.9973	0.9946	0.9911	0.9881	0.9856	0.9830	0.9799	0.9756	0.9715			
	max =	1.0000	1.0005	0.9983	0.9962	0.9943	0.9917	0.9888	0.9851	0.9824	0.9798			
	median =	1.0000	1.0022	0.9999	0.9970	0.9948	0.9929	0.9902	0.9883	0.9854	0.9825			
Ts=Tair=85°C	average =	1.0000	1.0021	0.9999	0.9975	0.9951	0.9929	0.9903	0.9882	0.9857	0.9828	2.4610e-06	1.0051	147,006
	st dev =	0.0000	0.0007	0.0013	0.0012	0.0019	0.0013	0.0015	0.0017	0.0019	0.0018	TM-21 L70(9k) > 54,000hrs		
	min =	1.0000	1.0005	0.9969	0.9957	0.9916	0.9901	0.9882	0.9850	0.9827	0.9794			
	max =	1.0000	1.0031	1.0019	0.9998	0.9983	0.9952	0.9931	0.9914	0.9893	0.9857			



Delta u'v' for I_f = 100mA

		0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
	median =	0.0000	0.0001	0.0007	0.0011	0.0013	0.0016	0.0019	0.0021	0.0027	0.0030
Ts=Tair=105°C	average =	0.0000	0.0001	0.0008	0.0011	0.0013	0.0016	0.0019	0.0021	0.0027	0.0030
	st dev =	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	min =	0.0000	0.0001	0.0007	0.0009	0.0009	0.0015	0.0017	0.0020	0.0026	0.0028
	max =	0.0000	0.0003	0.0010	0.0013	0.0015	0.0018	0.0021	0.0023	0.0029	0.0032
	median =	0.0000	0.0001	0.0005	0.0008	0.0010	0.0014	0.0018	0.0022	0.0025	0.0028
Ts=Tair=85°C	average =	0.0000	0.0001	0.0005	0.0008	0.0010	0.0014	0.0018	0.0022	0.0025	0.0028
	st dev =	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	min =	0.0000	0.0001	0.0004	0.0007	0.0009	0.0012	0.0017	0.0020	0.0022	0.0026
	max =	0.0000	0.0002	0.0006	0.0009	0.0011	0.0015	0.0019	0.0024	0.0027	0.0030

Luminous Flux [lm] data for tested units

$T_s = T_{air}$ = 70°C, I_f = 60mA; $T_s \geq$ 68°C and $T_{air} \geq$ 65°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2772K	259.100	259.800	259.300	258.800	258.500	258.000	257.300	256.800	256.300	255.700
2	2748K	264.600	265.500	265.400	264.900	264.000	263.700	263.100	262.400	261.900	261.200
3	2763K	258.800	259.400	259.200	258.900	258.600	258.200	257.800	257.100	256.400	256.100
4	2776K	256.400	257.100	256.500	256.300	256.200	255.900	255.700	255.300	254.800	254.400
5	2769K	262.000	263.000	262.200	262.100	261.700	261.400	260.800	260.200	259.800	259.700
6	2760K	261.300	262.100	261.400	260.900	260.200	260.100	259.500	259.100	258.600	257.800
7	2762K	267.300	268.200	267.600	267.200	266.600	266.300	265.600	265.200	264.800	264.200
8	2769K	265.400	266.100	266.000	265.100	265.000	264.600	264.100	263.300	262.800	262.100
9	2762K	260.400	261.100	260.700	260.100	259.500	259.200	258.600	257.900	257.300	256.800
10	2783K	265.000	265.900	265.500	264.700	264.400	263.900	263.400	262.900	262.200	261.800
11	2766K	268.000	268.800	268.500	267.900	267.600	267.500	267.000	266.600	265.900	265.300
12	2769K	262.300	263.200	262.900	262.100	262.000	261.800	261.200	261.100	260.800	260.300
13	2793K	259.700	260.500	260.100	259.500	258.900	258.600	258.000	257.500	257.000	256.500
14	2738K	260.700	261.500	260.800	260.400	260.300	259.700	259.200	258.500	257.900	257.200
15	2750K	265.300	266.100	265.700	265.000	264.700	264.300	263.600	263.200	262.800	262.200
16	2762K	262.900	263.900	263.500	263.000	262.600	262.000	261.500	261.100	260.400	259.900
17	2786K	265.900	266.800	266.300	265.700	265.600	264.900	264.200	264.000	263.300	262.800
18	2760K	257.800	258.700	258.100	257.900	257.700	257.300	256.500	256.200	255.800	255.400
19	2755K	264.600	265.500	265.000	264.800	264.400	263.700	263.300	262.700	262.100	261.600
20	2749K	258.600	259.300	258.800	258.200	257.700	257.000	256.900	256.100	255.700	254.900

Normalized Luminous Flux data for tested units

$T_s = T_{air}$ = 70°C, I_f = 60mA; $T_s \geq$ 68°C and $T_{air} \geq$ 65°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2772K	1.0000	1.0027	1.0008	0.9988	0.9977	0.9958	0.9931	0.9911	0.9892	0.9869
2	2748K	1.0000	1.0034	1.0030	1.0011	0.9977	0.9966	0.9943	0.9917	0.9898	0.9872
3	2763K	1.0000	1.0023	1.0015	1.0004	0.9992	0.9977	0.9961	0.9934	0.9907	0.9896
4	2776K	1.0000	1.0027	1.0004	0.9996	0.9992	0.9980	0.9973	0.9957	0.9938	0.9922
5	2769K	1.0000	1.0038	1.0008	1.0004	0.9989	0.9977	0.9954	0.9931	0.9916	0.9912
6	2760K	1.0000	1.0031	1.0004	0.9985	0.9958	0.9954	0.9931	0.9916	0.9897	0.9866
7	2762K	1.0000	1.0034	1.0011	0.9996	0.9974	0.9963	0.9936	0.9921	0.9906	0.9884
8	2769K	1.0000	1.0026	1.0023	0.9989	0.9985	0.9970	0.9951	0.9921	0.9902	0.9876
9	2762K	1.0000	1.0027	1.0012	0.9988	0.9965	0.9954	0.9931	0.9904	0.9881	0.9862
10	2783K	1.0000	1.0034	1.0019	0.9989	0.9977	0.9958	0.9940	0.9921	0.9894	0.9879
11	2766K	1.0000	1.0030	1.0019	0.9996	0.9985	0.9981	0.9963	0.9948	0.9922	0.9899
12	2769K	1.0000	1.0034	1.0023	0.9992	0.9989	0.9981	0.9958	0.9954	0.9943	0.9924
13	2793K	1.0000	1.0031	1.0015	0.9992	0.9969	0.9958	0.9935	0.9915	0.9896	0.9877
14	2738K	1.0000	1.0031	1.0004	0.9988	0.9985	0.9962	0.9942	0.9916	0.9893	0.9866
15	2750K	1.0000	1.0030	1.0015	0.9989	0.9977	0.9962	0.9936	0.9921	0.9906	0.9883
16	2762K	1.0000	1.0038	1.0023	1.0004	0.9989	0.9966	0.9947	0.9932	0.9905	0.9886
17	2786K	1.0000	1.0034	1.0015	0.9992	0.9989	0.9962	0.9936	0.9929	0.9902	0.9883
18	2760K	1.0000	1.0035	1.0012	1.0004	0.9996	0.9981	0.9950	0.9938	0.9922	0.9907
19	2755K	1.0000	1.0034	1.0015	1.0008	0.9992	0.9966	0.9951	0.9928	0.9906	0.9887
20	2749K	1.0000	1.0027	1.0008	0.9985	0.9965	0.9938	0.9934	0.9903	0.9888	0.9857

CIE 1976 u' data for tested units
$T_s = T_{air}$ = 70°C, I_f = 60mA; $T_s \geq$ 68°C and $T_{air} \geq$ 65°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2772K	0.2594	0.2592	0.2593	0.2591	0.2592	0.2591	0.2586	0.2585	0.2579	0.2579
2	2748K	0.2604	0.2602	0.2604	0.2602	0.2603	0.2602	0.2597	0.2596	0.2595	0.2593
3	2763K	0.2599	0.2596	0.2598	0.2595	0.2597	0.2595	0.2590	0.2589	0.2582	0.2581
4	2776K	0.2586	0.2584	0.2587	0.2584	0.2585	0.2584	0.2579	0.2578	0.2576	0.2576
5	2769K	0.2596	0.2593	0.2596	0.2593	0.2593	0.2592	0.2588	0.2587	0.2583	0.2582
6	2760K	0.2600	0.2597	0.2600	0.2597	0.2598	0.2597	0.2593	0.2591	0.2587	0.2586
7	2762K	0.2598	0.2595	0.2597	0.2595	0.2596	0.2595	0.2590	0.2589	0.2584	0.2583
8	2769K	0.2594	0.2590	0.2592	0.2590	0.2591	0.2590	0.2586	0.2585	0.2580	0.2579
9	2762K	0.2598	0.2595	0.2597	0.2595	0.2595	0.2595	0.2590	0.2589	0.2582	0.2580
10	2783K	0.2590	0.2586	0.2589	0.2587	0.2587	0.2586	0.2582	0.2581	0.2577	0.2575
11	2766K	0.2598	0.2596	0.2598	0.2595	0.2596	0.2595	0.2591	0.2589	0.2587	0.2584
12	2769K	0.2597	0.2595	0.2597	0.2595	0.2595	0.2594	0.2591	0.2588	0.2585	0.2583
13	2793K	0.2588	0.2585	0.2587	0.2585	0.2585	0.2585	0.2581	0.2579	0.2577	0.2575
14	2738K	0.2608	0.2605	0.2607	0.2605	0.2606	0.2605	0.2601	0.2599	0.2593	0.2595
15	2750K	0.2603	0.2601	0.2603	0.2601	0.2602	0.2600	0.2597	0.2595	0.2593	0.2592
16	2762K	0.2600	0.2598	0.2600	0.2597	0.2598	0.2597	0.2593	0.2592	0.2588	0.2587
17	2786K	0.2589	0.2587	0.2589	0.2587	0.2588	0.2587	0.2582	0.2581	0.2577	0.2575
18	2760K	0.2599	0.2597	0.2599	0.2596	0.2597	0.2596	0.2593	0.2590	0.2586	0.2584
19	2755K	0.2603	0.2601	0.2604	0.2600	0.2601	0.2601	0.2597	0.2595	0.2589	0.2589
20	2749K	0.2604	0.2602	0.2602	0.2600	0.2600	0.2600	0.2595	0.2594	0.2592	0.2590

CIE 1976 v' data for tested units
$T_s = T_{air}$ = 70°C, I_f = 60mA; $T_s \geq$ 68°C and $T_{air} \geq$ 65°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2772K	0.5258	0.5257	0.5254	0.5253	0.5249	0.5246	0.5244	0.5241	0.5244	0.5241
2	2748K	0.5262	0.5262	0.5258	0.5256	0.5254	0.5251	0.5249	0.5246	0.5246	0.5244
3	2763K	0.5253	0.5252	0.5248	0.5246	0.5244	0.5241	0.5239	0.5236	0.5233	0.5233
4	2776K	0.5287	0.5288	0.5283	0.5281	0.5280	0.5277	0.5276	0.5272	0.5271	0.5271
5	2769K	0.5254	0.5254	0.5250	0.5248	0.5245	0.5243	0.5241	0.5238	0.5237	0.5235
6	2760K	0.5254	0.5254	0.5249	0.5248	0.5245	0.5243	0.5241	0.5238	0.5236	0.5235
7	2762K	0.5259	0.5259	0.5255	0.5253	0.5250	0.5248	0.5247	0.5244	0.5240	0.5239
8	2769K	0.5264	0.5263	0.5259	0.5258	0.5255	0.5253	0.5251	0.5249	0.5246	0.5245
9	2762K	0.5259	0.5258	0.5253	0.5253	0.5250	0.5248	0.5246	0.5242	0.5242	0.5239
10	2783K	0.5252	0.5251	0.5247	0.5246	0.5243	0.5241	0.5239	0.5236	0.5236	0.5232
11	2766K	0.5252	0.5252	0.5247	0.5246	0.5243	0.5241	0.5240	0.5236	0.5236	0.5234
12	2769K	0.5250	0.5250	0.5245	0.5244	0.5241	0.5239	0.5238	0.5234	0.5234	0.5231
13	2793K	0.5241	0.5242	0.5237	0.5236	0.5232	0.5231	0.5229	0.5226	0.5227	0.5224
14	2738K	0.5267	0.5267	0.5262	0.5261	0.5258	0.5256	0.5255	0.5252	0.5251	0.5250
15	2750K	0.5262	0.5262	0.5257	0.5257	0.5254	0.5252	0.5250	0.5248	0.5247	0.5246
16	2762K	0.5251	0.5251	0.5247	0.5246	0.5243	0.5241	0.5239	0.5236	0.5236	0.5234
17	2786K	0.5250	0.5250	0.5246	0.5244	0.5242	0.5239	0.5238	0.5235	0.5235	0.5232
18	2760K	0.5259	0.5259	0.5255	0.5253	0.5250	0.5248	0.5247	0.5244	0.5244	0.5241
19	2755K	0.5252	0.5253	0.5249	0.5247	0.5244	0.5242	0.5241	0.5238	0.5237	0.5234
20	2749K	0.5260	0.5260	0.5255	0.5254	0.5250	0.5248	0.5248	0.5244	0.5244	0.5241

Delta u'v' data for tested units

$T_s = T_{air}$ = 70°C, I_f = 60mA; $T_s \geq$ 68°C and $T_{air} \geq$ 65°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2772K	0.0000	0.0002	0.0004	0.0006	0.0009	0.0012	0.0016	0.0019	0.0021	0.0023
2	2748K	0.0000	0.0002	0.0004	0.0006	0.0008	0.0011	0.0015	0.0018	0.0018	0.0021
3	2763K	0.0000	0.0003	0.0005	0.0008	0.0009	0.0013	0.0017	0.0020	0.0026	0.0027
4	2776K	0.0000	0.0002	0.0004	0.0006	0.0007	0.0010	0.0013	0.0017	0.0019	0.0019
5	2769K	0.0000	0.0003	0.0004	0.0007	0.0009	0.0012	0.0015	0.0018	0.0021	0.0024
6	2760K	0.0000	0.0003	0.0005	0.0007	0.0009	0.0011	0.0015	0.0018	0.0022	0.0024
7	2762K	0.0000	0.0003	0.0004	0.0007	0.0009	0.0011	0.0014	0.0017	0.0024	0.0025
8	2769K	0.0000	0.0004	0.0005	0.0007	0.0009	0.0012	0.0015	0.0017	0.0023	0.0024
9	2762K	0.0000	0.0003	0.0006	0.0007	0.0009	0.0011	0.0015	0.0019	0.0023	0.0027
10	2783K	0.0000	0.0004	0.0005	0.0007	0.0009	0.0012	0.0015	0.0018	0.0021	0.0025
11	2766K	0.0000	0.0002	0.0005	0.0007	0.0009	0.0011	0.0014	0.0018	0.0019	0.0023
12	2769K	0.0000	0.0002	0.0005	0.0006	0.0009	0.0011	0.0013	0.0018	0.0020	0.0024
13	2793K	0.0000	0.0003	0.0004	0.0006	0.0009	0.0010	0.0014	0.0017	0.0018	0.0021
14	2738K	0.0000	0.0003	0.0005	0.0007	0.0009	0.0011	0.0014	0.0017	0.0022	0.0021
15	2750K	0.0000	0.0002	0.0005	0.0005	0.0008	0.0010	0.0013	0.0016	0.0018	0.0019
16	2762K	0.0000	0.0002	0.0004	0.0006	0.0008	0.0010	0.0014	0.0017	0.0019	0.0021
17	2786K	0.0000	0.0002	0.0004	0.0006	0.0008	0.0011	0.0014	0.0017	0.0019	0.0023
18	2760K	0.0000	0.0002	0.0004	0.0007	0.0009	0.0011	0.0013	0.0017	0.0020	0.0023
19	2755K	0.0000	0.0002	0.0003	0.0006	0.0008	0.0010	0.0013	0.0016	0.0021	0.0023
20	2749K	0.0000	0.0002	0.0005	0.0007	0.0011	0.0013	0.0015	0.0019	0.0020	0.0024

Forward Voltage [V] data for tested units

$T_s = T_{air}$ = 70°C, I_f = 60mA; $T_s \geq$ 68°C and $T_{air} \geq$ 65°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2772K	22.430	22.460	22.420	22.420	22.420	22.440	22.430	22.440	22.440	22.440
2	2748K	22.390	22.420	22.380	22.380	22.380	22.400	22.390	22.400	22.420	22.410
3	2763K	22.370	22.410	22.360	22.360	22.360	22.370	22.370	22.380	22.380	22.380
4	2776K	22.450	22.480	22.430	22.440	22.440	22.450	22.450	22.460	22.460	22.450
5	2769K	22.420	22.450	22.400	22.410	22.410	22.420	22.410	22.420	22.420	22.420
6	2760K	22.390	22.420	22.380	22.380	22.380	22.390	22.390	22.400	22.410	22.410
7	2762K	22.320	22.360	22.310	22.320	22.320	22.330	22.320	22.340	22.340	22.330
8	2769K	22.490	22.530	22.480	22.490	22.490	22.500	22.490	22.500	22.510	22.500
9	2762K	22.370	22.410	22.370	22.370	22.370	22.380	22.380	22.390	22.400	22.390
10	2783K	22.470	22.500	22.460	22.470	22.470	22.470	22.470	22.490	22.490	22.480
11	2766K	22.670	22.720	22.660	22.670	22.660	22.670	22.670	22.680	22.690	22.680
12	2769K	22.440	22.480	22.430	22.430	22.430	22.440	22.440	22.450	22.480	22.470
13	2793K	22.260	22.300	22.260	22.260	22.260	22.270	22.260	22.280	22.280	22.270
14	2738K	22.480	22.520	22.470	22.480	22.480	22.490	22.480	22.500	22.500	22.500
15	2750K	22.350	22.380	22.340	22.340	22.340	22.350	22.350	22.360	22.360	22.360
16	2762K	22.400	22.440	22.400	22.400	22.400	22.410	22.400	22.420	22.430	22.420
17	2786K	22.370	22.410	22.370	22.370	22.370	22.380	22.370	22.390	22.390	22.390
18	2760K	22.350	22.390	22.350	22.350	22.340	22.360	22.350	22.370	22.370	22.360
19	2755K	22.380	22.430	22.380	22.380	22.370	22.390	22.390	22.400	22.400	22.390
20	2749K	22.290	22.330	22.290	22.290	22.280	22.290	22.300	22.310	22.290	22.280

Luminous Flux [lm] data for tested units

$T_s = T_{air}$ = 85°C, I_f = 60mA; $T_s \geq$ 83°C and $T_{air} \geq$ 80°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2786K	263.900	264.600	264.200	263.800	263.400	262.800	262.300	261.700	261.300	260.700
2	2775K	263.000	263.800	263.100	262.800	262.700	261.700	260.900	260.700	260.000	259.700
3	2741K	269.200	269.600	269.300	268.600	267.900	267.300	266.800	266.100	265.500	264.500
4	2778K	262.900	263.400	263.000	262.300	262.000	261.300	261.100	259.900	259.200	258.500
5	2756K	264.500	265.000	264.400	264.000	263.600	263.300	262.700	261.700	261.200	260.400
6	2774K	268.300	268.700	268.000	267.500	267.000	266.700	265.800	265.000	264.300	263.700
7	2741K	266.000	266.500	265.600	264.900	264.400	264.200	263.400	262.800	262.400	261.500
8	2768K	260.500	261.000	260.400	259.900	259.500	259.100	258.300	257.800	257.100	256.200
9	2753K	264.200	265.000	263.800	263.300	262.900	262.700	262.200	261.600	260.900	259.800
10	2748K	261.800	262.400	262.100	261.500	260.700	260.400	259.800	259.200	258.700	258.000
11	2762K	268.500	269.200	268.900	268.700	267.700	267.200	266.800	266.000	265.200	264.600
12	2771K	259.800	260.300	259.500	259.200	258.800	258.300	258.000	257.300	257.000	256.200
13	2767K	254.500	254.800	254.300	254.100	253.400	252.700	252.000	251.200	250.700	250.300
14	2756K	258.400	258.800	258.200	257.500	257.100	256.400	255.900	255.200	254.400	253.600
15	2771K	263.000	263.500	263.200	262.500	262.100	261.600	261.000	260.600	259.600	259.200
16	2738K	264.000	264.400	264.300	263.900	263.200	262.600	262.000	261.500	260.800	260.100
17	2764K	260.200	260.600	260.000	259.400	259.000	258.500	258.100	257.700	256.800	256.100
18	2751K	260.800	261.400	261.100	260.300	259.900	259.300	258.900	258.100	257.800	257.200
19	2754K	260.600	261.300	261.000	260.400	260.100	259.700	259.000	258.600	258.000	257.700
20	2771K	262.000	262.600	262.100	261.600	261.000	260.500	260.000	259.400	258.800	258.100

Normalized Luminous Flux data for tested units

$T_s = T_{air}$ = 85°C, I_f = 60mA; $T_s \geq$ 83°C and $T_{air} \geq$ 80°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2786K	1.0000	1.0027	1.0011	0.9996	0.9981	0.9958	0.9939	0.9917	0.9901	0.9879
2	2775K	1.0000	1.0030	1.0004	0.9992	0.9989	0.9951	0.9920	0.9913	0.9886	0.9875
3	2741K	1.0000	1.0015	1.0004	0.9978	0.9952	0.9929	0.9911	0.9885	0.9863	0.9825
4	2778K	1.0000	1.0019	1.0004	0.9977	0.9966	0.9939	0.9932	0.9886	0.9859	0.9833
5	2756K	1.0000	1.0019	0.9996	0.9981	0.9966	0.9955	0.9932	0.9894	0.9875	0.9845
6	2774K	1.0000	1.0015	0.9989	0.9970	0.9952	0.9940	0.9907	0.9877	0.9851	0.9829
7	2741K	1.0000	1.0019	0.9985	0.9959	0.9940	0.9932	0.9902	0.9880	0.9865	0.9831
8	2768K	1.0000	1.0019	0.9996	0.9977	0.9962	0.9946	0.9916	0.9896	0.9869	0.9835
9	2753K	1.0000	1.0030	0.9985	0.9966	0.9951	0.9943	0.9924	0.9902	0.9875	0.9833
10	2748K	1.0000	1.0023	1.0011	0.9989	0.9958	0.9947	0.9924	0.9901	0.9882	0.9855
11	2762K	1.0000	1.0026	1.0015	1.0007	0.9970	0.9952	0.9937	0.9907	0.9877	0.9855
12	2771K	1.0000	1.0019	0.9988	0.9977	0.9962	0.9942	0.9931	0.9904	0.9892	0.9861
13	2767K	1.0000	1.0012	0.9992	0.9984	0.9957	0.9929	0.9902	0.9870	0.9851	0.9835
14	2756K	1.0000	1.0015	0.9992	0.9965	0.9950	0.9923	0.9903	0.9876	0.9845	0.9814
15	2771K	1.0000	1.0019	1.0008	0.9981	0.9966	0.9947	0.9924	0.9909	0.9871	0.9856
16	2738K	1.0000	1.0015	1.0011	0.9996	0.9970	0.9947	0.9924	0.9905	0.9879	0.9852
17	2764K	1.0000	1.0015	0.9992	0.9969	0.9954	0.9935	0.9919	0.9904	0.9869	0.9842
18	2751K	1.0000	1.0023	1.0012	0.9981	0.9965	0.9942	0.9927	0.9896	0.9885	0.9862
19	2754K	1.0000	1.0027	1.0015	0.9992	0.9981	0.9965	0.9939	0.9923	0.9900	0.9889
20	2771K	1.0000	1.0023	1.0004	0.9985	0.9962	0.9943	0.9924	0.9901	0.9878	0.9851

CIE 1976 u' data for tested units
$T_s = T_{air} = 85°C$, $I_f = 60mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2786K	0.2590	0.2587	0.2589	0.2587	0.2587	0.2586	0.2582	0.2581	0.2575	0.2574
2	2775K	0.2592	0.2590	0.2590	0.2589	0.2589	0.2588	0.2584	0.2581	0.2578	0.2577
3	2741K	0.2606	0.2604	0.2605	0.2603	0.2603	0.2602	0.2598	0.2598	0.2592	0.2591
4	2778K	0.2591	0.2588	0.2589	0.2587	0.2588	0.2587	0.2583	0.2581	0.2578	0.2576
5	2756K	0.2602	0.2599	0.2601	0.2599	0.2600	0.2598	0.2595	0.2593	0.2589	0.2588
6	2774K	0.2595	0.2591	0.2593	0.2591	0.2591	0.2590	0.2587	0.2585	0.2580	0.2578
7	2741K	0.2608	0.2605	0.2606	0.2604	0.2605	0.2603	0.2599	0.2597	0.2592	0.2591
8	2768K	0.2597	0.2593	0.2594	0.2592	0.2593	0.2592	0.2588	0.2586	0.2581	0.2580
9	2753K	0.2601	0.2602	0.2600	0.2597	0.2598	0.2597	0.2593	0.2591	0.2586	0.2585
10	2748K	0.2607	0.2603	0.2605	0.2603	0.2604	0.2602	0.2598	0.2596	0.2589	0.2588
11	2762K	0.2598	0.2595	0.2597	0.2594	0.2595	0.2594	0.2590	0.2588	0.2581	0.2580
12	2771K	0.2593	0.2589	0.2591	0.2589	0.2589	0.2588	0.2585	0.2583	0.2579	0.2578
13	2767K	0.2590	0.2588	0.2590	0.2588	0.2588	0.2587	0.2583	0.2581	0.2579	0.2577
14	2756K	0.2602	0.2597	0.2598	0.2597	0.2597	0.2596	0.2592	0.2591	0.2588	0.2586
15	2771K	0.2596	0.2593	0.2593	0.2592	0.2592	0.2591	0.2587	0.2585	0.2582	0.2580
16	2738K	0.2610	0.2607	0.2609	0.2606	0.2606	0.2606	0.2602	0.2600	0.2596	0.2594
17	2764K	0.2597	0.2594	0.2595	0.2593	0.2594	0.2593	0.2589	0.2587	0.2580	0.2578
18	2751K	0.2606	0.2603	0.2605	0.2603	0.2604	0.2602	0.2599	0.2597	0.2592	0.2590
19	2754K	0.2604	0.2602	0.2603	0.2601	0.2601	0.2600	0.2596	0.2594	0.2586	0.2584
20	2771K	0.2598	0.2595	0.2596	0.2594	0.2595	0.2594	0.2590	0.2588	0.2584	0.2582

CIE 1976 v' data for tested units
$T_s = T_{air} = 85°C$, $I_f = 60mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2786K	0.5245	0.5245	0.5238	0.5238	0.5235	0.5232	0.5232	0.5229	0.5228	0.5225
2	2775K	0.5259	0.5260	0.5252	0.5252	0.5249	0.5246	0.5246	0.5242	0.5243	0.5240
3	2741K	0.5270	0.5270	0.5263	0.5262	0.5259	0.5257	0.5256	0.5254	0.5252	0.5251
4	2778K	0.5258	0.5258	0.5251	0.5250	0.5247	0.5245	0.5245	0.5240	0.5241	0.5238
5	2756K	0.5255	0.5255	0.5248	0.5247	0.5245	0.5242	0.5241	0.5238	0.5237	0.5235
6	2774K	0.5247	0.5247	0.5240	0.5239	0.5236	0.5234	0.5233	0.5229	0.5229	0.5226
7	2741K	0.5259	0.5259	0.5252	0.5251	0.5248	0.5246	0.5245	0.5241	0.5241	0.5239
8	2768K	0.5251	0.5251	0.5243	0.5242	0.5239	0.5237	0.5236	0.5233	0.5232	0.5230
9	2753K	0.5265	0.5266	0.5258	0.5257	0.5254	0.5252	0.5251	0.5247	0.5246	0.5244
10	2748K	0.5249	0.5250	0.5242	0.5241	0.5239	0.5236	0.5235	0.5232	0.5231	0.5228
11	2762K	0.5260	0.5259	0.5252	0.5251	0.5249	0.5246	0.5245	0.5242	0.5240	0.5238
12	2771K	0.5265	0.5265	0.5258	0.5256	0.5254	0.5251	0.5250	0.5247	0.5247	0.5245
13	2767K	0.5288	0.5288	0.5281	0.5280	0.5277	0.5275	0.5274	0.5272	0.5271	0.5269
14	2756K	0.5255	0.5254	0.5247	0.5246	0.5243	0.5241	0.5240	0.5237	0.5236	0.5233
15	2771K	0.5249	0.5248	0.5241	0.5240	0.5238	0.5235	0.5234	0.5230	0.5229	0.5227
16	2738K	0.5257	0.5256	0.5250	0.5248	0.5245	0.5243	0.5241	0.5238	0.5238	0.5236
17	2764K	0.5261	0.5260	0.5255	0.5253	0.5250	0.5247	0.5246	0.5243	0.5241	0.5239
18	2751K	0.5245	0.5245	0.5239	0.5236	0.5234	0.5231	0.5230	0.5227	0.5227	0.5224
19	2754K	0.5249	0.5248	0.5243	0.5239	0.5237	0.5235	0.5234	0.5230	0.5229	0.5227
20	2771K	0.5240	0.5239	0.5234	0.5232	0.5229	0.5226	0.5226	0.5222	0.5222	0.5220

Delta u'v' data for tested units

$T_s = T_{air}$ = 85°C, I_f = 60mA; $T_s \geq$ 83°C and $T_{air} \geq$ 80°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2786K	0.0000	0.0003	0.0007	0.0008	0.0010	0.0014	0.0015	0.0018	0.0023	0.0026
2	2775K	0.0000	0.0002	0.0007	0.0008	0.0010	0.0014	0.0015	0.0020	0.0021	0.0024
3	2741K	0.0000	0.0002	0.0007	0.0009	0.0011	0.0014	0.0016	0.0018	0.0023	0.0024
4	2778K	0.0000	0.0003	0.0007	0.0009	0.0011	0.0014	0.0015	0.0021	0.0021	0.0025
5	2756K	0.0000	0.0003	0.0007	0.0009	0.0010	0.0014	0.0016	0.0019	0.0022	0.0024
6	2774K	0.0000	0.0004	0.0007	0.0009	0.0012	0.0014	0.0016	0.0021	0.0023	0.0027
7	2741K	0.0000	0.0003	0.0007	0.0009	0.0011	0.0014	0.0017	0.0021	0.0024	0.0026
8	2768K	0.0000	0.0004	0.0009	0.0010	0.0013	0.0015	0.0017	0.0021	0.0025	0.0027
9	2753K	0.0000	0.0001	0.0007	0.0009	0.0011	0.0014	0.0016	0.0021	0.0024	0.0026
10	2748K	0.0000	0.0004	0.0007	0.0009	0.0010	0.0014	0.0017	0.0020	0.0025	0.0028
11	2762K	0.0000	0.0003	0.0008	0.0010	0.0011	0.0015	0.0017	0.0021	0.0026	0.0028
12	2771K	0.0000	0.0004	0.0007	0.0010	0.0012	0.0015	0.0017	0.0021	0.0023	0.0025
13	2767K	0.0000	0.0002	0.0007	0.0008	0.0011	0.0013	0.0016	0.0018	0.0020	0.0023
14	2756K	0.0000	0.0005	0.0009	0.0010	0.0013	0.0015	0.0018	0.0021	0.0024	0.0027
15	2771K	0.0000	0.0003	0.0009	0.0010	0.0012	0.0015	0.0017	0.0022	0.0024	0.0027
16	2738K	0.0000	0.0003	0.0007	0.0010	0.0013	0.0015	0.0018	0.0021	0.0024	0.0026
17	2764K	0.0000	0.0003	0.0006	0.0009	0.0011	0.0015	0.0017	0.0021	0.0026	0.0029
18	2751K	0.0000	0.0003	0.0006	0.0009	0.0011	0.0015	0.0017	0.0020	0.0023	0.0026
19	2754K	0.0000	0.0002	0.0006	0.0010	0.0012	0.0015	0.0017	0.0021	0.0027	0.0030
20	2771K	0.0000	0.0003	0.0006	0.0009	0.0011	0.0015	0.0016	0.0021	0.0023	0.0026

Forward Voltage [V] data for tested units

$T_s = T_{air}$ = 85°C, I_f = 60mA; $T_s \geq$ 83°C and $T_{air} \geq$ 80°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2786K	22.370	22.400	22.370	22.370	22.360	22.380	22.380	22.390	22.390	22.390
2	2775K	22.300	22.340	22.300	22.300	22.300	22.310	22.310	22.320	22.330	22.320
3	2741K	22.520	22.560	22.520	22.530	22.520	22.530	22.530	22.540	22.550	22.540
4	2778K	22.290	22.330	22.290	22.290	22.290	22.300	22.310	22.320	22.320	22.310
5	2756K	22.550	22.600	22.550	22.550	22.550	22.560	22.570	22.580	22.590	22.580
6	2774K	22.320	22.360	22.320	22.330	22.320	22.340	22.340	22.350	22.360	22.350
7	2741K	22.380	22.410	22.370	22.380	22.370	22.380	22.390	22.400	22.410	22.400
8	2768K	22.270	22.310	22.270	22.290	22.270	22.280	22.290	22.290	22.290	22.280
9	2753K	22.340	22.390	22.340	22.340	22.330	22.350	22.350	22.360	22.340	22.330
10	2748K	22.330	22.360	22.320	22.340	22.320	22.330	22.340	22.340	22.370	22.350
11	2762K	22.430	22.470	22.420	22.440	22.420	22.430	22.440	22.450	22.470	22.460
12	2771K	22.360	22.400	22.350	22.360	22.350	22.370	22.370	22.380	22.360	22.350
13	2767K	22.430	22.460	22.420	22.430	22.420	22.440	22.440	22.450	22.450	22.440
14	2756K	22.390	22.410	22.380	22.380	22.380	22.390	22.390	22.410	22.410	22.400
15	2771K	22.380	22.410	22.370	22.380	22.380	22.380	22.380	22.400	22.410	22.400
16	2738K	22.410	22.430	22.400	22.400	22.400	22.410	22.410	22.420	22.420	22.420
17	2764K	22.400	22.420	22.390	22.390	22.390	22.400	22.400	22.410	22.430	22.420
18	2751K	22.290	22.320	22.280	22.280	22.280	22.290	22.290	22.300	22.310	22.290
19	2754K	22.330	22.360	22.320	22.320	22.320	22.330	22.330	22.340	22.350	22.340
20	2771K	22.580	22.620	22.570	22.570	22.570	22.580	22.590	22.600	22.610	22.590

Luminous Flux [lm] data for tested units

$T_s = T_{air}$ = 105°C, I_f = 60mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2765K	262.500	262.600	262.200	261.900	261.000	260.500	260.200	259.300	258.700	257.900
2	2767K	267.100	266.900	266.200	265.600	265.100	264.900	264.100	263.500	262.900	262.100
3	2777K	257.400	257.100	256.300	255.600	255.000	254.400	253.700	253.000	252.300	251.300
4	2757K	262.000	261.700	260.800	259.900	259.300	258.800	258.400	257.900	257.300	256.400
5	2736K	261.300	261.200	260.400	259.600	258.700	258.400	257.700	257.300	256.800	256.000
6	2739K	259.400	259.200	258.600	258.100	257.400	256.500	255.800	255.100	254.500	253.700
7	2795K	259.100	258.800	258.100	257.400	257.000	256.400	256.000	255.000	254.100	253.200
8	2766K	262.200	261.600	261.100	260.600	259.700	259.200	259.000	258.200	257.900	256.900
9	2769K	259.600	259.100	258.800	258.100	257.200	256.900	256.100	255.400	254.600	253.900
10	2745K	266.900	266.300	265.800	264.800	264.500	263.600	262.700	262.000	261.200	260.300
11	2745K	262.900	262.400	261.700	261.300	260.800	260.100	259.200	258.600	258.100	257.500
12	2744K	259.500	259.300	258.800	258.500	257.500	256.600	255.900	255.100	254.500	253.800
13	2749K	268.100	268.200	267.200	266.700	266.100	265.200	264.800	264.000	263.200	262.400
14	2764K	261.900	262.000	261.200	260.500	259.600	259.100	258.500	257.800	257.000	255.900
15	2754K	264.200	264.300	263.500	262.400	261.900	261.500	260.800	260.200	259.100	258.500
16	2770K	266.000	266.100	265.600	264.800	264.300	263.400	262.600	261.700	261.300	260.500
17	2762K	260.800	261.500	260.700	260.100	259.600	259.000	258.100	257.400	256.700	255.800
18	2760K	262.300	262.600	261.700	261.100	260.400	260.100	259.400	258.600	258.100	257.600
19	2751K	261.300	261.200	260.400	259.800	259.300	258.700	258.300	257.800	257.200	256.200
20	2785K	254.400	254.600	253.800	253.100	252.600	251.600	251.300	250.700	250.000	249.500

Normalized Luminous Flux data for tested units

$T_s = T_{air}$ = 105°C, I_f = 60mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2765K	1.0000	1.0004	0.9989	0.9977	0.9943	0.9924	0.9912	0.9878	0.9855	0.9825
2	2767K	1.0000	0.9993	0.9966	0.9944	0.9925	0.9918	0.9888	0.9865	0.9843	0.9813
3	2777K	1.0000	0.9988	0.9957	0.9930	0.9907	0.9883	0.9856	0.9829	0.9802	0.9763
4	2757K	1.0000	0.9989	0.9954	0.9920	0.9897	0.9878	0.9863	0.9844	0.9821	0.9786
5	2736K	1.0000	0.9996	0.9966	0.9935	0.9900	0.9889	0.9862	0.9847	0.9828	0.9797
6	2739K	1.0000	0.9992	0.9969	0.9950	0.9923	0.9888	0.9861	0.9834	0.9811	0.9780
7	2795K	1.0000	0.9988	0.9961	0.9934	0.9919	0.9896	0.9880	0.9842	0.9807	0.9772
8	2766K	1.0000	0.9977	0.9958	0.9939	0.9905	0.9886	0.9878	0.9847	0.9836	0.9798
9	2769K	1.0000	0.9981	0.9969	0.9942	0.9908	0.9896	0.9865	0.9838	0.9807	0.9780
10	2745K	1.0000	0.9978	0.9959	0.9921	0.9910	0.9876	0.9843	0.9816	0.9786	0.9753
11	2745K	1.0000	0.9981	0.9954	0.9939	0.9920	0.9893	0.9859	0.9836	0.9817	0.9795
12	2744K	1.0000	0.9992	0.9973	0.9961	0.9923	0.9888	0.9861	0.9830	0.9807	0.9780
13	2749K	1.0000	1.0004	0.9966	0.9948	0.9925	0.9892	0.9877	0.9847	0.9817	0.9787
14	2764K	1.0000	1.0004	0.9973	0.9947	0.9912	0.9893	0.9870	0.9843	0.9813	0.9771
15	2754K	1.0000	1.0004	0.9974	0.9932	0.9913	0.9898	0.9871	0.9849	0.9807	0.9784
16	2770K	1.0000	1.0004	0.9985	0.9955	0.9936	0.9902	0.9872	0.9838	0.9823	0.9793
17	2762K	1.0000	1.0027	0.9996	0.9973	0.9954	0.9931	0.9896	0.9870	0.9843	0.9808
18	2760K	1.0000	1.0011	0.9977	0.9954	0.9928	0.9916	0.9889	0.9859	0.9840	0.9821
19	2751K	1.0000	0.9996	0.9966	0.9943	0.9923	0.9900	0.9885	0.9866	0.9843	0.9805
20	2785K	1.0000	1.0008	0.9976	0.9949	0.9929	0.9890	0.9878	0.9855	0.9827	0.9807

CIE 1976 u' data for tested units
$T_s = T_{air}$ = 105°C, I_f = 60mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2765K	0.2598	0.2595	0.2595	0.2592	0.2593	0.2593	0.2587	0.2587	0.2581	0.2580
2	2767K	0.2595	0.2592	0.2593	0.2591	0.2591	0.2590	0.2585	0.2584	0.2577	0.2576
3	2777K	0.2594	0.2591	0.2591	0.2589	0.2590	0.2589	0.2582	0.2583	0.2579	0.2576
4	2757K	0.2601	0.2599	0.2599	0.2597	0.2597	0.2596	0.2591	0.2590	0.2584	0.2583
5	2736K	0.2609	0.2606	0.2607	0.2605	0.2605	0.2605	0.2599	0.2599	0.2591	0.2590
6	2739K	0.2609	0.2606	0.2606	0.2604	0.2604	0.2603	0.2597	0.2598	0.2592	0.2590
7	2795K	0.2585	0.2582	0.2583	0.2581	0.2582	0.2580	0.2574	0.2575	0.2569	0.2567
8	2766K	0.2600	0.2597	0.2597	0.2595	0.2596	0.2595	0.2589	0.2590	0.2583	0.2581
9	2769K	0.2593	0.2590	0.2590	0.2587	0.2588	0.2587	0.2581	0.2582	0.2579	0.2575
10	2745K	0.2605	0.2602	0.2603	0.2600	0.2601	0.2600	0.2594	0.2594	0.2589	0.2586
11	2745K	0.2605	0.2601	0.2602	0.2600	0.2601	0.2600	0.2594	0.2594	0.2589	0.2589
12	2744K	0.2606	0.2601	0.2603	0.2601	0.2602	0.2601	0.2595	0.2595	0.2593	0.2587
13	2749K	0.2603	0.2600	0.2600	0.2599	0.2599	0.2598	0.2592	0.2592	0.2587	0.2584
14	2764K	0.2598	0.2593	0.2595	0.2593	0.2593	0.2592	0.2587	0.2587	0.2580	0.2576
15	2754K	0.2603	0.2599	0.2600	0.2598	0.2599	0.2598	0.2592	0.2593	0.2587	0.2583
16	2770K	0.2595	0.2592	0.2592	0.2590	0.2591	0.2590	0.2585	0.2585	0.2582	0.2579
17	2762K	0.2600	0.2596	0.2598	0.2595	0.2596	0.2595	0.2589	0.2589	0.2586	0.2583
18	2760K	0.2599	0.2595	0.2597	0.2594	0.2595	0.2594	0.2588	0.2589	0.2585	0.2582
19	2751K	0.2603	0.2598	0.2599	0.2598	0.2598	0.2597	0.2592	0.2592	0.2587	0.2583
20	2785K	0.2583	0.2578	0.2580	0.2578	0.2579	0.2578	0.2572	0.2573	0.2570	0.2565

CIE 1976 v' data for tested units
$T_s = T_{air}$ = 105°C, I_f = 60mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2765K	0.5254	0.5255	0.5247	0.5244	0.5241	0.5239	0.5240	0.5235	0.5234	0.5232
2	2767K	0.5264	0.5264	0.5256	0.5254	0.5250	0.5248	0.5248	0.5244	0.5242	0.5241
3	2777K	0.5246	0.5246	0.5238	0.5236	0.5233	0.5231	0.5229	0.5226	0.5225	0.5223
4	2757K	0.5257	0.5257	0.5249	0.5247	0.5245	0.5242	0.5242	0.5238	0.5236	0.5235
5	2736K	0.5265	0.5265	0.5257	0.5255	0.5252	0.5250	0.5249	0.5246	0.5242	0.5240
6	2739K	0.5259	0.5260	0.5250	0.5248	0.5245	0.5243	0.5242	0.5239	0.5238	0.5236
7	2795K	0.5250	0.5250	0.5242	0.5240	0.5237	0.5235	0.5234	0.5230	0.5227	0.5226
8	2766K	0.5242	0.5243	0.5234	0.5232	0.5229	0.5227	0.5226	0.5223	0.5221	0.5219
9	2769K	0.5269	0.5269	0.5261	0.5258	0.5256	0.5253	0.5253	0.5249	0.5250	0.5247
10	2745K	0.5264	0.5265	0.5257	0.5254	0.5252	0.5250	0.5249	0.5246	0.5244	0.5242
11	2745K	0.5264	0.5264	0.5257	0.5254	0.5252	0.5249	0.5248	0.5245	0.5243	0.5242
12	2744K	0.5263	0.5263	0.5256	0.5253	0.5251	0.5249	0.5248	0.5245	0.5244	0.5242
13	2749K	0.5265	0.5266	0.5257	0.5255	0.5253	0.5250	0.5250	0.5246	0.5245	0.5243
14	2764K	0.5255	0.5255	0.5248	0.5244	0.5242	0.5240	0.5240	0.5236	0.5235	0.5231
15	2754K	0.5254	0.5255	0.5247	0.5245	0.5242	0.5239	0.5239	0.5236	0.5235	0.5231
16	2770K	0.5257	0.5257	0.5249	0.5247	0.5244	0.5243	0.5241	0.5238	0.5238	0.5234
17	2762K	0.5250	0.5249	0.5242	0.5239	0.5236	0.5235	0.5234	0.5230	0.5231	0.5227
18	2760K	0.5260	0.5260	0.5252	0.5250	0.5247	0.5245	0.5244	0.5241	0.5241	0.5238
19	2751K	0.5261	0.5260	0.5252	0.5250	0.5247	0.5245	0.5244	0.5241	0.5240	0.5237
20	2785K	0.5281	0.5281	0.5274	0.5271	0.5268	0.5267	0.5266	0.5263	0.5263	0.5260

Delta u'v' data for tested units

$T_s = T_{air}$ = 105°C, I_f = 60mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2765K	0.0000	0.0003	0.0008	0.0012	0.0014	0.0016	0.0018	0.0022	0.0026	0.0028
2	2767K	0.0000	0.0003	0.0008	0.0011	0.0015	0.0017	0.0019	0.0023	0.0028	0.0030
3	2777K	0.0000	0.0003	0.0009	0.0011	0.0014	0.0016	0.0021	0.0023	0.0026	0.0029
4	2757K	0.0000	0.0002	0.0008	0.0011	0.0013	0.0016	0.0018	0.0022	0.0027	0.0028
5	2736K	0.0000	0.0003	0.0008	0.0011	0.0014	0.0016	0.0019	0.0021	0.0029	0.0031
6	2739K	0.0000	0.0003	0.0009	0.0012	0.0015	0.0017	0.0021	0.0023	0.0027	0.0030
7	2795K	0.0000	0.0003	0.0008	0.0011	0.0013	0.0016	0.0019	0.0022	0.0028	0.0030
8	2766K	0.0000	0.0003	0.0009	0.0011	0.0014	0.0016	0.0019	0.0021	0.0027	0.0030
9	2769K	0.0000	0.0003	0.0009	0.0013	0.0014	0.0017	0.0020	0.0023	0.0024	0.0028
10	2745K	0.0000	0.0003	0.0007	0.0011	0.0013	0.0015	0.0019	0.0021	0.0026	0.0029
11	2745K	0.0000	0.0004	0.0008	0.0011	0.0013	0.0016	0.0019	0.0022	0.0026	0.0027
12	2744K	0.0000	0.0005	0.0008	0.0011	0.0013	0.0015	0.0019	0.0021	0.0023	0.0028
13	2749K	0.0000	0.0003	0.0009	0.0011	0.0013	0.0016	0.0019	0.0022	0.0026	0.0029
14	2764K	0.0000	0.0005	0.0008	0.0012	0.0014	0.0016	0.0019	0.0022	0.0027	0.0033
15	2754K	0.0000	0.0004	0.0008	0.0010	0.0013	0.0016	0.0019	0.0021	0.0025	0.0030
16	2770K	0.0000	0.0003	0.0009	0.0011	0.0014	0.0015	0.0019	0.0021	0.0023	0.0028
17	2762K	0.0000	0.0004	0.0008	0.0012	0.0015	0.0016	0.0019	0.0023	0.0024	0.0029
18	2760K	0.0000	0.0004	0.0008	0.0011	0.0014	0.0016	0.0019	0.0021	0.0024	0.0028
19	2751K	0.0000	0.0005	0.0010	0.0012	0.0015	0.0017	0.0020	0.0023	0.0026	0.0031
20	2785K	0.0000	0.0005	0.0008	0.0011	0.0014	0.0015	0.0019	0.0021	0.0022	0.0028

Forward Voltage [V] data for tested units

$T_s = T_{air}$ = 105°C, I_f = 60mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2765K	22.350	22.390	22.350	22.360	22.350	22.360	22.340	22.370	22.370	22.360
2	2767K	22.350	22.390	22.350	22.380	22.350	22.360	22.340	22.370	22.390	22.390
3	2777K	22.470	22.510	22.480	22.490	22.470	22.480	22.460	22.500	22.500	22.490
4	2757K	22.290	22.330	22.290	22.300	22.290	22.300	22.280	22.310	22.320	22.320
5	2736K	22.410	22.450	22.410	22.420	22.410	22.420	22.400	22.430	22.430	22.420
6	2739K	22.400	22.450	22.400	22.410	22.400	22.410	22.400	22.420	22.430	22.420
7	2795K	22.350	22.390	22.340	22.360	22.340	22.350	22.330	22.370	22.360	22.350
8	2766K	22.290	22.330	22.290	22.290	22.280	22.300	22.280	22.310	22.320	22.320
9	2769K	22.330	22.380	22.330	22.340	22.330	22.340	22.330	22.350	22.330	22.330
10	2745K	22.510	22.540	22.510	22.520	22.500	22.510	22.500	22.530	22.550	22.550
11	2745K	22.620	22.660	22.620	22.710	22.620	22.620	22.610	22.650	22.660	22.540
12	2744K	22.520	22.550	22.520	22.530	22.520	22.520	22.510	22.540	22.540	22.540
13	2749K	22.430	22.470	22.430	22.440	22.440	22.440	22.430	22.450	22.470	22.460
14	2764K	22.350	22.390	22.350	22.350	22.350	22.360	22.350	22.370	22.350	22.350
15	2754K	22.360	22.400	22.360	22.370	22.360	22.370	22.360	22.390	22.410	22.400
16	2770K	22.560	22.590	22.550	22.580	22.550	22.570	22.540	22.580	22.580	22.570
17	2762K	22.390	22.410	22.370	22.390	22.380	22.390	22.370	22.400	22.410	22.400
18	2760K	22.330	22.360	22.320	22.330	22.320	22.340	22.320	22.350	22.360	22.350
19	2751K	22.480	22.510	22.470	22.480	22.470	22.480	22.470	22.500	22.510	22.490
20	2785K	22.430	22.460	22.430	22.450	22.430	22.440	22.430	22.460	22.460	22.440

Luminous Flux [lm] data for tested units

$T_s = T_{air}$ = 85°C, I_f = 100mA; $T_s \geq$ 83°C and $T_{air} \geq$ 80°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2783K	401.200	402.100	401.300	400.200	398.800	398.100	397.400	397.200	396.100	394.900
2	2775K	419.400	419.800	419.000	418.100	417.500	416.300	415.100	414.300	412.400	411.200
3	2786K	425.900	426.400	426.200	425.100	424.700	423.400	422.000	421.000	419.700	418.400
4	2776K	417.100	418.300	417.800	416.800	415.500	414.500	414.100	413.500	412.000	410.600
5	2762K	414.900	415.400	414.700	413.500	412.700	411.900	410.900	410.200	409.800	408.900
6	2763K	418.000	419.200	418.800	417.300	416.700	415.200	414.000	413.000	411.900	410.500
7	2783K	419.800	420.700	420.500	419.500	418.700	417.800	416.900	415.900	415.000	413.800
8	2768K	419.000	420.000	419.300	418.700	418.300	416.700	416.100	415.200	414.500	412.900
9	2770K	419.500	420.400	419.300	418.200	417.000	416.000	415.000	414.100	412.700	411.400
10	2775K	414.300	415.200	414.000	413.000	411.600	410.700	409.600	408.100	407.700	406.600
11	2786K	411.200	412.100	411.300	410.000	408.800	408.000	407.000	406.500	405.800	404.800
12	2786K	416.400	417.500	416.000	414.800	413.400	412.800	411.800	411.100	410.200	408.900
13	2791K	427.700	428.400	426.900	426.300	424.500	423.800	422.700	422.100	420.900	420.000
14	2766K	422.600	423.400	423.000	422.500	421.300	420.100	418.100	416.800	415.300	413.900
15	2800K	412.900	414.100	412.600	411.400	410.500	410.100	408.500	407.100	406.400	405.200
16	2764K	422.100	422.900	422.700	421.200	420.900	419.700	418.400	417.100	415.700	414.200
17	2781K	424.800	425.500	424.300	423.400	422.400	421.800	421.000	420.000	418.900	417.600
18	2769K	415.000	416.100	414.600	413.500	412.900	412.000	410.900	410.700	409.900	408.400
19	2785K	414.400	414.600	413.100	412.600	410.900	410.300	409.500	408.800	408.000	407.400
20	2798K	419.300	420.600	419.400	418.900	417.900	416.600	415.500	414.500	413.400	412.000

Normalized Luminous Flux data for tested units

$T_s = T_{air}$ = 85°C, I_f = 100mA; $T_s \geq$ 83°C and $T_{air} \geq$ 80°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2783K	1.0000	1.0022	1.0002	0.9975	0.9940	0.9923	0.9905	0.9900	0.9873	0.9843
2	2775K	1.0000	1.0010	0.9990	0.9969	0.9955	0.9926	0.9897	0.9878	0.9833	0.9804
3	2786K	1.0000	1.0012	1.0007	0.9981	0.9972	0.9941	0.9908	0.9885	0.9854	0.9824
4	2776K	1.0000	1.0029	1.0017	0.9993	0.9962	0.9938	0.9928	0.9914	0.9878	0.9844
5	2762K	1.0000	1.0012	0.9995	0.9966	0.9947	0.9928	0.9904	0.9887	0.9877	0.9855
6	2763K	1.0000	1.0029	1.0019	0.9983	0.9969	0.9933	0.9904	0.9880	0.9854	0.9821
7	2783K	1.0000	1.0021	1.0017	0.9993	0.9974	0.9952	0.9931	0.9907	0.9886	0.9857
8	2768K	1.0000	1.0024	1.0007	0.9993	0.9983	0.9945	0.9931	0.9909	0.9893	0.9854
9	2770K	1.0000	1.0021	0.9995	0.9969	0.9940	0.9917	0.9893	0.9871	0.9838	0.9807
10	2775K	1.0000	1.0022	0.9993	0.9969	0.9935	0.9913	0.9887	0.9850	0.9841	0.9814
11	2786K	1.0000	1.0022	1.0002	0.9971	0.9942	0.9922	0.9898	0.9886	0.9869	0.9844
12	2786K	1.0000	1.0026	0.9990	0.9962	0.9928	0.9914	0.9890	0.9873	0.9851	0.9820
13	2791K	1.0000	1.0016	0.9981	0.9967	0.9925	0.9909	0.9883	0.9869	0.9841	0.9820
14	2766K	1.0000	1.0019	1.0009	0.9998	0.9969	0.9941	0.9894	0.9863	0.9827	0.9794
15	2800K	1.0000	1.0029	0.9993	0.9964	0.9942	0.9932	0.9893	0.9860	0.9843	0.9814
16	2764K	1.0000	1.0019	1.0014	0.9979	0.9972	0.9943	0.9912	0.9882	0.9848	0.9813
17	2781K	1.0000	1.0016	0.9988	0.9967	0.9944	0.9929	0.9911	0.9887	0.9861	0.9831
18	2769K	1.0000	1.0027	0.9990	0.9964	0.9949	0.9928	0.9901	0.9896	0.9877	0.9841
19	2785K	1.0000	1.0005	0.9969	0.9957	0.9916	0.9901	0.9882	0.9865	0.9846	0.9831
20	2798K	1.0000	1.0031	1.0002	0.9990	0.9967	0.9936	0.9909	0.9886	0.9859	0.9826

CIE 1976 u' data for tested units
$T_s = T_{air}$ = 85°C, I_f = 100mA; $T_s \geq$ 83°C and $T_{air} \geq$ 80°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2783K	0.2583	0.2583	0.2583	0.2581	0.2582	0.2580	0.2573	0.2573	0.2573	0.2570
2	2775K	0.2594	0.2594	0.2594	0.2592	0.2593	0.2591	0.2584	0.2583	0.2583	0.2581
3	2786K	0.2588	0.2588	0.2587	0.2586	0.2587	0.2584	0.2578	0.2577	0.2576	0.2574
4	2776K	0.2593	0.2593	0.2592	0.2590	0.2592	0.2589	0.2583	0.2582	0.2581	0.2578
5	2762K	0.2599	0.2599	0.2598	0.2597	0.2598	0.2595	0.2589	0.2588	0.2589	0.2585
6	2763K	0.2597	0.2596	0.2596	0.2594	0.2595	0.2593	0.2586	0.2586	0.2586	0.2583
7	2783K	0.2590	0.2590	0.2589	0.2587	0.2589	0.2587	0.2579	0.2579	0.2578	0.2575
8	2768K	0.2594	0.2594	0.2593	0.2591	0.2592	0.2590	0.2583	0.2581	0.2582	0.2579
9	2770K	0.2596	0.2596	0.2596	0.2594	0.2595	0.2593	0.2587	0.2585	0.2584	0.2581
10	2775K	0.2592	0.2592	0.2591	0.2589	0.2591	0.2588	0.2581	0.2579	0.2580	0.2577
11	2786K	0.2588	0.2588	0.2587	0.2585	0.2587	0.2584	0.2578	0.2578	0.2577	0.2574
12	2786K	0.2591	0.2591	0.2590	0.2588	0.2590	0.2588	0.2581	0.2581	0.2579	0.2577
13	2791K	0.2586	0.2586	0.2585	0.2583	0.2585	0.2583	0.2576	0.2577	0.2576	0.2573
14	2766K	0.2595	0.2594	0.2593	0.2592	0.2593	0.2591	0.2585	0.2582	0.2581	0.2579
15	2800K	0.2583	0.2583	0.2582	0.2581	0.2582	0.2580	0.2574	0.2574	0.2573	0.2570
16	2764K	0.2598	0.2598	0.2597	0.2596	0.2596	0.2594	0.2588	0.2587	0.2586	0.2584
17	2781K	0.2588	0.2588	0.2587	0.2586	0.2587	0.2585	0.2578	0.2579	0.2578	0.2576
18	2769K	0.2595	0.2594	0.2594	0.2593	0.2593	0.2591	0.2584	0.2585	0.2584	0.2581
19	2785K	0.2588	0.2588	0.2588	0.2585	0.2587	0.2585	0.2578	0.2578	0.2577	0.2575
20	2798K	0.2584	0.2584	0.2583	0.2582	0.2583	0.2580	0.2574	0.2573	0.2572	0.2570

CIE 1976 v' data for tested units
$T_s = T_{air}$ = 85°C, I_f = 100mA; $T_s \geq$ 83°C and $T_{air} \geq$ 80°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2783K	0.5285	0.5286	0.5281	0.5278	0.5274	0.5271	0.5271	0.5267	0.5265	0.5262
2	2775K	0.5251	0.5253	0.5246	0.5243	0.5241	0.5237	0.5237	0.5232	0.5229	0.5227
3	2786K	0.5254	0.5256	0.5249	0.5246	0.5244	0.5240	0.5240	0.5234	0.5232	0.5229
4	2776K	0.5254	0.5255	0.5249	0.5245	0.5244	0.5240	0.5239	0.5234	0.5230	0.5228
5	2762K	0.5256	0.5257	0.5250	0.5248	0.5246	0.5242	0.5241	0.5236	0.5234	0.5231
6	2763K	0.5263	0.5263	0.5258	0.5254	0.5253	0.5249	0.5248	0.5243	0.5240	0.5238
7	2783K	0.5252	0.5253	0.5247	0.5244	0.5243	0.5240	0.5237	0.5232	0.5230	0.5227
8	2768K	0.5266	0.5267	0.5260	0.5257	0.5256	0.5253	0.5251	0.5247	0.5244	0.5241
9	2770K	0.5252	0.5253	0.5247	0.5244	0.5243	0.5239	0.5237	0.5234	0.5230	0.5227
10	2775K	0.5260	0.5261	0.5254	0.5251	0.5249	0.5246	0.5244	0.5240	0.5236	0.5234
11	2786K	0.5255	0.5256	0.5249	0.5246	0.5244	0.5241	0.5239	0.5236	0.5232	0.5230
12	2786K	0.5241	0.5243	0.5237	0.5234	0.5232	0.5229	0.5227	0.5224	0.5220	0.5218
13	2791K	0.5254	0.5255	0.5249	0.5246	0.5244	0.5241	0.5239	0.5236	0.5232	0.5231
14	2766K	0.5265	0.5266	0.5259	0.5257	0.5254	0.5251	0.5250	0.5245	0.5242	0.5241
15	2800K	0.5248	0.5250	0.5243	0.5241	0.5238	0.5236	0.5234	0.5230	0.5227	0.5226
16	2764K	0.5255	0.5257	0.5250	0.5248	0.5245	0.5242	0.5240	0.5236	0.5233	0.5232
17	2781K	0.5265	0.5266	0.5259	0.5257	0.5254	0.5252	0.5250	0.5247	0.5243	0.5242
18	2769K	0.5259	0.5260	0.5254	0.5252	0.5248	0.5246	0.5244	0.5240	0.5237	0.5236
19	2785K	0.5258	0.5259	0.5253	0.5250	0.5248	0.5245	0.5243	0.5240	0.5236	0.5234
20	2798K	0.5249	0.5250	0.5243	0.5241	0.5239	0.5236	0.5234	0.5230	0.5227	0.5226

Delta u'v' data for tested units

$T_s = T_{air}$ = 85°C, I_f = 100mA; $T_s \geq$ 83°C and $T_{air} \geq$ 80°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2783K	0.0000	0.0001	0.0004	0.0007	0.0011	0.0014	0.0017	0.0021	0.0022	0.0026
2	2775K	0.0000	0.0002	0.0005	0.0008	0.0010	0.0014	0.0017	0.0022	0.0025	0.0027
3	2786K	0.0000	0.0002	0.0005	0.0008	0.0010	0.0015	0.0017	0.0023	0.0025	0.0029
4	2776K	0.0000	0.0001	0.0005	0.0009	0.0010	0.0015	0.0018	0.0023	0.0027	0.0030
5	2762K	0.0000	0.0001	0.0006	0.0008	0.0010	0.0015	0.0018	0.0023	0.0024	0.0029
6	2763K	0.0000	0.0001	0.0005	0.0009	0.0010	0.0015	0.0019	0.0023	0.0025	0.0029
7	2783K	0.0000	0.0001	0.0005	0.0009	0.0009	0.0012	0.0019	0.0023	0.0025	0.0029
8	2768K	0.0000	0.0001	0.0006	0.0009	0.0010	0.0014	0.0019	0.0023	0.0025	0.0029
9	2770K	0.0000	0.0001	0.0005	0.0008	0.0009	0.0013	0.0017	0.0021	0.0025	0.0029
10	2775K	0.0000	0.0001	0.0006	0.0009	0.0011	0.0015	0.0019	0.0024	0.0027	0.0030
11	2786K	0.0000	0.0001	0.0006	0.0009	0.0011	0.0015	0.0019	0.0021	0.0025	0.0029
12	2786K	0.0000	0.0002	0.0004	0.0008	0.0009	0.0012	0.0017	0.0020	0.0024	0.0027
13	2791K	0.0000	0.0001	0.0005	0.0009	0.0010	0.0013	0.0018	0.0020	0.0024	0.0026
14	2766K	0.0000	0.0001	0.0006	0.0009	0.0011	0.0015	0.0018	0.0024	0.0027	0.0029
15	2800K	0.0000	0.0002	0.0005	0.0007	0.0010	0.0012	0.0017	0.0020	0.0023	0.0026
16	2764K	0.0000	0.0002	0.0005	0.0007	0.0010	0.0014	0.0018	0.0022	0.0025	0.0027
17	2781K	0.0000	0.0001	0.0006	0.0008	0.0011	0.0013	0.0018	0.0020	0.0024	0.0026
18	2769K	0.0000	0.0001	0.0005	0.0007	0.0011	0.0014	0.0019	0.0021	0.0025	0.0027
19	2785K	0.0000	0.0001	0.0005	0.0009	0.0010	0.0013	0.0018	0.0021	0.0025	0.0027
20	2798K	0.0000	0.0001	0.0006	0.0008	0.0010	0.0014	0.0018	0.0022	0.0025	0.0027

Forward Voltage [V] data for tested units

$T_s = T_{air}$ = 85°C, I_f = 100mA; $T_s \geq$ 83°C and $T_{air} \geq$ 80°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2783K	23.280	23.350	23.300	23.320	23.310	23.310	23.280	23.330	23.320	23.300
2	2775K	23.340	23.390	23.330	23.340	23.330	23.330	23.320	23.350	23.340	23.330
3	2786K	23.350	23.400	23.340	23.350	23.350	23.350	23.330	23.360	23.350	23.340
4	2776K	23.000	23.060	23.000	23.000	23.000	23.000	22.990	23.020	23.010	22.990
5	2762K	23.040	23.090	23.040	23.060	23.040	23.040	23.030	23.050	23.050	23.040
6	2763K	23.200	23.250	23.210	23.200	23.210	23.210	23.200	23.210	23.210	23.200
7	2783K	23.120	23.160	23.120	23.150	23.130	23.130	23.110	23.130	23.130	23.110
8	2768K	23.210	23.250	23.210	23.220	23.220	23.220	23.200	23.220	23.220	23.200
9	2770K	23.160	23.200	23.150	23.200	23.160	23.160	23.150	23.160	23.160	23.150
10	2775K	23.050	23.090	23.040	23.040	23.050	23.050	23.030	23.050	23.050	23.040
11	2786K	23.190	23.230	23.190	23.190	23.190	23.190	23.180	23.200	23.200	23.180
12	2786K	23.140	23.190	23.150	23.140	23.150	23.150	23.140	23.160	23.150	23.140
13	2791K	23.440	23.490	23.440	23.440	23.440	23.450	23.430	23.460	23.450	23.450
14	2766K	23.530	23.580	23.540	23.540	23.530	23.540	23.520	23.540	23.540	23.530
15	2800K	23.050	23.110	23.040	23.080	23.050	23.060	23.040	23.060	23.070	23.050
16	2764K	23.350	23.400	23.340	23.360	23.350	23.350	23.340	23.350	23.360	23.350
17	2781K	23.360	23.410	23.350	23.370	23.350	23.350	23.340	23.360	23.360	23.350
18	2769K	23.150	23.190	23.140	23.160	23.150	23.150	23.130	23.150	23.160	23.140
19	2785K	23.190	23.230	23.190	23.200	23.190	23.190	23.180	23.200	23.200	23.190
20	2798K	23.180	23.230	23.170	23.200	23.180	23.180	23.190	23.190	23.190	23.180

Luminous Flux [lm] data for tested units

$T_s = T_{air}$ = 105°C, I_f = 100mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2773K	415.600	414.800	413.900	413.200	411.500	410.700	409.800	408.800	407.900	406.500
2	2764K	414.700	414.400	412.900	411.600	410.100	409.200	408.000	406.600	405.100	403.300
3	2773K	419.500	419.600	418.400	416.500	415.000	414.500	413.300	411.800	411.100	410.600
4	2765K	421.600	421.200	419.900	418.800	417.700	416.300	414.600	413.300	411.300	409.600
5	2791K	415.100	414.700	413.200	412.000	410.600	409.600	408.600	407.000	405.800	403.900
6	2766K	414.700	414.000	412.900	412.000	410.500	409.600	408.200	406.700	405.900	404.000
7	2780K	420.300	419.800	418.700	417.400	416.300	414.900	413.900	412.700	411.300	409.700
8	2794K	416.200	415.700	415.000	413.900	412.200	411.300	410.800	410.000	408.500	406.900
9	2777K	425.000	424.600	423.400	422.300	421.100	420.100	418.900	417.800	416.200	414.600
10	2783K	418.300	417.500	416.800	415.300	414.300	413.200	412.000	410.900	409.400	408.300
11	2773K	412.500	411.400	410.900	409.500	407.600	406.600	405.500	404.200	403.300	402.200
12	2761K	419.700	419.200	417.900	417.100	415.800	414.200	412.900	411.900	411.300	409.400
13	2777K	414.700	413.600	412.800	411.500	409.900	408.800	407.800	406.600	405.100	403.700
14	2772K	422.600	422.000	420.400	419.400	417.700	416.500	415.800	414.300	412.700	411.600
15	2787K	414.500	413.500	412.300	411.300	410.000	409.400	408.700	407.900	406.400	405.300
16	2783K	418.000	417.000	416.000	415.300	413.700	413.100	412.300	411.700	410.600	409.400
17	2781K	426.700	426.200	424.400	422.900	422.100	420.700	419.600	418.800	417.300	415.700
18	2773K	420.600	420.100	418.700	417.900	417.300	415.900	414.500	414.100	413.200	412.100
19	2787K	417.600	417.100	416.400	415.500	414.600	413.300	412.600	411.300	410.000	408.700
20	2760K	419.600	419.800	418.900	418.000	417.200	416.100	414.900	413.000	411.200	409.800

Normalized Luminous Flux data for tested units

$T_s = T_{air}$ = 105°C, I_f = 100mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2773K	1.0000	0.9981	0.9959	0.9942	0.9901	0.9882	0.9860	0.9836	0.9815	0.9781
2	2764K	1.0000	0.9993	0.9957	0.9925	0.9889	0.9867	0.9838	0.9805	0.9769	0.9725
3	2773K	1.0000	1.0002	0.9974	0.9928	0.9893	0.9881	0.9852	0.9816	0.9800	0.9788
4	2765K	1.0000	0.9991	0.9960	0.9934	0.9907	0.9874	0.9834	0.9803	0.9756	0.9715
5	2791K	1.0000	0.9990	0.9954	0.9925	0.9892	0.9868	0.9843	0.9805	0.9776	0.9730
6	2766K	1.0000	0.9983	0.9957	0.9935	0.9899	0.9877	0.9843	0.9803	0.9788	0.9742
7	2780K	1.0000	0.9988	0.9962	0.9931	0.9905	0.9872	0.9848	0.9819	0.9786	0.9748
8	2794K	1.0000	0.9988	0.9971	0.9945	0.9904	0.9882	0.9870	0.9851	0.9815	0.9777
9	2777K	1.0000	0.9991	0.9962	0.9936	0.9908	0.9885	0.9856	0.9831	0.9793	0.9755
10	2783K	1.0000	0.9981	0.9964	0.9928	0.9904	0.9878	0.9849	0.9823	0.9787	0.9761
11	2773K	1.0000	0.9973	0.9961	0.9927	0.9881	0.9857	0.9830	0.9799	0.9777	0.9750
12	2761K	1.0000	0.9988	0.9957	0.9938	0.9907	0.9869	0.9838	0.9814	0.9800	0.9755
13	2777K	1.0000	0.9973	0.9954	0.9923	0.9884	0.9858	0.9834	0.9805	0.9769	0.9735
14	2772K	1.0000	0.9986	0.9948	0.9924	0.9884	0.9856	0.9839	0.9804	0.9766	0.9740
15	2787K	1.0000	0.9976	0.9947	0.9923	0.9891	0.9877	0.9860	0.9841	0.9805	0.9778
16	2783K	1.0000	0.9976	0.9952	0.9935	0.9897	0.9883	0.9864	0.9849	0.9823	0.9794
17	2781K	1.0000	0.9988	0.9946	0.9911	0.9892	0.9859	0.9834	0.9815	0.9780	0.9742
18	2773K	1.0000	0.9988	0.9955	0.9936	0.9922	0.9888	0.9855	0.9845	0.9824	0.9798
19	2787K	1.0000	0.9988	0.9971	0.9950	0.9928	0.9897	0.9880	0.9849	0.9818	0.9787
20	2760K	1.0000	1.0005	0.9983	0.9962	0.9943	0.9917	0.9888	0.9843	0.9800	0.9766

CIE 1976 u' data for tested units
$T_s = T_{air}$ = 105°C, I_f = 100mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2773K	0.2594	0.2593	0.2592	0.2590	0.2592	0.2589	0.2582	0.2581	0.2579	0.2578
2	2764K	0.2596	0.2596	0.2594	0.2593	0.2595	0.2592	0.2585	0.2584	0.2582	0.2581
3	2773K	0.2595	0.2594	0.2593	0.2592	0.2593	0.2591	0.2584	0.2584	0.2583	0.2579
4	2765K	0.2597	0.2596	0.2596	0.2593	0.2595	0.2592	0.2587	0.2585	0.2584	0.2581
5	2791K	0.2586	0.2586	0.2585	0.2583	0.2584	0.2582	0.2577	0.2574	0.2574	0.2572
6	2766K	0.2597	0.2597	0.2596	0.2594	0.2594	0.2593	0.2587	0.2588	0.2586	0.2583
7	2780K	0.2591	0.2590	0.2589	0.2587	0.2588	0.2586	0.2581	0.2580	0.2578	0.2576
8	2794K	0.2584	0.2582	0.2582	0.2580	0.2581	0.2579	0.2573	0.2573	0.2571	0.2569
9	2777K	0.2589	0.2590	0.2588	0.2587	0.2587	0.2585	0.2579	0.2579	0.2577	0.2575
10	2783K	0.2590	0.2590	0.2589	0.2587	0.2588	0.2586	0.2580	0.2580	0.2578	0.2576
11	2773K	0.2595	0.2595	0.2594	0.2592	0.2592	0.2591	0.2585	0.2586	0.2584	0.2581
12	2761K	0.2598	0.2597	0.2596	0.2594	0.2595	0.2593	0.2587	0.2588	0.2585	0.2583
13	2777K	0.2592	0.2592	0.2590	0.2589	0.2589	0.2587	0.2581	0.2582	0.2580	0.2577
14	2772K	0.2593	0.2593	0.2592	0.2589	0.2591	0.2589	0.2583	0.2584	0.2582	0.2579
15	2787K	0.2588	0.2588	0.2586	0.2584	0.2585	0.2583	0.2578	0.2578	0.2576	0.2573
16	2783K	0.2588	0.2588	0.2587	0.2584	0.2586	0.2583	0.2577	0.2579	0.2577	0.2574
17	2781K	0.2590	0.2589	0.2588	0.2587	0.2588	0.2586	0.2580	0.2581	0.2578	0.2576
18	2773K	0.2595	0.2594	0.2594	0.2591	0.2592	0.2589	0.2583	0.2583	0.2582	0.2578
19	2787K	0.2589	0.2588	0.2588	0.2586	0.2586	0.2584	0.2578	0.2579	0.2577	0.2574
20	2760K	0.2599	0.2598	0.2598	0.2596	0.2597	0.2594	0.2588	0.2588	0.2586	0.2584

CIE 1976 v' data for tested units
$T_s = T_{air}$ = 105°C, I_f = 100mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2773K	0.5254	0.5255	0.5247	0.5245	0.5244	0.5240	0.5239	0.5236	0.5230	0.5230
2	2764K	0.5266	0.5267	0.5259	0.5257	0.5257	0.5252	0.5251	0.5248	0.5242	0.5242
3	2773K	0.5251	0.5253	0.5244	0.5242	0.5239	0.5237	0.5236	0.5233	0.5227	0.5226
4	2765K	0.5259	0.5261	0.5252	0.5249	0.5247	0.5244	0.5244	0.5241	0.5235	0.5233
5	2791K	0.5253	0.5254	0.5246	0.5243	0.5241	0.5238	0.5238	0.5234	0.5229	0.5227
6	2766K	0.5255	0.5256	0.5247	0.5245	0.5241	0.5239	0.5239	0.5236	0.5230	0.5228
7	2780K	0.5254	0.5255	0.5246	0.5244	0.5240	0.5238	0.5238	0.5235	0.5229	0.5227
8	2794K	0.5257	0.5259	0.5250	0.5247	0.5245	0.5243	0.5242	0.5239	0.5233	0.5232
9	2777K	0.5270	0.5272	0.5263	0.5261	0.5258	0.5256	0.5256	0.5252	0.5247	0.5245
10	2783K	0.5251	0.5252	0.5244	0.5241	0.5238	0.5236	0.5235	0.5233	0.5226	0.5225
11	2773K	0.5251	0.5252	0.5243	0.5241	0.5238	0.5236	0.5235	0.5232	0.5227	0.5224
12	2761K	0.5262	0.5262	0.5252	0.5250	0.5247	0.5245	0.5244	0.5241	0.5236	0.5234
13	2777K	0.5256	0.5257	0.5248	0.5245	0.5243	0.5240	0.5240	0.5237	0.5232	0.5230
14	2772K	0.5261	0.5262	0.5253	0.5250	0.5248	0.5245	0.5245	0.5243	0.5237	0.5235
15	2787K	0.5253	0.5255	0.5246	0.5243	0.5240	0.5238	0.5238	0.5235	0.5229	0.5227
16	2783K	0.5262	0.5263	0.5254	0.5251	0.5249	0.5246	0.5246	0.5243	0.5238	0.5235
17	2781K	0.5257	0.5258	0.5249	0.5247	0.5244	0.5242	0.5242	0.5239	0.5233	0.5231
18	2773K	0.5249	0.5251	0.5242	0.5239	0.5236	0.5234	0.5233	0.5230	0.5226	0.5223
19	2787K	0.5249	0.5250	0.5242	0.5239	0.5236	0.5234	0.5233	0.5230	0.5225	0.5222
20	2760K	0.5259	0.5259	0.5251	0.5248	0.5246	0.5244	0.5244	0.5240	0.5235	0.5233

Delta u'v' data for tested units

$T_s = T_{air}$ = 105°C, I_f = 100mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2773K	0.0000	0.0001	0.0007	0.0010	0.0010	0.0015	0.0019	0.0022	0.0028	0.0029
2	2764K	0.0000	0.0001	0.0007	0.0009	0.0009	0.0015	0.0019	0.0022	0.0028	0.0028
3	2773K	0.0000	0.0002	0.0007	0.0009	0.0012	0.0015	0.0019	0.0021	0.0027	0.0030
4	2765K	0.0000	0.0002	0.0007	0.0011	0.0012	0.0016	0.0018	0.0022	0.0027	0.0031
5	2791K	0.0000	0.0001	0.0007	0.0010	0.0012	0.0016	0.0017	0.0022	0.0027	0.0030
6	2766K	0.0000	0.0001	0.0008	0.0010	0.0014	0.0016	0.0019	0.0021	0.0027	0.0030
7	2780K	0.0000	0.0001	0.0008	0.0011	0.0014	0.0017	0.0019	0.0022	0.0028	0.0031
8	2794K	0.0000	0.0003	0.0007	0.0011	0.0012	0.0015	0.0019	0.0021	0.0027	0.0029
9	2777K	0.0000	0.0002	0.0007	0.0009	0.0012	0.0015	0.0017	0.0021	0.0026	0.0029
10	2783K	0.0000	0.0001	0.0007	0.0010	0.0013	0.0016	0.0019	0.0021	0.0028	0.0030
11	2773K	0.0000	0.0001	0.0008	0.0010	0.0013	0.0016	0.0019	0.0021	0.0026	0.0030
12	2761K	0.0000	0.0001	0.0010	0.0013	0.0015	0.0018	0.0021	0.0023	0.0029	0.0032
13	2777K	0.0000	0.0001	0.0008	0.0011	0.0013	0.0017	0.0019	0.0021	0.0027	0.0030
14	2772K	0.0000	0.0001	0.0008	0.0012	0.0013	0.0016	0.0019	0.0020	0.0026	0.0030
15	2787K	0.0000	0.0002	0.0007	0.0011	0.0013	0.0016	0.0018	0.0021	0.0027	0.0030
16	2783K	0.0000	0.0001	0.0008	0.0012	0.0013	0.0017	0.0019	0.0021	0.0026	0.0030
17	2781K	0.0000	0.0001	0.0008	0.0010	0.0013	0.0016	0.0018	0.0020	0.0027	0.0030
18	2773K	0.0000	0.0002	0.0007	0.0011	0.0013	0.0016	0.0020	0.0022	0.0026	0.0031
19	2787K	0.0000	0.0001	0.0007	0.0010	0.0013	0.0016	0.0019	0.0021	0.0027	0.0031
20	2760K	0.0000	0.0001	0.0008	0.0011	0.0013	0.0016	0.0019	0.0022	0.0027	0.0030

Forward Voltage [V] data for tested units

$T_s = T_{air}$ = 105°C, I_f = 100mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-15

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2773K	23.130	23.180	23.140	23.150	23.150	23.150	23.150	23.150	23.150	23.140
2	2764K	23.210	23.260	23.210	23.230	23.220	23.220	23.220	23.230	23.230	23.220
3	2773K	23.410	23.470	23.410	23.420	23.410	23.420	23.410	23.420	23.420	23.410
4	2765K	23.180	23.230	23.170	23.190	23.180	23.180	23.170	23.190	23.190	23.170
5	2791K	23.060	23.110	23.050	23.060	23.060	23.050	23.060	23.060	23.070	23.050
6	2766K	23.120	23.170	23.120	23.130	23.120	23.120	23.130	23.130	23.130	23.120
7	2780K	23.130	23.180	23.130	23.140	23.130	23.130	23.130	23.140	23.140	23.130
8	2794K	23.130	23.190	23.130	23.160	23.130	23.130	23.140	23.140	23.140	23.130
9	2777K	23.360	23.410	23.360	23.370	23.360	23.360	23.360	23.360	23.370	23.360
10	2783K	23.370	23.430	23.370	23.370	23.360	23.380	23.360	23.380	23.380	23.370
11	2773K	23.200	23.250	23.200	23.200	23.200	23.200	23.200	23.200	23.220	23.200
12	2761K	23.190	23.240	23.190	23.190	23.190	23.200	23.190	23.200	23.210	23.200
13	2777K	23.180	23.240	23.180	23.180	23.180	23.180	23.180	23.190	23.200	23.180
14	2772K	23.190	23.240	23.190	23.190	23.190	23.190	23.190	23.200	23.200	23.190
15	2787K	23.220	23.260	23.210	23.210	23.210	23.210	23.210	23.220	23.220	23.210
16	2783K	23.240	23.290	23.230	23.250	23.240	23.240	23.240	23.250	23.250	23.230
17	2781K	23.100	23.140	23.090	23.100	23.100	23.100	23.100	23.110	23.120	23.100
18	2773K	23.260	23.300	23.250	23.250	23.250	23.250	23.250	23.260	23.270	23.250
19	2787K	23.200	23.230	23.190	23.200	23.190	23.190	23.180	23.200	23.210	23.190
20	2760K	23.280	23.320	23.270	23.280	23.280	23.280	23.280	23.290	23.300	23.280

Disclaimer

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Company Information

Lumileds is a leading provider of power LEDs for everyday lighting applications. The company's records for light output, efficacy and thermal management are direct results of the ongoing commitment to advancing solid-state lighting technology and enabling lighting solutions that are more environmentally friendly, help reduce CO2 emissions and reduce the need for power plant expansion. Lumileds LUXEON LEDs are enabling never before possible applications in outdoor lighting, shop lighting, home lighting, digital imaging, display and automotive lighting.

Lumileds is a fully integrated supplier, producing core LED material in all three base colors, (red, green, blue) and white. Lumileds has R & D centers in San Jose, California and in the Netherlands, and production capabilities in San Jose, Singapore and Penang, Malaysia. Founded in 1999, Lumileds is the high flux LED technology leader and is dedicated to bridging the gap between solid-state technology and the lighting world. More information about the company's LUXEON LED products and solid-state lighting technologies can be found at www.lumileds.com.

Appendix: Additional Projected Extrapolations per IESNA TM-21-11

Projected L_{75} extrapolations per IESNA TM-21-11

	If = 60mA	If = 100mA
Ts = 105°C	111,594	100,047
Ts = 85°C	126,121	118,971
Ts = 70°C	150,526	-

Projected L_{80} extrapolations per IESNA TM-21-11

	If = 60mA	If = 100mA
Ts = 105°C	86,786	77,761
Ts = 85°C	98,391	92,747
Ts = 70°C	117,463	-

Projected L_{85} extrapolations per IESNA TM-21-11

	If = 60mA	If = 100mA
Ts = 105°C	63,482	56,826
Ts = 85°C	72,343	68,113
Ts = 70°C	86,404	-

Projected L_{90} extrapolations per IESNA TM-21-11

	If = 60mA	If = 100mA
Ts = 105°C	41,510	37,088
Ts = 85°C	47,783	44,887
Ts = 70°C	57,122	-

Projected L_{95} extrapolations per IESNA TM-21-11

	If = 60mA	If = 100mA
Ts = 105°C	20,727	18,418
Ts = 85°C	24,552	22,917
Ts = 70°C	29,423	-

Projected L_{100} extrapolations per IESNA TM-21-11

	If = 60mA	If = 100mA
Ts = 105°C	0	0
Ts = 85°C	2,037	1,960
Ts = 70°C	2,739	-